



THE UNIVERSITY OF  
BUCKINGHAM

MEDICAL SCHOOL

**MB ChB**

## **Unit Summary: Clinical Pharmacology**

## 1 *Educational Aims of the Unit*

The unit aims to enable students to make progress towards meeting some of the learning outcomes described in Tomorrow's Doctors (2009) relevant to 'The Doctor as a Scholar and Scientist' and 'The Doctor as a Practitioner'. The specific aim is to enable students to develop knowledge of pharmacodynamics and pharmacokinetics that will allow them to develop an understanding of pharmacological options of therapy. The predominantly scientific knowledge gained in this module will be combined with safe prescribing training in CSFC and medical blocks in Phase II to be able to manage pharmacotherapy of patients at an appropriate level.

## 2 *Learning Outcomes From Tomorrow's Doctors (2009)*

### **Outcomes 1: The Doctor as a Scholar and Scientist.**

8. The graduate will be able to apply to medical practice biomedical scientific 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.

### **Outcomes 2: The Doctor as a Practitioner**

17. Prescribe drugs safely, effectively and economically

- a) Establish an accurate drug history, covering both prescribed and other medication.
- b) Plan appropriate drug therapy for common indications, including pain and distress.
- c) Provide a safe and legal prescription
- d) Calculate appropriate drug doses and record the outcome accurately.
- e) Provide patients with appropriate information about their medicines.
- f) Access reliable information about medicines
- g) Detect and report adverse drug reactions
- h) Demonstrate awareness that many patients may use complementary and alternative therapies, and awareness of the existence and range of these therapies, why patients use them, and how this might affect other types of treatment that patients are receiving.

## 3 *Teaching and Learning Strategies*

Principles will be introduced in formal lectures, and learning will be reinforced 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. The scientific foundation in this unit will be built on in CSFC and Phase II to develop a clinical approach to prescribing.

#### 4 Unit Outline/Syllabus

##### **Session 1: Safe Prescribing, the “Student Formulary” and Pharmacovigilance**

Lecture: Safe Prescribing & Medication Errors

Introduction to e-BNF and Role of Pharmacists in Reducing Prescription Error

Pharmacovigilance

##### **Session 2: Pharmacokinetics, Pharmacodynamics and Pharmacogenetics**

Lecture: Pharmacokinetics, Pharmacodynamics, Drug Interactions & Toxicology

Lecture: Pharmacogenetics

##### **Session 3: Endocrine Clinical Pharmacology**

Lecture: Sex Hormones and Hormone Replacement Therapy

Lecture: Corticosteroids

##### **Session 4: Diabetes Clinical Pharmacology and Lipid Metabolism**

Lecture: Insulin and Oral Hypoglycaemics

Lecture: Lipid Metabolism

##### **Session 5: Drugs treating Infection**

Lectures: Antimicrobial agents

Lecture: Antiviral agents

##### **Session 6: Respiratory Clinical Pharmacology and Drugs with Selective Toxicity**

Lecture: Pharmacology of Bronchial Control

##### **Session 7: Clinical Pharmacology of Pain Management**

Lecture: Non-steroidal anti-inflammatory Drugs (NSAIDs)

Lecture: Narcotic Analgesics

##### **Session 8: Drugs treating Cardiac Arrhythmias and Drugs treating the Kidney**

Lecture: Drugs affecting the Heart & Heart Rhythm

Lecture: Diuretics and drugs in kidney failure

##### **Session 9: Drugs treating heart failure and blood pressure**

Lecture: Drugs used in Heart Failure

Lecture: Antihypertensive Therapy

##### **Session 10: Drugs affecting Haemostasis**

Lecture: Anti-platelet/Anti-coagulant Therapy

Lecture: Cancer Chemotherapy

##### **Session 11: Neuro-pharmacology**

Lecture: Drugs used in movement disorders

Lecture: Anti-epileptic Drugs

##### **Session 12: Psycho pharmacology**

Lecture: Drugs used in Psychiatric Disease 1

Lecture: Drugs used in Psychiatric Disease 2

## 5 Secondary Learning Outcomes

In addition to meeting the outcomes described in Tomorrow's Doctors, at the completion of the unit students will be able to:

- Further develop self directed learning skills as applied to Clinical Pharmacology and appreciate that their responsibility to initiate independent and continuous learning.
- Understand the central importance of pharmacokinetics and pharmacodynamics as applied to therapeutics.
- Have insight into how these processes are affected by drug absorption and elimination in healthy people and the way in which they may be modified by specific diseases.
- Understand the pharmacology of therapeutic targets of drug action in the major body systems.
- Be aware of adverse effects and interactions of therapeutic agents prescribed in common clinical situations.
- Identify which drug classes are prescribed commonly, and begin to develop a strong appreciation of the risks and benefits of prescribing as a precursor to their continued learning during the clinical attachments.

## 6 Key Texts and/or Other Learning Materials

- *Pharmacology* by Rang and Dale, 7th edition pub Elsevier
- *Medical Pharmacology at a Glance* by MJ Neal, 7th edition pub Wiley-Blackwell

*Document Version Information*

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