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OVERALL OBJECTIVES

Phase 2
This phase extends over two years and is designed to:

• Continue and expand the generic skills development with emphasis on the patient rather than the person
• Continue and expand the development of clinical skills at the individual (history taking and physical examination) and community (health promotion) level.
• Introduce students to disease processes their epidemiology, aetiology, mechanisms and management.
• Continue and expand the development of invasive clinical skills
• Focus on professional development by exploration of the legal, moral, ethical and economic aspects of safe effective medical practice.
• Promote teamwork through group projects on optional topics- evidence based medicine

There are 4 modules

Module 1:- AETIOLOGY, MECHANISMS, MANAGEMENT OF DISEASE (2)
Module 2:- MEDICINE
Module 3:- SURGERY
Module 4:- EVIDENCE BASED MEDICINE

There is also a lecture series on Medical Ethics, details will be provided at the beginning of the course.

OVERVIEW OF THE THIRD MEDICAL YEAR
The Aetiology, Mechanisms, Management of Disease module continues from Second Year, with materia medica, clinical pharmacology and therapeutics, pathology (including clinical haematology) and microbiology.

The Hospital Attachments module begins with an Introductory 2 days and further develops the Clinical Skills that were covered in the Second Medical Year. This year there is particular emphasis on various aspects of clinical medicine and surgery. Specialist clinical rotations take place in the Third Year.

Every student must complete at least ONE unit from the Evidence Based Medicine Module by the end of the Third Medical Year.
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**ATTACHMENT 3**

**ATTACHMENT 4**

**ATTACHMENT 5**

**ATTACHMENT 6**
This Module continues from the Second Year and students are expected to retain a knowledge of Second Year material in order to understand the course and to perform well in the final examinations.

For convenience and because of the way in which available textbooks are named, we will be referring often to the disciplines of clinical pharmacology and therapeutics (Materia Medica), pathology and microbiology. But you should remember that such a distinction is rather artificial, as is the separation of these disciplines from clinical medicine and surgery. The body operates as a whole in health and disease and the processes of diagnosis and treatment either by pharmacological or other means rely on a rounded understanding of cell biology, organ physiology and the pathological processes that can occur. Understanding these interactions is essential for you to develop a good grasp of clinical practice.

Teaching methods
The module includes lectures, workshop sessions, tutorials, practical laboratory classes and some additional clinical pathological conferencing (CPC).
DEPARTMENT OF HISTOPATHOLOGY AND MORBID ANATOMY

Information

The Department of Histopathology and Morbid Anatomy is based at three sites:

- Central Pathology Laboratory St. James’s Hospital
- Division of Laboratory Medicine, AMNCH, Tallaght
- Division of Laboratory Medicine, The Coombe Women’s Hospital

Academic teachers and lectures are also based at the following departments:

- Division of Laboratory Medicine, The Rotunda Hospital
- Division of Laboratory Medicine, Our Lady’s Hospital for Sick Children, Crumlin
- Division of Laboratory Medicine, Portlaoise Hospital

The department offers tuition in general and systemic pathology, medical jurisprudence, medical ethics and molecular pathology and tumour biology. It has an active research department with a current compliment of 14 PhD students, 3 MD and 2 MSc candidates. It currently hosts several national and international research consortia and is a European genome reference centre for several biotechnology companies.

The Dept of Histopathology at St. James’s Hospital is the only accredited MRCPath examination centre in the Republic of Ireland for postgraduate examinations in Histopathology.

Teaching staff

Prof. John O’Leary. [Chair of Pathology]
Prof. Eoin Gaffney.
Prof. Sean O’Briain.
Prof Orla Sheils.
Dr. Mairead Griffin.
Dr. Siobhan Nicholson.
Dr. Maureen McMenamin.
Dr. Paul Crotty.
Dr. Niall Swann.
Dr. Barbara Loftus.
Dr. John Gillan.
Dr. Francesca Brett.
Dr. Michael McDermott.
Dr. Barbara Dunne.
Dr. Cian Muldoon.
Dr. Ciara Barrett.
Dr. Cynthia Heffron.
Dr. Cara Martin.

Visiting Lecturers: Prof. Peter Humphries.
Dept. of Genetics, TCD.

The departmental senior executive office is Ms Cynthia Mayappen Tel: 896 3296
Pathology is the scientific study of disease. As such, it is concerned with the causes and mechanisms of disease, and with the functional and structural changes which result. This knowledge forms the basis for understanding the clinical manifestations of disease and for the development of therapies. Many of the techniques used in the study of disease are used in the laboratory investigation and diagnosis of patients. Pathology forms a bridge between the basic sciences and clinical medicine and its practice is intimately connected with patient care.

The medical undergraduate pathology course is divided into general pathology and systematic pathology. General pathology deals with the basic causes, mechanisms and appearances of disease. It is taught in year 2 and is essential for the understanding of the next part of the course, which is – Systematic pathology, dealing with the diseases which characteristically affect the different organ systems of the body. This is taught in the new year 3 of the medical undergraduate curriculum. It is the foundation for the practice of clinical medicine.

The course has undergone significant vertical and horizontal integration with other disciplines such as Microbiology, Pharmacology, Immunology and Haematology.

Teaching is by formal lectures, small group tutorials and problem based ‘virtual patient’ sessions with full ICT access. Teaching notices are usually communicated by e-mail circulation from Ms Freeman’s office.

Additional web-based resources are available on the Histopathology portal [see above] and include Web Path and Virtual slide box: which can be used as supplementary material to complement lectures, small group tutorials and ‘virtual patient’ based sessions.
Core curriculum in systemic pathology

The course is constructed so as to follow the main anatomical and physiological systems of the human body. Lecture schedules allow full integration with clinical microbiology, haematology and pharmacology in order to achieve a fully integrated curriculum.

Learning objectives:

1. To gain a full understanding of the systematic basis of disease
2. To integrate individual systems biology knowledge in Pathology
3. To integrate systemic Pathology with Clinical Microbiology and Clinical Pharmacology
4. To use the information gained in systemic Pathology fully in clinical medicine and surgery

Cardiovascular System

Cardiac failure – definition and common causes in adults. Pathophysiology and clinicopathological features.

Ischaemic heart disease – coronary artery atherosclerosis.

Angina pectoris. Myocardial infarction, pathogenesis, detailed gross and microscopic appearances including sequence of changes with time. Complications of myocardial infarction. Clinical features and possible outcomes. Laboratory evaluation.

Chronic ischaemic heart disease – morphology and clinical features.

Causes and morphology of sudden cardiac death.

Hypertension – definition, classification and causes.

Pathogenesis of essential hypertension. Effects of hypertension on the heart and blood vessels and the systemic effects.

Valvular heart disease – causes and clinicopathological features of mitral stenosis, mitral incompetence, aortic stenosis, aortic incompetence and tricuspid and pulmonary valve disease. Rheumatic fever and rheumatic heart disease.

Calcific aortic sterosis. Mitral valve prolapse (“floppy” valve).

Infective endocarditis – aetiology, morphology and complications. Clinical features, investigations and principles of treatment and prevention.

Non-infective endocarditis. Prosthetic valves and complications arising therefrom.

Primary myocardial disease – myocarditis and the cardiomyopathies.

Pericardial disease – pericarditis and effusions.

Tumours of the heart.

Congenital heart disease – atrial septal defect, ventricular septal defect, patent ductus arteriosus, coarctation of the aorta, tetralogy of Fallot, transposition of great vessels, congenital anomalies of valves and coronary arteries.

Vascular diseases (other than atherosclerosis) – aneurysms, definition, types and causes, complications and clinical effects. Dissection of the aorta and main branches. Vasculitis.
Miscellaneous disorders: (Monckeberg’s sclerosis, fibromuscular dysplasia, Raynaud’s disease).

Thrombophlebitis, phlebothrombosis and varicose veins.

Superior and inferior vena caval obstruction syndromes.

Lymphangitis and lymphoedema.

Tumours and tumour-like lesions of vessels.

**Respiratory System**


Restrictive lung diseases and acute interstitial lung disease (adult respiratory distress syndrome, drug, toxin and radiation-induced injury) and chronic interstitial lung disease (pneumoconiosis, sarcoidosis, fibrosing alveolitis).


Bronchiectasis – definition, causes, pathogenesis, morphology, clinical features and complications. Collapse of the lung tissue (atelectasis) – resorption, compression, contraction and microatelectasis.


Diseases of the pleura – pleurisy, effusions, fibrosis, pleural plaques, neoplasms.

**Head and Neck Pathology**

Common diseases of the nasal passages, sinuses, middle ear and larynx.

Cysts in the neck.

Common diseases of the mouth, pharynx and salivary glands.
**Alimentary System [including diseases of the oesophagus, stomach, small bowel and large bowel]**

**Oesophagus**
Congenital and mechanical disorders – atresia/fistula, achalasia, webs and benign strictures, diverticula, hiatus hernia, oesophageal varices, Mallory-Weiss syndrome.

Oesophagitis – infective causes, reflux oesophagitis.

**Barrett’s mucosa – metaplasia – dysplasia – carcinoma sequence.**

Carcinoma – geographic variation, aetiology and pathogenesis, morphology including histological types. Spread. Clinical features.

Other tumours.

**Stomach**
Congenital anomalies – pyloric stenosis.

Acute gastritis, erosions and ulceration – causes, morphology and clinical features.


Carcinoma – geographic variation, aetiology, pre-malignant conditions, dysplasia-carcinoma sequence, morphology, including histological types. Spread. Clinical features.

Lymphoma – mucosa – associated lymphoma (MALT).

Other tumours – carcinoid tumour, gastric stromal tumours.

**Intestines [small and large]**
Congenital anomalies – atresia/stenosis, malrotation, duplication, Meckels’ diverticulum, meconium ileus, Hirschprung’s disease.


Diarrhoea – categorisation of causes – secretory, osmotic, exudative, malabsorptive and deranged motility.

Infectious enterocolitis – global importance.

Bacterial infections – general morphological changes, features seen in Escherichia coli, Salmonella, Shigella, cholera, Clostridium difficile (antibiotic – associated colitis) and tuberculosis. Neonatal necrotizing enterocolitis. Viral infections. Parasitic infestations, giardiasis, amoebiasis, cryptosporidiosis.

Chronic inflammatory bowel disease – Crohn’s disease and ulcerative colitis.

Crohn’s disease – morphology, gross and microscopic, complications, aetiology and pathogenesis, clinical features.

Ulcerative colitis – morphology, gross and microscopic, complications, local and systemic, aetiology and pathogenesis, clinical features.

Angiodysplasia.

Diverticulosis – colonic diverticulosis, morphology, complications, aetiological factors and clinical features.

Intestinal obstruction – pathophysiology of small and large intestinal obstruction. Hernias, adhesions, intussusception, volvulus, tumours, strictures and pseudo-obstruction (paralytic ileus, bowel infarction, myopathies/neuropathies).

Intestinal polyps – definition of a polyp, benign epithelial types (adenoma, hyperplastic, inflammatory, hamatomatous) and malignant. Familial polyposis syndromes.

Colonic adenomas – morphology, gross and microscopic appearances, cancer risk related to size, grade of dysplasia, histological type. Clinical features.


Other tumours of small and large intestine including carcinoid tumour and lymphoma.

**Appendix**

Acute appendicitis, aetiology, pathogenesis, morphology, complications.

Tumours – carcinoid, mucinous tumours.

**Anus and anal canal**

Haemorrhoids, warts (condyloma acuminata and human papilloma virus), carcinomas and melanoma.

**Peritoneum**

Peritonitis, effusions, adhesions, neoplasms (primary, secondary and pseudo – myxomatous peritonei).

**Liver, biliary tract and exocrine pancreas**

**Liver and intra-hepatic biliary tree**

Investigation of liver disease – biochemical (bilirubin, enzymes, albumin), haematological (clotting factors), immunological (viral antibodies/antigens, autoantibodies, immunoglobulins), liver biopsy (uses and limitations), imaging techniques.

Jaundice and cholestasis – definition, classification and mechanisms.

Liver failure – acute and chronic failure, causes, morphology, pathophysiology of hepatic encephalopathy and other features of liver failure. Laboratory investigations. Precipitating factors.

Cirrhosis – definition, morphology, pathogenesis, classification. Complications of cirrhosis including portal hypertension and its effects, liver failure and hepatocellular carcinoma.


Chronic hepatitis. Definition and classification according to aetiology. Clinical and laboratory features, histological appearances, grading of activity and staging of fibrosis of liver biopsy. Characteristics of chronic hepatitis due to the different hepatotropic viruses.
The liver in infectious diseases (non-hepatotropic viruses, bacteria, fungi, parasites). Neonatal hepatitis.

Autoimmune hepatitis – clinical, immunological and morphological features. Outcomes.

Drugs, toxins and the liver – outline of the numerous manifestations of drug and toxin induced liver injury. Particular attention to acute cholestasis, cholestatic hepatitis, chronic hepatitis and cirrhosis. Alcoholic liver disease – importance, metabolic disturbances, fatty liver, alcoholic hepatitis and cirrhosis. Pathogenesis of and factors influencing alcoholic liver disease.


Biliary obstruction. Extrahepatic obstruction – causes, effects on the liver, complications.

Intrahepatic obstruction – primary biliary cirrhosis, primary sclerosing cholangitis. Other causes of acquired and congenital bile duct injury.

Circulatory disorders: Occlusion of portal veins, hepatic veins and arteries. The liver in heart failure and shock. Classification and causes of portal hypertension.


The liver in systemic diseases. Liver transplantation and graft versus host disease.

**Gallbladder and extra-hepatic biliary tree**
Diseases of the gall-bladder and extrahepatic bile ducts.

Gall stones – types, aetiology and pathogenesis and risk factors. Clinical features and complications.

Acute cholecystitis – causes, morphology and complications.

Chronic cholecystitis – causes and morphology.

Cholesterosis. Benign strictures of bile ducts.


**Pancreas**
Diseases of the exocrine pancreas.


Kidneys and Urinary Tract

Kidneys
Clinical manifestations of renal disease. The pathology of renal failure.

Glomerular diseases – classification, aetiology, pathogenesis, morphology and clinical cause of the various forms of primary glomerular disease. Chronic glomerulonephritis. The glomeruli in systemic disorders, vascular disorders and hypertension.

Renal infarction. Acute cortical necrosis.

Renal transplantation.

Tubulo-interstitial diseases.


Congenital and cystic disease of the kidney.

Urinary outflow obstruction
Renal stones – pathogenesis, morphology and clinical course.

Hydronephrosis – causes, morphology and clinical course.

Bladder & ureters
Inflammation, obstruction, calculi and congenital lesions.

Neoplasms of the kidney and urinary tract.
Renal cell carcinoma – aetiology, types, morphology, spread, paraneoplastic syndromes, clinical features. Wilm’s tumour. Transitional cell carcinoma of bladder and collecting system. Aetiology, morphology, spread, grading and staging and clinical course of bladder carcinoma.

Male Genital Tract

Prostate Gland
Prostatitis - acute and chronic.

Benign nodular hyperplasia – incidence, aetiology, morphology, complications and clinical features.

Prostate carcinoma – incidence, aetiology, symptomatic & latent forms, morphology, spread, grading and staging. Clinical features, diagnosis and principles of therapy.

Screening for prostatic carcinoma.

Testis
Cryptorchidism, hydrocoele, haematocele, torsion and orchitis.


Epididymis
Cysts, spermatocoele, epididymo – orchitis.
**Penis and Scrotum**
Congenital anomalies, inflammations including sexually transmitted diseases, venereal warts, carcinoma of the penis and scrotum.

Causes of male infertility.

**Female Genital Tract**

**Vulva**

**Vagina**
Vaginitis and neoplasms.

**Uterine Cervix**
Cervicitis. Polyps.
Cervical squamous carcinoma – importance, changing incidence, epidemiology, aetiology and pathogenesis.
Cervical intra-epithelial neoplasia – morphology.
Cytology screening programmes. Clinical course.
Glandular neoplasia of the cervix.

**Uterine corpus [endometrium and myometrium]**
The normal endometrium and menstrual cycle.
Endometritis, endometriosis, adenomyosis and endometrial hyperplasia.
Iatrogenic changes in the endometrium.
Causes of dysfunctional uterine bleeding. Endometrial polyps.
Endometrial carcinoma – importance, epidemiology and pathogenesis, morphology and spread. Clinical course. Endometrial stromal sarcoma and mixed Mullerian tumour.
Leiomyomas of the myometrium – importance, morphology and clinical features.
Leiomyosarcoma.
Diseases of the Fallopian tubes.
Pelvic inflammatory disease.

**Ovaries**
Follicle development. Follicular, luteal and other non-neoplastic cysts.
Polycystic ovary syndrome.
Stromal hyperplasia and luteinization.
Neoplasms – importance and classification. Epithelial neoplasms – sub-classification, benign, borderline and malignant forms.
Morphology, spread and complications. Pathogenesis including genetic susceptibility. Germ cell
tumours, sex cord stromal tumours and metastatic tumours. Clinical features, tumour markers and
therapy of ovarian neoplasms.

Female Infertility
Clinical endocrinology

Pathology of Pregnancy
Placental inflammations and infections.

Pre-eclampsia and eclampsia – placental changes and multi-organ changes. Post partum
haemorrhage.

Pathology of the full term placenta.

Gestational trophoblastic disease – hydatidiform mole, complete and partial, invasive mole,
choriocarcinoma. Epidemiology, morphology and clinical outcomes. Tumour markers.

Pathology of umbilical cord and membranes.

Ectopic pregnancy.

Maternal death.

Diseases of the Breast [male and female]

Development and developmental abnormalities. Structure, cyclical changes, pregnancy and lactation,
involution.

Inflammatory conditions – infections, duct ectasia, fat necrosis.

Proliferative conditions – fibrocystic change, terms, incidence, aetiology and pathogenesis,
morphology, including histological types. Significance of proliferative lesions, especially atypical
hyperplasia.

Benign neoplasms – fibroadenoma, duct papilloma, adenoma.

Malignant neoplasms – Breast carcinoma – importance, risk factors, pathogenesis – genetic, hormonal
and environmental factors. Morphology, macroscopic and microscopic types and appearances.
In-situ and invasive carcinoma. Paget’s disease of the nipple. Spread of breast carcinoma. Prognostic
factors – type, histological grade, stage, hormone receptors, growth kinetics.
The clinical features of breast diseases and their pathological basis.

Diagnostic methods – fine needle aspiration cytology, core biopsy, frozen section, mammography and
ultrasound. Screening for breast cancer.

Diseases of the male breast – gynaecomastia and carcinoma.

Endocrine System

General principles of disease of the endocrine system – hyperfunction, hypofunction, benign and
malignant tumours, interdependence of the glands, multiple involvement by tumours and autoimmune
diseases.
Pituitary

Pineal Gland
Diseases of the pineal gland

Thyroid


Goitre – definition, classification, morphology and causes.

Solitary nodules – investigation including diagnostic imaging and fine-needle aspiration cytology.


Parathyroids
Primary hyperparathyroidism – causes (especially adenoma), morphology of the parathyroids and other organs, molecular pathology and clinical features.

Secondary hyperparathyroidism – causes, morphology, clinical features and tertiary hyperparathyroidism.

Hypoparathyroidism – causes and clinical effects.

Adrenals
Hypercorticolism (Cushing’s syndrome) – causes, morphology, clinical effects and diagnosis. Hyperaldosteronism (Conn’s syndrome) – causes, morphology, clinical effects and diagnosis.

Adrenogenital syndromes.

Adrenal cortical insufficiency (Addison’s disease and Waterhouse – Friderichsen syndrome) – causes, morphology and clinical effects.

Neoplasms of the adrenal cortex.

Neoplasms of the adrenal medulla.

Multiple Endocrine Neoplasia Syndromes.

The Endocrine Pancreas
Diabetes mellitus – importance, classification, pathogenesis, morphology and pathogenesis of complications, clinical features.

Islet cell tumours.
The Lymphoid System

Lymph Nodes

Lymphomas:
Non-Hodgkin’s lymphomas, including extranodal lymphomas – classification, morphology, molecular pathology and prognostic factors.

Spleen
Congenital anomalies.

Thymus
Hyperplasia and thymomas.

Musculoskeletal System

Bones
Bone disease in hyperparathyroidism and renal disease.
Osteomyelitis – aetiology, morphology, clinical features and complications.
Congenital and hereditary conditions.
Bone neoplasms and tumour-like lesions – classification, morphology and principles of diagnosis.

Joints
Osteoarthritis – importance, pathogenesis, morphology and clinical features.
Rheumatoid arthritis – aetiology, pathogenesis, morphology and clinical features including extra-articular manifestations.
Gout and “pseudogout”. Ankylosing spondylitis.
Arthropathies occurring in other diseases.
Degenerative disease of intervertebral discs.
Infective arthritis.
Skeletal muscle
Muscle atrophy, myasthenia gravis, myositis and muscular dystrophies.

Soft tissue
Tumours and tumour-like lesions of soft tissue.

Skin and the integument


Acute inflammatory dermatoses – urticaria, dermatitis and erythema multiforme.

Chronic inflammatory dermatoses – psoriasis and lichen planus.

Bullous diseases – pemphigus, bullous pemphigoid and dermatitis herpetiformis.

Common benign epithelial tumours. Squamous and basal cell carcinoma – aetiology, clinical features and morphology.

Naevi and dysplastic naevi.

Malignant melanoma – environmental and genetic aetiological factors, morphology, staging, spread and clinical features.
Central and Peripheral Nervous System

Central and Peripheral Nervous System

Intracranial space-occupying lesions – causes of diffuse and focal brain swelling. Consequences of raised intracranial pressure.

Central nervous system trauma – missile and non-missile head injury – mechanisms, morphological appearances, clinical features and outcomes. Spinal cord injury.

Cerebrovascular disease – hypoxic/ischaemic damage.
Strokes - infarction, pathogenesis and morphology.
  - in-cranial and subarachnoid haemorrhage – pathogenesis and morphology.

Effects of hypertension.


Congenital malformations and peri-natal brain injury.

Age-related changes in the CNS.


Peripheral nervous system – reaction to injuries, neuropathies and neoplasms.

Suggested textbooks

*****Pathologic Basis of Disease [Robbins and Cotran] 7th edition
ISBN 1416042164 Saunders

****Robbins Basic Pathology 7th edition
ISBN 1416042156

****General and systematic pathology 4th edition [Underwood]
ISBN 0443073341

**Pathology Illustrated, 6th edition [Robin Reid, Fiona Roberts]
ISBN 0443073368 / 9780443073366 Churchill Livingstone

**Master Medicine: Systematic Pathology
A clinically-orientated core text with self assessment [Paul Bass, Susan Burroughs, Claire Way,
ISBN 0443070075 / 9780443070075 Churchill Livingstone

* = star rating [5: highly recommended]
Haematology

Stem Cells /Haemopoietic

Lecture content
The first two lectures will cover the concept of haemopoietic stem cells and stem cell plasticity. Methods of stem cell measurement will be discussed and a DVD will be shown on Stem cell development. The clinical use of stem cell transplantation will be discussed. Normal development of all blood cells will be explained and the development of adult haemoglobin will be covered. Common abnormalities of haemoglobin structure and function will be explained.

Learning outcomes.
On completion of the topic, students should be able to:
- define the characteristics of a stem cell
- describe how they are measured
- outline some clinical applications
- describe the development of all blood cells and state their lifespans
- discuss the basic differences between a quantitative and qualitative disturbance of haemoglobin and the clinical result

Anaemia

Lecture Content
The classification of anaemias as used clinically will be discussed.

Hypochromic anaemias.
The fundamental basis of Iron metabolism will be discussed
Iron requirements and Iron absorption will be covered
Mechanisms of iron deficiency and common clinical causes of iron deficiency will be covered
Diagnostic methods and treatment will be discussed
The differential diagnosis of hypochromic anaemia will be covered
The thalassaemic syndromes will be explained

Learning outcomes
On completion of this topic, students should be able to:
- classify anaemias in patients by FBC results.
- explain how to assess iron status
- explain how to investigate and treat iron deficiency.
- describe how to investigate a patient with a hypochromic anaemia
- recognise thalassaemia
- discuss why patients with thalassaemia die prematurely and how to prolong their life.

Haemoglobinopathies

Lecture content
The lecture will revise the essential differences between quantitative and qualitative disturbances of Haemoglobin metabolism.
Commonly used diagnostic tests will be explained.
Clinical syndromes will be covered.
Principles of management will be discussed.
The social and national health implications of these disorders will be discussed.
Learning Outcomes
On completion of this topic, students should be able to:

- recognise when to suspect a diagnosis of Haemoglobinopathies.
- outline what tests to order.
- describe the principles of management.
- discuss the social impact on the patient, family and health services

Anaemia 2

Lecture Content
Lecture will discuss the pathobiology of Macrocytic anaemias. Particular attention will be paid to Megaloblastic anaemias caused by a deficiency of vitamin B12 or Folate. Aetiology, pathogenesis and management will be discussed.

The concept of Haemolysis will be discussed. Diagnostic criteria and the common clinical features of haemolysis will be covered.

Learning Outcomes
On completion of this topic, students should be able to:

- outline the differential diagnosis of macrocytic anaemia
- explain the different clinical causes and features which differentiate B12 from Folate deficiency
- define the concept of haemolysis and how to confirm a suspected diagnosis.
- describe some clinical disorders associated with haemolysis.

Lymphoproliferative diseases

Lecture Content
The lecture will cover the ontogeny (development) of lymphocytes. The current understanding of the biology of leukaemia will be discussed. The pathobiology of Acute and chronic leukaemias affecting lymphoid cells will be covered. The principles of management and expected outcome will be covered. A broad classification of lymphoproliferative disorders will be given.

Learning Outcomes
On completion of this topic, students should be able to:

- outline the numbers and function of T and B cells in humans.
- describe the basic mechanisms of malignant change in these cells.
- outline the principles of treatment and expected outcome.

Reading
A copy of ‘Cased Based Haematology’ by Prof Shaun McCann will be distributed during the January block.
**Immunology**

**Lecture: Immunity to infection.**

**Learning objectives.**

- The importance of physical barriers to infection
- Role of the innate immune response
- Collaboration between innate and adaptive immune response
- Inflammation, when controlled, helps immunity
- Key importance of specific components – phagocytic cells, complement molecules, immunoglobulins, T cells
- Defects in immune response caused by malnutrition, social disadvantage etc.

**Lecture: Auto-immunity.**

**Learning Objectives**

- Control of the immune response – avoidance of reacting against self-antigens
- Concept of tolerance – central and peripheral tolerance
- Immune regulation – role of regulatory T cells
- Examples of common auto-immune diseases
- Diagnosis of auto-immunity – use of auto-antibody detection
- Treatment of auto-immunity – a range of options available

**Lecture: Immuno-deficiency.**

**Learning Objectives**

- Primary immuno-deficiency – rare genetic disorders
- Secondary immuno-deficiency – common environmental disorders
- How to suspect its presence, importance of early diagnosis
- Tests employed in diagnosis
- Implications of immuno-deficiency: infection, malignancy, auto-immunity
- Specific treatment of immuno-deficiency states.

**Allergy**

**Learning Objectives**

- Very common clinical disorder, frequency increasing
- Cause of asthma, sinusitis, rhinitis
- Important allergens – environmental, foods, drugs
- Central importance of clinical history
- Diagnostic approaches – blood tests, skin prick tests
- Anaphylaxis – diagnosis and treatment
Immunosuppressive drugs

Learning Objectives

- Range of therapies for treating inflammatory disease
- Corticosteroids-types, mode of action, clinical usage
- Azathioprine, Cyclophosphamide, Methotrexate
- Cyclosporin and Tacrolimus
- Biological agents—monoclonal antibodies to TNF, B cells
- Plasma exchange, immunoglobulin infusion
Learning Outcomes:

From the course outlined below, and the microbiology covered in Year 2, the student should have a working knowledge of the meaning of terms used in the world of Microbiology and Infectious Disease.

The student should have a broad knowledge of infection in relation to other disciplines and understand that infectious complications are widespread. A sound knowledge of preventative measures used to combat healthcare associated infections paying particular attention to Standard (or Universal) Precautions.

A good student will read around the subject and be aware of recent developments and threats - national or international.

Tutorials based on cases are aimed at encouraging the student to solve problems and make a diagnosis. Where feasible, the students are expected to read the cases before the tutorial in order to obtain maximal value.

It is expected that the student will have a sound understanding of the aetiology, epidemiology, diagnosis (and differential diagnosis), management and treatment of the different infections covered in the course.

The student should be in a position to:

- Report on the approach to, and methods of diagnosis (laboratory or clinical) of infection or infectious disease.
- Discuss the management of the patient.
- Suggest suitable antimicrobial therapy where appropriate.
- Understand possible complications of, or sequelae to the infections discussed.

Knowledge is not much use without comprehension, so it is expected that students will relate their knowledge to experience gained in the hospital. Students should be free to ask if they do not understand and be sufficiently interested to discuss cases they have seen with members of the Department.
Lecture Content

**Antimicrobial Therapy:** The main classes of antimicrobials defined by structure, mechanism of action, spectrum of activity, host factors, emergence of resistance and clinical use.

**Clinical Aspects of Antimicrobial Therapy:** Each hospital has formulated antimicrobial agents guidelines/policy. Understanding the reasons for this and the application of it are important in the prevention of the emergence of resistance to antimicrobial agents. Illustrated use of antimicrobial guidelines in the clinical setting.

**Infections of the Cardiovascular System:**
- **Infective Endocarditis:** The main infection dealt with is endocarditis. Intravenous drug abuse, heart valve replacement, native versus prosthetic valve infection and nosocomial (hospital acquired) infection. Definition of different types.
- **Myocarditis and Pericarditis:** Clinical features, sequelae, epidemiology and aetiology, diagnosis and management of myocarditis and pericarditis.

**Bacteraemia and Line Associated Infections:** Aetiology and sources of bacteraemia, diagnosis and treatment in bacteraemia. Classification of line-associated infections, aetiology, sequelae, diagnosis, treatment and prevention of line-associated infections.

**Principles of Immunisation:** Rationale of immunisation, epidemiology and clinical impact of vaccination, types of vaccines, indications for vaccination, vaccine schedule and evaluation of vaccine efficacy.

**Infections in the A & E Department:** Typical casualty presentations discussed in relation to acute management, appropriate specimens and types of antibiotic to be considered with regard to infection. Trauma - wounds, animal/human bites, etc. Gangrene, Tetanus, Meningitis.

**Respiratory Tract Infection 1, 2 & 3:** Respiratory Tract infections range from the frequent but brutal 'common cold' to life-threatening, yet rare illness, such as diphtheria. Pneumonias of differing aetiology are the commonest pulmonary infection encountered in hospital practice. New diseases continue to be recognised such as Hantavirus infection and SARS.

- URTI
- Ventilator Associated Pneumonia
- Community Acquired Pneumonia
Health Care Associated Infection 1 & 2:
The risks of infection associated with hospitals, staff and procedures. The organisms isolated. Control of hospital-acquired infection.

Outbreak Control Strategies: Protocols to be followed in the management of Outbreaks illustrated with examples.

Food Poisoning/Foodborne Disease: Classical bacterial food poisoning - the causative organisms - Staphylococcus aureus, Bacillus cereus, Clostridia, Vibrio, Salmonella and Campylobacter and their epidemiology, control measures for food poisoning.

Gastroenteritis: On a global scale one of the most important infectious diseases. There have been huge advances in our understanding of new agents, the mechanisms of disease and management.

Helicobacter pylori: Microbiology, spectrum of clinical infection and sequelae, diagnosis, treatment and prevention of H. pylori infections.

Infections of the CNS 1, 2 and 3: Specifically meningitis and brain abscess are the most important. Pyogenic meningitis has a high morbidity and mortality and illustrates clearly the limitation of antibiotics. New approaches to management are under investigation including vaccination.
- Meningitis and Encephalitis
- Brain Abscess
- Spongiform Encephalopathies

Tuberculosis: Globally there is a resurgence in the incidence of classical Mycobacterium tuberculosis infections. New challenges include the emergence of resistant strains and the increase in atypical mycobacterial infections associated with the immunocompromised host.

Childhood Exanthemata: Viral infections of childhood that cause a rash, Measles, Rubella, Parvovirus B19 (Slapped Cheek Disease) and Roseola infantum (Herpes virus type 6). There have been important changes in understanding and vaccination with Measles and Rubella.

Tropical Diseases 1:
   **Malaria:** Worldwide implications reasons for WHO failure with eradication. Life cycle of parasite - prophylaxis and treatment problems.

Tropical Diseases 2:
   **Trypanosomiasis:** Aetiology, diagnosis and management. Immunological explanation for chronic infection. Leishmaniasis: topical and visceral aetiology, diagnosis and management.

**Hepatitis Viral Infection:** Biliary tract infection is a very common medical problem. Most of the information on Hepatitis A, B, C, D, and E is very recent. The recent media interest in Hepatitis B (Haemophiliacs) and Hepatitis C (mothers who had contaminated anti-D) are examples.

**Herpes Virus Infection:** This family of viruses cause a wide range of infections from the childhood exanthem, chickenpox to serious disease, particularly for immunocompromised patients. Links with tumours such as Burkitt's Lymphoma and cervical cancer are generally established.

**Antiviral chemotherapy:** Principles of antiviral chemotherapy, drug classification and mechanisms of action, types of treatable infections, antiviral resistance.

**Biliary Tract infection and liver abscess.** Classification, pathogenesis, aetiology, diagnosis and management of liver abscesses and biliary tract infections including cholecystitis, cholangitis, amoebic liver abscesses and hydatid disease.

**Surgical Infections.** Clinical features, aetiology, diagnosis and management of infections associated with surgery such as surgical site infections, abscess formation, invasive infection and bacteraemia.

**Urinary Tract Infection:** The aetiology, sequelae and laboratory diagnosis of urinary tract infection.

**Clinical Aspects of Antimicrobial Chemotherapy and Antibiotic Policy:** A more formal approach the treatment of clinical infections due to bacteria.
Infections in Pregnancy:

**Congenital and Perinatal Infections:** The classical observation of Sir Norman Gregg (1941) in Australia who associated the presence of cataracts in children with maternal Rubella in pregnancy was a medical landmark. Now a whole range of agents may be associated with perinatal infections including HIV. These infections pose great diagnostic and therapeutic problems.

**Sexually Transmitted Diseases:** Aetiology, diagnosis and management of infections caused by *Treponema pallidum, Neisseria gonorrhoea* and *Chlamydia*. Other STDs including HIV, Hepatitis B, Chancroid, etc. mentioned briefly. Consider age of patient - normal flora, vaginal pH at different ages.

- Child: Foreign body, sexual assault.
- Reproductive Age: *Candida, Trichomonas*, Bacterial Vaginosis, etc. IUCD - Actinomyces. Pelvic Inflammatory Disease.
- Pregnancy/Post Partum - Puerperal sepsis, etc. Post Menopausal - Pyometrum, etc.

**AIDS-Associated Infections:** HIV infection predisposes patients to a variety of viral bacterial, fungal and protozoal infections. These infections have posed a huge problem in diagnosis, treatment and compliance of the patient.

**Antiretroviral Therapy:** HIV needs no introduction. There is a variety of epidemiological patterns in different populations. There are different strains of the virus. There are various co-factors which effect the natural history. The event of Highly Active Anti-Retroviral Therapy has improved the clinical course however an effective vaccine have still to be developed.

**Bioterrorism:** Potential pathogens and the guidelines/issues pertaining to the management of such potential threats.

**Fever of Unknown Origin:** Aetiology, diagnosis, management of patients with pyrexia of unknown origin. Examples: infective causes such as typhoid fever, brucellosis, tuberculosis, endocarditis; carcinomatosis; connective tissue disorders such as Still’s Disease, SLE.

**Fungal Infection and Antifungal Chemotherapy:** Outline of agents available for topical and systemic infections. Toxicity; Difficulties regarding monitoring of therapy and sensitivity testing.
**Bone, Joint and Muscle Infections:** Strong emphasis on clinical presentation, diagnosis and blind management of such infections depending on age and category of patients i.e. drug addicts. Types of antibiotic to be selected for deep seated infection of bone and muscle.

**Bacterial Skin Infections:** Clinical presentation, classification, aetiology, diagnosis and treatment of localised and invasive skin and soft tissue infections including folliculitis, furunculosis, erysipelas, cellulitis and necrotising fascitis.

**Infections Encountered in General Practice 1:** Typical GP presentations aimed to consolidate material already covered. Sore throat. Vaginal discharge. UTI. Diarrhoea. Superficial skin lesions. Chest infections.

**Ear, Nose and Throat Infections:** Clinical presentation, classification, aetiology, diagnosis, treatment and prevention of various ENT infections including sinusitis, otitis media, otitis externa, mastoiditis, pharyngitis.

**Eye Infections:** Clinical features, aetiology, diagnosis and management of conjunctivitis, keratitis, post-operative endophthalmitis, orbital cellulitis and chlamydial eye infections.

**Infections of the Compromised Host:** Advances in medical technology enabling organ transplantation and improved therapy for oncology patients has facilitated the emergence of opportunistic infections. There is a dramatic increase in previously rare clinical isolates from systemic fungal and protozoan infections. Organisms previously regarded as commensals/saprophytes are now recognised as potential pathogens.
**Clinical Pharmacology**

Head of Department:  Professor John Feely
Course Co-Ordinator/ Lecturer in Therapeutics:  Dr. Jayant Sharma
(Tel: 8962142, Email:)

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**Objectives of Course**

At the end of the course students should

1. have a broad knowledge of the treatment of a wide range of conditions covered in the lecture course
2. be able to prescribe safely and effectively in addition to understanding the practicalities of prescribing in both the hospital and community setting
3. have an appreciation of how to critically appraise information in relation to drug therapy especially in peer-reviewed journals and apply this to the benefit of individual patients.
4. Appreciate where the course complements teaching in Pharmacology (Year 2) and Therapeutics (Year 5) such that the Objectives at the end of this section are achieved.

The course comprises some 54-56 hours of lectures and 8-10 clinical therapeutics tutorials. A small number of students have their clinical medical attachment to the Department of Therapeutics at St. James’s Hospital.

Bedside clinical tutorials in therapeutics in the Michaelmas and Hilary terms are held at St. James’s Hospital provided sufficient staff are available and hospital Tutorial Rooms are accessible with the opportunity to see clinical pharmacology in practice. Through the use of hospital staff – intern, senior house officer and registrars based on the Hospital wards, students have contact with real patients – therapy case histories and the participation of the Clinical Pharmacists fosters inter-professional liaison.

Alternatively small group Seminars using Drug Kardex are organised. It has been the Department’s wish to develop this format of problem-based learning where students asked to review and discuss prescribing (drug Kardex). Students are given an outline of the patient’s condition and are asked to comment on therapy, monitoring of beneficial and toxic effects, dose adjustments depending on the patients clinical conditions and issues of drug interaction, compliance, etc. This approach is reflected in the use of such Kardex in the Viva Voce/Practical examination.

All students will be introduced to the National Medicines Information and National Pharmacoeconomics Centres based at St. James’s to familiarize themselves with the available services.
Learning Outcomes

On completion of individual modules students should be able to recall all commonly used medicines, their use, cautions, contraindications. They should be able, where applicable, to classify in terms of mode of action, metabolism/clearance and distinguishing kinetic characteristics particularly where age, disease states, concomitant therapy may influence drug handling or effect. They should be able to write an appropriate prescription for individual patients calculating where necessary dosage adjustment due to age or disease state. Students are expected to be able to formulate a plan of disease management including an assessment of benefit and risk.

Overall Educational Objectives of Department

The overall strategy is that students should know at the time of graduation

1. Appropriate therapy (including drug dosage) of all common medical emergencies; e.g. anaphylaxis, myocardial infarction, status epilepticus, diabetic coma etc.

2. Appropriate specific and symptomatic treatment of common disorders with particular reference to adjustment of therapy in the light of the patient’s age, concomitant disease, pregnancy, drug therapy etc.

3. Appreciate the contribution of toxicity (drugs, chemicals, plants) and poisoning to patient morbidity and mortality. Important and adverse effects of drug therapy must also be known with the basic principles of managing drug overdose;

4. How to prescribe and in particular appreciate the necessity for cost-effective prescribing;

5. Students should also know how to communicate in relation to therapy both to colleagues and to patients and to appreciate the problems of non-comprehension and non-compliance;

6. How to examine evidence on efficacy and safety of therapy in a critical manner;

7. The basic mechanisms whereby important currently used medicine produce their effects (desired and undesired). An outline of how drugs are developed and the contribution of doctors to this ongoing process will be understood. An appreciation of pharmacokinetics and dynamics will facilitate dosage/drug concentration adjustment and an objective measure of response;

8. The importance of having developed the capacity for self-education and how to keep abreast of progress. It is intended that the understanding of students should progress to the point at which future developments of new and novel drugs and therapeutic techniques be readily assimilated:

9. The legal framework in which they prescribe, the role of allied health professionals, particularly pharmacists and regulatory agencies – The European Medicines Evaluation Agency and the Irish Medicines Board.

10. Students should appreciate their future continuing professional and ethical responsibilities, particularly in the safe and economic use of therapy, the hazards of substance addiction and their obligation in reporting adverse drug reaction and the overall role of the regulatory bodies (personal and patient), Irish Medicines Board, Medical Council etc.
Core Knowledge
- Basic Pharmacology
- Clinical Pharmacokinetics
- Interindividual variation in drug response
- Therapeutic Drug Monitoring
- Adverse Drug Reactions and Drug Interactions
- Medication Errors
- Poisoning
- Prescribing for different patient groups
- Legal aspects of prescribing and Ethics
- New Drug Development
- Medicines Management
- Commonly used drugs
- Common therapeutic problems
- Complementary/alternative medicine

Core Skills
- Drug History taking, Prescription Writing, Drug Administration
- Prescribing in special patient groups
- Adverse drug reactions, interactions and Drug allergy
- Clinical Pharmacokinetics and therapeutic drugs monitoring
- Analysing new evidence, obtain accurate information to inform safe prescribing
- Obtaining informed consent to treatment

Core Attitudes
- Rational approach to prescribing
- Risk-Benefit analysis for individual patients
- Recognising responsibilities of prescriber
- Recognising personal limitations

Responding to future developments – continuing education

SYNOPSIS OF CLINICAL PHARMACOLOGY LECTURE COURSE

Principles and Practice Of Clinical Pharmacology [11 lectures]

1. Pregnancy and lactation
   The underlying principles of drug toxicity and teratogenesis in pregnancy is illustrated by recent literature examples. Consideration is given of the drugs to use and avoid in treating important conditions during different trimesters and in lactation. Again, attention is drawn to information sources and the safe management of common symptoms and conditions in pregnancy. This is followed by a brief consideration of pregnancy induced changes in drug handling.

2. Management of overdose and poisoning
   The overall management of overdose and assessment of such patients is considered with detailed description of the use of antidotes, particularly for paracetamol. The role of activated charcoal, forced diuresis, haemoperfusion etc. is considered. The social and psychiatric aspects of suicide and para suicide are discussed. The function of the National Poisons Information Centre is outlined.

3. Prescribing at extremes of age
   The particular problems in drug handling both for the neonate, premature infant and child is contrasted to that of the elderly. The use and problems of particular drugs and the mechanism underlying the problems are considered. This lecture explores how a knowledge of kinetics/drug elimination may allow one to choose alternates from different therapeutic categories to avoid toxicity. Polypharmacy and its risks and practical issues (child proof containers, aids for elderly etc.) are explored also.

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4. Factors affecting the clinical response to drugs I: Pharmacokinetics and Pharmacogenomics, Cytochrome P-450, 3A4, 2D6, 2C9, Inhibition and Induction.

5. Factors affecting the clinical response to drugs II
Here the important issues of patient compliance and comprehension and patient knowledge of medicines and beliefs is considered together with an approach to educate patients. A synopsis of the important physiological, pathological and genetic factors including ethnic are described with practical application what to do when the patient ‘fails to respond to therapy’ is considered. Placebo and associated ethical issues are considered with emphasis on patient autonomy.

6. Disease Management in Practise
Using hypertension [30% pop] as an example this lecture will show how to choose the appropriate agent from 160 preparations. Age, gender and ethnicity may influence that choice and how decisions are made for individuals, based not alone on blood pressure level but target organ damage and other risk factors. The utility of 24-hour blood pressure monitoring, home blood pressure monitoring and assessment of end organ damage through ECG, arterial stiffness, echocardiogram, microalbuminuria. Influencing patient compliance and patient education through booklets and GP/Hospital interface with an appreciation of how tailored therapy will enhance efficacy while reducing toxicity.

7. Therapeutic Drug Monitoring ADR/Interactions
Pharmacokinetic principles. Anti-epileptic drugs, aminoglycosides, digoxin, theophylline uses and limitations.

8. ADR/Interactions: Medication Errors

9. Pharmaceutical Medicine and Drug Development
Drug development. Role of industry in research and sponsorship. Technological advances and how they have assisted the development of new medicines. Selection of New Chemical Entities. Formulation and route of administration issues. Toxicology testing. Clinical trial programmes, licensing.
Pharmacovigilance/post marketing surveillance-methods and responsibilities.
Advertising and promotion of medicines.

10. Prescribing cost effectively
Here the importance of pharmacoeconomics, methods of assessment - cost-effectiveness/utility, quality of life assessment etc. is introduced. Rational prescribing through the use of generics, formularies and protocols is outlined as are the important influences on prescribers (including patient demands, pharmaceutical representatives etc.) and the hospital/GP interface is discussed.

11. Medicines Information/OTC/Pharmacy
Brief historical background to use of herbal medicines, problems associated with the use of herbal medicines – lack of standardization, contamination, adverse drug reactions, drug interactions. Some commonly used herbal medicines are covered including St. John’s Wort, Ginseng, Ginko Bilboa, Echinacea. Role of Pharmacy and National Medicines Information Centre in healthcare and role of ‘over the counter’ medicines.
CARDIOVASCULAR MEDICINE: [6 lectures]

1. Management of Heart Failure including Acute Pulmonary Oedema
   Principles and problem areas are considered including digitalis are covered such as toxicity, potassium levels, heart failure and the use of digitalis in patients in sinus rhythm. The indications for ACE inhibition and beta-blockade and the risks associated with therapy are discussed and the role of older therapies such as nitrates, hydralazine, nitroprusside are examined in the context of the relevant trial results. The intensive care of the severe heart failure patient is presented with emphasis on the role (and risks) of renal dose dopamine, dobutamine and other inotropes. Anti-arrhythmics, and aminophylline are sometimes indicated in heart failure and this is discussed as in acute left ventricular failure. The uses and abuses of diuretics including spironolactone are considered.

2. Management of Cardiac Arrhythmias and Cardiac Arrest
   The arrhythmias are described in relation to the classes of drug (e.g. Class I) and the specific conditions for which they are indicated e.g. atrial fibrillation, supraventricular/ventricular tachycardia. Drugs for use in individual disorders such as Wolff Parkinson White, Torsade de Pointes, cardiac arrest etc. are presented. The possible risks of certain therapies e.g. flecainide (and its pharmacogenetics) are emphasised. Kinetic issues arise in relation to lignocaine and amiodarone. Cardiac arrest is considered in more detail.

3. Management of Ischaemic Heart Disease, Myocardial Infarction
   The antianginals are discussed with patient selection emphasised. The particular use of aspirin, thrombolysis, converting enzyme inhibition, heparin/warfarin, nitrates, magnesium is discussed. The modern management of acute myocardial infarction is described based on the results of the international mega trials e.g. ISIS I - IV. Controversial therapies and the need for ongoing and future trials are considered.

4. Management of Cardiovascular Risk including PVD/Stroke: Smoking Cessation
   The multi-factorial nature of cardiovascular risk will be discussed to produce a comprehensive primary and secondary preventative programme where the role of diet and exercise will be considered. The use of anti-thrombotic therapy, particularly aspirin and Clopidogrel will be outlined particularly in relation to transient ischaemic attacks and stroke. Thrombolysis will be mentioned in brief. The importance of smoking cessation and the use of nicotine replacement therapy, bupropion and varenicline will be considered.

5. Lipid lowering therapy/obesity
   The critical role of statins in primary and secondary prevention will be considered particularly in the light of the European and US Guidelines. Their pharmacology will be discussed in relation to toxicity, adverse interactions and the use of combined therapy. Atorvastatin, pravastatin, rosuvastatin and simvastatin will be particularly mention. Fibrates particularly fenofibrate, their role in hypertriglyceridaemia will be outlined. The contribution of resins and Ezetimibe will be considered. The place of nicotinic acid and fish oils will also be outlined. In addition to dietary management the place of Rimonabant, Sibutamine and Orlistat will be discussed.

6. Hypertension: Modern Management
   Hypertension is discussed in the context of diagnosis, investigation and appropriate therapy. The importance of end organ damage is outlined and anti-hypertensive therapy tailored accordingly. The six main types of anti-hypertensives are described. The use of β-blockers, calcium antagonists and α blockers, diuretics, ACE inhibitors and AT1 receptor antagonists is discussed in the context of patient selection (smoker, diabetic etc.) is summarised as is to the management of hypertensive emergencies. The need for combined therapy is considered in achieving “good BP control”. European/US/British Guidelines are outlined.
RESPIRATORY MEDICINE: [3 Lectures]
   Role of Oxygen therapy, Respiratory Stimulants, Pulmonary surfactants, Ventillation, Sleep 
   Apnoea, Antitussives, Mucolytics and Expectorants. Dornase alpha in cystic fibrosis. 
   Management of drugs causing bronchoconstriction, pneumonitis, fibrosis etc.

2. Management of Asthma, COAD 
   Prophylactic agents, Bronchodilators, Xanthines, anticholinergic, β₂ agonists, steroids etc. 
   The recent controversies are used to illustrate the need to continuously review one’s practise. 
   Patient instruction, technique, how to assess therapy, home care, devices, cigarette cessation, 
   physiotherapy, steroids, and the management of Status Asthmaticus are discussed and the 
   latter illustrated by presenting current guidelines.

3. Management of Respiratory Tract Infections /TB 
   Includes not alone pneumonia but Viral, bacterial, mycobacterial, fungal and others including 
   pneumocystis. Treatment of complications and management of pneumonia in 
   immunocompromised host are outlined. The particular problems of antituberculous 
   chemotherapy resistance and compliance are emphasised.

GASTROENTEROLOGY: [4 Lectures]
1. Management of Common Gastrointestinal Tract and Symptomatic Treatment 
   Common causes of Vomiting, diarrhoea and constipation are considered in relation to specific 
   and non-specific therapy. The management of Hiatus hernia and irritable bowel syndrome and 
   piles is outlined. The use of medicines in common conditions is described. 
   Vomiting - Antihistamines: promethazine. Phenothiazines: prochlorperazine. Dopamine 
   receptor antagonists: metoclopramide, domperidone. 5-HT antagonists: ondansetron. 
   Constipation and Diarrhoea: Osmotic laxatives, bulking agents, Stimulants: senna, bisacodyl, 
   castor oil. Antimotility: loperamide, diphenoxylate, codeine phosphate, kaolin + morphine and 
   their limited role are described. Antispasmodics: mebeverine, propantheline are described in 
   their context of managing irritable bowel disease.

2. Management of Peptic Ulcer disease, H.pylori infection 
   Management of Peptic Ulcer disease and its complications. The place of Triple therapy is 
   outlined. Specific therapy H₂blockers, Bismuth. Antacids, Proton pump inhibitors (omeprazole), 
   Anticholinergics (pirenzipine), Prostaglandin analogues (misoprostol), Sucralfate is compared. 
   The use of Cytoprotection with NSAIDS and the management of in upper G.I. haemorrhage is 
   considered.

3. Management of Liver Disease; Prescribing in and drug induced disease 
   Treatment of liver disease/alcoholism with encephalopathy 
   (Neomycin, lactulose, coagulation etc.) is described. 
   Drugs contraindicated in liver disease - alternatives to use for common conditions. 
   Drugs causing liver disease are also considered together with pharmacological management of 
   chronic active liver disease and hepatitis (including role of interferon) and of portal hypertension 
   (β-blockers, somatostatin, terlipressin, vasopressin etc) is outlined.

4. Management of Inflammatory Bowel Disease and Treatment of Gallstone/Pancreatic Disease 
   The role of Steroids (local and systemic) Sulphasalazine, olsalazine, mesalazine and fluid 
   replacement is considered. 
   The management of antibiotic induced diarrhoea (pseudomembranous colitis) and common G.I. 
   infections. The management of acute cholecystitis, Gallstones (dissolving agents - 
   chenodeoxycholic acid, ursodeoxycholic acid). Pancreatic supplements and hazards are outlined.
1. Management of Anxiety and Insomnia
The role of commonly used hypnotics and anxiolytics is discussed.
Benzodiazepines, choice of (kinetics, hangover, dependence). The ‘Ativan’ affair,
Melatonin and its role. GABA enhancing agents: chlorpromazine, chloral hydrate,
zopiclone, use of β-blockers are also considered.
Non-pharmacological methods of treatment.

2. Management of Depression and Mania
Lithium and its role in bipolar depression, mania; preparations/kinetics, adverse effects,
interactions and monitoring.
Tricyclics - kinetics, adverse effects, overdose
5-HT-reuptake inhibitors - Prozac society. Expanding indications - obsessive, compulsive
disorders, panic attacks.
Monoamine oxidase inhibitors: nonselective and reversible. Interactions.
Withdrawal of antidepressants.

3. Management of Confusion, Dementia and Acute Psychoses
Drowsiness and Confusion:: as side-effects of drugs.
Hypothermia:: as side-effects of drugs and how to treat
Schizophrenia: Neuroleptics: chlorpromazine, haloperidol, flupentixol, use of clozapine
and newer antipsychotics. Acute and chronic therapy. Tardive dyskinesia. Q-T interval
prolongation. How to minimise and treat.
Management of attention-deficit hyperactivity disorder.
Alzheimers (tacrine and other agents) management of.

4. Management of Parkinson’s Disease
L Dopa - on - off; end of dosage phenomenon. The use of Dopa decarboxylase inhibitors,
Dopamine agonists (bromocryptine, lysuride, pregolide) amantadine, selegiline,
Anticholinergics (benztropine, procyclidine) and their problems. How to combine therapy
and tailor dosage.

5. Management of Epilepsy and Vertigo
Indications for therapy. Driving. Pregnancy. The problems and practise of using Phenytoin,
Carbamazepine, Sodium Valproate, Phenobarbitone, Ethosuxamide, Vigabatrin, Lamotrigine
is discussed as mono or dual therapy for the common forms of epilepsy. Monitoring,
withdrawal of therapy. Status epilepticus and Meniere’s disease (hyoscine, antihistamines,
betahistine).
Management of vertigo/motion sickness.

6. Management of Pain syndromes and migraine
Nature and theory of pain. Use of analgesics and specific therapy.
Migraine: treatment of acute attack and prophlalaxis. Ergotamine, Sumatriptan,
Methysergide, Pizotifen, β-blockers, Tricyclic antidepressants.
Trigeminal Neuralgia: Carbamazepine, Phenytoin. Management of paraesthesia, peripheral
neuropathy, restless legs, ME syndrome etc. Electrical stimulation.

7. Use of Analgesics and Management of Terminal illness
The place of Analgesics: - Aspirin, Opioids: morphine MST and oral, diamorphine,
pethidine, codeine, buprenorphine, fentanyl, dextropropoxyphene, paracetamol, NSAIDS,
compound analgesics. Role of Hospice, home care, infusion pumps, nutrition, skin care,
steroids and sedatives are discussed.
Myasthenia gravis : Use of anticholinesterases: neostigmine, pyridostigmine, physostigmine, edrophonium, surgery.
Multiple Sclerosis: Beta Interferon. Treatment of spasm. Support services.
Motor Neurone Disease: Riluzole. Respiratory and other complications.

9. Anaesthesia , Peri-anaesthetic Drugs and ICU Therapy
Anaesthetic Agents: This covers drugs used in practise (and contra indications and interactions) such as - local anaesthetics : lignocaine, cocaine, bupivacaine. Inhaled General: nitrous Oxide, halothane, isoflurane and enflurane . Injected General: Thiopentone, propofol, ketamine.
Depolarising agents: suxamethonium (succinyl choline)

Management of drug addiction including - alcohol - acute withdrawal and drugs used to support; benzodiazepines, barbiturates, cannabis, amphetamines, LSD/Mescaline/Ecstasy. Cocaine, opioids - use of methadone. Withdrawal programmes. Solvents abuse. Nicotine withdrawal programmes
Use of drugs in sport.
Support services.

RHEUMATOLOGY AND BONE DISEASE: [2 lectures]

1. Management of Rheumatoid Arthritis, Osteoarthritis and Gout
The drugs covered include: NSAIDS and aspirin, steroids (glucocorticoids), methotrexate, azathiaprine, Cyclosporin A, gold, penicillamine, sulphasalazine, colchicine, probenecid, sulphinpyrazone, allopurinol. The acute management and chronic (DMARDS, allopurinol) of both RA and Gout is described. The role of physiotherapy and surgery is emphasised.

2. Bone Disease and Management of Osteoporosis
Management of Parathyroid (hypo-, hyper) disorders.
Rickets/osteomalacia: calciferol
Management of Paget’s Disease: calcitonin, biphosphonates: etidronate, pamidronate.
Acute management of hypercalcaemia.
Management of osteoporosis including prevention (diet, HRT, Vitamin D, fluoride, biphosphonates).

ENDOCRINOLOGY: [4 lectures]

1. Endocrine I: Drug therapy in Pituitary, Hypothalamic and Parathyroid Disorders
Posterior Pituitary: Cranial diabetes insipidus: arginine vasopressin (thiazide)
Somatropin (human growth hormone analogue). Management of acromegaly.
Anterior Pituitary (including gonadorelins -prostatic cancer), Hypothalamus, Adrenals:
Parathyroid, Vitamin D and Calcium.

2. Endocrine II: Drug therapy of thyroid disease
Management of hyper- and hypothyroidism
Drug induced goitre and thyroid disease. Treatment of thyroid crisis and myxoedema coma.
3. Endocrine III: Management of diabetes mellitus
Insulin preparations, how to combine/adjust. Importance of diet. How to monitor progress and prevent complications (cardiac, nephropathy etc.).

4. Endocrine IV: Adrenal
Use and abuse of Corticosteroids: Cushing’s
Addisonian Crisis
Phaeochromocytoma
Hyperaldosteronism.

Nephrology and Genitourinary: [2 lectures]

1. Management of Renal Disease and Drugs and the Kidney
Drug therapy for renal disease - nephritis, nephropathy
Drug induced: Glomerulonephritis, interstitial nephritis, papillary necrosis, urinary tract infection (UTI) including cystitis.
Management of acute (including hyperkalaemia) and chronic renal failure.

2. Drugs and the Kidney/Genito Urinary Problems
Drug therapy for Prostatism: fenesteride, indoramin, Prazosin.
Urinary incontinence: oxybutynin, propantheline, tricyclic antidepressants.
Management of Ureteric colic, renal stones: diclofenac.
Nocturnal enuresis: imipramine (tricyclic antidepressants).
Erectile dysfunction: drugs causing and sildenafil. Papaverine and prostaglandin injections for condition. Management of UTI, (recurrent)
Prescribing in patients with renal disease (drugs and dialysis).

Reproductive Endocrinology/Obstetrics and Gynaecology: [2 lectures]

1. Clinical use of Sex hormones, contraception and HRT
Indications and adverse reactions for the use of sex hormones.
The use of sex hormones for HRT and menstrual regulation.
Type of oral contraceptives and their mechanism of action.
Type of preparations available for clinical use. Other forms of contraception.
Undesirable side effects and precautions for the use of sex hormones.
The use and adverse effects of anti-oestogens and anti-progestogens in clinical practice.
Induction of ovulation
The use of androgens, anti-androgens and anabolic steroids and their side effects.

2. The induction and control of labour and premature labour
The indications for drugs for the induction of ovulation, premenstrual tension and dysfunctional uterine bleeding together with practical aspects and contraindications are discussed. Emphasis is on oxytocin, ergotamine, prostaglandins, gonatrophins and the role of surfactants.
1. Blood: Therapy of anaemias
   The Management of common anaemias including use and hazards of blood and platelet transfusions is discussed.
   Iron (overload and haemochromatosis) B12, Folate, Erythropoietin (uses and hazards). Drugs used in neutropenia, (indications, hazards and their role), Immunoglobulins.

2. Blood: Coagulation and Fibrinolysis
   Anticoagulation: The use of heparin (including low molecular weight) is illustrated by the management of DVT/Pulmonary embolism. The expanding indications for long term warfarin are described with the importance of control, pharmacogenetics, patient education, interactions.
   Antiplatelet agents (aspirin, clopidogrel particularly) and toxicity is described.
   Thrombolysis and the use of Fibrinolytic drugs (streptokinase, aspirin, alteplase etc.) is described and the use of Factors VIII and IX is considered.

3. Nutrition: Oral, Enteral, Parenteral and Vitamin
   Use and abuse (oral nutrition second most expensive therapy in community in Ireland). Fluid and electrolytes (K⁺) and mineral supplements. Drugs and Porphyria.

SPECIAL SENSES AND SKIN: [2 lectures]
1. Treatment of common Ophthalmological & ENT Disorders
   This deals with the drugs used in conditions such as -
   Glaucoma: (beta adrenergic blockers, miotics (pilocarpine, physostigmine) and eye infections, conjunctivitis, corneal including viral.
   Drugs causing side effects such as cataract, corneal deposits and the principles of drug administration to they eye are outlined.
   Treatment of common ENT conditions - infections etc. and use of decongestants, antibiotics is considered. The use of medicines in otitis externa, chronic otitis media and removal of wax is described as are allergic conditions.

2. Management of common dermatological conditions
   Management of eczema, psoriasis, acne, parasitical infestations illustrates the use of different forms of preparations including steroids, antipsorials agents, PUVA, etretinate/isotretinoin, methotrexate and parasitical agents. Emollients, sunscreens, antiperspirants and topical disinfectants are also mentioned.

IMMUNOLOGY AND HYPERSENSITIVITY: CANCER CHEMOTHERAPY: [3 lectures]
1. Immunopharmacology and vaccination
   This covers the use of immunosuppressive drugs in disease and organ transplantation and the management of connective tissue disorders. azothiopyrine: cyclosporin. Place of steroids, interferons and recombinant interleukins is discussed.
   The principles of vaccinations are outlined with common schedules (including foreign travel) and adverse reactions to vaccines and immunoglobulins described.
2. Management of Allergic/Hypersensitivity Conditions
Treatment of conditions include anaphylaxis, drug induced hypersensitivity reactions (Types I-IV), urticaria, angioneuritic oedema, allergic conjunctivitis, rhinitis etc. Drugs covered in this lecture include adrenaline, antihistamines (chlorpheniramine, terfenadine), topical sodium cromoglycate, corticosteroids. The use of antihistamines in nausea and motion sickness is also mentioned.

3. Cancer Chemotherapy
Commonly encountered anti-mitotic regimens are mentioned (with hazards of handling). (Detailed lectures on individual drugs in IIIrd year medical). The overall management of common cancers (lung, small cell, breast-tamoxifen, prostate) is considered to illustrate the role of chemotherapy/hormonal therapy and hazards of same and their management (nausea, marrow suppression (GM-CSF) infection etc.

TREATMENT OF COMMON INFECTIONS, TROPICAL DISEASES AND AIDS: [3 lectures]
(Nota: Other areas covered by Clinical Microbiology)

1. Common infections and antibacterial prophylaxis
The choice and use of therapy in the management of common infections - ENT, respiratory, gastrointestinal, skin etc. are considered with brief reference to important kinetic aspects, reactions/interactions and toxicity of commonly used Antibiotics: Penicillins, Cephalosporins, cephamycins, beta-lactams, Aminoglycosides, Sulphonamides and trimethoprim (current controversy re. septrin), Macrolides, Quinolones, Tetracyclines, Metronidazole, Chloramphenicol, Fusidic Acid, Vancomycin. The use of antimicrobials in surgery and other antibacterial prophylaxis is described. These lectures are complemented by a more detailed consideration of individual drugs in the Microbiology course.

2. Management of Serious Infections including Fungal and Viral
The management (including contacts) of meningitis and endocarditis is described. Treatment of important fungal and viral conditions with antifungal (amphotericin, imidazoles, triazoles, mystatin etc) and Antiviral Agents: Acyclovir, Idoxuridine, Inosine pranobex, Amantadine, Gancyclovir, Foscarnet, Tribavirin is outlined in the same context as 3 above.

3. Sexually transmitted diseases including HIV and management of AIDS
HIV: Pneumocystis prophylaxis: co-trimoxazole, pentamidine. Opportunistic infections. Inhibition of HIV: Zidovudine (AZT) DDI and newer drugs and combined therapy (Concorde) are discussed. The management of common STD (gonorrhoea, syphilis, non specific urethritis), pelvic inflammatory disease and vaginal infections is also described.

Recommended Text Books
- Each student should have one of the following: (later edition if available)
HOSPITAL ATTACHMENTS

OVERVIEW OF MODULE

Attachment to the hospital departments of clinical medicine and surgery occupy four week attachments throughout the scheduled clinical teaching year.

Rosters for each student will involve attachment to clinical teams at AMNCH, St James’s and Naas Hospitals, there may be an additional attachment at Peamount Hospitals. In addition, this module involves regular small-group tutorials which will be arranged by individual tutors within the Hospital Attachment time, plus some formal teaching sessions during the teaching blocks. Assessment of this module is continuous, with periodic examinations and evaluations of clinical competence each contributing towards the final Fifth Year marks in clinical medicine and surgery.

There will also be a Clinical Skills development programme run throughout the year, a detailed description will be provided at the beginning of Michaelmas term.
DEPARTMENT OF CLINICAL MEDICINE

Aims

• To build upon the foundations of the Introductory Course to further develop your clinical skills and to enable you to become confident in the application of these;
• To develop an understanding of the workings of a hospital clinical team including its relationship with other clinical departments and with multiple disciplines, eg nursing, physiotherapy, social work etc.;
• To integrate into the working of clinical teams and to commence the process of clinical apprenticeship;
• To integrate new knowledge and skills with the basic understanding of health and disease achieved during the previous years and during the 3rd medical year;
• To continue and expand the skills of self-directed learning which will be essential for life-time practise of medicine.

Objectives of the Department for Third Year Students

• That the student should learn how an interdisciplinary team functions and should also function within such a team;
• That the student learns how to access knowledge outside of a didactic teaching process;
• That the student should appreciate the range of problems presented to doctors and the range of solutions that have been developed for their recognition, investigation and treatment;
• That the students recognize how disease presents in patients;
• That the students expand skills of communication with patients and colleagues including members of co-operating disciplines;
• That the students expand the skills of history taking, physical examination and documentation of findings;
• That the students acquire the skills of interpretation of findings obtained from the history and examination;
• That the students develop the skills of formulating a management plan for a patient including suggestion as to how patients may be appropriately investigated and treated;
• That the students learn how to interpret investigative laboratory and imaging data in the light of the knowledge of normal applied anatomy and clinical biochemistry.

Duration

There are approximately 7.5 attachments during the year and these are split evenly between Medicine and Surgery in St. James’ Hospital and Tallaght hospital. These attachments will be directed from the School of Medicine office at the beginning of the year.

Course Content

The course in the third medical year is directed towards integration of the clinical sciences and their application through clinical attachments within the hospital. Formal lectures are given by the Departments of Pharmacology & Therapeutics, Microbiology and Pathology during third year and you should endeavour while on the wards to explore the clinical application of these disciplines and their integration into clinical practice

Lectures coordinated by the Departments of Clinical Medicine and Surgery take place according to the attached timetable. Lectures will address the approach to and investigation of particular clinical problems and instruct in the interpretation of results pertaining to those conditions commonly encountered on the wards. The structure of this course has been altered in direct response to feedback from students in recent years, the aim being to supplement what you should be grasping on the wards and the topics being taught in your lectures. It will also provide a framework for self directed study, and exposes you to information, which should make your ward time more fulfilling.

In third year, most of your learning about presentation and management of clinical problems will be in the best possible setting - on the wards - from staff and patient contact. Skills and knowledge are learnt from both tutored and self-directed approaches to clinical patient contact. This represents for the student a major shift in the approach to education. While some students adapt to this rapidly, others may have difficulty in adjusting to a different means of learning.

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Some tips are outlined below, but if you are having significant difficulties, it is important that you contact the Lecturers to discuss these problems.

A reading list with specialist texts is provided in the appendix to help with your self-directed study. You should also avail of the video and software/CD ROM which will soon be available from the library.

Clinical attachments occupy in blocks during the third year, and you should remember that this is your training as an “apprentice” practitioner. You will gather from the stated aims of the third year course that active participation in these attachments is an essential component of your experience in the third year. The following comments should help you to ensure that you get the most out of clinical attachments.

How do I learn?
Invariably, it is those students who take the initiative on the wards who get the most out of the experience. Seeing patients is of primary importance in the fourth year. They are your single most valuable resource and simply by talking to and by examining them, with their consent, you will improve all of your skills. It is also important that you read the relevant literature on a given case, preferably on the same day that you examine the patient. The relevant literature could be a basic textbook, a specialist textbook or a medical journal. It is important that students become adept at using Medline to access reviews and information on more complex cases. If you read the literature you will then have more questions for the team, and you will be surprised how much you can improve your knowledge base in this way. This sort of interaction makes learning more enjoyable and also facilitates the incorporation of the student into the day-to-day working of the team.

Clinical Clerking is one of the most important tasks of your attachments. Students are expected to take part in all activities with their team, including attending specialist activities such as bronchoscopy/GI endoscopy sessions, X ray and histopathology conferences and interdisciplinary meetings and discussions.

Full timetables of the daily activities of each team are updated at the start of each year and are available to students at the time of signing-on for their medical attachments in the Departmental office.
In those hours when the team has no organized activity, it is your responsibility to see and examine patients. You should aim to present your findings, and, as the year progresses, to formulate putative management plans to the clinical team, particularly on the more informal ward rounds with the junior staff. You must present a case each week to the Consultant or Specialist registrar major ward round, and two of these should be entered on your case record card. The patient should be asked for consent to your examination. It is very important that the history and examination should be thorough and include all essential components including CNS examination. Reading from the notes to prepare your presentation is not acceptable and is usually obvious at the time of presentation. The Consultant or Specialist Registrar must assess you on the round with regard to your examination technique and this must be satisfactorily signed off by the Consultant or Specialist Registrar on your Clinical Record Card.

You will also have some additional support in the form of tutorials in clinical skills. Preference is given in this year to the elicitation, recognition and demonstration of important clinical signs and their interpretation rather than more complex management issues. Those tutorials in the latter half of the year will focus more on management of specific problems.

You will be divided into groups for your clinical tutorials and these will be posted on the notice-board at the beginning of the term. You must refer to the notice-board on a regular basis as these tutorials may change according to the availability of the Doctors. As numbers are large in the clinical years you are asked to respect the groupings and NOT to attend tutorials scheduled for the alternate group.

What if I don’t seem to be learning anything?
There are a few reasons for this, and blame does not always lie with the students. If you feel that you are turning up but aren’t sure what you should be doing, there are a few strategies to help you get more out of your time. Remember that the aims of these attachments are for you to learn, and it is your responsibility to make the decisions regarding the best use of your time:

- Ask an approachable member of the team if they will direct you to an interesting patient and listen to you present the case at a suitable time. If you undertake to do this properly, you can learn lots, and by exposing your weaknesses to a team member, you will get hints as to how best to spend your time. If, for some reason a team member is not available to listen to you, present to your clinical partner or a senior student eg the 4th yr student who should critically assess you and vice-versa.

- Ask how you can help as a member of the clinical team. Such help could include performing what may seem to be relatively mundane duties. However, involvement and team membership greatly increase your understanding of the function of the process and inevitably result in greater knowledge transfer

- You should accompany the SHO to casualty and ask to do this when on call. In third year it is not expected that you spend evenings in the hospital when on call.

- When in the OPD, ask if you might see and present a new patient to the consultant.

- First thing each morning, find out if there are any interesting new admissions, and make the effort to take a history and examine them.

- If things are quiet, take some time to go to the library and read further about the cases, which you have seen during the month.

- Make use of the software available in the library to supplement your clinical teaching.

In the third medical year, there is a considerable emphasis on self-directed learning, which places considerable responsibility on the student. However, many people will have difficulties with this educational transition. If you have difficulties, please contact the Lecturers at an early stage.
Assessment in the Third Year
Assessment in the third medical year is continuous. In addition, the Objective Structured Clinical Examination at the end the year will contain material from this course.

Further details will be provided during the Introductory sessions.

Please also note that at the end of each month the consultant to whom you have been attached completes an assessment form grading attendance and ability and adding specific comments. Consultants are more likely to remember you (for better or worse) if your photograph is on your assessment form.

Two Case Based Discussions documents should be completed during each attachment and submitted to the departmental office.

IN ORDER THAT CONSULTANTS CAN ASSESS YOU PROPERLY, PLEASE ENSURE THAT THE DEPARTMENT HAS RECEIVED TWO BLACK AND WHITE PASSPORT-TYPE PHOTOS WITH YOUR NAME, ID NUMBER, TERM ADDRESS AND TELEPHONE NUMBER PRINTED ON THE BACK.

Students must also sign an attendance register in the Departmental Office at which time they will receive full timetables of the daily activities of each team which are updated at the start of each year.

The total marks available for the third year continuous assessment are approximately 10% of the final qualifying examination.

Finally....
You must attend the specialties to which you are assigned unless you have prior permission from Professor Shaun McCann or Dr. Martina Hennessey to attend elsewhere.

If you are having specific problems in this year, you must bring it to the attention of someone who can help. Personal problems are probably best addressed through your college tutor, problems specific to this year or to hospital medicine might be best discussed with your registrar/tutor or with one of the lecturers. Problems must be addressed early so that they can be dealt with promptly and efficiently without too much disruption to your teaching. This can only be done if you speak up early.

READING LIST:
The course textbook remains:
- Kumar and Clark’s CLINICAL MEDICINE (Saunders, 5th Edition August, 2005)

Other reading
- Clinical Examination: A Systematic Guide to Physical Diagnosis by Tally & O’Connor
- Oxford Handbook for Clinical Medicine
- Medicine at a Glance
- Davidson Text Book of Clinical Medicine
- Handbook of Acute Medicine
- BNF
- Pharmacology at a Glance
- Essentials of Clinical Medicine (Saunders pocket, 3rd Edition)
- ECG Made Easy

The reading list for clinical instruction is as found in your Introductory Course manual. Reference texts which provide supplementary information and background reading include:
- Harrison’s Principles and Practices of Medicine
- Scientific American Medicine
Department of Medicine

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Department of Surgery
AMNCH
Welcome to the clinical side of learning that you have all been looking forward to. The following details will give you an overview of the 4th Year surgical rotation programme:

**Where to go:**

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Ward</th>
<th>Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Surgery</td>
<td>Crampton Ward Gogarty Ward</td>
<td>Professor Conlon, Mr. Geraghty, Mr. P. Neary, Mr. O’Riordain, Ms. Jane Rothwell, Mr E Eguare</td>
</tr>
<tr>
<td>Vascular Surgery</td>
<td>Crampton Ward Gogarty Ward</td>
<td>Mr. S. Tierney, Mr. M. Feeley, Ms B Egan</td>
</tr>
<tr>
<td>G.U. Surgery</td>
<td>Lane Ward</td>
<td>Mr. R. Grainger, Mr. R. Flynn, Mr. McDermott, Mr. J. Thornhill, Mr. T. Lynch</td>
</tr>
<tr>
<td>Orthopaedic Surgery</td>
<td>Franks Ward Ormsby Ward</td>
<td>Mr. J. McElwain, Mr. J. Sparkes, Mr. P. Nicholson, Mr. D. Borton, Mr. H. Ali Khan</td>
</tr>
</tbody>
</table>

**General**

Please make sure that you have an AMiNCH security swipe card as you will need access to the various departments within the Hospital. These can be obtained between 2-4pm from the Security Office in the Atrium.

**Weekly Tutorials**

Attached please find your tutorial schedule whilst attached to the Department of Surgery. You will see from the layout that the lectures (i.e. Radiology, Anaesthetics, Mr Kumar Perthiani, and Professor K.C.P. Conlon) are all groups.

**Clinical Skills**

A rota with times of attendance will be given to you when you start your postings.

**SHO weekly tutorials**

Each group should contact the SHO of their relevant service to organize this tutorial. You should receive one tutorial a week.

In addition to the above weekly programmes you should receive ward round teaching and tutorials from the Consultants and SpR’s.

During your attachment it is important to become a member of the team with emphasis on learning the art of history taking and physical examination skills. You should also learn about preoperative, postoperative and overall patient management care.

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**Weekly Lectures Schedule 3rd Year Medical**

*2008/2009*
<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Group</th>
<th>Lecturer</th>
<th>Specialty</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>2:00-2:45</td>
<td>All Groups</td>
<td>Prof. Kevin Conlon</td>
<td>Surgery</td>
<td>Trinity Lecture Theatre</td>
</tr>
<tr>
<td></td>
<td>3:15-4:15</td>
<td>All Groups</td>
<td>Dr. William Torreggiani</td>
<td>Radiology</td>
<td>Radiology Lecture</td>
</tr>
<tr>
<td>Tuesday</td>
<td>2:00-3:00</td>
<td>All Groups</td>
<td>Mr. Haresh Kumar Perthiani</td>
<td>Surgery</td>
<td>Trinity Lecture Theatre</td>
</tr>
<tr>
<td>Wednesday</td>
<td>9:00-11.30</td>
<td>As per surgical skills rota</td>
<td>Ms. Phillippa Marks/Ms Marie Morris</td>
<td>Clinical Skills</td>
<td>Clinical Skills Lab</td>
</tr>
<tr>
<td></td>
<td>11.30-2:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:00-4:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>10:00-11:00</td>
<td>All Groups</td>
<td>Dr. Anne Heffernan Dr. Erik Korba</td>
<td>Anaesthetics</td>
<td>Trinity Lecture Theatre</td>
</tr>
<tr>
<td>Friday</td>
<td>9:00-11.30</td>
<td>As per surgical skills rota</td>
<td>Ms. Phillippa Marks Ms Marie Morris</td>
<td>Clinical Skills</td>
<td>Clinical Skills Lab</td>
</tr>
<tr>
<td></td>
<td>11.30-2:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2:00-4:30</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

** The SHO belonging to each specialty must give each group a single tutorial per week, during their four week attachment.

Venues
- Radiology Tutorial Room:- Located in the X-ray Area.
- Clinical Skills Lab:- Located in the Education Centre, beside locker rooms.
- Trinity Lecture Theatre:- Located behind the Trinity Coffee Shop.
- Education Centre Lecture Theatre Located next to the Education Centre/Trinity centre reception desk
<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Meeting</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>07.30</td>
<td>Trauma Orthopaedic Teaching Session</td>
<td>Orthopaedic Office, Franks Ward</td>
</tr>
<tr>
<td></td>
<td>12.30 p.m.</td>
<td>G.I. Multidisciplinary Meeting</td>
<td>Radiology Conference Rm</td>
</tr>
<tr>
<td>Tuesday</td>
<td>07.00 a.m.</td>
<td>Elective Orthopaedic Teaching Session</td>
<td>Elective Office, Ormsby Ward</td>
</tr>
<tr>
<td></td>
<td>07.45 a.m.</td>
<td>General and Vascular Teaching Session</td>
<td>Dept of Surgery, Crampton Ward</td>
</tr>
<tr>
<td></td>
<td>08.00 a.m.</td>
<td>Urology Meeting (fortnightly)</td>
<td>Radiology Conference Rm</td>
</tr>
<tr>
<td></td>
<td>01.00 p.m.</td>
<td>Hospital Grand Rounds</td>
<td>Post Graduate Centre</td>
</tr>
<tr>
<td>Thursday</td>
<td>07.30 a.m.</td>
<td>Trauma Orthopaedic Teaching Session</td>
<td>Orthopaedic Office, Franks Ward</td>
</tr>
<tr>
<td></td>
<td>08.00 a.m.</td>
<td>Breast Multidisciplinary Meeting</td>
<td>Radiology Conference Rm</td>
</tr>
</tbody>
</table>

Should you have any queries, you are always welcome to drop into the Department of Surgery, Room 1.36, Education Centre (896-3719) or email profsurg@tcd.ie.

**NB:** Please contact Alison at the above number if any tutorials or lectures do not take place.

Continuous Assessment Details

The components are:

1. Ward attendance and assessment sheet signed by Consultants
2. Continuous Progressive Assessment (CPA) - December/January.
Welcome to the clinical side of learning that you have all been looking forward to. The following details will give you an overview of the 3rd Year surgical rotation programme.

Where to go:-

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Consultants</th>
<th>SPR/Registrar/Lecturer</th>
<th>Ward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper GI</td>
<td>Professor Reynolds, K. Kim, Mr. Jabbar, Mr. Ravi</td>
<td></td>
<td>Bennett’s Ward</td>
</tr>
<tr>
<td>Colorectal</td>
<td>Mr. Stephens, Mr. Mehigan, F. Cooke, T. Alhafiz</td>
<td></td>
<td>Dun’s Ward</td>
</tr>
<tr>
<td>Breast and Endocrine</td>
<td>Mr Boyle, Ms. Connolly, M. A. Hammad, M. Babar, J. Garvin</td>
<td></td>
<td>Bennett’s Ward</td>
</tr>
<tr>
<td>Vascular</td>
<td>Mr. Moore, Mr. Madhavan, Mr. O’Neill, A. O’Callaghan, n. Cloete, S. Haider</td>
<td></td>
<td>Dun’s Ward</td>
</tr>
<tr>
<td>Urology (G.U. Surgery)</td>
<td>Mr McDonnell, Mr. Lynch, Mr. Grainger</td>
<td>R. Casey, M. Hamdi, Kamel, O. Raheem</td>
<td>Bennett’s Ward</td>
</tr>
<tr>
<td>Plastics</td>
<td>Mr. Orr, Ms. Eadie, Mr. Hanson, Mr. Beausang, Mr. O’Donavan, Mr. Meagher, Mr. Lawlor, Mr. Murray</td>
<td>E. Fitzgerald, T. Laing, B. O’Sullivan, K. Power</td>
<td>Ann Young Ward</td>
</tr>
<tr>
<td>Cardiothoracic</td>
<td>Ms. McGovern, Mr. Young, Mr. Tolan</td>
<td>A. Soo, R. Aziz, M. Akbar</td>
<td>Keith Shaw Ward</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>Mr. Hogan, Mr. Smyth, Mr. McCarthy, Mr. McKenna, Mr. Hanif</td>
<td>A. Molloy, A. Azhar, M. Ashraf, R. Thakral</td>
<td>Coile’s Ward</td>
</tr>
<tr>
<td>ENT</td>
<td>Professor Timon, Mr. Conlon, Mr. McShane, Mr. Kinsella</td>
<td>P. O’Neill, E. Phelan, D. Fitzgerald</td>
<td>John’s Ward</td>
</tr>
</tbody>
</table>

General
Please make sure that you have a security swipe card, as you will need access to the various departments within the Hospital.

Weekly Tutorials
Attached please find your tutorial schedule whilst attached to the Department of Surgery.

SHO weekly tutorials: Each group should contact the SHO of their relevant service to organise this tutorial. You should receive one tutorial a week.

In addition to the above weekly programmes you should receive ward round teaching and tutorials from the Consultants and SpR’s.

Please remember, whatever speciality you are attached to, your aim is to learn the art of patient contact, history taking and examination skills. You will also learn preoperative preparation, postoperative management principles, and operating theatre protocols.
### WEEKLY LECTURE /SEMINAR SCHEDULE

#### 3rd YEAR SURGERY 2008/2009

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Group</th>
<th>Lecturer</th>
<th>Specialty</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>13:00-14:00</td>
<td>All Groups</td>
<td>TBC</td>
<td>Radiology</td>
<td>RTR</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9:30-10:30</td>
<td>All Groups</td>
<td>Ms. Connolly</td>
<td>Surgery</td>
<td>BTR</td>
</tr>
<tr>
<td>Wednesday</td>
<td>10:00-11:00</td>
<td>All Groups</td>
<td>Mr. Ravi</td>
<td>Surgery</td>
<td>BTR</td>
</tr>
<tr>
<td>Thursday</td>
<td>8:30-9:30</td>
<td>All Groups</td>
<td>Prof. Reynolds</td>
<td>Surgery</td>
<td>BTR</td>
</tr>
<tr>
<td>Friday</td>
<td>8:30-9:30</td>
<td>All Groups</td>
<td>Mr. Jabbar</td>
<td>Surgery</td>
<td>BTR</td>
</tr>
<tr>
<td></td>
<td>10:00-13:00</td>
<td>All Groups</td>
<td>Video Con. from OT</td>
<td>Surgery</td>
<td>BTR</td>
</tr>
<tr>
<td></td>
<td>12:00-13.00</td>
<td>All Groups</td>
<td>Dr. Ryan</td>
<td>Anaesthetics</td>
<td>BTR</td>
</tr>
</tbody>
</table>

The Registrar/SHO belonging to each specialty must give each group a single tutorial per week, during the 4 weeks attachments.

BTR= Bennett Tutorial Room
RTR= Radiology Tutorial Room

### MEETINGS AND CONFERENCES TO ATTEND

- **Tuesday** 8.00 a.m. Breast Conference – Radiology Conference Room (SJH)
- **Wednesday** 7.30 a.m. Surgical Conference, Robert Smith Lecture Theatre, Trinity Centre for Health Sciences.
- **Wednesday** 8.30 a.m. G.I. Radiology conference, Radiology Conference Room (SJH)
- **Thursday** 7.30 a.m. G.I. Oncology conference, Trinity Centre for Health Sciences.
  1.00 p.m. G.I. Histology conference William James MacNeven Lecture room, 1st floor, Trinity Centre.
- **Friday** 8.00 a.m. Grand Rounds, Robert Smith Lecture Theatre, Trinity
CONTINUOUS ASSESSMENT DETAILS

The Components are:

1. Ward attendance & assessment forms signed by the respective Consultants for each of the attachments – these should be submitted to the Secretary in the Department of Surgery, Trinity Centre for Health Sciences, St. James’ Hospital, ideally after each month’s postings are completed.

2. Continuous Progressive Assessment (CPA) - January.

N.B. The total assessment marks from Year 3 are brought forward to constitute 15% of the Final Year marks.

Assessment forms can be collected from the Department of Surgery Office at the Trinity Centre for Health Sciences.

Should you have any queries please contact Siobhan Ryan, Department at 01-896 2189.

**NB: Please contact Siobhan Ryan at the above number if any tutorials or lectures do not take place.
Medline Ethics
Dr Martin Dyar, Dr. Ruth Pilkington, Prof. Des O’Neill
Hilary and Trinity Terms, 2009

Overall Aim
By creating a conversation between the clinician, the medical student, and the ethicist, this course aims to initiate a candid and supportive forum for advanced exploration of ethical issues in clinical practice and medical training.

Overview
Individual clinicians will explore the role medical ethics plays in their own speciality, recounting their experiences of making decisions in ethically challenging situations, but also dealing with the less controversial aspects of medicine that can be said to have an important ethical dimension. In these sessions you will have an opportunity to discuss the specific details of ethical decision making, including contextual concerns such as communication with patients and colleagues, and the development of professional identity.

The ethical dimensions of medical education will be a continuous theme in this course. In recent years it has been acknowledged that clinical attachments have an important formative role for the trainee doctor with regard to future ethical practice and outlook. But the ethical concerns implicit in medical training itself have also been the subject of discussion. Questions have been posed as to whether there is a unique set of principles that can be said to relate to medical training, and whether, at any rate, medical students are inevitably passive bystanders in medical ethics. Possible answers provide stimulating frameworks for reflection on ethical standards in medical training. The idea of a ‘hidden curriculum’ invokes another tension that we are keen to address in this course. This concept relates to the informal ‘osmosis’ learning that takes place in the professional setting, as the subtler terms of professional culture are absorbed by the apprentice. It is important for us to ask whether the concepts and standards aired in ethics lectures seem relevant once the pre-clinical phase of the medicine course is complete. Recent studies have indicated that where the realities of the hospital placement significantly depart from the moral expectations of students, then a risk of ethical erosion, cynicism, and distress, is at issue, in addition to a further potentially negative impact on patient and professional well-being at a later stage.

In light of these concerns, it is important that medical students feel able to transcend the hierarchical structures that typically discourage them from expressing ethical uncertainty in relation to their own role as trainees, and in relation to the standards exhibited by their seniors. This course attempts to respond to that need by identifying important concerns in this area and discussing them openly. Finally, this course places an emphasis on the role of clinical ethics research in the decision-making process. You will write a research paper which will require you to access medical ethics data bases and journals. The title of the course, Medline Ethics, evokes the importance of this opportunity. By beginning to explore the scope of these resources you will come to appreciate the value of the empirical bioethics evidence base, particularly in situations where the ethical aspect of clinical decision-making might seem irreducibly ambiguous. The ethics literature also contains an extensive body of studies and commentary in the area of medical training.
**Delivery**
The course will comprise one large group lecture at the beginning of the year. A series of large group lectures followed by discussion will be held in Trinity Term. Following this, a full day of seminars, discussion groups and feedback sessions, the Medline Ethics day, will take place.

**Assessment**
This course is assessed by written assignment. A research paper will be due for submission early in the Summer. As part of an initiative related to the Swan Bequest, which is a fund for the development of medical ethics that was donated to the School of Medicine at Trinity by the late Jeremy Swan, a medal will be awarded each year to the best essay in the Medline Ethics course.

**Outcomes**
On completion of this course students should:
- Possess an understanding of the primary ethical concerns in a selection of the specialities;
- Be able to present an extensive ethical analysis of a given area in written form, balancing personal reflection, critical commentary, and integration of information from outside sources;
- Be able to conduct a search of ethics literature through an online database, confidently sourcing relevant and related studies, and to critically assess that information, applying it to their existing knowledge base, experience, and to a given ethical concern;
- Understand the field of Medical Humanities, and discuss the idea of its contribution to medical education;
- Have a command of trends in studies of ethical dimensions of medical training, including the idea of ethical erosion, the hidden curriculum, moral distress, consent and medical education, boundaries, global health experiences, the hierarchical nature of medicine, mentoring, integrity, and personal well-being.

**Reading**
*General:*

*Medical Humanities Theory and Commentary:*

*Literary Texts:*


Evidence Based Medicine Year 2008/09

Objectives of the course
During this project students will:-
- Gain experience in searching the scientific literature and resourcing appropriate material.
- Develop a critical approach to material published
- Earn to prioritise aspects of their findings
- Learn how to collate information and deliver a succinct and factual report of their findings
- Learn to present their material to their peers in a structured and meaningful way
- Have an opportunity, to explore in some depth and with guidance, a topic that impacts either scientifically or clinically on the current practice of medicine.
- Understand the importance of teamwork, the problems that arise, and ways in which these can be managed.

How the course works
The main work in this component is carried out by students in groups of 10, working as a team on their own initiative and learning how to handle the dynamics of team work.
Each group of students will meet, on one occasion, with the staff member or a representative of the department, proposing their particular topic. This is an opportunity to discuss, in broad terms, the extent of their literature search, the analysis of the evidence and the quality of the report and presentation expected. Students will then work in the group collecting and analysing information and formulating the report.

Report
When the draft report is complete the supervisor should meet again with the students to advise on any additional work needed to ensure a satisfactory grade.
It would be reasonable to request informal contact from the supervisor if the group needed clarification on any major points.

Presentations
Each group will be required to make a presentation of an accurate summary of their project to the whole class. These presentations will take place on a date in Trinity term 2009, to be confirmed later. Each presentation will take 15 minutes with 10 minutes allowed for questions. The presenter may be randomly selected on the day of the presentation. This means that all group members must be ready to present. The group supervisor or a chosen representative will be required to attend the presentations to ensure the standard of the material delivered.
Students who are absent from the presentation session and who do not supply certification for absence will be deemed unsatisfactory. Where a project is deemed unsatisfactory the department in question will advise the group as to the remedial action necessary.

**Students who fail to achieve a satisfactory grade in the current academic year will be required to complete a new project in the 07/08 academic year.**

**Students will be notified by email to their TCD email account during academic year regarding topics, deadlines and any further information needed to complete Evidence Based Medicine Project**
Behavioural Sciences, Psychology and Psychiatry Applied to Medicine
Monday 23rd March – Friday, 3rd April, 2009

1.1 Aims of the course:

The aims of this course are to introduce students to psychological aspects of health related behavior, and provide an orientation to identifying and assessing mental health difficulties as they present in a general health setting.

1.2 Course overview:

In line with the above goals, the course is structured to help students acquire the basic skills required to:

i) discuss health related information, treatment options, and the need for health related behavioral change,

ii) recognize and assessing a patients’ mental state

iii) respond more effectively to patients who present in emotional distress (the anxious patient, the angry patient etc.).

To this end the course is comprised of the following components:-

a) A didactic lecture series that provides information relevant to the understanding of health related behavior and mental health difficulties (~20 hours).

b) Experiential communication skills training consisting of both computer based virtual interviewing and tutorial based skills learning (~5-7 hours).

c) Case based Reflective practice tutorials that focus on differences in perspective between health professionals, patients and their families (~4 hours).

d) Behavioural and/or self development task that students can select and that will together with their participation in tutorials and practicals contribute to their final year mark in Psychiatry (10% of final mark in psychiatry).

1.3 Lecture Course (~25 hours)

The didactic lecture series covers the following three modules

1. Introduction to course/lecture series

1.3.1 Mental Health Module

2. Mental State Examination
3. Mood and Depression
4. Anxiety Symptoms
5. Psychosis
6. Cognitive Function
7. Alcohol and Substance Misuse
1.3.2 Psychological Medicine module
- The Sick Role and Illness Behaviour
- The influence of Traits & Personality on health behaviour
- Psychological Impact of Cancer and its Treatment
- Understanding Death and Bereavement Process
- Introduction to the assessment of Eating Habits and Body Image
- Impact of chronic illness on families and carers

1.3.3 Psychology of Therapeutic Skills for Medicine
- Teamwork - The role of doctors working in multidisciplinary teams
- Ethical issues in discussing consent with patients
- Self care or self treatment? – looking after yourself as a clinician
- Managing Boundaries with patients
- Breaking Bad News – The impact of terminal diagnoses
- Motivation and treatment adherence
- Shame and stigma – obstacles to treatment
- Working in therapeutic groups

1.4 Communication skills
Communication skills training is designed to follow on from basic communication skills learned in second year. The class will be divided into four groups for individual tutorials/practicals and is comprised of the following two elements:

1.4.1 Experiential Communication skills training
These will follow a format similar to the second year communication skills tutorials and will focus on:
   a) Motivational interviewing
   b) Verbal de-escalation techniques

Motivational interviewing focuses on techniques for helping patients weigh up the pros and cons of health related information as it applies to health related behaviors (stopping smoking, implementing a dieting or exercise program etc.). Verbal de-escalation techniques focus on techniques for responding to patients presenting in emotional distress (e.g. anxiety, angry), which will later be developed as part of the fourth year psychiatry and primary care experiences.

1.4.2 VISIoN LAB practical
In addition to the above tutorials students will also have a chance to access the to VISIoN for Psychiatry (Virtual Interviews for Students Interacting Online). This programme, available through the computer lab at the trinity Centre at St. James’s will enable students learn via an interactive interview skills simulator (along with supporting material) to interview a patient presenting with symptoms of low mood.
1.5 Reflective Practice Tutorials

As a means to integrate the leaning from didactic and experiential aspects of the course students will again be divided into four groups to attend case based seminars. These will focus on differences in perspectives between health professionals, patients, and their families and how these need to be identified and accommodated as part of the consultation process. 2-3 case studies will be discussed during each seminar to enable students to reflect on psychological issues in Medicine. During these seminars students will be encouraged to use both their knowledge derived from the course and their personal experience to reflect on the importance of these factors in medical practice.

1.6 Assessment

At the end of the course each student will be required to submit a structured assignment before they are deemed to have successfully completed the course. The assignment will require both research and reflection. As such it is designed to NOT simply be an academic exercise but rather should reflect the students own integration of the didactic and experimental elements of the course.

As such, this assignment will give students an opportunity to demonstrate a more personal understanding of the factors which either a) influence the application of health related information to one’s own health related behavior, or b) influence one’s emotional reaction to difficult events the ability to respond in such situations.

Examples of such tasks are:

a. “Design and implement a program of behavioural change the focus of which is to positively influence some aspect of your health. Using an objective measure (such as a behavior chart) evaluate your success in implementing this program over two weeks. Discuss the strengths and weaknesses of your program”.

b. “Reflect on an emotionally important experience which happened to either you or a friend. Discuss how what you learnt on this course is relevant to that, and how it might influence you to react differently in future”.

Marks from this assignment will contribute to the final year mark in Psychiatry. Furthermore, course material may be examined in the Psychiatry MCQ in Final Medical Year.

** A copy of the full timetable will be emailed to your TCD email account shortly
Please refer to your student handbook/study guide for further information regarding the granting of exemptions

Must be returned to the Medical School Office by Friday, 7\textsuperscript{th} November 2008

\textbf{Exemptions cannot be approved after this date}

<table>
<thead>
<tr>
<th>STUDENT NAME:</th>
<th>I.D. NUMBER:</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE:</td>
<td>TUTOR:</td>
</tr>
<tr>
<td>YEAR:</td>
<td></td>
</tr>
</tbody>
</table>

**EXEMPTION SOUGHT FROM** (subject)

It is assumed that this exemption is sought from both examinations/assessment, coursework etc. Should the case be otherwise, e.g. exemption from coursework only, please state (otherwise leave blank):

<table>
<thead>
<tr>
<th>JUSTIFICATION</th>
<th></th>
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<tbody>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDENT'S SIGNATURE:</th>
<th>DATE:</th>
</tr>
</thead>
</table>
This year TRINITY MED DAY will be supporting:

♥ The Centre of Cardiovascular Risk in Younger Persons – AMiNCH, Tallaght
♥ The Stroke Unit – St James’s Hospital
♥ Trinity Access Programme (TAP)

Events include….

Street Collection
“Sports Day” fun on Campus
Inflatable Games
Med Student Talent Show
Night Out
Med Soccer Cup
TAP Medical Open Day
….And Much much more!!

Play your part in making a difference!