



MET3A
SURGERY and
GASTROENTEROLOGY
YEAR 3: 2018 - 2019
STUDENT HANDBOOK

This handbook should be used together with the Academic Regulations and the Student Guide. It provides information specific to Barts and The London School of Medicine and Dentistry (SMD), while the Student Guide gives information common to all students of the College.

The Academic Regulations provide detailed information on all aspects of award requirements and governance.

NOTHING IN THIS HANDBOOK OVERRIDES THE ACADEMIC REGULATIONS WHICH ALWAYS TAKE PRECEDENCE.

The School's handbooks are available on QMPlus.

The Student Guide is available from the SMD Student Office; the Student Guide and Academic Regulations are also available on-line at:

www.arcs.qmul.ac.uk

The information in this handbook was correct at the time of printing. In the event of any substantial amendments to the information herein, the SMD will attempt to inform students of the changes.

The College cannot accept responsibility for the accuracy or reliability of information given in third party publications or websites referred to in this handbook.

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INTRODUCTION TO MET3A

Welcome to MET3A module. This handbook should be used in conjunction with the MET3A Log Book and the Clinical Skills handbook which, together, describe details of the generic and module specific objectives to be achieved by Year 3 students. Every student in Year 3 is expected to complete the MET3A module. In addition you are strongly advised to refer back to your MET1 and MET2 materials thereby ensuring a good basic science foundation to your clinical knowledge.

The module consists of an introductory week and a further nine weeks of clinical attachment. It will not be possible to teach you everything you need to know to be a good FY1 or to pass the final exam. However, this hand book does include full learning objectives for the module to help you with independent learning.

MET3A comprises two components; Surgery and Gastrointestinal medicine. Unlike previous medical school teaching the placements will be on a joint medical and surgical firm to integrate all of these areas. Diseases can be followed from diagnosis and medical treatment to surgery and the care given to the patient both before and after an operation. All of these provide valuable learning opportunities that we hope you will seize. Your week in General Practice will offer further opportunities to meet patients in the community and learn about team working.

The introductory week will cover important areas of learning and this will be supplemented by the PBLs you will complete on your clinical placement. Attendance at the introductory week, all PBLs and GP sessions is compulsory. You should make use of the teaching sessions and module outcomes to achieve the objectives for this module.

Although the MET3A and the other system based modules are orientated towards specific objectives, you are expected to pay attention towards developing your generic learning skills during the first 2-3 weeks of the attachment. You should then continue to work on both generic and MET3A specific objectives for the next 5-6 week period. It is possible that that you may end up seeing more gastrointestinal/surgical patients, but you still need to continue to develop your generic skills by taking part in unselected on calls, and also undertake examination of the all the systems whenever possible.

Learning medicine in modern hospitals may be challenging at times. There are many targets hospitals need to achieve which results in a high turnover of patients on the wards. Most Doctors work shifts and may not be on the wards every day to teach. In some places it may not be possible to offer formal teaching on a daily basis. In this environment it is important to adapt and make the most of any learning experiences available. You will need to learn to make use of your time seeing patients or achieving other objectives. The logbook is designed to help you and your clinical teachers to ensure you cover all the learning objectives for this module.

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Academic Head of Year 3
Acting MET3A Lead

GP PLACEMENT

(Please note that your GP Tutors have also been sent the following information)

You will be spending one week with the GP and community teams during your Met3A term. All students will have some time in primary care practices. Also, importantly, there are opportunities for exposure to MDT working and specific learning about the importance of nutrition and how it impacts upon patients' health in the primary care setting.

Structure of week

All Greater London based medical students will spend two consecutive full days (either Monday & Tuesday OR Thursday & Friday) attached to a GP practice. You will spend the other two days rotating around the following activities:

- One day in community with district/palliative care nurses.
- Half-day teaching on MDT working.
- Half-day teaching on nutrition.

All Met 3A students based in hospitals outside of London will spend 4 days in General practice and be advised how to access and complete the MDT and Nutrition exercises.

All sessions are compulsory to complete the GP component of the Met3A block of teaching. As well as the specific Met3A learning outcomes, please also be aware of the compass learning objectives in regards to GP.

General Outcomes for Community Care

- **Medical knowledge: CLINICAL FEATURES of DISEASE**
 - **Cancer**
 1. Compare the presentation of malignancy in primary care and secondary care and palliative care in the community and hospice.
- **Clinical skills: HISTORY**
 - **Taking a History**
 1. Be able to take and record a patient's medical history, and recognize the role of taking a focused history
 2. Be able to present a coherent summary of a patient's medical history
- **Clinical skills: PHYSICAL EXAMINATION**
 - **Examining the Patient**
 1. Attain competence in the general examination and key systems examinations, namely cardiovascular, respiratory, abdominal and basic neurological examinations
 2. Be introduced to ENT in primary care and begin to carry out ENT examinations

- **Clinical skills: FORMULATING A TREATMENT PLAN**
 - **General Principles of Patient Management**
 1. Learn to apply theoretical knowledge to clinical practice in cardio-respiratory, gastrointestinal, metabolic and some neurology areas
 2. Recognize the importance of a holistic approach, with particular reference to chronic disease management and palliative care
 3. Examine the interface between primary and secondary care and the integration of community and hospital services
 - **Preventative care and Screening**
 1. Begin to demonstrate skills in promoting behaviour and lifestyle change
- **Professional issues: WORKING IN TEAMS**
 - **General Outcomes for Working in Teams**
 1. Demonstrate effective communication skills (verbal, non verbal and written) with patients and with professionals within the primary care multidisciplinary team
- **Professional issues: ETHICS and LAW**
 - **Good Medical Practice: Ethico-Legal Responsibilities of Patient Care**
 1. Debate ethical issues pertinent to primary care

In Year 3, GP teaching is focused upon Integration of knowledge across systems. Although it is very likely you will see patients who are directly relevant to the MA3 themes of Surgery (including vascular), Gastroenterology, Cancer and Palliative Care, you may also see patients who do not directly have these conditions but in whom they must be considered, for example:

- A pre- or post-surgical patient with cardiovascular, respiratory or endocrine (e.g. Diabetes/thyroid) conditions. How do we address these co-morbidities in primary care in the context of surgery?
- Patients presenting with symptoms from any system (including Gastro) that suggest they need referring for investigation via the 2 week wait cancer pathway.
- Palliative care in the context of heart failure or end-stage COPD.

Nutritional Assessment

Nutritional assessment is the systematic process of collecting and interpreting information in order to make decisions about the nature and cause of nutrition related health issues that affect an individual (British Dietetic Association (BDA), 2012).

This differs from nutritional screening (e.g. MUST) which is a brief risk assessment which can be carried out by any healthcare professional and which may lead to a nutritional assessment by a dietician.

Following a structured assessment path enables health professionals to carry out a quality nutritional assessment in order to identify those who need nutritional intervention, and to improve clinical decision making using a person centred approach.

Using the ABCDE format is a structured way of performing a nutritional assessment.

A: Anthropometry

Anthropometry allows for an assessment of the different component parts of the human body. Body composition refers to the anatomical makeup of the body in terms of bone, muscle, water and fat. A single measure will not provide a comprehensive overview of the patients' condition and so a number of measurements are required to form a more reasoned assessment.

Measurement	Equation/ method	Interpretation of results
Weight and % weight change	$\% \text{ weight change} = \frac{\text{current weight} - \text{previous weight}}{\text{current weight}} \times 100$	<p>A patient is indicated for nutrition support if they have:</p> <ul style="list-style-type: none"> • BMI <18.5kg/m² • Unintentional weight loss of >10% in the previous 3-6 months • BMI <20kg/m² and unintentional weight loss >5% in the previous 3-6 months. <p>(NICE, 2006)</p>
Body mass index (BMI)	$\text{BMI (kg/m}^2\text{)} = \frac{\text{weight (kg)}}{\text{height}^2\text{(m}^2\text{)}}$	<ul style="list-style-type: none"> • If BMI <18.5kg/m² patient is underweight • If BMI 18.5-25kg/m² patient is in normal BMI range • If BMI >25kg/m² patient is overweight <p>(WHO, 2016)</p>

Measurement	Equation/ method	Interpretation of results
Mid upper arm circumference (MUAC)	Involves measuring the circumference of the mid-point on upper arm using a tape measure. This is a surrogate measure of both fat mass and fat free mass. It is a useful measure when a person cannot be weighed or if their weight is not likely to be a true reflection of the persons' actual weight, e.g. if the patient has oedema or ascites.	<ul style="list-style-type: none"> If MUAC is >23.5cm the patient is likely to have a healthy BMI and is at low risk of malnutrition. If MUAC is <23.5cm the patient is likely to have a BMI <20kg/m² and may be at risk of malnutrition. (BAPEN, 2011)

B Biochemistry

The blood tests conducted within a nutrition assessment are interpreted in conjunction with a clinical examination; previous medical history; and current medications. Biochemistry tests measure levels of chemical substances present in the blood. Functional tests measure the function of vital organs such as the kidneys or liver.

Measurement	Rationale	Normal range (note that different laboratories may use different reference ranges)
Haemoglobin (Hb)	Assess for iron status or indicate anaemia.	Women = 12.0 to 15.5 g/dl Men = 13.5 to 17.5 g/dl
Albumin (Alb)	A low level may indicate inflammation or infection is present, therefore should not be used to determine nutritional status.	35 - 50 g/L (3.5 - 5.0 g/dL)
C-Reactive Protein (CRP)	This is an inflammatory marker which is raised when infection or inflammation is present.	Ideally <10 mg/L

Measurement	Rationale	Normal range (note that different laboratories may use different reference ranges)
White cell count (WCC)	Immune system marker; is raised if infection is present.	4-11 x10 ⁹ /L
Glycated Haemoglobin (HbA1c)	Indicates an average blood sugar level over a period of months.	Ideally <48 mmol/mol or <6.5% (Diabetes UK)
Sodium (Na)	This is an indication of hydration status and kidney function. A raised sodium level may indicate dehydration.	135-145 mmol/L
Urea (Ur)	Used to assess kidney function. High urea and other markers levels in combination may indicate dehydration.	2.5-7.1 mmol/L
Calcium and Phosphate	Used as a baseline when assessing risk of refeeding syndrome Calcium is adjusted for albumin level	Adjusted Ca 2.0-2.6 mmol/l Phosphate 0.7-1.4 mmol/l
Magnesium	Likely to be low if there are large GI losses	0.7-1.0 mmol/l
Micronutrients	Include vitamins and trace elements. These are affected by the acute phase response if inflammation or infection is present and so best measured when CRP is low	

C Clinical

A person's disease state may increase the risk of malnutrition due to increased energy requirements; reduced energy intake; or increased nutritional losses. Examples of diseases/conditions where this may occur include:

- Cancer
- Chronic Obstructive Pulmonary Disease

- Heart failure
- Gastrointestinal disorders such as Crohns disease, liver disease, coeliac disease
- Neurological conditions such as stroke, Motor Neurone Disease, Parkinsons Disease, multiple sclerosis, dementia
- Burns, surgery or trauma
- Mental health conditions (such as depression)

Symptoms that may impact on a person's nutritional status either through reducing nutritional intake or increasing nutritional losses include:

- altered bowel movements e.g. diarrhoea, constipation
- upper gastrointestinal upset e.g. reflux, bloating, nausea, and vomiting.
- early satiety
- dysphagia
- lethargy

D Dietary

Energy requirements

1. Estimate Basal Metabolic Rate (BMR) using Henry Equations (2005) based on age, gender and weight (Henry, 2005) or estimate requirements for stable patients using 25-35kcal/kg (NICE 2006).
2. Add factor when patient is metabolically stressed
3. Add factor for activity and diet induced thermogenesis
4. If aiming for weight gain, add 400-600 kcal/day. Only add this for patients who are metabolically stable (i.e. not acutely unwell).
5. There are a number of alternative methods to calculate energy requirements in patients who are obese, with care required not to over-estimate requirements.

(Weekes and Soulsby, 2011)

Fluid requirements:

Aged >60 years = 30ml/kg body weight

Aged <60 years = 35ml/kg body weight (Todorovic and Micklewright, 2011)

Dietary assessment:

An estimation of the total daily calorie intake, as well as overall quality of diet should be assessed. Asking the patient (or their family/carer if patient unable) about their daily dietary intake will help understand patterns of eating, portion sizes, cooking methods and types of food and drink taken. Consider asking the following questions to help form a better understanding of the patients' overall diet:

- What is the patients' typical food and fluid intake? This can be recorded using food record charts; 24-hour recall; 3-day food diary; or typical day diet history.
- Is the patient eating 3 meals a day?
- Do they have pudding after at least one meal per day?

- Are they eating snacks in between meals?
- Are they eating smaller meals than they used to when they were feeling well?
- Are they having regular drinks, at least 6-8 glasses of fluid/ day?
- Are they having nutritious drinks such as milky tea/coffee, fruit juice, milky drinks?
- Are they having carbohydrate foods (bread, potatoes, pasta, rice, breakfast cereals etc) and protein foods (meat, cheese, beans, egg, fish, milk, yoghurt, cream) at each meal time? Portion sizes should be at least the size of the patient's fist and amount to 1/3 each on the plate (carbohydrate, protein, vegetables).
- Are they eating at least one portion of fruit or vegetable each day?
- If food is being blended, are they adding nutritious liquids such as milk, cream or gravy to aid blending, rather than water?
- Are they able to cook for themselves?
- Do they have access to essentials such as bread, milk and cheese on a daily basis?
- Do they have a hot/cooked meal each day?
- Are they taking any nutritional supplements? Do they take them as recommended? Do they like them?

E Environment

Social	Physical
Ability to shop, cook, assistance with eating and drinking, mobility, budget restraints, limited storage facilities, meal timings, family support.	Appetite, dentures, dexterity, use of cutlery, sight, taste changes, nausea, vomiting, heart burn, bloating, early satiety, diarrhoea, constipation, pain, breathing difficulties, dysphagia (swallowing problems), food intolerances, special diets, diminished thirst, taste preferences.

WHAT YOU NEED TO DO

Being able to perform a Nutritional Assessment is A GMC Outcome for Graduates (GMC 2016). Please see activity in Met 3A logbook to complete a nutritional assessment.

Logbook requirements

The Logbook requirements for Met3A remain unchanged from the GP perspective.

- Up to 5 observed history takings
- Up to 5 short case presentations
- Observed Cardiovascular, Respiratory, Abdominal, other (Neck, ENT) examinations to sign off.
- Clinical skills to be observed-list as per logbook

However it is acknowledged that with the change in format to the GP week this year that it may not be possible to get the maximum number of activities signed off in the logbook.

You will also receive a certificate of completion of the nutrition teaching and will be advised how this is to be demonstrated to faculty.

Resources

You will find relevant resources, document and guidelines in the Year 3 GP area on QMPlus.

Please contact the Year 3 GP Module Lead and/or Administrator directly if you have any problems with the GP aspect of your attachment. Contact details are found in the Year 3 CBME area of QMPlus.

MET3A MODULE DATES

ROTATION 1

Introductory Week Mon 24th Sept – Fri 28th Sept 2018
 Placement Mon 1st Oct – Fri 30th Nov 2018

ROTATION 2

Introductory Week Mon 10th Dec – Fri 14th Dec 2018
 Placement Mon 14th Jan – Fri 15th March 2019

ROTATION 3

Introductory Week Mon 25th March – Fri 29th March 2019
 Placement Mon 1st April – Fri 21st June 2019

Note: CCS2 takes place Mon 20th May – Fri 24th May 2019

The following subjects will be covered during the MET3A introductory week and in the Met 3A PBLs. Some of them may be revisited from previous years and others are new. Some relevant teaching will occur in the CSP weeks. No lecture course can be exhaustive and additional reading from a basic textbook around these areas will also be useful. For full details please see the MET3A Introductory Week Timetable on QM Plus

All sessions will take place at the Royal London Hospital and **attendance is compulsory**

Surgery

Acute Abdomen
 Intestinal Obstruction
 Fluids and Sepsis
 Trauma
 Vascular Surgery

Gastroenterology

Nutrition for health
 Common GI conditions
 Inflammatory Bowel Disease
 Gastrointestinal Bleeding
 Chronic Liver Disease

Perioperative Care

Pre-operative Assessment
 Post-operative Complications

Pathology and microbiology

Upper GI
 Lower GI Cancers
 Gut Infections
 Hepatitis

Cancer

Diagnosis and treatment of GI cancers
 Screening and prevention for GI cancers

Radiology

Surgical and Gastrointestinal Imaging
 Gastrointestinal Imaging

Pharmacology

Drugs and the GI Tract

MET3A SPECIFIC OBJECTIVES: AN OVERVIEW

In addition to the broad learning objectives given in the main Year 3 Handbook, students are expected to achieve the following objectives whilst attending the MET3A module;

1. The development of core clinical and communication skills as per the Clinical and Communication Skills hand book
2. Core knowledge/skills in the examinations specific to MET3A ie: Abdominal and Vascular
3. Competency in relevant practical skills
4. Satisfactory completion of MET3A PBL/CBL sessions
5. Attendance to MET3A lectures and teaching sessions during the introductory week
6. Attendance at all GP sessions, community based activities and plenary teaching
7. Satisfactory completion of the Year 3 SSC
8. Attendance at the half day hospice visit is also compulsory.

You should be aware that the majority of your knowledge should be gained from spending time on the wards; the set teaching is there to supplement this. Be aware that patients and their diseases do not always behave as the textbooks imply - in neatly defined categories. Instead they may have many features and presentations that cross systems.

EXPOSURE PRONE PROCEDURES

The General Medical Council have directed that a student may complete the MBBS Programme and qualify for provisional registration as a Doctor without undertaking exposure prone procedures (EPPs)

Full details of all school policies and procedures are on QM Plus

Policy related to Exposure Prone Procedures, Blood Borne Viruses and Other Infectious Diseases: Students on the MBBS programme

REPLACES: SO-001-0207 UPDATE FROM MAY 2011

1. Background

1.1 There has been some debate nationally about the risks associated with students carrying out exposure prone procedures (EPPs) in the course of clinical placement experience. Unlike the requirements for qualified practitioners, there is no absolute requirement that students undergo testing for or immunisation against blood-borne viruses (BBVs), though the GMC recommends it and the School strongly advises them to do so. The GMC does not require students to have experience in any EPPs in order to qualify as a doctor.

2. Rationale

2.1 The School had taken a prior (2007) decision that the MBBS programme at Barts and The London would be run as an entirely EPP-free course. In 2009 this decision was reviewed and it was agreed that students wishing to participate for educational reasons should be allowed to undertake EPPs. Such students must have undergone appropriate screening and be found to pose no risk to patients or to themselves if undertaking such procedures.

2.2 Students may be at risk from exposure to BBVs and other infectious diseases during their clinical experience. Students have a professional responsibility to undergo appropriate testing and treatment where they are deemed to be at risk and to accordingly refuse to participate in EPPs and other procedures as necessary to ensure patient safety at all times.

2.3 The School wishes to take a non-discriminatory and non-punitive approach to dealing with BBVs and other infectious diseases. The School promises to support students through their medical studies and in choosing an appropriate medical career.

3. Exposure prone procedures (EPPs) - Definition

3.1 Exposure prone procedures (EPPs) are those invasive procedures where there is a risk that injury to the worker may result in the exposure of the patient's open tissues to the blood of the worker. These include procedures where the worker's gloved hands may be in contact with sharp instruments, needle tips or sharp tissues (e.g. spicules of bone or teeth) inside a patient's open body cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times.

3.2 In such circumstances there is a potential risk of transfer of a blood borne viral infection from an infected health care worker to the patient. Health care workers infected with a blood borne virus, Hepatitis B, Hepatitis C, or HIV are restricted from performing EPPs according to guidelines issued and updated by the UK Health Departments. Other situations, such as pre-hospital trauma care and care of patients where the risk of biting is regular and predictable, may involve similar risks to the invasive procedures described above and should be avoided by health care workers restricted from performing exposure prone procedures.

4. Procedures that are not defined as exposure prone

4.1 Procedures where the hands and fingertips of the worker are visible and outside the patient's body at all times, and internal examinations or procedures that do not involve possible injury to the worker's gloved hands from sharp instruments and/or tissues, are considered not to be exposure prone, provided routine infection control procedures are adhered to at all times.

4.2 Examples of procedures that are not exposure prone include:

- taking blood (venepuncture);
- setting up and maintaining IV lines or central lines (provided any skin-tunnelling procedure used for the latter is performed in a non-exposure prone manner, i.e. without the operator's fingers being at any time concealed in the patient's tissues in the presence of a sharp instrument);
- minor surface suturing;
- the incision of external abscesses;
- routine vaginal or rectal examinations;
- simple endoscopic procedures.

5. EPP Clearance

5.1 It is a condition of entry that all first year students attend an appointment with the Occupational Health Service at Queen Mary for standard health clearance during the first two terms of the first year of study. At the same time students are offered optional additional health clearance.

5.2 Additional health clearance involves a blood test and confirmation of the following blood borne virus status for healthcare practitioners (and medical students) who may be involved in exposure prone procedures;

- HIV status (antibody negative),

- Hepatitis B (surface antigen negative or, if positive, e-antigen negative with a viral load of 10
- genome equivalents/ml or less)
- Hepatitis C (antibody negative or, if positive, negative for hepatitis C RNA).

5.2 Students who are health cleared for EPPs will be issued with an "EPP Cleared" card, by the Occupational Health Service, which should be presented to clinical staff in NHS Trusts before embarking on EPPs. Students also receive written confirmation of blood test results and additional health clearance status.

5.3 Where blood test results indicate a hepatitis B antibody level below 100 miu/ml, students may require a Hepatitis B booster or a repeat course of vaccine with follow up blood tests as appropriate. Students will not be fully cleared without review for EPP until either they have completed a primary immunisation course and achieved a satisfactory antibody response to vaccine with no serological markers of infectious carriage for Hepatitis B. Interim clearance may be provided for a 6 month period for students who are in the process of completing primary immunisation and/or whose status is being assessed.

5.4 On completion of primary immunisation/status assessment, EPP clearance may be given on an annual basis for those students who may be persistent non-responders to Hepatitis B vaccine or who are unable to be immunised for whatever reason. Students in this category require annual review including testing for serological markers of infectious carriage of Hepatitis B, in order for ongoing clearance for EPP to be given. Students who refuse such testing will no longer have EPP clearance and will be referred to the OH physician for advice.

5.5 Students who are given EPP clearance for six or 12 months will receive an "EPP Cleared" card, which can be presented to clinical staff in NHS Trusts upon request. The date on which EPP clearance finishes will be clearly marked on the card.

5.6 EPP-ineligible students or those who choose not to undergo additional health checks are advised that they must refuse to participate in EPPs. The Dean for Students will work with the Associate Deans to ensure appropriate delivery of an adjusted clinical training programme for EPP-ineligible students where necessary.

5.7 Students who join the MBBS programme in Year 3 (direct clinical entrants and Oxbridge transfer students) must either provide documentary evidence of EPP clearance or will be offered additional health clearance as described in 5.1 and 5.2.

5.8 The School is informed by the Occupational Health Service whether or not students have been EPP cleared only, test results are not disclosed. This information is passed onto the Associate Deans and undergraduate administrators in the NHS Trusts in which students are undertaking placements. EPP status information is kept confidentially and deleted at the end of each placement.

6. Advice and Guidance for Decision-making

6.1 When students or their educational supervisors are in doubt as to whether a procedure is exposure prone or not, expert advice should be sought in the first instance from a consultant occupational health physician who may in turn wish to consult the UK Advisory Panel for Health care Workers Infected with blood borne viruses (UKAP). Some examples of advice given by KAP about exposure prone procedures are provided in AIDS/HIV Infected Health Care Workers: Guidance on the Management of Infected Health Care Workers and Patient Notification (issued under cover of NHS Management Executive Letter (1999) 29). These may serve as a guide, but cannot be seen as necessarily generally applicable, as the working practices of individual health care workers vary.

6.2 The decision whether an HIV, hepatitis B or hepatitis C infected student should continue to perform a procedure, which itself is not exposure prone, should take into account the risk

of complications arising which necessitate the performance of an exposure prone procedure; only reasonably predictable complications need to be considered in this context.

7. Other Infectious Diseases

7.1 All medical students are expected to comply with Occupational Health Service procedures for screening of TB. All medical students **MUST** be screened for TB and, where appropriate, be vaccinated with BCG to minimise the risk to patients and to themselves. This process must be completed **BEFORE** students are allowed patient contact. Occupational Health arranges a TB screening and vaccination programme for all students as part of the Standard Health Clearance (see point 5.1).

7.2 If students fail to comply with this process they will be forbidden to attend clinical placements until they have completed screening. Students who refuse screening will be deregistered.

7.3 Students should be aware that the BCG vaccine does not confer complete protection and TB cases still occur in vaccinated health care workers. Students are expected to report signs and symptoms or any concerns about TB they may be experiencing to Occupational Health, their GP and the Dean for Students Office as soon as possible. Students who are infectious must remove themselves from all patient contact until deemed non-infectious by their medical carers. Written confirmation of this status issued by a registered medical practitioner will be required by Occupational Health before resumption of studies is permitted.

7.4 Students have a duty to ensure that they do not place any patient at risk by exposing them to an infectious disease. A student with symptoms suggesting an infective illness should seek medical advice regarding diagnosis and treatment. Once a diagnosis has been made the affected student should inform the Dean for Students Office and the Occupation Health Service if there are potential implications for either patients or students and staff contacts. Minor ailments e.g. colds, 'flu' like symptoms etc should be notified to the Student Office in the normal manner if time is taken from studies as 'sick leave'

8. Responsibilities

8.1 This policy decision will be clearly communicated by the Dean for Education to all colleagues involved in the delivery of clinical teaching at all associated hospital sites.

8.2 Clinical staff in NHS Trusts are responsible for checking that students hold "EPP Cleared" cards when inviting students to participate in EPPs.

8.3 All medical students are strongly advised to be tested for hepatitis B immunity status upon entry to Barts and The London, and then to be immunised where appropriate. The GMC position on this point is to recommend, but not to require, testing and immunisation for students.

8.4 All medical students who know they are HIV positive, or believe they are at increased risk, should seek specific guidance from Occupational Health. Students may also wish to contact Queen Mary's Disability and Dyslexia Service to discuss possible support available to them, including access to the Disabled Student's Allowance.

8.5 Students may refuse to participate in EPPs if invited to do so if they do not wish to participate and must refuse if they carry a BBV that places patients at risk or if they have not been EPP-cleared. Students are reminded of the general measures that they should always follow to minimise the risk of transmission of blood-borne viruses and infectious diseases from infected patients to health care workers, and from infected health care workers to patients.

8.6 During periods of study overseas students must particularly avoid playing any part in procedures that might carry any risk in countries with a poor healthcare framework and a

high prevalence of blood borne infections, such as HIV, hepatitis B and hepatitis C. Any exposure to a BBV during an elective must be reported immediately locally and to the School via the Elective Help-line and email. The student must arrange immediate follow-up with Occupational Health on return to the UK and report that they have done this to the Dean for Students' Office.

8.7 All MBBS graduates will be required to demonstrate their hepatitis B immunity status before the start of their Foundation Year and are also reminded of their professional obligation to seek further advice and investigation, from a consultant occupational health physician if they have any reason to suspect that they may be a carrier of hepatitis B or the other known blood borne viruses (Hepatitis C and HIV). For many students these reminders will coincide with the timing of their booster dose of Hepatitis B vaccine, five years after their primary immunisation course.

8.8 Students who during the time period of studies within the undergraduate course contract HIV, Hepatitis B, Hepatitis C or TB have a duty to inform Occupational Health for the NHS Trust where they are currently based at the first opportunity and have a professional responsibility not to place any patient in danger by their subsequent actions. Students must not rely on their own assessment of the risk they pose to patients. The relevant Occupational Health physician will then discuss with the student the advisability of informing the School so that suitable support and adjustments might be arranged.

8.9 Students who believe they may have contracted any other infectious disease should immediately see their GP for testing and report positive results to the Occupational Health Service at Queen Mary.

8.10 EPP ineligible students should be aware that failure to comply with the restrictions placed on their practice might constitute a fitness to practise concern.

9. Further information

9.1 For advice on action to be taken in the event of a body fluid exposure, information about health and TB screening, and BBVs, please see the Queen Mary Occupational Health Service website:

<http://qm-web.ohs.qmul.ac.uk/Medical%20and%20Dental%20Students.htm>

9.2 For information on how to report absence due to illness please see the 'Policies, regulations and guidance' folder in the 'SMD Student and Staff Common Area' of Blackboard or the SMD Education website:

http://www.smd-edu.qmul.ac.uk/Documents/absence_policies.pdf

9.3 For advice on swine flu, please see the SMD Education website:

<http://www.smd-edu.qmul.ac.uk/Documents/Advice%20about%20Swine%20Flu-1.pdf>

9.4 Guidance from the Department of Health:

Health Clearance for tuberculosis, hepatitis B, hepatitis C and HIV: New healthcare workers. Department of Health, March 2007;

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_073132

9.5 Guidance from the Medical Schools Council:

Medical and dental students: Health clearance for Hepatitis B, Hepatitis C, HIV and Tuberculosis: Medical Schools Council, February 2008;

<http://www.medschools.ac.uk/Publications/Pages/Health-clearance-for-HepatitisBHepatitisC-HIV-and-Tuberculosis.aspx>

9.6 Guidance for local occupational health services in approved educational institutions on health screening for medical students:

HEOPS Medical student fitness standards; <http://www.heops.org.uk/guidelines.php>

NOTES

1

The Department of Health guidance recommends that new healthcare workers including medical students have standard health checks which include those for tuberculosis disease/immunity and in addition, that they are offered appropriate vaccination including hepatitis B.

2

For information on how to report absence due to illness, please see the 'Policies, regulations and guidance' folder in the 'SMD Student and Staff Common Area' of Blackboard or the SMD Education website: http://www.smd-edu.qmul.ac.uk/Documents/absence_policies.pdf

HISTORY TAKING

To be used with clinical methods handbook

You should begin with open questions to establish the nature of the presenting problem(s). Only then is it appropriate to introduce more closed enquiries.

History taking involves knowing what to ask and how to ask

Open ended questions are better than closed questions in establishing the framework of the history.

Presenting Complaint (PC)

Define the problem (symptom) that is troubling the patient in their own words and why they have been admitted/come to see the doctor (usually in one line) and mention how long ago it started.

Relevant Past Medical History (PMH)

Describe if the patient has a long standing disease which is likely to be connected to the PC. It is quite possible that any new symptom(s) could relate to this. Give details of the condition (s) here.

History of the Presenting Complaint (HPC): To evaluate the PC further, you need to ask question aimed at working out the cause and effects of the symptom(s).

Find out more about the symptom(s); describe all symptoms chronologically and in detail, giving their relationship with each other.

Find out about other symptoms in the affected system

Ask questions about possible causes – including risk factors

Find out about the effects of the symptoms on the patient's life

Review of Systems: It is possible to miss some important symptoms because you forget to ask or the patient has neglected to mention them. This acts as a fail-safe mechanism to make sure that you do not miss anything important.

Past Medical History (PMH): Give other past medical problems which were not linked to the PC. You should try and verify the diagnosis with the patient.

Drug History (may be part of risk factors too): Give details, particularly about those drugs which may have caused all or some of the patient's symptoms.

Comment on new drugs/recent changes. This is not for recreational drugs which come in the SH.

Allergies: If any known with details (usually drug allergies only, other allergic conditions would come under PMH)

Family History (FH) (may be part of risk factors too): This may give a clue to the cause of the patient's problems.

Social History (SH) (may be part of risk factors too)

Partnership status and children

Occupation (+ previous occupation)

Where the patient lives / who with

How the patient's condition restricts them and what help they have in coping with the restrictions

Mobility: Independent, stick, frame, wheelchair; ability to perform activities of daily living (ADLs) e.g, washing, dressing, cooking, cleaning, shopping.

Alcohol: Units/week = Alcohol% X volume

Smoking: Age started / age stopped, average number per day eg smoked from 16-40, average 20/day

Pack years = number of 20 cigarette packets / day X years smoked

Illicit/recreational drugs

Foreign travel/ country of birth

Pets/birds

Remember:

Your chance of working out the diagnosis depends on your knowledge of possible causes and your ability to ask relevant questions to establish which conditions are likely.

MET3A SPECIFIC CLINICAL SKILLS

Please also see the Clinical Methods Handbook

1. Examination of the Gastrointestinal System
2. Examination of a Hernia
3. Examination of the Peripheral Vascular System
4. Rectal Examination
5. Examination of a Lump

1. EXAMINATION OF THE GASTROINTESTINAL SYSTEM

Introduce yourself and explain the procedure. Ensure the patient is comfortable and maintain the patient's dignity. **Look at the patient** from the end of the bed:

1. Does the patient prefer a fixed position (knees up, bending forward etc)? Preferred positions for patients in pain are those which reduce tissue tension around the source of the pain. They are helpful localising signs.
2. Is the patient lying rigid or restless?
3. Non-specific signs of 'illness', lack of interest in and interaction with surroundings (Eyes closed sign)

Then start with the **hands**: look for (for example)

- clubbing (liver disease, inflammatory bowel disease)
- leukonychia (liver disease) and palmar erythema
- liver flap

Look at the **face** for:

- jaundice
- parotid enlargement (alcohol)
- anaemia: conjunctiva, smooth tongue, angular stomatitis

Look in the **mouth** for:

- primary diseases of the oral cavity
- signs of lower gastro-intestinal disease, eg mouth ulcers in inflammatory bowel disease
- dental disease
- breath-ketosis, uraemia

Palpate for supraclavicular nodes: Virchow's node

Inspect the **abdomen** - lay the patient flat and expose the abdomen. Stand back and look at:

- | | |
|--------------------------|---|
| • skin | • swellings (fat, fluid, foetus, flatus, faeces) |
| • dilated veins | • movement on respiration |
| • body hair distribution | • pulsation and peristalsis (position light to shine across abdomen and kneel or stoop down to look across abdomen) |
| • scars | |
| • hernia | |

Palpation of the abdomen:

Before you start, ask if there is any pain. Lightly palpate each quadrant first. Start away from the location of the pain. The hand should be flat and the fingers should be flexed at the MCPJ. Then palpate more deeply. This is only a guide. Use any method that allows you to feel structures in the patient's abdomen.

Look at the patient's face to make sure you are not hurting them. Some surgeons have strong feelings about using one or both hands. I know of no comparative studies comparing these approaches! In general use two hands for deep palpation in obese or muscular patients.

- Describe tenderness as superficial or deep.
- Rebound tenderness by percussion (some surgeons consider this sign superfluous)

Palpation of the Organs

Liver: start 10 cm below the costal margin, towards the right iliac fossa and work up towards the ribs. Fingers should be only slightly flexed at MCPJ, use the side of finger parallel to the liver. Don't prod with the ends of the fingers. Press in with fingers then ask patient to breathe deeply. Don't move your hand while the patient is breathing; wait for the descending liver edge to touch your finger.

Describe the position, texture, regular/ irregular, tenderness, pulsatile (in TR). If the liver seems enlarged, percuss the upper border to make sure it is not displaced downwards by the lung.

Spleen: start 10cm below costal margin in the hypochondrium. Ask the patient to take a deep breath. Press in with fingers then ask the patient to breathe deeply. If a slightly enlarged spleen is suspected, lie the patient on right side and feel again on deep inspiration. If not palpable, percuss for splenic dullness in the last rib space in the anterior axillary line (Traub's space) while the patient breathes in. Resonance (gastric or colonic) will turn to dullness on full inspiration.

The spleen has a notch that some people are able to feel. Unlike the left kidney it is not palpable bimanually and you can't get above it.

Kidneys: palpate bimanually. Push up with left hand in renal angle and feel anteriorly with the right hand. Feel the kidney between both hands. Enlarged kidneys move appreciably on respiration.

Masses: if a mass is found describe:

- | | |
|---------------|-----------------------|
| • site | • tenderness |
| • size | • pulsatility |
| • shape | • resonance |
| • consistency | • transillumination |
| • mobility | • plane of attachment |

Percussion: if there is generalised swelling look for ascites by testing for shifting dullness. Lie the patient on one side and mark the upper level of dullness. Roll the patient on the other side and see if that point is now resonant.

Auscultation

Bowel sounds: listen over the abdomen for 10-15 seconds.

- obstruction: hyperactive or, later on, tinkling bowel sounds
- paralytic ileus or peritonitis: absent bowel sounds

Listen for **bruits** over **renal** or **femoral** arteries.

At the end you would normally also examine for hernias, examine the genitals and do a rectal examination but this will not form part of this teaching session

2. EXAMINATION OF AN INGUINAL HERNIA

Key Anatomical Points

- Mid inguinal point - ASIS to pubis symphysis (femoral artery)
 - Midpoint of inguinal ligament = ASIS to pubic tubercle (deep inguinal ring: 1 to 2cm above femoral pulse)
 - Superficial inguinal ring - above & medial to pubic tubercle
 - Deep inguinal ring – above mid-point of inguinal ligament
 - Inguinal hernia - above and medial to pubic tubercle
 - Femoral hernia - below and lateral to pubic tubercle
 - Indirect hernia can extend into scrotum
1. Wash your hands, introduce yourself, and ask permission (consent) to examine. Always check if patient is in any pain. Adequately expose the area.
 2. Ask patient to stand: see reducible hernias and see hernias on other side, as well as scars. Can examine lying down if the hernia is still obvious lying down. Otherwise examine patient whilst standing. A combination of examining whilst standing and also lying down is often helpful
 3. Kneel to side of patient (not directly in front, or will look slightly dodgy). Get patient to cough and feel for a cough impulse (suggestive of herniae).
 4. Ask patient if they can reduce the lump or 'make it go away' themselves. This can be a useful way of demonstrating reduction without hurting the patient.
 5. If not painful and a reduction is possible, put your fingers over the superficial ring and repeat cough test. If the hernia does not reappear then it is indirect.
 6. Check the contra-lateral side.
 7. Cover patient up/allow to redress

3. EXAMINATION OF THE PERIPHERAL VASCULAR SYSTEM

The peripheral vascular examination commences with inspection, palpation and auscultation as there is no need to percuss.

The patient should be lying comfortably, usually supine, on the bed. Ideally they should be exposed from the abdomen down. Underwear can be kept on for modesty

The examination should firstly include a detailed general observation of the patient, noting whether they are comfortable at rest as well as their general wellbeing. Comment on the general appearance of the legs including any obvious abnormalities such as muscle wasting or scars, in particular looking at the groin creases and back of the leg. This intense observation should be continued to the lower limbs to look for:

- any signs of gangrene or pre-gangrene such as missing toes or blackening of the extremities.
- the presence of any ulcers – ensure you check all around the feet including behind the ankle. These may be venous or arterial – one defining factor is that venous ulcers tend to be painless whereas arterial are painful.
- any skin changes such as pallor, change in colour (eg purple/black from haemostasis or brown from haemosiderin deposition), varicose eczema or sites of previous ulcers.
- the presence of any varicose veins – often seen best with the patient standing.

Palpation starts by looking at the temperature of the lower limbs. Starting proximally, feel with the palm of your hand and compare the legs to each other noting any difference.

Capillary return is performed by compressing the nail bed and then releasing it. Normal colour should return within 2-seconds. The Buerger's Test should then be performed:

Buerger's Test

This involves raising the patient's feet to 45°. In the presence of poor arterial supply, pallor rapidly develops. Following this, place the feet over the side of the bed, cyanosis may then develop. Buerger's angle is the angle from the horizontal at which the leg on raising becomes white

Palpation should be performed for the pulses:

- Femoral – feel over the medial aspect of the inguinal ligament.
- Popliteal – ask the patient to flex their knee to roughly 60° keeping their foot on the bed; place both hands on the front of the knee and place your fingers in the popliteal space. This can be difficult to feel and requires practice
- Posterior tibial – felt posterior to the medial malleolus of the tibia.
- Dorsalis pedis – feel on the dorsum of the foot, lateral to the extensor tendon of the great toe.

These pulses should be felt on both sides to compare one side relative to the other.

Auscultation should be performed for femoral and abdominal aortic bruits

Examination of Varicose Veins

Start the examination by inspecting the patient standing (if he or she is able to stand), with both legs appropriately exposed to the groin. If varicose veins seem present then gently press on the affected areas, release, and watch the varicosities refill. By doing this, you are simply confirming that the areas are vascular. Consider whether the affected areas are warmer than the surrounding skin by using the back of your hand.

Next try to see if the varicosities follow the long or short saphenous vein distribution. Varicosities in the short saphenous vein are seen only below the knee and are usually at the

back and to the outer edge of the leg (posterolateral). Long saphenous varicosities may be found along the length of the leg, usually on the medial aspect. Some people have a large accessory vein on the back (posterior) part of the thigh, which may become varicose. This is the accessory vein of Giacomini.

On inspection, look for:

- Venous stars (venulectasias). These are bluish vessels that may distend above the skin surface and are usually 1-2 mm in diameter
- Superficial thrombophlebitis, which shows as a red, painful lump
- The brown pigmentation of haemosiderin deposition characteristic of increased venous pressure
- Venous eczema
- Ulceration and scarring from previous ulceration, especially in the gaiter area
- Lipodermatosclerosis; this is caused by chronic venous hypertension when fibrin deposition results in progressive sclerosis of the skin and subcutaneous fat
- Scars from previous vein surgery (look for harvesting of vein grafts for coronary artery bypass grafting).
- Locating the saphenofemoral junction

Once you have finished the inspection, ask the patient to lie down and identify the saphenofemoral junction. One good way to do this is by locating the femoral artery which lies between the anterior superior iliac spine and the pubic tubercle by feeling for the pulse. The vein is medial to the artery and the saphenofemoral junction about two fingers' breadths below the inguinal ligament.

Next ask the patient to stand if he or she can. You then should place one hand on the varicosities and tap on the saphenofemoral junction. If it is incompetent you may feel a fluid thrill. You can confirm the incompetence with a handheld Doppler ultrasonograph if you put it at the saphenofemoral junction and press on the varicosities. You should be able to hear blood flowing up the vein to the junction and with an incompetent valve at the saphenofemoral junction, you can hear the blood flowing back again.

Trendelenberg Test

With the patient lying down, raise his or her leg, and empty the engorged varicosities. To do this, press on the saphenofemoral junction to occlude it. Then ask the patient to stand up and see if the varicosities refill immediately. If by putting pressure at the saphenofemoral junction the varicose veins are controlled saphenofemoral incompetence is present. If the veins simply refill then there is a leaky perforating vein further down. This is known as the Trendelenberg test.

Tourniquet Test

If there is a leaky perforating vein (or as an alternative to the Trendelenberg Test), you can do the tourniquet test. For this you ask the patient to lie down and lift the affected leg. By doing this, the veins will empty and you should put on the tourniquet, in turn, to the thigh, the lower thigh, and then below the knee. If the tightened tourniquet controls the varicose veins then the defect is above the tourniquet, if the veins refill then the defect is below. Reflux from venous valvular incompetence accounts for most chronic venous disease.

<http://student.bmj.com/issues/04/12/education/448.php>

4. DIGITAL RECTAL EXAMINATION

It is important during this examination to make every effort to put your patient at ease. With such an invasive procedure, building a rapport with the patient is paramount.

It is also essential that you explain the procedure and gain consent and that you are accompanied by a chaperone. If you are a male student, the chaperone should be female.

1. Firstly, ensure you have all of the necessary equipment for the station. This is **gloves, lubricant** and **tissues**. You should also ensure that you have a **chaperone** with you.
2. Next explain the procedure to the patient. Explain that they will feel pressure on their anus and that then you will insert your finger into their rectum. Tell them it should not last long and that although it may feel uncomfortable it should not be painful.
3. Positioning the patient in this procedure is very important. Ask them to lie on their left hand side with their knees drawn up towards their chest and their anus exposed.
4. Having put on your gloves, separate the buttocks and inspect the area around the anus. Look for any abnormalities including skin tags, haemorrhoids and fissures.
5. After inspecting, lubricate your right index finger.
6. Tell the patient you are about to start the procedure, place your finger on the anus so that it points anteriorly and apply pressure to the midline of the anus.
7. Maintain the pressure so that your finger enters the rectum. Initially you need to assess anal tone by asking the patient to squeeze your finger.
8. Next you need to systematically examine each part of the rectum. This is done by sweeping the finger both clockwise and anti-clockwise around the entire circumference. You should be feeling for any abnormalities such as impacted faeces, masses or ulcers.
9. One of the main reasons for performing rectal examination in males is to assess the prostate gland. This lies anteriorly and should always be felt. You should check the size, consistency and presence of the midline groove.
10. Remove your finger and examine the glove for the colour of any faeces as well as the presence of any mucus or blood.
11. Clean off any lubricant left around the anus and remove and dispose of your gloves. Allow the patient to put their clothes on and thank them.

5. EXAMINATION OF A LUMP

Preparation

- Ask the patient to indicate the position of the lump(s) and any previous lumps
- Explain the procedure to the patient
- Ensure that exposure is adequate, including lymphatic drainage.
- Ensure patients dignity is maintained throughout
- Ask the patient if there is any tenderness
- Ask about any recent change in the lump

Procedure: This is divided into five stages:

1. Look
2. Feel
3. Move (plane of attachment)
4. Specific tests
5. Regional Lymph nodes

1. Look (observation)

- Location/position,
- Contour (regular or irregular),
- Pulsation (aneurism or high blood flow),
- Colour of skin (red, pigmented, etc)
- Abnormalities in skin (peau d'orange)
- Abnormal vessels

2. Feel (palpation)

Note that the order of these is arbitrary, they have been listed alphabetically.

- Cough impulse
- Consistency (Soft, firm, hard, rubbery; uniform, varied, lobulated)
- Emptying
- Fluctuation
- Position (measured from a landmark)
- Surface (smooth, rough, irregular)
- Shape
- Size (tape measure)
- Tenderness
- Temperature
- Thrill or pulsation

3. Move (plane of attachment)

Skin Tethering

Attempt to pick up a fold of skin over the swelling and compare with other side

Deeper structures

Attempt to move the swelling in different planes relative to surrounding tissues

Muscles and tendons

Palpate the swelling whilst asking the patient to use the relevant muscle

4. Specific Tests

Transillumination (if you suspect the mass is filled with clear fluid, eg a hydrocoele)

Auscultation (for bruits or bowel sounds)

5. Regional Lymph Nodes

You must be aware of the main routes of lymphatic drainage and the relevant regional lymph nodes. There are specific ways of examining different groups of lymph nodes, these are covered well in "Browse's Introduction to the Symptoms and Signs of Surgical Disease" or "Macleods Clinical Examination" (See book list)

MET3A SPECIFIC INVESTIGATIONS

This should be used in conjunction with the practical skills guide given in Clinical Methods Handbook and the MET3A log book

Remember that, regardless of the placement you are in, it is important to undertake tasks to achieve the generic practical skills given in the Clinical and Communication Skills Handbook.

Interpretation of an Abdominal X-Ray (AXR)

- Attend radiology meetings to improve your skills on AXR
- Orientate AXR
- Distinguish between Supine and Erect
- Describe the adequacy of films, including rotation and penetration
- Learn to describe the appearance of a normal AXR; Bones (vertebrae, pelvis) Bowel gas patterns, Psoas shadow, Urinary tract
- Be able to identify abnormalities

Interpretation of an erect Chest X-Ray (CXR)

- Orientate CXR
- Distinguish between Supine and Erect
- Describe the adequacy of films, including rotation and penetration
- Learn to describe the appearance of a normal CXR
- Be able to identify abnormalities abdominal perforation, pneumothorax, haemothorax

Interpretation of Urinalysis

Please see the Year 3 Clinical and Communication Skills Handbook for full details

- Learn how to perform a basic urinalysis
- Understand the importance of a positive test

MET3A SPECIFIC PRACTICAL SKILLS

See also the Clinical Methods Handbook and the GMC guidelines on practical procedures

1. Scrubbing, Gowning and Gloving
2. Basic Theatre Principles
3. Basic Suturing Skills
4. Measurement of the Ankle Brachial Pressure Index
5. Insertion of a Urinary Catheter
6. Insertion of a Naso-Gastric Tube

1. Scrubbing Up, Gowning and Gloving

Full details including an illustrated step by step guide can be found in the Clinical and Communication Skills Handbook.

Where possible observe and practice scrubbing, gowning and gloving. It is also important to become aware of the basic theatre principles.

Scrubbing

The most important principle is not to disturb the natural skin flora. Nothing, apart from the nails themselves, should be scrubbed with a nailbrush.

Water should always run from the hands to the elbows and not the other way!

Gowning and Gloving

The closed technique is considered best practice. This technique involves NOT allowing the hands to protrude through the stockinet cuff of the gown; the surgical gloves should be donned and the hands passed through the cuff into the gloves. It is not a particularly easy technique to master.

2. Basic Theatre Principles

What you should know before entering theatre:

1. Do NOT ask the surgeon questions without permission. Confirm etiquette with the circulating practitioner prior to entering theatre.
2. Be aware of the roles of the various theatre staff before entering theatres. In no particular order: surgeon(s), anaesthetist(s), surgeon's assistant, theatre co-ordinator, anaesthetic nurse, scrub nurse, circulating nurse, dirty nurse, porters. Some of the nursing roles have been taken on by staff known as ODPs (Operating Department Practitioners)
3. KNOW or FIND OUT your glove size before entering theatre. This is the circumference at the third knuckle in inches. Tight gloves induce ache and fatigue.
4. Don mask and gloves before scrubbing. All hair must be covered.
5. Once scrubbed the front of the chest and abdomen are considered sterile. Gloved hands should never drop below the waist or to the back. To maintain this, it is suggested that you interlace your fingers and keep your hands together. You may exercise by making wave motions with your hands.
6. Scrubbed individuals, if passing at close proximity, should pass front to front or back to back (hands high and interlaced). Pass sterile equipment with front toward the equipment and back towards dirty or non-sterile equipment

3. Basic Suturing Skills

Learn how to perform a basic interrupted suturing. This can be learnt during theatre sessions on the firm.

4. Measurement of Ankle Brachial Pressure Index

Learn to perform to measure the Ankle Brachial Pressure Index in patients; understand the index and abnormalities

5. Insertion of a Urinary Catheter

Learn how to perform an insertion of a urinary catheter under aseptic conditions. An ideal opportunity is in the operating theatre. Information on this task can be learnt from the clinical skills on Blackboard

6. Insertion of NG Tube

Learn how to perform an insertion of a naso-gastric tube. Information on this task can be learnt from the clinical skills on Blackboard

PRIORITIES FOR MET3A INDEX CONDITIONS

By the time you reach the Foundation Year, you will be expected to know about these conditions. The codes give you an idea of their importance.

- * Emergency, life threatening or serious condition. Essential to be able to recognise and know how to treat.
- 1** Have good knowledge of these conditions; be able to recognise them and be familiar with their treatment.
- 2** Have some knowledge of these conditions and their treatment.
- 3** Be aware of the existence of these conditions and know where to seek more information about them.

Surgery	Abdominal aortic aneurysm	1
Surgery	Abdominal hernias	2
Surgery	Acute abdomen	1
Surgery	Acute appendicitis	1
Surgery	Acute Cholecystitis	1
Surgery	Acute pancreatitis	1
Surgery	Colorectal cancer	1
Surgery	Diverticulitis	1
Surgery	Gastrointestinal surgical operations	3
Surgery	Large bowel obstruction	1
Surgery	Obstructive jaundice	1
Surgery	Oesophageal cancer	3
Surgery	Small bowel obstruction	1
Surgery	The management of abdominal trauma	3
Surgery	Acute and chronic limb ischaemia	3
Surgery	Limb ulceration and gangrene	3
Surgery	Varicose veins	3
Gastroenterology	Acute/Chronic liver disease (including Cirrhosis; Viral Hepatitis; Hepatic Failure; Portal Hypertension)	2
Gastroenterology	Diarrhoea	1
Gastroenterology	Gastrointestinal bleeding	2
Gastroenterology	Gastro-intestinal cancer	3
Gastroenterology	Gastro-oesophageal reflux disease (GORD)	1
Gastroenterology	Inflammatory bowel disease	2
Gastroenterology	Nutrition	1
Gastroenterology	Peptic ulcer disease	1
Peri-operative Care	General Outcomes	1

LEARNING OUTCOMES: SURGERY

Numbers in brackets refer to the priority

ABDOMINAL AORTIC ANEURYSM (1)

1. Describe how arterial aneurysms develop and give common anatomical sites at which they occur
2. Explains the difference between true and false aneurysms
3. Describe symptoms and signs of an aortic aneurysm
4. List the indications for surgical intervention in aortic aneurysm disease
5. Give a differential diagnosis for an epigastric mass
6. List risk factors for arterial aneurysm and describe how these should be assessed and controlled
7. Describe investigations that can be used to confirm the diagnosis of aortic aneurysm
8. Give mortality figures for elective and emergency aneurysm surgery
9. Describe how asymptomatic aneurysms should be monitored and give indications for elective aneurysm surgery
10. Outline the principles of aneurysm surgery
11. Describe complications of arterial surgery and explain how these should be managed
12. Describe the potential complications of aneurysms
13. Explain the differences between an open and endovascular repair
14. Describe the potential complications of aortic aneurysm surgery.

HERNIA (2)

1. Know the pathogenesis of femoral hernias.
2. Know the causes and associated aetiological factors of femoral hernias.
3. Be able to define the term 'hernia'.
4. Understand the following descriptive terms used to describe hernias: Reducible; Irreducible; Incarcerated; Strangulated; Sliding
5. Know and be able to describe the different types of hernia (inguinal, femoral, umbilical, paraumbilical, epigastric, incisional, and parastomal).
6. Know the difference between direct, indirect and pantaloon inguinal hernias.
7. Broadly understand the causes and associated aetiological factors of the other hernias.
8. Be able to take an appropriate history from a patient presenting with a lump in the groin
9. Be able to perform an appropriate examination eliciting signs that would support the diagnosis of a direct inguinal, an indirect inguinal, a femoral hernia.
10. Understand that the diagnosis of a hernia is primarily clinical but certain investigations are available to help delineate the diagnosis
11. Know the management plan for a patient presenting with direct and indirect hernias; a femoral hernia; a strangulated hernia and a lump in the groin
12. Know and be able to describe the principles and indications of the various surgical options for the repair of the following hernias: Inguinal; Femoral; Strangulated
13. Know the principles, the indications, the contra-indications and complications of the non-operative management of the following hernias: Inguinal; Umbilical; Epigastric
14. Know the differential diagnosis of a lump in the groin.
15. Know the embryological development and the associated surgical anatomy of the inguinal and femoral canals.
16. Know and be able to describe the clinical features and presentation of: Direct and Indirect Inguinal Hernias; Femoral Hernias; Strangulated Hernias
17. Know which hernias should be repaired surgically.
18. Know the causes and associated aetiological factors of direct and indirect inguinal hernias.
19. Know the pathogenesis of direct and indirect inguinal hernias.
20. To understand the pathogenesis of strangulated hernias.
21. Understand that a strangulated hernia can lead to ischaemia, perforation and sepsis
22. Understand the principles of and the use of fluids, nasogastric intubation, antibiotics and urinary catheterisation in the stabilisation and monitoring of patients presenting with strangulated hernia

23. Know that a strangulated hernia is a surgical emergency

Hernia - Acute management

1. Describe the symptoms and signs of a patient presenting with a leak or rupture of a) the abdominal aorta b) the thoracic aorta
2. Describe the emergency management of a patient presenting with leaking or ruptured aortic aneurysm

ACUTE ABDOMEN (1)

1. Understand the presentation of a patient with an acute abdomen
2. Able to take a history of a patient with an acute abdomen
3. Able to perform an examination of a patient with an acute abdomen
4. Able to elicit guarding (voluntary and involuntary), rebound tenderness
5. Able to offer a suitable differential diagnosis
6. Able to classify the causes of an acute abdomen
7. Able to institute a management plan
8. Know the indications for referral from primary care

ACUTE APPENDICITIS (1)

1. Know the anatomy of the appendix
2. Know the different positions of the appendix (retrocaecal, post-ileal, pre-ileal, pelvic)
3. Describe the surgical anatomy of appendicectomy
4. Know the classical and alternative presentations of appendicitis
5. Know the different clinical picture of acute and perforated appendicitis
6. Understand the significance of McBurney's Point
7. Know the role of imaging in the diagnosis of appendicitis
8. Know the differential diagnosis of appendicitis
9. Be able to discriminate appendicitis from the other differential diagnoses on history
10. Describe the blood and urine results in appendicitis
11. Know the management of an appendix mass
12. Know the role laparoscopy in the diagnosis and treatment of appendicitis
13. Know the different surgical approaches to appendicectomy
14. Know the complications of appendicectomy
15. Know the epidemiology of appendicitis

ACUTE CHOLECYSTITIS (1)

1. Know the pathology of gallstones
2. Know the causes of cholecystitis
3. Be able to differentiate between acute and chronic cholecystitis
4. Be able to differentiate biliary colic from cholecystitis
5. Be able to construct a differential diagnosis
6. Be able to elicit Murphy's sign
7. Know the surgical options for the treatment of gallstones
8. Know the epidemiology and risk factors for Gallstones
9. Know the complications of cholecystitis
10. Know the clinical signs and symptoms of acute cholecystitis
11. Be able to take an accurate and comprehensive history from an acute patient with cholecystitis
12. Competently be able to perform an abdominal examination for an acute patient with cholecystitis
13. Be able to present clinical findings in a clear and logical manner
14. Be able to describe radiological tests and findings to confirm diagnosis
15. Be able to institute a management plan for a patient with acute cholecystitis

ACUTE PANCREATITIS (1)

1. Understand the difference between mild and severe pancreatitis
2. Be able to describe the early and late complications of acute pancreatitis
3. Understand the difference between acute and chronic pancreatitis
4. Know the classical clinical presentation of acute pancreatitis
5. Know the causes of acute pancreatitis
6. Know the pathophysiology of acute pancreatitis
7. Know the differential diagnosis of acute pancreatitis
8. Know the diagnostic investigations useful for the diagnosis of acute pancreatitis
9. Know the role of Ultrasound, CT and ERCP in the management of acute pancreatitis
10. Know Atlanta criteria for severity scoring
11. Know the importance and prognostic value of the scoring systems (Ranson & Glasgow) in patient management
12. Know the current indication for antibiotics in acute pancreatitis
13. Be aware that acute severe pancreatitis can lead to multi-organ failure
14. Describe the principles of management of acute pancreatitis
15. Be aware of the role of surgery in the management of acute pancreatitis
16. Be able to describe the epidemiology of pancreatitis

OBSTRUCTIVE JAUNDICE (1)

1. To understand the physiology of the anatomy of the liver and gallbladder
2. To be able to describe the physiology of bilirubin metabolism
3. To understand the differences between conjugated and unconjugated bilirubinaemia
4. To be able to list the causes of jaundice
5. To understand the presentation of a patient with obstructive jaundice
6. To be able to take a focused history form a patient with obstructive jaundice
7. To be able to present clinical findings with a patient with obstructive jaundice
8. To understand the relevant blood tests to determine cause of jaundice
9. To understand the role of ultrasound in a patient with obstructive jaundice
10. To understand the role of ERCP in a patient with obstructive jaundice
11. To understand the role of Surgery in a patient with obstructive jaundice

ACUTE DIVERTICULITIS (1)

1. To understand the causes of diverticular disease
2. To understand the complications of diverticular disease
3. To understand the common presentation of a patient with acute diverticulitis
4. To understand the medical management of a patient with acute diverticulitis
5. To understand the role of surgery in the management of a patient with acute diverticulitis

BOWEL OBSTRUCTION (1)

1. Be able to institute a management plan for a patient with acute bowel obstruction
2. Know the volumes of fluid secreted in the GI tract
3. Understand the process of fluid losses and replacement in bowel obstruction
4. Competently be able to take an accurate and comprehensive history for an acute patient with bowel obstruction
5. Competently be able to perform an examination of an acute patient with bowel obstruction
6. Be able to present clinical findings in a clear and logical manner
7. Be able to differentiate mechanical and adynamic obstruction
8. Know the difference between simple and complicated obstruction
9. Know the difference between acute, subacute and chronic obstruction
10. Be able to write up an intravenous fluid regimen for a patient with bowel obstruction
11. Understand the difference between simple and strangulating intestinal obstruction
12. Understand the term closed loop obstruction

13. Know the differential diagnosis for bowel obstruction
14. Be able to differentiate between small and large bowel on abdominal X-ray and CT

SMALL BOWEL OBSTRUCTION (1)

1. Competently be able to examine a patient with small bowel obstruction
2. Know the causes of small bowel obstruction
3. Know the classification of small bowel obstruction
4. Be able to interpret plain abdominal Xrays showing small bowel obstruction
5. Know the imaging modalities available to interpret cause of small bowel obstruction
6. Know the conservative treatment of small bowel obstruction
7. Know the surgical treatment of small bowel obstruction
8. Understand the importance of small bowel obstruction as an acute surgical presentation.
9. Know the most common causes of mechanical small bowel obstruction
10. Understand the biochemical derangements resulting from small bowel obstruction
11. Know the clinical features of small bowel obstruction
12. Know the cardinal signs of small bowel obstruction
13. Know the difference between simple and strangulating intestinal obstruction
14. Be able to obtain an accurate history from a patient with an small bowel obstruction
15. Be able to examine a patient with an small bowel obstruction
16. Know the appropriate imaging in the investigation of acute abdominal pain including: plain radiography (erect chest X-ray and abdominal Xray), abdominal ultrasound scan, CT scan, contrast studies
17. Know the operative procedures available for small bowel obstruction
18. List a differential diagnosis for small bowel obstruction
19. Know the complications that can result from small bowel obstruction including: ischaemia, perforation and biochemical derangement
20. Know the indications for surgical intervention and the consequences of resection of small bowel
21. Know the possible post-op complications of surgical treatment for small bowel obstruction

LARGE BOWEL OBSTRUCTION (1)

1. Know the normal function of the large bowel
2. Understand the importance of large bowel obstruction as an acute surgical presentation.
3. Understand the biochemical derangements resulting from large bowel obstruction
4. Know the clinical features associated with large bowel obstruction
5. Know the cardinal signs of large bowel obstruction
6. Know the most common causes of mechanical large bowel obstruction
7. Competently be able to obtain an accurate history from a patient with large bowel obstruction
8. To understand the operative procedures available for large bowel obstruction
9. Know the complications that can result from small large obstruction: (ischaemia, perforation and biochemical derangement)
10. Know the indications for surgical intervention and the consequences of resection of the large bowel
11. Know the possible post-operative complications of surgical treatment
12. Know the causes of large bowel obstruction
13. Know the classification of large bowel obstruction
14. Be able to interpret plain abdominal Xrays showing large bowel obstruction
15. Know the imaging modalities available to interpret cause of large bowel obstruction
16. Know the surgical treatment of large bowel obstruction

OESOPHAGEAL CANCER (3)

1. To understand the aetiology of oesophageal cancer
2. Know the common presentation of a patient with oesophageal cancer
3. To understand the medical, surgical and endoscopic treatment of oesophageal cancer including palliation

4. To understand the role of the primary care team in the palliative care of terminal gastrointestinal disease.

GASTRIC CANCER (3)

1. To understand the aetiology of gastric cancer
2. Know the common presentation of a patient with gastric cancer
3. To understand the medical, surgical and endoscopic treatment of gastric cancer

COLORECTAL CANCER (1)

1. Understand the incidence and prevalence of colorectal cancer
2. Know the risk factors for colorectal cancer
3. Know the genetic groups at risk of colorectal cancer
4. Be able to take a history for a patient with colorectal disease
5. Be able to perform a examination for a patient with colorectal disease
6. Be able to present clinical findings in a clear and logical manner
7. Know the symptoms and signs of cancer
8. To understand the investigations for colorectal disease
9. Be able to define the triple assessment
10. Be aware of the importance of multi-disciplinary teams
11. Know the multi-disciplinary treatments for colorectal cancer
12. Know the surgical treatment of colorectal cancer
13. Understand the role of the colorectal nurse specialist nurse
14. Understand the role of the colorectal stoma nurse
15. Understand the role of palliative care
16. Be able to recognise a stoma and its problems

ABDOMINAL TRAUMA (3)

1. Be able to describe the physiological response to injury
2. Be able to describe the principles of surgical treatment in a multi-injured patient
3. Know how to assess priorities during all phases of management
4. Know that the severely injured patient requires a high level of physiological support but also appropriately timed surgical intervention
5. Know the concept of damage limitation surgery
6. Know the importance of an overall team co-ordinator in the management
7. Know the importance of precise and accurate documentation and legal considerations
8. Know the importance of re-assessment of the patient with regards to earlier interventions
9. Know the meaning and significance of a patient with polytrauma
10. Know the meaning of missed injuries and be able to list these
11. Know the meaning of primary and secondary survey
12. Know the meaning of triage and its importance
13. Know the scale of trauma in the UK
14. Recognise the importance of analgesia in the management of these patients
15. Understand the different mechanisms of trauma injury (blunt v penetrating v crush v blast)
16. Understand the importance of a continuum of care for the injured patient by a multi-disciplinary team in which responsibility is actively shared
17. Understand the importance of the ATLS Strategy & systematic approach: Rapid primary survey, concurrent resuscitation, secondary survey, continued re-evaluation and monitoring, investigation and definitive care
18. Know the importance of classifying abdominal trauma into penetrating and blunt injuries
19. Know the indication for diagnostic peritoneal lavage in the management of abdominal trauma
20. Know the indications for operative and non-operative management of a patient with abdominal trauma
21. Know the management of a patient with bowel injury

22. Know the management of a patient with liver injury
23. Know the management of patient with splenic injury
24. Know the role of CT in the management of abdominal trauma
25. Know the role of diagnostic laparoscopy in the management of abdominal trauma
26. Know the role of focused abdominal ultrasound in the management of abdominal trauma
27. Know the role of interventional radiology
28. Understand abdominal compartment syndrome
29. Understand the role of damage control surgery and indications
30. Understand the role of investigation and treatment is dependent on the haemodynamic status of the patient

GASTROINTESTINAL OPERATIONS (2)

1. To be able to describe the surgical anatomy of the abdomen including peritoneum
2. To be able to describe the complications from major abdominal surgery
3. To be able to describe the indications, operations and complications from the following operations:
 - a. Oesophagectomy
 - b. Gastrectomy
 - c. Laparoscopic cholecystectomy
 - d. Right hemicolectomy
 - e. Anterior resection
 - f. Hartmans operation
 - g. Abdominoperineal excision of rectum
 - h. Formation of stoma
 - i. Splenectomy
 - j. Treatment options for haemorrhoids/fissures/fistula

LIMB ISCHAEMIA (3) - See also CR3 Handbook

Chronic Limb Ischaemia

1. Describe the symptoms and signs of chronic limb ischaemia
2. Learn about the differential diagnosis for calf pain
3. Describe the pathogenesis of peripheral vascular disease
4. List risk factors for the development of peripheral vascular disease and describe how each of these can be looked for and controlled
5. Describe the investigations that should be performed to determine the presence and severity of peripheral vascular disease
6. Counsel a patient on improving symptoms, slowing progression and preventing complications of peripheral vascular disease
7. Give indications for percutaneous transluminal angioplasty and arterial reconstruction surgery
8. Describe the percutaneous transluminal angioplasty and arterial reconstruction surgery to a patient, including risk of complications
9. Discuss indications for limb amputation
10. Describe types and process of limb amputation and list possible complications
11. Discuss rehabilitation for patients following limb amputation and list mobility aids available
12. Explain the options available for pain control and palliative support in a patient with intractable limb ischaemia
13. Outline how duplex Doppler can be used to investigate ischaemia
14. List the indications for amputation and its complications
15. Explain the process of rehabilitation of the amputee

Acute Limb Ischaemia

1. Describe the symptoms and signs of acute limb ischaemia
2. Discuss mechanisms which may lead to the development of acute limb ischaemia
3. Describe the nature and timing of pathological changes that will occur in an acutely ischaemic limb if the ischaemia is not relieved
4. Describe the emergency investigation of a patient with acute limb ischaemia
5. Recognise the urgency of management of the acutely ischaemic limb
6. Discuss the options available for emergency management of acute limb ischaemia including anticoagulation, thrombolysis, angioplasty and embolectomy

LIMB ULCERATION AND GANGRENE (3)

Limb Ulceration

1. List causes of chronic leg ulcers and describe the different appearances
2. Compare and contrast the presentation of venous and arterial leg ulcers
3. Describe symptoms and signs that can be used to distinguish between these causes
4. Describe the pathogenesis of ischaemic, venous and diabetic ulcers
5. Describe the features of decubitus ulcers (pressure sores)
6. Describe risk factors for decubitus ulcers
7. Describe measures for the primary and secondary prevention of leg ulcers
8. List investigations that should be performed in patients with leg ulcers and explain how these will help with patient management
9. Discuss the treatment options for a patient with chronic leg ulcers including a) management of underlying cause, b) dressings and bandaging and c) skin grafting
10. Describe the role of the multidisciplinary team in the prevention and treatment of pressure sores

Gangrene

1. List types of gangrene e.g. wet, dry, gas, Fournier's scrotal gangrene and explain the pathogenesis and appearance of each and outline its management
2. Describe the gangrene associated with chronic ischaemia
3. Explain how you would recognise gangrene clinically
4. Describe the management of each type of gangrene
5. Describe how skin ulceration can be prevented
6. Outline the treatment options for a patient with chronic leg ulcers

VARICOSE VEINS (3)

1. Describe the symptoms and signs associated with varicose veins and their complications
2. Demonstrate examination of varicose veins including distribution, communication with deep veins and complications
3. Discuss the pathophysiology of varicose veins
4. Give risk factors for the development of varicose veins
5. Outline the management options for a patient with varicose veins including indications for surgery
6. Describe the surgical options for treatment of varicose veins to a patient

LEARNING OUTCOMES: GASTROENTEROLOGY

NUTRITION (2)

1. Define adult groups at particular risk of under nutrition in the U.K., e.g. Vitamin D deficiency in Asians, iron and vitamin deficiencies in vegans and the elderly.
2. Describe how a patient's energy requirements can be calculated.
3. Describe how the above feeds can be administered: sip feeds, nasogastric, and gastrostomy, explain how the technique employed minimises the principal complications of aspiration, dehydration, hyperglycaemia, sodium overload and diarrhoea.
4. Describe the effects of protein-calorie malnutrition on muscle function, delayed hypersensitivity, wound healing and gonadal function.
5. Describe the principal differences between classes of enteral and parenteral feeds in terms of energy and protein density, lactose content, fibre content, elemental and polymeric feeds.
6. Describe the techniques of peripheral and central venous parenteral nutrition and how the technique employed may reduce the risk of thrombophlebitis, sepsis, hyperglycaemia and sodium overload.
7. Describe the role of primary care in the support and monitoring of patients requiring supplementary nutrition
8. Outline the management of a patient with anorexia nervosa.
9. Outline the management of a patient with short bowel syndrome.

ACUTE and CHRONIC LIVER DISEASE (3)

1. Able to assess a patient with acute/chronic liver disease
2. Able to list the possible causes of acute/chronic liver disease Able to understand the aetiopathology of the more common causes of acute/chronic liver disease
3. Able to understand and interpret the blood tests required to establish a diagnosis
4. Able to understand the appropriate radiological investigations required
5. Be able to distinguish between the following terms and conditions: cirrhosis; alcoholic liver disease; encephalopathy; hepatitis; oesophageal varices; ascites
6. Describe the effects of alcohol on the liver
7. Describe the management of ascites in a patient with chronic liver disease.
8. Give an account of the viral hepatitis. Describe the epidemiology, clinical features, pathology and complications
9. Outline the main causes of acute hepatitis and briefly describe the pathology
10. Outline the main causes of chronic hepatitis and briefly describe the pathology
11. Describe the role of community teams in the support of patients with terminal liver disease

Pharmacological Management

1. Know how to safely prescribe and monitor the following medications: Lactulose; Furosemide; Vasopressin; Phosphate Enema; Vitamin K; Spironolactone; Propranolol; Antibiotics eg Ciprofloxacin; Human Albumin Solution
2. Be able to identify patients who are prone to drug-induced liver disease
3. Be able to identify patients with active drug-induced hepatotoxicity
4. Be aware of the following specialist drugs, you may be involved with these under specialist supervision, or a patient may present to you unwell possibly as a result of an adverse reaction to these medications (so you need to be aware of their important adverse effects), you may need to monitor a patient, and you need to be aware of the important interactions to avoid an inadvertent serious drug-drug interaction: Interferon- α ; Ribavirin
5. Be aware that there are treatment options in hepatitis C infection
6. Know how to monitor drug effects in patients with liver disease
7. Know how to monitor patients for hepatotoxic drug effects
8. Know the drugs which may damage the liver and discuss how this occurs

9. Know the main indications/contraindications and mechanisms of action of, and describe the main adverse effects of Vasopressin
10. Understand how liver disease alters how drugs work. Adjust prescriptions in patients with liver disease

Cirrhosis

1. Define cirrhosis and list its main causes
2. Describe the morphological features of cirrhosis and discuss the pathogenetic mechanisms that underlie its complications

General Management

1. Know how to manage a patient with oesophageal varices
2. Know how to manage an encephalopathic patient

Viral Hepatitis

1. List the viruses, which may cause hepatitis and interpret the results of serological investigations.

Hepatic Failure

1. Describe the systemic effects of hepatic failure

Portal Hypertension

1. Define portal hypertension. List its main causes and outline its complications

GASTROINTESTINAL BLEEDING (2)

1. Be able to assess whether patient requires immediate resuscitation (ABC)
2. Be able to distinguish between an upper GI and lower GI source of bleeding
3. Be able to list the causes of Lower Gastrointestinal Bleeding
4. Be able to list the causes of Upper Gastrointestinal Bleeding
5. Be able to list the methods of fluid resuscitation
6. Be able to outline the risk stratification of patients with high risk of re-bleeding
7. Know and understand the complications of massive blood transfusion
8. Know the aetiopathology of the common causes of lower GI bleeding including: Haemorrhoids, Diverticular Disease, Ischaemic Colitis, Colonic Polyps and Carcinoma, angiodysplasia, Ulcerative Colitis
9. Know the aetiopathology of the common causes of upper GI bleeding including: Duodenal Ulcer, Gastric Ulcer, Gastric Erosions, Oesophageal Varices, Mallory Weiss Tear)
10. Know the anatomy of the coeliac, superior and inferior mesenteric artery territories
11. Know the complications associated with massive blood transfusion
12. Know the endoscopic management of bleeding from gastrointestinal tract
13. Know the initial management of GI haemorrhage
14. Know the radiological investigations available for assessment
15. Know the radiological investigations available for assessment of a GI Bleed
16. Know the risk factors for upper gastrointestinal bleeding and the role of the GP in its prevention
17. Know the role and indication of surgery in the management of GI bleeding
18. Know the role of red cell scanning and interventional radiology in the management of GI bleeding
19. Understand the role of Oesophago-gastro-duodenoscopy (OGD) and colonoscopy in the management of GI bleeding

DIARRHOEA (1)

1. Able to take a history of a patient with diarrhoea
2. Understand the assessment of a patient with diarrhoea
3. Able to request the investigations to establish a diagnosis
4. Able to offer a differential diagnosis
5. Able to understand the different methods of presentation of infectious diarrhoea and inflammatory bowel disease
6. Understand the treatment options for diarrhoea
7. Understand the public health implications and management of infectious diarrhoea.

Diagnosis

1. Be able to distinguish between the following terms and conditions: Increased bowel frequency; diarrhoea; inflammatory diarrhoea; secretory diarrhoea; osmotic diarrhoea; irritable bowel syndrome; diverticular disease; vomiting centre; chemoreceptor trigger zone
2. Describe the management of acute infective diarrhoea.
3. Describe the pathophysiological mechanisms that may produce diarrhoea.
4. Know when and who to investigate a patient with diarrhoea, constipation or altered bowel habit.
5. List the causes of diarrhoea and outline the diagnostic features in the history.
6. Understand the significance of complaints of diarrhoea, constipation and altered bowel habit.

INFLAMMATORY BOWEL DISEASE (2)

1. Understand from a patient perspective of living with inflammatory disease
2. Understand the difference between Crohn's and Ulcerative Colitis
3. Appreciate the multidisciplinary team approach to treatment of IBD
4. Understand the medical options of treatment of IBD
5. Understand the surgical options of treatment of IBD
6. Compare and contrast the clinical and pathological features of the idiopathic types of ulcerative colitis and Crohn's disease
7. Describe the clinical features of Crohn's disease and ulcerative colitis.
8. Describe the main features of 'other' common types of IBD
9. List the complications of IBD, in particular the extra-intestinal manifestations
10. Outline the investigation of a patient suspected of having inflammatory bowel disease.
11. Outline the management of a patient with acute ulcerative colitis.
12. Outline the management of a patient with Crohn's disease affecting the small bowel.
13. Outline the risk of colonic malignancy in IBD. Describe the methods used in screening for malignancy in IBD
14. Take a history from and examine a patient with inflammatory bowel disease.

Diagnosis

1. Be able to distinguish between the following terms and conditions: Crohn's disease; ulcerative colitis; irritable bowel syndrome; acute flare; toxic megacolon; infective diarrhoea

General Management

1. Be able to implement a strategy for pain control in a patient with inflammatory bowel disease
2. Be able to recognise potentially life-threatening complications of inflammatory bowel disease
3. Be able to recognise when surgical referral is appropriate
4. Know how manifestations of Crohn's depend on site and severity of disease

5. Know how to manage a patient with active Crohn's disease in line with current BSG guidelines
6. Know how to manage a patient with severe ulcerative colitis in line with current BSG guidelines
7. Understand the critical role of monitoring in patients with inflammatory bowel disease

Pharmacological Management

1. Know how to safely prescribe and monitor the following medications: 5-Aminosalicylates eg Sulphasalazine, Mesalazine; IV Fluids; Corticosteroids
2. Be aware of the following specialist drugs: Thiopurines eg Azathioprine; Ciclosporin; Methotrexate; Anti-TNFa eg infliximab: Recognise when a patient should be referred for specialist treatment; Use specialist drugs under close specialist supervision only, and monitor a patient taking these drugs; Recognise that patients presenting to you unwell, may be so as a result of an adverse reaction to these medications; be aware of important adverse effects; Be aware of the important interactions to avoid an inadvertent serious drug-drug interaction
3. Understand the following issues with a patient who has inflammatory bowel disease: importance of nutrition; drugs used to maintain remission; surveillance for colonic cancer; risk of osteoporosis and measures to reduce this; sources of support/information

GASTRO-OESOPHAGEAL REFLUX DISEASE (GORD) (1)

General

1. Define Barrett's oesophagus. Outline the aetiology, pathogenesis, pathology and complications
2. Describe the causes, pathology and complications of gastro-oesophageal reflux

Diagnosis

1. Be able to distinguish between the following terms and conditions: Upper GI Bleeding; Lower GI Bleeding; Dyspepsia; Gastro-oesophageal Reflux Disease; Peptic Ulceration; Gastric Ulceration; Duodenal Ulceration

General Management

1. Be able to discuss non-pharmacological therapy with a patient with GORD
2. Be able to discuss non-pharmacological therapy with a patient with peptic ulcer disease
3. Know how to detect and eradicate H.pylori
4. Know how to manage a patient with an acute GI bleed
5. Know how to manage a patient with complicated peptic ulceration
6. Know how to manage a patient with dyspepsia in line with current NICE guidelines

Pharmacological Management

1. Know how to safely prescribe and monitor the following medications: Antacids; H2 Receptor Blockers eg Ranitidine; Proton Pump Inhibitors eg Omeprazole; Misoprostol; Antibiotics for H.Pylori eradication eg amoxicillin, clarithromycin, metronidazole; Bismuth Chelate; Metoclopramide; Vasopressin; IV Fluids / Blood
2. Be able to look up the main indications/contraindications/cautions, mechanisms of action, main adverse effects, interactions and dosage regimen of Bismuth Chelate
3. Be able to look up the main indications/contraindications/cautions, mechanisms of action, main adverse effects, interactions and dosage regimen of vasopressin

PEPTIC ULCER DISEASE (1)

1. Define peptic ulceration. List the sites where peptic ulcers can occur.
2. Describe the different types of peptic ulcer and underlying aetiological factors.
3. Describe the pathology of peptic ulcers. Outline the features that distinguish between peptic ulcers and ulcerating carcinomas
4. Describe the treatment options for the management of peptic ulceration and non-ulcer dyspepsia.
5. Describe the treatment options for uncomplicated duodenal ulceration.
6. Discuss the management of recurrent peptic ulceration.
7. Discuss the value of endoscopy and barium examinations in the evaluation of patients with peptic ulcer disease.
8. List the complications of peptic ulceration
9. List the diagnostic features in a history, which are suggestive of peptic ulceration.
10. Outline the causes of peptic ulceration. Describe the role of *Helicobacter pylori* and non-steroidal anti-inflammatory drugs in the pathogenesis of peptic ulcers
11. Know the anatomy and blood supply of the stomach and duodenum and their relation to the pancreas
12. Know what a patient with peritonitis "board like rigidity" is like to examine
13. Be able to recognise the presence of free intra-peritoneal air on plain radiograph and CT
14. Be able to describe the epidemiology of duodenal and gastric ulceration
15. Know the common anatomical site of duodenal ulcer perforation
16. Know the classical presentation of a patient with a perforated peptic ulcer
17. Know the common causes of peptic ulcer perforation
18. Understand the variable clinical presentations of a patient with perforated peptic ulcer
19. Know the initial resuscitative measures in a patient with perforated peptic ulcer
20. Know the available diagnostic investigations in a patient with perforated peptic ulcer
21. Know the surgical management of a perforated peptic ulcer
22. Know the conservative management of perforated peptic ulcer and its indications

LEARNING OUTCOMES: PERI-OPERATIVE CARE

All learning outcomes for peri-operative care are priority (1)

PRE-OPERATIVE ASSESSMENT

1. Have an understanding of patient physiology and pathology relevant to the peri-operative period, with special emphasis on:
 - a. Cardiac assessment and disease
 - b. Respiratory assessment and disease
 - c. The diabetic patient
 - d. Obesity
 - e. Investigations relevant to anaesthesia and surgery

THE PRESCRIPTION CHART

1. Have a general understanding of safe prescribing practice.
2. Simple post-operative prescribing (analgesia, anti-emetics, fluids)
3. To complete such prescriptions on 'mock' charts.
4. How to reduce the risk of medication error.
5. Allergy checks and documentation.

ANALGESIA INCLUDING POST OPERATIVE PAIN

1. Analgesics: Simple, NSAIDs and opioids. The WHO pain ladder.
2. A basic understanding of the use of PCAs and epidurals for post-operative pain.
3. The role of the acute pain team. Students are encouraged to accompany the pain team at least once during their firm if possible.

FLUID THERAPY

1. Types of IV fluid
2. Use of IV fluid peri-operatively
3. How to write a simple post-operative fluid regimen
4. Simple assessment of patient fluid status
5. Procedures for the safe prescription and delivery of blood

ANTI-EMETICS

1. Drugs used
2. Indications

LOCAL ANAESTHETICS

1. Long and short acting, methods of administration.
2. Maximum safe dosages. An understanding of how % concentration relates to mg/ml when calculating dose.
3. Toxicity symptoms signs and treatment

CARE OF THE UNCONSCIOUS PATIENT

1. Assessment and management of the airway, prevention of aspiration.
2. Assessment of GCS. Attention to pressure points and maintenance of temperature.

SHOCK

1. Types of shock
2. Basic approach to treatment of shock.

THE INITIAL APPROACH TO THE SICK PATIENT

1. Recognition of the sick patient
2. Early warning scores such e.g. patient at risk scores

3. A simple ABCDE approach to any acutely ill patient

COMMUNICATION SKILLS: PATIENT RELATED

1. Consent - The discussion of risk with patients.

COMMUNICATION SKILLS: TEAM RELATED

1. Effective communication between professionals, how to refer a patient, and ask for advice or help from another professional.
2. Effective telephone communication.
3. Communication within a team during an emergency
4. Effective handover

PATIENT SAFETY

1. Safe team working.
2. Draw the student's attention to safety checking procedures: such as anaesthetic checks, patient checks pre theatre, in theatre checks ('Time Out', WHO Safer Surgery Initiative) Blood transfusion checks.
3. Infection control within theatre. Hand-washing. Sterile and clean technique.

POST OPERATIVE COMPLICATIONS

1. To understand the general and common presentations of post-operative complications including DVT/PE, infection, haemorrhage, anastomotic leak, urinary retention, cardiopulmonary complications.
2. To understand the stress response to surgery

MET3A PBL/CBL TITLES AND SCENARIOS

Please note that the PBL scenarios are linked to virtual patients on QMplus, and you are advised to undertake each linked exercise before the actual PBL session with your tutor.

We suggest setting the learning objectives under the following:

- (a) Terms,
- (b) Differential diagnoses and likely diagnosis,
- (c) Management (investigations and treatment) of the likely the condition, with discussion on how you would exclude the other conditions
- (d) Patho-physiology of the likely condition.

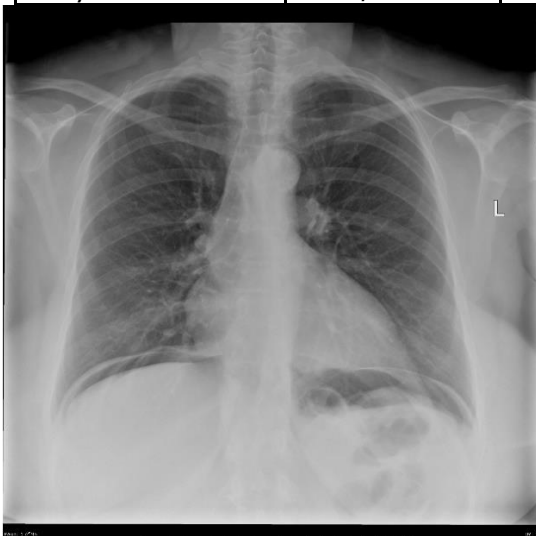
SCENARIO 1

Mrs KW, a 70 year old woman presented to Emergency Department with a one day history of severe constant lower abdominal pain. She was complaining of fevers over the last 3 days and vomited a few times.

On examination, she appeared flushed and short of breath. Her temperature was 38.5, blood pressure 80/54 with a heart rate of 120. Her abdominal examination revealed tenderness across the lower abdomen, with involuntary guarding, maximal in the LIF.

A number of initial investigations were performed. The blood results and chest X-ray showed the following;

Haemoglobin	10.1 g/dL	13-18 g/dL
WCC	23.4 x10 ⁹ /L	4-11 x10 ⁹ /L
Platelets	112 x10 ⁹ /L	150-400 x10 ⁹ /L
Sodium	143 mmol/L	135-145 mmol/L
Potassium	3.2 mmol/L	3.5-5 mmol/L
Creatinine	189 µmol/L	70-120 µmol/L
Bilirubin	23 µmol/L	3-17 µmol/L
ALT	28 U/L	3-35 U/L
AST	34 U/L	3-35 U/L
ALP	21 U/L	30-35 U/L
CRP	289	<5
Amylase	89 U/L	30-100 U/L



She underwent an exploratory laparotomy and subsequently a Hartmann's procedure. She was admitted to intensive care post-operatively where she received inotrope support and invasive monitoring.

Gram negative rods were grown from the blood cultures taken on admission. After 5 days she was transferred back to a surgical ward.

She has made an uneventful recovery and will be reviewed in outpatients in 3 months' time with a view to reversal of the Hartmann's procedure

SCENARIO 2

Mr HP, a 38 year old businessman has been referred to the colorectal surgeon. He is then admitted to the Emergency Department with a 3 day history of intermittent central abdominal pain associated with vomiting. He is not able to keep anything down today.

He has been complaining of a 2 month history of increased bowel frequency, which is associated with loose motions and rectal bleeding. He describes the bleeding as fresh red which is mixed with his motions and occasionally with mucus.

He is otherwise fit and well and had no past surgical history. He does not smoke nor drink alcohol.

On examination, he appears a little pale. Abdominal examination is unremarkable. Digital rectal examination is normal. A rigid sigmoidoscopy is also normal. He has two siblings aged 40 and 45 who have been diagnosed with polyps and his father developed colorectal cancer at the age of 67.

On examination, he looks anaemic and slightly dehydrated. Abdomen is soft and distended with umbilical tenderness. No inguinal herniae palpable. Per rectal examination reveals an empty rectum.

Haemoglobin	9.1 g/dL	11.5-15.5 g/dL
MCV	76 fL	80-99fL
WCC	9.5 x10 ⁹ L	4-11 x10 ⁹ L
Platelets	250 x10 ⁹ L	150-400 x10 ⁹ L
Sodium	149 mmol/L	135-145 mmol/L
Potassium	3.2 mmol/L	3.5-5 mmol/L
Creatinine	149 µmol/L	70-120 µmol/L
Bilirubin	14 µmol/L	3-17 µmol/L
ALT	338 U/L	3-35 U/L
AST	102 U/L	3-35 U/L
ALP	35 U/L	30-35 U/L
Amylase	76 U/L	30-100 U/L



Following a consultant review a CT scan was organized after which Mrs RA has been booked and consented for a laparotomy and proceed.

SCENARIO 3

Mrs RA, a 57 year old obese woman presents to Emergency department with a 2 day history of generalized abdominal pain radiating to the back, and is associated with vomiting.

On examination, she appears jaundiced. Her temperature is 38.2, blood pressure 78/45 with a heart rate of 132. Her abdomen is generally tender with involuntary guarding throughout.

On admission, her blood results reveal the following;

Haemoglobin	16.9 g/dL	11.5-15.5 g/dL
WCC	18.7 x10 ⁹ L	4-11 x10 ⁹ L
Platelets	244 x10 ⁹ L	150-400 x10 ⁹ L
Sodium	140 mmol/L	135-145 mmol/L
Potassium	3.0 mmol/L	3.5-5 mmol/L
Urea	18 mmol/ L	2.5-3.4 mmol/L
Creatinine	220 µmol/L	70-120 µmol/L
Bilirubin	68 µmol/L	3-17 µmol/L
ALT	112 U/L	3-35 U/L
AST	290 U/L	3-35 U/L
ALP	379 U/L	30-35 U/L
Calcium	2.02	2.12-2.65mmol/L
PaO ₂	7.8 kPa	11.3-12.6 kPa
Glucose	8.7 mmol/L	4-6 mmol/ L
Amylase	2120 U/L	30-100 U/L

After the initial resuscitation, she was transferred to Intensive care unit and subsequently underwent an urgent ultrasound of abdomen, which could not visualize the biliary tract due to her body habitus. The patient has now been referred to HPB team for further management.

SCENARIO 4

Mr R. aged 35 knew every public convenience in town. Much of the time he was well but at other times he would suffer terrible urgency of defaecation, bowel looseness and bleeding for several weeks at a time. He was seen in the gastroenterology clinic urgently as his symptoms had worsened.

Further questioning suggested that during these bouts he might sometimes pass some formed stool and often mucus. He had a feeling of incomplete evacuation after defecation. He had not lost weight.

Mr R had recently given up smoking and was not on any medication.

On examination, he looked a little pale, heart rate 98 and BP 110/70
Abdomen was distended with slight tenderness throughout.

A rigid sigmoidoscopy was performed in clinic and revealed a friable, spontaneously haemorrhagic granular mucosa to the limit of view and a biopsy was taken.

Abdominal X-ray showed a dilated colon. He was therefore admitted from the clinic.

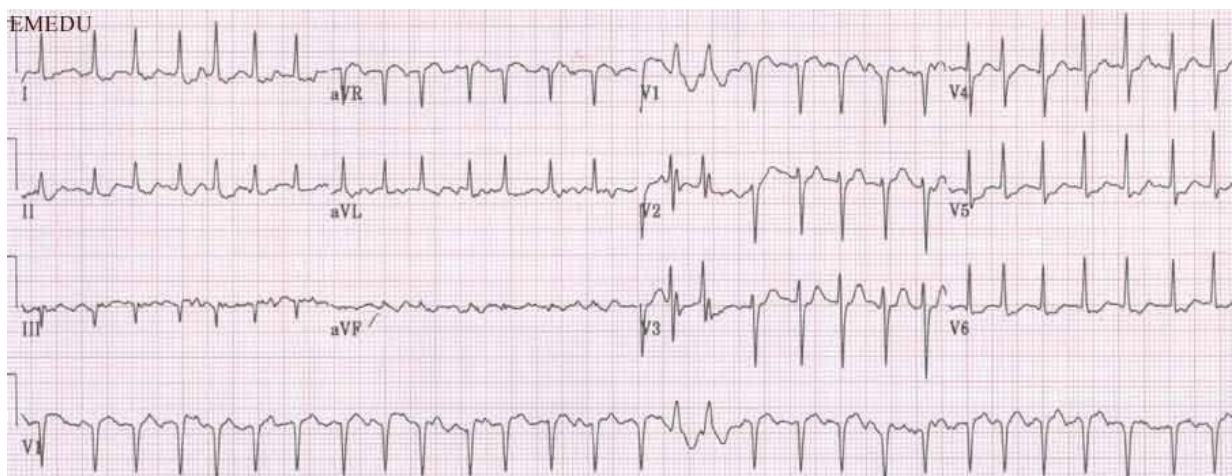
SCENARIO 5

Mr MK who is 63 years old, presents to the Emergency department with a 4 hour history of painful left leg. He admits that in the past few months he has experienced left calf pain which comes on walking about 50 yards. The pain is normally relieved by resting. However, he noticed similar pain once while he was at home watching TV.

His significant past medical history includes hypertension, hypercholesterolaemia and newly diagnosed type 2 diabetes.

On examination, he is in pain on resting. His heart rate is 120 with blood pressure of 117/78. Abdominal examination is unremarkable with no pulsatile mass palpable. All peripheral pulses are palpable apart from the left leg, where only the femoral pulse is palpable.

His ECG has been performed in Emergency department;



Mr MK has now been admitted to the vascular team in view of an urgent CT angiogram and a potential surgical intervention.

SCENARIO 6

A 54 year old homeless man has been brought into Emergency department as he was found collapsed on the street. In the ambulance, he vomited up a large amount of blood and appeared to be very drowsy.

This patient, who is identified as Mr PK, is well known to social services and suffers from mental health problems He has been drinking approximately 10 cans of strong lager a day for many years.

On examination, he appears jaundiced with a pronounced tremor. GCS 13/15. His abdomen is soft but distended and shifting dullness is positive on percussion. Blood results are shown below:

Haemoglobin	9.2 g/dL	11.5-15.5 g/dL
WCC	13.2 x10 ⁹ L	4-11 x10 ⁹ L
Platelets	133 x10 ⁹ L	150-400 x10 ⁹ L
INR	1.6	1.0
Sodium	149 mmol/L	135-145 mmol/L
Potassium	3.9 mmol/L	3.5-5 mmol/L
Creatinine	153 µmol/L	70-120 µmol/L
Bilirubin	69 µmol/L	3-17 µmol/L
Alkaline phosphatase	247U/L	45- 120U/L
ALT	99 U/L	3-35 U/L
AST	136 U/L	30-35 U/L
Amylase	56 U/L	30-100 U/L
Albumin	21	35- 50 g/L

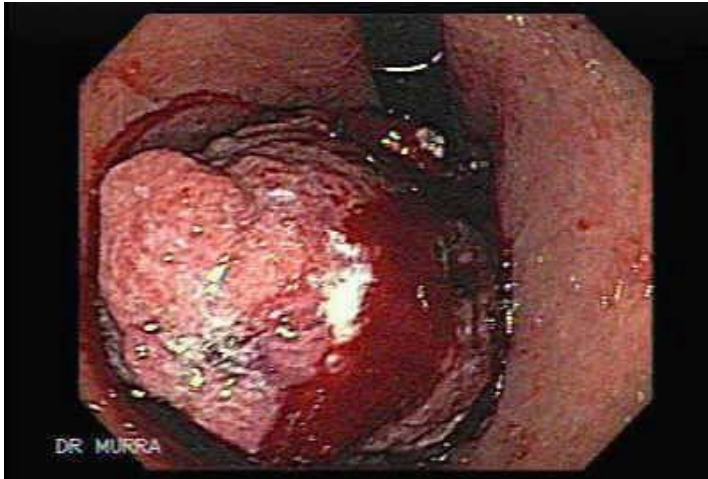
Mr PK has was referred to the gastroenterologists for further management.

SCENARIO 7

Mrs JD, a 72 year old woman has been referred to the upper gastrointestinal surgeons due to one episode of melaena. She has been found to have a microcytic anaemia. For a long time she has suffered from occasional and has noticed unintentional weight loss of 4Kg over the last 6 months. She is otherwise very active and does not have any significant past medical history.

On examination, she appears to be clinically anaemic. A lymph node is palpable in the left supraclavicular region. Abdomen is soft with slight tenderness in the epigastrium. Rectal examination is unremarkable.

She underwent an urgent oesophago-gastro-duodenoscopy which revealed the following;



Biopsies were taken which confirmed adenocarcinoma. She has now returned to her follow up clinic to discuss her diagnosis and treatment plan. .

SCENARIO 8

Romeo, a 24 year old man has been brought to Resus in the Emergency Department after being stabbed twice in his back and abdomen. He appears to be breathless on arrival. On examination by the paramedics, he was found to have one stab wound posteriorly on the left, between the 9th and the 11th rib. The second stab wound is in the epigastric region. He has had no intervention on scene. He received 20mg of morphine in the ambulance and has been on high flow oxygen but self-ventilating. He does not require C-spine immobilization.

AMPLE history reveals no drug allergy, no regular medication and past medical history. He last ate 6 hours ago.

The primary survey findings are as follow;

A – Self ventilating

B – Respiratory rate 24, SaO₂ 94% on 15L, reduced air entry on left lung base. Trachea central, reduced chest expansion on left lower lobe.

C – Heart rate 120, BP 98/47, cap refill 3 seconds, cold peripheries. He appears sweaty and agitated.

D – GCS 15/15, pupils 3mm equal and reactive

E – Obvious bleeding from wounds in epigastric region and on the left posteriorly. No priapism. No long bone injury.

FAST scan has been performed and is found to be 'positive'.

The Patient is now being resuscitated in the Emergency department prior to surgical intervention.

READING LIST

Surgery Books

Highly recommended

Essential Surgery: Problems, Diagnosis and Management

H. George Burkitt, Clive R. G. Quick, Joanna B Reed, Philip J. Deakin
Churchill Livingstone

Highly recommended

Browse's Introduction to the Symptoms and Signs of Surgical Disease

J. Black, W. Thomas, K. Burnand, N. Browse

4th Ed 2005

Hodder Arnold

Gastroenterology Books

Highly Recommended

Clinical Medicine (Gastroenterology Section)

Kumar, P., Clarke, M. (Eds)

Elsevier Saunders

Others

MacLeods Clinical Examination

G. Douglas, F. Nicol, C. Robertson

12th Ed 2009

Churchill Livingstone

Lecture notes in surgery

Clinical handbook of medicine

Clinical handbook of surgery

Websites

Surgery section on QM PLUS

Virtual patients

www.surgical-tutor.org.uk