

HIGHER MEDICAL TRAINING

CURRICULUM

FOR

Infectious Diseases

1 January 2003

Joint Committee on Higher Medical Training
5 St Andrews Place
Regent's Park
London NW1 4LB

Tel: 020 7935 1174
Fax: 020 7486 4160

Email: HMT@rcplondon.ac.uk

This curriculum is available on the JCHMT website:
<http://www.jchmt.org.uk>

CONTENTS

<u>ENTRY REQUIREMENTS</u>	<u>3</u>
<u>ORGANISATION OF TRAINING:</u>	<u>3</u>
<u>FLEXIBLE TRAINING</u>	<u>3</u>
<u>TRAINING RECORD</u>	<u>4</u>
<u>ASSESSMENT</u>	<u>4</u>
<u>GENERAL DESCRIPTION OF HMT</u>	<u>4</u>
<u>AIMS</u>	<u>5</u>
<u>TEACHING/LEARNING METHODS (T/L)</u>	<u>6</u>
<u>METHODS OF ASSESSMENT</u>	<u>7</u>
<u>EVIDENCE TO SUPPORT ASSESSMENT (E)</u>	<u>7</u>
<u>JOINT TRAINING WITH GENERAL (INTERNAL) MEDICINE</u>	<u>24</u>

ENTRY REQUIREMENTS

Applications for Higher Medical Training (HMT) should have completed a minimum of two years General Professional Training (GPT) in approved posts and obtained the MRCP (UK) or (I). A period of experience in Infectious Diseases and/or microbiology at SHO grade is considered desirable, although not essential, before entry to HMT. GPT is defined as follows:

a minimum of 2 years in approved posts with direct involvement in patient care and offering a wide range of experience in a variety of specialties

18 months of the 2 years must be spent in posts providing experience in the admission and early follow-up of acute emergencies

at least 6 of these 18 months must be spent on a service or services on which the emergency take is 'unselected'

'unselected take' is defined as acute medical intake encompassing the broad generality of medicine i.e. not restricted to any single or small group of specialties. If any major component of acute medicine (e.g. cerebrovascular accidents, myocardial infarctions) is excluded from the take, this experience must be obtained in other posts. During the period on 'unselected take' trainees should have an on-call commitment which averages no less than 4 takes per month

Non-UK graduates without the MRCP who compete for HMT posts must provide evidence of appropriate knowledge, training and experience, particularly in the care of acute medical conditions.

ORGANISATION OF TRAINING:

Certification in Infectious Diseases will only be possible if the individual has undergone a period of HMT of at least 4 years duration. Training should include a period of research (see below). Dual certification with General (Internal) Medicine will require 1 further year in Higher Medical Training, and will need to fulfil the training requirements as laid out by both the SAC in General (Internal) Medicine and the SAC in Infectious Diseases and Tropical Medicine.

The programme to which the trainee is appointed will have named consultant trainers (Educational Supervisors). In addition, one consultant not usually involved in the particular training scheme but within the same region will act as Programme Director.

FLEXIBLE TRAINING

Trainees who are unable to work full-time are entitled to opt for flexible training programmes. EC Directive 93/16/EEC requires that:

i Part-time training shall meet the same requirements as full-time training, from which it will differ only in the possibility of limiting participation in medical activities to a period of at least half of that provided for full-time trainees;

ii The competent authorities shall ensure that the total duration and quality of part-time training of specialists are not less than those of full-time trainees

The above provisions must be adhered to. Flexible trainees should undertake a pro rata share of the out of hours duties (including on-call and other out of hours commitments) required of their full-time colleagues in the same programme and at the equivalent stage.

For details of appointment and funding arrangements for flexible trainees, please see the revised 'Guide to Specialist Registrar Training' (February 1998).

TRAINING RECORD

A training record will be maintained by the trainee. It will be counter-signed as appropriate by the Educational Supervisors to confirm the satisfactory fulfilment of the required training experience and the acquisition of the competences that are enumerated in the Specialty Curriculum. It will remain the property of the trainee but must be produced at the annual assessments.

ASSESSMENT

Assessment of trainees will be based upon the standard format of annual review, including the Penultimate Year Assessment (PYA) to which particular important attaches. Full details may be found in the Introduction to the JCHMT handbook. The award of the CCST will be based on satisfactory completion of the entire series of annual assessments.

GENERAL DESCRIPTION OF HMT

The Training Programme will include at least 12 months undertaken in the management of unselected community acquired infection(s) and the management of imported infection. Involvement in the management of immunocompromised patients (including those with HIV/AIDS) and a period of involvement in ITU is obligatory. A period of attachment to a medical microbiology department (with or without clinical virology) is integral to infectious diseases training to enable the trainee to acquire the ability to use the laboratory appropriately and to interpret data originating from the laboratory (6 months according to the requirements and experience of the trainee). A period of attachment or secondment in epidemiology and/or public health and/or genito-urinary medicine is optional; up to 3 months total for these disciplines may be counted towards the Infectious Diseases training. Up to twelve months of overseas training may be accepted at the discretion of the SAC but this year spent overseas cannot be double counted for training in Tropical Medicine (see separate curriculum for Tropical Medicine with Infectious Diseases). If any training is to be performed outside a UK approved centre, e.g. in the Tropics, USA or Europe, it is essential that prospective approval is obtained from the SAC at the earliest possible stage and always before the trainee departs for such training.

Research is regarded as an important part of training – training in research methodology is essential and must be an integral component of the training programme; a period of research activity, laboratory and/or clinical is actively encouraged and a maximum of twelve months may be counted towards the Infectious Diseases training. For many trainees, further time ‘out of training’ leading to a higher medical degree may be appropriate though this is optional.

AIMS

The Training Programme in Infectious Diseases aims to produce practitioners who:

- exhibit appropriate attitudes and communication skills in dealing with colleagues and patients.
- have effective team working and leadership skills by appropriate use of history, clinical examination and investigation can perform the core assessment required for all physicians practising in Infectious Diseases
- are able to establish a differential diagnosis of patients presenting with clinical features in Infectious Diseases
- are able to apply sufficient knowledge and skill in diagnosis and management to ensure safe independent practice in Infectious Diseases
- can apply knowledge of the appropriate basic sciences relevant to Infectious Diseases
- can develop management plans for the “whole patient” and have a sound knowledge of appropriate treatments including health promotion, disease prevention and long term management plan
- fully appreciate and know how to use the multi-disciplinary team approach to management of infection within the hospital and community, including a recognition and understanding of application of public health management
- have achieved a firm grasp of basic research methodology and are able to participate in and initiate research activity
- can use skills of lifelong learning to keep up to date with developments in Infectious Diseases
- can be an effective teacher
- are able to manage time and resources to the benefit of their patients and colleagues.

Objectives

- To obtain clinical competence at consultant level in the assessment, investigation, diagnosis and management of community acquired infection at consultant level.
- To obtain clinical competence at consultant level in the management of immunocompromised patients including those suffering from HIV/AIDS
- To acquire the skills necessary at consultant level to recognise and manage hospital acquired infection, and institute control systems, including postoperative and Intensive care related illness
- To achieve competence at consultant level in the diagnosis, investigation and management of imported infection and in the provision of advice in relation to travel medicine.

- To obtain an understanding of the role of the microbiologist and virologist and the importance of microbiological techniques and their interpretation in ID and to understand the process and constraints around the microbiological report
- To become competent in all aspects of the management of antibiotic use.
- To obtain an understanding of research methodology and the practical implementation of research projects
- To have the opportunity for additional enhanced training in specific areas related to Infectious Diseases including clinical virology, clinical pharmacology, public health and epidemiology, GU Medicine, vaccinology, overseas practice (this part of the Curriculum is optional but will be important to some trainees dependent on their intended career pathway).

TEACHING/LEARNING METHODS (T/L)

1. Observation of, assisting and discussion with senior staff including small group work, multidisciplinary groups and discussion groups
2. Task specific on-the-job training including work in clinics, ward rounds
3. Self directed and computer assisted learning
4. Appropriate postgraduate courses* and tutored experience
5. Secondment to specialist unit/specialist clinics
6. Relevant audits
7. Interaction with clinical microbiologist (\pm virologist)
8. Involvement with hospital antibiotic policy process
9. Attendance at Hospital / District Infection Control Meetings or attachment to Infection Control Officer
10. Opportunistic attendance at outbreak control meetings
11. Involvement in consultation service for surgical infection

(*includes courses approved for postgraduate training by the deanery, or regional, national or international specialist societies. These would usually require postgraduate approval prior to attending).

METHODS OF ASSESSMENT

(A) – the sources of evidence which may be used are in brackets

1. Competence and accuracy of history and examination [ABC]
2. Competence and accuracy in formulation of appropriate diagnosis [ABC]
3. Recognition of appropriateness and hazards of investigations [ABC]
4. Competence and accuracy in formulation of appropriate management [ABC]
5. Competence in working within a multidisciplinary team [ABCG]
6. Competence in use of liaison with Microbiology and Public Health [ABC]
7. Demonstration of appropriate practical skills [ABCDEF]
8. Competence and sensitivity in the liaison with other professional and lay carers [BCG]
9. User group satisfaction [G]

Evidence to support assessment (E)

- A. Detailed procedures (ward round, OP clinic, topic presentation, critical appraisal such as journal club or scientific presentation) observed and assessed to be satisfactory
- B. Satisfactory and appropriately verified trainer's report including from a consultant other than the educational supervisor (this should also take into account reports from other members of the 'health care delivery team' as appropriate eg other physicians and surgeons, nursing staff, secretarial and clerical staff, X ray staff)
- C. Correctly maintained and up-to-date logbook
- D. Thesis or other course work or higher degree eg MSc, MD or PhD
- E. Published abstract, peer reviewed paper or presentation at national or international meeting
- F. Active participation in research study(ies)
- G. Patient's views

Objective 1: To obtain clinical competence in the assessment, investigation, diagnosis and management of community acquired infection at consultant level

Subject	Knowledge	Skills	Attitudes
1. Ability to take appropriate history	Symptom patterns T/L 1-6 A 1-2	Relevant, succinct and logical histories even when language, physical or mental impairment pose difficulties Use of interpreter T/L 1-6 A 1-2,7	Consider interaction of psychological and social well being on the physical symptoms to show empathy with the patient T/L 1-6 A 8,9
2. Ability to perform appropriate physical examination	A knowledge of the path of and physiological basis of physical signs T/L 1-6 A 1-2	Explain the procedure to the patient, ensure that patient discomfort is minimised. Elicit appropriate physical signs. Skillfully use instruments of examination T/L 1-6 A 1-2,7	Be aware of patient dignity, confidentiality and ethnic issues. The relative's rights and responsibilities. The need for a chaperone. T/L 1-6 A 8,9
3. Ability to perform appropriate investigation and specific skills including lumbar puncture	A knowledge of the pathophysiological basis of test. Knowledge of its relevance. Pathological basis of the test. The cost and economy and safety of the investigation. T/L 1,2,5 A 3,7,9	Ability to select appropriate tests. Ability to interpret results. Ability to perform specific skill including lumbar puncture according to guidelines T/L 1,2,5 A 3,7,9	Establishing close rapport and understanding with laboratory staff Recognising the need of a patient to understand procedures and results of tests T/L 1,2,5 A 6,8,9
4. Ability to achieve an appropriate specific or differential diagnosis and initiate appropriate treatment	A broad knowledge of clinical presentation of infectious diseases A knowledge of optimum treatment of infections A knowledge of how to access up to date information T/L 1-6 A 2,3,7,4	Ability to assimilate clinical, laboratory and epidemiological information and to use this to differentiate between infections and other conditions T/L 1-6 A 2,3,4	Consideration of diagnostic issues in relation to fears of patient. Ability to review and revise the diagnostic matrix T/L 1-6 A 5,8,9

<p>5. Ability to identify and respond appropriately to the epidemiological consequences of the diagnosis including interaction with the wider infection team</p>	<p>Knowledge of epidemiological consequences of different diseases Knowledge of epidemiological systems available for control of disease and how to access them T/L 1-7,9,10 A 5,6,7,8</p>	<p>Ability to make accurate risk assessment Ability to recognise when urgent epidemiological action is required Ability to recognise who must be involved in epidemiological control in different settings T/L 1-7,9,10 A 5,6,8</p>	<p>Cooperative working in multidisciplinary team Close rapport with colleagues T/L 1-7,9,10 A 5,6,8</p>
<p>6. Obtain competence in management of TB, hepatitis including B and C (cross speciality infections)</p>	<p>Epidemiology of TB, hepatitis B and C, the clinical illnesses including natural history The clinical management including efficacy, pharmacology and limitations of therapy How a clinic should be run - the multidisciplinary input to a TB, hepatitis B or C service. Awareness of patient support groups T/L 1-7 A 1-6,8,9</p>	<p>Diagnosing illness including with atypical as well as typical presentation eg with TB using clinical and epidemiological skills Selecting suitable hepatitis patients for treatment Monitoring therapy and ensuring compliance with treatment T/L 1-7 A 1-6,8,9</p>	<p>Non judgmental particularly regarding disease, race, gender, life style, religion Good at multidisciplinary team working Prepared to work with patient support groups T/L 1-6 A 5,8,9</p>

Objective 2: To obtain clinical competence at consultant level in the management of immunocompromised patients including those suffering from HIV/AIDS

Subject	Knowledge	Skills	Attitudes
<p>1. Ability to recognise the manifestations of infection in the immunocompromised including:</p> <ul style="list-style-type: none"> • Ability to take appropriate history in an immune compromised patient • Ability to perform appropriate physical examination in an immune compromised patient • Ability to perform appropriate investigation in an immune compromised patient • Ability to achieve appropriate specific or differential diagnosis and initiate appropriate treatment in an immune compromised patient 	<p>Pathophysiology and clinical symptoms and signs of infection in compromised host. Knowledge of its relevance. Pathological basis of the test. The cost and economy and safety of the investigations in the immunocompromised</p> <p>Awareness and knowledge of patient support groups.</p> <p>T/L 1-7 A 1-9</p>	<p>Explain the procedure to the patient, ensure that patient discomfort is minimised. Elicit appropriate physical signs. Skillfully use instruments of examination.</p> <p>Ability to interpret results. Ability to form competent investigations relevant to the patient.</p> <p>T/L 1-7 A 1-9</p>	<p>Consider interaction of psychological and social well being on the physical symptoms To show empathy with the patient Be aware of patient dignity, confidentiality and ethnic issues. The relative's rights and responsibilities. The need for a chaperone. Establishing close rapport and understanding with laboratory staff Non judgmental attitudes Sympathetic attitude to fears of patient Prepared to work with patient support groups</p> <p>T/L 1-7 A 5,8,9</p>

<p>2. Ability to understand the causes and risk factors leading to immunodeficiency</p> <ul style="list-style-type: none"> • Iatrogenic e.g. cytotoxic medication • HIV/ AIDS 	<p>Biological and iatrogenic aetiology of immunodeficiency</p> <p>T/L 1-7 A 2,4,5,6,10</p>	<p>Communication skills allowing clients to recognise risk activity and its management.</p> <p>Ability to recognise clinical and laboratory manifestations of immunodeficiency</p> <p>T/L 1-5 A 1-10</p>	<p>Non judgemental attitude to risk activities. Sympathetic understanding of patient fears</p> <p>T/L 1-5 A 5-9</p>
<p>3. Ability to provide counselling to patients and relatives</p>	<p>General epidemiology and therapeutic options for the condition.</p> <p>Prognostic assessment.</p> <p>Risk benefit analysis of therapies</p> <p>T/L 1-7 A 1-9</p>	<p>Communication skills in listening and empowering clients to reach decisions on management</p> <p>T/L 1,2,5 A 1,5,7-9</p>	<p>Non prejudicial or judgmental</p> <p>Caring recognition of social, cultural and religious factors</p> <p>T/L 1,2,5 A 5,7-9</p>
<p>4. Competence in the use of specific HIV diagnostics</p>	<p>Understanding of currently used diagnostic techniques</p> <p>T/L 1-5,7 A 3,6,7</p>	<p>Appropriate use of diagnostic techniques</p> <p>Rational use of resources</p> <p>T/L 1,3-5,7, A 3,4,6,7</p>	<p>Discernment of clients desires</p> <p>T/L 1,2,5 A 7-9</p>

<p>5. Ability to institute and manage anti-retroviral therapy</p>	<p>Pharmacokinetics and mode of action of available therapy Mechanisms of resistance / cross resistance How to access further information e.g.on current guidelines etc. T/L 1-5, 7 A 4,5,7</p>	<p>Facilitate patient decision making based on knowledge and understanding of the issues. Ability to recommend appropriate drug regimens. Appropriate use of guidelines Monitor for and recognise side effects Ability to involve the client in the process T/L 1,2,4,5 A 5,7</p>	<p>Unbiased application of knowledge to the clinical situation T/L 1,2,5 A 7-9</p>
<p>6. Ability to work and liaise with a multi-disciplinary team (including self-help groups) in the management of Immune deficiency including HIV, and in terminal care. Risk benefit analysis of treatment options Likely outcomes of different therapeutic avenues</p>	<p>Spectrum of professional and complementary therapies available. Palliative medicine, nutrition, pain relief, psychology of dying T/L 1-5 A 3,5,7-9</p>	<p>Discernment in balancing a scientific and caring approach to the problem. Team working ability. Delivery of effective pain and psychological management T/L 1-5 A 5,7-9</p>	<p>Commitment to continuity of care through physical illness to death. Recognition of the importance of team working. T/L 1,2,5 A 4,7-9</p>

Objective 3: To acquire the skills necessary at consultant level to recognise and manage Hospital Acquired Infection, and institute control systems, including postoperative and Intensive care related illness

Subject	Knowledge	Skills	Attitudes
Ability to use the following skills in the context of hospital acquired infection: <ul style="list-style-type: none"> • Clinical History taking • Appropriate Examination • Institute relevant Investigations Reach a satisfactory management plan	Symptom patterns, Pathophysiology and origin of physical signs Common / typical problems Hospital Acquired Infection Confidentiality and consent issues in the unconscious patient T/L 1-5,11 A 1,2,4-6,7	Ability to discern the relevant features of a case whether or not history available Examination skills appropriate to the clinical situation Rational use of laboratory facilities Organised thinking T/L 1,2,5,7,8,11 A 1-7	Sensitivity to patients, carers and relative's anxieties Recognition of the need to involve the patient regardless of the level of comprehension or consciousness T/L 1,2,5,11 A 7-9
Recognition and treatment of specific infections related to post operative sepsis	Common infections associated with particular surgical procedures Local / National resistance patterns Definition of wound infection T/L 1-7,11 A 6,7	Differentiation between colonisation and infection T/L 1-5,7,11 A 1-7	Consistency in approach to problems T/L 1-7,11 A7-9
3. Identification and management of infection and colonisation by multi resistant organisms in the hospital setting	Local/ national/ international antibiotic resistance patterns Local/ national/ international clinical standards , guidelines and protocols T/L 1-8,11 A 1,2,4-7	Discernment of situations giving rise to antibiotic resistance Application of knowledge to the clinical situation T/L 1-5,7,8,11 A 1-7	Multidisciplinary team working T/L 1,2,7,11 A 5-9

<p>4. The development of and execution of infection control policies in the hospital setting through the infection control committee</p>	<p>Evidence base for effectiveness of infection control policies Local/ national/ international clinical standards , guidelines and protocols T/L 1-8,11 A 5,6,8,9</p>	<p>Ability to use knowledge to formulate appropriate local advice T/L 1-11 A 5,6,8,9</p>	<p>Team working, Assertiveness T/L 1-11 A 7-9</p>
<p>5. The appropriate management of infection and infected patients throughout the hospital environment</p>	<p>Site and specialty specific infections Evidence base for antibiotic management in specific clinical situations Local/ national/ international antibiotic resistance patterns Interaction / interplay of anti-infective management with current therapy T/L 1-8,11 A 1,2,4-6,8</p>	<p>Application of the knowledge required. Interpersonal skills Assertiveness in clinical management Ability to apply knowledge appropriately to different clinical situations T/L 1-8, 11 A 1,2,4-6</p>	<p>Team working Assertiveness with recognition of clinical skills and priorities in other specialties T/L 1-8,11 A 5-9</p>
<p>6. The recognition and management of specific infection problems related to the Intensive Care Unit (ICU)</p>	<p>Common infection problems in the intensive care setting Outcomes of infection in ICU setting Evidence base for infection management T/L 1-8,11 A 1-9</p>	<p>Decision making ability Ability to justify course of action Communication skills T/L 1-8, 11 A 1-9</p>	<p>Caring and consistent attitude to the seriously ill and dying patient Responsible and appropriate attitude to the withdrawal of care T/L 1-5 A 1-9</p>

7. Ability to recognise and manage the consequences of infection including sepsis syndrome and DIC in an ICU and ward setting	Pathophysiology of serious sepsis Likely outcomes Evidence base for outcomes T/L 1-8,11 A 1-9	Prompt, relevant and appropriate decision making Clear communication skills with other carers and relatives T/L 1-8,11 A 1-9	A realistic attitude to holistic care of patient and relatives Compassionate approach T/L 1,2,5 A 1-9
---	---	---	--

Objective 4: To achieve competence at consultant level in the diagnosis, investigation and management of imported infection and the provision of advice in relation to travel medicine.

Subject	Knowledge	Skills	Attitudes
1. Ability to provide - health advice for travellers. - vaccine usage. - health hazards abroad and risk assessment for individuals. - malaria prophylaxis and advice	Geographical patterns of disease. Risk assessment for individual traveller. Problems of special groups of travellers eg elderly, immunosuppressed. Hazards of different types of travel. Availability, efficacy and safety of vaccines. Use and safety of antimalarial prevention measures. Principles of organising a travel clinic. T/L 1-8 A 1,2,4,5	Ability to take and record pretravel medical and travel history. Ability to perform risk assessment appropriate to traveller. Ability to formulate and communicate appropriate verbal and written advice for traveller. Ability to administer immunisations and prescribe antimalarials as necessary. Ability to work in multidisciplinary team. Ability to understand organisational and medicolegal aspects of travel clinic. T/L 1-8 A1,2,4,5,7	Consider interaction of psychological and social well being on the physical symptoms to show empathy with the patient T/L 1-6 A 8,9

<p>2. Ability to</p> <ul style="list-style-type: none"> - recognize and treat imported infections. - diagnosis and management of imported fevers including malaria. - diagnosis and management of other imported diseases. 	<p>Clinical and epidemiological features of imported diseases, especially manifestations and differential diagnosis of malaria. Availability and limitations of specialised diagnostic tests. Management of malaria and other imported infections. T/L 1-8 A 1-4,6,7</p>	<p>Ability to elicit and record appropriate travel history. Ability to recognize symptoms and signs of imported disease. Ability to synthesise epidemiological and clinical data into differential diagnosis. Ability to select and interpret appropriate diagnostic tests. Ability to manage malaria and other common imported infections T/L 1-8 A 1-4, 6-8</p>	<p>Consider interaction of psychological and social well being on the physical symptoms to show empathy with the patient. Respect patient dignity, confidentiality and be sensitive to ethnic issues. Recognise the relative's rights and responsibilities. Recognise the need for a chaperone. Establishing close rapport and understanding with laboratory staff. Recognising the need of a patient to understand procedures and results of tests. Consideration of diagnostic issues in relation to fears of patient. Flexibility of thinking to review and revise the diagnostic considerations T/L 1-6 A 5,6,8,9</p>
<p>3. Ability to identify sources of specialist advice for unusual infections.</p>	<p>Knowledge of location and availability of tertiary care and advice lines. Knowledge of printed and electronic information sources T/L 1-5 A 5-8</p>	<p>Ability to recognize when tertiary level care/advice is needed and to seek it. Ability to use printed and electronic information sources. T/L 1-5 A 5-8</p>	<p>Awareness of own limitations and need for specialist advice T/L 1-2 A 5,6,8</p>
<p>4. Infection related problems of immigrants</p>	<p>Knowledge of health needs of different immigrant groups. Epidemiological and clinical features of imported infection in immigrant groups T/L1-6; 9,10 A 1-6, 8,9</p>	<p>Ability to work with interpreters and patient support groups. Ability to recognize both acute and chronic infections in immigrants T/L 1-6, 9,10 A 1-6, 8,9</p>	<p>Consider interaction of psychological and social well being on the physical symptoms and show empathy with the patient. Be aware of patient dignity, confidentiality and ethnic issues. The relative's rights and responsibilities. The need for a chaperone. T/L 1-6 A 8,9</p>

5. Ability to interact with community infection team.	<p>Knowledge of risks to community of different imported diseases, including rare situations that require urgent public health intervention.</p> <p>Knowledge of epidemiological systems available for control of disease and how to access them</p> <p>T/L 1-6, 9,10 A 3-6</p>	<p>Ability to make accurate risk assessment</p> <p>Ability to recognise when urgent epidemiological action is required</p> <p>Ability to recognise who must be involved in epidemiological control in different settings</p> <p>T/L 1-7,9,10</p> <p>A 5,6,8</p>	<p>Cooperative working in multidisciplinary team</p> <p>Close rapport with colleagues</p> <p>T/L 1-7,9,10</p> <p>A 5,6,8</p>
---	---	---	--

Objective 5: To obtain an understanding of the role of the microbiologist and virologist and the importance of microbiological techniques in ID and to understand the process and constraints around the microbiological report

Subject	Knowledge	Skills	Attitudes
1. Basic microbiological benchwork including critical interpretation of laboratory procedures in relation to laboratory diagnosis	<p>Knowledge of the microbiological basis of disease. Knowledge of the pathological basis of tests and the laboratory factors affecting their interpretation.</p> <p>T/L 1-7</p> <p>A 2-4,6,7</p>	<p>Ability to perform laboratory tests identifying micro-organisms.</p> <p>Ability to interpret the findings of microbiological investigations and recognise their limitations.</p> <p>T/L 1-7</p> <p>A 2-7</p>	<p>Establishing close rapport and understanding with laboratory staff.</p> <p>T/L 1-7</p> <p>A 5-8</p>
2. Ability to be aware of the process and constraints around microbiological reporting	<p>Knowledge of the pathways of microbiological reporting.</p> <p>Knowledge of the boundaries of use of microbiological information in the context of clinical information.</p> <p>T/L 1-7,11</p> <p>A 3-7</p>	<p>Ability to communicate with colleagues and other doctors in different disciplines and enable them to appreciate the relevance of the data. Ability to interpret laboratory data in the context of clinical information.</p> <p>T/L 1-7,11</p> <p>A 2-6,8</p>	<p>Establishing good rapport with other medical colleagues. Cooperative working in multidisciplinary teams.</p> <p>T/L 1-7</p> <p>A 5-8</p>

<p>3. Ability to give advice on the repertoire, the appropriate use and the limitation of tests in the microbiology laboratory</p>	<p>Knowledge of the diagnostic tests available in the routine laboratory with understanding of further tests available at specialised centres. Knowledge of antibiotic modes of action, side effects and interactions. Knowledge of other interventions (eg abscess drainage) useful in management of infected patients T/L 1-4, 6-10 A 3-7</p>	<p>Ability to interpret results. Ability to consider data in context of clinical information and when to obtain further clinical data. Ability to provide appropriate antibiotic and other management advice at the bedside and over the telephone. T/L 1-8,10 A 3-7</p>	<p>Establishing close rapport with other medical colleagues. Awareness of patient dignity, confidentiality and ethnic issues. Consideration of interaction of psychological and social well being on the physical symptoms and demonstration of empathy to patients. T/L 1-7 A 1-6,8,9</p>
<p>4. Management including health and safety procedures</p>	<p>Knowledge of the main health and safety procedures in the diagnostic laboratory and in category 3 isolation facilities. Knowledge of regulations for handling of pathogens. T/L 1-7,9,10 A 3,5-8</p>	<p>Performing laboratory work in a safe manner consistent with local rules and national guidelines. T/L 1-7 A 3,5,7</p>	<p>Understanding and being sympathetic to the safety concerns of other laboratory staff. T/L 1-7,10 A 5,8</p>

Objective 6: To become competent in all aspects of the management of antimicrobial use

Subject	Knowledge	Skills	Attitudes
1. Competence in antimicrobial prescribing	Knowledge of antimicrobial agents, their spectrum of activity, mode of action, toxicity and appropriate use T/L 1,3,4,5,7 A 4,5,6	Selection of appropriate antimicrobial in the clinical setting. Liaison with microbiologists and laboratory T/L 1-4,7,8 A 4-6	Establishing close rapport and understanding with clinical and laboratory staff. Flexibility to change the choice of antimicrobial in the context of a change in clinical situation or laboratory data. T/L 1-7 A 5-8
2. Ability to define issues relating to antimicrobial pharmacology and toxicology including side-effects	Knowledge of pharmacology, toxicity and side effects of antimicrobial agents. Recognition of limitations of individual agents and combination therapies	Application of the knowledge in simple and complex clinical settings.	Collaborative interaction with medical and nursing colleagues and understanding of the patient's concerns relating to use of more toxic agents T/L 1,2,4,5,7 A 5,6,8,9

<p>2. Ability to develop antibiotic control policies</p>	<p>Understanding of the aims and objectives of an antibiotic policy. Knowledge of the national and local epidemiology of resistance or where to locate it. Knowledge of cost of antimicrobials and understanding of the principles of resource utilisation. Recognition of importance of regular review of policy. T/L 1,3,4,6-8 A 5,6,8</p>	<p>Work as part of a multidisciplinary team to provide the necessary information to write a policy. Establish systems to ensure regular review of policy. T/L 1,7,8 A 4-6,8</p>	<p>Work with colleagues from different disciplines. Recognise different skills brought by different disciplines. T/L 1,2,4,5,7 A 5,6,8</p>
<p>4. Competence in the economics of antimicrobial drug prescribing</p>	<p>Understanding of the importance of resource utilisation in relation to antimicrobials. Knowledge of the relative costs of different agents. T/L 1,3,4,7 A 4-6</p>	<p>Appropriate selection of suitable agents to fit the individual clinical situation, taking account of all factors including economics. T/L 1-8 A 4</p>	<p>Ensuring that patient care is optimum. Recognition that there is often more than one antimicrobial for a clinical situation, that choices are not usually right or wrong. T/L 1-7 A 4,8</p>
<p>5. Competence in the use of pre-operative antibiotic prophylaxis</p>	<p>Knowledge of the microbial agents likely to cause infection in different settings and their antimicrobial susceptibilities. Understanding the principles underlying pre operative Prophylaxis T/L 1,3,4,7,8 A 4,6</p>	<p>Use of the knowledge to apply prophylaxis in the light of local epidemiological and individual clinical issues eg allergy T/L 1-4,7,8 A4,6</p>	<p>Understand the needs and problems of the doctors managing the patient. Be prepared to explain the issues of prophylaxis to patients. T/L 1,2,7 A 8,9</p>

<p>6. Ability to recognize, manage and limit the presence of resistant organisms on clinical infectious diseases</p>	<p>Knowledge of infection control principles and policies. Recognition of the common reasons for failure of control of infection principles. T/L 1-10 A 4-6</p>	<p>Ability to apply infection control by explanation, education and application of written policies. Ability to lead a multidisciplinary team and explain the necessary actions to control infection to other health care staff including administrative staff T/L 1,3,4,7-10 A 4-6,8</p>	<p>Sensitivity to the difficulties of establishing good infection control. Recognition of the importance of clear messages and repetitive messages to health care professionals and patients delivered in a constructive manner. T/L 1,2,9-11 A 5,6,8,9</p>
--	--	--	---

Objective 7: To obtain an understanding of research methodology and the practical implementation of research projects

Subject	Knowledge	Skills	Attitudes
1. Competence in research methodology including basic statistics (Necessary)	Research methods; clinical trial design; research ethics; statistical analysis and common statistical errors; to know how to initiate appropriate clinical studies T/L 1-6 A 5,7	Experimental design, writing up. Statistical analysis. Appropriately assess importance of published work T/L 1-6 A 7	Curiosity and spirit of enquiry but healthy cynicism. Be prepared to change practice in the light of published evidence T/L 1-6 A 5,7
2. Involvement in detailed clinical or preclinical research (optional)	Detailed knowledge of a specific area. Detailed understanding of the techniques and results of the research T/L 1-6 A 7.	High level ability to undertake all aspects of research including its interpretation. Usually ability to write a MD or PhD. Possibly ability to complete a MSc degree. T/L 1-6 A 7	Curiosity, maintaining interest in detail over a long period and an inquiring mind. T/L 1-6 A 7
3. Epidemiological and public health research (optional)	As stipulated by epidemiology training programmes T/L 1-6 A 7		
4. Ability to use mathematical models in infection. (optional)	Detailed knowledge of mathematical models T/L 1-6 A 7	Handling, interpretation and application of mathematical models. T/L 1-6 A 7	Curiosity and an inquiring mind. T/L 1-6 A 7

Objective 8: To have the opportunity for additional (optional) enhanced training in specific areas related to ID including: - Clinical virology; Clinical pharmacology; Public Health and Epidemiology; GU Medicine; Vaccinology; Overseas practice.

Subject	Knowledge	Skills	Attitudes
1. Clinical virology	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training
2. Clinical pharmacology	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training
3. Public Health and Epidemiology	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training
4. GU Medicine	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training
5. Vaccinology	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training
6. Overseas practice	As appropriate to needs of the individual trainee	Enhancement of skills in the specific area of study	Recognition of 'added value' of the additional targeted training

JOINT TRAINING WITH GENERAL (INTERNAL) MEDICINE

An additional year in training will be required for dual certification with General (Internal) Medicine. Full details of the General (Internal) Medicine programme are contained in the General (Internal) Medicine curriculum document. The following is an example of a programme incorporating the two specialties:

Year One	G(I)M or Infectious Diseases
Year Two	Infectious Diseases or G(I)M
Year Three	Infectious Diseases
Year Four	Infectious Diseases with 'top up' G(I)M
Year Five	Infectious Diseases with 'top up' G(I)M

Year Two or Three may be spent in Research. During Years Four and Five trainees will be required to be on take for unselected G(I)M on a minimum of two days per month on average, with at least ten patients admitted per take and ongoing care of a proportion (approximately one third). Trainees will also be required to undertake one general medical outpatient clinic per week. In some centres a 6 month period of full time G(I)M during the final part of the training programme may be an alternative to part time G(I)M over the final 2 years (see specific training programme for G(I)M for more detail).

The specific Tropical Disease training programme includes the content of the ID training but with a specific requirement for a supervised year abroad, a year at a centre in the UK with recognised expertise in tropical medicine and the acquisition of the DTM&H (see specific training programme for more detail).

The joint training programme in Microbiology or Virology and ID is a 6 year training programme which does not include G(I)M. It includes ID in years 3 and 4 and for 6 months in the final year of training (see specific training programme for more detail).

September 2001