

Specialty Training Curriculum
FOR
TROPICAL MEDICINE

MAY 2007

Joint Royal Colleges of Physicians Training Board

5 St Andrews Place
Regent's Park
London NW1 4LB

Telephone (020) 7935 1174
Facsimile (020) 7486 4160
e-mail: ptb@jrcptb.org.uk
website: www.jrcptb.org.uk

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1 **Rationale**

Purpose

This curriculum provides the recommended structure for specialty training in Clinical Infectious Diseases which, if all competencies are achieved will allow the trainee to gain a certificate of Completion of Training in that specialty and be appropriately qualified to practice as a specialist in Infectious Diseases.

Role in Postgraduate Training

The training specified should occur during Specialist training and assumes that trainees embarking upon it will have gained the required level 1 competencies in General Internal Medicine (Acute). Most trainees will continue to acquire competencies in Acute Medicine Training to competency level 2 and will do this concurrently with specialty training in Infectious Diseases. This curriculum assumes that the trainee will achieve all necessary competencies delineated in the Generic Curriculum developed by JRCPTB and assumes concordance with that curriculum.

Curriculum development

This specialty curriculum was developed over the last ten years as a result of consensus between Royal Colleges, Specialist Societies and Deanery representation with experience in the specialty. It grew from an objective based curriculum agreed by the specialty and published in 2003. The current document was agreed by the Specialist Advisory Committee for Infectious diseases and Tropical Medicine to the JRCPTB. This committee encompasses representation from the UK Royal Colleges of Physicians, the Postgraduate Deaneries, the British Infection Society and the Royal Society for Tropical Medicine & Hygiene. All members of the committee have specific interest and experience in both the supervision and organisation of training from around the UK. The committee has a permanent trainee member elected by and representing the trainee body.

Duration of Training

Although this curriculum is competency based, the duration of training must meet the European minimum of 4 (four) years for post registration in full time training adjusted accordingly for flexible training (EU directive 93/16/EEC requires that flexible training can be no less than 50% whole time equivalent). The SAC has advised that training from ST1 will usually be completed in 6 (six) years in full time training.

Generic Curriculum

This specialty curriculum is complementary to the generic curriculum which applies to all 28 physicianly specialities. The generic curriculum follows the headings of good medical practice and runs through from core training to CCT. Trainees should read and understand both their specialty curriculum and the generic curriculum. Both curricula should be seen as integrated so that generic competencies are acquired at all stages of specialty training. Some generic components are also further expanded and deepened for some specialties (eg palliative medicine). When planning specialty programmes, deaneries and trainers should ensure that both specialty and generic competencies can be acquired and assessed

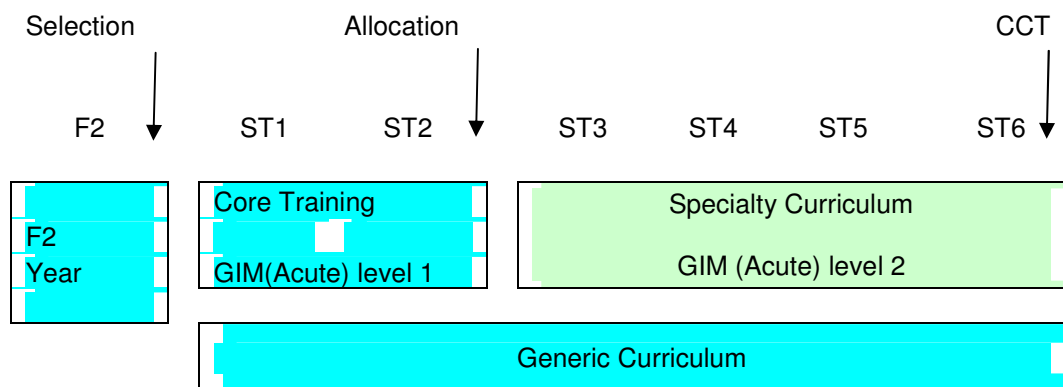
General Internal Medicine (Acute) curriculum

The new curriculum for General Internal Medicine (Acute) is split into 3 parts.

Level one competencies will be achieved by all physicianly trainees during core training (core medical training – CMT, or acute care common stem – ACCS) and must be achieved before progression to specialty training.

To participate in the acute medical take and to be responsible for the care of unselected acutely ill patients as a senior medical appointment a clinician requires a CCT in a medical specialty, such as tropical medicine, and a certificate in GIM (Acute). The Level 2 GIM (Acute) training programme ensures a trainee's ability to provide acute medical care in the acute setting. Upon successful attainment of Level 2 competencies, the trainee will be certificated in GIM (Acute). The SAC in acute and general medicine has advised that it will generally be necessary for a trainee to spend a further two years in general and acute medicine from entry into ST3 in order to deliver the competencies required, for instance a dedicated period of acute medicine may deliver these competencies, or alternatively training in the specialty can continue in parallel with exposure to acute medicine.

Level 3 competencies will usually only be achieved by those wishing to CCT in GIM (acute) medicine and practice as an acute physician.



Teaching & Learning methods

Throughout training there is an essential link between the process of learning and the ongoing practice of medicine such that through this ongoing process of apprenticeship the trainee gains both practical skills and develops increasing skill in the art of medical practice as a specialist.

The “learning experiences” recommended for the optimum achievement of the curriculum objectives are detailed below and comprise a balance of self directed and peer related learning coupled with both general and specialised periods of attachment to experts in different aspects of the specialty. There are in addition recommendations for participation in educational multidisciplinary activities.

The curriculum objectives will be both delivered and achieved predominantly clinical apprenticeship but this can only occur in accredited programmes consisting of designated approved posts.

2 Content of Learning

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

1. exhibit appropriate attitudes and communication skills in dealing with colleagues and patients.
2. 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
3. are able to establish a differential diagnosis of patients presenting with clinical features in Infectious Diseases
4. are able to apply sufficient knowledge and skill in diagnosis and management to ensure safe independent practice in Infectious Diseases
5. can apply knowledge of the appropriate basic sciences relevant to Infectious Diseases
6. 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
7. 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
8. have achieved a firm grasp of basic research methodology and are able to participate in and initiate research activity
9. can use skills of lifelong learning to keep up to date with developments in Infectious Diseases
10. can be an effective teacher
11. are able to manage time and resources to the benefit of their patients and colleagues.

Specialty specific Objectives

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

2. To obtain clinical competence at consultant level in the management of immunocompromised patients including those suffering from HIV/AIDS
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
4. 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.
5. 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
6. To become competent in all aspects of the management of antibiotic use.
7. To obtain an understanding of research methodology and the practical implementation of research projects
8. 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).
9. An essential competency for all trainees in Tropical Medicine is the Diploma in Tropical Medicine and Hygiene. This must be acquired prior to CCT.
10. To have the opportunity, if desired and appropriate to participate in clinical or laboratory based research related to infectious diseases by taking time out of programme if prospectively agreed by training authorities

3 Model of Learning

Trainees will pursue the learning outcomes described in the curriculum through a variety of learning methods. There must be robust arrangements for quality assurance in place to ensure consistent local implementation of the curriculum. Most competencies are acquired over a sustained period of experience.

There will be regular work-based assessment by educational supervisors who will be able to assess, with the trainee, their on-going progress and whether parts of the curriculum are not being delivered within their present work place. The practice of educational supervisors is described below under supervision and feedback.

The curriculum will be blueprinted so that key competencies will be delivered, and the various assessments of knowledge, skills, behaviours and attitudes will be fit for purpose and give coverage across the domains of the curriculum by a process of sampling. All assessments will be appropriate to the training level of the trainee and will be valid, reliable, systematically collected, judged against pre-determined criteria and appropriately weighted. Feedback will be given confidentially to each trainee with suggestions for improvements where appropriate.

Trainees will however be expected to complete the MRCP prior to attaining a CCT. In addition there will be a formal knowledge based examination (KBA) to be

completed satisfactorily by CCT as well as day to day assessment of knowledge by clinical supervisors and reported to programme directors through annual reports.

Each year there will be an assessment of progress (RITA) led by the deanery utilising reports from educational and research supervisors and academic mentors with the results of formal assessments. There will be an interview with experienced teachers and assessors covering the various clinical areas in which trainees work. If trainees fail to meet the expected standards they may be asked to have targeted training or even repeat part of or a whole year of training if needed. Repeated failure to make satisfactory progress may mean that trainees will be asked to leave the training programme. This decision will always involve the postgraduate dean.

Research

Trainees who wish to acquire extensive research competencies, in addition to those specified in the generic element of the curriculum, may undertake a research project as an ideal way of obtaining those competencies, all options can be considered including taking time out of programme to complete a specified project or research degree. Time out of programme needs prospective approval from the SAC and the support of the Postgraduate Dean. Funding will need to be identified for the duration of the research period. A maximum period of 3 years out of programme is allowed.

Learning Objectives

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- 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
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9. To gain experience and competencies in clinical medicine in a tropical environment

These objectives and the proposed acquisition of the related competencies along with recommended assessment methods are detailed in the following section.

4 Learning Experience

1. Observation of, assisting and discussion with senior staff
2. Learning with peers including small group work, multidisciplinary groups and discussion groups
3. Learning from practice including task specific on-the-job training, work in clinics, ward rounds
4. Self directed and computer assisted personal study
5. Appropriate postgraduate courses* and tutored experience
6. Secondment to specialist unit/specialist clinics
7. Relevant audits
8. Interaction with clinical microbiologist (+ virologist)
9. Involvement with hospital antibiotic policy process

10. Attendance at Hospital / District Infection Control Meetings or attachment to Infection Control Officer
11. Opportunistic attendance at outbreak control meetings
12. 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).

4 Learning Experience

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

Subject	Knowledge	Skills	Attitude	Learning experiences	Methods of assessment
1. Ability to take appropriate history	Symptom patterns	<p>C1 Relevant, succinct and logical histories even when language, physical or mental impairment pose difficulties</p> <p>Collateral history where appropriate and necessary Record risk factors for conditions relevant to mode of presentation</p> <p>Use of interpreter</p>	Consider interaction of psychological and social well being on the physical symptoms to show empathy with the patient	1-6	1,2,7-9
		<p>C2 History taking in difficult situations (patient confused, aggressive, non-compliant) Collateral history in challenging situations (e.g. confrontational or anxious family)</p>			

2. Ability to perform appropriate physical examination	A knowledge of the patho-physiological basis of physical signs	<p>C1 Explain the procedure to the patient, ensure that patient discomfort is minimised. Elicit appropriate physical signs. Gain appropriate consent, and respect individual's dignity, privacy and rights to refuse an examination Formal assessment of Cognitive Function when appropriate Basic assessment of Mental State when appropriate Skilfully use instruments of examination</p>	C1 Be aware of patient dignity, confidentiality and ethnic issues. The relative's rights and responsibilities. The need for a chaperone.	1-6	1,2,7-9
3. Ability to perform appropriate investigation and specific skills including	A knowledge of the pathophysiological basis of test. Knowledge of its	<p>C1 Ability to select appropriate tests. Ability to interpret results. Ability to perform specific skill including lumbar puncture according to guidelines</p>	Establishing close rapport and understanding with laboratory staff Recognising the need of a patient to	1,2,5	3,6-9

lumbar puncture	relevance. Pathological basis of the test. The cost and economy and safety of the investigation.	C2 Ability to select invasive and more specialised tests and interpret results	understand procedures and results of tests		
4. Ability to achieve an appropriate specific or differential diagnosis and initiate appropriate treatment	C1 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	C1 Ability to assimilate clinical, laboratory and epidemiological information and to use this to differentiate between infections and other conditions	Consideration of diagnostic issues in relation to fears of patient. Ability to review and revise the diagnostic matrix	1-6	2,3-5,7-9
	C2 Knowledge of clinical presentation of unusual infectious diseases	C2 Formulate a more complete list of differential diagnosis Construct a problem list in scenarios where there are a number of issues that need to be considered			

5. Ability to identify and respond appropriately to the epidemiological consequences of the diagnosis including interaction with the wider infection team	C1 Knowledge of epidemiological consequences of different diseases	C1 Ability to make accurate risk assessment Ability to recognise when urgent epidemiological action is required	C1 Cooperative working in multidisciplinary team	1-7, 9, 10	5-8
	C2 Knowledge of epidemiological systems available for control of disease and how to access them	C2 Ability to recognise when urgent epidemiological action is required Ability to recognise who must be involved in epidemiological control in different settings	C2 Close rapport with colleagues		
6. Obtain competence in management of TB, hepatitis including B and C (cross speciality infections)	C1 Epidemiology of TB, hepatitis B and C, the clinical illnesses including natural history The clinical management including efficacy, pharmacology and limitations of therapy	C1 Diagnosing illness including with atypical as well as typical presentation eg with TB using clinical and epidemiological skills	C1 Non judgmental particularly regarding disease, race, gender, life style, religion Good at multidisciplinary team working	1-6	1,2,7-9

	<p>C2 How a clinic should be run - the multidisciplinary input to a TB, hepatitis B or C service. Awareness of patient support groups</p>	<p>C2 Selecting suitable hepatitis patients for treatment Monitoring therapy and ensuring compliance with treatment</p>	<p>C2 Prepared to work with patient support groups</p>		
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Objective 2: To obtain competence at consultant level in the management of HIV infection and in the management of immune compromised patients (with and without AIDS)

Subject	Knowledge	Skills	Attitudes	Learning Methods	
<p>1.Ability to recognise infection in the immune compromised patient – specifically ability to:</p> <p>Take appropriate history</p> <p>Perform appropriate physical examination</p> <p>Carry out appropriate investigation</p> <p>Achieve appropriate diagnosis and initiate appropriate treatment.</p>	<p>Pathophysiology and clinical features of infection in immune compromised host</p> <p>Relevance of specific aspects of history</p> <p>Relevance of specific physical signs (and their absence)</p> <p>Pathological basis for investigations. Cost, economy and safety of investigation in immune compromised</p> <p>Awareness and knowledge of patient support groups</p>	<p>Ability to explain procedures to patient and achieve valid informed consent.</p> <p>Skill to elicit physical signs</p> <p>Ability to interpret test results and explain to patient</p>	<p>Consider interaction of psychological and social well being on physical symptoms.</p> <p>Demonstrate empathy</p> <p>Be aware of patient dignity, confidentiality and ethnic issues. Non judgmental attitudes.</p> <p>Awareness of patient's rights and responsibilities</p> <p>Sympathy with patient's fears.</p> <p>Prepared to work with patient support groups</p>	1-8	

<p>2. Ability to understand the causes and risk factors leading to immune deficiency including</p> <p>HIV/AIDS</p> <p>Malignancy</p> <p>Immunosuppressive cytotoxic drugs</p>	<p>Biological and iatrogenic aetiology of immune deficiency</p>	<p>Ability to communicate risk activity and its management to patients</p> <p>Ability to recognise clinical and laboratory manifestations of immune deficiency</p>	<p>Non judgemental attitude to risk activities.</p> <p>Sympathetic understanding of patient fears</p>	<p>1-8</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>Communication skills that allow patients and carers to participate in management decisions</p>	<p>Non judgemental</p> <p>Caring recognition of social, cultural and religious factors</p>	<p>1-8</p>	

4. Competence in the use of specific HIV diagnostics	Understanding of current diagnostic techniques	Appropriate use of current diagnostic techniques Resource management	Recognition and appreciation of patient wishes and fears	1-8	
5. Ability to institute and manage anti retroviral therapy	Pharmacokinetics and mode of action of available therapy. Mechanisms of resistance and cross resistance How to access further information eg on current guidelines etc	Ability to apply guidelines and recommend appropriate drug regimens. Monitoring and recognition of side effects. Engaging patients to support adherence and facilitate treatment decisions.	Unbiased application of knowledge to the clinical situation	1-9	
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.	Spectrum of professional and complementary therapies available. Palliative medicine, nutrition, pain relief, psychology of dying.	Discernment in balancing a scientific and caring approach to the problem. Team working ability Delivery of effective pain and psychological management.	Commitment to continuity of care through physical illness to death. Recognition of the importance of team working.	1-9	

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	Learning experiences	
1 1	Ability to use the following skills in the context of healthcare acquired infection: <input type="checkbox"/> Clinical History taking <input type="checkbox"/> Appropriate Examination <input type="checkbox"/> Institute relevant Investigations Reach a satisfactory management plan	Symptom patterns, Pathophysiology and origin of physical signs. Common / typical problems in Hospital Acquired Infection. Confidentiality and consent issues in the unconscious patient.	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 Ability to determine origin of infection and develop a strategy for its containment Organised thinking	Sensitivity to patients, carers and relative's anxieties Recognition of the need to involve the patient regardless of the level of comprehension or consciousness	1-5, 8, 12	

2	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	Differentiation between colonisation and infection	Consistency in approach to problems	1-5, 8, 12	
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	Discernment of situations giving rise to antibiotic resistance Application of knowledge to the clinical situation	Multidisciplinary team working	1-5, 8, 12	

4	The development of and execution of infection control policies in the hospital setting through the infection control committee	Evidence base for effectiveness of infection control policies Local/ national/ international clinical standards , guidelines and protocols	Ability to use knowledge to formulate appropriate local advice	Team working, Assertiveness	1-6, 8, 10, 12	
5	The appropriate management of infection and infected patients throughout the hospital environment	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	Application of the knowledge required. Interpersonal skills Assertiveness in clinical management Ability to apply knowledge appropriately to different clinical situations	Team working Assertiveness with recognition of clinical skills and priorities in other specialties	1-6, 8-10, 12	

6	The recognition and management of specific infection problems related to the Intensive Care Unit (ICU)	Common infection problems in the intensive care setting Outcomes of infection in ICU setting Evidence base for infection management	Decision making ability Ability to justify course of action Communication skills	Caring and consistent attitude to the seriously ill and dying patient Responsible and appropriate attitude to the withdrawal of care	1-6, 8, 10, 12	
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	Prompt, relevant and appropriate decision making Clear communication skills with other carers and relatives	A realistic attitude to holistic care of patient and relatives Compassionate approach	1-6,	
8	Ability to both advise on and choose appropriate personal protective equipment for infection scenarios	Specific categories of personal protective equipment	Ability to don and instruct in the application of personal protective equipment for given infective scenarios	Commitment and leadership in the application of principles of hospital infection control	1-5, 8, 10, 12	

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 infection

4.1 Recognition and treatment of imported infections.

- diagnosis and management of imported fevers including malaria.
- diagnosis and management of other imported diseases.

Knowledge	Skills	Attitudes	Learning methods	
Clinical and epidemiological features of imported diseases, including physical manifestations.	Ability to elicit and record appropriate travel history. Ability to recognise symptoms and signs of imported disease. Ability to synthesise epidemiological and clinical data into differential diagnosis.	<i>Consider interaction of psychological and social well being on the physical symptoms</i> <i>Show empathy with the patient</i> <i>Respect patient dignity, confidentiality</i> <i>Have sensitivity to ethnic issues.</i> <i>Recognise the relative's rights and responsibilities.</i> <i>Recognise the need for a chaperone.</i> Recognise the need of a patient to understand procedures and results of tests Consideration of diagnostic issues in relation to fears of patient. Patient confidentiality	1-8	
<i>Differential diagnosis of malaria</i> T/L 1-8 A 1-4; 6,7	Ability to select and interpret appropriate clinical features Ability to select and interpret appropriate diagnostic tests.	Flexibility of thinking to review and revise the diagnostic considerations	1-8	
Availability and limitations of specialised diagnostic tests.	Ability to select and interpret appropriate diagnostic tests.	Establish close rapport and understanding with laboratory staff	1,4,5,8	

<p><i>Management of malaria and other imported infections.</i></p>	<p>Ability to manage malaria and other common imported infections Liaison with CCDC as appropriate Awareness of infection control issues</p>	<p>Good communication with professional colleagues on ward, in laboratory and in public health</p>	<p>1-8</p>	
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4.2 Provision of health advice for travellers.

- vaccine usage.
- health hazards abroad and risk assessment for individuals.
- malaria prophylaxis and advice

Knowledge	Skills	Attitudes	Learning methods	
<i>Geographical patterns of disease.</i>	Ability to use paper and electronic resources to identify patterns of disease	commitment to maintaining up to date information	4,5	
<i>Risk assessment for individual traveller.</i> <i>Problems of special groups of Travellers eg elderly, immunosuppressed.</i> Hazards of different types of travel	Ability to take and record accurately 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 motivate travellers to apply advice	Care and attention to detail Sensitivity, empathy, non judgmental	1-6	

<i>Availability, efficacy and safety of vaccines.</i>	Ability to perform risk/benefit assessment and communicate effectively to traveller Ability to prescribe and administer immunisations as necessary.		1-6	
Use and safety of antimalarial prevention measures.	Ability to perform risk/benefit assessment and communicate effectively to traveller Ability to prescribe antimalarials as necessary.		1-7	
<i>Principles of organising a travel clinic.</i>	Ability to work in multidisciplinary team. Ability to understand organisational and medicolegal aspects of travel clinic.	Awareness of skills of other team Acknowledgment of skills of others in team and appropriate use of them.	1-7	

4.3. Identification and use of sources of specialist advice for unusual infections.

Knowledge	Skills	Attitudes	Learning methods	
Knowledge of location and availability of tertiary care and advice lines.	Ability to recognise when tertiary level care/advice is needed and to seek it. Ability to use printed and electronic information sources.	Awareness of own limitations and need for specialist advice	1-6,8	
Knowledge of printed and electronic information sources	Ability to use the knowledge appropriately in the clinical setting		1-8	

4.4. Infection related problems of immigrants

Knowledge	Skills	Attitudes	Learning methods	
Knowledge of health needs of different immigrant groups.	Ability to apply knowledge in clinical setting. Ability to work with interpreters and patient support groups.	Consider interaction of psychological and social well being on the physical symptoms Show empathy with the patient Awareness of patient dignity, confidentiality and ethnic issues. The relative's rights and responsibilities. Patient confidentiality	1-8	
Epidemiological and clinical features of imported infection in immigrant groups	Ability to recognise both acute and chronic infections in immigrants Ability to identify symptomatic and asymptomatic infections	The need for a chaperone.	1-6,8	

4.5. Interaction with community infection team.

Knowledge	Skills	Attitudes	Learning methods	
Knowledge of risks to community of different imported diseases, including rare situations that require urgent public health intervention.	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	Cooperative working in multidisciplinary team Close rapport with colleagues	1-6,8	
Knowledge of epidemiological systems available for control of disease and how to access them	Ability to recognise situations requiring public health input Ability to share information with appropriate health care professional e.g. general practitioners, public health doctors in a timely manner	Preserving patient confidentiality	1-6,8	

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	Attitude	Learning experiences	
1. Basic microbiological benchwork including critical interpretation of laboratory procedures in relation to laboratory diagnosis	Knowledge of the microbiological basis of disease. Knowledge of the pathological basis of tests and the laboratory factors affecting their interpretation.	Ability to perform laboratory tests identifying micro-organisms. Ability to interpret the findings of microbiological investigations and recognise their limitations.	Establishing close rapport and understanding with laboratory staff.	1-8	
2. Ability to be aware of the process and constraints around microbiological reporting	Knowledge of the pathways of microbiological reporting. Knowledge of the boundaries of use of microbiological information in the context of clinical information.	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.	Establishing good rapport with other medical colleagues. Cooperative working in multidisciplinary teams.	1-8, 12	

<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 (e.g. abscess drainage) useful in management of infected patients</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.</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.</p>	<p>1-9,11</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.</p>	<p>Performing laboratory work in a safe manner consistent with local rules and national guidelines.</p>	<p>Understanding and being sympathetic to the safety concerns of other laboratory staff.</p>	<p>1-8, 10,11</p>	

Objective 6. To become competent in all aspects of the management of antibiotic use.

	Subject	Knowledge	Skills	Attitude	Learning experiences	
1	Competence in antimicrobial prescribing	Knowledge of antimicrobial agents, their spectrum of activity, mode of action, toxicity and appropriate use	Selection of appropriate antimicrobial in the clinical setting. Liaison with microbiologists and laboratory	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 1-9	
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 1-9	
3	Ability to develop antibiotic control policies	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	Work as part of a multidisciplinary team to provide the necessary information to write a policy. Establish systems to ensure regular review of policy.	Work with colleagues from different disciplines. Recognise different skills brought by different disciplines.	T/L 1-10	

	Subject	Knowledge	Skills	Attitude	Learning experiences	
		importance of regular review of policy				
4	Competence in the economics of antimicrobial drug prescribing	Understanding of the importance of resource utilisation in relation to antimicrobials. Knowledge of the relative costs of different agents.	Appropriate selection of suitable agents to fit the individual clinical situation, taking account of all factors including economics.	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 1-9	
5	Competence in the use of pre-operative antibiotic prophylaxis	Knowledge of the microbial agents likely to cause infection in different settings and their antimicrobial susceptibilities. Understanding the principles underlying pre-operative prophylaxis.	Use of the knowledge to apply prophylaxis in the light of local epidemiological and individual clinical issues e.g. allergy	Understand the needs and problems of the doctors managing the patient. Be prepared to explain the issues of prophylaxis to patients.	T/L 1-5,7-9,12	
6	Ability to recognise, manage and limit the presence of resistant organisms in clinical infectious diseases	Knowledge of infection control principles and policies. Recognition of the common reasons for failure of control of infection principles.	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.	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 1-12	

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

Subject	Knowledge	Skills	Attitude	Learning experiences
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	Experimental design, writing up. Statistical analysis. Appropriately assess importance of published work	Curiosity and spirit of enquiry but healthy cynicism. Be prepared to change practice in the light of published evidence	1-7
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	High level ability to undertake all aspects of research including its interpretation. Usually ability to write a MD or PhD. Possibly ability to complete an MSc degree.	Curiosity, maintaining interest in detail over a long period and an inquiring mind.	1-7

3. Epidemiological and public health research (optional)	As stipulated by epidemiology training programmes	xx	xx	1-7	
4. Ability to use mathematical models in infection. (optional)	Detailed knowledge of mathematical models	Handling, interpretation and application of mathematical models.	Curiosity and an inquiring mind.	1-7	

Objective 8. 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 and overseas practice (this part of the Curriculum is optional but will be important to some trainees dependent on their intended career pathway).

Subject	Knowledge	Skills	Attitude	Learning experiences	
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 targetted training	1-8	
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 targetted training	1-9	
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 targetted training	1-7, 10, 11	
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 targetted training	1-6	

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	1-7	
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	1-6	
7. Global response to outbreak / disaster situations	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		

Objective 9 To gain experience of clinical medicine and related issues in a tropical environment

Subject	Knowledge	Skills	Attitude	Learning experiences	
1. Clinical training in resource poor (tropical) setting	Patterns of health care usage. Clinical presentations of disease in resource poor setting. Use of limited diagnostic modalities. Use of limited therapeutic interventions.	Ability to recognise and interpret clinical presentations of illness in resource poor setting. Ability to maximise potential of limited resources for diagnosis and for patient management.	Adaptability and willingness to travel Consider interaction of psychological and social well being on the physical symptoms to show empathy with the patient Establishing close rapport and understanding with laboratory staff Ability to review and revise the diagnostic matrix	1-4,6-12	
3. Expatriate health	Understanding and experience of personal and family pressures related to overseas posting, and on return from working abroad	Ability to recognise and cope with personal and family stress of overseas posting	Recognition of personal stresses. Ability to support others in similar situation.	1,2,6	

		<p>and return to UK. Ability to advise others on reality of clinical work overseas. T/L 1,2,12 A 1,2, 4,5, 7,8</p>	<p>T/L 1,5 A 5, 7,8</p>		
Teaching and research	<p>Experience and understanding of teaching clinical medicine with limited aids/infrastructure. Understanding of realities of clinical research overseas. T/L 1-7,12 A 5-8</p>	<p>Ability to maximise use of available resources. Bedside teaching skills. Ability to innovate and adapt. Ability to advise others on limitations of resources in many overseas settings. T/L 1-7,12 A 5-8</p>	<p>Recognition of own skills and limitations. Resilience in the face of difficulty. Willingness to adapt and maximise potential of situations. T/L 5 A 5, 7</p>	1-4	

5 **Supervision and Feedback**

Frequent and timely feedback on performance is essential for effective work-based experiential learning. To train as a physician, a doctor must develop the ability to seek and respond to feedback on clinical practice from a range of individuals to meet the requirements of Good Medical Practice and revalidation.

The local education faculty will establish clear processes for feedback, with close liaison with designated Educational Supervisors.

Constructive feedback should be provided throughout training in both formal and informal settings. Opportunities for feedback will arise during appraisal meetings, when trainees are undergoing workplace-based assessments, in the workplace setting, and through discussions with supervisors, trainers, assessors and those within the team.

Best practice guidance for the appraisal process is provided by the Royal Colleges of Physicians in the training portfolio (in the Appraisal Section).

This guidance emphasises the need for:

- An initial appraisal meeting shortly after the start of a training placement to establish learning objectives and construct a personal development plan
- An interim appraisal meeting to discuss progress against the learning objectives
- An appraisal meeting towards the end of the training placement to reflect on the learning achievements during the attachment with reference to the initial learning objectives within the personal development plan.
- Structured written feedback from clinical supervisors
- Appropriately structured written feedback from medical colleagues and departmental staff (multi-source feedback, MSF) to include nursing staff, managerial, clerical and secretarial staff and medical staff in relevant directorates e.g. radiology, anaesthesia. This is collated by the Educational Supervisor to form the basis of a discussion with the trainee.
- Feedback on performance in recent workplace-based assessments to inform future development

It is recommended the above guidance apply irrespective of the duration of that particular attachment. Evidence that feedback has been received and subject to reflection by the trainee will be recorded in the portfolio, and discussed at the regular appraisals with the trainee's supervisor.

In addition there will be formal knowledge based assessment, the format of which is yet to be determined.

A yearly Record of In-training Assessment (RITA) will take place with each trainee where the regional specialty adviser, representative of the postgraduate dean and other consultants will receive reports from educational and research supervisors and others on the trainee's progress combined with feedback on the formal work based assessments. At this meeting plans for the next year for training, revision of practice

and knowledge combined with plans to further develop knowledge, skills and attitudes will be made and agreed with the trainee. This information will be reported to the educational and other supervisors for the next year.

All training should be conducted in institutions with appropriate standards of clinical governance and that meet the relevant Health and Safety standards for clinical areas. Training placements must also comply with the European Working Time Directive for trainee doctors.

Trainees must work with a level of clinical supervision commensurate with their clinical experience and level of competence. This is the responsibility of the relevant clinical supervisor after discussion with the trainee's Educational Supervisor and the designated clinical governance lead. In keeping with the principles of Good Medical Practice, trainees should know that they must limit their clinical practice to the level of their clinical competence and should seek help and support without hesitation.

The Educational Supervisor, when meeting with the trainee, should discuss issues of clinical governance, risk management and report of any untoward clinical incidents involving the trainee. The Educational Supervisor should be part of the clinical specialty team. Thus if the clinical directorate (clinical director) have any concerns about the performance of the trainee, or there were issues of doctor or patient safety, these would be discussed with the Educational Supervisor. These processes, which are integral to trainee development, must not detract from the statutory duty of the trust to deliver effective clinical governance through its management systems.

The Educational Supervisor is integral to the appraisal process. A trainee appraisal with the Educational Supervisor will include feedback on performance, review of outcomes of assessments, induction to posts and career advice. The Postgraduate deaneries should recognise the active role of Educational Supervisor in training and offer appropriate support.

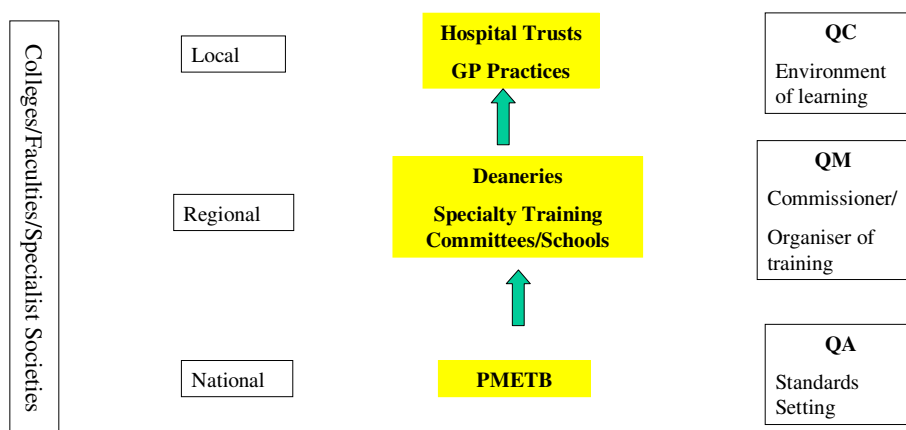
Each deanery, Trust and department will provide induction including the provision of appropriate written or electronic information so that trainees are aware of the policy within the work place, safety issues and support systems. Programme directors and mentors of trainees will check with trainees that the trainee has not been exposed to situations of unsafe clinical practice.

The educational supervisor will discuss with their trainee issues of clinical governance, risk management and the report of any untoward clinical incidents involving the trainee. If the clinical director of the service within which the trainee is working has any concerns about the performance of the trainee, or there are issues of doctor or patient safety, these will be discussed with the educational supervisor.

6 Managing Curriculum Implementation

Deaneries are responsible for quality management. PMETB will quality assure the deaneries and educational providers are responsible for local quality control, to be managed by the deaneries. The role of the Colleges in quality management remains important and will be delivered in partnership with the deaneries. The College role is one of quality review of deanery processes and this will take place within the SACs on a regular basis.

The Organisation and Quality Assurance of PG Training



7 Curriculum Review and Updating

Curriculum review will be informed by a number of different processes. For instance the SAC will be able to use information gathered from specialty heads, specialty deans and the National Health Service. It will have available to it results of the trainee survey, which will include questions pertaining to their specialty. Interaction with the NHS will be particularly important to understand the performance of specialists within the NHS and feedback will be required as to the continuing need for that specialty as defined by the curriculum. It is likely that the NHS will have a view as to the balance between generalist and specialist skills, the development of generic competencies and, looking to the future, the need for additional specialist competencies and curricula.

8 Equality and Diversity

In the exercise of these powers and responsibilities, the Royal Colleges of Physicians will comply, and ensure compliance, with the requirements of relevant legislation, such as the:

- Race Relations (Amendment) Act 2000;
- Disability Discrimination Act 1995 and Special Educational Needs and Disabilities Act 2001;
- The Disability Discrimination Act 1995 (amendment) (further and higher education) regulations 2006
- Age Discrimination Act in October 2006

The Federation of the Royal Colleges of Physicians believes that equality of opportunity is fundamental to the many and varied ways in which individuals become involved with the Colleges, either as members of staff and Officers, as advisers from the medical profession, as members of the Colleges' professional bodies or as doctors in training and examination candidates. Accordingly, it warmly welcomes contributors and applicants from as diverse a population as possible, and actively seeks to recruit people to all its activities regardless of race, religion, ethnic origin, disability, age, gender or sexual orientation.

Deanery quality assurance will ensure that each training programme complies with the equality and diversity standards in postgraduate medical training as set by PMETB.

Compliance with anti-discriminatory practice will be assured through:

- Monitoring of recruitment processes
- Ensuring all College representatives and Programme Directors have attended appropriate training sessions prior to appointment or within 12 months of taking up post
- Ensuring trainees have an appropriate, confidential and supportive route to report examples of inappropriate behaviour of a discriminatory nature
- Monitoring of College examinations
- Ensuring all assessments discriminate on objective and appropriate criteria and do not unfairly disadvantage trainees because of gender, ethnicity, sexual orientation or disability (other than that which would make it impossible to practise safely as a physician). All efforts shall be made to ensure the participation of people with a disability in training.

Statutory responsibilities

The Royal Colleges of Physicians will comply, and ensure compliance, with the requirements of legislation, such as the:

Human Rights Act 1998
Freedom of Information Act 2001
Data Protection Acts 1984 and 1998