

SPECIALIST TRAINING PROGRAMME IN INFECTIOUS AND TROPICAL DISEASES

CURRICULUM FOR INFECTIOUS & TROPICAL DISEASES SPECIALIZATION

1. Immunity and infections
 - a. Biology and clinical bases
 - b. Primary immune deficiency states (in consultation with paediatric ID)
 - c. Acquired (non-HIV) immune deficiency related infections, e.g cytokine deficiencies, MBP def, etc (clinical rounds with paediatricians)
 - d. Immunologic responses to common infections (and hypersensitivity reactions), e.g. rheumatic fever, AGN [rotate at Immunol, Zaria]
 - e. Biologic bases of vaccination with examples
2. Infectious diseases clinical syndromes (in liaison with Microbiology)
 - a. Sepsis and septicemia (and ICU management ± ICU rotation for 1 – 2 months)
 - b. Respiratory system (pneumonia, chronic suppurative lung diseases, allergic fungal infections, etc)
 - c. Gastro intestinal system, e.g. hepato-biliary sepsis, SBP, food poisoning, infective diarrhea, hepatitides and viruses, H pylori, food poisoning syndromes, etc
 - d. Endovascular infections, e.g. endocarditis (+Duke's criteria), vascular (mycotic) aneurismal infections,
 - e. Central nervous system, e.g. acute bacterial meningitis, brain abscess, VP shunt infection
 - f. Skin and soft tissue infections, e.g. cellulites, necrotizing fasciitis,
 - g. Others: Urosepsis (and UTI); STDs; PUO; Diabetic foot infection (± Surgical debridement)

3. Common organisms and infections
 - a. Enteric fever
 - b. Leprosy (and rotation at Bela Leprosorium with Dr Shehu Yusuf for 1 – 3 months)
 - c. Tetanus
 - d. Pneumococcal infections, Staphylococcal infections, Enterococcal infections, other cosmopolitan infections,
 - e. Escherichia coli, Klebsiella spp, Brucella spp, Vibrio spp, Clostridium spp; etc
 - f. Atypical pathogens: rickettsiosis, legionella, leptospirosis, listeriosis, norcardiosis;
4. Hospital acquired infections
 - a. Nosocomial (ventilator) pneumonia; blood stream infection; catheter UTI; soft tissue infections
 - b. Clostridium difficile diarrhea
 - c. Infection control and hospital epidemiology (in liaison with Microbiology and infection control staff)
 - d. Isolation techniques
 - e. Managing infections in health care workers, e.g. chickenpox (and rationale for off duty),
 - f. Methods of implementing antibiotic control / restriction policies
5. Infectious diseases epidemiology (in liaison with community medicine)
 - a. What constitutes infectious or communicable disease? Koch's postulates and its modifications;
 - b. Basic concepts: transmissibility
 - c. Outbreak investigations (especially in hospital settings)
 - d. Control and prevention: Interventions and vaccine efficacy; control of meningococcal outbreak with village vaccinations (SS Wali; Mohammed I et al);
 - e. Clinical studies and analytic epidemiology: concepts, design, analyses, write up

- 6 Infections in (non-HIV) immunocompromised states (in liaison with Transplant Unit, Haematology, Neonatology & Rheumatology departments)
- 7 Tropical medicine and international health (in liaison with community medicine)
 - a. Parasitic infections: protozoal, helminthic, etc
 - b. Non infectious tropical diseases: snake bite, PPCF, EMF, etc
 - i. Rotation at Clinical Snakebite study center at Kaltungo General Hospital for 2 – 4 weeks
 - c. Geographic medicine: Histoplasma duboisii, epidemic meningococcal meningitis, leishmaniasis in Sudan, tropical pyomyositis, tropical splenomegaly syndrome (hyper-reactive malarial syndrome), Louse borne relapsing fever (+JHHR) in Ethiopian highlands, Hydatidosis among Turkana, Melioidosis in SE-Asia, tropical spastic paraparesis
 - d. Travel health (and wellness and vaccination for adults): travelers diarrhea,
 - e. International health efforts: Syndromic disease management, ORS; health of minorities (Papua New Guinea), IMAI, etc
8. Current and new anti microbial agents
 - a. Rational use of anti-microbials
 - b. Antibacterials (all) and concepts: single- vs multi-daily dosing of aminoglycosides; TDM;
 - c. Antivirals
 - d. Antifungal agents: azoles (flu-, itra, vori-, posa-, etc; echinocandins; flucytosine)
 - e. Biologicals in infectious disease: drotrecogin in sepsis,
 - f. Antimicrobial delivery modes (and accessories): ommaya use; inhalational antimicrobial use; hyperbaric oxygen use in ID,
 - g. Antimicrobial drug allergies, hypersensitivities and alternatives

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- h. Antimicrobial drug resistance: global and local significance
 - i. Penicillin resistant pneumococci
 - ii. Extended spectrum beta-lactamase (ESBL) producing Gram negative bacterial infections; ESBL classifications;
 - iii. MRSAs, VISAs, VREs, etc
 - iv. Azoles and resistant fungi
 - v. H5N1 oseltamivir resistant viruses
 - i. Safety, categorization and use of antimicrobials in pregnancy
 - j. Drug interactions
9. Prosthetics and foreign body infections
- a. Catheter associated UTI
 - b. Prosthetic valve endocarditis; pacemaker infections;
 - c. Infections on TKR, VP shunt, Hickman catheter,
 - d. Other: organisms necessitating foreign body removal: *Stenotrophomonas maltophilia*; drug resistant bacteria, etc
10. Emerging and re-emerging infections
- a. Zoonotic infections: rabies, hantaan puumula, hendra, nipah, west nile, rift valley fever, etc
 - b. Lassa, Avian influenza, SARS, Ebola, Polio (and vaccine derived polio),
 - c. Slow viruses – mad cow disease, kuru, etc
 - d. Bacteria – emergence of *N meningitidis* W135, Cholera O139, *E coli* H157, *Strep suis*, *Strep iniae*, *Vibrio vulnificus*,
 - e. Emerging fungi – non *albicans* *Candida* spp; *Trichosporon* spp; non *fumigatus* *Aspergilla*; *Scedosporium* spp; *penicillium marneffii*;
 - f. Others: dengue, chikungunya, etc
11. Emergencies in infectious diseases
- a. Acute bacterial meningitis
 - b. Overwhelming post splenectomy infection (OPSI) [and in Sick cell disease]

- c. Severe or cerebral falciparum malaria (especially in the non immune)
 - d. Group A streptococcal necrotizing fasciitis
 - e. Gas gangrene
 - f. Meningococcal meningococcaemia
 - g. Pneumonic and septicemic melioidosis
 - h. Life threatening pressure (and infectious compartment) syndromes e.g. Ludwig's angina, spinal cord compressions
 - i. Others
 12. Endemic diseases (in all their entirety!)
- a. Tuberculosis: MDR, XDR, TB-HIV, systemic presentations, Treatment for categories I and II
 - i. Rotation at DOTS clinic for 1 – 3 months
 - b. Malaria (all)
 - c. HIV/AIDS infection [Biology, pathogenesis, clinical & lab features, management (ARV, other), and prevention] (and rotation at SS Wali virology centre for ~ 3 months)
13. Conditions of infectious or unknown origin and those mimicking infections (and or with chronic disease complications)
 - a. Non communicable diseases with infectious associations: PUD (H pylori); Artherosclerosis (?Chlamydia spp); KS (HHV 8); Lymphoma (EBV); Colon disease/Ca and Clostridium septicum and Strep bovis; ATL (HTLV 1)
 - b. Lyme disease (with neuritis), chronic fatigue syndrome, silico-tuberculosis
 - c. What simulates infections: malignant neuroleptic syndrome and its assessment, drug fever, acalculous cholecystitis in ventilated patients, sarcoidosis, marantic/libmann-sacks endocarditis,
14. Policy, prevention and control of common and serious infections (facility and community)
 - a. Advocacy, law, policy, practice, etc; Infectious, communicable and notifiable diseases; WHO-IHR/IDSR

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- b. Health economics – cost effectiveness analyses in infectious diseases with specific examples
- Laboratory methods in infectious diseases
- a. Laboratory (Bench) rotation: bacteriology, mycology, AFB bench, serology, etc
 - b. Use and interpretation of treponemal tests
 - c. Use and interpretation of cryptococcal antigen tests
 - d. MODS, Hainz and others in TB
 - e. Interferon Gamma Release Assays in TB
 - f. ELISA in HIV and other common infections
 - g. HSV PCR in CSF in herpes encephalitis and Others
16. Referral and consultative infectious diseases practice; all trainees should see referred patients first before subsequent review with a supervising ID consultant within 24 hours (a booklet of 200+ instructive case patients to be seen annually)
- a. From all specialties including O & G, surgical, pelvic infections
 - b. Needle stick injury and sexual exposure (rape)
 - c. Animal bite: dog, rat, human, etc
 - d. Toxinology – improve knowledge base on (and accept referrals from) poisoning with natural toxins (plants, sea and other organisms); Potentially weaponised organisms or toxins (anthrax, etc)
17. Confusions and controversies in infectious diseases
- a. Steroids in malaria, meningitis, sepsis, tuberculosis, SJS
 - b. Management of catheter urinary tract infections
 - c. 'To remove' or 'not to remove' an infected foreign body?
 - d. Optimum time to commence ARVs in TB-HIV co-infected patients
 - e. Evidence based infectious diseases practices
 - f. Surgery in endocarditis, tuberculosis,
 - g. Others: to be updated as required; (compiled photocopies available on request)

18. Landmark or seminal studies (evidences) in infectious diseases
 - a. Dexamethasone proves deleterious in cerebral malaria, Warrell et al
 - b. Acyclovir in managing HSV encephalitis, Whitley et al
 - c. Other to be updated as required - (compiled photocopies available on request)
19. Weekly journal club review or a (research) presentation on infectious diseases on either Monday or Tuesday 12:00 – 1:30pm
20. Encourage professional membership of local (national) or international infectious, immunologic, microbiologic and tropical diseases societies, i.e. Nigerian Society for Immunology, SOGHIN, ISID, IAS, RSTMH, AMSTMH, etc. Present at these societies' conferences at least once per annum.
 - a. Electives in a relevant unit / department preferably abroad or established units within the country (3–6 months)
 - b. Pursuing additional qualification in the specialty, e.g. Certificate, Diploma or Masters in epidemiology, public health, microbiology, immunology, infectious or tropical diseases, clinical trials, health systems, travel health, etc
 - c. Carry out a project/research in the specialty that should lead to at least two publications in indexed journals
 - d. Skills acquisition – biopsies (FNA, LN, pleural, fluid centesis, etc); use of computing and softwares in ID: epidemiology, statistics, meta-analysis, decision-analysis, cost-effectiveness analysis, (sensitivity analysis)
21. Part II clinical research studies of either NPMC or WACP (12 months): Design, conception, implementation, analyses, write-up, defence, etc. At least two paper publications should be made from thesis following college defence

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RECOMMENDED SPECIALTY BOOKS (available for loan on request at one book per week only)

1. Principles and practice of infectious diseases (2 vols), Mandell G, et al
2. Tropical infectious diseases (2 vols), Guerrant et al
3. Management of infections in the immunocompromised (non-HIV) patients
4. Leprosy by Pfaltzgraff and Bryceson
5. Infectious diseases of humans, Anderson & May
6. Infectious diseases epidemiology, Gisecke
7. Molecular epidemiology of infectious diseases
8. Practical infectious diseases
9. Control of communicable diseases (WHO), Heymann
10. Communicable diseases epidemiology and control, Webber
11. Essential malariaology, Warrell & Gilles
12. Sexually transmitted diseases, Holmes K et al
13. A clinical manual for TB-HIV (WHO)
14. Immunology of infectious diseases, Kaufmann S, et al
15. Immunology of medicine in the tropics, Greenwood & Whittle
16. Cellular and molecular immunology, Abul Abbas, Harvard, USA
17. Medical management of HIV/AIDS, Bartlett & Gallant
18. AIDS in Nigeria (Harvard-APIN), Kanki et al
19. Atlas of AIDS in Nigerians, Shehu Yusuf
20. Uses and interpretation of laboratory tests in infectious diseases
21. Infectious diseases clinics monographs on: Tuberculosis; Infective endocarditis; International health
22. Rabies, Ogunkoya
23. Yellow book on travel health by CDC
24. Fundamentals of Biostatistics (Text book and Work book with worked examples and answers), Rosner, B, Harvard, USA
25. Decisions and Cost effectiveness analyses in Health and Medicine, Hunnink

26. Decision analyses: rational analyses in a problematic world (use of Monte Carlo and Markov models)
27. Field trials in developing countries (planning & implementation), Smith & Morrow
28. MKSAP: Medical Knowledge Self Assessment in infectious diseases of IDSA (with criticisms)

RECOMMENDED SPECIALTY JOURNALS

1. Lancet Infectious Diseases
2. Clinical Infectious Diseases
3. Journal of Infectious Diseases
4. Journal of Infection
5. Journal of Hospital Infection
6. International Journal for Infectious Diseases (ISID)
7. Transactions of the Royal Society for Tropical Medicine & Hygiene
8. Travel Medicine & Infectious Diseases
9. Tropical Medicine and International Health
10. American Journal of Tropical Medicine & Hygiene
11. Acta Tropica
12. Tropical Doctor
13. Infections and Immunity
14. Antimicrobial Agents and Chemotherapy
15. AIDS
16. JAIDS
17. Journal of STDs; Tuberculosis;
18. European Journal for Clinical Microbiology and Infectious Diseases
19. Emerging Infectious Diseases (Free)
20. Bulletin of World Health Organization (Free)
21. Others

RECOMMENDED INTERNAL MEDICINE JOURNALS

1. West African Journal of Medicine
2. Nigerian Journal for Basic & Clinic Sciences
3. Nigerian Medical Practitioner
4. Nigerian Medical Journal
5. Nigerian Postgraduate Medical Journal
6. Nigerian Journal of medicine

7. Annals of African Medicine
8. African Journal of Medicine & Medical Sciences
9. East African Medical Journal
10. Central African Journal of Medicine
11. Lancet
12. British Medical Journal
13. New England Journal of Medicine
14. JAMA
15. Quarterly Journal of Medicine (ns), Oxford
16. Annals of Internal Medicine
17. Archives of Internal Medicine

Examination

1. Multiple choice (MCQ) 100 based on test of five in infection disease. (2 hours)
2. Viva Voce in general medicine. (1 hour)
3. Viva Voce in infection disease. (1.30 hours sub-specialty)
4. Defence of dissertation in infection disease. (1.30 hours)