

MCQs in Tropical Medicine

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By .Dr.serdar

1. The following are recognised causes of eosinophilia

- a. malaria
- b. visceral leishmaniasis
- c. Churg-Strauss syndrome
- d. drug hypersensitivity
- e. visceral larva migrans (toxocariasis)

Answer 1

Eosinophilia

F F T T T

The upper limit of normal for eosinophils is usually taken to be $0.4 \times 10^9/l$. The causes of eosinophilia may conveniently be divided into two groups: parasitic and non-parasitic. In general protozoal infections do not produce eosinophilia. Helminths do cause eosinophilia and the degree of eosinophilia is related to the extent of tissue invasion by the helminth. Filarial worms often cause a high eosinophilia whereas the intestinal nematodes tend to cause only a

modest increase in the eosinophil count.

Table1.1

Important parasitic causes of eosinophilia	
Filarial worms Tapeworms Strongyloidiasis Hydatid disease Hookworm Fascioliasis Toxocariasis (visceral larva migrans) Schistosomiasis Trichinella spiralis Intestinal nematodes Tropical pulmonary eosinophilia (usually results from hypersensitivity to microfilariae)	

Table 1.2

Non-parasitic causes of eosinophilia	
Allergic disorders	Allergic disorders Asthma Eczema Hayfever Drug hypersensitivity
Auto-immune	Churg-Strauss syndrome Wegener's granulomatosis Polyarteritis nodosa
Haematological	Hodgkin's disease Eosinophilic leukaemia
Dermatological	Bullous pemphigoid Pemphigus vulgaris
Respiratory	Allergic bronchopulmonary aspergillosis Hypereosinophilic syndrome Asthma
Miscellaneous	Eosinophilia-myalgia syndrome caused by L-Tryptophan

	Spanish toxic oil syndrome Eosinophilic gastroenteritis
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2. Giardia lamblia

- a. is usually acquired by ingestion of food or water contaminated by the trophozoites
- b. trophozoites have four flagella
- c. can effectively be treated by mepacrine
- d. cysts are killed by standard chlorination of water
- e. cysts survive in water boiled for ten minutes

Answer 2

Giardiasis

Giardia lamblia is a protozoon. During the trophozoite phase it lives in the proximal small bowel where it adheres to the mucosa. Each trophozoite has four pairs of flagella. Infection is acquired through water contaminated with giardial cysts.

Infection is not confined to the tropics; although common in India and Africa, attacks are notoriously common in various Russian cities.

Clinical features: diarrhoea, flatulence, abdominal pain, malabsorption.

Treatment: usually metronidazole. Mepacrine and furazolidone are also effective.

Prevention: standard chlorination of water does not kill cysts but drinking water can be made safe by boiling for 10 minutes.

3. Mosquitoes are the vector in the following disorders

- a. onchocerciasis
- b. visceral leishmaniasis
- c. myiasis
- d. African trypanosomiasis
- e. Bancroftian filariasis

Answer 3

Mosquitoes

F F F F T

Table 3.1
Diseases and Vectors

Disease	Vector
Onchocerciasis	Simulium sp
Visceral leishmaniasis	Sandfly (Plebotomus or Lutzomyia)
Myiasis	No vector
African Trypanosomiasis	Tsetse fly (Glossina)
Bancroftian filariasis	Various mosquito species

In myiasis the tumbu fly larva itself is the pathogen. The tumbu fly lays its eggs on clothing. When in contact with human skin, larvae hatch and burrow into the skin causing painful boils.

Table 3.2
Diseases with mosquito vectors

Disease	Mosquito vector
Malaria	Anopheles sp
Dengue fever	Aedes aegypti
Yellow fever	Aedes aegypti
Viral haemorrhagic fevers	various species
Japanese encephalitis	culex sp

Mosquitoes are not thought to be vectors for HIV or Ebola virus.

4. Consumption of raw fish or shellfish is associated with infection caused by

- a. Clonorchis sinensis
- b. Ancylostoma duodenale

- c. *Schistosoma japonicum*
- d. *Vibrio parahaemolyticus*
- e. *Paragonimus westermani*

Answer 4

Raw fish

T F T F F

A. duodenale and *S. japonicum* both gain entry via penetration of intact skin by immature forms.

V. parahaemolyticus is not uncommonly the causative organism in shellfish-associated gastroenteritis.

C. sinensis is the causative organism of oriental liver fluke disease.

P. westermani causes paragonimiasis (lung fluke).

Other infectious diseases associated with shellfish / raw fish include hepatitis A and gnathostomiasis.

5. Following splenectomy for trauma

- a. thrombocytopaenia is typical
- b. pneumococcal vaccine should be given
- c. malaria is more severe
- d. prophylactic penicillin should be taken for six weeks
- e. Heinz bodies are characteristically seen on the blood film

Answer 5

Splenectomy

F T T F F

Splenectomy typically results in thrombocytosis.

Howell-Jolly bodies are small pieces of nuclear material usually removed from erythrocytes by the spleen.

Heinz bodies are oxidised, denatured bits of haemoglobin found in G-6-PD deficiency for example. Special stains are required to see Heinz bodies.

Asplenic patients are at particular risk of severe pneumococcal infections. They should receive Pneumovax and lifelong prophylactic penicillin. Further, if possible, some splenic tissue should be preserved :-e.g. in the rectus sheath.

Asplenic patients also suffer more severe disease following infection with Plasmodium falciparum and Haemophilus influenzae.

6. Nephrotic syndrome is a recognised complication of infection with

- a. Schistosoma mansoni
- b. Plasmodium malariae
- c. Hepatitis B virus
- d. Mycobacterium leprae
- e. Loa loa

Answer 6

Nephrotic syndrome

T T T T T

Nephrotic syndrome is many times more common in the tropics than in the UK. The incidence of nephritogenic infections is higher. Malnutrition makes proteinuria clinically manifest at an earlier stage.

Table 6

Causes of nephrotic syndrome in the tropics
<ul style="list-style-type: none"> *Beta-haemolytic streptococci *Lupus nephritis *Plasmodium malariae Amyloidosis *Schistosoma mansoni * Leprosy Diabetes Multiple myeloma Filarial worms Renal vein thrombosis Hepatitis B Minimal change glomerulonephritis

(* = numerically important)

Schistosomal nephrotic syndrome

This occurs in about 0.5% of patients with *S. mansoni* infection. It is usually confined to those patients with large numbers of worms and hepatosplenic disease.

Histology: membranoproliferative

Pathogenesis: immune complex deposition

Treatment: prednisolone, cyclophosphamide

Plasmodium malariae

The peak incidence is in the 5-8yrs age range. Progression to end-stage renal failure within 3-5yrs is usual. Spontaneous remissions are rare. Microscopic haematuria may occur. The proteinuria is highly selective in 20% of patients. Parasites are present in the blood in 75% of cases early in the disease.

Histology: capillary wall thickening

Pathogenesis: immune complex deposition

Treatment: 50% of those with highly selective proteinuria respond to steroids

Hepatitis B glomerulopathy

In children active liver disease is absent. In adults it is usually present. 80% of those affected by the glomerulopathy are male.

Histology: membranous glomerulonephritis

Prognosis: spontaneous remission is usual.

Filarial glomerulopathy

Bancroftian filariasis, onchocerciasis and loiasis can all cause nephrotic syndrome. This does not respond to therapy. They each may alternatively cause acute nephritis. This is a relatively rare complication.

Leprosy

Secondary amyloidosis is more common in lepromatous patients, especially those having frequent episodes of erythema nodosum leprosum.

7. HIV positive patients may receive

- a. measles vaccine
- b. TY21a (oral typhoid vaccine)
- c. Hib vaccine
- d. BCG
- e. Havrix (hepatitis A vaccine)

Answer 7

Vaccines and HIV.

T F T F T

UK guidelines published by HMSO in "Immunisation against infectious disease" in 1996 state that patients with HIV, symptomatic or not, should receive the vaccines listed in Table 7.

Table 7: Immunisations for those with HIV

Live vaccines	Inactivated vaccines
Measles Mumps Rubella Oral polio vaccine (OPV)	Pertussis Diphtheria Parenteral polio Monovalent whole cell typhoid Tetanus Cholera Hepatitis B Haemophilus influenzae type b (Hib)

The following vaccines should not be given:

BCG
Yellow fever
TY21a

Many tropical countries advise the use of BCG in asymptomatic HIV infection particularly in children. Each country's own guidelines should be followed.

8. Steroids are of benefit in the treatment of

- a. visceral leishmaniasis
- b. Escherichia coli septicaemia
- c. cerebral malaria
- d. severe typhoid fever
- e. herpes zoster recrudescence (shingles)

Answer 8

Use of corticosteroids in severe infections

F F F T F

The use of steroids in many infections remains controversial. Consensus has been reached for some important infections.

Steroids beneficial:

Severe typhoid
Hib meningitis in children
Croup
Tuberculoid leprosy
Severe pneumocystis pneumonia
Tuberculous meningitis
Tuberculous pericarditis
Tuberculous pleural effusion
Type 1 lepra reaction
Katayama fever

Steroids of no benefit:

Meningococcal disease
Gram negative septicaemia
Herpes zoster
Cerebral malaria
Visceral leishmaniasis

9. In tuberculoid leprosy

- a. peripheral nerves are involved symmetrically
- b. the lepromin test is positive
- c. hair growth is normal in affected skin lesions

- d. smear negative cases can be treated with steroids alone
- e. skin lesions usually have a well-demarcated, raised edge

Answer 9

Tuberculoid leprosy

F T F F T

Peripheral nerves may be thickened but are characteristically involved asymmetrically.

There are typically only 1 or 2 skin lesions which are well-demarcated, dry, scaly, hypopigmented, anaesthetic and hairless.

Treatment of tuberculoid leprosy should include daily dapsone and supervised monthly rifampicin for six months.

10. Plasmodium falciparum

- a. causes more severe disease in pregnancy
- b. is associated with recurrent relapses after initial treatment because of liver hypnozoites
- c. is the only malarial parasite causing greater than 20% parasitaemia
- d. infection is typically associated with thrombocytopaenia
- e. is the only cause of cerebral malaria

Answer 10

Plasmodium falciparum.

T F T T T

Falciparum malaria (malignant tertian malaria) is the most serious of the malarias. This is in part because P.falciparum has the potential to invade red blood cells of any age, resulting in high parasitaemias. Furthermore, the schizonts are sequestered in organ capillaries causing local obstruction to blood flow with local acidosis and tissue hypoxia.

TNF-alpha is grossly elevated and this is most likely to be significant in the pathogenesis.

Raised intracranial pressure has occurred in children with cerebral malaria but rarely in adults and dexamethasone has been shown to be

of no benefit.

P. falciparum does not form hypnozoites so true relapses do not occur after successful treatment. Recrudescence of infection may occur if treatment is incomplete but this usually occurs soon after initial therapy or at latest within 3-6 months. This is not the case with the other malarial parasites. All the other malarial parasites have hypnozoite liver stages. Apparently successful therapy may be followed by relapse even 20 years later. Treatment for non-falciparum malaria should usually be followed by primaquine which will kill the liver hypnozoites.

Clinical malaria is usually accompanied by some fall in the platelet count. Indeed thrombocytopaenia helps to differentiate malaria from other causes of fever in regions where asymptomatic carriage of malarial parasites is common.

11. The following infectious diseases are correctly matched to their period of infectivity:

- a. chicken pox: from appearance of rash until the last spot is crusted over
- b. rubella: 7 days before onset of rash until 4 days after onset of rash
- c. mumps: 7 days before salivary swelling until appearance of salivary swelling
- d. scarlet fever: from appearance of rash until completion of 1 day's penicillin
- e. measles: from onset of prodrome until 4 days after onset of rash

Answer 11

Periods of infectivity:

F T F T T

Chicken pox: 5 days before rash to six days after last crop.

Mumps: 3 days before until 7 days after salivary swelling.

Whooping cough: 1 week after exposure to 3 weeks after onset of symptoms. The period of infectivity may be shortened by antibiotics

12. Amoebic liver abscess:

- a. should be treated by diloxanide furoate alone
- b. should be aspirated routinely
- c. is associated with eosinophilia
- d. usually affects the right lobe of the liver
- e. occur most commonly in men aged 20-60 years

Answer 12

Amoebic liver abscess:

F F F T T

Amoebic liver abscess is the most common extra-intestinal manifestation of amoebiasis. All age groups may be affected.

In approximately 50% of cases there is no previous history of amoebic dysentery.

The patient typically presents with fever and right upper quadrant pain of fairly acute onset. Treatment of the fever with chloroquine may modify the clinical presentation.

Neutrophilia is usual, not eosinophilia.

The right hepatic lobe is usually affected. Abscess formation in the left lobe is an indication for drainage

13. A woman who had not previously travelled abroad spent five days in Zambia. She went on safari on the fifth day and on the following day she became ill with fever and an erythematous rash. She is likely to be suffering from:

- a. hepatitis A
- b. loa loa
- c. falciparum malaria
- d. brucellosis
- e. Hodgkin's disease

Answer 13

Zambian holiday fever. (Disease incubation periods):

All false

A traveller who develops a fever in the tropics is likely to be suffering

from an infectious disease. A neoplastic cause of fever, such as Hodgkin's disease, is possible but not likely.

Table 13.1

Infections with incubations of less than 10 days
dengue fever
yellow fever
rickettsial infections
plague
falciparum malaria - the incubation period usually quoted for falciparum is 10-14 days. Occasionally it may be as short as 8 days.

Table 13.2

Infections with intermediate incubation periods (10-21 days)
malaria
African trypanosomiasis
enteric fever (7-21 days)
brucellosis
hepatitis A (2-6 weeks)

Table 13.3

Infections with long incubation periods
filariasis
leishmaniasis
amoebic liver abscess
hepatitis B (45-160 days)

14. In enteric fever

- a. severe cases should receive high dose dexamethasone
- b. ciprofloxacin is the treatment of choice in the UK. for adults
- c. jaundice is a recognised complication
- d. myocarditis is a recognised complication
- e. if perforation of the bowel occurs it should be managed conservatively because surgery carries too high a mortality.

Answer 14

Enteric fever

T T T T F

Severe typhoid is recognised by either marked mental confusion (or a lower level of consciousness), or hypotension with evidence of impaired organ perfusion. In such cases, high dose dexamethasone has been shown to reduce mortality.

Treatment with chloramphenicol, co-trimoxazole or amoxycillin was previously standard. Cases from the Indian subcontinent show that resistance to these antibiotics is now widespread; quinolones have become the first line treatment. Ciprofloxacin has caused cartilage damage in beagle puppies. The BNF recommends that ciprofloxacin should be used with caution in children, pregnant women and breast-feeding mothers. It should also be used with caution in patients with epilepsy.

Jaundice may arise in typhoid fever as a result of haemolysis, hepatitis, cholecystitis or cholangitis

Myocarditis may occur in the third week of fever and may be fatal.

Perforation occurs in 5% of cases in the third week and has a high case fatality rate. Surgical intervention is thought to improve prognosis.

15. Hepatitis B.

- a. Babies born to hepatitis B e antigen positive (HBeAg+ve) mothers should be given active and passive immunisation at birth.
- b. According to current DHSS guidelines, children in the UK. should be vaccinated against hepatitis B by age 16.
- c. Co-infection with delta virus may occur in intravenous drug abusers but occurs less commonly in homosexuals.
- d. Super-infection with delta virus causes a clinical deterioration.
- e. Is the major underlying cause of hepatocellular carcinoma.

Answer 15

Hepatitis B

T F T T T

HBeAg+ve mothers are highly infectious. The chance of the baby acquiring the infection during pregnancy, at birth or whilst breast-feeding is high. Active and passive immunisation appears to reduce the rate of vertical transmission.

Present DHSS guidelines on whom to vaccinate concentrate on high risk groups such as hospital workers, homosexual men and intravenous drug misusers. Some other European countries do vaccinate school-leavers.

Delta virus infection occurs only in the presence of hepatitis B infection. The two viruses may be acquired at the same time, or delta virus infection may follow hepatitis B infection by months or years.

Any sudden deterioration in a previously stable hepatitis B carrier should suggest the possibility of delta virus super-infection. This scenario is especially common in intravenous drug abusers.

On a world-wide scale, Hepatitis B is the major underlying cause of hepatocellular carcinoma. Aflatoxin and Hepatitis C virus have also been implicated but are of lesser importance.

16. E.coli 0157 / H7:

- a. is a bowel commensal
- b. causes haemorrhagic colitis
- c. is an important cause of cholera-like illness
- d. is a recognised cause of the haemolytic uraemic syndrome
- e. can be prevented from causing clinical illness by vaccination

Answer 16

E.coli 0157 / H7

F T F T F

E.coli 0157 / H7 characteristically causes a haemorrhagic colitis with abdominal pain but little or no fever. An outbreak of 500 cases in the USA was described in 1993. This outbreak was associated with the consumption of hamburgers. There were over 50 cases of haemolytic uraemic syndrome and 4 fatalities. The source of an outbreak in Wishaw, Scotland in 1996 was a butcher's. There were over 500 cases and 18 fatalities.

17. Melioidosis:

- a. is caused by *Pseudomonas pseudotuberculosis*
- b. is more common in diabetics
- c. should be treated with cefuroxime
- d. is confined to equatorial Africa and South America
- e. is commonly complicated by parotitis

Answer 17

Melioidosis

F T F F T

- a. The causative organism is *Pseudomonas pseudomallei*.
- b. The infection is more common in diabetics and in people with chronic renal failure.
- c. The treatment of choice is ceftazidime. Cefuroxime does not cover *Pseudomonas* species.
- d. Infection is uncommon outside Southeast Asia and North Australia.
- e. Parotitis is particularly common in affected children

18. The following neoplasms have a known infective aetiology:

- a. Burkitt's lymphoma

- b. squamous carcinoma of the penis
- c. hepatocellular carcinoma
- d. squamous carcinoma of the bronchus
- e. nasopharyngeal carcinoma

Answer 18

Infective aetiology of tumours

T T T F T

Table 18. Tumours with infective aetiologies

Tumour	Associated infective agent
Burkitt's lymphoma	Epstein-Barr virus
squamous carcinoma of penis	human papilloma virus
hepatocellular carcinoma	hepatitis B (also hepatitis C)
nasopharyngeal carcinoma	Epstein-Barr virus
cholangiocarcinoma	Clonorchis sinensis
squamous carcinoma of bladder	Schistosoma haematobium
carcinoma of cervix (and vulva)	human papilloma virus
Kaposi's sarcoma	human herpes virus 8, HIV

19. Characteristic findings in visceral leishmaniasis (kala azar) include:

- a. eosinophilia
- b. pancytopenia
- c. polyclonal hypergammaglobulinaemia
- d. positive leishmanin test
- e. lymphadenopathy

Answer 19

Visceral leishmaniasis

F T T F T

- a. A low or normal eosinophil count would be more usual
- b. Pancytopenia is common and is due to both marrow suppression and hypersplenism
- c. Hypergammaglobulinaemia: this antibody response is ineffective in clearing Leishmania and diverts immune resources from concomitant infections. Indeed most deaths are due to intercurrent infection.
- d. A positive Leishmanin test indicates good cell-mediated immunity. The test is usually negative in kala azar (like the tuberculin test in miliary tuberculosis) but becomes positive after treatment.
- e. Hepatosplenomegaly generally occurs before lymph node enlargement

20. Parvovirus B19:

- a. is the causative agent of fifth disease (erythema infectiosum)
- b. was discovered after parvovirus B16
- c. antibodies are present in 70% of the UK adult population
- d. is a recognised cause of aplastic anaemia
- e. is known to cause hydrops fetalis

Answer 20

Parvovirus B19

T F T T T

If confusion with human papilloma virus was to be avoided, human parvovirus could not be designated HPV. It was called virus B19. This corresponded to well B19 on a sera tray and was the location of an early isolate. There is no parvovirus B16.

Infection is asymptomatic in about 30% of cases. It is the infectious agent of fifth disease. In children the rash gives a characteristic "slapped cheeks" appearance. Incidentally unilateral slapped cheek is more commonly due to Haemophilus influenzae septicaemia.

In adults Parvovirus B19 causes a rash similar to rubella, starting on the face and spreading to trunk and then limbs. The rash is associated with antibody production. A self-limiting reactive arthritis may follow the rash, especially in adult women.

Parvovirus B19 may cause aplastic crises in sickle cell disease and in other hereditary haemolytic anaemias. It may also be responsible for refractory transfusion dependent anaemias in immunocompromised patients. The virus replicates in erythroid progenitor cells which possess the p antigen.

Symptomatic infection during pregnancy resulted in delivery of a normal child in >80% of about 200 pregnancies in a study by the PHLS. The incidence of hydrops fetalis was 10-15% and was highest in second trimester infections. There were no congenital abnormalities. Other studies in asymptomatic infection suggest the outcome may not be so good.

21. Subcutaneous nodules are a typical finding in:

- a. neurofibromatosis
- b. hydatid disease
- c. cysticercosis
- d. onchocerciasis
- e. trichinosis

Answer 21

Subcutaneous nodules

T F T T F

In hydatid disease the cysts are typically found in the liver and the lung.

The cysts in cysticercosis may be multiple. They calcify (and therefore become radio-opaque) after 4-5 years.

Nodules in onchocerciasis are less numerous and are usually found over bony prominences. There is also abundant evidence of itching.

22. Characteristic features of kwashiorkor include:

- a. patient aged less than 1 year
- b. anorexia
- c. flakey discoloured skin
- d. hepatomegaly
- e. splenomegaly

Answer 22

Kwashiorkor

F T T T F

The word kwashiorkor is from West Africa, originally meaning the child who has been displaced from the breast. It is most common in children aged 1-2 years. Characteristic features include:

oedema
hepatomegaly
flakey discoloured skin (initially hyperpigmentation, later hypopigmented areas)
lifeless discoloured hair
apathy when left alone and irritability when picked up
gynaecomastia

23. Concerning meningococcal disease:

- a. vaccine is available for meningococci groups A and C
- b. sporadic outbreaks in the UK. are usually due to type B meningococcus
- c. close contacts should be treated prophylactically with oral amoxycillin 3g as a single dose
- d. outbreaks of disease occur seasonally in parts of sub-Saharan Africa.
- e. is the most common cause of bacterial meningitis in the UK.

Answer 23

Meningococcal disease

T T F T T

N. meningitidis is the most common cause of bacterial meningitis in the UK and world wide. Asymptomatic nasal carriage occurs in 10-15% of normal people. Serious meningococcal disease is accompanied by the typical purpuric rash in two thirds of cases.

Contacts are usually given rifampicin 600mg b.d. for two days.

The part of Africa affected by epidemic meningitis is known as the meningitis belt. These outbreaks are caused by Group A organisms.

24. Staphylococcus epidermidis:

- a. is coagulase positive
- b. on microscopy are Gram positive cocci in chains
- c. are usually sensitive to penicillin
- d. grown in blood cultures are due to contamination and should be ignored
- e. are destroyed by povidone iodine

Answer 24

Staph. epidermidis

F F F F T

Staph. epidermidis is part of the normal skin flora. As for Staph. aureus, Gram positive cocci in bunches are seen on microscopy.

It is usually insensitive to penicillin.

Although it is often a contaminant in blood cultures, it is associated with line infections. Central venous catheters are an especially likely site of infection even in the absence of overt exit site sepsis. They should not be ignored but interpreted in the clinical context, and usually the blood cultures should be repeated.

In patients with central lines, blood cultures should be taken both peripherally and from the central line as semi-quantitative microbiological techniques are available that may point to the central

line as the principle site of infection

25. Concerning tuberculin skin testing:

- a. patients with tuberculous pericarditis are usually tuberculin positive
- b. previous BCG vaccination usually results in a strongly positive reaction
- c. pulmonary sarcoidosis gives a positive tuberculin test in about 30% of cases
- d. if the sputum microscopy and culture are negative for mycobacteria, pulmonary tuberculosis can only be diagnosed if the tuberculin test is positive.
- e. the test is usually negative in miliary tuberculosis

Answer 25

Tuberculin testing

T F T F T

Young children, the elderly and the immunosuppressed may fail to mount an adequate immune response. They are often tuberculin negative in the presence of active disease. In such cases the patients often become tuberculin positive during treatment.

BCG vaccination usually results in a positive tuberculin test. Sometimes the tuberculin test remains negative. A strongly positive tuberculin test should always raise the possibility of active tuberculosis.

Sputum negative, tuberculin negative pulmonary tuberculosis is being increasingly diagnosed. The patient may be HIV positive. The diagnosis is based on clinical features, exposure history and chest radiograph appearance and may need to be re-considered in the response to treatment is poor.

Characteristically in sarcoidosis the patient is tuberculin negative and Kveim positive. However, upto 30% will be tuberculin positive and upto 30% Kveim negative.

26. Hookworm

- a. is usually spread by the faeco-oral route
- b. is usually diagnosed by microscopy of adhesive tape prints taken from the perianal area
- c. may block the pancreatic duct causing pancreatitis
- d. eggs can be readily distinguished microscopically from those of *Strongyloides* sp.
- e. commonly causes diarrhoea in non-immunes

Answer 26

Hookworms

F F F F F

- a. Hookworm is a soil transmitted helminth. The infective larvae (third stage larvae) survive in the soil for months. They penetrate intact skin and from there migrate via lymphatics and the bloodstream to the lungs. They then travel up the airways to the larynx and into the gut via the oesophagus.
- b. The threadworm is diagnosed by microscopy of adhesive tape previously placed perianally
- c. *Ascaris lumbricoides* is sometimes complicated by pancreatitis
- d. The eggs of *Necator americanus* and *Ancylostoma duodenale* are indistinguishable on light microscopy.
- e. Hookworm rarely, if ever, causes traveller's diarrhoea

27. The following are associated with an increased risk of vertical transmission of HIV

- a. breast feeding
- b. high titres of p24 antigen in maternal serum perinatally
- c. low maternal CD4 counts during pregnancy
- d. prolonged labour
- e. HIV-1 compared to HIV-2

Answer 27

Vertical transmission of HIV

T T T F T

It is unfortunately true that breast feeding increases the risk of vertical transmission of HIV. It is generally agreed, however, that in most of the developing world the benefits of breast feeding (reduced malnutrition, reduced mortality from gastroenteritis) outweigh the risk of HIV.

High titres of p24 and low CD4 counts also predict poor maternal outcome.

28. Concerning African trypanosomiasis

- a. it has an incubation period of 4-6 months
- b. it may cause erythema chronicum migrans in light skinned persons
- c. the Gambian form progresses more rapidly
- d. the Gambian form is associated with a more prominent chancre
- e. the Gambian form can be treated with pentamidine

Answer 28

African trypanosomiasis

F F F F T

- a. The incubation period, the time from the bite until the development of the chancre, is 10-21 days.
- b. Circinate erythema may occur in light skinned people. Erythema chronicum migrans is characteristic of Lyme disease.
- c. The Rhodesian form is more rapidly progressive.
- d. The Rhodesian form also tends to have a more prominent chancre
- e. Treatment depends on whether or not the central nervous system is involved:

Table 28. Drug treatment of African trypanosomiasis

	Drug treatment of African trypanosomiasis	
	CNS not involved	CNS involved
Rhodesian	suramin	melarsaprol

Gambian	suramin or pentamidine	melarsaprol or eflornithin
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29. Vivax malaria

- a. may be complicated by anaemia
- b. may be complicated by jaundice
- c. in a traveller may present more than six months after exposure
- d. is sensitive to chloroquine
- e. may co-exist with falciparum malaria in the same patient

Answer 29

Vivax malaria

T T T T T

In all forms of malaria haemolysis occurs, and where there's haemolysis there's often anaemia. In vivax malaria this is usually mild. Anaemia in patients with vivax malaria often has an unrelated cause such as concurrent hookworm infection.

Similarly, jaundice in vivax malaria is mild and is due to haemolysis.

Hypnzoites may persist in the liver for many years. This and also the sporadic use of chemoprophylaxis account for the long incubation period.

Chloroquine resistant vivax is rare but has been well described in South East Asia.

Double and triple parasite infections have been described.

30. The following infections are zoonoses

- a. salmonellosis
- b. leprosy
- c. tularaemia
- d. Weil's disease (leptospirosis)
- e. cholera

Answer 30

Zoonoses

T F T T F

A zoonosis is a disease that is naturally transmissible between vertebrate animals and man.

Salmonellosis is one of the most common zoonotic infections in developed countries. The bacteria contaminate food, notably poultry and eggs.

Leprosy: the only other vertebrate reservoir of *Mycobacterium leprae* is the nine-banded armadillo.

Tularaemia is caused by *Francisella tularensis*. Important animal hosts include rabbits, squirrels, other rodents and birds. Very close animal contact is required for transmission. Clinical features may include: a pustule or ulcer, suppurative lymphadenopathy, fever and pneumonia. Treatment is with streptomycin or gentamicin.

Weil's disease follows contact between damaged skin or mucous membrane and infected animal urine.

No vertebrate reservoir has been identified for *Vibrio cholera*.

Table 30

Some important zoonoses	
Viral	orf cowpox rabies
Bacterial	salmonella campylobacter brucella tularaemia Weil's disease anthrax
Protozoal	African sleeping sickness leishmaniasis giardiasis toxocariasis cryptosporidiosis

31. A fever of two weeks' duration associated with neutropaenia is characteristically due to

- a. disseminated tuberculosis
- b. brucellosis
- c. malaria
- d. influenza B
- e. amoebic liver abscess

Answer 31

Prolonged fever with neutropaenia

T T T F F

The following may cause fever two weeks and neutropaenia:

malaria
brucellosis
typhoid
disseminated tuberculosis
visceral leishmaniasis.

Viral infections more characteristically have lymphocytosis and are often shorter than two weeks' duration.

There is neutrophilia in 90% of patients with amoebic liver abscess.

32. Quinine

- a. is gametocidal for mature gametocytes of *Plasmodium falciparum*.
- b. is active against schizonts of *Plasmodium malariae*
- c. resistance occurs in *Plasmodium falciparum* in South East Asia
- d. cerebrospinal fluid levels are much lower than serum levels following oral or intravenous administration
- e. causes hypoglycaemia

Answer 32

Quinine

F T T T T

Quinine is schizonticidal to all four types of malaria. The gametocytes of *P.vivax*, *P.ovale* and *P.malariae* are also susceptible. The mature gametocytes of *P.falciparum* and the hypnozoites of *P.ovale* and *P.vivax* are not susceptible.

Quinine-resistant *P.falciparum* has been reported in South East Asia.

Cerebrospinal fluid levels are 2-5% of the serum level

33. Rheumatic fever

- a. is most common in the third decade
- b. is more common in areas of social deprivation
- c. causes erosive arthritis
- d. relapse rate may be reduced by prophylactic antibiotics
- e. is more common following streptococcal pharyngitis than streptococcal cellulitis

Answer 33

Rheumatic fever

F T F T T

The peak age of onset is 5-15 years. Rheumatic fever is rare before the age of 4 years. Incidence has fallen significantly since the 1940's. For UK children the incidence is less than 0.1 / 1000 / year. The incidence in developing countries is nearer 1 / 1000 / year. Incidence is higher where there is poverty or overcrowding presumably because of increased transmission and because of under-treatment of streptococcal pharyngitis.

The arthritis usually leaves the joints undamaged. Typically it is a migratory arthritis of large joints which settles after 1-4 weeks.

Relapse of rheumatic fever is common (5% per year). It occurs particularly after rheumatic carditis. Relapse can be prevented by giving penicillin V 250mg once or twice daily. Prophylaxis should be continued until age 20 or for at least 5 years after the last attack. Compliance with this oral regimen has been reported to be as low as

10%. Benzathine penicillin 0.9 -1.2MU i.m. every 4 weeks is an alternative.

Streptococcal skin infections are rarely, if at all, complicated by rheumatic fever.

Treatment of acute rheumatic fever consists of penicillin and bed rest. The role of salicylates and steroids is controversial. Emergency valve replacement should be considered if there is progressive cardiac failure and the surgical skills are available.

34. The following are correctly paired

- a. erythema nodosum tuberculosis
- b. erythema marginatum Lyme disease
- c. erythema multiforme orf
- d. erythema induratum syphilis
- e. erythema infectiosum parvovirus B19

Answer 34

Erythema

T F T F T

Erythema nodosum. This is characterised by tender red swellings usually over the shins. The most common cause is streptococcal infection. Tuberculosis, sarcoidosis, leprosy, sulphonamides and inflammatory bowel disease are other important causes.

Erythema marginatum. This is a non-itchy, pale red, macular eruption. It is a major criterion for the diagnosis of rheumatic fever but is also seen in acute glomerulonephritis and drug reactions.

Erythema multiforme. This is characterised by cutaneous "target" lesions and mucosal involvement. Children and young adults are more commonly affected. Orf, mycoplasma, and herpes simplex are among the known causes.

Erythema induratum. Cutaneous tuberculosis. Otherwise known as Bazin's disease.

Erythema infectiosum. "Slapped cheeks", caused by parvovirus B19.

Erythema chronicum migrans. An expanding annular lesion occurring in Lyme disease.

Erythema gyratum repens. Erythema forming repeated concentric rings. Often there is an underlying malignancy.

35. HIV-associated Kaposi's sarcoma is

- a. radiosensitive
- b. chemosensitive
- c. a cause of pleural effusion
- d. more common in intravenous drug abusers than homosexuals
- e. associated with infection by HHV-8 (Herpes hominis virus type 8)

Answer 35

HIV-associated Kaposi's sarcoma

T T T F T

The skin and palate are particularly common sites for KS. Cutaneous and lymph node KS responds to radiotherapy. Systemic KS (i.e. bowel, pulmonary) responds to chemotherapy: vincristine, bleomycin, etoposide.

Human Herpes virus type 8 DNA sequences have been found in KS, both HIV-related and HIV-unrelated. KS is more common in sexually acquired HIV suggesting that there may be sexually acquired co-factor for the development of KS. Human Herpes virus type 8 DNA has also been isolated from AIDS-related body cavity lymphoma.

36. Cholera

- a. *Vibrio cholera* of the 01 serotype is the only cause of clinical disease
- b. low gastric pH protects against infection
- c. cholera toxin produces its effect by reducing intracellular levels of cAMP
- d. hypoglycaemia is a recognised complication in children
- e. fever is usual in adults

Answer 36

Cholera

F T F T F

- a. Until recently the only V.cholera serotype known to cause cholera was the 01 serotype. Quite recently V.cholera 0139 (Bengal) was isolated as the cause of epidemic cholera. It has a different lipopolysaccharide coat and there is little or no herd immunity.
- b. 100,000,000-10,000,000,000 organisms are required to produce infection as most are destroyed by gastric acid. Hypochlorhydria may allow cholera to develop following a smaller inoculating dose.
- c. cholera toxin is an 84kDa protein consisting of one A (activating) and five B (binding) subunits. The A1 part of the A subunit enters the mucosal cell. Here it catalyses the transfer of ADP-ribose to GTP-binding regulatory protein. GTP regulatory protein is altered in conformation and this leads to reduced inhibition of adenyl cyclase. The intracellular concentration of cAMP rises and a net loss of isotonic fluid into the gut occurs.
- d. Complications of cholera in children include hypoglycaemia, shock, hypothermia, hypokalaemia, coma, vomiting and aspiration pneumonia.
- e. Fever may occur in children

37. The following drugs are contraindicated or should be used with caution in epileptics:

- a. doxycycline
- b. chloroquine
- c. ciprofloxacin
- d. mefloquine
- e. metronidazole

Answer 37

Drugs contra indicated in epilepsy

F T T T F

Mefloquine is contra-indicated in epileptics. In the normal population there is a 1 in 10,000 chance of serious neuropsychiatric complications. The risk is greater in epileptics.

Chloroquine should only be used with caution as it reduces seizure threshold. Doxycycline is an acceptable alternative for malaria prophylaxis. It is suitable for short term use and has the additional advantage of protecting against rickettsial infections, plague and leptospirosis.

Ciprofloxacin and other quinolones should be used with caution in epilepsy as they lower seizure threshold and may induce convulsions

38. Hepatitis C

- a. cirrhosis develops in most untreated cases
- b. blood transfusion is the commonest mode of transmission in the UK.
- c. most children born to hepatitis C infected mothers will have the infection
- d. a normal serum alanine transaminase level excludes active liver disease
- e. genotype 1 has the most favourable response to treatment

Answer 38

Hepatitis C

All false

Most of those with antibody to HCV are also HCV RNA positive by PCR and therefore have chronic infection.

The ALT level is not closely associated with the severity of liver disease so most HCV-RNA positive patients are offered liver biopsy.

10-20% of cases develop chronic active hepatitis or cirrhosis. 3% develop hepatocellular carcinoma.

HCV transmission: most cases are due to intravenous drug abuse / needle-sharing. Sexual transmission accounts for about 5% of cases as does vertical transmission. In the U.K. all donated blood has been screened since 1991.

40-80% of patients have an initial response to alpha-interferon. Half of these have a sustained response. Genotype 1 responds less well than types 2 and 3 to interferon therapy. Ribavirin may have some useful action in the treatment of HCV.

39. Coagulopathy is a recognised complication of

- a. epidemic typhus
- b. relapsing fever
- c. pneumococcal septicaemia
- d. envenomation by Latrodectus spiders (black widow spiders)
- e. envenomation by Physalia physalis (Portuguese-man-of-war)

Answer 39

Coagulopathy

T T T F F

Haemorrhagic rash is a characteristic feature of both epidemic typhus and relapsing fever. DIC is a potential complication of septicaemia.

Envenomation by the black widow spider causes local reactions, neurotoxicity, sweating and muscle spasm. Coagulation defects are not well described.

Likewise with stings from a Portuguese-man-of-war, local reactions, cardiovascular toxicity and muscle spasms may occur but coagulopathy is not well described.

Coagulopathy may follow envenomation by African pit vipers.

40. Cryptococcal meningitis

- a. is caused only by Cryptococcus neoformans neoformans
- b. is more common than cryptococcal pneumonia
- c. characteristically causes leucopaenia
- d. only occurs in the immunosuppressed
- e. should be treated with ketoconazole

Answer 40

Cryptococcal meningitis

F T F F F

Cryptococcal meningitis is an indicator disease for AIDS. In the immunocompromised C.neoformans neoformans is the usual causal

agent. Formerly in the tropics the gattii variant was more prevalent.

Pulmonary involvement may occur in upto one third of cases but primary pulmonary cryptococcal infection is 10 times less common.

In the immunocompetent, the white cell count is normal or raised.

Ketoconazole does not cross the blood brain barrier. Usually treatment is with intravenous amphotericin B with or without flucytosine. In AIDS patients relapse is inevitable and lifelong prophylaxis with fluconazole or itraconazole is recommended. High dose fluconazole has been used successfully for treatment as an alternative to amphotericin B.

The diagnosis is made by identifying the cryptococci in the cerebrospinal fluid by India ink staining. More sophisticated techniques can be used to detect cryptococcal antigen in the blood or cerebrospinal fluid. The serum cryptococcal antigen titre has prognostic significance.

41. Dengue fever

- a. is spread by the vector Aedes aegypti
- b. has an incubation period of 2-3 weeks
- c. is caused by a flavivirus
- d. characteristically causes severe myalgia
- e. is more likely to cause haemorrhage in patients previously infected by a Dengue virus

Answer 41

Dengue fever.

T F T T T

Dengue fever is at present the second most common cause of imported fever. Only malaria is more common as a cause of fever in travellers returning to the UK from the tropics. Enteric fever and hepatitis A are also common.

Dengue fever is particularly common in travellers to South East Asia

but is widely distributed throughout the tropics.

The dengue virus is a single-stranded RNA virus, a flavivirus related to yellow fever virus. There are four serotypes.

The incubation period is short: about 4 days. Indeed viral infections should always be considered in those who develop fever within a week of arriving in a tropical area. The fever lasts about 4 days and may be biphasic ("saddleback").

The clinical presentation may be :

1. non-specific fever
2. Dengue fever syndrome characterised by severe myalgia
3. Dengue haemorrhagic fever / Dengue septic shock. This life-threatening form is more common in those previously infected. There is increased antibody production and DIC.

42. Spastic paraparesis is a recognised complication of infection with

- a. Streptococcus pyogenes
- b. Polio virus
- c. Mycobacterium tuberculosis
- d. Taenia saginata
- e. Plasmodium vivax

Answer 42

Spastic paraparesis

T F T F F

Streptococci may be involved in the formation of a spinal abscess, subdural or extradural, which may cause spinal cord compression.

Poliomyelitis is an anterior horn cell disease and characteristically causes flaccid paralysis, often of a single limb.

Tuberculosis of the spine (Pott's disease) is an important cause of spastic paraparesis. Infection usually starts in the intervertebral region involving the discs and extending subdurally to involve the meninges. Paraparesis may result from vertebral collapse or tuberculous arteritis of the spinal arterioles.

Other infective causes of spastic paraparesis: schistosomiasis, cysticercosis and HTLV-1.

43. Giardiasis

- a. can be diagnosed by duodenal biopsy
- b. leaves the small bowel morphologically normal
- c. has an incubation period of less than 48 hours
- d. causes abdominal distension
- e. usually responds to treatment with metronidazole

Answer 43

Giardiasis

T F F T T

Diagnosis is usually made by finding *Giardia lamblia* cysts in the stool. Other useful diagnostic techniques include: duodenal biopsy, microscopy of duodenal aspirate and enzyme immunoassay for *Giardia* antigens in the stool.

Histologically small bowel villi and microvilli may be shortened. These changes are not diagnostic.

The incubation period is usually greater than 48 hours.

Characteristic clinical features include: weight loss, diarrhoea, steatorrhoea, flatulence and abdominal distension.

Metronidazole is the usual treatment

44. The following are correctly paired:

- a. *Schistosoma haematobium*: *Biomphalaria* ssp
- b. *Onchocerca volvulus*: *Culex quinquefasciatus*
- c. *Loa loa*: *Chrysops dimidiata*
- d. *Borrelia duttoni* (relapsing fever): soft tick (*Ornithodoros moubata*)
- e. *Rickettsia tsutsugamushi*: trombiculid mite

Answer 44

Parasites and their vectors

F F T T T

Table 44.1

Schistosomiasis vectors	
Schistosoma mansoni	Biomphalaria ssp
Schistosoma haematobium	Bulinus ssp
Schistosoma japonicum	Oncomelania ssp

Table 44.2

Onchocerciasis vectors	
West African	Simulium damnosum
East Africa	Simulium naevei

Table 44.3

Rickettsial vectors		
Disease	Causative organism	Vectors
scrub typhus	R. tsutsugamushi	trombiculid mite
murine typhus	R. mooseri	Xenopsylla cheopis
epidemic typhus	R. prowazeki	Pediculus humanus (body louse)
African tick typhus	R. conori	hard ticks

45. Enteric fever

- a. Bone marrow culture increases diagnostic yield in those previously given antibiotics.
- b. is zoonotic
- c. is associated with poor sanitation
- d. the incubation period is usually 4-6 weeks
- e. rose spots occur in typhoid but not paratyphoid fever

Answer 45

Enteric fever

T T F F F

Blood culture is positive in 80% of cases in the first week. When antibiotics have already been given, bone marrow biopsy and culture may be positive when blood culture is negative. In untreated cases urine and stool cultures become positive in the third and forth weeks.

Chronic carriage is more likely with increasing age especially for women. Gallstones increase the risk of chronic faecal carriage and urinary schistosomiasis increases the risk of chronic urinary carriage.

Leucocytosis would be against a diagnosis of typhoid.

The incubation period for typhoid is 7-21 days.

Rose spots appear on the abdomen and chest in the second week. They are pale red macules 2-4mm in diameter. They may occur in both typhoid and paratyphoid fevers.

46. Brucellosis

- a. is caused by a Gram positive bacillus
- b. causes spondylitis
- c. is treated with tetracycline
- d. is a recognised cause of chronic depression
- e. is contracted from unpasteurised milk

Answer 46

Brucellosis

F T T T T

The causative organism is a Gram negative bacillus: *Brucella abortus* (from cows), *Brucella suis* (from pigs) and *Brucella melitensis* (from goats)

Transmission is by oral ingestion of unpasteurised dairy produce. Inhalation of organisms is also an important mode of transmission amongst those dealing with livestock. The incubation period is about 1-3 weeks but may be much longer.

Clinical presentation. The disease may present non-specifically and some complications may arise months after infection.

Table 46.1

Common presenting features of brucellosis
fever body pains positive exposure history malaise sweating

Table 46.2

Late complications of brucella infection
spondylitis orchitis arthritis endocarditis depression meningo-encephalitis

Diagnosis: Blood culture, marrow culture, liver biopsy and culture. Detection of raised *Brucella* agglutinins

Treatment: Doxycycline plus an aminoglycoside for 4 weeks and then doxycycline plus rifampicin for a further 8 weeks.

47. A 35 year old woman presented shocked with a one week history of sore throat and fever. Her blood pressure was 80 mmHg systolic, temperature 39.5C and pulse 130. She was mildly jaundiced and had a macular erythematous rash that blanched on pressure. She was oliguric and had biochemical evidence of renal failure. Her creatine kinase was twice the upper limit of normal. The differential diagnosis includes:

- a. myocardial infarction
- b. meningococcal septicaemia
- c. leptospirosis
- d. toxic shock syndrome
- e. Rocky Mountain spotted fever

Answer 47

Toxic shock syndrome

F T T T T

The diagnosis of toxic shock syndrome requires five of the following:

1. High fever
2. Hypotension
3. Diffuse macular erythematous rash
4. Multi-system involvement
5. Desquamation (10-14 days after shock)
6. As far as possible, exclusion of other possible diagnoses. Blood cultures are usually negative but may be positive for Staph. aureus.

48. Travellers' diarrhoea

- a. the single most common causative organism is entero-invasive E. coli
- b. has an incubation period of at least 48 hours
- c. may be due to Aeromonas ssp.
- d. may be due to Cryptosporidium
- e. should be treated with antibiotics

Answer 48

Travellers' diarrhoea

F F T T T

Table 48

Causes of travellers' diarrhoea
enterotoxigenic E.coli (c.40% of cases) Shigella enteroinvasive E.coli Campylobacter jejuni Salmonella Plesiomonas Aeromonas protozoa viruses no pathogen found (20% of cases)

The diarrhoea usually begins in the first few days. Antibiotics such as ciprofloxacin, especially if started early, reduce the duration of diarrhoea and have a good safety profile in adults. Non-gastrointestinal pathogens such as *Plasmodium falciparum* can also cause diarrhoea.

49 The following are recognised features of infective endocarditis

- a. erythema marginatum
- b. Roth spots
- c. proteinuria
- d. Osler's nodes
- e. splenomegaly

Answer 49

Infective endocarditis

F T T T T

Erythema marginatum is a major criterion for the diagnosis of rheumatic fever. Those with a past history of rheumatic fever are at increased risk of developing infective endocarditis.

Table 49

Clinical features of infective endocarditis

fever
heart murmurs
malaise
splinter haemorrhages
Janeway lesions (non-tender macules)
Roth spots (due to retinal vasculitis)
Osler's nodes (in pulp spaces)
heart failure
haematuria
proteinuria
arthralgia
clubbing (in subacute cases)
mycotic aneurysms
splenomegaly

50. The following are characteristic features of acute schistosomiasis

- a. fever
- b. eosinophilia
- c. convulsions
- d. myocarditis
- e. incubation period of 4-6 weeks

Answer 50

Acute schistosomiasis

T T F F T

Acute schistosomiasis is sometimes called Katayama fever. It occurs most often in *S.japonicum* infections but also *S.mansoni* and occasionally *S.haematobium*. Usually it occurs only in previously naive subjects visiting endemic areas and exposed to large numbers of cercariae. It is thought to be an immune complex mediated phenomenon.

There is typically a month's delay between exposure and symptoms. It takes about this time for the production of eggs, the putative antigen, to become established.

Other clinical features include: urticaria, diarrhoea, cough, lymphadenopathy, splenomegaly and raised serum IgM.

51. Hepatocellular carcinoma

- a. is more common in men than women
- b. is radiosensitive
- c. is associated with intake of aflatoxin
- d. usually presents with weight loss, right hypochondrial pain and hepatomegaly
- e. progress of the disease can be monitored by serial measurement of the tumour marker inhibin

Answer 51

Hepatocellular carcinoma

T F T T F

- a. In Africa the ratio of male to female cases is 4:1 and most cases occur in the 20-40 years age group. It tends to occur at a later age in Asia and Europe.
- b. Adriamycin causes tumour regression in 20-30% of cases. Arterial embolization and hepatic resection have some success in selected patients.
- c. Hepatitis B, hepatitis C, and aflatoxin are each associated with the development of hepatocellular carcinoma.
- d. Presentation with hepatomegaly, abdominal pain and weight loss is typical in endemic areas. In low incidence areas hepatocellular carcinoma usually presents in known cirrhotics.
- e. Alpha-fetoprotein is the tumour marker.

52. The following are recognised associations

- a. Hanta virus: haemorrhagic fever with renal syndrome

- b. E.coli 0157/H7: haemolytic uraemic syndrome
- c. Plasmodium vivax: tropical splenomegaly syndrome
- d. HTLV-1: AIDS
- e. Chlamydia trachomatis: Fitzhugh Curtis syndrome

Answer 52

Syndromes

T T F F T

Hanta virus, discovered in 1982, was isolated following an outbreak of haemorrhagic fever with renal failure in a large number of UN military personnel working in the Crimea. It has more recently been associated with an often fatal pulmonary syndrome.

Plasmodium falciparum is associated with tropical splenomegaly syndrome.

HTLV-1 causes tropical spastic paraparesis and T-cell lymphoma/leukaemia

Fitzhugh Curtis syndrome is chlamydial perihepatitis.

53. Effective malaria control interventions include:

- a. mass use of Fansidar chemoprophylaxis
- b. use of pyrethroid impregnated mosquito nets
- c. vaccination with SPf66
- d. larviciding
- e. eradication of mosquito breeding sites

Answer 53

Malaria control interventions

F T F T T

Mass use of chemoprophylaxis is not usually feasible. Long-term use would be extremely expensive and it is not of proven efficacy. Use of chloroquine as chemoprophylaxis encourages the emergence of chloroquine-resistant strains. Furthermore the different dosage regimens for prophylaxis and treatment can be confusing for patients. For selected sub-groups such as infants and pregnant mothers and in areas of epidemic transmission, the case for prophylaxis is stronger.

Fansidar is not recommended for prophylaxis.

Spf-66 (Patarroya vaccine) is not generally available and has not yet proved to be an effective control strategy. In one phase three trial it provided 55% protective efficacy.

Impregnated nets proved effective in trials but field experience is limited

54. In lepromatous leprosy

- a. neuropathy occurs before skin lesions
- b. skin lesions are typically anaesthetic
- c. skin lesions are typically symmetrical
- d. the lepromin test is positive
- e. leonine facies occurs

Answer 54

Lepromatous leprosy

F F T F T

Skin lesions are present before neuropathy develops. The initial skin lesions are small hypopigmented macules which are not anaesthetic. They are multiple and symmetrical. Later papules, nodules and diffuse dermal thickening may occur. In untreated cases the patient may develop the characteristic leonine facies.

Affected nasal cartilage may collapse causing a saddle-nose deformity.

Neuropathy. Peripheral nerve trunks (especially median, ulnar, sural, common peroneal) may be thickened and palsied.

Eyes. The eyes may be affected by iritis or may be traumatised because of seventh nerve palsy or corneal sensitivity.

55. The following occur in Chagas' disease (American trypanosomiasis)

- a. lymphadenopathy
- b. meningoencephalitis
- c. Calabar swelling
- d. mega-oesophagus
- e. saddle-nose deformity

Answer 55

Chagas' disease

T T F T F

The acute phase may be asymptomatic. There may be a chagoma at the portal of entry. Hepatosplenomegaly and lymphadenopathy may occur in the acute phase. Some deaths occur as a result of cardiac failure and meningoencephalitis. Trypanosomes may be seen on a blood smear. Blood culture and xenodiagnosis increase diagnostic yield. If the diagnosis is made in this stage, treatment with nifurtimox or benznidazole may reduce parasite numbers and the incidence of late complications.

The intermediate phase is asymptomatic but there is laboratory evidence of infection.

The chronic phase may occur decades after initial infection. Mega-oesophagus and dilated cardiomyopathy are typical.

Calabar swellings occur in loiasis

Saddle-nose deformity occurs in congenital syphilis, lepromatous leprosy and relapsing polychondritis.

56. Chloroquine

- a. is contraindicated in pregnancy
- b. is schizonticidal for *P. ovale*
- c. is the treatment of choice for non-falciparum malaria
- d. causes cinchonism
- e. inhibits plasmodial haemin polymerase

Answer 56

Chloroquine

F T T F T

Chloroquine can be used for chemoprophylaxis and for treatment. It can be safely taken by pregnant and lactating women. Chloroquine resistance has been reported in *P. vivax* in India and parts of South East Asia but it is not widespread and chloroquine remains the

treatment of choice for non falciparum malaria. Chloroquine is a 4-aminoquinoline, not a cinchona alkaloid. (Quinine can cause cinchonism - tinnitus, deafness, dizziness, nausea, tremor.) Haemin is a toxic metabolite of haemoglobin digestion by the parasite. It is detoxified by haemin polymerase to form malarial pigment. Side effects of chloroquine include dizziness, diplopia and pruritus.

57. Blindness is a recognised complication of:

- a. leprosy
- b. onchocerciasis
- c. vitamin A deficiency
- d. cysticercosis
- e. toxoplasmosis

Answer 57

Blindness

All true

The leading causes of blindness in the developing world are:
cataracts
trachoma
vitamin A deficiency

In the developed world senile macular degeneration and diabetes are the major causes of sight loss.

58. The following may present with fever and diarrhoea

- a. malaria
- b. Entamoeba coli
- c. dengue
- d. Campylobacter enteritis
- e. brucellosis

Answer 58

Fever and diarrhoea

T F T T T

Table 58.1

Some infections causing fever and diarrhoea	
"Gastrointestinal" infections	"Non-gastrointestinal" infections
Shigella Campylobacter E.coli (invasive) Entamoeba histolytica rotavirus salmonella	malaria dengue scrub typhus leptospirosis brucellosis

Organisms producing diarrhoea via toxins do not usually cause fever:

V.cholera

Bacillus cereus

Clostridium perfringens

Entamoeba coli is non-pathogenic to man.

59. Chicken pox

- a. has an incubation period of 3-5 days
- b. rash is preceded by Koplic's spots in the mouth
- c. fever settles when the rash appears
- d. should be treated by topical acyclovir
- e. may follow from close contact with a case of shingles

Answer 59

Chicken pox

F F F F T

The incubation period is 11-20 days, usually 2 weeks.

Koplic's spots precede the maculopapular eruption of measles.

The fever generally lasts about a week and settles as the last crop of spots appears.

The use of acyclovir in uncomplicated chicken pox is controversial.

Systemic acyclovir should be used in complicated chicken pox, particularly in adults. Recognised complications of chicken pox include impetigo, pneumonitis, encephalitis and thrombocytopaenia.

Non-immunes can acquire chicken pox from people with either chicken pox or shingles. Shingles occurs when immunity is lowered in a person who has suffered from chicken pox in the past.

60. Hepatitis A

- a. the virus has double stranded DNA
- b. the incubation period is 2-6 weeks
- c. the illness is milder in young people
- d. is maximally infectious at the peak of jaundice
- e. can be prevented by active immunisation

Answer 60

Hepatitis A

F T T F T

Hepatitis A is a single stranded RNA virus.

In children the illness may be very mild. Clinical jaundice might not occur.

The infectious period is from 2 weeks before the onset of jaundice until 1 week after. The most infectious time is just before onset of jaundice. Hepatitis A is usually acquired by consumption of faecally contaminated food or water. Other gastrointestinal pathogens may be acquired from the same source. Many patients recall having had diarrhoea a few weeks before their jaundice and upto 15% have other pathogens isolated from the stool.

61 Typical features of tropical splenomegaly syndrome are:

- a. very low or absent malarial antibody titres
- b. increased serum IgM
- c. lymphocytic infiltration of hepatic sinusoids
- d. Plasmodium falciparum parasitaemia
- e. favourable response to prolonged anti-malarial drug therapy

Answer 61

Tropical splenomegaly syndrome

F T T F T

This syndrome is also known by the name hyper-reactive malarial

syndrome.

It is characterised by massive splenomegaly and its geographic distribution mirrors that of malaria. Malarial antibodies are present in high titres but there is no parasitaemia. The basis of treatment is prolonged antimalarial chemoprophylaxis.

62. Visceral leishmaniasis is typically caused by

- a. L.donovani
- b. L.tropica
- c. L.chagasi
- d. L.major
- e. L.infantum

Answer 62

Visceral leishmaniasis

T F T F T

L.donovani, L.infantum, and L.chagasi may all cause visceral leishmaniasis but their geographical distribution differs. L.donovani is found in India and sub-Saharan Africa, L.infantum in the Mediterranean and L.chagasi in South and Central America.

L.tropica usually causes cutaneous leishmaniasis but the cause of a small but well documented outbreak of "viscerotropic" leishmaniasis in veterans of Operation Desert Storm.

L.major causes cutaneous leishmaniasis.

Intercurrent HIV infection may also lead to viscerotropic disease with an organism usually causing only cutaneous disease.

63. Concerning HIV infection in pregnancy:

- a. pregnancy approximately doubles the rate of progression to AIDS
- b. the rate of vertical transmission of HIV is greater than 50%
- c. perinatal administration of zidovudine to the mother reduces vertical transmission
- d. breast feeding increases vertical transmission.
- e. transmission of HIV to the neonate is confirmed if the neonate is

HIV antibody positive

Answer 63

HIV in pregnancy

F F T T F

The rate of progression of HIV to AIDS is probably not affected by pregnancy.

The rate of vertical transmission is about 15-35%. In Europe it is nearer 15% and in Africa nearer 30%.

Zidovudine appears to reduce vertical transmission by 2/3.

Nearly all babies born to HIV antibody positive mothers will get antibody to HIV via transplacental transfer. Only 15-35% of these will also be infected by the virus itself. It follows that detection of HIV antibody in neonates does not necessarily indicate HIV infection. HIV infection can be diagnosed by detection of HIV p24 antigen or detection of HIV antibody at age 18 months. In developing countries it may be necessary to make the diagnosis on clinical grounds.

The rate of vertical transmission is increased by breast feeding and vaginal delivery. It is also increased if the mother has advanced disease.

64. Buruli ulcers are characteristically:

- a. painful
- b. undermined
- c. caused by Fusobacterium
- d. secondarily infected
- e. responsive to penicillin

Answer 64

Buruli ulcers

F T F F F

Clinically Buruli ulcers are usually painless and undermined. There are often satellite lesions.

The causative organism is Mycobacterium ulcerans.

Treatment is with topical antiseptics and clofazimine or rifampicin.

The mode of spread is unknown

65. Concerning plague:

- a. it is caused by *Bacillus pestis*
- b. the main vector is the rat
- c. the pneumonic form is more common than the bubonic form
- d. fraction I antigen in the bacterial capsular envelope confers anti-phagocytic activity
- e. direct person to person spread may occur (i.e. without a vector)

Answer 65

Plague

F F F T T

Plague is caused by *Yersinia pestis*. The main animal reservoir is the rat but the vector is the rat flea, *Xenopsylla cheopis*.

Bubonic plague is the more common form. The other forms are pneumonic, septicaemic, and meningial.

Virulence of *Y. pestis* depends on V and W antigens whose genes are plasmid mediated. The bacterial cell wall contains a potent lipopolysaccharide endotoxin which may cause Gram negative shock. Exotoxins are also produced.

Cases of plague should be isolated because person to person spread may occur.

66. Rabies vaccination

- a. should be given annually to dogs in endemic areas
- b. may usefully be given many months after exposure
- c. Post-exposure vaccination is unnecessary if pre-exposure vaccination has been given
- d. Specific rabies immunoglobulin for human use may be prepared from horse serum
- e. is unnecessary after cat bites

Answer 66

Rabies

T T F T F

Vaccine should be given annually to all domestic animals.

Vaccine should be given as soon as possible after the bite.

Passive immunisation with immunoglobulin derived from horse serum

may result in serum sickness. Immunoglobulin derived from human serum also has this problem but to a lesser extent. Dogs are the main source of infection but cats, bats racoons and others may also carry rabies.

67. In a cholera epidemic

- a. cases have copious watery diarrhoea
- b. intravenous rehydration therapy has no place
- c. the most important public health intervention is the provision of clean water and good sanitation
- d. mass chemoprophylaxis with oral tetracycline should be arranged urgently
- e. mass vaccination should be undertaken

Answer 67

Cholera epidemic

T F T F F

Provision of clean water and adequate sanitation is the most important measure. Health education is also important. Many cases can be managed with oral rehydration therapy alone, given via nasogastric tube if necessary. Intravenous therapy should be given in patients more than 10% dehydrated.

Antibiotics reduce the duration of diarrhoea from a mean of 1.8 days to a mean of 0.8 days. Stool volume, intravenous fluid requirements and length of hospital stay are reduced by antibiotics. Tetracyclines, chloramphenicol, cotrimoxazole, doxycycline, ampicillin, ciprofloxacin and furazaladone have been used successfully. Treatment of household contacts with 200mg of doxycycline (single dose) is recommended but mass chemoprophylaxis is not.

68. Epstein-Barr virus is associated with

- a. hairy cell leukaemia
- b. leiomyosarcoma in young people with AIDS
- c. nasopharyngeal carcinoma
- d. teratogenesis
- e. oral hairy leukoplakia

Answer 68

Epstein-Barr virus.

F T T F T

EBV is associated with:

glandular fever
chronic fatigue syndrome
oral hairy leukoplakia (in HIV infected patients)
nasopharyngeal carcinoma
leiomyosarcomas in young people with AIDS
Burkitt's lymphoma

69. Hydatid disease is

- a. acquired in the UK.
- b. caused by dog tapeworm
- c. usually accompanied by eosinophilia
- d. treated with albendazole
- e. best diagnosed by microscopy of fluid obtained from ultrasound guided aspiration of the suspected cyst

Answer 69

Hydatid disease.

T T F T F

Hydatid disease is usually caused by *Echinococcus granulosus* (dog tapeworm). Alveolar hydatid disease is caused by *Echinococcus multilocularis* and is found in Eastern Europe and in China.

The adult tapeworm's definitive host is the dog. An infected dog usually has many adult worms in its gut. Each worm has three proglottids. The eggs emerge from the proglottids either before or after the latter are expelled from the dog. Accidental ingestion of such eggs by humans leads to cyst formation, usually in the liver.

Eosinophilia occurs in only 15% of cases.

Albendazole is often used in the treatment of hydatid disease but results in resolution of cysts in only 25% of cases. Surgery is often needed.

Cysts found on ultrasound scan may be confused with liver abscesses, carcinomatous metastases, hepatoma or polycystic disease. Aspiration

of hydatid cysts may lead to anaphylaxis and in general should be avoided.

70. Vitamin A (retinol)

- a. is found in green leafy vegetables
- b. high dose supplementation in pregnancy is teratogenic
- c. supplementation reduces mortality from measles
- d. supplementation reduces mortality from diarrhoeal disease
- e. supplementation reduces mortality from respiratory disease

Answer 70

Vitamin A.

F T T T F

Retinol is not found in vegetables. Beta-carotene is found in dark green leafy vegetables, mangoes, papayas, yellow corn, carrot etc. Beta-carotene is a pro-vitamin, converted to vitamin A by enzymes in the gut mucosa.

Supplementation is advised in communities where children are malnourished or have borderline nutrition. Many clinicians also advocate supplements of vitamin A (200 000 iu daily per os for 2 days, and repeated after 1 week), at time of diagnosis of measles. Measles causes reduced uptake and increased metabolic requirements. Furthermore, the virus itself may cause eye lesions. Xerophthalmia is rare outside the context of protein energy malnutrition.

71. Thalidomide is used in the treatment of

- a. HIV-associated peripheral neuropathy
- b. hyperemesis gravidarum
- c. erythema nodosum leprosum
- d. Behcet's disease
- e. HIV-associated mouth ulcers

Answer 71

Thalidomide

F F T T T

This drug was used in the 1960's to treat hyperemesis gravidarum and is notorious for its association with phocomelia. It should never be used in pregnancy. It is an anti-inflammatory, immunomodulant drug which acts by interfering with phagocyte migration and TNF-alpha secretion. It has no direct effect on lymphocytes and does not inhibit HIV replication. It is beneficial in HIV-associated mouth ulcers and may have a role in HIV-associated cachexia. It is also beneficial in mucocutaneous ulceration not associated with HIV. Other conditions reported to respond to thalidomide include: discoid lupus erythematosus, erythema multiforme, ulcerative colitis, rheumatoid arthritis and chronic graft-versus-host disease. The incidence of side effects is high, mainly peripheral neuropathy. It has no product licence in the UK. For these reasons its use should be restricted: it should probably only be used when other appropriate drugs have been tried but have failed.

72. Hepatitis A vaccination (Havrix):

- a. is a live vaccine
- b. is teratogenic
- c. has >75% protective efficacy
- d. causes mild hepatitis in some patients
- e. should be offered to haemophiliacs who are hepatitis A antibody negative

Answer 72

Hepatitis A vaccination.

F F T F T

The vaccine is formalin inactivated. It is well tolerated with no serious side effects. Minor side effects include soreness at injection site, fever, headache and tiredness. It is not licensed for use in pregnant women but is probably safe. No teratogenic events have been reported.

Two doses four weeks apart result in seroconversion in nearly all cases and protection lasts about five years. It may be given with human normal immunoglobulin or other live or inactivated vaccines.

Vaccination is aimed primarily at frequent travellers, military personnel and aid workers. It should also be considered for sewage workers, staff in mental handicap institutions, haemaphiliacs and for those with chronic liver disease.

Use in post-exposure prophylaxis is not yet established nor is it of proven efficacy.

73. Yellow fever

- a. has an incubation period of 3-6 days
- b. has a case fatality rate of about 50%
- c. is caused by a flavivirus
- d. is spread by anopheline mosquitoes
- e. epidemics should be controlled by strict isolation of cases

Answer 73

Yellow fever.

T F T F F

ABORTIVE INFECTIONS ARE THE RULE. Severe classic infections occur in only 10-20% of those infected. 20-50% of severe infections are fatal. Yellow fever is spread by culicine mosquitoes: *Aedes aegypti* (peri-domestic) and *Aedes haemagogus* (sylvatic).

Epidemics are controlled by mass vaccination and use of insecticides

74. Tuberculosis control:

- a. Sputum negative cases of pulmonary tuberculosis are of more public health importance than sputum positive cases because they are more likely to remain undiagnosed.
- b. Children with tuberculosis have usually acquired their disease from a child contact.
- c. Close contacts of a sputum positive case should be offered immediate BCG.
- d. BCG is at least 50% effective in preventing pulmonary tuberculosis.
- e. Twice weekly supervised treatment regimens have comparable efficacy to standard daily regimens.

Answer 74

Tuberculosis control.

F F F F T

The main thrust of public health policy in the control of tuberculosis is

the identification and treatment of sputum positive cases. These are the most infectious patients. It follows that sputum examination is of more importance than chest radiography. Children with tuberculosis have usually acquired it from an adult contact, often a grandparent. Contacts are offered a tuberculin test and CXR. Management depends on the results of these tests and age.

75. Strep. pyogenes

- a. is the most common bacterial cause of tonsillitis
- b. asymptomatic pharyngeal carriage occurs in about 10% of children
- c. septicaemia carries a mortality similar to meningococcal septicaemia
- d. pharyngitis may be complicated by suppurative cervical adenitis
- e. causes scarlet fever

Answer 75

Streptococcus pyogenes.

T T T T T

- a. Acute pharyngitis is usually caused by viral infections. Strep. pyogenes is the cause in up to 50% of children aged 4-13 years but in <30% of cases in other age groups. Other bacterial causes of pharyngitis include gonococcus, diphtheria and Arcanobacterium haemolyticum.
- b. Asymptomatic carriage occurs in about 10% of children. Bacterial numbers are generally small. Risk of systemic spread and of acute rheumatic fever is generally very low in such cases.
- c. Strep. pyogenes septicaemia has a mortality of about 50%. Severe Strep. pyogenes infections (bacteraemia, septic shock like syndrome and necrotising fasciitis) as a group are now more common than meningococcal septicaemia.
- d. Complications of pharyngeal infection include: otitis media, suppurative cervical adenitis, quinsy, acute rheumatic fever and acute post infectious glomerulonephritis.

76. Amphotericin B is used in the treatment of:

- a. visceral leishmaniasis

- b. dermatophyte infections of the nails
- c. azole resistant oral candida
- d. primary amoebic meningoencephalitis caused by Naegleria species
- e. cryptococcal meningitis

Answer 76

Amphotericin B.

T F T T T

Amphotericin B is a polyene antifungal which is not absorbed orally but which can be given parenterally for the treatment of severe systemic fungal infections.

Amphotericin B also has activity against Trichomonas, Entamoeba, Naegleria, Leishmania and trypanosomes.

Griseofulvin or terbinafine can be used in the treatment of dermatophyte nail infections.

77. Typical features of tropical pulmonary eosinophilia include:

- a. lymphadenopathy
- b. absolute eosinophilia
- c. microfilaraemia
- d. raised serum Ig E
- e. rapid response to mebendazole

Answer 77

Tropical pulmonary eosinophilia.

T T F T F

This syndrome is also sometimes called filarial hypereosinophilia. It is characterised by hypersensitivity to microfilaria. Characteristic features of tropical pulmonary eosinophilia include:

Hypereosinophilia

Pulmonary symptoms

Current or previous residence in an area endemic for filariasis

Absence of microfilariae in the blood

Lymphadenopathy

High titres of anti-filarial antibodies

There is a rapid response to diethylcarbamazine (DEC).
Transient pulmonary infiltrates and eosinophilia may be associated with *Ascaris*, hookworm and *Strongyloides* infections. These infections are important in the differential diagnosis of eosinophilia but do not cause tropical pulmonary eosinophilia.

78. The following drugs are used in the treatment of Legionnaires' disease:

- a. rifampicin
- b. gentamicin
- c. erythromycin
- d. ciprofloxacin
- e. azithromycin

Answer 78

Legionnaires' disease:

T F T T T

Erythromycin is the drug of choice and is supplemented by rifampicin in severe cases. Azithromycin is a newer macrolide antibiotic with a similar spectrum to erythromycin.

79. Acute post-streptococcal glomerulonephritis of childhood:

- a. occurs after cellulitis but not pharyngitis
- b. should be treated with steroids
- c. is fatal in about half of all cases
- d. is usually crescentic on microscopy
- e. usually presents with acute renal failure

Answer 79

Post-streptococcal glomerulonephritis.

T F F F F

In the tropics it probably occurs more commonly after infected skin lesions but glomerulonephritis following a streptococcal pharyngitis is not uncommon. The streptococcus is classically group A beta-

haemolytic (type 12).

The usual histology is diffuse proliferative glomerulonephritis.

Patients present with an acute nephritic illness.

The prognosis is good.

Management is aimed at controlling hypertension and treating pulmonary oedema. Dialysis is occasionally required but return to normal renal function is the rule.

Steroids and immunosuppressives are not required.

Generally C3 is reduced and anti-streptolysin titres are raised.

80. Suppurative lymphadenopathy may be caused by:

- a. cat scratch fever
- b. lymphogranuloma venereum
- c. tuberculosis
- d. sarcoidosis
- e. plague

Answer 80

Suppurative lymphadenopathy

T T T F T

Table 80

Causes of suppurative lymphadenopathy
Strep. pyogenes tuberculosis plague chancroid cat scratch fever tularaemia lymphogranuloma venereum

N.B. Sarcoidosis, HIV and syphilis do not generally cause suppurative lymphadenopathy.

81. Legionnaires' disease:

- a. can be acquired by drinking infected water

- b. smokers are more susceptible
- c. most cases are sporadic
- d. hyponatraemia is typical
- e. may cause rigors

Answer 81

Legionnaires' disease

F T T T T

Legionella pneumophila is a Gram negative bacterium which was first identified in 1976. It is found widely in water systems and is spread by droplet inhalation. Infection may be associated with inhalation of free-living amoebae, with large quantities of *Legionella* arriving inside the amoebae. Those at increased risk include elderly men, smokers and the debilitated. Outbreaks may occur in hotels and hospitals.

Many infections are asymptomatic. After 2-10 days' incubation, presentation is with fever, rigors, headache, myalgia, cough and breathlessness. Confusion and diarrhoea also occur.

Laboratory features include leucocytosis, hyponatraemia and raised liver transaminases. The organism is difficult to culture and the diagnosis is usually confirmed by the detection of rising antibody titres in the serum. It may take 2-3 weeks for serology to become positive. Occasionally *Legionella* antigen is detected in the

82. Typical features of botulism include:

- a. circumoral parasthesia
- b. extensor plantars
- c. diarrhoea
- d. fever
- e. post-tetanic potentiation on EMG (electromyography)

Answer 82

Botulism.

F F F F T

Botulism usually results from ingestion of pre-formed botulinum toxin in canned or smoked food. The toxin is produced by *Clostridium*

botulinum. It is heat labile. It acts pre-synaptically at neuromuscular junctions preventing the release of acetylcholine.

Features include ptosis, dry mouth, diplopia, blurred vision, bulbar palsy and muscular weakness. Sensory signs are not a feature. (Circumoral parasthesia is typical of hyperventilation.) Nausea and vomiting may occur but not usually diarrhoea. Symptoms occur 12-72 hours after ingestion of the toxin.

Diagnosis is by animal tests: mice are injected with small samples of serum, urine or gastric contents from the patient and watched for signs of botulism. EMG shows post tetanic potentiation.

Treatment. Respiratory support and polyvalent horse antiserum.

83. Concerning anti-tuberculous chemotherapy:

- a. pyrazinamide causes hyperuricaemia
- b. isoniazid causes a lupus-like syndrome
- c. twice weekly regimens should be continued for at least 12 months
- d. pyridoxine is only needed by slow acetylators
- e. rifampicin can only be given orally

Answer 83

Anti-tuberculous chemotherapy

T T F F F

All anti-tuberculous drugs may cause anorexia, nausea and vomiting.

Pyrazinamide is bactericidal and penetrates the meninges well. Its side effects include fever, liver failure and hyperuricaemia.

Isoniazid is generally safe. The most common side effect is peripheral neuropathy. This is more common in diabetes and alcoholics. Pyridoxine should always be given to such patients. Slow acetylators status increases risk of neuropathy and of lupus-like syndrome. Other side effects include psychosis, fever and hepatitis.

Rifampicin can be given orally or intravenously. Transient elevation of transaminases is common. Six toxicity syndromes have been described: influenzal, abdominal, respiratory, shock, renal and thrombocytopaenic.

Compliance is a major problem in the developing world. Expense, cultural beliefs, the need to travel to get the drugs, drug side effects and variable drug supply all contribute towards poor compliance.

84. The following are recognised complications of meningococcal infection:

- a. deafness
- b. reactive polyarthritis
- c. purulent monoarthritis
- d. alopecia
- e. pericarditis

Answer 84

Meningococcal infection.

All True

The rash in meningococcal infection is characteristically purpuric but may initially be maculopapular.

VIIIth nerve damage resulting in deafness is a recognised complication.

Reactive polyarthritis is not uncommon and is the most likely joint complication.

Telogen effluvium may occur following any serious illness.

85. The following may cause pulmonary cavitation

- a. Mycobacterium tuberculosis
- b. Aspergillus fumigatus
- c. Staph. aureus
- d. Klebsiella ssp
- e. Strep. pneumoniae

Answer 85

Pulmonary cavitation.

All true

Upper lobe cavitating pneumonia is classical of pulmonary tuberculosis.

Klebsiella and Staph. aureus may cause acute cavitating pneumonia. Strep. pneumoniae does so occasionally.

Paragonimus westermani (the lung fluke) causes pulmonary cavitation but the cavities are only about 1cm across and sometimes are only recognised as such on CT scanning.

86. The paralysis of polio virus infection

- a. is upper motor neurone type
- b. is asymmetrical
- c. usually affects the lower limbs more severely than the upper limbs
- d. is more severe if strenuous physical exercise occurred in the incubation period
- e. may be caused by polio vaccination

Answer 86

Polio virus infection

F T T T T

Poliomyelitis is caused by three types of polio virus. Type 1 polio virus is the most virulent and prior to immunization was responsible for major epidemics.

Polio virus is an enterovirus and is spread by the faecal-oral route. Other factors associated with paralysis are: pregnancy, tonsillectomy and prophylactic injections. The incubation period is 3-21 days (usually 7-14 days).

Clinical features: There is a flu-like prodromal illness. The symptoms may resolve at this stage (abortive infection) or may progress to aseptic meningitis. The meningitis may be complicated by flaccid paralysis which may be bulbar or spinal. Occasionally in children paralysis may be the first symptom of infection.

Diagnosis:

1. Characteristic clinical features (NB no sensory deficit)
2. CSF leucocytosis (neutrophils may predominate initially), raised CSF protein.
3. Isolation of virus from the stool or from a throat swab.

Treatment is supportive, and most efforts should be directed towards prevention by immunization: the Sabin vaccine, oral polio vaccine, is a

live attenuated vaccine incorporating antigens from the three virus types.

87. Rickettsiae:

- a. cannot be cultured on artificial media
- b. may cause an eschar
- c. are spread by arthropods
- d. are usually sensitive to tetracyclines
- e. cause melioidosis

Answer 87

Rickettsiae:

T T T T F

They grow in chick eggs and in tissue culture. Laboratory diagnosis relies on paired serological tests (IFAT or ELISA). The Weil-Felix test is a non-specific, non-sensitive serological test that is sometimes used in the diagnosis of rickettsial disease. Treatment should be started when a clinical diagnosis is made.

Escars occur in tick typhus, scrub typhus and rickettsial pox but not in epidemic typhus. Similar skin lesions may be seen in anthrax, plague and trypanosomiasis (trypanosomal chancre).

Rickettsiae are sensitive to tetracyclines, chloramphenicol and quinolones. As treatment is usually empirical it is often necessary to also cover typhoid.

Tetracycline does not cover typhoid.

Melioidosis is caused by *Pseudomonas pseudomallei*.

88. Concerning cholera:

- a. it has an incubation period of 1-5 days.
- b. it causes an inflammatory cell infiltrate in the lamina propria of the mucosa of the small intestine
- c. it causes muscle cramps
- d. the diagnosis is confirmed by dark field microscopic examination of the stool

e. compared to the classical biotype, the El Tor strain produces more severe illness

Answer 88

Cholera:

T F T T F

THE HISTOLOGY IS NORMAL. The diarrhoea is caused by cholera toxin.

Vomiting follows the onset of diarrhoea in up to 80% of cases.

Identification of the cholera vibrios by dark field microscopy of a wet preparation of stool can be confirmed by the addition of a specific antiserum which causes sudden cessation of vibrio movement.

TCBS agar can be used to culture the organism but there should be minimal delay between patient and culture medium.

Serological diagnosis following recovery may be helpful epidemiologically.

89. The following are recognised features of onchocerciasis:

- a. keratitis
- b. diarrhoea
- c "hanging groin"
- d. Calabar swelling
- e. eosinophilia

Answer 89

Onchocerciasis:

T F T F T

Causative organism: *Onchocerca volvulus*

Vector: Simulium fly

Distribution: equatorial Africa, Yemen, S.America

Other hosts: Adult worms are only found in humans

Life cycles: Adult worms live in subcutaneous tissue. They may also be found in fibrotic nodules. Female worms produce many microfilariae

which may be taken up by Simulium when it bites. After several weeks in the fly the microfilariae develop into infective larvae.

90. The following conditions and drug treatments are correctly paired:

- a. onchocerciasis: ivermectin
- b. schistosomiasis: praziquantel
- c. visceral leishmaniasis: suramin
- d. Rhodesian trypanosomiasis: pentavalent antimony
- e. hydatid disease: albendazole

Answer 90

Tropical disease drug treatments

T T F F T

Table 90

Drug treatments of some major tropical diseases		
Infection	First line treatment	Second line treatment
onchocerciasis	ivermectin	suramin DEC
schistosomiasis	praziquantel (for all species)	metrifonate (S.haematobium) oxamniquine (S.mansoni)
visceral leishmaniasis	sodium stibogluconate	amphotericin B pentamidine allopurinol
Rhodesian trypanosomiasis	suramin	melarsoprol (if CNS involved)
Gambian trypanosomiasis	suramin or pentamidine	melarsoprol or eflornithine (if CNS involved)
hydatid disease	albendazole	praziquantel

91. Fever, diarrhoea and eosinophilia in a returned traveller may be due to each of the following as the sole causative agent:

- a. Strongyloides stercoralis
- b. Aeromonas hydrophila
- c. Schistosoma mansoni
- d. Capillaria philippinensis
- e. Plasmodium falciparum

Answer 91

Fever, diarrhoea and eosinophilia:

T F T T F

The combination of fever, diarrhoea and eosinophilia is suggestive of invasive helminthiasis:

Helminth infections	
Helminth infection	Additional prominent symptoms/ signs
Strongyloides stercoralis	upper abdominal pain
Capillaria philippinensis	chronic fatty diarrhoea
Fasciola hepatica	hepatomegaly
Schistosoma mansoni	hepatomegaly, urticaria
Schistosoma japonicum	hepatomegaly, urticaria

The precise travel history may exclude some diagnoses.

Although there is no eosinophilia in malaria, it should be assumed that this is the cause of any fever in a returned traveller until proven otherwise. Not uncommonly multiple infections are acquired so the malaria patient, for example, may also have hookworm infection.

Aeromonas species may cause travellers' diarrhoea but not eosinophilia.

92. A positive VDRL (venereal disease research laboratory) test with negative TPHA and FTA (Treponema pallidum haemagglutinin and fluorescent treponemal antibody) tests is consistent with:

- a. early infectious primary syphilis
- b. treated syphilis
- c. glandular fever
- d. late syphilis
- e. previous yaws infection

Answer 92

Serological tests for syphilis.

F F T F F

VDRL:

usually becomes positive 3-4 weeks after primary infection,
becomes negative about 6 months after treatment,
is a marker of disease activity,
if accompanied by a negative TPHA and FTA usually indicates a biological false positive.

Table 92

Causes of biological false positive VDRL
Mycoplasma infection measles chicken pox glandular fever hepatitis rheumatoid arthritis systemic lupus erythematosus polyarteritis nodosa malignancy cirrhosis

FTA:

positive in 90% of cases of primary syphilis,
positive in all late cases,
does not distinguish syphilis from yaws.

A negative VDRL with a positive TPHA and FTA may be due to early primary syphilis, yaws, congenital syphilis, latent, late or treated syphilis.

93. Diphtheria:

- a. "bull neck" is diagnostic
- b. it is caused by Gram positive bacilli
- c. toxin absorption is greatest in pharyngeal disease
- d. palatal paralysis is a recognised complication
- e. complete heart block is a manifestation of toxin-induced myocarditis

Answer 93

Diphtheria.

F T T T T

Corynebacterium diphtheriae is a Gram positive, toxin-producing bacillus. the toxin is responsible for the manifestations of the disease and diphtheria toxoid immunisation, usually given in childhood, protects against the dangerous effects of infection.

Of the three strains, *gravis* and *intermedius* produce more severe infection, and *mitis* milder infection.

Classically there is a grey pharyngeal membrane. The "bull neck" appearance is due to soft tissue oedema and cervical lymphadenopathy. Other causes of cervical lymphadenopathy may cause a superficially similar appearance .

Management:

- 1. watch airway
- 2. benzylpenicillin for 2 weeks
- 3. antitoxin
- 4. observe for complications
- 5. contact tracing
- 6. isolation.

94. Leptospirosis:

- a. usually causes a self-limiting disease
- b. is caused by Gram positive bacilli

- c causes leucopaenia
- d. causes jaundice
- e. causes meningitis

Answer 94

Leptospirosis:

T F F T T

Leptospirosis is caused by *Leptospira* species which are Gram negative spirochaetes. Rodents are the usual reservoir but larger animals may also carry and excrete the organism.

Presentation is with fever, myalgia, headache, conjunctival injection and hepatomegaly. Jaundice occurs in 10-20% of cases and is usually cholestatic.

Meningitis may occur. The CSF shows a mixture of lymphocytes and polymorphs, and the CSF sugar is often normal.

Complications include renal failure, pneumonitis and DIC.

Diagnosis is suggested by an appropriate exposure history and is usually confirmed subsequently by serology. Doxycycline or penicillin are appropriate antibiotic treatments.

95. Praziquantel is used in the treatment of:

- a. amoebiasis
- b. toxocariasis (visceral larva migrans)
- c. paragonimiasis (lung fluke)
- d. trypanosomiasis (African sleeping sickness)
- e. schistosomiasis

Answer 95

Praziquantel

F F T F T

amoebiasis: metronidazole

toxocariasis: albendazole

African sleeping sickness: suramin or melarsaprol

Praziquantal is used to treat schistosomiasis, lung fluke and tropical liver fluke.

Side effects include minor gastrointestinal upset, giddiness and occasionally bloody diarrhoea

96. Loa loa

- a. is confined to Central and West Africa
- b. is spread by the vector *Aedes aegypti*
- c. may cause a high eosinophilia ($>10 \times 10^9/L$)
- d. is diagnosed by histological examination of skin snips
- e. is treated with DEC

Answer 96

Loa loa

T F T F T

High eosinophilia is particularly suggestive of infection with filarial worms or strongyloidiasis.

The vector is *Crysops*.

The diagnosis is usually made by finding microfilariae in the blood. Adult worms are sometimes (dramatically) seen crossing the eye subconjunctivally. Adult worms are also located in the pathognomonic Calabar swellings

97. Genital ulcers:

- a. may be due to herpes simplex virus
- b. are associated with an increased incidence of HIV
- c. if painful and associated with lymphadenopathy, are likely to be due to chancroid
- d. are found in gonorrhoea
- e. if well-defined and beefy red, are likely to be due to granuloma inguinale

Answer 97

Genital ulcers

T T T F T
Table 97

Causes of genital ulcers	
sexually transmitted infections	not sexually transmitted
herpes simplex syphilis chancroid granuloma inguinale lymphogranuloma venereum	Behcet's disease (also mouth lesions) Pemphigus (also mouth and skin lesions) Stevens-Johnson syndrome (also mouth and skin lesions)

98. HIV in Africa:

- a. Circumcision is associated with lower rates of HIV infection amongst African men.
- b. Infection rates are generally higher in rural populations.
- c. Pneumocystis pneumonia is a more common presentation of AIDS than in Europe.
- d. The provision of HIV testing kits is a priority for good case management.
- e. Pulmonary tuberculosis is often associated with HIV infection.

Answer 98

HIV in Africa

T F F F T

HIV is associated with a large number of sexual partners, a history of sexually transmitted disease or genital ulcers, prostitution and retention of foreskin (i.e. circumcision protects). However, HIV is so prevalent that identification of risk groups is of limited importance in terms of allocation of resources.

The role of HIV testing in Africa:

1. Blood donor screening

2. Epidemiological surveys

3. Case finding: eg those presenting to GUM clinics / presenting with other sexually transmitted diseases.

99. The World Health Organisation's Expanded Programme for Immunisation (EPI) includes immunisation against:

- a. cholera
- b. hepatitis A
- c. rubella
- d. smallpox
- e. typhoid

Answer 99

The Expanded Programme for Immunisation:

F F F F F

The WHO EPI schedule for developing countries:

BCG at birth

oral polio at birth, 6 weeks, 10 weeks, 14 weeks

Hepatitis B at birth, 6 weeks, 9 months

diphtheria/pertussis/tetanus (DPT) at 6, 10, and 14 weeks

measles at 9 months

Tetanus toxoid should also be given to women of reproductive age: 2 doses at least 1 month apart (and at least 2 weeks before delivery if pregnant.)

100. The following infectious agents cause dementia:

- a. gonococcus
- b. HIV
- c. Brucella abortus
- d. Borrelia recurrentis
- e. HTLV-1

Answer 100

Infectious causes of dementia:

F T F F F

Table 100

Infectious causes of dementia	
Infectious agent	Illness
measles or rubella	subacute sclerosing panencephalitis (SSPE)
HIV	AIDS dementia
Treponema pallidum	general paresis of the insane (tertiary syphilis)
Borrelia burgdorferi	Lyme disease
Prions	Creutzfeld-Jakob disease

Dementia is the persistent, global impairment of higher intellectual function in an alert patient.

http://health.groups.yahoo.com/group/pediatric_doctors/
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Best Regards
Dr.serdar