

FEx Net 2023:

Dermatology + Infectious Diseases

Answers

1. Blanching Rash
2. Blistering
3. Cellulitis
4. Diabetic Fever
5. Ear
6. Ear
7. Eczema
8. Erythema Multiforme
9. Face
10. Face
11. Fever
12. Hand
13. HIV
14. HIV
15. HIV
16. IVDU
17. MERS
18. Nec Fac
19. Nec Fac
20. Neck Swelling
21. Onc Fever
22. Periorbital
23. Peritoneal dialysis
24. Petechiae
25. Petechiae
26. PID
27. Pyelonephritis
28. Renal Transplant
29. Scalp
30. SJS
31. Target Lesion
32. Target Lesion
33. TENS
34. TENS
35. Travel
36. Travel
37. TTP

Question 1

1.

Alert Caucasian child

Widespread rash – face, ears, neck torso

- Erythematous
- Macular
- Areas confluence
- Less prevalent dorsum of right hand pictured
- Circumoral sparing – pallor
- Dry lips/tongue/mucous membranes

No conjunctivitis

2.

Measles

Other viral illness eg rubella

Urticarial – allergy, other

Drug rash

Scarlet fever

Erythema multiforme

Kawasaki disease

3.

Measles PCR – nasopharyngeal swab

Tests for Strep

- throat swab culture
- blood for ASOT / anti DNAase B

inflammatory markers if Kawasaki disease suspected – CRP, ESR

Question 2

A 34 year male presents to the Emergency Department with a widespread blistering rash.

- i) Except for Stevens-Johnson Syndrome or toxic epidermal necrolysis, give 6 differential diagnoses in this patient? (6 marks)

Sunburn

Kawasaki syndrome

Toxic shock syndrome

Staphylococcal scalded skin

Erythema multiforme

Pemphigoid (or bullous pemphigoid)

Pemphigus (or pemphigus vulgaris)

Subcorneal pustular dermatosis

Insect bites

Mustard gas

Boric acid toxicity

Herpes simplex

Herpes zoster

- ii) Give 4 causes of Stevens-Johnson Syndrome? (4 marks)

Herpes simplex

Mycoplasma

CMV

Penicillins

Cephalosporins

Sulphonamides

Phenytoin

Carbamazepine

Allopurinol

Lamotrigine

NSAIDs especially oxicams

Immunisations

Paracetamol (rare)

- iii) What is Nikolsky's sign? (2 marks)

Epidermis detaches from the dermis/burn bed with slight friction or rubbing of the skin with finger

Question 3 (21 marks) With regard to skin

and soft tissue infections

- i. List 5 non-infectious conditions that masquerade as unilateral leg cellulitis and indicate the symptoms/signs and/or tests that help to differentiate the condition from cellulitis (10 marks)

Cellulitis mimic	Differentiating symptoms/signs/investigations

Contact dermatitis - contact dermatitis lesions are pruritic. Clinical features include erythema, oedema, vesicles, bullae, and oozing. The reaction is generally limited to the site of contact and is associated with burning, stinging, or pain. Usually well-demarcated. Frequently a history of contact with causative agent

Acute gout - severe pain, warmth, erythema, and swelling overlying a single joint. The diagnosis can be established by synovial fluid analysis, which should demonstrate the characteristic urate crystals of gout or the calcium pyrophosphate crystals of pseudogout. Additional clues suggestive of gout include involvement of the first metatarsophalangeal joint, prior self-limited attacks of arthritis, and presence of tophi.

Insect bite - inflammatory reaction at the site of the punctured skin, which appears within minutes and consists of pruritic local erythema and oedema. May/may not give history of bite or outdoor activities. In some cases, a local reaction is followed by a delayed skin reaction consisting of local swelling, itching, and erythema.

Stasis dermatitis – Stasis dermatitis is an inflammatory dermatosis of the lower extremities that occurs in patients with chronic venous insufficiency. It is usually bilateral but can be unilateral in the setting of anatomic asymmetry. The diagnosis is usually established clinically

Drug reaction - presents with an erythematous maculopapular rash that involves the trunk and proximal extremities. It may be accompanied by pruritus, low-grade fever, and mild eosinophilia. The diagnosis is suspected in a patient receiving drug treatment who presents with a rash of recent onset. The clinical suspicion can be substantiated by histopathologic examination of a skin biopsy

Superficial thrombophlebitis - tender, palpable cord along affected vein often present.

History of cannulation.

DVT – tenderness +/- Homan's, diffuse swelling history of prior DVT, prolonged immobility, or hypercoagulable state.

Vasculitis - macular and papular lesions are characteristically nonblanchable due to the presence of extravasated erythrocytes in the dermis, which occurs as a result of damaged vessel walls. The diagnosis is established by skin biopsy

- ii. List 3 choices of oral antibiotic which cover *Streptococcus pyogenes* **and** *Staphylococcus aureus* (3 marks)

Flucloxacillin 500-1000mg QID

Cephalexin 500-1000mg QID

Clindamycin 450mg TDS

- iii. Briefly explain the pharmacodynamic advantage conferred by combining a beta-lactam antibiotic with:
- (a) Probenecid (2 marks)

-
-
-
- Decreases renal excretion of drugs that undergo active tubular secretion – especially weak acids & including B-lactam antibiotics. Pharmacokinetic principles → longer period where concentration of drug stays above MIC

- (b) Clavulanic acid (2 marks)

-
-
-
- Inhibitor of bacterial B lactamases and protect hydrolysable penicillins from inactivation. Weak antibiotic action in their own right. Do not alter the antibacterial spectrum of the parent antibiotic

- iv. Regarding the management of abscesses, write short notes on the role of the addition of an antibiotic to simple incision and drainage of the abscess (4 marks)

- Generally considered that I&D is sufficient and antibiotics are not required.
- However, with surrounding cellulitis may be indicated.
- Further, there is a small benefit of the addition of Bactrim (7% reduction in “failure” of treatment) – which has to be balanced against the risk of antibiotic adverse effects.
- Higher prevalence of Staph aureus and in some populations resistant forms means if an antibiotic is used it should cover MSSA e.g. bactrim

Question 4

1.

Fournier's gangrene

(necrotising fasciitis scrotum)

2.

Oedema scrotum

Erythema scrotum

Patches black, necrotic skin scrotum

3.

Urgent surgical referral for debridement

IV antibiotics – meropenem 1g/ vancomycin 3g/ clindamycin 600mg (linco)

IV fluids – N/S boluses to maintain systolic >100mmHg

Glycaemic control with IV insulin infusion

Analgesia – IV morphine 2.5mg aliquots or other sensible option

4.

Staph aureus

Streptococcal species

Polymicrobial gram negatives and anaerobes

Question 5

1

Erythema

Oedema

Pustule around removed piercing superior pinna cartilage

3 remaining piercings in situ

2

Perichondritis right ear

3

Pseudomonas aeruginosa

Staph aureus

4

Cartilage necrosis

Abscess formation

Systemic involvement / sepsis

5

Analgesia – something sensible

Antibiotics to cover *Pseudomonas* – eg pip/taz or ciprofloxacin

ENT review

Take other ear-rings out

Question 6

This is the ear of a 40-year-old male who has developmental delay with autism.

A CLINICAL IMAGE IS SHOWN IN THE PROPS BOOKLET, PAGE 6

i. Describe and interpret the image (2 marks)

- Extensive redness and swelling of the pinna/external ear. Some extension onto neck
- Perichondritis or cellulitis of the external ear

ii. List two possible predisposing conditions (2 marks)

- Otitis externa
- Tick or insect bite
- High ear piercing, other local trauma

iii. List two complications (2 marks)

- Cartilage necrosis/cauliflower ear
- Local abscess
- Deep extension eg cerebral abscess, mastoiditis

iv. Name the three bacteria typically involved (3 marks)

- **Pseudomonas**
- Staph aureus
- Strep pyogenes

- v. Name one suitable antibiotic choice for this condition (1 mark)

- Must include Pseudomonas cover or no marks
- Quinolone eg ciprofloxacin PO or IV
- Gentamicin IV and a penicillin IV
- Anti-pseudomonas cephalosporin eg ceftazidime IV

This developmentally delayed man is distressed about being in hospital. He is currently pacing and will not come into the assessment room.

- vi. List 3 non-pharmacological strategies or techniques you can use to manage his agitation (3 marks)

- Familiar people and objects. Involve his carer, favourite soft toy
- Distraction. eg screentime, music via headphones
- Low stimulus environment, minimise distractions, noise and lights
- Explain procedure in simple language and diagrams
- Minimise staff involved to build relationships

Question 7

Questions:

- 1- Describe the features of the rash (4 marks) -3/4

Answer:

- Multiple vesicles with erythematous base
- Coalescing around right cheek
- Crusted
- Lower lip involved, some lesions close to eye

- 2- What is the most likely diagnosis? List two other alternative diagnoses. (3 marks) - 2/3

Answer:

- **Eczema herpeticum** (most likely diagnosis)
- **Impetigo**
- Chicken pox
- Hand foot and mouth with secondary bacterial infection
- Steven-Johnsons syndrome

- 3- List 4 management priorities for this child (4 marks) – 3/4

Answer:

- Analgesia – sensible choice with doses
- Treat skin condition
 - Acyclovir 5-10mg/kg IV
 - Flucloxacillin 50 mg/kg IV
- Look for complications – shock, hypovolaemia, sepsis, eye, meningitis, encephalitis
- Admit for treatment, analgesia +/- rehydration

Passmark = 8/11 (adjust to /10) (8/10)

Question 8

1.

Multiple lesions of different sizes

Discrete lesions, no confluence

Erythematous macules

Target lesions with central clearing (**CRITICAL TO PASS**)

Distribution over anterior right arm and forearm and anterior right side of thorax shown

Child appears well perfused

Pass 3 out of 4

2.

Erythema multiforme

Pass 2

3.

Drugs – sulphur antibiotics, anticonvulsants, NSAIDs, cephalosporins

Infectious – mycoplasma, HSV, other viruses eg EBV, fungal infections

(no other groups acceptable)

Mark out of 6 not 8

1 mark for each group with ½ mark for each agent

Pass 3 of 6

Total pass 8/12 corrects to **6.5/10**

Question 9 (17 marks)

A 70 year old man presents with a painful facial rash that started 5 days ago. There have been no new skin lesions for 24 hrs. Vital signs are normal but he is distressed with pain.

A CLINICAL IMAGE IS SHOWN IN THE PROPS BOOKLET, PAGE 12

- i. Describe the appearances seen in this photograph (3 marks)

- Erythema in right forehead CNV1/unilat forehead distribution/dermatomal
- Crusting and scab to the same distribution
- Right eye closed ? ptosis
- Fluorescein staining to right eyelids

- ii. List the most likely diagnosis (1 mark)

- Herpes Zoster

- iii. List 4 complications of this condition. For each of these, list one examination finding that would support the existence of the complication (8 marks)

- Ocular ulceration/keratitis (zoster ophthalmicus)
 - Slit lamp evidence of ulceration/VA
- Transverse Myelitis
 - Neurological findings in limbs
- Bells Palsy
 - Facial weakness inc forehead
- Deafness
 - Hearing tests/tuning fork tests
- Bacterial superinfection
 - Heat/redness/purulent
- Cerebrovasc events
 - Neurological abnormalities
- Aseptic Meningitis
 - Meningism/photophobia
- Ramsay-Hunt
 - Vesicles in ears

iv. Outline your management for this patient (5 marks)

- Ocular protection – eye taping (not padding as pressure effects)
- Ocular lubrication – chlorsig drops or ointment 4-5/day/ or lubricant drops
- Analgesia – Panadol/Nurofen/Opiates (with doses), consider early amitryptiline if ongoing pain (?PHN) – amitryptiline 25mg nocte
- Antivirals - Too late for aciclovor/famciclovir for skin as >72 hrs and no new lesions – however if eye involved can use
 - Aciclovir 800 mg orally 5 times a day for one week, or
 - Famciclovir 250 mg orally 8 hourly for one week, or
 - Valaciclovir 1 g orally 8 hourly for one week
 - May supplement with topical acyclovir
 - IV aciclovir if sight threatened
- Ophthalmology involvement

Question 10

Peter Jordan

Overall a relatively straightforward question.

Picture quality – v good.

As expected nearly all gave correct diagnosis.

Expected standard with regards to identifying important complications (either serious or common or both) was high.

Features mandating admission – needed to be important and show perspective.

1) What is your provisional diagnosis– approx. 1 mark allocated – minimum – Herpes Zoster – facial

No marks for simply “shingles” – without additional qualification/ description.

No marks for Herpes Simplex.

Acceptable to state herpes zoster ophthalmicus or Herpes Zoster V1 distribution.

Approx. 90% full marks

2) Describe four features supportive of this diagnosis

Approx. 3 marks allocated – No particular ranking

Clear majority of candidates answered this section well.

Most common error was to describe the vesicles as blisters.

A few stated the rash was painful or did not involve the scalp – neither can be inferred.

Expectation – minimum three of:

a) Vesicular (most stated this) ideally ‘clusters and/or typical and/ or small

b) Unilateral/ ipsilateral

c) Confined to V1 trigeminal dermatome (or description of this – forehead and eyelid.

No marks if stated rash involved nose (none visible)

One persons suggested erythema possible involved maxillary distribution (which I agree with but was not clear)

d) Absence of features suggestive of alternative pathology – bullae/ blisters/ bilateral involvement, exudate, Target lesions etc.

e) patchy underlying/ surrounding erythema

SAQ 17 (cont.)

3) Five important Complications – approx. 4 marks

Nearly all came up with five complications of varying importance or appropriateness. To differentiate possible responses were ranked as either important, somewhat important, of dubious importance or not a complication.

Those considered somewhat important attracted a half mark

Those of dubious importance or incorrect did not receive a mark.

Four marks allocated in total.

More common errors – referring to standard symptoms such as pain/ discomfort

Use of the term Zoster Ophthalmicus (as this can refer to the common cutaneous form)

Infectivity – risk to pregnant patients

Use of vague/ incorrect terminology

Very rare complications – e.g. cavernous sinus thrombosis where risk is low due to extremely low probability.

Important complications:

Keratitis

Uveitis/ Scleritis

Acute glaucoma

Optic neuritis/retinitis
Progressive Outer Retinal Necrosis
Disseminated Herpes Zoster/ sepsis
Meningoencephalitis
Other Cranial nerve palsies
Ramsay Hunt syndrome
Recurrent Herpetic ulcers
Blindness resulting from one or more of above
Post herpetic neuralgia
Social/ employment complications
Analgesia dependence
Secondary bacterial infection

Others:

Ocular Zoster
Septic Shock
Orbital Cellulitis (this is very rare)

4) Three key features that would mandate admission.

Two key features were required as a minimum.

The least well addressed section

Many considered ocular involvement mandated admission – Ocular involvement (e.g. dendritic ulcer) mandates early ophthalmological review. Not necessarily admission.

Severe ocular involvement or involvement of globe was an appropriate answer.

Pain – requiring IV opiates – this is reasonable and not uncommon in elderly patients – they may require admission but not necessarily for IV opiates. (Many stated simply – pain requiring IV opiates)

Many only wrote two responses to what is a simple/ standard question.

Others: systemically unwell.

Suspicion of meningoencephalitis or disseminated infection

Immunocompromised

Significant superinfection (must qualify- limited/ superficial superinfection does not mandate admission)

Question 11

A 34-year-old woman self-presents with fever, headache, body aches and generalised malaise. She takes no regular medications and has a reported penicillin allergy (rash as a child). Her observations are as follows: RR 18 breaths/min, saturations 97% on RA, BP 100/55, HR 115 bpm, temperature 39.5 degrees Celsius. She is GCS 15/15. Weight approximately 60 kg.

A Chest X-ray is performed and is shown in the Props Booklet (Figure 7).

- a) List two positive and one negative findings on this Chest X-Ray and provide a unifying diagnosis for this patient (3 marks)

Sternotomy wires
Circular opacity in region of valve consistent with valve replacement or repair.
Multiple small rounded opacities in both lung fields suspicious for septic emboli.
No confluent consolidation seen

- b) Provide the most likely diagnosis for this patient (1 mark)

suspicion of infective endocarditis (most likely secondary to IVDU) / infection of prosthetic valve also possibility

- c) List five other criteria required to make a formal diagnosis? (5 marks)

Duke's: 2 major/1 major+ 3minor/5minor
2 positive blood cultures with organisms consistent with IE (major)
Endocardial involvement on ECHO -mass/abscess/new valve regurg (major)
ECHO concerning for IE (minor)
Vascular phenomena -emboli, skin lesions (minor)
Immunologic phenomena- Osler's nodes, Roth spots(minor)
Risk factors: IVDU/ heart condition (minor)

d) What is the empiric treatment recommended for this patient? (3 marks)

Gentamicin 5mg/kg (300mg IV)
Vancomycin 30mg/kg (1.8g)
Cephazolin 2g IV

Question 12

1.

Wound over palmar aspect DIPJ

Erythema extending to thenar eminence

Oedema of index finger, extending to palmar space and thenar eminence

Flexion of index finger – consistent with tenosynovitis

2.

Infective Tenosynovitis (do not accept cellulitis)

3.

Imaging (USS) to exclude foreign body

Imaging USS to exclude soft tissue collection requiring drainage (tendon sheath abscess)

Wound swab m/c/s to guide therapy (ie identification of MRSA)

BSL to guide strict glycaemic control in diabetic with stress response

Others acceptable if well justified

4.

IV Antibiotics – Piperacillin/Tazobactam 4.5gm tds (diabetic)

Analgesia – titrated morphine 0.1mg/kg to 5mg, repeat to comfort

IV Fluids – age 14 – HR 90 – likely just maintenance fluid requirements – 125 mls/hr of crystalloid,
BSL will guide dextrose or non-dextrose containing

IV Insulin Infusion – daily dose /24 /hr to maintain euglycaemia

Immobilisation or elevation of affected limb – splinting

Orthopaedics/Hand Surgery for OT for drainage

Question 13

A 45 year old man known to be HIV positive presents to your department with fever, non-productive cough, weight loss and mild confusion.

His vital signs are:

PR 105/min
BP 110/70
Sats 94% on room air
Temp 38.6 degrees
BSL 5.4

1. List 4 important differential diagnoses to be considered in this patient.

(2 marks)

- Pneumonia – streptococcal and atypicals such as PJP
- Tuberculosis
- Meningitis
- Toxoplasmosis
- Cerebral lymphoma
- Cryptococcosis
- HIV encephalopathy

2. List and justify 4 specific investigations that will help in differentiating the cause of this patient's illness

(4 marks)

Investigation	Reason
Bloods – viral load/CD4 count	Identifying AIDs defining conditions
CXR	Pneumonia/TB
LP	Meningitis/Cryptococcosis
CT head	Cerebral lymphoma/toxoplasmosis

0.5 mark only if investigation not adequately justified.

3. The patient's new girlfriend is in attendance. She is concerned re her risk of having contracting HIV. List 4 factors that influence your commencing PEP in this patient.

(2 marks)

- Type of intercourse (nil indication for oral intercourse)
- Time of exposure (if > 72 hours minimal evidence for commencement of PEP)
- Viral load (if source patient has undetectable viral load no PEP needed)

- If she is pregnant (commencement of PEP in pregnancy needs discussion with ID specialist)

4. List 4 things that a clinician must discuss with patients to whom they are prescribing PEP. (4 Marks)

- PEP provides high levels of protection but does not prevent 100% of infections
- the importance of adherence
- the potential adverse effects of treatment and possible drug interactions
- measures for preventing re-exposure to HIV / safe sex
- follow-up HIV testing
- HIV seroconversion signs and symptoms

Pass mark 8/12

Question 14

A 22 year old HIV negative male presents to an urban district emergency department with a history of unprotected anal intercourse with an anonymous male partner the previous night. He is asymptomatic and requesting post-exposure prophylaxis (PEP).

- I. List (4) other factors on assessment that are important in determining his risk of contracting HIV in this setting?**

(4marks)

Model answers: (1 mark for each)

- Receptive or insertive intercourse (higher risk if receptive)
- Presence of ejaculation or withdrawal if receptive (higher risk if ejaculation)
- Circumcision status of patient if insertive (lowers risk, may consider not giving PEP if insertive and circumcised)
- Presence of concurrent STI (increases risk)
- Trauma during intercourse (increases risk)

- II. List (6) important principles of discharge advice that you will provide to the patient.**

(6 Marks)

Model answers (1 mark for each):

1. PEP is not 100% effective
2. The importance of compliance with the treatment regime
3. Requires further HIV testing to confirm
4. Emphasize behaviours to prevent re-exposure
5. Attend clinic appointment and provide contact details of sexual health clinic to which patient is referred.
6. Starter pack is not a full treatment course, this will be provided at follow up
7. Needs to seek medical advice if feeling unwell as potential for adverse drug reactions.

- III. What other condition may require urgent treatment in this setting and what will determine if this is required?**

(2 Marks)

Model answers (1 mark for each):

Hepatitis B

If unimmunised the patient requires hepatitis B immunisation

No marks for immunoglobulin as this is only indicated if the source individual was known to be infective.

Source: Australian national guidelines Post Exposure Prophylaxis 2016.

Question 15

1.

CD4 count <200

Viral load >50 000

Also accept absolute lymphocyte count < 1200

2.

fluid (CSF),
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prophylaxis significantly delay the time to onset of opportunistic infections and death, even in patients with AIDS-defining conditions.

TABLE 149-1 Indicator Conditions for Case Definitions of Acquired Immunodeficiency Syndrome

Esophageal candidiasis
Cryptococcosis
Cryptosporidiosis
Cytomegalovirus retinitis
Herpes simplex virus
Kaposi sarcoma
Brain lymphoma
<i>Mycobacterium avium</i> complex infection
<i>Pneumocystis jirovecii</i> (<i>P. carinii</i>) pneumonia
Progressive multifocal leukoencephalopathy
Brain toxoplasmosis
HIV encephalopathy
HIV wasting syndrome
Disseminated histoplasmosis
Isosporiasis
Disseminated <i>Mycobacterium tuberculosis</i> disease
Recurrent <i>Salmonella</i> septicemia

Added in 1993:

CD4+ T-cell count of <200 cells/mm ³
Pulmonary tuberculosis
Recurrent bacterial pneumonia
Invasive cervical cancer

Abbreviation: HIV = human immunodeficiency virus.

3.

Streptococcus pneumoniae – benzylpenicillin, ceftriaxone

Mycoplasma pneumoniae or other atypical – azithromycin

Pneumocystis jirovecii – Co-trimoxazole

Also accept Mycobacterium tuberculosis – and any TB drug

Question 16

A 30y old male, presents to your ED with a productive cough, fever, shortness of breath and haemoptysis. He has a history of IV drug use but no other significant past medical history.

His observations are temperature 38.6, respiratory rate 30, saturating 91% on room air, pulse 140bpm (sinus rhythm) and BP 90/55

a) Please list three (3) of the most important abnormalities on his chest X. **(see image in props booklet)** (3 marks)

- **Right mid zone cavitating lesion**
- Right lower/middle lobe pneumonia
- Air bronchogram
- Tiny right pleural effusion
- Fluid in horizontal fissure
- Horizontal line crossing mediastinum (? artefact)
- Need cavitating lesion and 2 others if not maximum one mark

b) Please list the three (3) most common infectious organisms and two (2) non-infectious causes that could produce a similar appearance on chest X-ray (5 marks)

- Need bolded answers for full marks
- Infectious
 - **Staph aureus**
 - **Mycoplasma/TB**
 - Anerobes (Peptostreptococcus/ Fusobacterium nucleatum/ Prevotella)
 - Gram negative Klebsiella/legionella/pseudomonas/e.coli/proteus/H.influenzae
 - Strep pneumoniae
 - Fungal Aspergillosis/cryptococcosis/invasive candiditis
 - Parasites Echinococcus/ Pneumocystis J. (PJP)
- Non-infectious
 - **Malignancy** (primary/metastatic/lymphoma)

- Vascular (Pulmonary infarction/thromboembolic)
- Granulomas (RA, sarcoidosis, Wegener's)
- Other Pneumoconiosis/bronchiectasis/lucite plombage
- Congenital/cyst

- c) List and justify the four (4) most important investigations that may assist in establishing a diagnosis (4 marks)

Investigation	Justification
1 Sputum analysis for acid fast bacilli (antigen or culture)	• Confirm diagnosis of TB
2 CT chest	• To detect cavitation or infarction, identification of smaller lesions not seen on CXR
3 Echocardiogram	• Identify IE in IV drug user
4 Blood cultures	• Help rationalise antibiotics/IE

- Need bold for full marks

- d) Briefly outline three (3) of the most important initial treatments you would institute in this patient (3 marks).

- **Broad spectrum antibiotics (must have Staph Aureus cover)**
- **Oxygen with saturation end point 94% or above**
- **IV fluid resuscitation 15-30mls/kg**
- Inotropes (NA) for a MAP >65
- Respiratory support if deterioration (invasive)
- Disposition (Respiratory/medical/ICU)

- Need bold for full marks

Question 17

(Obtained from Ministry of Health website)

Fever AND pneumonia/pneumonitis/respiratory distress AND

-Recent travel from affected countries in Middle East

-Contact within 14 days with symptomatic traveller from Middle East (fever + respiratory illness)

OR

Fever and respiratory illness AND within last 14 days

-Being in health care facility with known MERS outbreak

-Being in contact with camels within affected Middle east countries

OR

Fever OR acute symptoms of MERS and onset within 14 days of contact with confirmed MERS case

OR

Cluster of patients / healthcare workers with fever/severe acute respiratory illness of unknown aetiology

Mandatory: Must include respiratory symptoms AND recent travel/contact with suspected cases from Middle East (fever not included here as fever was included in stem. Fever will be marked correct though if listed as one of the symptoms)

Only 1 mark for any respiratory symptoms (so only 1 mark in total if mentions cough, coryzal symptoms, sore throat etc.)

Maximum 3 marks (if includes respiratory symptoms and contact with suspected cases (or camels) from Middle East)

If fails to mention respiratory symptoms and contact with cases/Middle East affected country, then maximum mark is 1

ii) 4 marks

- Disaster activation - *****MUST SAY for one mark**
- Isolate from other patients
- Negative pressure room if available
- Respiratory precautions (mask)
- Inform public health unit
- PPE protection of staff
- Contact tracing
- Prepare hospital for large numbers of potential MERS presentations (dedicated wards)
- Inform ID
- Arrange transfer to MERS facility (if available)
- Liaise with lab staff to organise testing

*****MANDATORY:** Need to have at least one form of isolation (negative pressure/single room)

OR respiratory protection for other patients/staff.

Failure to note this will result in zero-mark rule apply for this section

- For individual examiners to ammend as necessary

(iii) 4 marks:

*****MUST have 'N95 mask'**

Plus three of the following:

- Appropriate hand hygiene
- Gown
- Gloves
- Airborne transmission precautions / Mucous membrane protection (respiratory / eye)
- Safe handling of waste and sharps
- Goggles
- Single Room / Barrier Nursing

(iv) 3 marks

*****Must have 'duty of care' or equivalent statement**

Potential infected with communicable disease - Public health risk until diagnoses confirmed

Assess for competency (hypoxia, hypoglycaemia, delirium from sepsis) à if compromised, restrain as

Duty of Care

Attempt verbal de-escalation

Question 18

A 30-year-old man presents with a skin infection to his left lower leg.

He has no past history other than swelling of his throat with penicillins.

He has a fever and is haemodynamically stable.

During the process of completing your assessment you become concerned about the possibility of necrotising fasciitis.

- a) Aside from fever, complete the following table for six (6) MOST RELEVANT features in his history and examination that would alert you to the possibility of necrotising fasciitis? **(6 marks)**

History features (3 marks)	Examination features (3 marks)
• Rapid progression of symptoms • Severe pain (out of proportion to skin findings). • Systemic symptoms as anorexia, nausea, diarrhoea, dizziness and general malaise, myalgia.	• Crepitus • Skin bullae • Cutaneous anaesthesia • Oedema that extends beyond the visible erythema • Skin discolouration, ecchymosis or necrosis • Cutaneous anaesthesia

The patient becomes hypotensive.

He is moved to a resuscitation bay and an arterial line is inserted.

An arterial blood gas is taken from the arterial line and **is shown in the props booklet.**

b) Complete the table below in regard to explaining the key findings on the ABG. **(6 marks)**

	Finding	Likely Reason
pH	Fully compensated/ Normal pH	Dual pathology - Respiratory alkalosis balanced by metabolic acidosis
PCO₂	Respiratory alkalosis/Low PCO₂	Hyperventilation secondary to pain/distress/circulating endotoxin Compensatory response to metabolic acidosis
Anion Gap	High anion gap metabolic acidosis	Early sepsis, poor perfusion, lactic acidosis

c) State the three (3) MOST IMPORTANT management priorities along with justified reason or detail. **(6 marks)**

Management Priority	Justification/detail
Urgent surgical referral	Surgical debridement for source control
Antibiotics	- IV Meropenem 1g, Vancomycin 25-30mg/kg and Clindamycin 600mg (Other combinations maybe acceptable eg Gentamicin/Vancomycin/Clindamycin however all combinations will need to ensure widespread cover that includes MRSA, anaerobes and Gram negatives)
- Analgesia Or - Fluid resuscitation	- iv morphine 2.5-10mg - NS or Hartmanns 30mls/kg then consideration of inotropic support, aim MAP 65

- Note:
 - Urgent surgical referral mandatory answer
 - Note antibiotic regimen has to take into consideration serious penicillin allergy
 - Hyperbaric oxygen and immunoglobulin therapy not acceptable as although these are possible treatments, they are not priorities.

References: Up to Date, Therapeutic Guidelines

Pass mark 4/6, 4/6, 4/6 = 12/18

Question 19

A 65 year old man cuts the lateral aspect of his right lower leg on a rusty piece of wire while gardening. He washes the area with fresh water from his garden shed kettle, and wraps the wound in an old cloth, before seeing his GP the next day.

I. List 5 types of wound that are more likely to favour the growth of tetanus (ie. are considered 'tetanus prone')

(5 Marks)

Compound fracture
Bite wound
Deep penetrating wound
Wound with extensive tissue damage (burn or contusion)
Wound containing a foreign body (espec. wood splinter)
Wound contaminated with soil, dust, manure
Wound where intervention such as surgical debridement is delayed (> 6 hr)
Wound complicated by pyogenic infection
IVDU espec. with dirty needle
Avulsed tooth

[*Australian Immunisation Handbook, 10th edition: 4.19 'Tetanus'*]

Even though the next day his GP considers the wound to be "*just a nasty scratch really*" and wipes the area down with disinfectant then changes the dressing, the GP does believe it is 'tetanus prone'. He gives the man a tetanus toxoid vaccine, but wonders if intramuscular tetanus immunoglobulin (TIG) is also needed?

II. List 3 indications for giving TIG to a patient in addition to tetanus vaccine.

(3 marks)

History of tetanus vaccination: < 3 doses or uncertain
Time since last dose: > 10 years
Type of wound: all wounds other than 'clean minor wounds'
Any individuals with humoral immunodeficiency (eg. HIV) following any tetanus prone wound, regardless of prior tetanus vaccination status
[*Australian Immunisation Handbook, 10th edition: 4.19 'Tetanus'*]

Three days later the man returns to his GP concerned that his leg is infected. The GP suspects necrotising fasciitis.

III. List seven (7) features on history and examination that would support a diagnosis of necrotising fasciitis.

(7 Marks)

Underlying risk factor: diabetes, PVD, immunosuppression incl. HIV, recent injury, recent surgery, malignancy – ONE mark for risk factor(s)
Pain out of proportion to physical findings
Erythematous skin
Change in skin colour: red-purple progressing to blue-gray, then bullous (accept 'Change in skin' as an *additional* mark to erythematous)
Poorly demarcated skin changes
Swelling
Induration of limb
Exquisitely tender
Pain on passive movement of involved muscle groups
Weakness of involved muscle groups
Paraesthesiae / anaesthesia (late)
Systemic toxicity with sepsis (late)
[<https://www.uptodate.com/contents/necrotizing-soft-tissue-infections>]

The man is transported urgently to your ED. He looks unwell, and you agree that he has likely necrotising fasciitis.

IV. List three (3) priorities in his immediate management. (3 Marks)

Immediate surgical referral for exploration and debridement
Empiric broad-spectrum antibiotics
Analgesia
Intravenous fluids
Haemodynamic support, including vasopressors (*must* be going for Surgery regardless)

Question 20

1.

Erythema under mandible

- Extends to anterior chest wall

Swelling below mandible on the right side

2.

Ludwig's angina (submandibular abscess)

Cellulitis extending to anterior chest wall

3.

Analgesia – IV morphine 2.5mg aliquots (or similar)

IV antibiotics – ampicillin 1g, metronidazole 500mg

IV fluids – bolus N/S 1000mL aiming for pulse <100

Airway management – fibre-optic intubation in theatre anaesthetics

Imaging – CT neck/chest to look for abscess

ENT surgical referral for drainage collections

Question 21

1. Focal symptoms – suggest infective focus

Degree of illness – ie severity of symptoms, complications (fluid loss)

Last chemotherapy – helps to predict complications (ie neutropaenia)

Underlying disease and therapeutic intent

Presence of in-dwelling lines/devices

Co-morbidities – particularly cardiac (chemo), immunomodifiers (DM)

Others likely reasonable

2. Vital signs – to stratify severity of illness

Focal findings – to guide therapy

Complications of lines – ie infected ports

3. Allergies – will direct against use of specific drugs

Past micro results/resistance – initial cover should be extended to cover these

Presence of in-dwelling catheters/lines – ensure include staph cover + MRSA

Local Protocols/biogram – ie resistant organisms (VRE/ESBL)

Comorbidities ie renal failure – may require dose modification +/- alternate agent

Question 22

A 6 year old girl is brought to the emergency department by her mother. She has had a cold for 1 week, and for the last 24 hours her right eyelid has become very red and swollen. She is unable to open her eye. Her temperature is 38.4 degrees Celsius.

- i. In the table below list 4 examination findings for each condition that may differentiate pre-septal from post-septal cellulitis (8 marks)

Pre-septal	Post-septal
Normal visual acuity	Reduced visual acuity/colour vision/diplopia Gross proptosis
Mild upper lid oedema/erythema	Ophthalmoplegia Reduced light reflex or swinging light test
Normal eye examination	Headache/vomiting CNS signs/symptoms Bilateral peri orbital oedema (cavernous sinus thrombosis)
No ophthalmoplegia	Systemically unwell Drowsy/lethargy/fever/Irritable

- ii. List 2 bacteria that can cause this presentation (2 marks)

- Staph aureus
- Haemophilus Influenzae type B (unvaccinated)
- Strep species
- Anaerobic bacteria in post septal

- iii. List appropriate antibiotic therapy (include route and dose) for pre-septal and post-septal cellulitis (2 marks)

	Antibiotic (Dose and Route)
Pre-septal cellulitis	PO Flucloxacillin 12.5mg/kg up to 500mg qid PO Cephalexin 12.5mg/kg up to 500mg qid PO Clindamycin 10mg/kg up to 450mg tds PO Augmentin or PO Cefuroxime (if Hib suspected)
Post-septal cellulitis	IV Cefotaxime 50mg/kg up to 2g q 8 hrly OR IV Ceftriaxone 50mg/kg up to 2g daily, AND IV Flucloxacillin 50mg/kg up to 2g q 6hrly

iv. List 4 complications of peri-orbital cellulitis (4 marks)

- Orbital cellulitis
- Cavernous sinus thrombosis
- Osteomyelitis
- Sepsis
- Abscess

Question 23

1.

History – gradual onset, constant pain, cloudy dialysate bags

Examination – generalized tenderness, signs of peritonism eg percussion tenderness, fever

Fluid WBC - $>100 \times 10^6/L$, $>50\%$ neutrophils

2.

Focal tenderness

Colicky pain

Sudden onset pain

Other features eg PR bleeding

Many others will be OK

3.

IP cephazolin 15mg/kg

IP gentamicin 0.6mg/kg up to 50mg

Analgesia – IV fentanyl 25mcg boluses

IP vancomycin 30mg/kg up to 2g if MRSA

Question 24

A 10 year old girl is brought to the ED by her parents who noticed a rash on her chest. She is normally well and fully vaccinated although she has an intercurrent upper respiratory tract infection and cough. Her vital signs are normal except for a fever of 38.5⁰C

A CLINICAL IMAGE IS SHOWN IN THE PROPS BOOKLET, PAGE 8

- i. Describe the rash (1 mark)

- [Sensible description](#)

- ii. List 5 possible causes of this presentation (5 marks)

[Note this is petechiae with fever](#)

- [Meningococcaemia](#)
- [Viral infection – enterovirus, influenza](#)
- [Other bacteraemia – S pneu, H infl](#)
- [HSP](#)
- [ITP](#)
- [Leukaemia](#)
- [Illness causing fever with cough/vomit leading to head/neck petechiae](#)

- iii. Briefly describe 5 clinical developments that would raise your level of suspicion for a serious bacterial infection in this patient (5 marks)

- [Impaired LOC/drowsiness etc](#)
- [Abnormal vitals – incr HR/RR, desaturation](#)
- [Poor perfusion](#)
- [Development of purpuric lesions](#)
- [Rapid/progressive spread of petechiae/purpure](#)
- [Others likely suitable](#)

The patient's Full Blood Count results are displayed.

Component	Result	Normal Range
White Cell Count	16.1	4-11
Haemoglobin	110	115-175
Platelet Count	97	150-450
Haematocrit	0.30	0.36-0.56
MCV	79	79-96
MCH	28	27-32
MCHC	32	30-36
Neutrophil	2.1	2.9-7.9
Lymphocyte	9.8	1.8-4.0

iv. Given these blood results, list 2 possible differential diagnoses for the presentation. For each differential diagnosis outline clinical or investigation findings that would either support that diagnosis or make it less likely (6 marks)

- **Acute leukaemia**
In favour – associated bone pain, lymphadenopathy, splenomegaly, hepatomegaly, blast cells on film, raised LDH, mediastinal widening on CXR, bone marrow aspirate
- **Viral infection**
Can be assoc with thrombocytopenia, can produce lymphadenopathy & hepatosplenomegaly. Produces atypical lymphocytes rather than blast cells
- **ITP**
Should have isolated low platelets with other cell lines normal. In this case the high WCC could result from co-existent infection but the anaemia is not explained

Question 25

1

Petechial and **purpuric** rash

Location – face, torso, arms

Comment on child in general – looks pale/sick/unwell

2

Neisseria meningitidis

Strep pneumoniae

Haemophilus influenzae

Staph aureus

3

Drug reaction / SJS

Thrombocytopenia from any cause

Viral eg CMV

DIC any cause eg malignancy

Autoimmune causes – SLE

4

Blood culture – before Abs to guide future Rx

BSL – manage hypoglycaemia common in overwhelming sepsis

VBG – define severity of illness – met acidosis, lactate

5

IV abs – cefotaxime or **ceftriaxone 50mg/kg**, vancomycin 30mg/kg, +/- flucloxacillin +/- gentamicin

IV normal saline 20ml/kg bolus

6

Disseminated intravascular coagulation

7

death

Acute renal failure

Ischaemic hepatitis / brain injury

Amputation limbs

Lots of stuff OK

Question 26

1.

Investigation	Justification
BHCG	Exclude pregnancy as complicating factor / septic miscarriage
Endocervical swabs	PID- N. gonorrhoeae and C. Trachomatis
Urine PCR first pass	As above
US- exp transvaginal	Tubo-ovarian abscess
Extended serology	HIV, hepatitis, syphilis as con-infection sexually transmissible
LFTs	Fitz-Hugh-Curtis syndrome

CT Abdomen not acceptable, non-specific tests or examinations not acceptable.

2.

Ceftriaxone 2g od IV

Azithromycin 500mg od IV

Metronidazole 500mg bd IV

3.

1. Choice- the ability to maintain and communicate a choice.
2. Comprehension- the ability to understand the relevant information.
3. Belief- the ability to appreciate the situation and its consequences
4. Weighing- the ability to weight the information in a rational fashion.

Question 27

1.

Antibiotics: Ampicillin 2gm + Gentamicin 5-7mg/kg

Fluids: 20mls/kg crystalloid; aim MAP >65 or SBP >100

Analgesia: Morphine 2.5mg IV repeated to comfort

2.

E. Coli

Klebsiella

Proteus Mirabilis

Pseudomonas

Enterococci

3.

Urine micro – confirm UTI

Urine Culture – guide subsequent Ab therapy

Renal tract imaging (USS renal tracts) for structural abnormality given unusual demographic for pyelo (male)

Chem20 to exclude renal impairment to guide gentamicin dosing

Blood Cultures – evidence of sepsis – will confirm bacteraemia and guide Rx

Question 28

1.

CNS infection (ie Aspergillus, cryptococcus) – CSF pleocytosis, organisms, high opening pressure

Pulmonary infection ie CMV, Pneumocystis - dyspnea, hypoxia, pulmonary infiltrates on CXR

Surgical Site Infection –fluctuant collection on USS of transplant kidney or in wound area

Pyelonephritis of transplant kidney –organisms on urine micro

Gastrointestinal infection post antibiotics ie C Difficile – C.Diff toxin on stool

Acute rejection (ie inadequate suppression) - acute renal failure

Other lupus complications ie Pericarditis – ECG changes, effusion on USS

Question 29

Describe the findings on this photograph (3 marks)

Swelling right occipital region

Erythematous

Loss of hair

What is the likely diagnosis? (1 mark)

Kerion – fungal infection

Describe the management of this condition (2 marks)

Supportive: Simple analgesia e.g. paracetamol 1g PO Q6H PRN

Specific: 6-8 weeks ORAL antifungal (itraconazole, terbinafine, griseofulvin)

Oral or IV antibiotics incorrect, Incision & drainage = 0/2

Candidate Name: _____

Question 30

Question submitted by Andrea Bell (TSH ED)

1. A 40yo female presents complaining of a one week history of malaise, myalgia, arthralgia and a non-productive cough.

Over the last 4 days she has developed a rash initially commencing on her face and upper body.





1. List 4 important features of the rash that you need to assess for (2 marks)

- involvement of more than one mucosal surfaces (can include conjunctival, oral, genital, GIT and respiratory tract)
- presence of vesicles, blisters, bullae, skin erosions
- Nikolsky's sign (mechanical pressure on erythematous areas results in epidermal detachment)
- estimated TBSA involvement of any blisters, bullae, skin erosions or skin detachment/desquamation
- presence of target lesions (usually double circles not triple)

2. Give a differential diagnosis listing your most likely differential diagnosis first (3 marks)

- Steven Johnsons syndrome, Toxic epidermal necrolysis
- erythema multiforma
- disseminated viral infection eg HSV, parvovirus
- drug induced hypersensitivity syndrome
- syphilis

3. List 5 important potential complications that need to be identified and managed(5 marks)

- systemic involvement including multi-organ failure
- haemodynamic instability, shock
- fluid and electrolyte imbalance
- impaired thermal regulation and temperature maintenance
- secondary bacterial infection including skin, mucous membranes, lungs and septicaemia
- pain relief
- ocular involvement

Question 31

1.

- target lesions
- erythematous macules
- central sparing
- various sizes
- some confluence right abdomen

2.

Erythema multiforme

3.

Mycoplasma pneumoniae

Viral eg HSV (need specific virus to get the mark)

TB

4.

Antibiotics eg sulphonamides, penicillins

Anticonvulsants eg phenytoin

NSAIDs

Haematological malignancies eg NHL, leukaemias

Physical factors eg cold, radiotherapy

5.

Conservative / symptomatic

Remove trigger

Question 32

1.

Macular rash

Discrete erythematous lesions of multiple sizes

Target lesions

Involving palms

2.

Infectious – Mycoplasma, HSV

Malignancy

Drugs – Antibiotics (Cephalosporins, Erythromycin)

Anticonvulsants (Carbamazepine)

3.

Syphilis – serology, primary chancre, secondary generalised rash

Gonococcaemia – Hx unprotected sex, vaginal discharge, symptoms PID, urine PCR

Hand, Foot and Mouth (Coxsackie) – mouth lesions, sole foot lesions, contact with others with disease

Others might be OK

Question 33

A 15 year old boy has been transferred to your Emergency Department from a rural hospital. He had been given IV benzylpenicillin for a throat infection 48 hours previously.

Describe the appearance of the rash and give a likely differential diagnosis (3 marks)

- a) A widespread erythematous rash with bullous detachment of the epidermis. Scalded skin appearance. Appears to affect at least 40% of body surface area.

Likely toxic epidermal necrolysis.

Differential includes Stevens Johnson Syndrome (rash too widespread however), staphylococcal scalded skin syndrome, erythematous drug reaction, paraneoplastic pemphigus (eg. Lymphoma), erythema multiforme (herpes simplex), erythroderma (no mucosal involvement)

Assuming that the underlying cause is a severe drug reaction, outline how you would grade the severity (2 marks)

The severity and prognosis of SJS/TEN depends upon the amount of skin detachment or "detachable" skin (ie, skin with positive Nikolsky sign). Based upon the percentage of the body surface area (BSA) involved, patients can be classified into three severity groups [1]:

- SJS – skin detachment of <10 percent of BSA
- TEN – skin detachment of >30 percent of BSA
- SJS/TEN overlap – skin detachment of 10 to 30 percent of BSA

Outline your management of the patient (3 marks)

Supportive care is the mainstay of treatment and includes wound care, fluid and electrolyte management, nutritional support, ocular care, temperature management, pain control, and monitoring or treatment of superinfections

Infection control measures, including sterile handling, topical antiseptic agents, and surveillance cultures of possible sites of superinfection, are important components of prevention

Transfer to intensive therapy or burn unit if possible and extensive skin involvement

What acute complications can develop from this disorder (2 marks)

- c) Massive loss of fluids through the denuded skin, electrolyte imbalance, hypovolemic shock with renal failure, bacteremia, insulin resistance, hypercatabolic state, and multiple organ dysfunction syndrome.

Patients with Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) are at high risk of bacterial infection. Sepsis and septic shock, most often caused by *S. aureus* and *P. aeruginosa*, are the main cause of death in these patients.

Pulmonary complications (eg, pneumonia, interstitial pneumonitis) are frequent.

Gastrointestinal complications may result from epithelial necrosis of the esophagus, small bowel, or colon

Question 34

An 18 year old man presents with a 2-week history of general malaise, myalgia and fever. He reports that he was given a course of antibiotics by his GP two weeks ago for a cough, but has continued to feel unwell despite completing the course. He presents today worried about a painful rash involving his skin and mouth that has rapidly developed over the past 24 hours.

a) List the three (3) MOST IMPORTANT differential diagnoses for this rash. **(see image in props booklet)** (3 marks)

- **Toxic epidermal necrolysis**
- Stevens-Johnson syndrome
- **Staphylococcal scalded skin syndrome**
- Erythema multiforme
- Pemphigus / pemphigoid
- Possibly also include: DRESS, acute generalized exanthematous pustulosis, erythroderma

b) What are the four (4) of the most common causes of this disease? (4 marks)

- Medication
 - Allopurinol
 - Anticonvulsants – carbamazepine, lamotrigine, phenytoin, phenobarbitone
 - Antibiotics - Sulfonamide AB's Beta-lactams
 - Nevirapine
 - Omeprazole
 - Analgesics – paracetamol, NSAIDs - mostly 'oxicams'
 - Dapsone
- Infections
 - Mycoplasma Pneumonia
 - Cytomegalo virus

c) Name two (2) risk factors for this disease (2 marks)

- HIV/AIDS
- Systemic Lupus Erythema
- Malignancies
 - Lymphoma
 - Leukaemia

d) List three (3) important treatments for this patient, irrespective of the cause of the rash (3 marks)

- IV fluid and electrolyte management
- Barrier nursing
- Temperature control
- Analgesia
- Skin covering

Question 35 (16 marks)

A 42 year old man has developed a febrile illness one week after returning from a business trip to Papua New Guinea.

- i. What questions specific to this case should form part of the history that you will obtain? (6 marks)

Travel history – where exactly, urban/rural, resort/airconditioning etc, duration, prophylaxis (malaria/other), mosquito protection/bites, other exposures, sexual activities
History of current illness – symptom onset, cyclical fevers, rash. System review - a/n/v/d, blood in stool, abdo pain – URTI/LRTI/ENT symptoms etc. Any self-administered Rx
[General history – normal health, PHx, meds, allergies ...altogether only constitute one point. Important but excluded by the question “...specific to this case...”]

- ii. Describe how the diagnosis of malaria can be established (3 marks)

- Films – thin (for speciation), thick (if no parasites seen on thin film). One negative does not exclude Dx – protocols vary but typically repeat 3-4 times over 24h
- Antigen tests – esp for PF

- iii. Plasmodium falciparum has several characteristics that are markedly different to the other Plasmodia species. Briefly describe 3 differences (3 marks)

- PF does not have a hypnozoite phase leading to relapses as occurs with vivax/ovale/malariae
- PF causes high percentage parasitaemia (the other only a low %)
- Many areas have PF with chloroquine resistance – the other species are all chloroquine responsive
- Major complications (e.g. cerebral malaria, ARF etc) and mortality are significant in PF – the other species generally cause less severe disease

- iv. List the 4 complications that occur in severe P falciparum infection (4 marks)

- Cerebral malaria
- Respiratory failure (ARDS-type)
- Acute Tubular Necrosis/ARF
- Hypoglycaemia
- Haemolysis/anaemia
- Splenomegaly/rupture
- Lactic acidosis

Question 36

12 Marks **Total pass mark 8/12**

In early January, a 23 year old man presents with a fever after returning from a group tour in far north Queensland. He is usually well, and fully vaccinated on the Australian immunisation schedule. His vital signs are

GCS	15
Pulse	108 bpm
BP	110/65 mmHg
RR	22/min
SpO2	97% in room air
Temp	38.2 °C

1. List four (4) features of history that will assist you to determine the source of fever (4 Marks)

Travel destinations - rural or metropolitan

Sexual history

Fever - onset, pattern

Bites and stings

Associated symptoms - respiratory, GI, headaches , arthralgia, myalgias, rashes

Pass 3/4

2. List 3 specific examination findings you will seek, and 2 potential infections that may be indicated by each. (6)

Rash - dengue, rickettsial infection, gonorrhoea, syphilis, brucellosis

Jaundice - hepatitis, leptospirosis

Lymphadenopathy - rickettsial infections, brucellosis, dengue

Hepatomegaly - amoebiasis, hepatitis, leptospirosis

Petechiae - dengue, meningococcaemia

Meningism - Neisseria meningitidis, strep pneumoniae

Pass 3/6

The following laboratory results are obtained.

Reference range

Hb	124	130 - 180 g/L
WCC	15.7	4.5 - 11.0 x 10 ⁹ /L
Neuts	9.8	1.8 – 7.7 x 10 ⁹ /L
Platelets	32	150 – 400 x 10 ⁹ /L
Albumin	31	33 – 47 g/L
AST	431	10 – 45 U/L
ALT	32	65 – 45 U/L
ALP	124	30 – 110 U/L
GGT	196	10 – 70 U/L
Total Bili	32	< 20 µmol/L
Urea	7.9	3.0 – 8.0 mmol/L
Creatinine	85	60 – 110 µmol/L
Glucose	5.4	3.0 – 5.5 mmol/L

3. What is the MOST LIKELY infectious diagnosis based on these laboratory results? (1 Mark)

Dengue fever

4. Identify one other possible infectious diagnosis. (1 Mark)

Severe sepsis, hepatitis, leptospirosis

Question 37

Answers:

1. Describe the main features present.

(2 marks) 1/2

Petechiae & Purpura on both legs

Bruising to upper thighs

2. Provide a broad differential diagnosis by completing the table below:

(15 marks) 11/15

Accept 5 of the following 6 categories...

Disease Category	Provide 2 Examples
Autoimmune Connective Tissue Disease / Inflammatory	ITP Autoimmune hemolytic anemia SLE
Hematological	Aplastic crisis / Bone marrow failure vW Disease Hereditary plt syndrome Evans syndrome (anemia+thrombocytopenia)
Malignancy	Leukemia ALL AML CLL Lymphoma Myelodysplasia
Infectious / Post infectious	Viral induced thrombocytopenia EBV CMV HIV varicella rubella related Hep ABC
Immunity related	Immune deficiency syndrome (CVID) HIV Recent immunisation
Drug induced / Toxin	Heparin Antibiotics -cephalosporins Analgesics – ibuprofen / aspirin

3. What is the most likely diagnosis in this patient?

(2 marks) 1/2

Immune Thrombocytopenic Purpura

4. What are the main indications to consider urgent treatment for this condition?

(2 marks) 1/2

Intracranial Hemorrhage / significant bleeding

Plt < 10

Passmark: 14/21 Adjust to ../10 please