Best of five/OSCE

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ST6 GUM North West Deanery
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Joint BASHH/BHIVA One Day Diploma in HIV Medicine Update
Aims and Objectives

• Overview of the exam
• Best of five
• OSCE
Dip HIV Overview

Curriculum

“The competencies in HIV medicine assessed in the examination reflect the content of the Specialty Training Curriculum for Genitourinary Medicine 2016, particularly those competencies within syllabus chapters 2 and 22 – 29”

Website:  [www.jrcptb.org.uk](http://www.jrcptb.org.uk)
Dip HIV Overview

**Guidelines**
“The most current, complete ... position statements and standards...”

“Questions relating to important, well publicised studies and presented to major HIV academic conferences prior to the closing date for applications to the exam may also be included”

- BHIVA/BASHH Guidelines
- BHIVA position statements
- Public Health England
- NICE accredited guidelines
Dip HIV - Overview
Best Of 5 - Overview

• 3 hours / 120 questions
• 1.5 minutes per question
• NOT negatively marked
• Stick to NATIONAL guidelines NOT local practice
Best Of 5 - Tips

• **READ THE QUESTION**
• Use the question to predict the answer
• Check the list A – E. If your answer matches, it’s probably correct

• If you are unable to answer the question start by eliminating stems that you know are incorrect
• If you can't answer, move on with the exam
BO5 Questions
A 22-year-old Black African woman was diagnosed with chronic renal dysfunction and advanced HIV disease. She underwent a renal biopsy which confirmed a diagnosis of HIV-associated nephropathy. Hepatitis B infection was confirmed on blood tests.

Investigations showed:
- Serum albumin: 21 g/L (37–49)
- Creatinine: 390 µmol/L (60–110)
- eGFR: 17 mL/min (>60)
- HBsAg: positive
- HBeAg: negative
- HBeAb: positive
- HBV-DNA: 20 994 870 IU/L
- HBV genotype B, wild type
- HCV IgG: negative
- CD4 count: 103 x 106 cells/L (430–1690)
- HIV viral load: 432 045 copies/mL wild type virus
- Liver ultrasound and FibroScan (hepatic elastography) were normal

**What would be the most appropriate management of her HBV coinfection?**
Best Of 5 – Question 1

A - Defer HIV treatment until her renal function has recovered sufficiently to use TDF

B - Initiate HAART including reduced-dose tenofovir and lamivudine

C - Start non-TDF-containing HAART but including 3TC or FTC and with adefovir

D - Treat with HAART excluding TDF, and add in pegylated interferon

E - Use an alternative active ARV in place of TDF in HAART and add entecavir
**Best Of 5 – Question 1**

**A is incorrect.** HAART is important in preserving renal function in HIVAN. Moreover, HBV may be contributing to her renal dysfunction

**B is incorrect.** It maintains tenofovir in combination – where TDF is contraindicated an alternative agent with anti-HBV activity must be used

**C is incorrect.** Adefovir is likely to lead to renal tubular toxicity with time, even at the dose used to treat HBV

**D is incorrect.** Her CD4 cell count is low, and she is unlikely to respond because of her very high HBV viral load

**Answer E:** use an alternative active ARV in place of TDF in HAART and add entecavir
Best Of 5 – Question 2

• A 48-year-old HIV positive man was diagnosed with pulmonary tuberculosis.

• Investigations showed:
  – CD4 count 48 x 10^6 cells/L (430–1690)
  – HIV viral load 130 500 copies/mL

• He was commenced on TB treatment (Rifampicin, Isoniazid, Pyrazinamide and Ethambutol) and 2 weeks later commenced on antiretroviral therapy (Tenofovir, Emtricitabine and Efavirenz).

• Ten days after initiation of ART, he reported worsening fever and increased lymphadenopathy.
• His chest X ray suggested possible worsening and certainly no improvement from baseline.
• His sputum (having previously been smear positive) was now smear negative for AAFB.
• Further investigations showed:
  – CD4 count 128 x 10^6 cells/L (430–1690)
  – HIV viral load 2145 copies/mL

What is the most likely cause for his clinical deterioration?
Best Of 5 – Question 2

A - Drug-resistant tuberculosis

B - Drug toxicity

C - Immune Reconstitution Syndrome (IRIS)

D - Inadequate adherence to antiretroviral therapy

E - Inadequate adherence to anti-tuberculous therapy
**Best Of 5 – Question 2**

**A is incorrect.** This is not drug resistant TB as he is now smear negative.

**B is incorrect.** This is not typical of drug toxicity.

**Answer C:** Immune Reconstitution Syndrome (IRIS)

**D is incorrect.** His HIV viral load has decreased from 130 500 copies/mL to 2145 copies/mL after 10 days, this makes it highly unlikely for poor adherence to his HAART.

**E is incorrect.** His sputum is now smear negative and this makes it unlikely that he is not adhering to his anti-tuberculous therapy.
Appendix 5. IRIS

Definition of IRIS

Definitions of IRIS can be found in Table A5.1 (and see [1]).

Table A5.1. Definitions of IRIS

<table>
<thead>
<tr>
<th>Clinical criteria</th>
<th>Proposed case definition for TB – PARADOXICAL IRIS</th>
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<tbody>
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<td>At least one major or two minor clinical criteria must be met. The absence of alternative explanations for clinical deterioration is also required</td>
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</table>
| **Major criteria** | (1) New or enlarging lymph nodes, cold abscesses or other focal tissue involvement  
(2) New or worsening radiological features of TB (includes chest radiograph, abdominal ultrasound or computed tomography scan features)  
(3) New or worsening CNS TB (meningitis or focal neurological involvement)  
(4) New or worsening serositis (pleural effusion, ascites, pericardial effusion or arthritis) |
| **Minor criteria** | (1) New or worsening constitutional symptoms such as fever, night sweats or weight loss  
(2) New or worsening respiratory symptoms such as cough, dyspnoea or stridor  
(3) New or worsening abdominal pain  
(4) In retrospect, the resolution of clinical or radiological findings of the IRIS episode without having made a change in TB treatment |
Best Of 5 – Question 3

- A 28-year-old male nurse with HIV infection now wishes to train as an Emergency medicine paramedic. He has been taking antiretroviral therapy regularly for 10 years and is well.

- Investigations:
  - CD4 count \(780 \times 10^6/L\) (430–1690)
  - HIV viral load < 40 copies/mL (lower detection limit 40)

*What is the correct advice to give him regarding performing exposure-prone procedures (EPPs)?*
Best Of 5 – Question 3

A - Proceed with universal precautions

B - Avoid all EPPs

C - Avoid all high-risk procedures

D - Proceed only with the patients’ consent

E - Consult the Trust Legal Department on a monthly basis
Best Of 5 – Question 3

• **Answer A:** Proceed with universal precautions

• **B is incorrect.** He is on ARVs with an undetectable viral load

• **C is incorrect.** There is no evidence of increased transmission risks between different procedures.

• **D is incorrect.** There is no need to disclose HIV status to patients when obtaining consent

• **E is incorrect.** There is no need to obtain legal opinion.
Best Of 5 – Question 4

• A 26-year-old woman with well-controlled HIV infection presented 2 days ago with a single, 1cm diameter, painless oral ulcer. She last had oral, vaginal and anal sex 2 months ago.

• On examination she had painless submandibular lymphadenopathy and no rash. She declined treatment until results were back but has returned to clinic for follow-up. She has no allergies.

• Investigation results available:
  - Treponemal pallidum antibody (TPPA) Positive
  - Rapid plasma reagin test 1:32
  - Treponemal IgM Intermediate
  - Total treponemal EIA Pending
  - Herpes simplex PCR Pending

*What is the most appropriate immediate treatment?*
Best Of 5 – Question 4

A - Aciclovir

B - Azithromycin

C - Benzathine penicillin

D - Doxycycline

E - Procaine penicillin
Best Of 5 – Question 4

A is incorrect. HSV result is outstanding, and alternative diagnosis made

B is incorrect. Azithromycin resistance is high and macrolides shouldn’t be used unless absolutely necessary

Answer C: Benzathine Penicillin

D is incorrect. This is 2nd line treatment, and should only be used if penicillin allergic

E is incorrect. This is neurosyphilis treatment
Best Of 5 – Question 5

• A 44-year-old white British man presented with a 3 month history of a swelling in his neck. He has no other symptoms. He is a non-smoker. Eight years ago he was diagnosed with HIV infection which is well-controlled on antiretroviral therapy. He has not travelled outside of the UK for 12 years.

• On examination, he is afebrile and had a 4cm firm non-tender swelling on the left side of his neck anterior to the sternocleidomastoid muscle. He has no other lymphadenopathy and no hepato-splenomegaly. Testicular examination is normal.

• Investigations:
  - Haemoglobin: 110 g/L (130–180)
  - White cell count: 3.0 x10^9/L (4.0–11.0)
  - Erythrocyte sedimentation rate: 38 mm/1st h (<15)
  - CD4 cell count: 380 cells/microL (400-1600)
  - Serum lactate dehydrogenase: 500 U/L (10–250)
  - HIV viral load: <40 copies/mL
  - Chest X-ray: Normal

What is the most likely diagnosis?
Best Of 5 – Question 5

A - Cytomegalovirus

B - Non-Hodgkin lymphoma

C - Small cell lung cancer

D - Tuberculosis

E – Castleman’s disease
Best Of 5 – Question 5

A is incorrect. His CD4 count is >100

**Answer B:** Non-Hodgkin Lymphoma

C is incorrect. He has a normal chest X-ray and is a non-smoker, which makes the diagnosis less likely

D is incorrect. He is afebrile, hasn’t travelled, and has a good CD4 count with undetectable VL

E is incorrect. This could be possible, however he is afebrile, asymptomatic and as such is NOT the MOST LIKELY diagnosis
Best Of 5 – Question 6

- A 46 year old woman with well-controlled HIV infection presents after exposure to chickenpox 48 hours ago. She is systemically well.
- She was seen 6 weeks ago in clinic and her routine bloods were as follows:
  - Creatinine: 390 µmol/L (60–110)
  - eGFR: 17 mL/min (>60)
  - CD4 cell count: 564 cells/microL (400-1600)
  - HIV viral load: <40 copies/mL
- You note from her baseline investigations, at diagnosis she is VZV IgG negative

What is the most appropriate management?
Best Of 5 – Question 6

A - Varicella zoster immunoglobulins

B - Antiviral prophylaxis with aciclovir

C - Both Varicella zoster immunoglobulins and aciclovir

D - Varicella vaccination with Varivax vaccine

E – No action is needed
Best Of 5 – Question 6

A is incorrect. VZIG is recommended where the patient’s CD4 count is <400

B is incorrect. Prophylaxis with aciclovir is recommended where CD4 count is <400 and VZIG is not available

C is incorrect. VZIG and antiviral prophylaxis is offered where the CD4 count <200

Answer D: She is VZV IgG negative and has presented within 5 days of exposure to chickenpox, therefore requires post-exposure prophylaxis with Varivax

E is incorrect.
Best Of 5 – Question 7

• A 43 year old HIV positive man was diagnosed with pulmonary TB and HIV.
• Baseline investigations:
  – CD4 count 421 x 106 cells/L (430–1690)
  – HIV viral load 4500 copies/mL
  – Serum alanine transaminase 32 u/L (<40)
  – Creatinine 73 mmol/L (60–110)
  – eGFR >60 mL/min (>60)

• He was commenced on isoniazid, rifampicin, pyrazinamide and pyridoxine at standard dosage. He is ART naïve. One month later, at follow up, he was well.
• Investigations showed:
  - Serum alanine transaminase 131 u/L (<40)

What is the appropriate management strategy for this patient?
Best Of 5 – Question 7

A - Discontinue all drugs until ALT normalises

B - Discontinue all drugs until ALT falls below twice the upper limit of normal

C - Monitor LFTs fortnightly

D - Replace isoniazid with streptomycin

E - Replace pyrazinamide with streptomycin
Best Of 5 – Question 7

• **A is incorrect.** There is no need to discontinue treatment. He is asymptomatic and his ALT Is < 5 times the upper limit of normal

• **B is incorrect.** There is no need to discontinue treatment. He is asymptomatic and his ALT Is <5 times the upper limit of normal

• **Answer C:** monitor LFTs fortnightly

• **D is incorrect.** He should continue all drugs unless ALT > 5 x upper limit of normal or he develops symptoms

• **E is incorrect.** He should continue all drugs unless ALT > 5 x upper limit of normal or he develops symptoms
Best Of 5 – Question 7

BHIVA guidelines for the treatment of TB/HIV coinfection 2018 – Definition of drug induced liver injury

- Serum AST or ALT more than 3 x upper limit of normal in the **presence of symptoms**
- OR serum AST or ALT more than 5 x upper limit of normal in the **absence of symptoms**
- Refer to the guideline for actions to take depending on severity of drug injury
Best Of 5 – Question 8

- A 33-year-old HIV-positive man with hepatitis C infection was assessed for treatment of his HCV infection. He has genotype 3.

- Investigations showed:
  - Serum ALT 36 U/L (5–35)
  - HCV pre-treatment RNA 347 978 IU/mL
  - HCV RNA at week 4 Rx <12 IU/mL
  - CD4 count 751 x 106 cells/L (400–1300)
  - HIV viral load 2476 copies/mL
  - A liver biopsy showed mild fibrosis.

- Treatment with pegylated interferon and weight-based ribavirin was started. Six weeks after he started his treatment, he stated that he would not be able to complete a 48-week course of HCV treatment as he was profoundly depressed.

Which of the following is the best predictor that a shortened duration of treatment will achieve a sustained virological response?
Best Of 5 – Question 8

• A - Hepatitis C pre-treatment viral load

• B - Hepatitis C RNA level at 4 weeks

• C - Hepatitis C RNA level at 12 weeks

• D - Liver biopsy finding of mild fibrosis

• E - Serum alanine transaminase
Best Of 5 – Question 8

A is incorrect. Although baseline viral load is an indicator of likelihood of response, it is not an indicator that a shortened duration of treatment will produce a sustained virological response.

**Answer B:** Hepatitis C RNA level at 4 weeks

C is incorrect. Individuals achieving an undetectable viral load at 12 weeks – a rapid virological response – have a higher sustained response rate than those who do not, but an undetectable viral load at this time point and not at 4 weeks means that the patient should receive 48 weeks of therapy.

D is incorrect. Although liver biopsy findings of low levels of fibrosis may indicate the likelihood of response, they are not an indication that a shorter length of treatment will produce a sustained virological response. Individuals with any degree of cirrhosis should always receive 48 weeks of treatment even if they achieve a rapid virological response.

E is incorrect. Baseline serum alanine aminotransferase is not an indicator that a shortened duration of treatment will produce a sustained virological response.
Best Of 5 – Question 8

BHIVA Guidelines Source
5.3.4.7 Therapy / Treatment options / Recommendations

• A rapid virological response or RVR (viral load undetectable) at 4 weeks of treatment predicts response.

• Lack of early virological response or EVR (non-detectable viral load or >2 log\(^{10}\) fall at 12 weeks) or a detectable viral load at 24 weeks of treatment predicts non-response and therapy should be stopped.

• In individuals who achieve an undetectable viral load at 4 weeks – rapid virological response – a reduction in length of treatment from 48 to 24 weeks may be considered.
OSCE
OSCE - Overview

• 12 stations

• 10 minutes each with 2 minutes to read question and prepare

• 2 rest stations (or more) – You will hear other candidates. Go to the toilet if you need to

• READ INSTRUCTIONS CAREFULLY
  – What you CAN & CANNOT get marks for
OSCE - Tips

• Make a list of cases/scenarios

• Make a list of points (usually 10) you absolutely want to cover

• Create a template to fall back on for the unexpected (write it down in the 2 mins before station starts)

• Remember recent significant trials – change of practice/guidelines

• Rehearse, rehearse and rehearse some more
OSCE - Tips

• Read the question carefully and do what is asked

• Accept there is likely to be one station you haven’t prepared for

• Additional people may be in the room - don’t be distracted

• Once you leave the station you cannot go back in

• Be nice to the patient and always close the case
OSCE - Overview

• Ask open questions

• You’re under pressure but try not to hurry

• Listen out for questions from the actor (ICE)
  – They have more info than you
OSCE – (Almost) Guaranteed Stations

1. Pregnancy/Breastfeeding
2. OIs – talking to the patient/ a relative
3. ART toxicity – CV disease, osteoporosis, renal disease
4. Transmission – TASP, PrEP, PEPSE
5. Hepatitis – treatment/ ramifications for HIV treatment
6. STIs – LGV, Syphilis
7. Malignancy – explaining a cancer diagnosis, next steps
8. HIV treatment – seroconversion, starting treatment
9. Resistance – will involve interpreting a resistance test in the station
Cases
OSCE – Case 1 - Worked Example

• **Summary:**
  – This is Prince, 40 years old Black African.
  – He has been recently diagnosed HIV positive. On examination there were a few raised lesions on his arms and in his mouth which were highly suggestive of Kaposi’s Sarcoma. He had a skin biopsy on one of his lesions on his arm.
  – He attends the clinic today for his biopsy result.

• **Additional history:**
  – Prince saw his GP with a 6 month history of weight loss. His GP has done some blood tests which confirmed HIV antibody positive.
  – He is originally from Zambia and has been in the UK since 2005.
  – He does not drink, smoke or use any recreational drug.
  – His wife has been tested HIV negative since his diagnosis. He is coping well with his diagnosis and has discussed safer sex and PEP with the HIV nurse already.
OSCE - Case 1 - Worked Example

• **Results:**
  - Biopsy: Histology consistent with Kaposi sarcoma
  - CD4: 300 cells/ml
  - HIV viral load: 750,000 copies/ml
  - Syphilis: negative
  - HAV: immune
  - HBV: immune
  - HCV: negative
  - Resistance test: wild type
  - HLA B5701: negative

• **Tasks:**
  - Explain his biopsy result to the patient.
  - Discuss a management plan.
OSCE - Case 1 - Worked Example

• Areas to cover:
  – Explain biopsy result
  – Enquire other symptoms (haemoptysis, melena, haematemesis, haematuria)
  – Further investigations for KS: HHV8, consideration CT/endoscopy
  – Management of KS: ARVs, local radiotherapy, Doxorubacin
OSCE - Case 1 - Worked Example

A person is diagnosed with cancer X

• Explain diagnosis
  – Aetiology – relevance to patient’s lifestyle
  – Symptoms
  – Signs

• Management
  – Further investigations
  – Confirmation
  – Staging
  – Referral
  – Likely treatment options (ART / Chemo / DXT)
  – Treatment outcomes/prognosis

• HIV management
• OI prophylaxis
OSCE – Case 2 - Worked Example

• Summary:
  – This is Mark, 29 year old South African Orthopaedic surgeon, who has recently moved to the UK.
  – He was diagnosed HIV positive in 2013 and is treatment naïve. He has requested to speak to you regarding his options to practice medicine in the UK, which he is considering applying for.

• Additional information:
  - Mark does not smoke, drink alcohol or use recreational drugs
  - He is single and not currently sexually active
  - He last accessed care in South Africa 5 months ago and was under review every 6 months
OSCE – Case 2 - Worked Example

• Results:
  – CD4 421 cells/ml
  – HIV viral load 43,150 c/ml
  – Syphilis negative
  – HAV immune
  – HBV immune
  – HCV negative

• Tasks:
  – Discuss Mark’s options with regards commencing exposure prone procedures
  – Arrange appropriate follow up.
OSCE – Case 2 - Worked Example

- **Areas to cover:**
  - Need for commencement of effective ARV regimen and to achieve viral suppression
  - Need for three monthly viral load testing (need to wait until 2 readings 3 months apart are undetectable)
  - Joint management under HIV physician & Occupational Health physician
  - UKAP Occupational Health Monitoring Register enrolment
  - Must seek advice if change to health may impair fitness to practice
  - Photographic identification for identified and validated sampling (IVS)
  - Measures if detectable viral load
  - Repercussions of failing to attend regular monitoring

**Guidelines to reference:**
The Management of HIV infected healthcare workers who perform exposure prone procedures: January 2014
OSCE – Case 3 - Worked Example

• **Summary:**
  – This is Blessing, a 27 year old woman from Botswana. She has recently arrived in the UK and is 30 weeks pregnant. She booked in with her local midwife and tested positive for HIV.
  – She has already been seen by the HIV specialist nurse in clinic and given the HIV diagnosis and her questions have been answered regarding this.

• **Additional information:**
  • She is otherwise fit and well. She takes no regular medications and has no known drug allergies.
  • Her other booking bloods showed: Trep Ab negative. HbsAg negative, HbcAb positive, HbsAb >100

• **Task:**
  – Take a relevant history and discuss ongoing management with Blessing, with regards to her pregnancy
OSCE – Case 3 - Worked Example

• History: Previous HIV tests/treatment/other children/partner/occupation

• Management:
  – Start ART – which
  – Method of delivery
  – Post-partum management: PEP for the baby/breastfeeding/testing

• What if she tested at 40/40?
### OSCE – Case 3 - Worked Example

**Presentation in labour at term**

<table>
<thead>
<tr>
<th>6.4.3</th>
<th>Management of an untreated woman presenting in labour at term.</th>
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<tr>
<td></td>
<td>All women should be given a stat dose of nevirapine 200 mg;</td>
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<td>and commence oral zidovudine 300 mg and lamivudine 150 mg bd;</td>
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<td>and raltegravir 400 mg bd;</td>
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<tr>
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<td>and receive intravenous zidovudine for the duration of labour.</td>
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<tr>
<td></td>
<td>Please also see section 9.1.3 for HIGH-RISK neonatal management.</td>
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OSCE – Case 4 - Worked Example

• **Summary:**
  – This is Steven, 29 years old
  – He was diagnosed and treated for rectal Chlamydia 3 months ago and has attended the department requesting PEPSE 3 times in the last year
  – He has been reading about PrEP online and is keen to be considered for the IMPACT trial.

• **Additional history:**
  – Steven’s last HIV test was 3 months ago when he was treated for chlamydia
  – He is currently asymptomatic.
  – He does not drink or smoke.
OSCE – Case 4 - Worked Example

• Previous results:
  – STI Screen 14/12/2019
    • Urine Chlamydia negative, Gonorrhoea negative
    • Pharyngeal Chlamydia negative, Gonorrhoea negative
    • Rectal Chlamydia positive, Gonorrhoea negative
    • LGV negative
    • HIV negative
    • HBV immune
    • HAV non immune
    • HCV negative

• Tasks:
  – Take a relevant history from the patient
  – Discuss PrEP and recommended monitoring
OSCE – Case 4 - Worked Example

- **Areas to consider:**
  - Sexual history
  - Chems/Drug history/DDIs
  - Full STI screen today including BBV screen
  - HAV vaccination
  - Risk reduction strategies – condoms, serosorting, seropositioning
  - PrEP evidence/efficacy and ways of taking – PROUD/Ipergay
  - IMPACT trial/Iwantprepnnow
  - Baseline U&Es/Urine dip
  - FU – 3 monthly STI screening and HIV testing & urine dip

- **Trial data e.g. including**
  - PROUD / IPERGAY – PrEP – Truvada - 86% reduction in HIV transmission within MSM engaging in condomless sex
Dip HIV Summary

• Remember recent significant trials – change of practice/guidelines
• Read the question carefully and do what is asked
• Be nice to the patient and always close the case.
Any questions?

Good luck!