

T Level Technical Qualification in Healthcare Science

Occupational specialism assessment (OSA)

Assisting with Healthcare Science

Assignment 3

Assignment brief

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Task 1: microscopy – Gram stain

Brief

Location: microbiology laboratory

You are working as a healthcare science assistant in the microbiology laboratory within a hospital.

A patient has been diagnosed with a urinary tract infection which was treated with penicillin (effective against Gram-positive bacteria) but has shown no improvement. The doctor has sent a sample to you for testing and requested a Gram stain be performed to determine the Gram status of the bacteria. They are concerned that since the previous treatment was ineffective the infection may be due to either an antibiotic-resistant Gram-positive bacteria, or a Gram-negative bacteria

You are required to prepare the slides using the standard operating procedure (SOP) provided and examine the slides to determine whether the bacteria in the sample are Gram-positive or Gram-negative. These results will then be confirmed by the biomedical scientist.

Task

Prepare the sample Gram stain slides using the patient sample cultures.

1(a) prepare your work area and self for Gram staining

1(b) prepare three slides for Gram staining

1(c) carry out Gram staining on the prepared slides following the SOP provided and record the results using the table provided and notify the biomedical scientist (BMS)

- include an explanation of how you completed the sample Gram stain

1(d) dispose of materials and clean equipment and work area

(40 marks)

Conditions of the assessment

- task 1 must be completed in supervised conditions
- you will only have access to materials permitted by your tutor and available in the designated assessment area
- you will have a maximum of 1 hour 30 minutes to complete this task

Task 2: specimen analysis - blood

Brief

Location: pathology department

You are working in pathology as a healthcare science assistant in the biomedical department of a hospital, supporting a biomedical scientist (BMS).

The lab has been sent 2 blood samples from a patient who is suspected of having an autoimmune inflammatory disorder. The clinician has requested that their levels of inflammatory marker protein Interleukin-6 are determined by ELISA to help their decision about whether a therapy targeting interleukin-6 would be beneficial.

Your team receives 2 samples taken from the patient for Interleukin-6 quantification by ELISA.

Task

The biomedical scientist has asked you to check the 2 blood samples to confirm suitability for testing for Interleukin-6 levels by ELISA

2(a): prepare the work area and self for carrying out an Interleukin-6 enzyme-linked immunosorbent assay (ELISA) on the blood samples

2(b): check sample suitability and prepare samples for ELISA

2(c): prepare reagents and reference curve material for ELISA, including:

- following the SOP
- record the plate details in the LIMS system (starting with the 'Dashboard' sheet and working through each sheet adding in all relevant information until complete)
- inform the biomedical scientist that the plate is ready for analysis

2(d): carry out post-analysis activities, including:

- sample storage
- equipment cleaning
- waste disposal
- decontamination of work area

(54 marks)

Student instructions

You must log the samples into the laboratory information management system (LIMS).

You must also record where your reference samples and patient samples have been loaded into the 96 well plate to allow for the quantification of the Interleukin-6 in the patient samples in the LIMS spreadsheet.

Conditions of the assessment

- task 2 must be completed in supervised conditions
- you will only have access to materials permitted by your tutor and available in the designated assessment area
- you will have a maximum of one hour to complete this task

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