T-LEVELS | Institute for Apprenticeships & Technical Education

T Level Technical Qualification in Healthcare Science

Occupational specialism assessment (OSA)

Assisting with Healthcare Science

Assignment 3 - Pass

Guide standard exemplification materials

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T Level Technical Qualification in Healthcare Science
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Assisting with Healthcare Science

Assignment 3

Contents

Introduction

The material within this document relates to the Assisting with Healthcare Science occupational specialism sample assessment. These exemplification materials are designed to give providers and students an indication of what would be expected for the lowest level of attainment required to achieve a pass or distinction grade.

The examiner commentary is provided to detail the judgements examiners will undertake when examining the student work. This is not intended to replace the information within the qualification specification and providers must refer to this for the content.

In assignment 3, the student must carry out sample analysis.

After each live assessment series, authentic student evidence will be published with examiner commentary across the range of achievement.

Task 1: microscopy – Gram stain

Brief

Location: microbiology laboratory

You are working as a healthcare science assistant in the microbiology department. The biomedical scientist has requested that you prepare positive and negative quality control slides for Gram stains. Control cultures are available in the department. You are required to prepare the slides using the standard operating procedure (SOP) provided and check that they are fit for purpose before passing back to the biomedical scientist for checking.

Task

Prepare the control Gram stain slides using the appropriate control cultures.

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

1(b): prepare slides for Gram staining

1(c): carry out Gram staining on the prepared slides following the SOP provided and record the results

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

(40 marks)

Student instructions

Following the quality control (QC) confirmation of your Gram stain using the microscope as part of task 1(c), you must notify the biomedical scientist and explain how you have completed the control Gram stain prior to commencing task 1(d).

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 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 virology department of a hospital supporting a biomedical scientist (BMS).

Your team receives 2 samples for hepatitis B antibody detection.

Task

The biomedical scientist has asked you to check 2 blood samples to confirm suitability for testing for a hepatitis B antibody screen.

2(a): prepare the work area and self for carrying out a hepatitis B enzyme-linked immunosorbent assay (ELISA) on a blood sample

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

2(c): prepare reagents and quality control (QC) material for ELISA, including:

- following the SOP
- confirming the specimen is ready for analysis
- discussing the process you went through with the biomedical scientist

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 and ELISA results into the laboratory information management system (LIMS).

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 1 hour 30 minutes to complete this task

Student evidence

Observation record form

Descriptive information and evidence of student's skills during the practical assignment. Even though evidence of the quality of skills demonstrated should support decisions against the mark scheme, the notes should follow the flow of the tasks and how students are expected to complete them, rather than attempting to assign evidence against the criteria at this stage.

To be completed by the provider appointed assessor:

Task 1: microscopy – Gram stain

Area/objective: the following areas/objectives can cover a broad range of skills or actions which should be considered when adding notes. The text below each area/objective is an example of what should be observed and is not exhaustive.	Comments: identifying students' areas of strengths and weaknesses through the use of thorough and precise notes that differentiate between a range of students' practical skills is required. This will be used to support accurate and consistent allocation of marks once all evidence has been generated.
Preparation: for example, describe how the student collects and applies correct PPE, prepares work area to ensure it is safe, tidy and clean.	The student entered the lab and washed their hands, including the palms of their hands and fingers with water and soap provided and dried their hands with the paper towel provided. The student put on a lab coat and put on the correct sized gloves. The student selected a work bench with a Bunsen burner to allow them to carry out the Gram stain procedure. The student collected Gram stain reagents (Grams iodine, crystal violet, ethanol/acetone and counterstain – safranin), microscope slides, labels and a pen to label the slides and brought them to the workspace – the student had to asked or be prompted where to find the cultures for the Gram stain. The student selected just 1 culture, the Escherichia coli (Gram-negative) and required prompting to collect the staphylococcus aureus culture (Gram-positive control).
Quality control (QC) checking: for example, describe how the student checks and selects the control cultures before starting the slide preparation.	The student confirmed that the control cultures had been quality control checked, were in date, and were ready for use. In addition, the student checked that the control cultures had been stored in the correct conditions but needed prompting to check temperatures.
Slide preparation: for example, describe how the student prepares the slides for examination.	The student labelled slides (using a pen) with initials, date and sample name.

	The student used the Bunsen burner to sterilise the inoculating loop and added a drop of distilled water to the slide. The student used the loop to get colonies of the Gram-positive bacteria spread onto the centre of the slide with loop – the student added too much of culture and as a result the smear was quite thick. The student repeated the process with the Gram-negative culture. The student left the slides to dry for about 5 minutes before quickly moving on to the next stage. The student heat fixed the slides by passing the slide quickly through the flame several times. The student turned off the Bunsen burner.
Gram staining: for example, describe how the student carries out the Gram staining process.	The student selected the correct SOP for Gram staining. The student placed slides on a staining rack (or on a rack over sink). The student attempted to stain both at the same time. The student flooded the smears (covered the smear with a thick layer of reagent with crystal violet for 45 to 55 seconds then rinsed off with squirty water bottle). The student flooded the smear with iodine for 45 to 55 seconds – this was then rinsed off. The student covered the slide in acetone after 10 seconds then washed off with water. The student flooded with the counterstain for 60 seconds and washed off with water. The student removed excess water by shaking the slide and left them to air dry.
Microscope use: for example, describe how the student uses a microscope to check the slide.	The student took the dried slides to the microscope area. The student was able to focus the slide using a 100x objective lens. The slide smear was too thick and as a result there was a risk Gram-positive could appear as Gram-negative.
Quality checks: for example, describe how the student carries out the quality checking process.	The student checked the slides over, which were decolourised affecting the colour of the stain leading to an erroneous result.

Reporting/recording results: for example, describe how the student carries out the handover of the QC slides to the biomedical scientist.	The student handed the slides over to the biomedical scientist – the student was able to identify which is Gram-positive and Gram-negative. The student gave a short and basic outline of the processes used, referring to the samples as positive and negative.
Clean down: for example, describe how the student cleans down the workstation and disposes of waste and PPE.	The student returned culture to the fridge – they did not dispose in the autoclave. The student cleared away all remaining items to the correct areas, including putting the inoculating loops in the bin. The student wiped down the area with alcohol based cleaner. The student removed their gloves and put them in clinical waste bin and returned their lab coat and glasses. The student washed their hands before leaving the lab.

Task 2: specimen analysis – blood

Area/objective: the following areas/objectives can cover a broad range of skills or actions which should be considered when adding notes. The text below each area/objective is an example of what should be observed and is not exhaustive.	Comments: identifying students' areas of strengths and weaknesses through the use of thorough and precise notes that differentiate between a range of students' practical skills is required. This will be used to support accurate and consistent allocation of marks once all evidence has been generated.
Preparation: for example, describe how well the student collects and applies correct PPE and prepares the work area to ensure it is safe, tidy and clean.	The student entered the lab and quickly (less than 10 seconds) washed the palms of their hands with water and soap provided and dried their hands with paper towels provided. The student put on a lab coat and put on correct sized gloves and safety glasses. The student selected a work area which had been decontaminated and was clear of clutter.
Checking sample: for example, describe how well the student checks the sample before starting the processing procedure.	The student checked the samples provided to confirm there were no issues. The student took the sample record/sheet over to the computer and entered all patient detail fields into the LIMS (patient name, number), requiring prompting to select test on system.
Centrifugation: for example, describe how well the student uses the centrifuge to separate blood into components.	The student identified that serum will be required for the process – a biomedical scientist had to advise them to use the red top. The student correctly used the centrifuge (set to the specified revolutions per minute (rpm) and time) to separate out the sample. The student used a Gilson pipette to aliquot the serum from the sample into a new tube, but the labelling was not clear – the student dipped the pipette to bottom of serum level risking potential mixing and contamination of the sample. The student disposed of tips/pipette correctly.

Serum preparation: for example, describe how well the student prepares and stores the sample for the next stage of processing.	The student identified that serum will be required for the process - they used blood from the red top tube which contains a coagulant. The student inverted the tube several times to ensure it was mixed and coagulation had occurred. The student used a Gilson pipette to aliquot the serum from the sample into a new tube and labelled it. The student stored the remaining sample in the fridge in case further tests were required.
ELISA preparation: for example, describe how accurately the student carries out the appropriate steps when following the SOP for the ELISA test.	The student selected the correct ELISA protocol for the HepB antibody screen. Throughout the process the student showed basic aseptic technique, changing tips where necessary after use but placing lids or tubes onto the work surface. The student followed most of the steps of the protocol methodically, but made some errors, and needed some prompting or assistance from the scientist. The student set up a positive control for the protocol but not a negative control. The student labelled the patient sample on the array. The student was able to interpret a positive result from the patient sample from a colour change.
Pipette use: for example, describe how well the student uses a pipette throughout the process.	The student was able to set the Gilson pipette to ensure correct measurement of the reagents and sample. The student needed multiple attempts to get correct measurements of reagents and on occasion trapped air bubbles in the pipette tip affecting the accuracy of measurements. The student did not change tips after every use.
Setting up a control: for example, describe how well the student sets up controls for the ELISA test experiment.	The student set up a positive control for the protocol but not a negative control.
Results reporting, for example, describe how well the student reports the ELISA preparation.	The student correctly matched the results to the patient sample but needed prompting to record the test results onto the LIMS.
Task completion: for example, describe how well the student finishes the task, such as storing, disposing sample and tidying work area.	The student disposed of the used reagents down the sink instead of the waste container. The student placed used tips and ELISA assay into the designated waste bag or container.

	The student stored the remaining labelled serum sample in the fridge after prompting. The student left the work areas tidy but did not clean down with an appropriate alcohol based cleaner. The student removed gloves and disposed in clinical waste bin and returned their glasses and coat to the specified area. The student quickly washed hands with soap before leaving.

Examiner commentary

The student carried out basic techniques with instructions, but their lab practice required more refinement and accuracy, critical skills such as aseptic technique required improvement.

The student carried out the task in full but there were some areas that had potential to cause problems if allowed to continue. For example, while they did wash their hands, they were hurried meaning that they were not as thorough as they could be and may not be fully aware of the reason for this process. In addition, there were instances where their method could compromise results, although in this case results weren't compromised.

There were some areas where lack of knowledge or confidence were shown, and assistance was required. They were not always confident to ask for assistance and the assessor had to step in and advise.

While the student was able to get an appropriate result during the time given, they had to redo some stages, which reduced efficiency. Areas such as lack of tidiness also reduced efficiency as they were looking for items or risking errors due to waste lying around that should have been cleared away immediately.

Overall grade descriptors

The performance outcomes form the basis of the overall grading descriptors for pass and distinction grades.

These grading descriptors have been developed to reflect the appropriate level of demand for students of other level 3 qualifications, the threshold competence requirements of the role and have been validated with employers within the sector to describe achievement appropriate to the role.

Occupational specialism overall grade descriptors:

Assisting with Healthcare Science occupational specialism grade descriptors.

Grade

Demonstration of attainment.

Pass

The student demonstrates good knowledge and understanding of the topics and the healthcare context in which it lies.

The student demonstrates professional practice whilst carrying out tasks/activities showing respect to safety, care and confidentiality for patients, colleagues and oneself.

The student has an appreciation of action to be taken when errors occur.

The student demonstrates a good understanding of their own development with some learning through reflective practice.

The student may not always connect learning to work in practice.

Distinction

The student demonstrates excellent knowledge and understanding of the topics and appreciation of the healthcare context in which it lies.

The student demonstrates excellent understanding of professional practice whilst carrying out tasks/activities applying them in the healthcare context,

The student shows respect for safety, care and confidentiality for patients, colleagues and oneself.

The student fully acknowledges when errors occur and the reporting process.

The student demonstrates a good insight to their own development, demonstrating significant learning through reflective practice.

The student draws on reflective practice and relates their development and learning to work in practice.

Document information

The T Level Technical Qualification is a qualification approved and managed by the Institute for Apprenticeships and Technical Education.

Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published final version.		June 2021
v1.1	NCFE rebrand		September 2021