# Practical

**Assessment event 3 of 3**

# Trainer & Assessor Marking Guide

## Criteria

### Unit code, name and release number

MSL973016 - Perform aseptic techniques (1)

### Qualification/Course code, name and release number

MSL50118 - Diploma of Laboratory Technology (1)

MSL40118 - Certificate IV in Laboratory Techniques (1)

MSL30118 - Certificate III in Laboratory Skills (1)

\*\*Amend the qualification box before distributing to the student. The information here should only contain the qualification the student is enrolled in\*\*

Version: 1.0

Date created: 22/07/2019

Date modified: 12/11/2019

For queries, please contact:

Innovative Manufacturing, Robotics and Science SkillsPoint

Hamilton Campus

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RTO Provider Number 90003 | CRICOS Provider Code: 00591E

This assessment can be found in the: [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?doc=%3Cxml%2F%3E&in=P7ac4831b-430a-4b8d-8b56-f7b32ed5b9cf&q=&type=standard&sort=rank&dr=AFTER)

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Instructions for the trainer and assessor** | This is a skill based assessment and will be assessing the student on their ability to demonstrate skills required in the unit.  This assessment is in 4 parts:   1. Aseptic transfer 2. Assess samples 3. Observation checklist 4. Assessment feedback   Part A of this assessment requires students to complete 3 aseptic transfers as follows:   * Task 1: bacteria sample from a broth to a plate (*Staphylococcus aureus)* * Task 2: simulated urine specimen to a broth (*Escheria coli)* * Task 3: yeast sample from plate to plate (*Saccharomyces cerevisiae)*   It is essential that assessors closely observe and record evidence of the student’s satisfactory application of aseptic technique. For this reason it is recommended that the assessment be conducted with a maximum of 3 students at a time for Part 1. Part 2 can be completed as a whole class.  Please note that the questions at steps 2 and 3 in each task are included to ensure that PC1.1 is met.  Model answers, sample responses or a criteria for each task or activity is provided below.  Use these to support your judgement when determining a satisfactory result.  The student’s response to each question must contain the information indicated in this marking guide in order for their response to be correct. However, if a student provides information other than indicated below, and in the professional opinion of the assessor it is appropriate and meets the intent of the question, it may be considered correct.  Complete the Observation Checklist for each task and activity and the Assessment Feedback to the student. Ensure you have taken a copy of the assessment prior to it being returned to the student.  The Assessment Feedback page must be signed by both the student and the assessor so the student displays that they have received, understood and accepted the feedback.  Ensure the students name appears on the bottom of each page of the submitted assessment. |
| **About this marking guide** | The student’s response to each task or activity must contain the criteria indicated in this marking guide in order for their response to be correct.  All tasks and activities must be completed correctly in order to satisfactorily complete this assessment event.  Assessors will need to make a judgement call as to whether each response meets the criteria based upon the:   * Rules of Evidence:   + Validity – does the answer address the skill required and does the evidence reflect the four dimensions of competency?   + Sufficiency – is the task or activity sufficient in terms of length and depth?   + Currency – has the work been done so recently as to be current?   + Authenticity – is this work the student’s own authentic work? * Principles of Assessment   + Fairness – individual student’s needs are considered in the assessment process   + Flexibility – assessment is flexible to the individual student   + Validity – any assessment decision is justified, based on the evidence of performance of the student   + Reliability – evidence presented for assessment is consistently interpreted and assessment results are comparable irrespective of the assessor conducting the assessment * Dimensions of competency   + Task skills   + Task Management Skills   + Contingency Planning Skills   + Job Role Environment Skills |
| **Student must provide** | A pen, suitable clothing for a laboratory – laboratory coat, safety glasses, long pants and sleeves, closed in shoes and long hair tied back. |
| **Assessor must provide** | A suitable microbiology laboratory.  3 different samples requiring 3 different transfer techniques (as above in assessor instructions) per student.  The pathology request forms for tasks 1,2 and 3:  Task 1: MSL973016\_AE\_Sk\_3of3\_SR1  Task 2: MSL973016\_AE\_Sk\_3of3\_SR2  Task 3: MSL973016\_AE\_Sk\_3of3\_SR3  Standard operating procedure *M402: Aseptic transfer* (one per student). Please note that standard operating procedures and forms will be available on Learning Bank at the start of 2020. Contact IMRS SkillsPoint if you require a copy earlier |
| **Due date/time allowed/venue** | 3 hour laboratory session – Part 1  *24 hours later, to allow for incubation of samples and control plates:*  1 hour laboratory session – Part 2  This would be dependent upon the teacher and scheduling at each campus. |

## Part 1: Aseptic transfer

To complete this part of the assessment, the student is required to participate in a practical demonstration of how to complete a task or activity.

These practicals will be observed by you, or the student can digitally record them and submit them as evidence.

The student’s responses will be used as part of the overall evidence requirements of the unit.

You should refer to the list of criteria provided in the Observation Checklist to understand what skills the student is required to demonstrate in this section of the assessment. This Checklist outlines the Performance Criteria, Performance Evidence and Assessment Conditions you will be marking the student on.

Once completed the student is required to submit this assessment and the tasks and activities required to be completed to you for marking.

**Task 1: Aseptic transfer of bacteria**

To complete this task, you will be required to transfer a bacteria sample aseptically from a broth to a plate. Your assessor will observe your technique during the transfer and will also assess the quality of the bacterial growth after incubation.

***To complete this task, you will be provided:***

* Standard operating procedure *M402: Aseptic transfer*
* A bacterial sample (*Staphylococcus aureus*) in broth media and a pathology request form
* Appropriate tools and materials to conduct the aseptic transfer

1. Log your sample in the table below:

Table 2 Sample log

| Sample ID | Sample description | Date received | Time received  (use 24 hour time) |
| --- | --- | --- | --- |
| Bacteria 110919 | Sample 1 (bacteria in broth) | 11/09/2019 | 11:45 |

1. Write the name of the standard operating procedure you will be using to complete this assessment event in the box below:

M402 – Aseptic transfer

1. Check the pathology request form. Is this the correct sampling procedure for the task? Write yes or no in the box below.

Yes

1. Follow the instructions for a broth to plate transfer in *M402: Aseptic transfer* supplied to complete the aseptic transfer. Hint: ensure you label your plate according to the Figure 2 in the procedure.
2. Record the results of your sterility pre-check (section 8.3 of *M402: Aseptic transfer*) here. Is the media you will use sterile based on a visual inspection?

Yes

**Task 2: Aseptic transfer of body fluid**

To complete this task, you will be required to transfer a urine specimen from a specimen jar to a broth aseptically. Your assessor will observe your technique during the transfer and will also assess the quality of the bacterial growth after incubation.

***To complete this task, you will be provided:***

* Standard operating procedure *M402: Aseptic transfer*
* A urine sample (containing *Escherichia coli*) and a pathology request form
* Appropriate tools and materials to conduct the aseptic transfer

1. Log your sample into the table below:

Table 3 Sample log

| Sample ID | Sample description | Date received | Time received  (use 24 hour time) |
| --- | --- | --- | --- |
| Urine 110919 | Sample 2 (urine) | 11/09/2019 | 12:45 |

1. Write the name of the standard operating procedure you will be using to complete this assessment event in the box below:

M402 – Aseptic transfer

1. Check the pathology request form. Is this the correct sampling procedure for the task? Write yes or no in the box below.

Yes

1. Follow the instructions for a body fluid to broth transfer in *M402: Aseptic transfer* supplied to complete the aseptic transfer. Hint: ensure you label your broth tube according to the Figure 2 in the procedure.
2. Record the results of your sterility pre-check (section 8.3 of *M402: Aseptic transfer*) here. Is the media you will use sterile based on a visual inspection?

Yes

**Task 3: Aseptic transfer of yeast**

To complete this task, you will be required to aseptically transfer a yeast sample from one agar plate to another. Your assessor will observe your technique during the transfer and will also assess the quality of the yeast growth after incubation.

***To complete this task, you will be provided:***

* Standard operating procedure *M402: Aseptic transfer*
* A yeast sample (*Saccharomyces cerevisiae*) and a pathology request form
* Appropriate tools and materials to conduct the aseptic transfer

1. Log your sample and control into the table below:

Table 4 Sample log

| Sample ID | Sample description | Date received | Time received |
| --- | --- | --- | --- |
| Yeast 110919 | Sample 3 (yeast) | 11/09/2019 | 13:45 |

1. Write the name of the standard operating procedure you will be using to complete this assessment event in the box below:

M402 – aseptic transfer

1. Check the pathology request form. Is this the correct sampling procedure for the task? Write yes or no in the box below.

yes

1. Follow the instructions for a plate to plate transfer in *M402: Aseptic transfer* supplied to complete the aseptic transfer. Hint: ensure you label your plate according to the Figure 2 in the procedure.
2. Record the results of your sterility pre-check (section 8.3 of *M402: Aseptic transfer*) here. Is the media you will use sterile based on a visual inspection?

Yes

## Part 2: Assess samples

To complete this part of the assessment, the student is required to participate in a practical demonstration of how to complete a task or activity.

These practicals will be observed by you, or the student can digitally record them and submit them as evidence.

The student’s responses will be used as part of the overall evidence requirements of the unit.

You should refer to the list of criteria provided in the Observation Checklist to understand what skills the student is required to demonstrate in this section of the assessment. This Checklist outlines the Performance Criteria, Performance Evidence and Assessment Conditions you will be marking the student on.

Once completed the student is required to submit this assessment and the tasks and activities required to be completed to you for marking.

The final part of this assessment is to complete a quality control check on the plates and broth samples that you inoculated in tasks 1, 2 and 3 of Part A.

**Task 1: Quality control check**

For this task, you will be required to assess your plates for quality control purposes. Examine each set of plates and complete the second column of the Quality Control Log.

***To complete this task, you will be provided:***

* The samples and control plates and broth you inoculated in Part 1 of this assessment task.

1. Examine your plates and broth for growth
2. Complete the Quality Control Log
3. When you have finished examining your plates and broth and completed the Quality Control Log, have your assessor check your results

**Quality Control Log**

Table 5 QA log

| Sample | Description of growth on plate |
| --- | --- |
| *Staphylococcus aureus* | Single colonies clearly visible or present, all of the colonies look the same or all of the colonies are the same size/shape and colour |
| *Escheria coli* in urine | The broth is turbid/cloudy/milky indicating growth |
| *Saccharomyces cerevisiae* | Single colonies clearly visible or present, all of the colonies look the same or all of the colonies are the same size/shape and colour |

## Part 3: Observation Checklist

The Observation Checklist will be used by you to mark the students’ performance for each of the three tasks. Use this Checklist to understand what skills the student is required to demonstrate in this section of the assessment. This Checklist outlines the Performance Criteria, Performance Evidence and Assessment Conditions you will be marking the student on. All the criteria must be met. The student’s demonstration will be used as part of the overall evidence requirements of the unit. You may ask questions while the demonstration is taking place or if appropriate directly after the task/activity has been completed.

Table 6 Observation Checklist

|  |  | Task 1 | | Task 2 | | Task 3 | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item # | Observation | S | U/S | S | U/S | S | U/S | Assessor Comments  (Describe the student’s ability in demonstrating the required skills and knowledge, including recording any questions asked and the student responses) |
|  | Student used the correct personal protective equipment (PPE)  PC1.2 |  |  |  |  |  |  | **Sample comment (all tasks):**  Student is wearing lab coat, safety glasses, closed in footwear, mask (if required), long hair tied back (as necessary). |
|  | Student logged the samples correctly  PC1.7 |  |  |  |  |  |  | **Sample comment (all tasks):**  Sample ID, sample description, date of receipt, time of receipt (24 hr) are completed as per the benchmark response provided at step 1 of each task in this marking guide. |
|  | Student checked the sampling procedure matched the sampling plan/request form and completed questions at steps 2 and 3  PC1.1 |  |  |  |  |  |  | **Sample comment (all tasks):**  The questions at steps 2 and 3 of each task have been answered correctly as per the benchmark responses provided in this marking guide. |
|  | Student labelled containers in accordance with Figure 2 of *M402 Aseptic transfer*  PC 1.6,2.7 |  |  |  |  |  |  | **Sample comment (all tasks):**  Each container has been labelled with: date, sample ID, student surname and last four digits of student number as set out in Figure 2 of *M402 Aseptic transfer*. |
|  | Student cleaned/washed hands in preparation for aseptic transfer  PC3.4 |  |  |  |  |  |  | **Sample comment (all tasks):**  Hands washed in accordance with Figure 1 of *M402 Aseptic transfer*. |
|  | Student cleaned the work area in preparation for aseptic transfer  PC1.3 |  |  |  |  |  |  | **Sample comment (all tasks):**  Student thoroughly wiped down workstation with disinfectant and paper towel and dried it with paper towel. |
|  | Student collected the equipment specified in *M402 Aseptic transfer*  PC1.4 |  |  |  |  |  |  | **Sample comment (task 1):**  Student selected: sterile agar plate, sample, matches, texta, Bunsen burner and tubing, inoculation loop, loop holding block.  **Sample comment (task 2):**  Sterile broth tube, sample, matches, texta, Bunsen burner and tubing, test tube rack, sterile pipette (left it inside the plastic).  **Sample comment (task 3):**  See task 1. |
|  | Student organised equipment correctly on the bench in preparation for aseptic transfer  PC1.5 |  |  |  |  |  |  | **Sample comment (all tasks):**  Equipment is organised from first to last used. |
|  | Student correctly macroscopically assessed the media to confirm sterility  PC1.8 |  |  |  |  |  |  | **Sample comment (all tasks):**  The student’s response at Step 5 in each task matches your assessment of the media used for each task (i.e if the student states it is sterile based on no visually obvious contamination, do you agree?). |
|  | Student protected the integrity of the sample source throughout transfer and minimised opportunities for cross contamination |  |  |  |  |  |  | **Sample comment (all tasks):**  Only sterile loops placed in sample, lid off sample for shortest time possible, sample lid not placed on bench, neck of tube flamed before lid replaced, when the sample container was open it was under the umbrella of the flame. |
|  | Student protected the integrity of the destination media throughout transfer  PC 2.4 |  |  |  |  |  |  | **Sample comment (all tasks):**  Student completed the transfer within the umbrella of the flame, placed the lid of the media container under the umbrella of the flame upside down to prevent contamination, placed the lid on the media container when not in use, ensured the lid was fitted before placing in incubator. |
|  | Student used sterile inoculating loop/pipette during transfer  PC2.2 |  |  |  |  |  |  | **Sample comment (tasks 1 and 3):**  Innoculation loop flamed to red hot and cooled underneath the umbrella of the flame before use.  **Sample comment (task 2):**  Pipette remains within the sterile plastic until ready for use. |
|  | When re-sterilising the inoculating loop the student minimised generation of aerosols  PC2.5 |  |  | NA | NA |  |  | **Sample comment (tasks 1 and 3 only):**  Student placed the loop in the orange part of the flame to allow moisture to evaporate prior to sterilising in the blue part of the flame. |
|  | Student transported and placed contaminated, disposable and reusable items into the correct receptacles/areas for disinfection, sterilisation, cleaning or disposal  PC 3.1, 3.3 |  |  |  |  |  |  | **Sample comment (all tasks):**  Contaminated, disposable and/or resusable items are placed in the correct receptacles (according to local laboratory procedures). |
|  | Student cleaned and disinfected the work area and equipment after use  PC3.2 |  |  |  |  |  |  | **Sample comment (all tasks):**  Student thoroughly wiped down workstation with disinfectant and paper towel and dried it with paper towel. |
|  | Student cleaned/washed hands at the conclusion of each aseptic transfer  PC3.4 |  |  |  |  |  |  | **Sample comment (all tasks):**  Hands washed in accordance with Figure 1 of *M402 Aseptic transfer*. |
| **The following observation can only be conducted after the transfer media have been incubated for 24 hours** | | | | | | | | |
|  | The student successfully completed the aseptic transfer as evidenced by the growth on the media for each task  PEs |  |  |  |  |  |  | **Sample comment (tasks 1 and 3):**  Single colonies are/are not visible or present.  All of the colonies are/aren’t the same size/shape/colour indicating pure culture growth.  **Sample comment (task 2):**  The broth is/isn’t turbid/cloudy/milky indicating that growth has occurred. |
|  | The student completed Table 5 for each task and the student’s assessment of the resulting growth matches your assessment  PC2.6 |  |  |  |  |  |  | **Sample comment (all tasks):**  The student has completed the Quality Control Log for each task and their observations are similar to the observation you made in the above at item 17. |