



Australian Government

Assessment Requirements for MSL975062

Perform microbiological tests

Release: 1

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Modification History

Release 1. Supersedes and equivalent to MSL975035 Perform microbiological tests. Clarified that unit applies to animals only – not animals and plants. Minor changes to Performance Criteria. Oral communication removed from Foundation Skills as this is not a focus in the unit. Minor changes to Performance Evidence. Small number of items added to Knowledge Evidence to better reflect Performance Evidence and add content on more modern analysis methods.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- identified at least 5 microorganisms to species based on colonial/microscopic morphology, biochemistry and/or immunological characteristics, including:
 - at least 1 identification must be from a mixed culture
 - at least 4 from the following list:
 - Staphylococcus spp. or another Gram-positive cocci
 - Streptococcus spp.
 - Pseudomonas spp.
 - a member of the Enterobacteriaceae family
 - Clostridium spp. or another Gram-positive rod
 - Fungi
- transferred materials aseptically to at least 1 solid culture and at least one 1 liquid culture, including sterilising inoculating loops before and after transfer, protecting sample integrity and minimising opportunities for cross-contamination and infection and performing quality control checks to ensure aseptic transfer was successful.
- safely performed at least 8 microbiological tests/procedures for culturing, isolating, identifying and counting microorganisms, including:
 - consistently and accurately performing and interpreting Gram staining of bacteria
 - using and interpreting common enriched, differential and selective media
 - performing agglutination techniques
 - coagulase testing
 - oxidase testing
 - catalase testing
 - use a biochemical test system with statistical interpretation
 - antibiotic sensitivity testing and interpretation
- completing work in ways that avoid contamination of:
 - self, other people, the work area, equipment or the samples or materials under test

- media or reagents during manipulations involving the transfer of cultures.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- microbiological terminology, including bacteriology, parasitology, virology and mycology
- microbial control techniques, including disinfection and sterilisation as applied to practical aspects of microbiology
- relationship between sample microscopic and macroscopic appearance and indications of infection and/or contamination
- microbial diversity and taxonomy
- microorganism structures and functions
- cell biology and chemistry related to the differential growth, isolation and identification of microorganisms
- sources of infection, including food, environment, social and physical contact, animals and medical equipment/facilities and sources of contamination
- basic principles of innate and acquired immunity as they relate the respiratory, urinary, digestive and lymphatic/immune system
- microorganisms of importance to job role and their key characteristics used for identification
- transport and storage requirements for microbiological samples to ensure sample integrity prior and post testing
- the importance of maintaining reference cultures and the use of controls in microbiological testing
- technological advances in microbiology including automation for identification, enumeration, susceptibility testing and total laboratory automation
- procedures and reporting requirements for microbiological spills
- purpose of biochemical test, media types and susceptibility testing implemented (why they are used and what they demonstrate)
- application of molecular and serological testing in microbiology, including the role of antigens and antibodies in disease diagnosis
- current and emerging methods of analysis for microbiology specimens
- importance of genetics in microbiology
- general criteria used for the identification of:
 - parasites
 - fungi and yeasts
 - viruses
- rationale for sample dilution and appropriate dilution selection when preparing materials for enumerating organisms and other pure culture work
- need for accurate identification of sample source (such as body site, specimen type, process line or field location)
- environmental sustainability issues as they relate to the work task

- legal, ethical and work health and safety (WHS) requirements specific to the work task including traceability, confidentiality and security requirements of all clinical information, and laboratory data and records.
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Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - a standard microbiology laboratory with relevant samples; reagents; protective and physical containment equipment; sample preparation and storage equipment; test equipment, such as microscopes and counters; and sterilising equipment, such as autoclaves
 - workplace procedures, test methods and equipment manuals.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>