Australian Government

Department of Education, Employment and Workplace Relations

MSL975006A Perform immunohaematological tests

Revision Number: 1

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

MSL975006A Perform immunohaematological tests

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the ability of technical personnel to perform routine tests and procedures that are part of the requirements of pre- and post-blood transfusion practice. The unit also covers tests and procedures that are indicated in laboratory investigations in obstetric and perinatal medicine, in suspected haemolysis and haemolytic episodes and in other clinical circumstances.

Application of the Unit

Application of the unit	This unit of competency is applicable to technical officers and laboratory technicians working in the biomedical industry sector. It is understood that the management of any transfusion laboratory would establish for itself, in terms of its own responsibility and purposes, the ability of any worker to work in a transfusion science laboratory, regardless of the education and training record or presumed ability of any worker. Tests will be related to the determination of blood groups and the detection of antibodies of significance in: • transfusion (as laboratory evidence that in vivo cell destruction or immunisation may occur) • pregnancy and the peri-natal period (as evidence of sensitisation of foetal red cells by transplacental maternal antibody) • the investigation of haemolysis or haemolytic episodes. The tests that the worker will use will be validated and authorised procedures, clearly described in the laboratory's manual of procedures. The unit of competency is based on the assumption that technical personnel would perform tests and procedures under the close supervision of scientific and/or medical staff. The parameters of interpretation will be clearly described, indicating for the worker what he or she is permitted to sign-off without reference to supervisors or managers. Industry representatives have provided case studies to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. These can be found at the end of this unit of competency under the section 'This competency in practice'.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	MSL974006A	*Perform biological procedures*
	MSL973007A	*Perform microscopic examination*
	MSL973004A	*Perform aseptic techniques*

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Process samples and associated request forms	1.1. Check and match samples and request forms before they are accepted 1.2. Return samples and request forms that do not comply with requirements to their source with reasons for non-acceptance 1.3. Log acceptable samples, applying required document tracking mechanisms 1.4. Process samples as required by requested tests 1.5. Store sample components appropriately until required for testing
2. Perform tests	2.1. Select authorised tests that are indicated for the requested investigations 2.2. Conduct individual tests according to documented methodologies, applying required quality control procedures 2.3. Record all results, noting any phenomena that may be relevant to the interpretation of results 2.4. Seek advice of section head or other responsible colleague when result interpretation is outside parameters of authorised approval 2.5. Store unused samples, for possible future reference, under conditions suitable to maintain viability
3. Maintain a safe environment	3.1. Use established work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel 3.2. Clean up spills using appropriate techniques to protect personnel, work area and environment from contamination 3.3. Minimise the generation of wastes 3.4. Ensure the safe disposal of biohazardous materials and other laboratory wastes in accordance with enterprise procedures
4. Maintain laboratory records	4.1. Make entries on report forms or into computer systems, accurately recording or transcribing required data as required 4.2. Maintain instrument logs as required by accreditation checklists 4.3. Maintain records of blood and blood products received, used and returned to supplier 4.4. Maintain security and confidentiality of all clinical

ELEMENT	PERFORMANCE CRITERIA
	information, laboratory data and records
5. Issue blood and blood products	5.1. Complete documentation required to permit the issuing of blood or blood components that have been cleared for use by clinical staff 5.2. Advise courier of transport requirements to ensure blood or blood products are delivered in a timely and safe manner

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- following the laboratory's validated and authorised procedures
- selecting and applying testing procedures in terms of the suspected or known nature of the antibody and its possible range of testing behaviours
- detecting and recording accurate evidence of blood group antigen and antibody reactions
- selecting, testing and issuing blood cleared for transfusion
- selecting and applying confirmatory tests as required
- selecting and issuing blood products for therapeutic or prophylactic use
- critically analysing information/documents and recognising problems in systems and documentation
- using enterprise information systems efficiently
- preparing documentation that is accurate, concise and in accordance with enterprise requirements
- managing tasks and organising work to ensure the timely release of blood and blood products
- using samples, reagents and materials economically and disposing of wastes safely
- using equipment safely
- maintaining equipment, recording and report malfunctions appropriately

Required knowledge

Required knowledge includes:

- scientific, medical, clinical, technical and workplace terminology relevant to normal and abnormal anatomy, physiology, biochemistry, immunology and immunohaematology
- antigen antibody reactions
- testing procedures for the determination of blood groups and the detection of antibodies
- types of blood products and their use
- validated and authorised procedures, as described in the laboratory's manual of procedures
- relevant health, safety and environment requirements

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors should ensure that candidates can: • perform tests accurately and organise work so that the needs of all relevant patients and clients are met in a timely fashion • detect and record accurate evidence of blood group antigen and antibody reactions • recognise problems in systems and documentation • use enterprise information systems efficiently • critically analyse information/documents • prepare documentation that is accurate, concise and in accordance with enterprise requirements • manage tasks and organise work to ensure the timely release of blood and blood products, as they complete routine tasks • use samples, reagents and materials economically and dispose of wastes safely • use equipment safely • maintain equipment, recording and report malfunctions appropriately.
Context of and specific resources for assessment	This unit of competency is to be assessed in the workplace or simulated workplace environment. This unit of competency may be assessed with: • *MSL934002A Apply quality system and continuous improvement processes* • *MSL975002A Perform haematological tests*. Resources may include: • standard transfusion/immunohaematology laboratory with relevant equipment, samples and reagents • enterprise procedures, test methods and equipment manuals. Under duty of care requirements, off-the-job training providers should ensure that blood samples are known to be antibody free for hepatitis B and C, syphilis and

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	human immunodeficiency virus (HIV), but this does not preclude the use of universal precautions in the use of blood samples.
Method of assessment	The following assessment methods are suggested: • review of results/data/records generated by the candidate • feedback from peers and supervisors that enterprise procedures were followed and that work is consistently performed in line with enterprise requirements • oral and/or written tests and paper problems associated with ABO group determination, antibody identification and record keeping • integrated assessment with a case focus, such as the routine pre-transfusion cross-match, an antenatal antibody detection and preliminary identification, batch of routine ABO and Rh(D) groups to be completed at the same time as completion of a pre-transfusion battery of tests. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. Access must be provided to appropriate learning and/or assessment support when required. The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work like environment.
This competency in practice	Industry representatives have provided the case study below to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. **Biomedical** A patient's blood sample and request form have been brought to the laboratory. The patient is to undergo elective surgery the next afternoon. The technical officer

EVIDENCE GUIDE	
	has been asked by the supervisor to determine the patient's ABO and Rh(D) blood groups, to screen the sample for irregular blood group antibodies and to cross-match two units of packed red cells in readiness for possible use during or after surgery. The technical officer checks the records for information on the patient. Finding none, they prepare the required data in the laboratory databases and then perform the required tests. They do not detect any irregular antibody and have had no difficulty in choosing suitable units for cross-matching. They complete the required documentation and labels and then store the compatible blood units for possible later use.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Codes of practice	Where reference is made to industry codes of practice, and/or Australian/international standards, it is expected the latest version will be used

Standards, **codes**, **procedures and/or enterprise requirements**	Standards, codes, procedures and/or enterprise requirements may include:
	• Australian and international standards, such as:
	  • AS 2252 Biological safety cabinets
	  • AS ISO 17025-2005 General requirements for the competence of testing and calibration laboratories
	  • AS/NZS 2243 Set:2006 Safety in laboratories set
	  • AS/NZS 2982.1:1997 Laboratory design and construction - General requirements
	  • AS/NZS ISO 14000 Set:2005 Environmental management standards set
	  • AS/NZS ISO 9000 Set:2008 Quality management systems set
	• cleaning, hygiene and personal hygiene requirements
	• enterprise procedures, standard operating procedures (SOPs) and operating manuals
	• guidelines, policies and business rules of the Australian Red Cross Blood Service that are operable from time to time
	• Human Tissue Acts and regulations operable in Australian jurisdictions
	• incident and accident/injury reports
	• instructions to comply with legislation, standards, guidelines and codes
	• *Guidelines for Pre-transfusion Testing*, published by the Australasian Society of Blood Transfusion

RANGE STATEMENT	
	• quality system and continued improvement processes • safety requirements for equipment, materials or products • sampling procedures (labelling, preparation, storage, transport and disposal) • schematics, work flow and, laboratory layouts • statutory and enterprise occupational health and safety (OHS) requirements • stock records and inventory • test procedures (validated and authorised) • training program contents • waste minimisation, containment, processing and disposal procedures
Equipment, **materials and systems**	Equipment, materials and systems may include: • centrifuges, light boxes, calibrated pipettes, water baths, incubators and microscopes • laboratory information management systems (LIMS), computer databases, record and filing systems • general laboratory glassware and equipment identified with a serology laboratory • antisera and phenotyped red cells and other relevant reagents • gel systems
Communication	Communication may involve: • supervisors and managers (laboratory, quality and customer service) • other laboratory or relevant medical or nursing personnel • patients and clients • external auditors, or accreditation agency (e.g. National Association of Testing Authorities (NATA)) • couriers
Occupational health and safety (**OHS**) **and environmental management requirements**	OHS and environmental management requirements: • all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these

RANGE STATEMENT	
	requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health

Unit Sector(s)

Unit sector	Testing

Competency field

Competency field	

Co-requisite units

Co-requisite units		