



Australian Government

Department of Education, Employment and Workplace Relations

HLTAN506C Provide advanced care and maintenance of anaesthetic equipment

Release: 1

HLTAN506C Provide advanced care and maintenance of anaesthetic equipment

Modification History

Not Applicable

Unit Descriptor

Descriptor

This unit describes the knowledge and skills required to provide care and maintenance for anaesthetic and monitoring equipment
It includes provision of structured evaluation in conjunction with the anaesthetist, using agreed criteria and recommendations for anaesthetic equipment being considered for purchase
This unit also covers planned maintenance, orientating staff to equipment and evaluating equipment for purchase

Application of the Unit

Application

Work performed requires a broad knowledge, range of well developed skills and the ability to develop and apply solutions to a range of predictable and unpredictable problems. Individuals use discretion and judgement and take responsibility for their own outputs
Administration of anaesthesia may occur in various locations within the hospital environment e.g. operating theatres, emergency department, intensive care unit (ICU), radiology department
All activities are carried out in accordance with relevant Australian and New Zealand College of Anaesthetists Policy Documents, organisation policies, procedures and infection control guidelines

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills This unit contains Employability Skills

Elements and Performance Criteria Pre-Content

Elements define the essential outcomes of a unit of competency.

The Performance Criteria specify the level of performance required to demonstrate achievement of the Element. Terms in italics are elaborated in the Range Statement.

Elements and Performance Criteria

ELEMENT

1. Conduct daily care and maintenance

PERFORMANCE CRITERIA

- 1.1 Perform *safety checks* in accordance with organisation policies and procedures, manufacturer's guidelines and current standards
- 1.2 Ensure *anaesthetic equipment* is functioning correctly
- 1.3 Identify and correct anaesthetic equipment problems
- 1.4 Report hazardous, damaged or faulty equipment and arrange repairs
- 1.5 Clean anaesthetic equipment in accordance with organisation policies and procedures and manufacturer's recommendations
- 1.6 Disassemble and clean anaesthetic equipment accordance with organisation policies and procedures and manufacturer's recommendations
- 1.7 Dispose of disposable/single use items in accordance with waste management policies, manufacturer's recommendations and infection control policies

ELEMENT**PERFORMANCE CRITERIA****2. Implement planned maintenance**

- 2.1 Identify maintenance procedures and appropriate documentation
- 2.2 Maintain anaesthetic and monitoring equipment in accordance with organisation policies and procedures, relevant standards and manufacturer's guidelines
- 2.3 Complete regular servicing in accordance with manufacturer's recommendations
- 2.4 Complete *documentation of maintenance*
- 2.5 Review maintenance records and update in accordance with organisation policies and procedures

3. Arrange required repairs of anaesthetic equipment

- 3.1 Identify anaesthetic equipment faults and label anaesthetic equipment
- 3.2 Complete documentation in accordance with organisation policies and procedures
- 3.3 Complete anaesthetic equipment repairs in accordance with organisation policies and procedures and manufacturer's instructions

4. Orientate *staff* to anaesthetic and monitoring equipment

- 4.1 Provide instruction on anaesthetic equipment operation to staff as required
- 4.2 Provide *in-service training on anaesthetic equipment operation* as required

ELEMENT**PERFORMANCE CRITERIA**

5. Evaluate anaesthetic and monitoring equipment for purchase

5.1 Conduct evaluations of anaesthetic equipment being considered for trialling or purchase in consultation with the anaesthetist, where appropriate and using agreed criteria in accordance with organisation policies and procedures

5.2 Provide recommendations for purchase

5.3 Provide feedback to companies on products under development, as requested

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level required for this unit.

Essential knowledge:

The candidate must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the identified work role

This includes knowledge of:

- Anaesthetic and monitoring equipment cleaning procedures
- Application of anaesthetic and monitoring equipment and the contraindications, complications and limitations associated with their use
- Basic electronic knowledge and electrical safety requirements
- Boundaries of responsibilities and ability to refer problems to supervisor, anaesthetist or other appropriate health professional
- Current range and use of anaesthetic and monitoring equipment
- Infection control policy and procedures in relation to anaesthetic and monitoring equipment
- Intra-operative client safety concerning the location and movement of equipment
- Medical terminology used relevant to the worker's role
- Occupational health and safety procedures in relation to anaesthetic and monitoring equipment
- Principles of measurement e.g. thermodynamics, gas laws, fluid dynamics, potentiometry and optics
- Principles of safe operation of equipment
- Relevant anatomy and physiology related to the set-up and operation of anaesthetic and

REQUIRED SKILLS AND KNOWLEDGE

monitoring equipment

- Safe handling of gases

Essential skills:

It is critical that the candidate demonstrate the ability to:

- Calibrate and maintain equipment to required standard
- Communicate with health professionals
- Communicate with maintenance engineers
- Identify and rectify equipment problems
- Provide basic training and skills instruction and assessments
- Use appropriate cleaning chemicals

continued ...

Essential skills (contd):

In addition, the candidate must be able to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the identified work role

This includes the ability to:

- Comply with organisation policies and procedures including those of OHS and infection control, and current standards
- Deal with conflict
- Follow procedures for timely set-up, trouble-shooting, shut-down, cleaning and storage of anaesthetic and monitoring equipment
- Identify and manage faults and problems with anaesthetic and monitoring equipment
- Identify the range and purpose, and principle of operation of a range of anaesthetic and monitoring equipment
- Monitor work areas for environmental pollution
- Recognise hazards related to the use of each item of a range of anaesthetic and monitoring equipment
- Take into account opportunities to address waste minimisation, environmental responsibility and sustainable practice issues
- Test reticulated gas supply after supply servicing completed
- Undertake routine gas pipeline content tests
- Use numeracy skills which may range from the ability to complete basic arithmetic calculations, recording stock levels and statistical information
- Use oral communication skills-language competence required to fulfil job roles in a safe manner and as specified by the organisation, including skills in:
 - asking questions
 - providing clear information
 - listening to and understanding workplace instructions

REQUIRED SKILLS AND KNOWLEDGE

- clarifying workplace instructions when necessary
- using effective verbal and non verbal communication with a range of internal and external persons
- competence in English or a community language, depending on client group and organisation requirements
- Use problem solving skills required, including an ability to use available resources
- Use reading and writing skills-literacy competence required to fulfil job roles in a safe manner and as specified by the organisation at a level of skill that includes reading and documenting technical information and understanding complex policy and procedure manuals
- Work with others within a team

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, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate this competency unit:

- The individual being assessed must provide evidence of specified essential knowledge as well as skills
- Observation of workplace performance is essential for assessment of this unit
- Consistency of performance should be demonstrated over the required range of situations relevant to the workplace
- Where, for reasons of safety, space, or access to equipment and resources, assessment takes place away from the workplace, the assessment environment should represent workplace conditions as closely as possible

EVIDENCE GUIDE

- Access and equity considerations:*
- All workers in the health industry should be aware of access and equity issues in relation to their own area of work
 - All workers should develop their ability to work in a culturally diverse environment
 - In recognition of particular health issues facing Aboriginal and Torres Strait Islander communities, workers should be aware of cultural, historical and current issues impacting on health of Aboriginal and Torres Strait Islander people
 - Assessors and trainers must take into account relevant access and equity issues, in particular relating to factors impacting on health of Aboriginal and/or Torres Strait Islander clients and communities
- Context of and specific resources for assessment:*
- Resources essential for assessment include:
 - access to appropriate workplace where assessment can take place
 - simulation of realistic workplace setting for assessment
 - relevant organisation policy, guidelines, procedures and protocols
- Method of assessment*
- Observation in the work place
 - Evidence gathered from clinical work environment
 - Written assignments/projects or questioning should be used to assess knowledge
 - Case study and scenario as a basis for discussion of issues and strategies to contribute to best practice.
 - Questioning - verbal and written
 - Role play/simulation
 - Clinical skills involving direct client care are to be assessed initially in a simulated clinical setting (laboratory). If successful, a second assessment is to be conducted during workplace application under direct supervision

EVIDENCE GUIDE

Related units:

This unit can be assessed independently, however holistic assessment practice with other health services units of competency is encouraged

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. Add any 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.

Safety checks of equipment may include:

- Calibration
- Pre-use checks
- Correct operation and function
- Pipeline gas testing
- Service dates

Organisation policies and procedures may refer to:

- Infection control
- Occupational health and safety
- Equipment handling and set up procedures
- Maintenance procedures
- Electrical hazards

RANGE STATEMENT

Anaesthetic equipment must include:

- Anaesthetic machine and components, including alarms and scavenger
- Work station/trolley
- Ventilator and components
- Gas supply equipment
- Vaporisers or other systems designed for delivery of inhalation anaesthetic agents
- Breathing systems/circuits and attachments
- Laryngoscopes, including fiberoptic laryngoscopes
- Intubation aids, including standard and difficult intubation equipment, fiberoptic bronchoscopes and video equipment
- Artificial airways
- Oxygen masks

Monitoring equipment includes:

- Electrocardiography (ECG)
- Pulse oximetry
- Non-invasive and invasive blood pressure monitoring
- Temperature monitoring
- Central venous pressure (CVP) monitoring
- Intravascular monitoring
- Gas analysers, including oxygen, carbon dioxide and anaesthetic agent
- Expired/inspired volume/pressure
- Neuromuscular transmission
- Cardiac output monitoring
- Cerebral activity monitors
- Stethoscopes, including oesophageal

Other equipment includes:

- Defibrillator/cardioverters
- Infusion equipment,
- Warming/cooling equipment for client and intravenous fluids
- Equipment to minimise heat loss
- Tourniquets and exsanguinators
- Nerve stimulator
- Neuromuscular function
- Blood analysis devices e.g. gas, electrolytes, haemoglobin, pH

RANGE STATEMENT

Equipment problems may include:

- Leakage
- Electronic component failure
- Inappropriate operation/settings/misuse
- Exhausted components
- Lack of calibration

Documentation of planned maintenance may include:

- Service schedule
- Maintenance checklist
- Record of parts replaced/repaired

Staff may include:

- Medical
- Nursing
- Allied health
- Paramedical
- Technical
- Anaesthetic technician students

Instruction on equipment operation and in-service training on equipment may include:

- Principles of operation
- Limitations of operation
- Set up procedures and safety checks and features
- Fault finding
- Assembly and connection procedures
- Preparation of equipment for use
- Disassembly and storage
- Cleaning
- Maintenance

Unit Sector(s)

Not Applicable