



Recommended Minimum Facilities for Safe Anaesthetic Practice in Organ Imaging Units

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Table of Contents

	Page
1. Introduction	3
2. Principles of Anaesthetic Care	3
3. Staffing	4
4. Equipment	4
5. Drugs	6
6. Checking, cleansing and servicing	7
7. Recovery facilities	7
8. Other considerations	7
9. Reference	7



1. INTRODUCTION

Organ imaging units are usually isolated from the main theatre complex and are not commonly designed for anaesthetic care. There are also specific environmental hazards to patients and staff, e.g. radiation, magnetic field, dark and cold environment; together with often limited access to patients, all pose additional challenges to anaesthetic care provision in these areas.

This document should be read in conjunction with the Hong Kong College of Anaesthesiologists (HKCA) document:

"Recommended Minimum Facilities for Safe Anaesthetic Practice in Operating Suites" [T2].

Reference should also be made to the following documents of the HKCA:

"Recommendations on checking Anaesthesia Delivery Systems" [T1]

"Guidelines on minimum requirements for an anaesthetic record" [T6]

"Guidelines on Minimum Assistance Required for the Safe Conduct of Anaesthesia."
[T7]

"Guidelines on Monitoring in Anaesthesia" [P1]

"Guidelines on Postanaesthetic Recovery Care" [P3]

2. PRINCIPLES OF ANAESTHETIC CARE

2.1 Anaesthesia should be administered only by registered medical practitioners¹ with appropriate training in anaesthesia, who are experienced enough to handle all eventualities in an isolated environment and practise protection against the environmental hazards.

2.2 The same standard of anaesthetic care should be followed as care provided in main operating suite, such as pre-anaesthetic consultation, consent, surgical safety check, proper documentation, post-anaesthetic care, emergency management and quality assurance activities.

2.3 There should be sufficient space to accommodate necessary equipment and personnel and to allow expeditious access to the patient, anaesthesia machine and monitoring equipment



2.4 Ideally, anaesthetic equipment should be standardised throughout the hospital. Putting old equipment not in use elsewhere in remote area such as the imaging suite must be avoided.

2.5 The risk associated with anaesthesia in the non-theatre environment should be minimised by careful planning and anaesthetic service provision. There needs to have an explicit agreed plan for getting help when required, recognising the risk of, and preparing adequately for, massive blood loss, life-threatening loss of airway or respiratory function.

3. STAFFING

In addition to the staff required by the person carrying out the imaging procedure, there must be:

3.1 A trained assistant available exclusively for the anaesthetic procedure. Please refer to HKCA document “*Guidelines on Minimum Assistance Required for the Safe Conduct of Anaesthesia.*” [T7]

3.2 Adequate assistance in handling the patient.

3.3 Adequate technical/nursing assistance as required.

4. EQUIPMENT

4.1 Each hospital must designate:

4.1.1 At least one specialist anaesthesiologist for the planning and proper provision of the anaesthetic services in each location; and to advise on the choice and maintenance of anaesthetic equipment.

4.1.2 One or more staff to organise and supervise the cleaning, servicing and maintenance of anaesthetic equipment.

4.2 Equipment, which complies with section 4.4 to 4.8 of the HKCA document “*Recommended Minimum Facilities for Safe Anaesthetic Practice in Operating Suites*” [T2], must be provided.

4.3 There must be adequate oxygen for the whole anaesthetic and recovery period in addition to, as a minimum, a full size E oxygen cylinder of oxygen for



emergency use. If anaesthesia is provided frequently in a location, piped oxygen should be installed, or the continued use of such a location should be reviewed

4.4 A manual self-inflating resuscitator bag capable of delivering at least 90% oxygen (e.g. Laerdal, Ambu bags) must also be available.

4.5 Special problems are encountered with magnetic resonance imaging due to the effects on ferromagnetic objects (which include most conventional monitoring and anaesthetic equipment). Alternative arrangements by the individual department/hospital will be required for anaesthesia and monitoring in these areas. A specialist anaesthesiologist should be responsible for supervising these arrangements.

4.6 There must be immediate access to:

4.6.1 a defibrillator,

4.6.2 central venous pressure sets,

4.6.3 means of infusing intravenous fluids under pressure,

4.6.4 blood warming apparatus,

4.6.5 means of maintaining normothermia of patient,

4.6.6 intercostal catheter drainage sets.

4.7 Other requirements are:

4.7.1 adequate lighting for general observation and for the detection of cyanosis. In addition, a form of battery-powered illumination other than a laryngoscope should be immediately available

4.7.2 sufficient electrical outlets to satisfy the anaesthetic machine and monitoring equipment requirements,

4.7.3 emergency electrical power and lighting,

4.7.4 a means to provide 2-way communication with people outside the area in an emergency,

4.7.5 a refrigerator for the correct storage of certain drugs,

4.7.6 a tilting trolley or bed,

4.7.7 adequate equipment for radiation protection of staff. In areas where X-ray or other radiation is used, slave monitors in screened area should be



provided.

5. DRUGS

5.1 In addition to the drugs commonly used in anaesthesia, drugs necessary for the management of the following conditions which may complicate or co-exist with anaesthesia must be available:

- Adrenal dysfunction,
- Anaphylaxis,
- Bronchospasm,
- Cardiac arrest,
- Cardiac arrhythmias,
- Hyperglycaemia,
- Hypoglycemia,
- Hypertension,
- Hypotension,
- Increased intracranial pressure,
- Malignant hyperpyrexia,
- Opioid and benzodiazepine overdose,
- Pulmonary oedema,
- Status epilepticus

5.2 The hospital or institution should seek the advice of the specialist anaesthesiologist designated in 4.1.1 on the selection of drugs for the above purpose.

5.3 An appropriate protocol for the regular checking and replacement of all drugs should be available. Drugs stored for emergency and rare events should have the expiry dates checked regularly.



6. CHECKING, CLEANSING AND SERVICING

All anaesthetic equipment must be checked and maintained in accordance with section 6 of the HKCA document “*Recommended Minimum Facilities for Safe Anaesthetic Practice in Operating Suites*” [T2]

7. RECOVERY FACILITIES

Recovery from anaesthesia must take place under appropriate supervision, in an area designated for the purpose and conforming to the HKCA document “*Guidelines on Postanaesthetic Recovery Care*” [P3].

8. OTHER CONSIDERATIONS

If complications from procedure or anaesthesia care arise, the foregoing recommendations only allow patients to be resuscitated and/or supported while awaiting transfer to a more suitable environment. There should be agreed contingency plans to enable smooth, effective transfer of patients to be accomplished with minimal delay, and under adequate medical supervision to a critical care facility.

9. REFERENCE

- “Guidance on the provision of services for anaesthetic care in the non-theatre environment” by the Royal College of Anaesthetists 2016
- Anaesthetic Services in remote sites Royal College of Anaesthetists 2014
- ASA Statement on non-operating room anaesthetizing locations 2013

¹ Medical Registration Ordinance (Cap 161): “registered medical practitioner” means a person who is registered, or is deemed to be so registered under the provisions of section 29.