Clinical Services Capability Framework

Public and licensed private health facilities
Version 1.0

July 2004

Queensland Government
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Go to Contents Page

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July, 2004

Go to Contents Page

Foreword

I am pleased to present the *Clinical Services Capability Framework for Public and Licensed Private Health Facilities 2004* (hereafter referred to as the *Service Capability Framework* or SCF). This framework represents Queensland Health's significant contribution and commitment to ensuring high quality and safe clinical health services for all Queenslanders.

The *Service Capability Framework* outlines the minimum support services, staffing, safety standards and other requirements required in both public and private health facilities to ensure safe and appropriately supported clinical services.

This document replaces the *Guide to the Role Delineation of Health Services* (Queensland Health 1994) for the public sector, and in conjunction with the *Service Capability Framework for Private Health Facilities Companion Document* (Queensland Health 2003), replaces the *Guidelines for Clinical Services in Private Health Facilities* (Queensland Health 2002) for the private sector.

The *Service Capability Framework* serves two major purposes:

- to provide a standard set of capability requirements for most acute health facility services provided in Queensland by public and private health facilities
- to provide a consistent language for health care providers and planners to use when describing health services and planning service developments

When applied across the organisation, the same set of underlying standards and requirements for similar services will safeguard patient safety and facilitate clinical risk management across the State's health facilities.

The *Service Capability Framework* has been developed through a series of consultations with senior clinicians and health service administrators across the State. An extensive review of local, national and international literature was also conducted including reference to the *New South Wales Guide to the Role Delineation of Health Services (New South Wales Health 2002)* and the *Guidelines for Clinical Services in Private Health Facilities* (Queensland Health 2002).

Future updates of the *Service Capability Framework* are planned, including annual review and the addition of capability requirements for non-acute health services such as oncology, renal and rehabilitation services. This will ensure the *Service Capability Framework* continues to reflect current best practice in clinical standards.

Together, we can confidently continue to advance the quality and safety of our health care system. I look forward to progress reports on how the *Service Capability Framework* is being achieved and applied across the State and to witnessing ongoing evidence of the high quality and safety of acute health facility services being provided to the people of Queensland.

Dr. Steve Buckland
Director General
Queensland Health

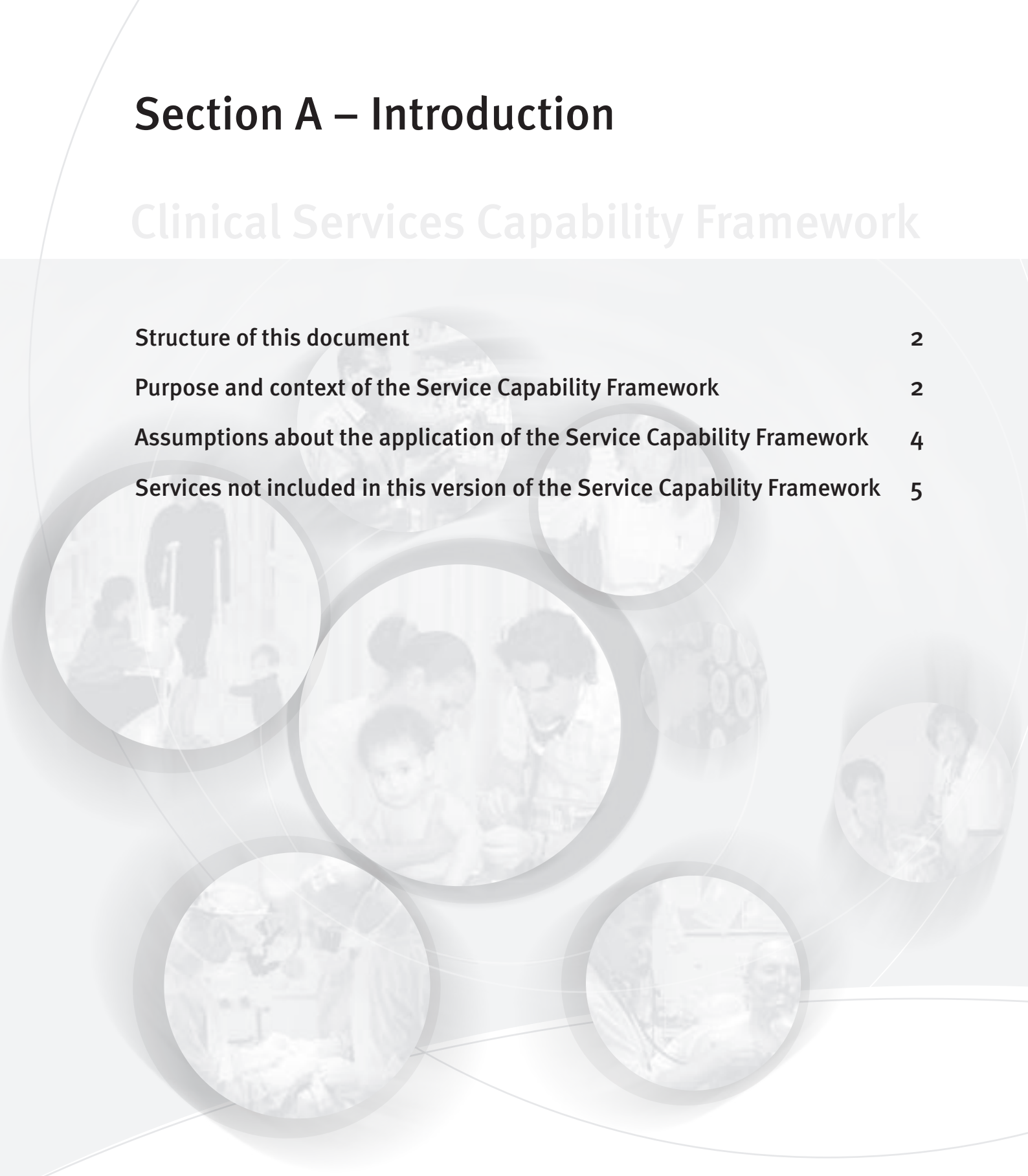
Contents

Abbreviations

ACORN	Australian College of Operating Room Nurses
ANZAPNM	Australian and New Zealand Association of Physicians in Nuclear Medicine
ANZCA	Australian and New Zealand College of Anaesthetists
APAC	Australian Pharmaceutical Advisory Council
AS/NZS	Australian Standard/ New Zealand Standard
ASA	American Society of Anesthesiologists
BMD	Bone mineral densitometry
CCU	Coronary care unit
CMG	Case mix group
CT	Computerised tomography
DUE	Drug utilisation and evaluation
ECMO	Extracorporeal membrane oxygenation
ENT	Ear, nose and throat
ERCP	Endoscopic retrograde cholangiopancreatography
FACEM	Fellow of the Australian College of Emergency Medicine
FJFICM	Fellow of the Joint Faculty of Intensive Care Medicine
FTE	Full-time equivalent
GDC	Guglielmi detachable coils
HDU	High dependency unit
ICU	Intensive care unit
IRSA	Interventional Radiology Society of Australia
IV	Intra-venous
JFICM	Joint Faculty of Intensive Care Medicine
MIBG	Metaiodobenzylguanidine
MIN	Mature infant nursery
MRI	Magnetic resonance imaging
NATA	National Association of Testing Authorities (Australia)
NCCTG	National Coordinating Committee on Therapeutic Goods
NHMRC	National Health and Medical Research Council
NHS	National Health Service (United Kingdom)
NICU	Neonatal intensive care unit
NPAAC	National pathology accreditation advisory council
PACS	Picture archiving communications service
PACU	Post-anaesthetic care unit
PET	Positron emission tomography
PICU	Paediatric intensive care unit
PTCA	Percutaneous transluminal coronary angioplasty
RANZCR	Royal Australian and New Zealand College of Radiology
RCPA	Royal College of Pathologists of Australasia
RDM	Role delineation model
SCF	Service Capability Framework
SCN	Special care nursery
TIPS.	Transjugular intrahepatic portosystemic shunts
TGA	Therapeutic Goods Administration
TSAC	Training Site Accreditation Committee
VAD	Ventricular assist devices

Section A – Introduction

Clinical Services Capability Framework



Public and licensed private health facilities
Version 1.0

2004

Queensland Government
Queensland Health

Go to Contents Page

Section A: Introduction

Structure of this document

The order of the material presented throughout this document reflects the intention for it to be used as a workbook for describing the capability of the services at health facilities:

- **Section A** outlines the purpose and context of the *Service Capability Framework.*
- **Section B** provides information to assist people to use the *Service Capability Framework*.
- **Section C** identifies the minimum service requirements for providing acute health facility services, including a limited number of super-speciality services.
- **Section D** summarises the distinctive principles and capability requirements for the provision of paediatric services. A summary of the relevant literature, a glossary of terms and a reference list are also included.
- **Section E** contains a series of tools for putting the *Service Capability Framework* into action.

Purpose and context of the Service Capability Framework

Purpose

The *Clinical Services Capability Framework for Public and licensed private health facilities* (hereafter referred to as the Service Capability Framework or SCF) serves two major purposes:

- to provide a consistent language for health care providers and planners to use when describing health services and planning service developments
- to provide a standard set of capability requirements for most acute health facility services provided in Queensland by the public and private health care sectors

When applied across the organisation, these underlying standards and requirements for similar services will safeguard patient safety and progress clinical risk management.

The SCF replaces the *Guidelines for Clinical Services in Private Health Facilities* (Queensland Health 2002) and the *Guide to Role Delineation of Health Services* (Queensland Health 1994), and will be implemented in stages by 30 June 2005.

Context

The *National Health Performance Framework* (National Health Performance Committee 2001) and the *Quality Framework Good Health and Better Health Services 1999-2004* (Queensland Health 1999) identify several concepts as important for health system performance planning and service delivery. The *National Health Performance Framework* defines *capable* (and *capability*) as "an individual or service's capacity to provide a health care service based on skills and knowledge". The capability of clinical services is recognised as an important dimension to patients' quality of care and safety.

For optimal patient outcomes, people need to receive the right care at the right time and in the right place:

- right care is services that bring appropriate resources and skills for management of the patient's specific health needs
- right time is having access to services in a timeframe that will minimise adverse physiological consequences and potential complications

- right place is a facility that has the capability to provide services of the complexity required to meet patient's health needs (New Zealand Government 1998)

The *Service Capability Framework* is part of a suite of tools that address patient safety. It identifies services provided within Queensland health facilities by clinical service area and the capability of these services (referred to as the *capability level*).

How the Service Capability Framework should be used

As the common language for describing clinical services, the *Service Capability Framework* should be used to:

- provide consistent and comparable information on patterns of service delivery including the type and location of services
- identify the relationships between clinical services
- match the services provided in a facility to the complexity of service and patient need
- enable strategic and operational planning based on consistent service descriptions
- encourage service planners to review service profiles on a larger scale, with consideration of clinical networks within regions, statewide, or nationally
- encourage explicit clinical risk management procedures where services do not meet the minimum requirements for patient safety for a given clinical activity, as defined in the document
- review services in response to change, for example, if key staff leave a facility, the service capability level requirements must be re-examined
- facilitate clinical benchmarking based upon descriptions of similar services
- provide consistent reporting to external bodies such as State and Federal agencies
- assist people reading reports to understand the context and implications of the information presented

How the *Service Capability Framework* should not be used

The Service Capability Framework is not intended to:

- replace planning guidelines and geographic catchment analysis for services, for example, efficiency and effectiveness are not considered
- describe the entire complement of staff required to provide a service - it does not provide the total number of medical, nursing, allied health and other support staff required, but emphasises the minimum staff knowledge and skills required to safely provide service
- identify a maximum or desired level of service, rather, a minimum acceptable level for patient safety
- replace the local management of patient safety at the level of individual clinical practice, including the local clinical audit process and privileging of appointed staff members with appropriate credentials

Assumptions about the application of the Service Capability Framework

The *Service Capability Framework* assumes that the processes outlined in the *Credentials and Clinical Privileges Guidelines for Medical Practitioners report* (Queensland Health 2002), are conducted for all Queensland Health facilities. Each facility is required to ensure that individual medical practitioners have appropriate clinical privileges and credentials for activity performed in that facility and aligned to the level of support available locally.

In the public sector, the *Service Capability Framework* requires the development, documentation, and implementation of explicit clinical risk management processes. Minimum requirements for safety for a given clinical area should be met in order to provide a particular level of service. Where the risk management processes identify that minimum requirements are not met, the facility may only provide services at the level where clinical risk management strategies have been specifically developed, documented, and implemented, with respect to those services.

In assessing service capability, a number of factors must be considered including recruitment and retention of staff, consent to treatment, patient access and patient safety. The *Guidance Document for Queensland Health Integrated Risk Management for Clinical and Corporate Services Program* (Queensland Health 2002) provides a tool to support this process.

The *Service Capability Framework* further assumes the following clinical safety and governance policy context at the facility level:

- each private health facility is licensed under the *Private Health Facilities Act, 1999* or, if a Queensland Health facility, its role as an acute health facility is approved by the Director General
- each facility meets the *Private Health Facilities Act 1999 Standards* including those relating to:
    - continuous quality improvement
    - credentials and clinical privileges
    - ethics
    - infection control
    - information management
    - management and staffing
    - physical environment; and
    - minimum patient throughput (or if a Queensland Health facility, has formal exemption from the requirements approved by the Director General)
- the General Manager, Health Services (Queensland Health facilities) or the Chief Health Officer (private facilities) approves the clinical areas where facilities provide services (particularly specialist services)
- each facility is accredited by an approved independent external accreditation agency
- all staff employed within the facility have current registration in Queensland with the appropriate Health Professional Board (where relevant)
- the facility has a formal system for assessing credentials and assigning clinical privileges to clinical staff

- the facility has an internal system of clinical audit and peer review. These activities may be in conjunction with other health facilities or professional colleges and can include benchmarking activity
- the facility conducts root cause analysis of adverse incidents and sentinel events, including all mandated incidents, and reports the analysis result to the appropriate quality committee or authority
- informed consent is obtained from a patient (or an authorised representative) before major procedures
- where patients are not able to communicate with health professionals and other health staff (including non-native English speakers and those people who are deaf or hearing impaired), the facility provides access to appropriate, professional interpreters/translators and/or bilingual health professionals (refer to Queensland Health Language Services Policy, 1999)
- when developing a new service or significantly modifying an existing service, the physical facility must also comply with the requirements outlined in the *Capital Works Guidelines* (Queensland Health 2003)

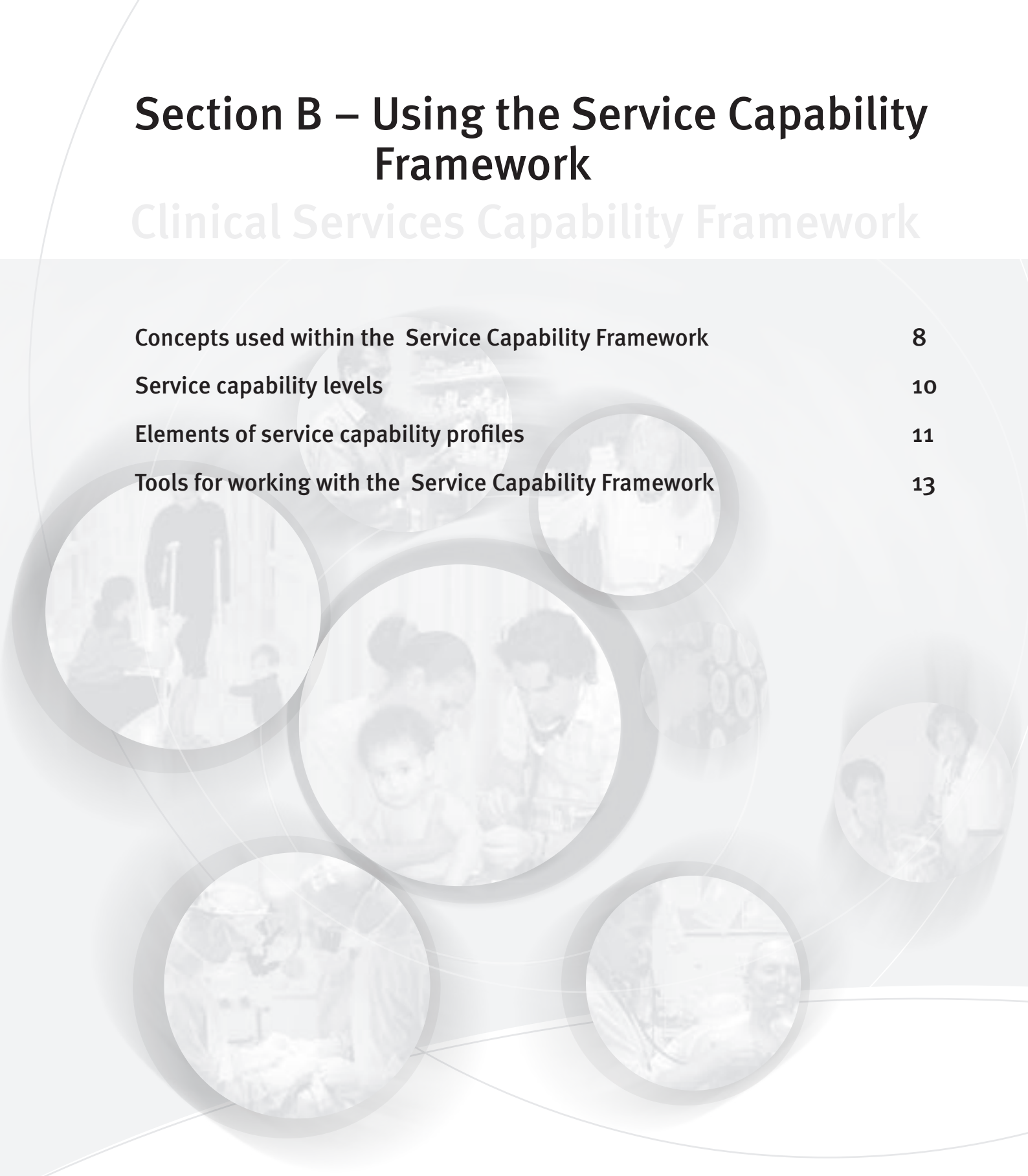
Services not included in this version of the Service Capability Framework

Services for the specialty clinical areas of oncology, rehabilitation, and renal services, have not been included in this version of the SCF. Specific service capability profiles are being developed for these areas as they tend to be highly variable in the duration and intensity of patient treatments, and often align more closely with the chronic spectrum of illness. It should further be noted that supervision requirements for cytotoxic medications extend beyond this edition of the SCF but will be included in a future edition.

Inpatient mental health or psychiatric services are also not included in this version of the SCF as this field has well-developed national service delivery standards.

Section B – Using the Service Capability Framework

Clinical Services Capability Framework



Public and licensed private health facilities
Version 1.0

2004

Queensland Government
Queensland Health

Go to Contents Page

Section B: Using the Service Capability Framework

Concepts used within the Service Capability Framework

The *Service Capability Framework* describes acute care services in two ways – the clinical service area and the capability level of services provided in these areas.

Clinical services areas

The types of clinical services provided at a facility have been classified as either core clinical services or supporting clinical services.

Core clinical services

For most health facilities, acute clinical services fall into four core areas:

- emergency services (retrieval services are not specified)
- surgical services
- medical services
- maternity services

A fifth distinct clinical area, which accounts for a considerable volume of activity, is endoscopy services. While endoscopy services are historically linked to medical services, the clinical services necessary to provide endoscopy align more strongly with those required to provide surgical services. Therefore, endoscopy services immediately follow surgical services throughout this document.

Core clinical services are prefixed with a "C" in their service capability profile title, for example, *C1 Emergency services*.

Excepting maternity and super specialist levels, paediatric services are largely integrated (organisationally) with services for adults in the core clinical service areas. However, there are distinctive principles and additional capability requirements for providing paediatric services, and these are summarised in Section D. For easy identification, the distinctive additional capability requirements and specifications for paediatric services are shaded throughout the document.

The surgical and medical specialty and sub-specialty services encompassed within the SCF are listed below in Table B1 (opposite). The services are divided according to whether, or not, they are specified in Schedule 1 of the *Medical Practitioners Registration Regulation* (Parliamentary Queensland 2002).

Supporting clinical services

As the title suggests, supporting clinical services support the delivery of core clinical services. Some supporting clinical services are 'stand alone', and can often be provided or accessed off-site. Other supporting clinical services have required clinical services, and will generally need to be provided on-site.

Supporting clinical services are prefixed with an 'S' in their service capability profiles title, for example, *S1 Critical care services*.

Table B1: Surgical and medical specialties and sub-specialties.

Surgical specialties and sub-specialties (*Medical Practitioners Registration Regulation 2002*)	Medical specialties and sub-specialties (*Medical Practitioners Registration Regulation 2002*)
• General surgery • Gynaecology • Neurosurgery • Ophthalmology • Orthopaedic surgery • Paediatric surgery • Plastic and reconstructive surgery • Cardiac-thoracic surgery • Urology • Vascular surgery • Otolaryngology – head and neck surgery	• Cardiology • Endocrinology • Gastroenterology • Internal medicine • General paediatrics • Clinical haematology (excluding oncology) • Clinical immunology • Infectious diseases • Neurology • Rheumatology • Thoracic medicine • Dermatology • Clinical genetics/medical genetics • Geriatrics
Additional surgical services included in the SCF	**Additional medical services included in the SCF**
• Colorectal surgery • Ear, nose and throat surgery • Endocrine surgery • Gastrointestinal surgery • Hepatobilary and pancreas surgery • Maxillofacial surgery • Podiatric surgery	• Burns • Sleep medicine • Hepatology • Renal medicine

The following support services should be available on-site at an appropriate level:

- critical care services (including high dependency, intensive care and coronary care services)
- neonatal services
- anaesthetic services (including recovery area)
- operating suite services (including central sterilisation department)

Additionally, support services of an appropriate level should be available in the following areas and provided on-site or off-site as required:

- diagnostic imaging services
- Interventional radiology services
- nuclear medicine service
- pathology services
- pharmacy services

Service capability levels

A health facility's capacity to deliver a particular level of the core services depends on the presence of medical, nursing, allied health and ancillary health care personnel who have qualifications, skills and experience compatible with the defined level of care in the clinical area; and the availability of an appropriate level of support services.

The specific factors determining service capability levels differs according to the clinical service area, but generally are a combination of:

- service complexity
- patient characteristics
- support service availability and capability

There are five service capability levels used within the SCF. These levels are:

- Primary
- Level 1
- Level 2
- Level 3
- Super-specialist

Primary level refers to services that can be substituted between inpatient and ambulatory settings and require limited medical staffing and support services. Primary level services are generally provided in the public sector, but not in the private sector.

Levels 1, 2 and 3 are the central elements of the service complexity concept and create consistent terminology between the private and public sector and colleges, for health facility services. These three capability levels are those most commonly used nationally and internationally to describe clinical services. For example, in *Guidelines for Clinical Services in Private Health Facilities* (Queensland Health 2002) that was used by the Chief Health Officer to license private health facilities in Queensland, three levels are used. This is also the case with most specialist medical colleges in Australia.

The super-specialist level is reserved for those that require very specialised support and staffing. It is expected that these services will be provided in a small number of health facilities in the state. The super-specialist services included in this document are those that can be defined, planned and funded in a similar way to other health facility services. The requirements for other selected super-specialty services are outlined in the companion document S*elected Specialist Services Direction Statement 2001-2010* (Queensland Health 2001). Another companion document for super specialist services is *Strategic Planning Process for Sub-speciality and Super-speciality Paediatric Services* (Queensland Health 2002), which includes a set of principles for super-specialist services that can be applied generally.

Elements of service capability profiles

Each service capability profile in Section C highlights the defining characteristics of a specific service capability level under the following headings:

Background and rationale
Provides detailed information about each clinical service area and how to determine the service capability level.

Definition
Provides a brief description of the characteristics of each service capability level.

Required clinical services
Required clinical services are the suite of core and/or supporting clinical services of defined capability levels, to which a facility must have access, so as to safely provide a specific clinical service at the desired capability level.

A table showing the required clinical services and capability levels appears in each of the service capability profiles and illustrates the interdependence of various clinical services. For example, required clinical services for a level 2 Endoscopy service include a level 2 Medical service and a level 1 Pathology service.

General expected characteristics
Describes the general characteristics that would be expected of a clinical service provided at a specific capability level.

Staffing
For each service capability level, the minimum competencies (ie. qualifications, skills and experience) required by medical, nursing and allied health staff to provide a safe service are described. Unless there are accepted standards for staff to patient ratios, the *total number* of staff is generally not prescribed, as this is best determined at a local service/facility level.

Unless otherwise specified in the document, reference to “appropriate allied health specialties” includes one or any combination of the following: audiologist, clinical measurements scientist, dietician, occupational therapist, orthotist, pharmacist, physiotherapist, podiatrist, prosthetist, psychologist, social worker, speech pathologist and other relevant scientists and engineers. It may also include access to an Aboriginal and Torres Strait Islander Health Worker, where this is appropriate.

The phrase ‘on call’ is generally used to describe public sector requirements whereas the term ‘available’ generally denotes private sector arrangements. While the two terms appear in the same context they are not identical in meaning due to different industrial relations environments operating within in each sector (see the Glossary for a full description of the terms).

While it is acknowledged that administrators and/or business managers provide essential support to multi-disciplinary health care teams, the staffing requirements for these groups are not addressed within this document.

Figure B.1 illustrates how the above information is presented in service capability profiles.

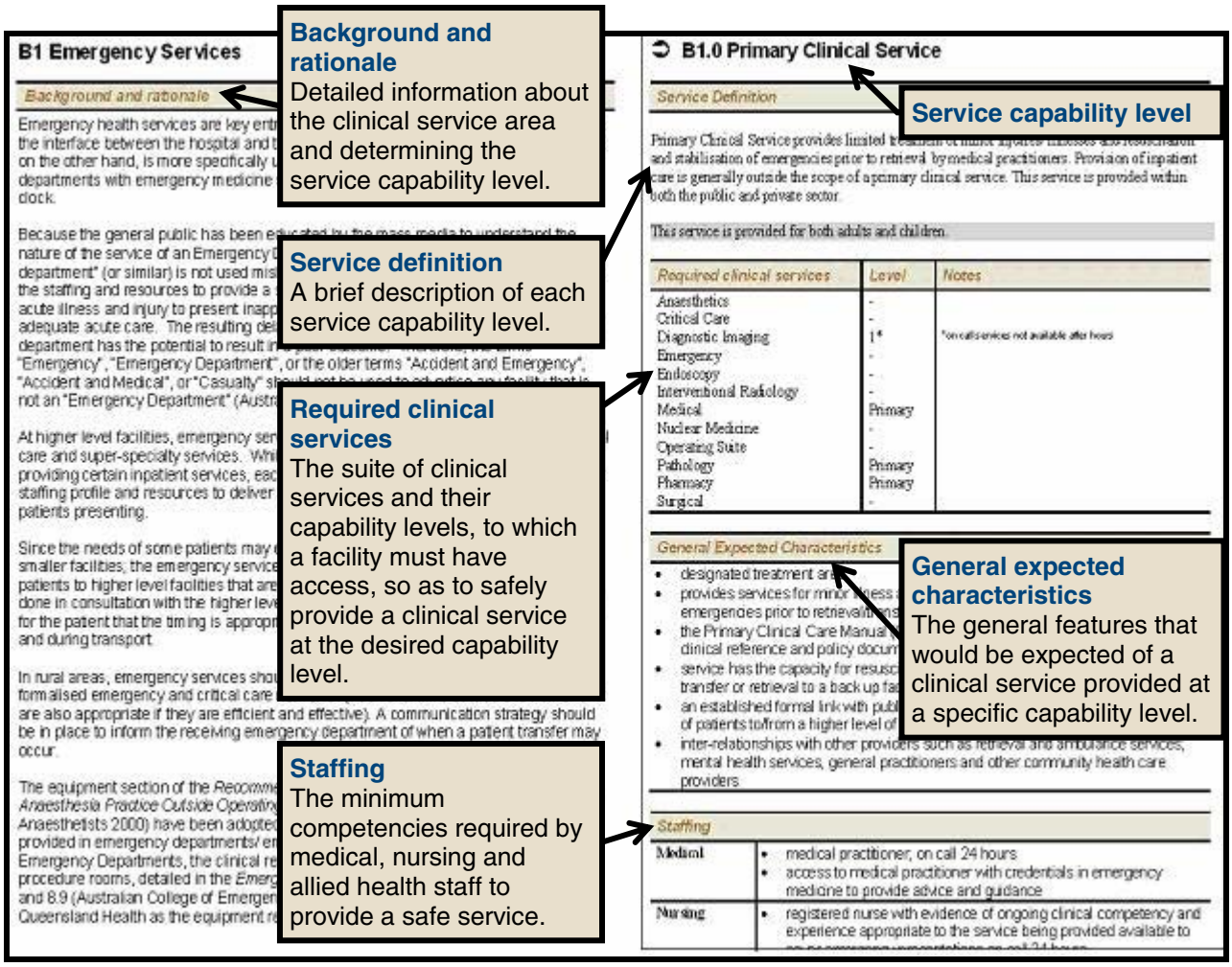


Figure B.1: The elements comprising service capability profiles

Tools for working with the Service Capability Framework

The *Service Capability Framework* toolbox (Section E) contains a number of templates and suggested processes to assist people using the Framework, including a:

- suggested process for determining the service capability levels of clinical services of a facility
- template for recording the service capability levels of clinical services of a facility
- matrix that identifies the interdependencies between clinical services at different capability levels
- table that displays all current service capability levels for core and supporting clinical services
- mapping of *Service Capability Framework* service capability levels against those of the *Guide to the Role Delineation of Health Services*

Section C – Service capability profiles

Clinical Services Capability Framework

Public and licensed private health facilities
Version 1.0

2004

Queensland Government
Queensland Health

Go to Contents Page

Section C: Service capability profiles

S1 Diagnostic imaging services

Background and rationale

Diagnostic imaging is a generic term used to define the use of conventional and sophisticated diagnostic practices, covering standard diagnostic radiography, ultrasound, computerised tomography (CT scan), fluoroscopy, mammography, angiography, magnetic resonance imaging (MRI) and bone mineral densitometry. Nuclear medicine is a particular form of diagnostic imaging. However, it is delineated separately from diagnostic imaging services in this document due to distinctive capability requirements for clinical and technical support, staff training and accreditation.

Diagnostic imaging services vary according to several factors, including:

- interactions between the public and private sectors
- location of equipment and staff
- geographic location of the service
- interpretation of what it means to provide such a service

Diagnostic imaging should be provided either on-site or by another facility under a contractual agreement (or similar). Providing the required service may or may not involve the transfer of patients and/or the diagnostic images and reports via picture archiving communications services (PACS), teleradiology or conventional means. Decisions concerning how services are provided are made locally. However, appropriate records should be retained for services ordered and provided to individual patients at both the ordering and providing sites and the formal arrangements to provide those services within clinically appropriate time frames.

For diagnostic imaging, the service capability level is not always determined by the type and volume of patients accessing the service. Therefore, the service specification groupings in this instance are broad. Where patient numbers are small, only basic radiology services should be provided. Patients requiring services beyond the capability of the local radiology service may need to access these services in another facility.

Safety and licensing

Queensland has a legislative and licensing framework that deals with the regulation, licensing, and professional accreditation and standards of practice, for the use of ionising radiation and specialised technology. Radiation Health (part of Queensland Health) administers the *Radiation Safety Act 1999*, which has a system of licences for the restricted possession, use and transport of radiation products; associated specialised technology, and diagnostic applications. The possession licensee has the responsibility to develop and monitor the statutory radiation safety and protection plan of the premises.

X-ray operators

Any persons performing x-rays who are neither radiologists nor radiographers, but who are skilled in specific and limited applications may use radiation apparatus, if licensed. These persons are required to obtain an x-ray operator's licence. The licence permits the use of radiation apparatus for radiography of the chest and extremities distal to the shoulder and hip.

➲ Primary diagnostic imaging service

Service definition

Primary diagnostic imaging services are provided interchangeably between inpatient and outpatient services and provide a mobile x-ray service limited to chest and extremities, by x-ray operators, with associated film processing capacity.

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics

- mobile x-ray service
- x-ray operators are required to obtain an x-ray operator's licence. The licence permits the use of radiation apparatus for radiography of the chest and extremities distal to the shoulder and hip
- chest (lung, ribs and sternum) and extremities distal to the shoulder and hip
- associated film processing capacity
- practices must comply with the relevant radiation safety legislation
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, and to review all x-rays performed by a licensed operator, to ensure safe service provision

Staffing

Medical	• medical practitioner to provide written x-ray order
Nursing/ Technical/ Operational	• x-ray operators who are neither radiologists nor radiographers must have a current x-ray operator's licence.

➲ Diagnostic imaging service level 1

Service definition

Diagnostic imaging service level 1 has service components of primary diagnostic imaging service and designated room onsite with fixed x-ray unit and bucky table. Some sites may also provide ultrasound services for non-complex conditions.

Required clinical services	*Level*	*Notes*
-	-	

As for primary diagnostic imaging service plus:

General expected characteristics
• on-site designated room with fixed x-ray unit and bucky table

Staffing	
Medical	• medical practitioner to provide written x-ray order
Allied health/ Professional	• radiographer • where ultrasound is provided, a sonographer is required to perform the ultrasound

➲ Diagnostic imaging service level 2

Service definition

Diagnostic imaging service level 2 has diagnostic imaging service level 1 components and access to a selection of the following*:*

- an ultrasound unit suitable for abdominal and obstetric scanning
- further facilities for general x-ray and mobile image intensifier in operating suite, CCU and/or ICU, emergency unit and other designated units
- full ultrasound service
- magnetic resonance imaging (MRI)
- automatic film-processing/PACS
- angiography
- computerised tomography (CT)
- bone mineral densitometry (BMD)
- fluoroscopy
- nuclear medicine
- diagnostic mammography

Required clinical services	*Level*	*Notes*
-	-	

As for diagnostic imaging service level 1 plus:

General expected characteristics

- staff are trained in basic life support
- where paediatric patients are seen, paediatric resuscitation equipment is available and staff are trained in their use

Staffing

Medical	• specialist with credentials in the applicable area of diagnostic imaging, access 24 hours • procedure performed by a specialist with credentials in the applicable area of diagnostic imaging (The Royal Australian and New Zealand College of Radiologists 2001) • medical practitioner, access 24 hours • where procedures are performed, when there is potential for an adverse reaction to contrast media: - a supervising radiologist is present - a medical practitioner is on-site and instantly available when procedures are performed - an anaesthetist should be consulted before the procedure, for patients with known prior contrast reactions

Nursing	• registered nurses with evidence of ongoing clinical competency and experience appropriate to the service being delivered
Technical/ allied health/ professional	• access to appropriate allied health specialties • access to other technical/professional staff (includes sonographers, radiographers, MRI technologists, nuclear medicine technologists, BMD technologists, radiation safety officer) • ongoing competency and experience appropriate to the service being provided

S2 Pathology services

Background and rationale

When considering access to pathology services, it is important to note that the patient does not need to be near the equipment, except for a small number of tests which are time limited. Even then, the patient may be taken off-site to have the test and then return to the health facility. Therefore, location of processing is not a relevant factor for most pathology services.

The levels of pathology services are linked to the acuity of the patient and the number of acutely ill patients that are admitted to that health facility. Where there is infrequent acute activity, a non-urgent sample request can be collected and sent out for processing and the report returned. If urgent, then the patient may be transferred to another facility.

Where there is frequent high acuity, the laboratory may be on-site with a 24 hour on call service. In a small number of health facilities with very high patient acuity, and where a rapid response is required, pathology services are available on-site 24 hours.

It must be identified that while turn-around time for pathology services is usually measured in hours rather than minutes, the opening hours and location of the service is often a business management decision.

Trauma and obstetrics volumes are key variables in the level of pathology service required, due to the frequency of urgent requests.

➲ Primary pathology service

Service definition

Primary pathology services have access to blood and specimen collection mechanisms, 24 hours on call, with a courier service for specimen and blood product transfer. Services are provided remotely by laboratory staff in a NATA/RCPA accredited facility

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics

- no on-site laboratory
- access to blood and specimen collection mechanisms, on call 24 hours
- access to courier service for specimen and blood product transfer
- no frozen sections performed
- no on-site blood storage
- cross matched blood managed by an off-site laboratory and available locally
- services provided remotely by laboratory staff in a NATA/RCPA accredited facility
- *the Primary Clinical Care Manual* (Queensland Health 2001) used as a guide to pathology ordering
- may have point of care testing equipment
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facilities for patient referral and transfer to/from a higher level of service, to ensure safe service provision

➲ Pathology service level 1

Service definition

Pathology service level 1 provides on-site blood product storage. Services are provided in a NATA/RCPA accredited facility and a pathologist is on call 24 hours.

Required clinical services	*Level*	*Notes*
-	-	

As for primary pathology service plus:

General expected characteristics
• services provided by a Group B NPAAC standards laboratory (may be local collection and off-site processing or on-site collection and processing) • supervision by a Group G NPAAC standards laboratory • services provided by laboratory staff in a NATA/RCPA accredited facility • on-site blood product storage • cross matched blood managed by an off-site laboratory and available locally • may do frozen section if cryostat on-site

Staffing	
Medical	• specialist with credentials in pathology, on call 24 hours

➲ Pathology service level 2

Service definition

Pathology service level 2 provides an on-site NATA/RCPA accredited facility and laboratory staff, with blood product storage and cross matching, cytology and frozen sections services, and a pathologist on call 24 hours.

Required clinical services	*Level*	*Notes*
-	-	

As for pathology service level 1 plus:

General expected characteristics

- laboratory on-site
- Group G NPAAC standards laboratory
- on-site blood product storage and cross matching
- cytology and frozen sections on-site

Staffing

Medical	• specialists with credentials in the relevant specialities in pathology, on call 24 hours and present during normal working hours
Technical	• laboratory staff on call 24 hours

➲ Pathology service level 3

Service definition

Pathology service level 3 provides an on-site NATA/RCPA accredited facility and a range of specialised services including blood product storage, and cross matching, cytology and frozen sections services. Laboratory staff on-site 24 hours and a pathologist on call 24 hours.

Required clinical services	*Level*	*Notes*
-	-	

As for pathology service level 2 plus:

General expected characteristics
• services provided by laboratory staff in a NATA/RCPA accredited facility; 24 hours

S3 Pharmacy services

Background and rationale

When considering access to pharmacy services, it is important to note that the patient does not need to be located near the pharmacy, except for a small number of medications which are time dependent. There are situations where services can be provided remotely although this may be less efficient. Each facility should consider the following when locating services:

- secure stock delivery services
- ready access for patients arriving and leaving the health facility to receive medications
- timely delivery of stock to all areas within the health facility
- movement of both stock and personnel

The capability levels of pharmacy services are linked to the acuity of the patient and the number of acutely ill patients that are admitted to that facility. Where there is infrequent acute activity, a non-urgent request can have the medication ordered and provided by an off-site pharmacy. Where there is frequent high acuity, the pharmacy will normally need to be on-site. In those health facilities with very frequent high acuity, and where a rapid response is required, the pharmacy services are on call. However, while turn around time for pharmacy services is usually measured in hours rather than minutes, the opening hours and location of the service is often a business management decision.

Oncology, emergency services and obstetrics volumes are also key variables in the level of pharmacy service required, due to the frequency of urgent requests and the specialised skills/knowledge required.

The scope of pharmacy services should include unit management, materials management and clinical pharmacy aspects, including:

- supply and dispensing
- financial/ management advice recognising the principles of the Quality Use of Medicines and the *National Guidelines to Achieve the Continuum of Quality Use of Medicines between Health facility and Community* (Australian Pharmaceutical Advisory Council 1998)
- medication order review
- adverse drug reaction and clinical review
- therapeutic drug monitoring
- patient profile maintenance
- patient communication, therapeutic information provision, and individual and group counselling
- medication history interview
- patient orientated health care team activities, eg. team meetings, ward rounds

Requirements for pharmacist supervision of cytotoxic medications is outside the scope of this *Service Capability Framework* edition but will be included in a future edition as part of the specific service capability framework for oncology services.

➲ Primary pharmacy service

Service definition

Primary pharmacy service provides a limited clinical pharmacy service. Complies with the relevant statutory regulations regarding the provision and quality use of medications.

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics	
Level A	• limited clinical pharmacy service (may be by remote consultation) • employs no pharmacists • regular visits from a pharmacist • medical and nursing management oversight the health facility wide use of APAC guidelines, with input from the visiting pharmacist • complies with the relevant statutory regulations regarding the provision and quality use of medications • provide appropriate level of drug information
Level B	• limited clinical pharmacy service • employs up to two FTE pharmacists • pharmacist visits health facilities where a pharmacist is not employed • pharmacist liaises with medical and nursing management regarding the health facility-wide use of APAC guidelines • complies with the relevant statutory regulations regarding the provision and quality use of medications • provides appropriate level of drug information

➲ Pharmacy service level 1

Service definition

Pharmacy service level 1 provides on-site pharmacy or contracted service with clinical pharmacy service provision weekdays, including an out of hours medications mechanism and access 24 hours to a pharmacist for emergency advice.

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics

- on-site pharmacy or contracted service
- clinical pharmacy service provision
- established mechanism to provide 'out of hours' medications
- pharmacy coordinates the health facility adverse drug reaction reporting
- monitors drug use and promotes quality use of medicines
- provide appropriate level of drug information
- pharmacy coordinates the health facility-wide use of APAC guidelines

Staffing

Allied Health	• pharmacist available weekdays • pharmacist access 24 hours for emergency advice

➲ Pharmacy service level 2

Service definition

Pharmacy service level 2 provides on-site pharmacy with clinical pharmacy services identified in the APAC Guidelines and a pharmacist 24 hours on call. Sterile dispensing and IV admixture service available, where local clinical services require this service from the pharmacy.

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics

- on-site pharmacy
- local sterile dispensing and IV admixture service if required – facilities to comply with Australian Standard AS1386 and staff appropriately accredited with their competency evaluated
- clinical pharmacy service provisions
- drug and therapeutics committee and DUE (drug utilisation and evaluation) process to inform best practice and quality use of medicines
- pharmacy takes a lead role in coordinating the health facility-wide use of APAC guidelines
- clinical trial support for research activities
- NCCTG standards apply
- pharmacy coordinates the health facility adverse drug reaction reporting
- provide appropriate level of drug information

Staffing

Allied Health	• pharmacist 24 hours on call

➲ Pharmacy service level 3

Service definition

Pharmacy service level 3 provides on-site pharmacy with clinical pharmacy services identified in the APAC Guidelines, sterile dispensing and IV admixture service. Extended hours service with a pharmacist 24 hours on call.

Required clinical services	*Level*	*Notes*
-	-	

As for pharmacy service level 2 plus:

General expected characteristics

- more specialised pharmacy service provision depends on the clinical specialties and sub-specialties being supported. Examples of areas of specialisation may include renal/transplant, mental health, oncology, critical care, general medicine, paediatrics, maternity, infectious diseases, burns, geriatrics, spinal care, bone marrow transplants, cardiology, etc.
- a network of pharmacy services provide statewide support for super-specialist services

Staffing	
Allied Health	• pharmacist on-call extended hours, limited 7 day service

S4 Nuclear medicine services

Background and rationale

Nuclear medicine is the medical specialty that uses unsealed radioactive sources (radiopharmaceuticals) to diagnose and treat a variety of disease processes in both adults and children (including neurological conditions, cardiovascular disease and cancer). Radiopharmaceuticals are compounds or radioisotopes which target specific organs, or tissues, or disease processes. The radiopharmaceuticals used in diagnostic nuclear medicine emit gamma rays which can be detected externally by specialised imaging systems such as gamma cameras and PET (positron emission tomography) scanners.

Nuclear medicine is a particular form of diagnostic imaging. However, it is described separately from other diagnostic imaging modalities or diagnostic imaging services generally; as it has distinctive clinical and technical support requirements, staffing, training and accreditation requirements.

Nuclear medicine should be practiced only by nuclear medicine specialists (registered with the Queensland Medical Board) and are assisted by certified technologists (registered by the Queensland Nuclear Medicine Technology Register) and supported by specially trained physicists and radiochemists or radiopharmacists.

The Australian and New Zealand Association of Physicians in Nuclear Medicine (ANZAPNM) is the peak body representing nuclear medicine in Australia and comprises both physicians and radiologists with recognised training. Specialists in nuclear medicine will only attract Medicare rebates for their patients and services if they are credentialled by the Joint Nuclear Medicine Credentialling and Accreditation Committee of the ANZAPNM. If a nuclear medicine department wants to offer registrar training it must be accredited as a training site by the Training Site Accreditation Committee (TSAC) of the ANZAPNM. As for quality assurance, nuclear medicine practices are encouraged to participate in the Practice Accreditation Programme offered through the ANZAPNM (http:/www.anzapnm.org.au/qaprograms/accred.htm).

The regulation of radiopharmaceutical manufacture and reconstitution is currently under review. Where possible, practices should strive to meet the *Guidelines for Good Radiopharmacy Practice* (Australian and New Zealand Society of Nuclear Medicine 2001). Those radioisotope laboratories which manufacture radiopharmaceuticals for use at other institutions or commercial sale may also come under the Commonwealth jurisdiction of the *Therapeutic Goods Act 1989* (and amendments) and *Therapeutic Goods Regulations*, through the need to conform with the *Australian Code of Good Manufacturing Practice* (http://www.tga.gov.au/docs/html/legis.htm). Separate regulations may apply to the manufacture of radiopharmaceuticals for positron emission tomography.

The *Safety and Performance Guidelines for Pharmacologic Stress Testing in Conjunction with Clinical Cardiac Imaging Procedures* are the standards to be followed when using pharmacologic agents for cardiac stress testing in conjunction with clinical imaging procedures (The Cardiac Society of Australia and New Zealand 2001).

In providing nuclear medicine services, adequate radiation safety measures should be observed and the *Queensland Radiation Safety Act 1999* and *Queensland Radiation Safety Regulation 1999* should be adhered to fully (Australian and New Zealand

Association of Physicians in Nuclear Medicine 1995). Gamma cameras and other equipment and devices should be technically adequate and sufficiently maintained for the performance of any procedure, with staff adequately trained and competent in their use (Australian and New Zealand Association of Physicians in Nuclear Medicine 1995).

➲ Primary nuclear medicine service

Service definition

Primary nuclear medicine service provides basic non-interventional nuclear medicine studies. Has an established formal link with higher level nuclear medicine services for patient referral and transfer to/from a higher level service to ensure safe service provision. Indicative examples of procedures performed at this level are basic bone and lung scans.

Required clinical services	*Level*	*Notes*
-	-	

General expected characteristics

- provides basic non-interventional nuclear medicine studies (eg. basic bone and lung scans)
- appropriate resuscitation and monitoring facilities
- adequate radiation safety measures observed including conformity to the *Radiation Safety Act* (Queensland 1999) and *Regulations* (Queensland 1999)
- preparation or reconstitution of radiopharmaceuticals to occur with clear and appropriate documentation including details of source of supply, preparation date, batch number, etc.
- equipment monitoring and maintenance, and staff adequately trained and competent in their use
- a formal link with higher level nuclear medicine facility for patient referral and transfer to/from a higher level service to ensure safe service provision
- quality control programs established

Staffing

Medical	• registered specialist in nuclear medicine present during radiopharmaceutical administration. The only variation to this is where formal exemptions have been granted by the Health Insurance Commission for remote and rural areas
Technical/ Operational	• designated radiation safety officer

➲ Nuclear medicine service level 1

Service definition

Nuclear medicine service level 1 has primary nuclear medicine service components and nuclear medicine facility providing full diagnostic services. Includes interventional studies requiring presence of a specialist in nuclear medicine. Indicative examples of procedures performed at this level are stress myocardial perfusion studies and captopril renal examinations.

Required clinical services	*Level*	*Notes*
-	-	

As for primary nuclear medicine service plus:

General expected characteristics

- nuclear medicine facility providing full range of diagnostic studies
- can perform more demanding studies related to specialised diagnoses and special groups eg. cardiology, paediatrics
- access to cardiac stress testing equipment
- stress testing to conform to the *Safety and Performance Guidelines for Pharmacologic Stress Testing in Conjunction with Clinical Cardiac Imaging Procedures* (The Cardiac Society of Australia and New Zealand 2001)

Staffing

Medical	• full-time supervision during procedures by registered specialist in nuclear medicine
Nursing	• may have registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided present at all times during cardiac stress and paediatric examinations
Technical/ Allied Health	• access to a medical physicist during standard working hours

➲ Nuclear medicine service level 2

Service definition

Nuclear medicine service level 2 has level 1 nuclear medicine service components and access to a radiochemist/radiopharmacist and medical physicist. This level service will offer basic outpatient therapeutic treatment with radiopharmaceuticals (eg. radioiodine for hyperthyroidism). May offer positron emission tomography (PET) studies, or positron coincidence detection studies using modified conventional gamma cameras.

Required clinical services	*Level*	*Notes*
-	-	

As for nuclear medicine level 1 service plus

General expected characteristics

- basic outpatient therapeutic treatment with radiopharmaceuticals (eg. radioiodine for hyperthyroidism)
- may offer positron emission tomography (PET) studies, or positron coincidence detection studies using modified conventional gamma cameras
- if production or reconstitution of radiopharmaceuticals occurs on-site, then either the *Guidelines for Good Radiopharmacy Practice* (Australian and New Zealand Society of Nuclear Medicine 2001) or the *Australian Code of Good Manufacturing Practice* Annex 3 (http://www.tga.gov.au/docs/html/legis/index.htm) are the relevant standards.

Staffing	
Medical	• registered specialist in nuclear medicine on call 24 hours (public) or available (private) 24 hours
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided
Technical/ Allied Health	• access to radiochemists/radiopharmacist during standard working hours

➲ Nuclear medicine service level 3

Service definition

Nuclear medicine service level 3 has level 2 nuclear medicine service components and dedicated radiopharmaceutical laboratory on-site, full-time medical physicist and radiopharmacist/radiochemistry staff. Provides therapeutic administration of high-dose radiopharmaceuticals, including those requiring treatment as inpatients (eg. radioidine for thyroid cancer, radioiodinated MIBG for metastatic neuroendocrine tumours etc). Highest level transfer/referral centre.

Required clinical services	*Level*	*Notes*
Pharmacy	2	

As for nuclear medicine level 2 service plus:

General expected characteristics

- dedicated radiopharmaceutical laboratory on-site
- therapeutic administration of high-dose radiopharmaceuticals, including those requiring treatment as inpatients (eg. radioidine for thyroid cancer, radioiodinated MIBG for metastatic neuroendocrine tumours, etc.)
- 24 hour on-call service
- complex radionuclide therapy requiring inpatient isolation and dosimetry calculations
- highest level transfer/referral centre
- may conduct research programs, offer technical and registrar training if appropriately accredited, and have university affiliation

Staffing

Medical	• same as for nuclear medicine level 2 service
Nursing	• same as for nuclear medicine level 2 service
Technical/ Allied Health	• full-time medical physicist available during standard working hours • full time radiopharmacist/radiochemist available during standard working hours

S5 Interventional radiology services

Background and rationale

Interventional radiology is defined as the use of diagnostic imaging techniques to guide a catheter or needle to a specific anatomical location. Common interventional radiology procedures include pain blocks, angiography, nephrostomy, abscess drainage and biopsy.

Generally, diagnostic and interventional radiology services can be divided according to patient characteristics, geographic location, additional procedures, and test results, and will influence transfer to an inpatient unit. The Accreditation Standards and Indicators 5.1 (The Royal Australian and New Zealand College of Radiologists 2001) describe interventional radiology based upon the qualifications required by the radiologist performing the intervention. However, the Interventional Radiology Society of Australia (IRSA) has determined the two tiers of interventional radiology that have been adopted in this Framework. The service levels are as follows.

Interventional radiology service level 1 (catheter laboratories) consists of procedures being performed in dedicated cardiac and vascular catheter laboratories.

Interventional radiology service level 2 (Tier A) offers the following range of procedures: basic diagnostic and interventional techniques, nephrostomy, abscess drainage and biopsy. Any individual with Royal Australian and New Zealand College of Radiology (RANZCR) or equivalent qualifications may perform these procedures.

Interventional radiology service level 3 (Tier B) consists of procedures where:

- the patient is more than one hour drive from the laboratory with inadequate or unreliable follow-up likely over the next 24 hours
- where an interventional therapeutic procedure (valvuloplasty) is likely to result from the diagnostic episode
- non-invasive testing data suggests that intervention may be associated with a high risk for adverse outcome, eg. detected ischaemia
- Example level 3 (Tier B) procedures include:
    - all neuro-interventional procedures intracranial and extracranial
    - venous and arterio-venous graft interventions other than basic diagnostic venography or fistulography, eg. thrombolysis, angioplasty, stents, atherectomy, pulmonary embolectomy/thrombolysis and caval filter insertion
    - biliary intervention including transjugular intrahepatic portosystemic shunts (TIPS)
    - thoracic intervention, eg. embolisation of arteriovenous malformations, bronchial stents, occlusion of broncho-pleural fistulae and bronchial artery embolisation
    - gastro-intestinal intervention, eg. oesophageal and duodenal stents, percutaneous gastrostomy, gastrointestinal vascular procedures other than diagnostic angiography, ie. embolisation, chemo-embolisation and transplant intervention
    - urological intervention, eg. renal artery embolisation, angioplasty or stenting and percutaneous nephrolithotomy

- gynaecological, eg. fallopian tube recanalisation, embolisation of fibroids and temporary aortic occlusion
- orthopaedic, eg. percutaneous vertebroplasty and percutaneous discectomy

Accreditation for both Tier A and B procedures should be based on proof of procedures performed in line with the RANZCR minimum training requirements (The Royal Australian and New Zealand College of Radiologists 2001) or other equivalent qualifications.

For patients receiving interventional radiology services requiring anaesthesia, the following standards apply:

- equipment sections of the *Recommendations on Minimum Facilities for Safe Anaesthesia Practice in Operating Suites* (Australian and New Zealand College of Anaesthetists 2000)
- *Recommendations on Minimum Facilities For Safe Anaesthesia Practice Outside Operating Suites* (Australian and New Zealand College of Anaesthetists 2000)
- *Accreditation Standards for Diagnostic and Interventional Radiology, Version 5.1*, standards T.1.5.1, 1.5.2, 1.5.4 and 1.5.5 – Interventional Radiology (The Royal Australian and New Zealand College of Radiologists 2001).

➲ Interventional radiology service level 1

Service definition

Interventional radiology service level 1 are interventional procedures performed in dedicated cardiac and vascular catheter laboratories. Typical procedures include:

- all vascular diagnostic and interventional procedures ie. stents, thrombolysis, thrombectomy, atherectomy, embolisation, retrieval of foreign bodies and laser and mechanical angioplasty
- all cardiac diagnostic and interventional procedures ie. angiography, stents and angioplasties.

Required clinical services	*Level*	*Notes*
Anaesthetics	#1, ##3, ###3	# Diagnostic (see below) ## Therapeutic, without onsite cardiac surgery (see overleaf) ### Therapeutic, with onsite cardiac surgery (see overleaf)
Critical care	HDU# ICU 1 + CCU 3## ICU2###	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional Radiology	-	
Medical	2	
Nuclear medicine	1	
Operating suite	Primary	
Pathology	1	
Pharmacy	2	
Surgical	2 + super spec*	*on-site cardiac surgery or off-site back-up surgery available as readily as on-site access to cardiac surgery

General expected characteristics
• minimum throughput 900/year. If minimum caseload cannot be achieved, a formal affiliation with another cardiac catheter unit to ensure staff skill levels is maintained (*Private Health Facilities Act 1999* s12 (2) (g)) • can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
Diagnostic# • designated clinical unit • diagnostic procedures performed on low risk adult patients only. Patients selected for angiography should have a stable clinical profile and should not have significant associated co-morbidities • availability of adequate and reliable follow-up for 24 hours post procedure • formal affiliation with a public or suitably licensed private health facility. This affiliation must include an agreed plan for the emergency patient transfer to a higher level of service where cardiopulmonary bypass is performed. This service must be available within one hour. The affiliation and agreed plan must be reviewed at least every 3 years • availability of appropriate haemodynamic support capability for patient transfer, including intra aortic balloon pump and temporary transvenous pacing • an effective communication system between the primary site and referral centre • patients to be advised in advance of the potential risk of delayed surgical intervention for a complication due to the emergency transfer of the patient to the affiliated facility for cardiac surgery
Therapeutic – without on-site cardiac surgery## • therapeutic procedures performed on low-risk adult patients only • the formal affiliation agreement must also include providing emergency patient transfer to a cardiac surgery operating room where cardiopulmonary bypass can begin within a maximum of 2 hours of the occurrence • a cardiac surgical team at the affiliated health facility must be on standby when angioplasties are being performed
Therapeutic – with on-site cardiac surgery### • therapeutic procedures performed on low, medium or high-risk patients

Staffing	
Medical	• specialist with credentials in the applicable area of interventional radiology; 24 hours on call (public) or 24 hours available (private) • procedure performed by a specialist with credentials in the applicable area of interventional radiology • for cardiac catheterisation services, procedures performed by specialist medical practitioner with applicable credentials in cardiology, and where provided, therapeutic cardiac catheterisation • medical practitioners must comply with the *Cardiac Society of Australia and New Zealand practice Guidelines* (minimum of 75 cases per year) • medical practitioner, on-site 24 hours
Nursing	• registered nurse in charge has evidence of ongoing clinical competency and experience in cardiac catheterisation • adequate nursing staff as needed, with evidence of ongoing clinical competency and experience appropriate to the service being provided to support the registered nurse in charge • registered nurse with evidence of ongoing clinical competency and experience appropriate to coronary care; on-site 24 hours
Allied Health	• access to appropriate allied health specialties • registered radiographers with knowledge, demonstrated evidence of ongoing clinical competency and experience appropriate to the service being provided • access to cardiac rehabilitation • all other staff have appropriate registration and recognition by relevant professional bodies eg. technical, biomedical and radiation safety specialists

➲ Interventional radiology service level 2

Service definition

Interventional radiology service level 2 provides Tier A procedures including: basic diagnostic and interventional techniques - nephrostomy, abscess drainage, GDC coiling and stents, and biopsy. Any individual with Royal Australian and New Zealand College of Radiology (RANZCR) or equivalent qualifications may perform these procedures in dedicated procedure rooms.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	**	
Diagnostic imaging	-	
Emergency	-	
Endoscopy	-	
Interventional Radiology	-	
Medical	**	
Nuclear medicine	-	
Operating suite	Primary	
Pathology	1	
Pharmacy	2	
Surgical	**	**Level 2 surgical and Level 2 medical services and an HDU must be available less than 60 minutes. If this support is not available, there must be formal detailed protocols for rapid transport to an appropriate acute care facility

General expected characteristics

- procedures on elective, low risk adult patients only
- designated clinical unit
- on-site availability of cardiopulmonary resuscitation measures
- limited hours service
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• specialist with credentials in the applicable area of interventional radiology, on call (public) or available (private) 24 hours • procedure performed by a specialist with credentials in the applicable area of interventional radiology • where procedures are performed a medical practitioner is on-site and is instantly available when procedures are performed
Nursing	• registered nurse in the unit for diagnostic cardiac catheterisation services with evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff, as needed, with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge
Allied Health	• access to appropriate allied health specialties • registered radiographers with knowledge, demonstrated evidence of ongoing clinical competency and experience appropriate to the service being provided • all other staff have appropriate registration and recognition by relevant professional bodies, eg. technical; biomedical and radiation safety specialists

➲ Interventional radiology services level 3

Service definition

Interventional radiology service level 3 provides Tier B procedures where:

- the patient is more than one hour drive from the laboratory with inadequate or unreliable follow-up likely over the next 24 hours
- where an interventional therapeutic procedure is likely to result from the diagnostic episode
- non-invasive testing data suggests that intervention may be associated with a high risk for adverse outcome, eg. detected ischaemia.

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	ICU 1	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional Radiology	-	
Medical	2	
Nuclear medicine	1	
Operating suite	Primary	
Pathology	1	
Pharmacy	2	
Surgical	2	

General expected characteristics

- Accreditation for these procedures should be based on proof of procedures performed in line with the RANZCR minimum training requirements (RANZCR) or other equivalent qualifications.
- emergency and elective procedures
- extended hours service
- Tier A and Tier B procedures
- can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• specialist with credentials in the applicable area of interventional radiology, on call (public) or available (private) 24 hours • procedure performed by a specialist with credentials in the applicable area of interventional radiology • Medical practitioner, on-site 24 hours
Nursing	• registered nurse in charge of each shift for the unit has evidence of ongoing clinical competency and experience appropriate to the service being provided • at least two registered nurses present in the unit at all times when there is a patient admitted to the unit with evidence of ongoing clinical competency and experience appropriate to the service being provided
Allied Health	• access to appropriate allied health specialties • all other staff have appropriate registration and recognition by relevant professional bodies, eg. technical; biomedical and radiation safety specialists

S6 Critical care services

Background and rationale

Critical care services are comprised of intensive care units (ICU), high dependency units (HDU) and coronary care units (CCU). Critical care services provide care for the critically ill or those vulnerable to critical illness, and focuses on the level of care of the individual patient.

An ICU or HDU forms part of a continuum of monitoring and support. They provide specialised facilities and technology or equipment to support vital physical functions and utilise the skills of medical, nursing and other staff experienced in managing these conditions. The concentration of staff and equipment to care for these critically ill patients in one area of the health facility encourages efficient use of expertise and limited resources. This does not preclude the co-location of an ICU with a HDU or a CCU. Nor does it preclude locating specific high dependency areas elsewhere, (eg. neurosurgical, post-operative cardiothoracic area). Neonatal and paediatric intensive care units (NICU and PICU) are usually separate from general ICUs. ICU and HDU staff may provide ward based support to 'at risk' patients to prevent ICU or HDU admission.

A PICU is a super-specialist referral centre for children needing intensive care. If it is highly likely or expected that care beyond monitoring, (eg. ventilation, ionotropes or dialysis), will be required post-operatively, then that surgery should only be performed at a facility with a PICU. Where admission to a HDU or ICU is unexpected, or for the purposes of monitoring and not invasive therapy as listed above, then the child could be admitted to a general ICU or HDU. If the period in ICU/HDU care is likely to extend beyond 48 hours, then the unit should consult with a PICU regarding the patient's ongoing care or transfer.

A HDU should have resources for immediate resuscitation and management of the critically ill. Equipment should be able to manage short-term emergencies, eg. the need for ventilation. In stable patients routine monitoring and support may include ECG, oximetry, invasive measurement of blood pressure, low level ionotropic support and non invasive ventilation.

A HDU may be provided in a discrete unit or in smaller facilities may be provided in a single room with appropriate staff before retrieval or transfer.

For ICUs and PICUs, the *Minimum Standards For Intensive Care Units* (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 2003) have been adopted as the equipment requirements.

A formal link with public or private health facility(s) is required for referrals and transfer of patients to/from a higher capability level service to ensure safe service provision. Each unit should have written policies for the admission, discharge and referral of patients (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 2003).

A CCU is a specially staffed and equipped section of a health facility for the support, monitoring and treatment of highly dependent patients with medical or surgical cardiac conditions which are life threatening or potentially life-threatening. It may be combined with other critical care services such as HDU and ICU for purposes of optimally using staff skill and equipment in smaller health facilities.

➲ High dependency units (HDUs)

Service definition

High dependency units (HDU) are a discrete unit/area within the health facility (may be combined with an intensive care unit or coronary care unit, or may be a discrete unit or a single room), able to supply critical care expertise at less intensive resource levels than intensive care units (ICU), providing a level of care that falls between ward based care and ICU services. Service has link to a higher level service and can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility. Patients will not be receiving invasive ventilation, significant inotropes or continuous dialysis. They more likely are being monitored after ICU, after large operations or post-operatively for lesser operations when there is some significant comorbidity. Functionally they are often linked with an ICU or patients admitted to ICU may have the characteristics that would have been suitable for an HDU.

For paediatric patients admitted to HDUs, the same patient attributes apply. However, the link to higher level services would be with a paediatric intensive care unit (PICU).

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional Radiology	-	
Medical	1	
Nuclear medicine	-	
Operating suite	2	
Pathology	1	
Pharmacy	2	
Surgical	2	

General expected characteristics

- non invasive monitoring
- self contained unit/area within the health facility (may be combined with an intensive care unit or coronary care unit, or a discrete unit or single room)
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• medical practitioner, on-site (public) or available (private) 24 hours • specialist with credentials in intensive care, anaesthesia, general medicine or a range of internal medicine specialties, access 24 hours
Nursing	• registered nurse in charge of area/unit on each shift has evidence of ongoing clinical competency and experience appropriate to the service being provided • one-on-one nursing care for each patient (provided by registered nurses with evidence of ongoing clinical competency and experience appropriate to the service being provided) until patient is transferred • where there is more than a single bed and there is a patient admitted to the unit/area, then there should be at least two registered nurses with evidence of ongoing clinical competency and experience appropriate to the service being provided present in the unit/area at all times (or one registered nurse and one medical practitioner)
Allied Health	• access to the appropriate allied health specialties

➲ Intensive care unit service level 1 (ICU1)

Service definition

Intensive care unit level 1 provides a specially staffed and equipped, separate and self-contained section of the health facility for managing patients with life-threatening or potentially life-threatening conditions. ICU1 provides immediate resuscitative management for the critically ill, mechanical ventilation, simple invasive cardiovascular monitoring and ionotropic support.

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	3	
Interventional Radiology	2	
Medical	2	
Nuclear medicine	Primary	
Operating suite	3	
Pathology	1	
Pharmacy	2	
Surgical	3	

As for high dependency unit plus:

General expected characteristics

- separate self contained unit with the health facility with sufficient numbers of beds and patient admissions to maintain skills by both medical and nursing staff
- simple invasive cardiovascular monitoring capacity (several hours)
- short term continuous ventilatory support capacity (to 12 hours)
- equipment monitoring of appropriate type and quantity suitable for the unit function
- suitable infection control and isolation procedures and facilities
- an established formal link with public or private health facility(s) for referrals and transfer of patients to/from a higher level of service, to ensure safe service provision
- educational programs for medical and nursing staff

Staffing	
Medical	• credentialled medical director who is experienced in intensive care • specialist support with credentials in medicine available 24 hours • medical practitioner on-site 24 hours with appropriate level of experience exclusively rostered to the unit and immediately available at all times • specialist with credentials in paediatrics (where services are provided for paediatrics), on call 24 hrs
Nursing	• registered nurse in charge of critical care services has evidence of ongoing clinical competency and experience appropriate to the service being delivered • registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided in charge on each shift in the unit • minimum of two registered nurses present in the unit at all times when there is a patient admitted to the unit (or one registered nurse and one medical practitioner) • adequate nursing staff, as needed, with evidence of ongoing clinical competency and experience appropriate to the service being delivered, to support the registered nurse in charge
Allied Health	• access to the appropriate allied health specialties • physiotherapist and social worker, on call (public) or available (private) 24 hours

➲ Intensive care unit service level 2 (ICU 2)

Service definition

Intensive care unit service level 2 (ICU2) provides a specially staffed and equipped, separate and self-contained section of a health facility for managing patients with life-threatening or potentially life-threatening conditions. ICU2 provides immediate resuscitative management for the critically ill, cardio-respiratory support, and has a major role in monitoring and preventing complications in "at risk" medical and surgical patients. It also provides general intensive care, including complex multi-system life support, can also provide indefinite mechanical ventilation and extra-corporeal renal support services. It must be capable of providing complex invasive cardiovascular monitoring and support short of bypass or ventricular assist devices (VAD). At least 4 staffed and equipped beds (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 2003).

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	-	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	3	
Interventional Radiology	2	
Medical	2	
Nuclear medicine	1	
Operating suite	3	
Pathology	1	
Pharmacy	3	
Surgical	3	

As for intensive care unit level 1 service plus:

General expected characteristics

- with at least 4 staffed and equipped beds
- invasive cardiovascular monitoring and support capacity, short of ECMO and VAD
- continuous ventilatory support capacity up to 48 hours
- extracorporeal renal support

Staffing

Medical	• credentialled medical director who is registered with the Medical Board of Queensland as a specialist in intensive care • at least one other credentialled specialist registered with the Medical Board of Queensland as a specialist in intensive care to be rostered and available exclusively to the unit
Nursing	• same as for ICU1 service
Allied Health	• access to the appropriate allied health specialties • dietician, occupational therapist, speech pathologist, physiotherapist, social worker, on call (public) or available (private) 24 hours

➲ Intensive care unit service level 3 (ICU3)

Service definition

Intensive care unit service level 3 (ICU3) provides a high level referral capacity for intensive care patients and is capable of providing the highest service level of care including complex multi-system life support for an indefinite period (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 1997). This level of ICU may support and/or include post cardiac surgery, invasive neurosurgical monitoring and support and support for complex level 3 and super-specialist activity. At least 6 staffed and equipped beds (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 2003).

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	-	
Diagnostic imaging	2	
Emergency	3	
Endoscopy	3	
Interventional Radiology	3	
Medical	3	
Nuclear medicine	2	
Operating suite	3	
Pathology	2	
Pharmacy	3	
Surgical	3	

As for intensive care unit service level 2 plus:

General expected characteristics

- at least 6 staffed and equipped beds
- long term continuous ventilatory support capacity
- extracorporeal renal support (indefinitely)
- complex multisystem life support (indefinitely), such as neurosurgical invasive monitoring, ECMO, VAD
- invasive cardiovascular monitoring (indefinitely)
- highest level referral centre for ICU patients

Staffing	
Medical	• at least one other credentialled intensive care specialist registered with the Medical Board of Queensland as specialist in intensive care • at least one of the credentialled supporting specialists exclusively rostered to the unit (or to more than one unit in the same building) at all times. During normal working hours this specialist must be predominantly in the unit, and at all other times be able to proceed immediately to it
Nursing	• same as for ICU 2 service
Allied Health	• access to appropriate allied health specialties • dietician, occupational therapist, speech pathologist, on call (public) or available (private) 24 hours • designated social worker and physiotherapist, on call (public) or available (private) 24 hours

➲ Paediatric intensive care unit (PICU)

Service definition

Paediatric intensive care unit (PICU) must be a separate area in the health facility capable of providing complex, multi-system life support for an indefinite period for children less than 16 years of age. It must be capable of providing mechanical ventilation, extracorporeal renal support services and invasive cardiovascular monitoring for an indefinite period to infants and children less than 16 years of age (Joint Faculty of Intensive Care Medicine - Faculty of Intensive Care 1997).

A PICU is a super-specialist referral centre for children needing intensive care. Surgery that is highly likely to require patient care beyond monitoring (eg. ventilation, ionotropes or dialysis), should only be performed at a facility with a PICU. Where admission to a HDU or ICU is unexpected or for the purposes of monitoring and not invasive therapy as listed above, then the child should be admitted to a general ICU or HDU. If the period in ICU/HDU is likely to extend beyond 48 hours, then the unit should consult with a PICU regarding the patient's ongoing care or transfer.

Required clinical services	*Level*	*Notes*
Anaesthetics	3*	*specialist in anaesthetics with credentials in paediatric anaesthesia, on call 24 hours. If child under 1 month of age, super specialist anaesthetic service is required
Critical care	-	
Diagnostic imaging	2	
Emergency	3	
Endoscopy	Super Spec	
Interventional Radiology	3	
Medical	3	
Neonatal	2	
Nuclear medicine	3	
Operating suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	

General expected characteristics

- highest level referral centre for PICU patients with active liaison with lower level critical care services for referrals and transfer of patients to ensure safe service provision
- provides a paediatric emergency retrieval and transfer service

Staffing	
Medical	• specialist in paediatric intensive care in charge of the unit • at least one other credentialled intensive care specialist registered with the Medical Board of Queensland as specialist in paediatric intensive care • at least one of the credentialled supporting specialists exclusively rostered to the unit (or to more than one unit in the same building) at all times. During normal working hours this specialist must be predominantly in the unit, and at all other times be able to proceed immediately to it • medical practitioner/registrar in intensive care available on-site 24 hours • specialist credentialled in paediatrics on call 24 hours
Nursing	• registered nurse in charge of critical care services on each shift has evidence of ongoing clinical competency and experience appropriate to the service being delivered • minimum of two registered nurses present in the unit at all times when there is a patient admitted to the unit (or one registered nurse and one medical practitioner) • adequate nursing staff, as needed, with evidence of ongoing clinical competency and experience appropriate to the service being delivered, to support the registered nurse in charge • registered nurse in charge of paediatric intensive care services with evidence of ongoing clinical competency and experience appropriate to the service being provided
Allied Health	• access to dietician, audiologist and speech therapist • occupational therapist, on-site (public) or available (private) • designated social worker and physiotherapist, on call (public) or available (private) 24 hours

➲ Coronary care unit service level 1 (CCU 1)

Service definition

Coronary care unit service level 1 (CCU 1) is a discrete area within the health facility which is able to supply critical care expertise for coronary patients, by providing a level of care more intensive than ward based care.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional Radiology	-	
Medical	2	
Nuclear medicine	-	
Operating suite	-	
Pathology	1	
Pharmacy	2	
Surgical	-	

General expected characteristics

- discrete area within the health facility (may be combined within an ICU or HDU)
- non invasive monitoring
- can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing

Medical	• specialist with credentials in general medicine or cardiology, access 24 hours • medical practitioner, on-site 24 hours. • medical practitioner, with coronary care experience, on call (public) or available (private) 24 hours
Nursing	• registered nurse in charge of each shift for the unit has evidence of ongoing clinical competency and experience appropriate to the service being provided • a minimum of two registered nurses with evidence of ongoing clinical competency and experience appropriate to the service being provided present in the unit at all times when there is a patient admitted to the unit (or one registered nurse and one medical practitioner)
Allied Health	• access to the appropriate allied health specialties

➲ Coronary Care Unit Service Level 2 (CCU 2)

Service definition

Coronary care unit service level 2 (CCU 2) is a designated unit that provides additional monitoring capacity (central monitoring at the staff station) for cardiac patients and increased medical and nursing support.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	1	
Interventional Radiology	2	
Medical	2	
Nuclear medicine	Primary	
Operating suite	-	
Pathology	1	
Pharmacy	2	
Surgical	-	

As for coronary care unit service level 1 plus:

General expected characteristics

- bedside and central monitoring capacity (ability to monitor patients at the staff station)

Staffing

Medical	• specialist with credentials in general medicine or cardiology, on-call (public) or available (private) 24 hours • medical practitioner with coronary care experience, on-site 24 hours
Nursing	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff, with evidence of ongoing clinical competency and experience appropriate to the service being provided to support the registered nurse in charge
Allied Health	• access to appropriate allied health specialties

➲ Coronary care unit service level 3 (CCU 3)

Service definition

Coronary care unit service level 3 (CCU 3) is a designated unit that provides the full range of cardiac monitoring (including invasive monitoring) for cardiac patients, with full cardiology support, including 24 hour on call echocardiography, angiography, angioplasty and permanent pacemaker services.

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	ICU 1	
Diagnostic imaging	2	
Emergency	3	
Endoscopy	3	
Interventional Radiology	1 & 3	
Medical	3	
Nuclear medicine	2	
Operating suite	Primary	
Pathology	-	
Pharmacy	3	
Surgical	-	

As for coronary care unit service level 2 plus:

General expected characteristics

- invasive cardiovascular monitoring (indefinitely)
- highest level referral centre for CCU patients with active liaison with lower level critical care services for referrals and transfer of patients to ensure safe service provision

Staffing

Medical	• specialist with credentials in intensive care on staff • specialist with credentials in cardiology, on call (public) or available (private) 24 hours • medical practitioner with coronary care experience rostered to the unit and predominantly present in the unit, available at all times and at all other times be able to proceed immediately to it
Nursing	• same as for CCU 2
Allied Health	• access to the appropriate allied health specialties

S7 Neonatal services

Background and rationale

Neonatal resuscitation, stabilisation and examination skills are essential in all maternity services, regardless of size. Neonatal care is an integral component of general paediatric services in health facilities that do not have neonatal paediatric specialists (New Zealand Government 1998).

Neonatal services level 3 (historically called neonatal intensive care unit – NICU, or intensive care nursery - ICN) and neonatal services level 2 (historically called special care nursery - SCN) provide medical, nursing and allied health support for neonates who require specialised diagnosis and treatment. Level 1 neonatal services (historically called mature infant nursery - MIN) provides support for neonates who do not require specialised treatment.

The information below indicates the principle neonatal conditions commonly treated and managed within a specialist neonatal unit (The Perinatal Statistics Report, Queensland Health 2000):

- 4.3% of neonates are low birth weight, ie. <2500 g to 1500 g
- 0.6% of neonates are very low birth weight, ie. <1500 g to 1000 g
- 0.7% of neonates are extremely low birth weight, ie. <1000 g
- 4.2% of neonates have at least one congenital anomaly
- 37.8% of neonates required resuscitation other than routine suction
- 16% of neonates required at least one neonatal treatment

Specialised neonatal services provide:

- antenatal consultation where neonatal illness is expected
- assessment and treatment of neonates who do not require admission to neonatal units
- specialised transport services for neonates requiring special or intensive care

Queensland Health supports the NHMRC guidelines that state that wherever possible, pre-term birth at less than 33 weeks should occur in a perinatal centre that has the expertise to care for the woman and her preterm infant. These guidelines further recommend that clear advice and support be provided to women and their families when transferred to a perinatal centre, and that every effort be made to keep the baby with or as close as possible to the mother postnatally (National Health Medical Research Council 2000).

Where it has not been possible for *in utero* transfer, the referral processes between facilities should include consultation between the medical practitioner managing at-risk newborn infants and the neonatologist at a level 3 neonatal service. If a higher level of care is indicated, a transport service is arranged to retrieve the infant from the health facility of birth.

In practice, neonates less than 32 completed weeks gestation or <1500 g are most frequently referred to a level 3 neonatal service, and under the following conditions:

- wherever possible, neonates requiring neonatal care should be transferred *in utero* and born at a facility which is able to provide the appropriate level of care. Effective obstetric policies and infrastructure are therefore required
- neonates requiring intensive care who are born away from a centre providing this level of care should be transferred to a centre which can provide the care
- neonates requiring intensive care should remain at the facility with this designated level of care until it is no longer required
- when neonates no longer require the services of intensive care facility, transfer back to a facility with the appropriate level of care should be supported

These are consistent with New Zealand guidelines (Liley 1998).

A neonate should be considered at risk, and consultation should occur with a level 3 facility regarding management and potential transfer, if:

- apgar score 7 or less at 5 minutes
- birth weight less than 2000gm
- evidence of respiratory distress
- persistent hypothermia
- neonatal hypoglycaemia
- major congenital anomaly
- recurrent apnoea
- convulsions
- jaundiced and in need of exchange transfusions
- bleeding from any site
- requires surgery
- suspected congenital heart disease
- requires special diagnostic and/or therapeutic services

Whenever possible, any transfer must be to the appropriate service capability level, bearing in mind the severity of the condition and the time and distance involved in the transfer.

Further, the service capability profiles in this document for neonatal services level 2, and above, are broadly consistent with the *Circular for Neonatal Facilities, HBF 583 PH 340* (Commonwealth Department of Health and Aged Care 1999).

➲ Neonatal service level 1

Service definition

Neonatal service level 1 (also known as mature infant nursery - MIN) primarily cares for healthy infants of 36 weeks gestation or later, and their mothers, postnatally. Requires a secure area for nursing/supervising infants.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Maternity services	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	Primary	
Pharmacy	Primary	
Surgical	-	

General expected characteristics

- provides for infants of low risk pregnancies and growing pre-term infants greater than 36 weeks gestation
- postnatal care of mothers and neonates delivered elsewhere with no complications or complications requiring minimal intervention
- emphasis on parenting, bonding and breastfeeding
- able to provide phototherapy and pulseoximetry monitoring of oxygen therapy
- able to provide skilled neonatal resuscitation and stabilisation of pre term, ill or malformed infant before transfer, including septic work-up, blood glucose and oxygen monitoring, and intravenous access
- all clinical staff expected to complete a recognised neonatal resuscitation program
- established networks with Level 2 and Level 3 neonatal services for patient referral and transfer to a higher level of service, to ensure safe service provision

Staffing

Medical	• medical practitioner, on call (public) or available (private) 24 hours
Nursing	• registered nurse in charge of the unit on each shift has evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff, with evidence of ongoing clinical competency and experience appropriate to the service provided, to support the registered nurse in charge
Allied Health	• access to physiotherapist, social worker, dietician

➲ Neonatal service level 2

Service definition

Neonatal service level 2 (also known as special care nursery - SCN) provides services at a higher level than a level 1 neonatal service and may be used in a 'step down' capacity by level 3 neonatal services. This practice usually aims to stabilise the baby on ventilation, in consultation with the neonatologist from a level 3 service, before transfer to a higher level service (preferably within 6 hours).

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Maternity services	2	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	1	
Pharmacy	2	
Surgical	-	

As for neonatal service level 1 plus:

General expected characteristics

- manages infants of low and medium risk pregnancies
- manages neonates of 32 weeks gestation or later with minimal complications and cares for pre-term neonates after back transfer
- facilities include humidicribs, cardio-respiratory monitoring, IV fluid therapy, tube feeds, phototherapy, continuous positive airways pressure (CPAP) and short-term assisted ventilator care, pending transfer to a level 3 neonatal service.
- established affiliation with a level 3 neonatal service which may include the rotation of physicians / neonatologists
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• medical practitioner dedicated to paediatrics and neonatal care, on-site (public) 24 hours or available (private) • specialist with credentials in paediatrics with experience in neonatal care, on call (public) or available (private) 24 hours • medical practitioner with credentials in neonatal paediatrics, on call (public) or available (private) 24 hours
Nursing	• registered nurse in charge each shift in a level 2 neonatal service has evidence of ongoing clinical competency and experience appropriate to the service being provided
Allied Health	• access to the appropriate allied health specialties • dietician, physiotherapist, social worker, on-site

➲ Neonatal service level 3

Service definition

Neonatal service level 3 (also known as neonatal intensive care unit - NICU) provides the highest level of life support including medium to long term ventilation of neonates. Services provided from these units include infant follow-up programs with paediatrician(s) experienced in the follow-up of very premature neonates and access to allied health professionals including a paediatric dietician and social worker.

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	-	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	Super-spec	
Interventional radiology	3	
Maternity services	3	
Medical	-	
Nuclear medicine	3	
Operating suite	3	
Pathology	3	
Pharmacy	3	
Surgical	-	

As for neonatal service level 2 plus:

General expected characteristics

- supports infants of low, medium and high-risk pregnancies
- provides services for all aspects of neonatal care including intensive care for the critically ill baby and medium/long term ventilation and total parenteral nutrition
- provides a neonatal emergency retrieval and transfer service, including use of road transport, fixed wing and rotary aircraft
- provides neonatal surgery and care for complex congenital and metabolic diseases of the newborn
- on-site clinical and diagnostic sub-specialty services
- established link to level 3 paediatric medicine/general paediatrics and level 3 paediatric surgery and super-specialist paediatric services
- access to clinical and diagnostic paediatric sub-specialties
- multi-disciplinary follow-up service provided
- unit located in an area designated exclusively for neonatal care
- facilities include humidicribs, cardio-respiratory monitoring, IV fluid therapy, tube feeds, phototherapy, short-term and long term assisted ventilator care
- at least one ventilator per intensive care bed
- at least two transport incubators, fully equipped with ventilator and monitoring equipment
- provides and participates in perinatal outreach education

Staffing	
Medical	• full time specialist in neonatology in charge of unit • registrars and residents exclusively rostered to neonatology (or) specialist paediatrician with experience in neonatal care, on-site (public only) 24 hours • specialists in neonatology, on call (public) or available (private) 24 hours • paediatric sub-specialists, on call (public) or available (private) 24 hours • medical practitioner with substantial training and experience in neonatal/perinatal medicine, available immediately to nursery/ delivery area, on-site 24 hours, or, obstetricians specialising in high risk obstetrics and maternal foetal medicine; on-site 24 hours • links (either visiting relationship, established referral/consultation relationship or on-site) with paediatric neurologist, paediatric cardiologist, paediatric respiratory physician and medical geneticist, paediatric or perinatal pathologist, ophthalmologist who can perform ocular surgery including retinal surgery on infants, neurosurgeon, ethicist with knowledge and understanding of issues related to neonates and neonatal intensive care • additional linkages with paediatric surgeon and anaesthetist skilled in providing neonatal services
Nursing	• registered nurse in charge has evidence of ongoing clinical competency and experience appropriate to the service being provided
Allied Health	• access to the appropriate allied health specialties • designated on-site physiotherapist with paediatric experience • designated on-site social worker with experience in perinatal/neonatal service • dietician and lactation consultant, on-site

S8 Anaesthetic services

Background and rationale

Providing safe anaesthesia requires appropriate staff, facilities and equipment. Queensland Health has adopted the Australian and New Zealand College of Anaesthesia (ANZCA) guidelines (www.medeserv.com.au/anzca) as the capability requirements for anaesthetic services.

Anaesthesia should be administered only by medical practitioners with appropriate training in anaesthesia, or by trainees supervised according to ANZCA College Professional Documents. It is recognised that in some facilities, specialist anaesthetists may not be available or present in sufficient numbers to provide a complete service. Under such circumstances appropriately trained general practitioner anaesthetists or career medical officers may be service providers (Australian and New Zealand College of Anaesthetists 2000).

Every patient presenting for anaesthesia for surgery, where life is not immediately at risk, should have a pre-anaesthetic consultation by a medical practitioner who has appropriate training in anaesthesia. Further, appropriate monitoring of physiological and other variables must occur during anaesthesia (Australian and New Zealand College of Anaesthetists 2000).

In addition to the nursing staff required by those carrying out the operative procedure, there must be:

- an appropriately trained and experienced assistant for the anaesthetist
- adequate assistance in positioning the patient
- adequate technical assistance to ensure proper functioning and servicing of all equipment used (Australian and New Zealand College of Anaesthetists 2000).

All anaesthesia equipment must comply with the relevant ANZCA College Professional Document including: *Recommendations on Minimum Facilities for Safe Anaesthesia Practice in Operating Suites* (Australian and New Zealand College of Anaesthetists 2000) and *Recommendations on Minimum Facilities for Safe Anaesthesia Practice Outside Operating Suites* (Australian and New Zealand College of Anaesthetists 2000).

Anaesthesia for children is an area of practice in which the *Australian and New Zealand College of Anaesthesia* recommends specific training and experience (Australian and New Zealand College of Anaesthetists 2000).

Anaesthetic risk (physical status of the patient)
The American Society of Anesthesiologists' (ASA) scale is used by *the Australian and New Zealand College of Anaesthetists* as the preferred scale for classifying physical status of patients. In this classification:

Table S8.1: American Society of Anesthesiologists' (ASA) scale for anaesthetic risk

Adults	
Class I	A normal healthy patient
Class II	A patient with mild systemic disease
Class III	A patient with a severe systemic disease that limits activity but is not incapacitating
Class IV	A patient with an incapacitating systemic disease that is a constant threat to life
Class V	A moribund patient not expected to survive 24 hours
Paediatrics	
ASA1	Healthy child
ASA2	Child with mild systemic disease – no functional limitation
ASA3	Child with severe systemic disease – definite functional limitation
ASA4	Child with severe systemic disease – that is a constant threat to life
ASA5	Moribund child not expected to survive 24 hours with or without an operation

There is an additional ASA classification of E (Emergency). This resolves the paradox of 'a normal healthy patient (Class I)' who has just received a severe trauma. The addition of E to the classification means that the risk to the patient is no longer determined by their previous ASA status.

In describing anaesthetic service provision using the physical status of the patient the levels of risk are low, medium and high.

Table S8.2: Level of risk and physical status

Level of risk	Physical status adults	Physical status paediatrics
Low	Class I and Class II	ASA1 and ASA2
Medium	Class III	ASA3
High	Class IV and V*	ASA4 and ASA5

Anaesthetic services provision
Table S8.3 illustrates anaesthetic service capability levels where similar support services and staffing are required to provide that service safely. It should be noted that the interaction between the anaesthetic risk (ie. characteristic of the patient) and procedural complexity (refer sections C2 surgical service, C3 medical service, and C5 endoscopy service) determine the anaesthetic service level needed for a particular patient.

When surgery is to be performed where the risk is greater than the facility is defined as being capable of accepting then all other practical alternatives should be explored - ie. transfer, retrieval or movement of more experienced staff to the patient. The anaesthetist and surgeon must have a risk management strategy in place including immediately alerting the higher level facility.

Table S8.3: Anaesthetic service capability matrix

Surgical Complexity	Anaesthetic Risk (Physical Status)		
	Low	Medium	High
Minor	Level 1	Level 1	Level 2
Intermediate	Level 1	Level 2	Level 3
Complex	Level 2	Level 3	Level 3

Post-anaesthesia recovery area (recovery room or post-anaesthetic care unit)
A well planned, equipped, staffed and managed post-anaesthesia recovery area (also known as recovery room or post-anaesthetic care unit - PACU) is essential for the safe early management of patients who have recently undergone a surgical or other procedure. A recovery area is defined as a discrete area within the facility, able to provide a level of care that falls between a ward and the operating suite, for patients who have undergone surgery or procedures, regardless of the type of anaesthesia or sedation used. For recovery areas, the *Recommendations for the Post-Anaesthesia Recovery Room* (Australian and New Zealand College of Anaesthetists 2003) have been adopted.

The general principles which apply for the post-anaesthesia recovery area are:

- recovery from anaesthesia should take place under supervision in an area designated for the purpose
- the area should be close to where the anaesthesia or sedation has been administered
- staff working in this area must be able to contact supervising medical staff promptly
- in some situations (for example, paediatric health facilities) minor variations in these recommendations may be appropriate (Australian and New Zealand College of Anaesthetists 2000).

➲ Anaesthetic service level 1

Service definition

Anaesthetic service level 1 provides all types of anaesthesia (general anaesthesia, sedation, neuraxial block, and regional block), for combinations of minor surgical procedures with low or medium anaesthetic risk; or intermediate surgical procedures with low anaesthetic risk. Where intermediate surgical procedures with low anaesthetic risk are performed and an appropriately trained general practitioner anaesthetist or career medical officer provides the anaesthesia, a risk management strategy must be in place for managing the patient before patient transfer/retrieval, and/or, any complications.

A post-anaesthesia recovery area provided as per the *Recommendations for the Post-Anaesthesia Recovery Room* professional document (Australian and New Zealand College of Anaesthetists 2003).

Anaesthesia equipment as per Recommendations on Minimum Facilities for Safe Anaesthesia Practice in Operating Suites (Australian and New Zealand College of Anaesthetists 2000) and Recommendations on Minimum Facilities for Safe Anaesthesia Practice Outside Operating Suites (Australian and New Zealand College of Anaesthetists 2003).

The service is provided for both adults and children. May provide services to children between 1 year and 14 years of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	Primary	
Pathology	Primary	
Pharmacy	1	
Surgical	-	

General expected characteristics
• all types of anaesthesia (general anaesthesia, sedation, neuraxial block, and regional block), for combinations of minor surgical procedures with low or medium anaesthetic risk; or intermediate surgical procedures with low anaesthetic risk • recovery area in accordance with relevant ANZCA professional document • anaesthesia equipment in accordance with the relevant ANZCA professional document • continuing education programs for clinical staff • a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• anaesthesia performed by medical practitioners with appropriate credentials, training and experience for the procedure performed • anaesthesia performed by a medical practitioner with credentials other than the proceduralist • medical practitioner on-site until patient(s) have recovered from anaesthesia • access to specialist anaesthetists with credentials for advice on equipment and services • a trained assistant to help the person administering the anaesthesia (the assistant may be a nurse or technician)
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided present at all times while there is a patient in the clinical unit • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided in accordance with relevant ANZCA professional document

➲ Anaesthetic services level 2

Service definition

Anaesthetic service level 2 has anaesthetic service level 1 components and provides anaesthesia for combinations of minor surgical procedures with high anaesthetic risk, or intermediate surgical procedures with medium anaesthetic risk, or complex surgical procedures with low anaesthetic risk.

The service is provided for both adults and children. May provide services to children between 1 year and 14 years of age. Does not include provision of complex paediatric surgery.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	HDU	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	2	
Pathology	1	
Pharmacy	2	
Surgical	2	

As for anaesthetic service level 1 plus:

General expected characteristics

- provides anaesthesia for combinations of minor surgical procedures with high anaesthetic risk; or intermediate surgical procedures with medium anaesthetic risk; or complex surgical procedures with low anaesthetic risk.

Staffing

Medical	• anaesthesia performed by a specialist anaesthetist with appropriate credentials, training and experience in anaesthetics for the procedure performed • specialist anaesthetist with credentials on call (public) or available (private) 24 hours
Nursing	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided • registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided on call 24 hours (public), or available 24 hours (private)

➲ Anaesthetic service level 3

Service definition

Anaesthetic service level 3 has anaesthetic service level 2 components and provides anaesthesia for combinations of intermediate surgical procedures with high anaesthetic risk, or complex surgical procedures with medium or high anaesthetic risk.

The service is provided for both adults and children. May provide services to children between 1 month and 14 years of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	ICU1	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	1	
Operating suite	3	
Pathology	2	
Pharmacy	2	
Surgical	3	

As for anaesthetic service level 2 plus:

General expected characteristics

- provides anaesthesia for combinations of intermediate surgical procedures with high anaesthetic risk, or complex surgical procedures with medium or high anaesthetic risk.

Staffing

Medical	• medical director with credentials and who is registered with the Medical Board of Queensland as a specialist in anaesthesia
Nursing	• same as for anaesthetic service level 2

➲ Super-specialist anaesthetic service

Service definition

A super-specialist anaesthetic service provides general anaesthesia to children less than 1 month of age. May also provide services to children between 1 month of age and 14 years. See *Sub-specialty and Super Specialty Paediatric Services Report* (Queensland Health 2002).

S9 Operating suite services

Background and rationale

Operating suites provide the physical environment where diagnostic, therapeutic and surgical procedures are performed. Providing safe operating suite services in health facilities requires appropriate staffing, facilities and equipment. This includes a separate recovery area, as per the Australian and New Zealand College of Anaesthetists' *Recommendations for the Post-Anaesthesia Recovery Room* (2003), and appropriate standards for decontamination and sterilisation of reusable medical and surgical instruments and equipment (as per *AS/NZS 4187: Cleaning, Disinfecting & Sterilising Reusable Medical and Surgical Instruments & Equipment, and Maintenance of Associated Environments in Health Care Facilities* (Standards Australia 2003).

The equipment required for individual specialties is not identified in this document. Where a range of equipment is recommended, the surgical service is expected to provide the type most suitable for its needs. All devices should comply with the relevant national standards, in particular, TGA standards.

While equipment appropriate for paediatric anaesthesia and surgery must be available, dedicated operating suites are not essential (The Royal College of Surgeons of England 2000). Segregated areas for the reception of children into theatre and for recovery, to screen children from adult patients, is recommended where possible (Department of Health 2002).

The main factors affecting operating suite service levels are the interaction between the anaesthetic risk (ie. physical status of the patient) and procedural/surgical complexity. These elements are explained in detail in sections C2 surgical service and S8 anaesthetic services respectively. Accordingly, Table S9.1 illustrates operating suite service levels where similar support services and staffing are required to provide that service safely.

Table S9.1: Operating suite service provision matrix

Surgical Complexity	Anaesthetic Risk (Physical Status)		
	Low	Medium	High
Minor	Primary/Level 1	Level 1	Level 2
Intermediate	Level 1	Level 2	Level 3
Complex	Level 2	Level 3	Level 3

➲ Primary operating suite service

Service definition

Primary operating suite service provides the physical environment where basic diagnostic, therapeutic and surgical procedures that do not involve the penetration of internal body cavities via the epithelium (other than with a needle) are performed on low risk patients. Has an established affiliation with public or suitably licensed private health facility for patient referral and transfer to/from a higher level of service to ensure safe service provision.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	-	
Diagnostic imaging	-	
Emergency	-	
Endoscopy	1*	*optional for private sector
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	Primary	
Pharmacy	1	
Surgical	-	

General expected characteristics

- performs procedures that do not involve the penetration of internal body cavities via the epithelium (other than with a needle) and patients with low anaesthetic risk
- at least one procedure room
- a separate post-anaesthesia recovery area as per the *Recommendations for the Post-Anaesthesia Recovery Room* (Australian and New Zealand College of Anaesthetists 2003)
- an appropriate decontamination and sterilisation service for reusable medical and surgical instruments and equipment as per AS/NZS 4187: *Cleaning, Disinfecting & Sterilising Reusable Medical and Surgical Instruments & Equipment, and Maintenance of Associated Environments in Health Care Facilities* (Standards Australia 2003)
- if using laser apparatus, compliance with the *Queensland Radiation Safety Act* 1999
- refers to and/or follows the *Australian College Operating Room Nurses* (ACORN) standards and guidelines
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision
- continuing education programs for medical, nursing and other clinical staff

Staffing	
Medical	• procedures performed by medical practitioner with appropriate credentials
Nursing	• registered nurse in charge on each shift has evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge

➲ Operating suite service level 1

Service definition

Operating suite service level 1 provides the physical environment where combinations of minor surgical procedures with low or medium anaesthetic risk, or intermediate surgical procedures with low anaesthetic risk, are performed. Has at least one operating room and a separate post-anaesthesia recovery area as per the *Recommendations for the Post-Anaesthesia Recovery Room* (Australian and New Zealand College of Anaesthetists 2003). Also has an appropriate decontamination and sterilisation service for reusable medical and surgical instruments and equipment as per *AS/NZS 4187: Cleaning, Disinfecting & Sterilising Reusable Medical and Surgical Instruments & Equipment, and Maintenance of Associated Environments in Health Care Facilities* (Standards Australia 2003). Has an established affiliation with public or suitably licensed private health facility for patient referral and transfer to/from a higher level of service to ensure safe service provision.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	1	
Pharmacy	1	
Surgical	1*	*optional for private sector

General expected characteristics

- provides for combinations of minor surgical procedures with low or medium anaesthetic risk, or intermediate surgical procedures with low anaesthetic risk
- at least one operating room
- a separate post-anaesthesia recovery area as per the *Recommendations for the Post-Anaesthesia Recovery Room* (Australian and New Zealand College of Anaesthetists 2003)
- an appropriate decontamination and sterilisation service for reusable medical and surgical instruments and equipment as per AS/NZS 4187: *Cleaning, Disinfecting & Sterilising Reusable Medical and Surgical Instruments & Equipment, and Maintenance of Associated Environments in Health Care Facilities* (Standards Australia 2003)
- if using laser apparatus, compliance with the *Queensland Radiation Safety Act* 1999
- refers to and/or follows the *Australian College Operating Room Nurses* (ACORN) standards and guidelines
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision
- continuing education programs for medical, nursing and other clinical staff

Staffing	
Medical	• procedures performed by medical practitioner with appropriate credentials • specialist(s) with appropriate credentials on call 24 hours (public) or available 24 hours (private) for consultation. If specialist is more than one hour distance from the Level 1 service, they should remain in that centre for at least 24 hours after the last operation
Nursing	• registered nurse in charge on each shift has evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge • registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided on call 24 hours (public), or available 24 hours (private)

➲ Operating suite service level 2

Service definition

Operating suite service level 2 has operating suite service level 1 components, and provides the physical environment where combinations of minor surgical procedures with high anaesthetic risk; or intermediate surgical procedures with medium anaesthetic risk, or complex surgical procedures with low anaesthetic risk, are performed. Has at least two operating rooms and a high dependency unit.

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	HDU	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	1	
Pharmacy	1	
Surgical	2	

As for operating suite service level 1 plus:

General expected characteristics

- provides for combinations of minor surgical procedures with high anaesthetic risk; or intermediate surgical procedures with medium anaesthetic risk; or complex surgical procedures with low anaesthetic risk
- at least two operating rooms

Staffing

Medical	• procedures performed by specialist medical practitioners with appropriate credentials
Nursing	• registered nurse in charge has evidence of ongoing clinical competency and experience appropriate to the service being provided • at least two registered nurses with evidence of ongoing clinical competency and experience appropriate to the service being provided per operating team

➲ Operating suite service level 3

Service definition

Operating suite service level 3 has operating suite service level 2 components and provides the physical environment where combinations of intermediate surgical procedures with high anaesthetic risk, or complex surgical procedures with medium or high anaesthetic risk, are performed. Has at least three operating rooms and at least a level 1 intensive care unit. May have designated day surgery unit.

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	ICU 1	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	1	
Operating suite	-	
Pathology	1	
Pharmacy	2	
Surgical	3	

As for operating suite service level 2 plus:

General expected characteristics

- provides for combinations of intermediate surgical procedures with high anaesthetic risk; or complex surgical procedures with medium or high anaesthetic risk
- at least three operating rooms
- may have designated day surgery unit

Staffing

Medical	• same as for operating suite service level 2
Nursing	• registered nurse in charge has evidence of ongoing clinical competency and experience appropriate to the service being provided • at least two registered nurses per operating team, with evidence of ongoing clinical competency and experience appropriate to the service being provided per operating team

C1 Emergency services

Background and rationale

Emergency health services are key entry points into the acute health facility system, working at the interface between the health facility and the community. The term 'emergency department', however, on the other hand, more specifically describes high-level departments with emergency medicine specialists and trainees employed at all times.

It is important that the term "emergency department" (or similar) is not used misleadingly by facilities that do not have the staffing and resources to provide such a service. To do so might encourage patients with acute illness and injury to present inappropriately to a setting that cannot provide adequate services. The resulting delay in their presentation to a *bona fide* emergency department has the potential to result in a poor outcome. Therefore, the terms "Emergency", "Emergency Department", or the older terms "Accident and Emergency", "Accident and Medical", or "Casualty" should not be used to advertise any facility that is not an "Emergency Department" (Australian College of Emergency Medicines 2000).

Emergency service capability levels are linked to the availability of critical care and super-specialty services. While smaller facilities may sub-specialise by providing certain inpatient services, each emergency service should retain the staffing profile and resources to deliver an appropriate minimum standard of care to all patients presenting. The needs of some patients may exceed the capabilities of smaller facilities' inpatient services. Therefore, the emergency service must have the ability to consult with and transfer patients to facilities that can deliver definitive care. This should be done in consultation between facilities to ensure that transfer is the best option for the patient, that the timing is appropriate, and that the patient's care is optimal before and during transport.

In rural areas, emergency services should be linked with a metropolitan site, based on formalised emergency and critical care networks (additional links outside this framework are also appropriate if they are efficient and effective). A communication procedure should be in place to inform the receiving emergency department of when a patient transfer may occur.

The equipment section of the *Recommendations on Minimum Facilities for Safe Anaesthesia Practice Outside Operating Suites* (Australian and New Zealand College of Anaesthetists 2000) have been adopted as the recommended equipment for services provided in emergency departments/ emergency services providing anaesthesia. For emergency departments, the clinical requirements detailed in the *Emergency Department Design Guidelines*, section 8.1 and 8.9 (Australian College of Emergency Medicines 2000) have been adopted by Queensland Health as the equipment requirements.

The following key principles have been identified regarding emergency services:

- emergency services should not be viewed in isolation from the rest of the health system
- emergency services provision should be strongly linked to the capacity of critical care services
- relationships exist with other providers such as retrieval and ambulance services, mental health services, general practitioners and other community health care providers

- All emergency services should provide a minimum standard of care according to their service level despite sub-specialisation of their health facility inpatient services
- Where specialised services are located at a single site within a network, patients will generally be transferred following assessment and stabilisation at the site of first presentation.

➲ Primary emergency service

Service definition

Primary clinical service provides limited treatment of minor injuries/illnesses and resuscitation and stabilisation of emergencies before retrieval by medical practitioners. Providing inpatient care is generally outside the scope of a primary clinical service. This service is provided within both the public and private sector.

This service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1*	*on call services not available after hours
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	Primary	
Nuclear medicine	-	
Operating suite	-	
Pathology	Primary	
Pharmacy	Primary	
Surgical	-	

General expected characteristics

- designated treatment area
- provides services for minor illness and injury, resuscitation and stabilisation of emergencies before retrieval/transfer
- the Primary Clinical Care Manual (Queensland Health 2001) is used as a major clinical reference and policy document for remote and rural sites
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referrals and transfer to/from a higher level of service, to ensure safe service provision
- inter-relationships with other providers such as retrieval and ambulance services; mental health services, general practitioners and other community health care providers

Staffing

Medical	• medical practitioner; on call 24 hours • access to medical practitioner with credentials in emergency medicine to provide advice and guidance
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided, to cover emergency presentations on call 24 hours • at least one nurse who has obtained a primary practice endorsed advance life support certificate or equivalent

➲ Emergency service level 1

Service definition

Emergency service level 1 provides limited treatment of acute injuries/illnesses and resuscitation and stabilisation of emergencies before transfer or retrieval by medical practitioners, with limited supporting services. This service is not provided within the private sector.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1	
Nuclear medicine	-	
Operating suite	-	
Pathology	Primary	
Pharmacy	Primary	
Surgical	Primary	

As for primary clinical service plus:

General expected characteristics

- designated treatment area with separate resuscitation facilities
- processes and protocols regarding triage
- manages a range of acute illness and injury
- policy on conscious sedation available in Emergency service policy and procedures manual (Australia and New Zealand College of Anaesthetists 2003)

Staffing

Medical	• same as for primary clinical service
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided, on-site 24 hours

➲ Emergency service level 2

Service definition

Emergency service level 2 provides initial treatment for all, and definitive care for many, emergency presentations; and resuscitation and stabilisation of emergencies prior to transfer or retrieval by medical practitioners when required. This service is not provided within the private sector.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	HDU and/or CCU 1	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	1	
Interventional radiology	-	
Medical	1	
Nuclear medicine	-	
Operating suite	1	
Pathology	1	
Pharmacy	1	
Surgical	1	

As for emergency service level 1 plus:

General expected characteristics

- purpose designed treatment area with separate resuscitation area
- initial treatment for all emergency presentations
- short term assisted ventilation capability
- can provide definitive care for most emergencies and transfer/retrieval for those for which the emergency service and inpatient facilities cannot provide definitive care

Staffing	
Medical	• medical practitioner with credentials in emergency medicine and medical practitioner with credentials in resuscitation; one on call 24 hours within 10 mins and a second on call within 30 mins at all times • access to specialist in emergency medicine (FACEM or equivalent) to provide advice and guidance • specialist with credentials in general surgery; on call 24 hours • specialist with credentials in orthopaedic surgery; on call 24 hours • access to specialist in paediatric medicine
Nursing	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided, on-site 24 hours • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided, on-site 24 hours in the emergency department
Allied Health	• access to social worker

➲ Emergency service level 3

Service definition

Emergency service level 3 provides initial treatment and definitive care for the majority of emergency presentations except for selected sub-specialties and those services provided only by a super-specialist service. The service must transfer emergencies that require ongoing care that can only be provided at super-specialty facilities (eg. spinal injury management and burns units). This service is provided within both the public and private sector.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	ICU1	
Diagnostic imaging	2*	*24 hour availability of CT, 24 hour access to angiography, extended hours diagnostic imaging on-site
Emergency	-	
Endoscopy	2	
Interventional radiology	2	
Medical	2	
Nuclear medicine	1	
Operating suite	2	
Pathology	2	
Pharmacy	2	
Surgical	2	

As for emergency service level 2 plus:

General expected characteristics

- may need to transfer emergencies that require ongoing care provided only at super-specialty facilities, (eg. spinal injury management; burns units).
- a formal link with super-specialty facility for patient referrals and transfer to a higher level of service, to ensure safe service provision
- point of care diagnostics available
- continuing educational programs for both medical and nursing staff

Staffing	
Medical	• a full time credentialed medical director who is registered by the Medical Board of Queensland as a specialist in emergency medicine • at least one other credentialed emergency medicine specialist • medical practitioner in emergency medicine or medical practitioner with credentials in resuscitation exclusively rostered to the unit 24 hours
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided, in charge on each shift in the emergency department
Allied Heath	• access to the appropriate allied health specialties • dietician, physiotherapist, occupational therapist on-site (public), or available (private) • social worker on-site (public), or access (private), preferably in emergency department

➲ Super-specialist emergency service

Service definition

A super-specialist emergency service provides multi-trauma services and forms the central transfer/referral points for Queensland with extensive supporting services available. This service is provided in the public sector only.

There are separate super-specialist emergency services for children and adults.

Required clinical services	*Level*	*Notes*
Anaesthetics	3	
Critical care	ICU3 and CCU3	
Diagnostic imaging	2*	*24 hour availability, CT, ultrasound, angiography. MRI extended hours on-site. Ultrasound and CT - with immediate reporting, extended hours access on-site.
Emergency	-	
Endoscopy	3	
Interventional radiology	1 and 3	
Medical	Super Spec	
Nuclear medicine	3	
Operating suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	

As for emergency service level 3 plus:

General expected characteristics

- capacity for managing frequent major trauma and other life threatening emergencies
- can provide initial treatment and definitive care for all emergency presentations
- short-term assisted ventilation capacity
- invasive monitoring capacity

Staffing	
Medical	• sufficient specialists in emergency medicine (FACEM or equivalent) to cover at least 16 hours per day, 7 days per week, on-site • specialist in emergency medicine on call for the remaining 8 hours per day, 7 days per week • registrar in emergency medicine to cover 24 hours on-site • specialist in general surgery, on call 24 hours • specialist in orthopaedic surgery, on call 24 hours • specialist in psychiatry available or on call 24 hours • specialist in paediatric medicine (where services are provided for paediatrics) • additional super-specialist support services – eg. burns units, spinal injuries unit • sub-specialties available or on call 24 hours, including, neurosurgery, vascular surgery, plastic surgery, urology, maxillofacial, cardiothoracic surgery, ophthalmology
Nursing	• same as for emergency service level 3
Allied Health	• access to the appropriate allied health specialties • dietician, physiotherapist, on-site • social worker, on-site extended hours

C2 Medical services

Background and rationale

Several specialties and sub-specialties may comprise medical services, which require significant support services to provide safe patient care.

Medical services encompass internal medicine services provided for patients, by medical practitioners and/or a range of specialists, with adequate support services. Additionally, a small number of patients may require super-specialist services, which deal with complex clinical issues and often result in a high cost per episode of care. Super-specialist centres are limited to one or two centres in the state.

Medical services are made up of the following specialities:

- Cardiology
- Endocrinology
- Gastroenterology
- Internal medicine
- General paediatrics
- Clinical haematology (excluding oncology)
- Clinical immunology
- Infectious diseases
- Neurology
- Rheumatology
- Thoracic medicine
- Dermatology
- Clinical genetics/medical genetics
- Geriatrics
- Burns
- Sleep medicine
- Hepatology
- Renal medicine

Where investigative and interventional procedures are performed as a component of medical service provision, this SCF section should be read in conjunction with other relevant service descriptions.

A formal link with public or private health facility(s) is necessary for referrals and transfer of patients to/from a higher level of service to ensure safe service provision.

The description of the four medical services capability levels are based on interaction between the following criteria:

- medical complexity of the current condition and the skills and experience of local staff to manage that complexity
- physical status of the patient

- supporting clinical services that are required to diagnose and treat the current condition.

Medical complexity and medical services
The medical literature consistently uses the broad medical terms of primary, secondary, tertiary, minor, intermediate, major, complex major and invasive cardiac as categories for describing the complexity of medicine. However there is an assumption that these definitions are intuitive and self-explanatory. The concept of dividing medical patients by the complexity of the condition is common practice. For the purposes of describing services provided by a facility:

Primary medical will be defined as medical intervention that:

- Is ambulatory service delivery (with appropriate support)
- Requires a limited range of diagnostic procedures.

Routine medical will be defined as medical intervention that:

- Requires treatment within a health facility setting
- May require simple bedside monitoring
- Requires a limited range of diagnostic procedures.

Intermediate medical will be defined as medical intervention that:

- Usually requires a high dependency unit
- May require additional diagnostic and treatment procedures.

Complex medical will be defined as, medical intervention that:

- Has significant potential for complication
- Requires high level diagnostic and treatment procedures
- Requires high level support services, which are only available at specialist centres.

Super-specialist medical - see *Selected Specialist Services Direction Statement 2001-2010* (Queensland Health 2001). Included are: clinical genetics services, haemophilia services, burns services, haematopoietic stem cell transplant services, adult cystic fibrosis services, cardiac services (high level).

Also see *Sub-specialty and Super Specialty Paediatric Services Report* (Queensland Health 2002). Included are: clinical genetics, haemophilia, burns, gastroenterology, sleep medicine, metabolic medicine, respiratory, neurology, endocrinology and developmental paediatric services.

Equipment required for individual specialties is not identified in this document. Where a range of equipment is recommended, the facility is expected to provide the type most suitable for its needs. All devices should comply with the relevant national standards.

Physical status of the patient
The American Society of Anesthesiologists (ASA) scale is that preferred by the Australian and New Zealand College of Anaesthetists for classifying physical status of patients. In this classification:

Adults	
Class I	A normal healthy patient
Class II	A patient with mild systemic disease
Class III	A patient with a severe systemic disease that limits activity but is not incapacitating
Class IV	A patient with an incapacitating systemic disease that is a constant threat to life
Class V	A moribund patient not expected to survive 24 hours
Paediatrics	
ASA1	Healthy child
ASA2	Child with mild systemic disease – no functional limitation
ASA3	Child with severe systemic disease – definite functional limitation
ASA4	Child with severe systemic disease – that is a constant threat to life
ASA5	Moribund child not expected to survive 24 hours with or without an operation

In describing surgical service provision using the physical status of the patient the levels of risk are low, medium and high.

Table B4:1 Level of risk and physical status

Level of risk	Physical status adults	Physical status paediatrics
Low	Class I and Class II	ASA1 and ASA2
Medium	Class III	ASA3
High	Class IV and V*	ASA4 and ASA5

Medical services provision

The medical services capability level matrix (Table B4.2) combines the physical status of the patient with the medical complexity to identify service capability levels where similar support services and staffing are required to provide that service.

Table B4:2 Medical service capability level matrix

Medical Complexity	Physical status of the patient		
	Low Risk	Medium Risk	High Risk
Primary	Primary medical	Primary medical	Primary medical
Routine	Level 1	Level 1	Level 2
Intermediate	Level 2	Level 2	Level 3
Complex	Level 3	Level 3	Level 3

➲ Primary medical service

Service definition

Primary medical service may be provided as an inpatient or outpatient service, depending on the availability of services in the ambulatory setting, and the patient's and/or carer's capacity to support ambulatory treatment processes.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	Primary	
Pharmacy	Primary	
Surgical	-	

General expected characteristics

- can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for referrals and transfer of patients to/from a higher level of service, to ensure safe service provision

Staffing

Medical	• management by medical practitioner; and • specialist in general medicine and/or a range of medical specialties, 24 hours access

➲ Medical service level 1

Service definition

Medical service level 1 provides definitive inpatient care, which may require a sub-specialty outpatient referral. Provides inpatient treatment of illnesses or resuscitation and stabilisation of patients before transfer or retrieval by medical practitioners, with the back up of limited support services. These patients do not require complex diagnostic investigation.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	-	
Pathology	1	
Pharmacy	1	
Surgical	-	

As for primary medical service plus:

General expected characteristics

- link with cardiac rehabilitation
- link with pulmonary rehabilitation
- links with oncology, radiotherapy and palliative care services
- links with rehabilitation services
- links to integrated health facility/community interface for diabetes planning

Staffing

Medical	• medical practitioner, on call (public) or available (private) 24 hours
Nursing	• registered nurse in charge for each ward area has evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge
Allied Health	• access to the appropriate allied health specialists

➲ Medical service level 2

Service definition

Medical service level 2 provides definitive care for most medical patients, is staffed by specialist physicians, with some medical sub-specialties available. A High Dependency Unit is available.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	HDU or CCU 1	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	Primary	
Operating suite	Primary	
Pathology	1	
Pharmacy	2	
Surgical	-	

As for medical service level 1 plus:

General expected characteristics

- a physician (a specialist in internal medicine) diagnoses and manages complex medical problems. This may be under the supervision of a general physician (who is an internal medicine specialist as it applies to adolescents and adults) or by other more specific internal medicine specialties. General physicians may concentrate upon undifferentiated problems, multi-system disease or acute presentations of single organ systems, which are of mild to moderate complexity.
- where an endoscopy service is provided, see requirements set out in section C3.

Staffing

Nursing	• referral and management primarily by a specialist with credentials in internal medicine • specialist with credentials in the particular area of internal medicine, on call (public) or available (private) 24 hours
Medical	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided for each ward area
Allied Health	• physiotherapist, on-site during office hours and on call 24 hours (public) or available (private)

➲ Medical service level 3

Service definition

Medical service level 3 provide definitive care for all medical patients with a full range of medical sub-specialties and available support services.

The service is provided for both adults and children.

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	ICU 1 or CCU 2	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	2	
Interventional radiology	2	
Medical	-	
Nuclear medicine	1	
Operating suite	Primary	
Pathology	1	
Pharmacy	3	
Surgical	-	

As for medical service level 2 plus:

General expected characteristics

- isolation capacity
- Neurology – EMG, nerve conduction, evoked responses and EEG available on-site: access to CT scanner, may have MRI
- Infectious diseases - designated inpatient area for infectious and communicable diseases, facilities to treat all quarantinable diseases

Staffing

Medical	• medical practitioner, on-site 24 hours
Nursing	• same as for medical service level 2
Allied Health	• dietician, occupational therapist, podiatrist, social worker, speech pathologist, on-site during office hours (public) or available (private) • physiotherapist, on-site office hours and on call 24 hours (public) or available (private)

➲ Super-specialist medical service

Service definition

A super-specialist medical service provides the most complex medical services on a statewide or zonal basis and has extensive supporting services available. See *Selected Specialist Services Direction Statement 2001- 2010* (Queensland Health 2001). Included are:

- Clinical genetics services
- Haemophilia services
- Burns services
- Haematopoietic stem cell transplant services
- Adult cystic fibrosis services and
- Cardiac services (high level).

Provides services to children up to one month old. May also provide complex medical services to children aged 1 month to 14 years. See *Sub-specialty and Super Specialty Paediatric Services Report* (Queensland Health 2002). Included are:

- Clinical genetics
- Haemophilia
- Burns
- Gastroenterology
- Sleep medicine
- Metabolic medicine
- Respiratory
- Neurology
- Endocrinology and
- Developmental paediatric services.

C3 Surgical services

Background and rationale

There are several surgical specialties and sub-specialties that require significant support services to ensure safe care for patients.

Surgical services encompass elective and emergency surgery, regardless of where procedures are performed. Additionally, a small number of patients may require super-specialist services, which deal with complex clinical conditions and often result in a high cost per episode of care. The availability of super-specialist surgical services is limited to one or two per State.

Surgical services are made up of the following specialties:

- General surgery
- Gynaecology
- Neurosurgery
- Ophthalmology
- Orthopaedic surgery
- Paediatric surgery
- Plastic and reconstructive surgery
- Cardiac-thoracic surgery
- Urology
- Vascular surgery
- Otolaryngology – head and neck surgery
- Colorectal surgery
- Ear, nose and throat surgery
- Endocrine surgery
- Gastrointestinal surgery
- Hepatobilary and pancreas surgery
- Maxillofacial surgery
- Podiatric surgery

A formal link with other Queensland Health or private facilities is required for patient referral and transfer to/from a higher service capability level to ensure safe service provision.

The five levels of surgical services are based on the interaction between the following criteria:

- Surgical complexity of the current condition and the skills and experience of local staff to manage that complexity
- Anaesthetic risk
- Supporting clinical services that are required to diagnose and treat the current condition.

Surgical complexity

While the American Society of Anesthesiologists' (ASA) classification system is widely accepted as a standard to describe anaesthetic risk, a measure of surgical complexity is less clear. The terms minor, intermediate, major, complex major and invasive cardiac and neurology are used to categorise the complexity of surgery. However, the assumption is that these definitions are intuitive and self-explanatory. A secondary issue is that most facilities do not provide a full range of services in their operating suite services and therefore divide their caseload into major and minor cases. This division may not reflect the commonly held assumptions about major and minor, but reflect a split of local caseloads.

Despite the variation in definitions, the concept of dividing surgery by the procedure's complexity is common clinically, and therefore the terms used in the literature have been adopted. For the purposes of describing surgical services provided by a facility:

Primary surgery is defined as surgery that:

- Does not require sedation
- Does not require an operating theatre
- Does not require a recovery area.

Minor surgery is defined as surgery that:

- Does not require the application of general anaesthesia, but requires some level of sedation
- Most procedures will be able to be achieved as an outpatient, day stay or in emergency departments, however, a decision may be made by the surgeon to admit the patient for these procedures and
- Are usually of the body's periphery, for example, an indicative range of procedures would include the removal of small skin lesions, toe nail surgery, excision of neuroma, arthroplasty of lesser toes, drainage of abscess and excision of subcutaneous tumour.

Intermediate surgery is defined as surgery that:

- Usually requires general anaesthesia
- Usually involves the opening of a body cavity
- May be a day stay/overnight case
- Usually is less than 60 minutes duration when performed by an experienced surgeon, for example, an indicative range of procedures would include varicose veins, inguinal hernias, laparoscopic cholecystectomy, appendicectomy, forefoot or rear foot surgery such as bunion surgery or fasciotomy with excision of calcaneal spur, Bartholin's cyst removal and PTCA
- An indicative range of procedures for paediatric surgery may include pyloromyotomy, herniotomy and orchidopexy after the first year of life (New South Wales Health 2002).

Complex surgery will be defined as surgery that:

- Usually requires general anaesthesia
- Usually involves the opening of a body cavity
- Has significant potential for intra-operative complications
- Is not considered to be amenable to day or single overnight stay

- Requires high-level support services, which are available at specialist centres
- Usually is greater than 60 minutes when performed by an experienced surgeon
- An indicative range of procedures are: abdominal hysterectomy, prostatectomy, joint replacements, and limb amputations, bowel resection, mastectomy, vascular graft, neck dissection, pancreatic resection, aortic surgery, oesophagectomy, anterior resection, arthrodesis of joints in the midfoot or rearfoot, abdomino-perineal resection and caesarean section
- An indicative range of procedures for paediatric surgery may include major reconstructive surgery (eg. rectal resections), kidney and urinary tract procedures, major chest procedures, fundoplasty, splenectomy, cleft lip/ palate surgery, parotid gland procedures, herniotomy and orchidopexy in first year of life, insertion of central line in first two years of life (ie. any procedure which in the hands of a competent surgeon takes more than one hour) (New South Wales Health 2002).

Super-specialist surgical service provides the most complex surgical services on a statewide or zonal basis and has extensive supporting services available. See *Selected Specialist Services Direction Statement 2001- 2010* (Queensland Health 2001). Solid organ transplant services are included.

Also see *Sub-specialty and Super Specialty Paediatric Services Report* (Queensland Health 2002). Included are: complex cranio-facial surgery, complex cardiac surgery, renal, liver, heart and lung transplantation, orthopaedic, neurosurgery, and cochlear implant paediatric services.

Equipment required for individual specialties is not identified in this document. Where a range of equipment is recommended, the surgical service is expected to provide the type most suitable for its needs. All devices should comply with the relevant current national standards (particularly the TGA standards).

For surgical services, relevant guidelines include the equipment sections of the *Recommendations On Minimum Facilities For Safe Anaesthesia Practice In Operating Suites* (Australian and New Zealand College of Anaesthetists 2000) and *Recommendations On Minimum Facilities For Safe Anaesthesia Practice Outside Operating Suites* (Australian and New Zealand College of Anaesthetists 2000). Queensland Health has adopted the recommendations in the December 2000 versions.

Anaesthetic risk (physical status of the patient)
The American Society of Anesthesiologists' (ASA) scale is used by the Australian and New Zealand College of Anaesthetists as the preferred scale for classifying physical status of patients in several documents including *Conscious Sedation for Diagnostic* and *Interventional Medical and Surgical Procedures* (Australian and New Zealand College of Anaesthetists 2001).

Table C3.1 American Society of Anesthesiologists (ASA) scale for anaesthetic risk

Adults	
Class I	A normal healthy patient
Class II	A patient with mild systemic disease
Class III	A patient with a severe systemic disease that limits activity but is not incapacitating
Class IV	A patient with an incapacitating systemic disease that is a constant threat to life
Class V	A moribund patient not expected to survive 24 hours
Paediatrics	
ASA1	Healthy child
ASA2	Child with mild systemic disease – no functional limitation
ASA3	Child with severe systemic disease – definite functional limitation
ASA4	Child with severe systemic disease – that is a constant threat to life
ASA5	Moribund child not expected to survive 24 hours with or without an operation

There is an additional ASA classification of E (emergency) used for a normal healthy patient (Class I) who has just received a severe trauma. The addition of E to the classification means that the risk to the patient is no longer determined by their previous ASA status.

In describing surgical service provision using the physical status of the patient the levels of risk are low, medium and high.

Table C3.2: Level of risk and physical status

Level of risk	Physical status adults	Physical status paediatrics
Low	Class I and Class II	ASA1 and ASA2
Medium	Class III	ASA3
High	Class IV and V*	ASA4 and ASA5

Surgical service capability level

With the definitions of surgical complexity and anaesthetic risk established, it is then possible to determine the interaction between these factors. Table C3.2 illustrates how an integrated network of services can be developed to optimise the use of supporting clinical services and minimise the risk to patients. The surgical services capability level matrix (Table C3.2) combines surgical complexity and anaesthetic risk to identify service levels where similar support services and staffing are required to provide that service.

Table C3.2: Surgical service capability level matrix

Surgical Complexity	Anaesthetic Risk (physical status)		
	Low	Medium	High
Primary	Primary Surgery	Primary Surgery	Primary Surgery
Minor	Level 1	Level 1	Level 2
Intermediate	Level 2	Level 2	Level 3
Complex	Level 2	Level 3	Level 3

➲ Primary surgical service

Service definition

Primary surgical service provides minor surgery where sedation (including conscious sedation) is not required and the patient does not require an operating theatre or recovery area.

The service is provided for both adult and paediatric clients. May provide services to children up to 14 years of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	-	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	-	
Nuclear medicine	-	
Operating suite	Primary	
Pathology	Primary	
Pharmacy	Primary	
Surgical	-	

General expected characteristics

- where the surgery is performed in a day health facility or other ambulatory setting, a written arrangement with a nearby public health facility and/or suitably licensed private health facility for overnight and emergency admission of patients if required
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to a higher level of service to ensure safe service provision

Staffing

Medical	• procedures performed by medical practitioner
Nursing	• registered nurse with evidence of ongoing clinical competency and experience appropriate to the service being provided, in charge on each shift, for each ward area
Allied Health	• access to the appropriate allied health specialties

➲ Surgical service level 1

Service definition

Surgical service level 1 provides a combination of minor surgery with low or medium anaesthetic risk, and can provide resuscitation, stabilisation and transfer/retrieval if required.

The service is provided for both adults and children. May provide services to children between 1 year and 14 years.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1	
Nuclear medicine	-	
Operating suite	1	
Pathology	1	
Pharmacy	Primary	
Surgical	-	

As for primary clinical service plus:

General expected characteristics

- low and medium anaesthetic risk patients
- a formal link with public or private health facility(s) for patient referral and transfer to a higher level of service to ensure safe service provision
- the equipment required for surgery will vary according to the level of sedation required by the patient for the procedure and the patients' anaesthetic risk
- different surgical equipment will be required if the patient is a child
- may include urodynamics unit

Staffing

Medical	• procedures performed by medical practitioner with credentials in the procedure performed • access to Medical Practitioner with credentials in relevant surgical specialty
Nursing	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided for each ward area • adequate nursing staff, with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge
Allied Health	• access to the appropriate allied health specialties

➲ Surgical service level 2

Service definition

Surgical service level 2 provides a combination of minor surgery with high anaesthetic risk, intermediate surgery with low or medium anaesthetic risk, and complex surgery with low anaesthetic risk.

The service is provided for both adults and children. May provide services to children between 1 year and 14 years. Does not provide complex paediatric surgery.

Required clinical services	*Level*	*Notes*
Anaesthetics	2*	*where paediatric surgery is performed: specialist in anaesthetics with credentials in paediatric anaesthetics, on call 24 hours (public) or available 24 hours (private)
Critical care	HDU	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	2	
Nuclear medicine	-	
Operating suite	2	
Pathology	1	
Pharmacy	2	
Surgical	-	

As for surgical service level 1 plus:

General expected characteristics

- all anaesthetic risk patients
- elective and emergency general surgical procedures performed
- link with a rehabilitation service
- links with oncology, radiotherapy and palliative care services

Staffing

Medical	• where paediatric surgery is performed on children aged between 1 year and 14 years: - procedures performed by a specialist with credentials in paediatric surgery for the procedure performed and in the age group of the child - specialist with credentials in paediatric surgery, on call (public) or available (private) 24 hours - specialist in paediatric medicine, access 24 hours
Nursing	• same as for surgical service level 1
Allied Health	• access to the appropriate allied health specialties • physiotherapist, on-site and on call 24 hours

➲ Surgical service level 3

Service definition

Surgical service level 3 provides a combination of intermediate surgery with high anaesthetic risk and complex surgery with medium or high anaesthetic risk.

The service is provided for both adults and children. May provide services to children between 1 month of age and 14 years.

Required clinical services	*Level*	*Notes*
Anaesthetics	3*	*Where paediatric surgery is performed: specialist in anaesthetics with credentials in paediatric anaesthetics, including for children less than 12 months, on call 24 hours (public) or available 24 hours (private)
Critical care	ICU 1	
Diagnostic imaging	2	
Emergency	-	
Endoscopy	2	
Interventional radiology	2	
Medical	2	
Nuclear medicine	1	
Operating suite	3	
Pathology	1	
Pharmacy	3	
Surgical	-	

As for surgical service level 2 plus:

General expected characteristics

- all anaesthetic risk patients
- elective and emergency procedures in particular specialties are performed on high risk patients
- where paediatric surgery is performed, access to recreational therapy and educational services
- where paediatric surgery is performed, capacity to isolate patient from adult patients (eg. single room or paediatric ward)

Staffing	
Medical	• medical practitioner, on-site 24 hours • where cardiothoracic surgery is performed, specialist in cardio-thoracic surgery, on call 24 hours • where neurosurgery is performed, specialist in neurosurgery, on call 24 hours
Nursing	• same as for surgical service level 1
Allied Health	• access to the appropriate allied health specialties • access to an audiologist and on-site where service level 3 neurology and ophthalmology is performed • dietician, occupational therapist, podiatrist, social worker, speech pathologist, on-site (public) or available (private) • physiotherapist, on-site and on call 24 hours (public) or available (private)

➲ Super-specialist surgical service

Service definition

A super-specialist surgical service provides the most complex surgical services on a statewide or zonal basis with extensive supporting services available. See *Selected Specialist Services Direction Statement 2001 – 2010* (Queensland Health 2001). Solid Organ Transplant Services are included.

A super-specialist paediatric surgical service provides surgical services to children less than 1 month of age. May also provide complex paediatric surgery services to children between 1 month of age and 14 years. See *Sub-specialty and Super Specialty Paediatric Services Report* (Queensland Health 2002). Included are: complex cranio-facial surgery, complex cardiac surgery, renal, liver, heart and lung transplantation, orthopaedic, neurosurgery, and cochlear implant paediatric services.

Neurosurgical super specialities require links to brain injury and spinal cord rehabilitation units.

Required clinical services	*Level*	*Notes*
Anaesthetics	3*	*A super-specialist anaesthetic service is required for surgery performed on children less than 1 month of age
Critical care	ICU3 and CCU 3	
Diagnostic imaging	3	
Emergency	-	
Endoscopy	3	
Interventional radiology	3	
Medical	3	
Nuclear medicine	3	
Operating suite	3	
Pathology	3	
Pharmacy	3	
Surgical	-	

As for surgical service level 3 plus:

General expected characteristics

- A cardiac rehabilitation link is required where cardiac surgery is performed
- Neurosurgical super-specialist services require links to brain injury and spinal cord injury rehabilitation units

Staffing	
Medical	• Medical director who is registered with the Medical Board of Queensland as a specialist in cardiac surgery, and specialist cardiac surgeon on call (public) or available (private) 24 hours where cardiac surgery is performed • Medical director who is registered with the Medical Board of Queensland as a specialist in neurosurgery, and specialist in neurosurgery , on call (public) or available (private) 24 hours where neurosurgery is performed
Nursing	• same as for surgical service level 1
Allied Health	• access to the appropriate allied health specialties

C4 Endoscopy services

Background and rationale

Endoscopy services are diagnostic and interventional. Providing endoscopy services is a balance between safety and accessibility. Included in endoscopy services are:

- diagnostic upper gastrointestinal endoscopy
- flexible sigmoidoscopy
- colonoscopy
- ERCP
- bronchoscopy
- endoscopic ultrasound

Additionally, a small number of patients may require super-specialist services, which deal with complex clinical issues and often result in a high cost per episode of care. super-specialist centres are limited to one or two centres in the state. See super-specialist endoscopy services for endoscopy for children aged less than 12 months.

The three capability levels of endoscopy services are based on the interaction of the following criteria:

- procedural complexity
- anaesthetic risk
- supporting clinical services that are required to diagnose and treat the current condition.

Procedural complexity

The procedural complexity for endoscopy services can be described as:

- emergency versus elective procedures
- diagnostic versus interventional procedures
- procedures that interfere with the airway
- procedures that may be associated with major complications that require support services (eg. may require patient to have an overnight stay)
- procedures for children under 12 months, or for children between 12 months and 14 years of age.

An endoscopy procedure may also include endoscopic retrograde cholangiopancreatography (ERCP) and associated therapeutic interventions, emergency sclerotherapy or banding, diagnostic and therapeutic bronchoscopy, placement of oesophageal prostheses, biliary stenting, laser ablation, endoscopic ultrasound and percutaneous endoscopic gastrostomy.

For endoscopy services, Section 6 of the *Standards for Endoscopic Facilities and Services* (Gastroenterological Society of Australia and Gastroenterological Nurses Society of Australia 1998) have been adopted as the minimum equipment standards for safe practice.

Equipment required for individual specialties is not identified in this document. Where a range of equipment is recommended, the facility is expected to provide the type most suitable for its needs. All devices should comply with the relevant national standards.

Anaesthetic risk (physical status of the patient)
The American Society of Anesthesiologists (ASA) scale is that preferred by the Australian and New Zealand College of Anaesthetists for classifying physical status of patients in a number of documents. These documents include *Guidelines on Conscious Sedation for Diagnostic* and *Interventional Medical and Surgical Procedures* (Australian and New Zealand College of Anaesthetists 2001).

Adults	
Class I	A normal healthy patient
Class II	A patient with mild systemic disease
Class III	A patient with a severe systemic disease that limits activity but is not incapacitating
Class IV	A patient with an incapacitating systemic disease that is a constant threat to life
Class V	A moribund patient not expected to survive 24 hours
Paediatrics	
ASA1	Healthy child
ASA2	Child with mild systemic disease – no functional limitation
ASA3	Child with severe systemic disease – definite functional limitation
ASA4	Child with severe systemic disease – that is a constant threat to life
ASA5	Moribund child not expected to survive 24 hours with or without an operation

In describing surgical service provision using the physical status of the patient the levels of risk are low, medium and high.

Table C4.1: Level of risk and physical status

Level of risk	Physical status – adults	Physical status – paediatrics
Low	Class I and Class II	ASA1 and ASA2
Medium	Class III	ASA3
High	Class IV and V*	ASA4 and ASA5

With the definitions of surgical complexity and anaesthetic risk established, it is then possible to determine the interaction between these factors. Table C4.2 illustrates how an integrated network of services can be developed that optimises the use of support services and minimises the risk to patients. The endoscopy service capability level matrix (Table C4.2) combines surgical complexity and anaesthetic risk to identify service levels where similar support services and staffing are required to provide that service.

Table C4.2 Endoscopy service level capability matrix

Endoscopy complexity	Anaesthetic Risk (Physical Status of Patient)		
	Low	Medium	High
Endoscopy	Level 1 or 2	Level 1 or 2	Level 3

➲ Endoscopy service level 1

Service definition

Endoscopy service level 1 is provided to patients of low and medium anaesthetic risk, having elective procedures where sedation and/or general anaesthesia are used for diagnostic and interventional procedures including upper and lower gastrointestinal endoscopy including biopsy, oesophageal dilatation, polyp removal, treatment of bleeding lesions and foreign body removal.

This service does not treat children less than 14 years of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	1	
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1	
Nuclear medicine	-	
Operating suite	Primary	
Pathology	Primary	
Pharmacy	1	
Surgical	-	

General expected characteristics

- low and medium anaesthetic risk patients
- located within a day health facility or acute facility
- no emergency endoscopes
- fibreoptic endoscopy
- where the procedure is performed in a day health facility or other ambulatory setting, a written arrangement with a nearby public health facility and/or suitably licensed private health facility for overnight and emergency health admission of patients if required
- service can provide resuscitation and stabilisation of emergencies until transfer or retrieval to a back up facility
- a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• procedures performed by a medical practitioner with credentials for that procedure • medical practitioner on-site until the patient has recovered from sedation/general anaesthesia • medical practitioner; on call (public) or available (private) 24 hours 5 days per week. After hour medical referral mechanism in place to ensure continuity of care (public) • specialists in general medicine; general surgery and/or a range of medical and surgical specialties; on call (public) or available (private) 24 hours
Nursing	• the registered nurse in charge of each unit has evidence of ongoing clinical competency and experience appropriate to the service being provided • adequate nursing staff with evidence of ongoing clinical competency and experience appropriate to the service being provided, to support the registered nurse in charge
Allied Health	• access to the appropriate allied health specialties

➲ Endoscopy service level 2

Service definition

Endoscopy service level 2 is provided to patients of low and medium anaesthetic risk, having elective procedures and emergency procedures where sedation and general anaesthesia are used for diagnostic and interventional procedures such as upper and lower gastrointestinal endoscopy including biopsy, oesophageal dilatation, polyp removal, treatment of bleeding lesions and foreign body removal.

This service does not treat children less than 14 years of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	2	
Critical care	HDU	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	2	
Nuclear medicine	-	
Operating suite	1	
Pathology	1	
Pharmacy	2	
Surgical	2	

As for endoscopy service level 1 plus:

General expected characteristics

- all anaesthetic risk patients
- emergency and elective procedures

Staffing

Medical	• referral and management primarily by a specialist with credentials in the appropriate area of internal medicine • medical practitioner with credentials in the procedure performed on call 24 hours
Nursing	• same as for endoscopy service level 1
Allied Health	• access to the appropriate allied health specialties

➲ Endoscopy service level 3

Service definition

Endoscopy service level 3 is provided to patients of low, medium and high anaesthetic risk, having elective and emergency, diagnostic and interventional procedures; including emergency sclerotherapy or banding diagnostic and therapeutic ERCP, therapeutic hepatobiliary endo surgery, diagnostic and therapeutic bronchoscopy, placement of oesophageal prostheses, biliary stenting, laser ablation, endoscopic ultrasound and percutaneous endoscopic gastrostomy.

This service treats both adults and children over 12 months of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	3*	* where paediatric endoscopy is performed: specialist in anaesthetics with credentials in paediatric anaesthesia; on call 24 hours (public) or available 24 hours (private)
Critical care	ICU1	
Diagnostic imaging	2**	** includes fluoroscopy image intensifier for ERCP
Emergency	-	
Endoscopy	-	
Interventional radiology	2	
Medical	2	
Nuclear medicine	-	
Operating suite	3	
Pathology	1	
Pharmacy	3	
Surgical	3	

As for endoscopy service level 2 plus:

General expected characteristics

- all anaesthetic risk patients
- diagnostic and therapeutic endoscopy
- children between 1 and 14 years of age are permitted with appropriate instrumentation and staff skill

Staffing	
Medical	• specialist with credentials in the particular area of internal medicine; on call 24 hours • medical practitioner; on-site 24 hours • where paediatric endoscopy is performed on children between 1 year and 14 years: • procedures performed by a specialist with credentials in paediatric surgery in the procedure performed and in the age group of the child • specialist with credentials in paediatric surgery; 24 hour on call • specialist in paediatric medicine; 24-hour access
Nursing	• registered nurse in charge with evidence of ongoing clinical competency and experience appropriate to the service being provided
Allied Health	• access to the appropriate allied health specialties

➲ Super-specialist endoscopy service

Service definition

A super-specialist endoscopy service provides all endoscopy services for children less than 12 months of age.

Required clinical services	*Level*	*Notes*
Anaesthetics	3*	*specialist in anaesthetics with credentials in paediatric anaesthesia; on call 24 hours (public) or available 24 hours (private). If child is under 1 month of age, a Super Specialty Anaesthetic service is required
Critical care	PICU	
Diagnostic imaging	2**	** includes fluoroscopy, image intensifier for ERCP
Emergency	-	
Endoscopy	-	
Interventional radiology	3	
Medical	2	
Neonatal	3	
Nuclear medicine	-	
Operating suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	

As for endoscopy service level 3 plus:

General expected characteristics

- paediatric endoscopy on all children under 12 months

Staffing

Medical	• procedures performed by a specialist with credentials in paediatric surgery for the procedure performed and in the age group of the child • medical practitioner with credentials in the procedure performed on call 24 hours • specialist with credentials in paediatric surgery, 24 hour on call • specialist in paediatric medicine, 24 hour access
Nursing	• same as endoscopy service level 3
Allied Health	• access to the appropriate allied health specialties

C5 Maternity services

Background and rationale

Maternity service provision aims to achieve a balance between local access to services and the safe provision of services for mother and baby. It is also acknowledged that while services may be planned to be delivered at a given level, there will be emergency situations that require immediate action. For each facility, a risk management procedure should be in place to mitigate the effects of emergency presentations and presentations beyond the capability of the given facility. This should include having:

- formal procedures and guidelines for referrals and transfer to a higher level service of sick/premature neonates and/or medium to high risk obstetric cases
- formal procedures for emergency obstetric and neonatal transfer and evacuation to a higher capability level service
- emergency communication with higher capability level services where transfer is not an option
- the ability to provide emergency care of women and neonates with unanticipated problems (serious obstetric complications or unplanned births) until they are placed in the care of the retrieval team
- identified access to obstetric and neonatal retrieval and transport services
- in event of unplanned admissions, the facility must have a clinical management plan and protocol for managing such cases
- formal links with units at higher service capability levels, which are established and maintained for continuing education, referrals and transfers
- mechanisms for post-partum mothers and neonates delivered elsewhere to be returned for postnatal care, where the facility can accommodate these patients

The four maternity service capability levels are based on interactions between the following criteria:

- characteristics of the mother
- complexity of the pregnancy
- gestational age at delivery
- medical support services required during pregnancy, at delivery, postnatally and neonatally

Characteristics of the mother and complexity of the pregnancy

There are several factors that influence maternal health and the provision of maternity services. The combinations of these risk factors are divided into high, medium and low risk pregnancies. The level of risk indicates the need for referral to a specialist obstetrician where there is a requirement for high-level obstetric and neonatal care provision. Potential risk factors in pregnancies are given on the following page. It is combinations of these risks that will elevate a pregnancy from low to medium or high risk.

Gestational age at delivery

Gestational age at delivery is important in providing maternity services as additional support services are required for the neonate at, and after, delivery. See neonatal support service definitions and requirements.

Table C5.1: Maternity service capability level matrix

Gestational age	Characteristics of the mother		
	Low Risk Pregnancy	Medium Risk Pregnancy	High Risk Pregnancy
37 completed weeks or greater	Level 1	Level 2	Level 3
35 completed weeks or greater	Level 2	Level 2	Level 3
32 completed weeks or greater	Level 3	Level 3	Level 3 or super-specialist
Less than 32 completed weeks	Super-specialist	Super-specialist	Super-specialist

Potential risk factors in pregnancies

While obstetric complications may occur in any pregnancy at any time, it is recognised that certain factors of patients or conditions, either solely or in combination, place some women 'at risk'. Where these factors occur, both maternal and perinatal morbidity and mortality are substantially increased. The accompanying list, while not exhaustive, is presented to remind those practicing in maternal and neonatal health of these dangers. It is recommended that patients falling into these groups should be assessed carefully and that if more than minor complications exist, consultation with an obstetrician with specialist experience should be considered, with possible referral of the case to a higher level of care (New South Wales Health 2002).

General factors

- prematurity
- age (early teenage, later reproductive years) especially primigravida
- socio-economic status
- aboriginality
- parity (primigravida and gravida 4+)
- height (short stature)
- weight (overweight and underweight)
- dietary aberrations
- drug dependence (opiate or other) and abuse of alcohol or tobacco
- mental disturbance/psychoses
- primary infertility

Maternal diseases

- autoimmune disease
- cardiovascular disease including valvular abnormalities and shunts, essential hypertension and hypertensive disease of pregnancy, and previous thromboses (embolisms)
- diabetes mellitus
- anaemia (all types)
- chronic renal disease including recurrent urinary infection
- past history of venous thrombosis and/or pulmonary embolism

- epilepsy
- serious infection (HIV, Hepatitis)
- sexually transmitted diseases diagnosed in pregnancy
- transplant recipient

Family history of genetic disorder or birth defect

- parent heterozygous for haemoglobenopathy or inherited disorders

Past obstetric history

- previous prolonged labour
- previous caesarean section
- previous abortion, including habitual abortion
- previous perinatal mortality or morbidity
- previous premature labour or placental insufficiency
- previous obstetric complications (post partum haemorrhage, retained placenta)

Diseases peculiar to pregnancy

- preeclampsia
- rhesus and other blood group incompatibility

Bleeding in pregnancy

- threatened abortion
- abrupto placentae
- placenta praevia

Obstetric difficulties discovered antenatally

- serious infection (HIV, Hepatitis)
- polyhydramnios and oligohydramnios
- intrauterine growth restriction
- malpresentation, especially breech presentation and transverse lie disproportion
- multiple pregnancy
- placental insufficiency and restricted intrauterine growth
- prolonged pregnancy (past 42 weeks)
- premature rupture of membranes
- abnormalities of genital tract
- uterine fibroids

Patients having inadequate antenatal care

- failure to attend for regular antenatal checks
- non-booked cases
- late booked cases

Difficulties discovered during labour

- failure to progress satisfactorily, including prolonged labour
- foetal distress
- malpresentation

➲ Maternity service level 1

Service definition

Maternity service level 1 manages low risk pregnancies only, with deliveries later than 37 completed weeks gestation or above, elective and emergency vaginal and assisted deliveries and selected low risk elective caesareans. Can cope with sudden unexpected complications until transfer. Has Surgical service level 2 and recovery area and/or established links with the flying obstetric and gynaecological service where available and established procedures and guidelines for transfer to a higher level service. Dedicated postnatal beds available with dedicated, fully equipped birthing suite(s). Neonatal resuscitation equipment is available, and staff are competent in neonatal resuscitation (including neonatal intubation) and the use of associated equipment. See Primary medical service for managing unplanned deliveries at facilities that do not usually provide delivery services.

Required clinical services	*Level*	*Notes*
Anaesthetics	1*	*should be experienced in obstetric anaesthesia and available 24 hours
Critical care	-	
Diagnostic imaging	1	
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1	
Neonatal	1	
Nuclear medicine	-	
Operating suite	2	
Pathology	1	
Pharmacy	1	
Surgical	2*	*and/or established links with the flying obstetric and gynaecological service where available and established procedures and guidelines for transfer to a higher level service

General expected characteristics

- low risk pregnancies only
- delivery of full term pregnancies (37 completed weeks and above) unless unavoidable
- spontaneous and assisted vaginal deliveries and selected low risk elective caesarean sections after consultation with obstetrician where appropriate
- able to cope with sudden unexpected complications until transfer
- established links with flying obstetric and gynaecological service where available
- dedicated, fully equipped delivery suite(s)
- postnatal beds
- neonatal resuscitation equipment available and clinical staff competent in resuscitation (including neonatal intubation) and use of equipment. All clinical staff expected to complete a recognised neonatal resuscitation program
- access to parenting education

• a formal link with public or private health facility(s) for patient referral and transfer to/from a higher level of service, to ensure safe service provision

Staffing	
Medical	• medical practitioner with credentials in obstetrics (uncomplicated; instrumental deliveries and caesarean if performing caesareans); on call (public) available (private) 24 hours • specialist in obstetrics; 24 hour access (consultation by telephone; radio or videoconference) • specialist in paediatric medicine or a general practitioner with experience in care of mother and newborn infant preferably with a Diploma in Obstetrics and Gynaecology; 24 hour access (consultation by telephone; radio or videoconference) • liaison psychiatry access
Nursing	• nurses endorsed to practice as midwives with evidence of ongoing clinical competency and experience appropriate to the service being provided; on call 24 hours (public) or available (private) • midwife in charge supported by adequate nursing staff with ongoing clinical competency and experience appropriate to the service being provided • access to lactation consultant
Allied Health	• access to the appropriate allied health specialties

➲ Maternity service level 2

Service definition

Maternity service level 2 has Maternity service level 1 components and manages low and medium risk pregnancies and deliveries 35 completed weeks and later, elective and emergency vaginal and assisted deliveries, emergency caesareans, and some elective caesareans. Surgical service level 2, recovery area and adult HDU available.

Required clinical services	*Level*	*Notes*
Anaesthetics	2**	** anaesthetic specialist experienced in obstetric anaesthesia on call 24 hours (public) or immediately available 24 hours (private)
Critical care	HDU	
Diagnostic imaging	1*	* 24 hour access to ultrasound within the obstetric unit
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1	
Neonatal	1	
Nuclear medicine	-	
Operating suite	2	
Pathology	1	
Pharmacy	2	
Surgical	2#	# immediate 24 hour

As for maternity service level 1 plus:

General expected characteristics

- low and medium risk pregnancies
- delivery of pregnancies 35 completed weeks gestation and above, unless unavoidable
- elective and emergency vaginal and assisted deliveries. Selected low risk elective caesarean sections after consultation with obstetrician where appropriate. Able to perform emergency caesarean sections if necessary
- designated antenatal and postnatal beds

Staffing

Medical	• at least two medical practitioners available to enable simultaneous care of mother and neonate in theatre during caesareans: one practitioner with credentials in obstetrics for the mother and the second with credentials in obstetrics or paediatrics for the neonate
Nursing	• nurse in charge on each shift endorsed to practice as a midwife and has evidence of ongoing clinical competency and experience appropriate to the service being provided • registered nurse on staff with evidence of ongoing clinical competency and experience in neonatal care
Allied Health	• physiotherapist on-site (public) or available (private)

➲ Maternity service level 3

Service definition

Maternity service level 3 has Maternity service level 2 components and manages low, medium and selected high risk pregnancies and deliveries equal to, or later than, 32 completed weeks gestation, elective and emergency vaginal and assisted deliveries, emergency and elective caeserean sections. Neonatal level 2, Surgical level 3, recovery area and ICU1 services available.

Required clinical services	*Level*	*Notes*
Anaesthetics	3**	** anaesthetic specialist experienced in obstetric anaesthesia on call 24 hours (public) or immediately available 24 hours (private)
Critical care	ICU1	
Diagnostic imaging	2#	#24 hour access to an ultrasound within the obstetric unit
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	1^	^Availability of specialised services including transfusion (24 hours) Availability of specialty medical units within the precinct with 24 hour availability consultants
Neonatal	2	
Nuclear medicine	-	
Operating suite	3	
Pathology	1	
Pharmacy	2	
Surgical	3	

As for maternity service level 2 plus:

General expected characteristics

- low, medium and selected high risk pregnancies (after consultation with a super-specialist facility)
- delivery of pregnancies at, or later than, 32 weeks gestation unless unavoidable
- manages all modes of delivery including emergency and elective, caesarean sections, assisted deliveries and vaginal deliveries
- dedicated antenatal and postnatal beds

Staffing	
Medical	• medical practitioner with credentials in paediatrics or registrar; on call (public) or immediately available (private) 24 hours • medical practitioner, on-site 24 hours • specialist in obstetrics; on call (public) or available (private) 24 hours • specialist in paediatric medicine; on call (public) or available (private) 24 hours
Nursing	• nursing staff with evidence of ongoing clinical competency endorsed to practice as midwives on-site 24 hours in birthing suites
Allied Health	• access to audiologist; occupational therapist; psychologist • dietician and social worker, on-site

➲ Super-specialist maternity service

Service definition

A super-specialist maternity service manages the most complex or at risk patients and manages low, medium and high risk pregnancies and deliveries of all gestational ages, by all modes of delivery including: emergency and elective, caesarean sections, assisted deliveries and vaginal deliveries. This service provides the most complex level of care, with Neonatal level 3 (NICU), Surgery level 3, recovery area and adult ICU2 available. It will also have a zonal and/or statewide role. Other high level maternity services including foetal-maternal medicine and/or clinical genetics are available.

Required clinical services	*Level*	*Notes*
Anaesthetics	3**	** on-site 24 hours trainee anaesthetist cover with 24 hours on call anaesthetic specialist cover experienced in obstetric anaesthesia (public), anaesthetic specialist experienced in obstetric anaesthesia immediately available 24 hour (private)
Critical care	ICU 2	
Diagnostic imaging	2^	^24 hour access to an ultrasound within the obstetric unit
Emergency	-	
Endoscopy	-	
Interventional radiology	-	
Medical	2	
Neonatal	3	
Nuclear medicine	-	
Operating suite	3	
Pathology	3#	#24 hours, including transfusion
Pharmacy	3+	+24 hours
Surgical	3*	*immediate 24 hour

As for maternity service level 3 plus:

General expected characteristics

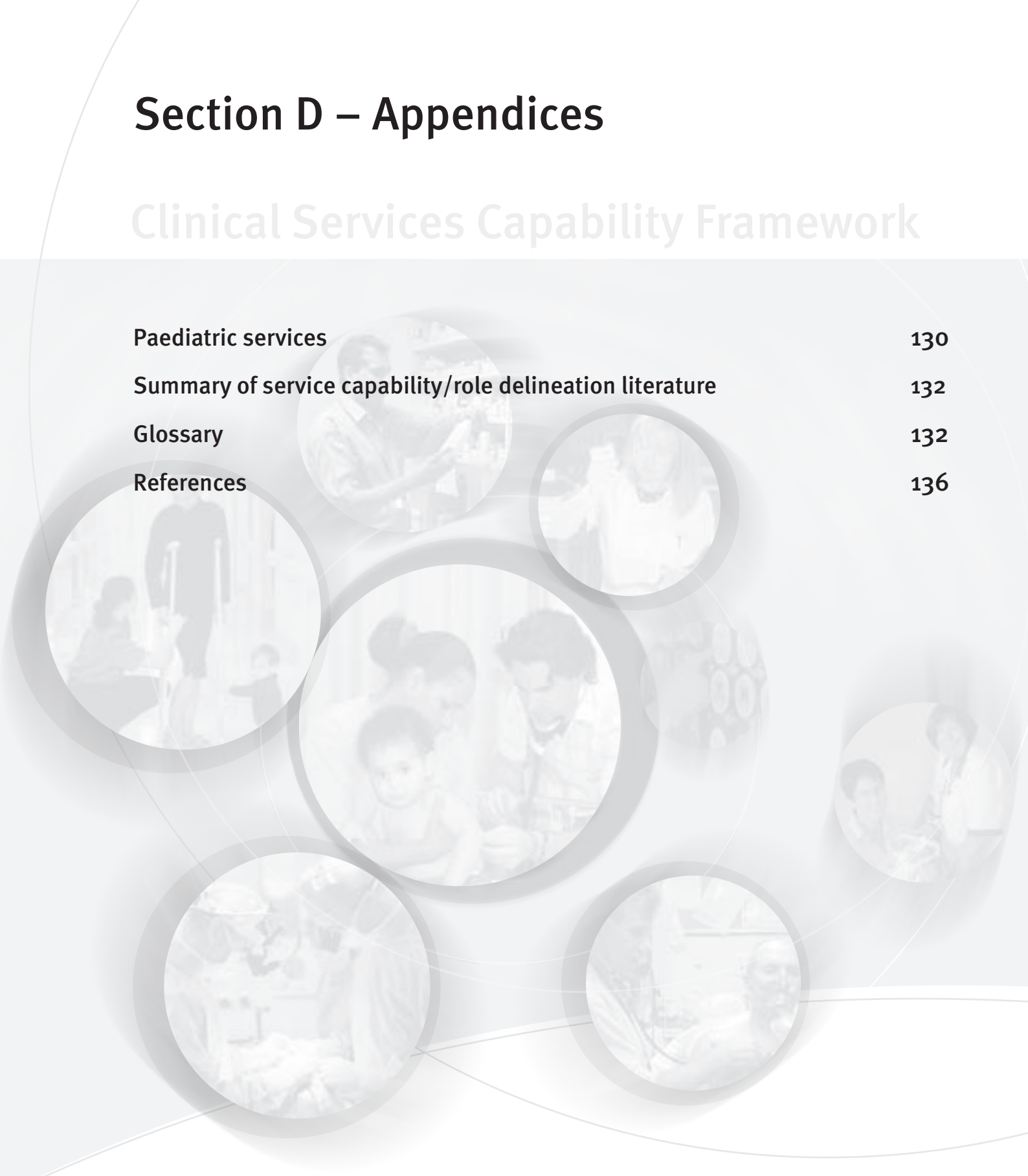
- low, medium and high risk pregnancies
- manages pregnancies of all gestational ages
- Zonal and/ or statewide role

Staffing	
Medical	• medical practitioner with obstetrics credentials (uncomplicated, instrumental and caesarean), on-site 24 hours • specialist in obstetrics on-site 24 hours • specialist with credentials in neonatology, on-site 24 hours

	• medical practitioner with credentials in newborn paediatrics, on-site 24 hours
Nursing	• registered nurses with evidence of ongoing clinical competency and experience in neonatal care on-site 24 hours

Section D – Appendices

Clinical Services Capability Framework



Public and licensed private health facilities
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Queensland Government
Queensland Health

Go to Contents Page

Section D: Appendices

Paediatric services

Providing safe health facility services for children is a complex and different challenge from providing care for adults. Because children continually grow and develop - psychologically, physiologically, intellectually and emotionally - their healthcare needs are different from those of adults. Not only must normal developmental changes be considered in decisions about children's care, but the different physiological responses children can have to disease means that they may need different interventions from adults. These differences influence the competencies and skill sets that staff require to appropriately address children's healthcare needs, the drugs prescribed, equipment used, and provision for parents and carers.

Within clinical service areas, except maternity and super specialist levels, paediatric services are largely integrated (organisationally) with services for adults. However, the distinctive additional requirements for providing paediatric services are highlighted in this appendix and are shaded throughout the Service Capability Framework document for easy identification.

In C2 Medical services, general paediatrics is listed as one of the specialties. The provision of sub-specialty services, such as cardiology, gastroenterology, haematology, neurology, orthopaedic surgery, ENT surgery and ophthalmology, should involve physicians or surgeons who are primarily trained in paediatrics, or if a service is provided by an adult sub-specialist, that sub-specialist should have specific training in the paediatric aspects of that sub-speciality.

Acute health services provided to children should where possible:

- be child-centred and holistic in nature
- respect the role of family/parents
- be provided in areas separate to where adult patients receive their treatment
- encourage parental visiting by providing appropriate facilities (eg. for overnight stay) for children in health facilities distant from home
- involve appropriate communication (one-to-one interaction) with the child and parents/carers
- support early intervention of specialist care when required
- involve the local health care service in all ongoing care with the intention of returning patients to the care of the local paediatric service with appropriate advice, guidance and education
- ensure children and young people are not treated as a homogeneous group.

In this document, super-specialist paediatric services are identified as those services provided for children with the most complex needs. A super-specialist paediatric service:

- provides an integrated service for all children across Queensland
- manages children with conditions of the highest complexity
- is multidisciplinary and involves multiple specialists and sub-specialists
- is provided by clinicians who are trained and skilled in managing these children
- provides the opportunities for outreach, education, training and research
- is likely to have a low volume of patients

- is likely to be provided from one site located in Brisbane, where there is access to co-located sub-speciality services and technology. However, some services may be located at two paediatric health facilities if volume is sufficient
- has mechanisms for providing services across the State including outreach, clinical networks, telemedicine.

The strategic documents from which these paediatric principles and paediatric service capability requirements are drawn include: *Health Facility and Community Services Framework for Children, Young People and their Families 2001-2011 (Queensland Health 2001)*, *Sub-specialty and Super-specialty Paediatric Services Report* (Queensland Health 2002), *Guidelines for Networking Paediatric Services* (New South Wales Health 2002) and *Review of Safeguards for Children and Young People Treated and Cared For by the NHS in Wales* (Wales National Health Services 2002).

Summary of role delineation literature

Service and health facility planning are key drivers of system-wide development. Coordinated, system wide planning encourages balance between overall system wide performance and individual health service performance. Developing a systems approach to managing services entails delineation of the functional roles of particular services across the State.

Delineation is required because it is neither appropriate nor feasible for every health facility to be resourced to the super-specialist level. Health facilities providing the right level of care to the right patients will not do so in isolation, but rather, will work together through clearly recognised linkages. Role delineation is one process that determines the support services, staff profile, minimum safety standards and other requirements that ensure clinical services are provided safely and are appropriately supported.

There have been numerous approaches to defining and profiling services. The following is a summary of the various approaches.

The Australian Experience

New South Wales

In 1986 the NSW Health Department published the Guide to the Delineation of Roles of Area Health Services and Hospitals and the Guide to the Role Delineation of Health Services in 1991.

These documents were intended to:

- enable a consistent language to be used among planners
- provide a structure for capital works planning
- provide a structure for service planning

They were to be used in conjunction with:

- defined catchment areas
- credentials and privileges processes
- networking of levels of service in an integrated system
- quality management processes

New South Wales has recently released the *Guide to the Role Delineation of Health Services, Third Edition* (2002). This document has maintained the existing format and is supported by a CD, which assists health service profiling and planning for a Health Service Area catchment population.

Victoria

Victoria has published several documents that use the concept of role delineation to help identify their planning framework. The key themes in health facility role delineation have been identified as:

- encouraging greater networking and inter-health facility coordination, with each performing complementary roles but not providing all services in every location
- fostering greater specialisation in certain areas (such as ophthalmology, paediatrics and acquired brain injury), to deliver safety and quality benefits to patients and cost advantages to the community

- supporting the development of elective surgery campuses
- developing the outer metropolitan services as general health facilities that provide a broad range of basic services and having close relationships with the higher intensity specialist services at health facilities nearer to the city centre (Victorian Department of Human Services 2001a).

The Victorian documents use role delineation concepts by specialty, for example, intensive care (MA International Pty Ltd 2001c). Also, following an expert forum examining the extent to which role delineation should be introduced, an emergency department study was commissioned.

Victoria is currently developing an approach to role delineation for rural and regional areas (excluding super specialties, eg. neurosurgery, transplant services). The key role delineation concepts being considered are: patient safety, self determination of role, appropriate patient selection, clinical service complexity, sustainability and capability.

Western Australia

The Health Department of Western Australia endorses the use of the NSW Department of Health's *Guide to the Role Delineation of Health Services* (Department of Health, Government of Western Australia 1999). The reconfiguration of health service activity is undertaken in the context of a population–based planning model. Guiding the process is recognition of factors influencing people's health, and a health service's ability to increase capacity and/or deliver more complex care.

In *Health 2020* (Department of Health Government of Western Australia 1998) a clinician survey identified role delineation as important , particularly regarding tertiary and secondary services. Additionally, clinicians regarded the development of a well integrated health system, which includes community services and general practice, as essential to providing seamless health care.

In *Health 2020* (Department of Health Government of Western Australia 1998), health leaders (including chief executive officers and general managers of private, public and non-government health services and health facilities in metropolitan and rural areas, directors of nursing, directors of medical services, heads of university departments, general practitioners, members of the Metropolitan Health Service Board and general managers in the Health Department of Western Australia) identified three key issues of concern - role delineation, integration and service delivery. Funding, workforce issues, and teaching and research were also identified as significant factors to be examined in the planning process.

A clinical senate has been recommended for each Area to address issues including role delineation between health facilities and health services in Areas. It is anticipated that clinical senates will improve the likelihood of clinical staff support for new programs and ways of operating (Department of Health Government of Western Australia 2001).

South Australia

South Australia has published several papers that use the concepts of role delineation to help develop a planning framework. An example is their structure for organising maternity and neonatal services based around college delineations.

Queensland

Queensland Health adopted a modified version of the NSW *Guide to the Role Delineation of Health Services* in 1991. A second document, the Queensland Health *Guide to the Role Delineation of Health Services*, was produced in 1994.

The Chief Health Officer has subsequently produced the *Guidelines for Clinical Services in Private Health Facilities* (Queensland Health 2002). It divides services into three levels and is being used by some public facilities for guidance regarding minimum levels of service for safe practice. However, this document is not completely applicable to public services, particularly regarding emergency, maternity and super-specialist services and facilities, which do not have local medical support.

To date the Queensland Health *Guide to the Role Delineation of Health Services* (Queensland Health 1994) has been used for the following purposes:

- to act as a framework for advisory panels and clinical networks to define service levels and preferred clinical network patterns
- as a tool by the Health Insurance Commission to identify similar kinds of facilities and to allow benchmarking of service delivery
- to assist with capital works planning

The International Experience

New Zealand

The New Zealand *Role Delineation Model* (RDM) includes six levels of complexity of basic clinical and related support services enabling health facilities involved in trauma management to be categorised according to their capability to deal with trauma. RDM ratings have been applied to the various levels of care as a rough indication of the complexity of service expected at each level (New Zealand Government 1998).

New Zealand role delineates at the health facility level, but then defines this further by using its purchasing plan at the specialty level. The combination of these provides a global picture of a health facility's activity and the specialties provided.

British Columbia and Ontario

Both British Columbia and Ontario use the Hay Group CMG 1997 Level of Care Methodology. This allows diagnoses and/or procedures to delineate between levels more specifically. The resulting model of levels of care could be useful for determining the appropriate number and distribution of service delivery sites within a geographic area. This method defines care levels by casemix groups and so delineates based on treatment pattern (Capital Health Region 2000).

Additionally there have been attempts to define levels of service delivery by service type, for example, cancer services, emergency, maternity, intensive care.

Britain

The NHS uses a combination of defining health facilities by catchment size and then uses the catchment size as a mechanism to restrict and delineate roles. This is a strongly geographic and population based model.

Summary of Approaches

In summary, role delineation has been achieved in a variety of ways. These include, by:

- geographic catchment
- specific clinical areas or streams individually
- health facility
- network of clinical areas or streams
- casemix complexity
- specialty

From analysis of the strengths and limitations of each method of delineation, the ideal role delineation model would:

- be linked to a strong risk management strategy
- ensure that patients are treated by a service that is appropriate to the level of care needed
- ensure that all of the inter-related elements of service delivery are captured
- ensure that the component parts of the picture add to a unified whole picture
- ensure that levels of service are comparable between service streams, specialties, and geographic areas
- enable a consistent language to be used among planners
- provide a capital works and human resource planning structure
- provide a service planning structure
- provide a internal benchmarking structure
- be associated with strong approaches to credentials and privileges processes, training and research
- provide a structure that recognises a health facility's varying levels of complexity
- ensure providers of care can be integrated in a coordinated care system with comprehensive and inclusive representation from metropolitan, regional and rural providers

24 hour access
Ability to seek assistance from and communicate with a service either in person or by another mechanism over a 24 hour period.

Access
Access may be made in person or via other communication mediums such as telephone, videoconference, and electronic communication of information and/or results. Access also refers to the ability to make use of services without difficulty or delay, including where there is no urgency about the provision of the service. If referring to an individual person, such a person may or may not necessarily be an employee of the health facility concerned, but formal arrangements regarding this person's service to the health facility have been made. For support services, access may be via an established referral process to an off-site provider, on an inpatient or ambulatory basis.

Affiliation
An agreement between relevant services providers (such as the provider, transport service and higher level service provider) to provide one or all of the following:

- coordination of inter-health facility transfers
- access to specialised health services
- staff training and ongoing education programs

Allied health staff
Professional staff with qualifications and ongoing competence in one or any combination of the following specialties: audiologist, clinical measurements scientist, dietician, occupational therapist, orthotist, pharmacist, physiotherapist, podiatrist, prosthetist, psychologist, social worker and speech pathologist. It may also include access to an Aboriginal and Torres Straight Islander health worker.

Available
A health service's ability to seek and obtain the advice and or intervention on-site of a suitably qualified professional (medical, nursing or allied health) who is deemed, is rostered, or has been nominated, to be contactable and immediately available to the clinical unit.

Capability
An individual or service's capacity to provide a health care service/intervention based on skills and knowledge.

Central monitoring capacity
Closed monitoring system, which enables suitably qualified staff to closely monitor the patient and adjacent monitoring systems from a central ward position.

Clinical pharmacy
Includes some or a combination of:

- drug therapy monitoring: medication order review, adverse drug reaction review, clinical review, therapeutic drug monitoring, and patient profile maintenance
- patient communication/counselling: medication history interview, individual and group counselling

- therapeutic Information provision
- patient orientated health care team activities eg. team meetings, ward rounds

Clinical unit
Designated functional area where patient care activity is performed.

Competency (ongoing/continuing clinical competency)
Competency is the combination of skills, knowledge, attitudes, values and abilities that support effective and/or superior performance in the professional's practice role. Ongoing or continuing clinical competency is the professional staff's ability to demonstrate that they have maintained their competence in their current area of clinical practice. Establishing evidence of ongoing clinical competency may be achieved through mechanisms such as professional performance and development, self-assessment and credential processes (for medical practitioners). The variety of methods used to maintain clinical competency and to improve practice may include informal and formal learning, participation in and use of evidence based practice, research, or other professional activities.

Complex multi-system life support
Series of invasive monitoring and interventional tools that allows for the control and support of respiratory, renal, cardiac and other organ functions.

Consultation
A formal arrangement has been made with a consultant, (eg. an obstetrician), who has agreed to provide advice in person or by telephone under agreed circumstances.

Continuous ventilatory support (CVS)
Also known as mechanical ventilation, CVS is a process by which gases are moved into the lungs by means of a mechanical device that assists respiration by augmenting or replacing the patient's own respiratory effort. With ventilation support, a patient is intubated or has a tracheostomy and receives continuous variable degrees of assistance to meet respiratory requirements in an uninterrupted continuous fashion. This includes CPAP (continuous positive airway pressure) and BiPAP (bi positive airway pressure) via an endotracheal tube or tracheostomy tube but not via a mask. It excludes IPPB (intermittent positive pressure breathing).

Core clinical services
For most health facilities acute clinical services fall into four core areas - emergency services (retrieval services are not specified in this document), surgical services, medical services and maternity services. A fifth distinct clinical area which accounts for a considerable volume of activity is endoscopy services. The other core area provided by most large health facilities is inpatient mental health or psychiatric services, however, this area is not included in this version.

Credentials
Credentials represent the formal qualifications, training, experience and clinical competence of the medical practitioner providing the professional health service. They are evidenced by documentation such as university degrees, fellowships of professional colleges or associations, registration by medical boards, certificates of service, certificates of completion of specific courses, periods of verifiable formal instruction or supervised training, information contained in confidential professional referees reports and medical indemnity history and status.

Critical care
Critical care services are comprised of intensive care units (ICU), high dependency units (HDU) and coronary care units (CCU). Critical care services provide care for the critically ill or those vulnerable to critical illness, which focus on the level of care that individual patients require and may or may not be provided in the unit. In the context of this document, critical care does not incorporate emergency services.

Day health facility
See Day Health Facility Health Services - Act, s 10(3).

Designated
Specifically defined hours are available for providing the service. Includes a routine/regular caseload.

Discrete area/unit
Beds dedicated for use by patients of a specific service. Includes beds temporarily dedicated to the service space, or those collocated with beds for other services, for example, a high dependency unit within a ward or intensive care unit.

Elective care
Care that in the opinion of the treating clinician is necessary and for which admission can be delayed at least 24 hours.

Emergencies
Are immediately, imminently or potentially life threatening conditions.

Emergency presentation
A patient who presents to an emergency service seeking health care.

Emergency surgery
Surgery which in the opinion of the treating clinician is necessary and for which admission cannot be delayed more than 24 hours.

Established
Recognised or agreed process.

Extended hours
Evenings and specified hours on weekends.

Extracorporeal renal support
Invasive monitoring and intervention tools that allow the control and support of renal functions, that may or may not be associated with complex multisystem life support.

Formal
Documented process agreed to by all parties involved.

Invasive cardiovascular monitoring
Series of invasive monitoring and intervention tools that allow the control and support of cardiac functions.

Levels of risk
Classification of physical status for the purposes of assessment.

Link
To connect with or be connected with by formal association.

Medical practitioner
All medical graduates registered by the Medical Board of Queensland to practice medicine in Queensland. Includes both general and specialist practitioners.

Non-invasive monitoring
Series of non-invasive monitoring tools that allow the control and support of temperature and respiratory and cardiac function.

On-call 24 hours
The ability of a health service to seek and obtain the advice and or intervention on-site of a suitably qualified professional (medical, nursing or allied health) who is deemed, or has by roster been nominated, to be contactable and available within 30 minutes (remote call) over a 24 hour period. Unless otherwise stated 24 hours implies 24 hours a day, 7 days a week.

On-site
Staff and or resources available at the facility who are able to provide the service without difficulty or delay when the need arises. Where on-site is required in a location it is nominated in the service capability profile.

On-site 24 hours
Staff and or resources that are available at a facility over a continuous 24 hour period. Unless otherwise stated 24 hours implies 24 hours a day, 7 days a week. In the case of a staff member, this availability has been designated by a roster system, and is compatible with proximate call (within 10 minutes.). Where on-site 24 hours is required in a location it is nominated for example, on-site 24 hours in ICU.

Privileges
Clinical privileges result from the permission granted to a practitioner to provide medical and other patient care services within defined limits in a health care facility. They represent the range and scope of clinical responsibility that a practitioner may exercise in the facility. Clinical privileges are specific to the individual, usually in a single health care facility, and relate to the resources, equipment and staff available.

Privileges granted at one facility are not automatically transferable to another. The extent of the privileges may vary from facility to facility depending on the support services required. However, consideration should be given for privileges to be granted on a district basis where services of the same level are provided.

Clinical privileges may be general (or global) in nature such as those in general practice involving family practice, or quite specific in defining complex areas of procedural medicine where only a few highly qualified and skilled practitioners may be competent to practice.

Clinical privileges may relate to admission and treatment of in-patients (public or private), treatment of outpatients, areas of clinical practice, use of facilities such as operating suites and procedure rooms, use of specialised equipment and technologies, including diagnostic facilities, performance of specific operations or interventional procedures.

Registered nurse
A registered nurse is registered with the Queensland Nursing Council to practice nursing without supervision, assumes accountability and responsibility for their own actions, and acts to rectify unsafe nursing practice and/or unprofessional conduct. It is essential that the nurse hold a current practicing certificate.

Registered nurse in charge
A registered nurse is appointed in charge of the nursing staff at the facility, eg. director of nursing. If the nurse in charge does not have qualifications and or the relevant experience in the speciality health service/s provided by the facility, (eg. obstetrics) then the quality and standards of nursing care must be delegated to an appropriately qualified registered nurse in the unit.

Registrar
A medical practitioner admitted to a training program by a specialist college and employed as such.

Required clinical services
Required clinical services are the suite of core and/or supporting clinical services of certain capability levels, to which a facility must have access, so as to safely provide a specific clinical service at the desired capability level. For example, a level 2 endoscopy service is among the core areas and support services defined as a required clinical service to enable the provision of a level 3 medical service. A table showing the required clinical services and levels appears in each of the service capability profiles, and illustrates the interdependence of various clinical services.

Risk factor
Environmental issues, personal characteristics, or events, which make it more or less likely that one might develop a given disease or experience a change in health status.

Self contained
An area within a facility that has been specifically designed and designated for a particular purpose. This area is so designed that it is a stand alone entity within a facility.

Specialist
A specialist whose training has been acknowledged by the relevant Australian specialist college via the award of a fellowship of that college or demonstrated equivalent, and who is registered by the Medical Board of Queensland to practice in that specialty in Queensland. This includes general surgeon and general physician specialists. The clinical credentials and privileges committee may grant clinical privileges to practice medicine in sub-specialty areas, (eg. medicine and surgery) after appropriate additional experience and/or training and assessment.

Sub-speciality
The term sub-speciality is used to describe the particular medical or surgical speciality eg. hand surgery or paediatric neurology. It is recognised that for some sub-specialties, clinicians will work exclusively with children (paediatric oncology and haematology) while in other areas clinicians will have a caseload mix of adults and children (eg. neurosurgery).

Super-specialist service

The *Selected Specialist Services – Direction Statement 2001-2010* (Queensland Health 2001) describes a range of selected specialist services, which are positioned at the complex end of the comprehensive health care system, provided by Queensland Health.

In the main, super-specialist services provide for a relatively few number of patients, involve a high level of clinical complexity, use a significant element of technology, and have a high cost per episode of care. Therefore, these services are located in only a few sites within the State.

As a way of classifying the selected specialist services, four sections, distinguished by two criteria, were identified:

- whether the service is of a *stand alone* type or is at the *complex end of a continuum* of services
- whether the expected volume of patients plus the nature of the facilities required will justify only one service for a population of 3.6 million or zonal *services* for a notional population of 1 million people.

The identification of the services included in the *Selected Specialist Services – Direction Statement 2001-2010* (Queensland Health 2001) is consistent with national and international trends. The *Selected Specialist Services – Direction Statement 2001-2010* (Queensland Health 2001) is a "living" document that will be reviewed regularly as new evidence becomes available. This will ensure that planning for specialist services responds to changing patient needs and clinical practice.

Support services

A health facility's ability to deliver a particular core service area depends on the availability of an appropriate level of support services. The following support services should be available on-site at an appropriate level: critical care services (including as appropriate, high dependency, intensive care and coronary care services), neonatal services, recovery area services and operating suites. Other support services of an appropriate level should be available and provided on or off-site as required; these include diagnostic imaging services, Interventional radiology services, pathology services and pharmacy services. The support services included in this document are not an exhaustive list. Other support type services include mortuary, infection control and prosthetics and orthotics.

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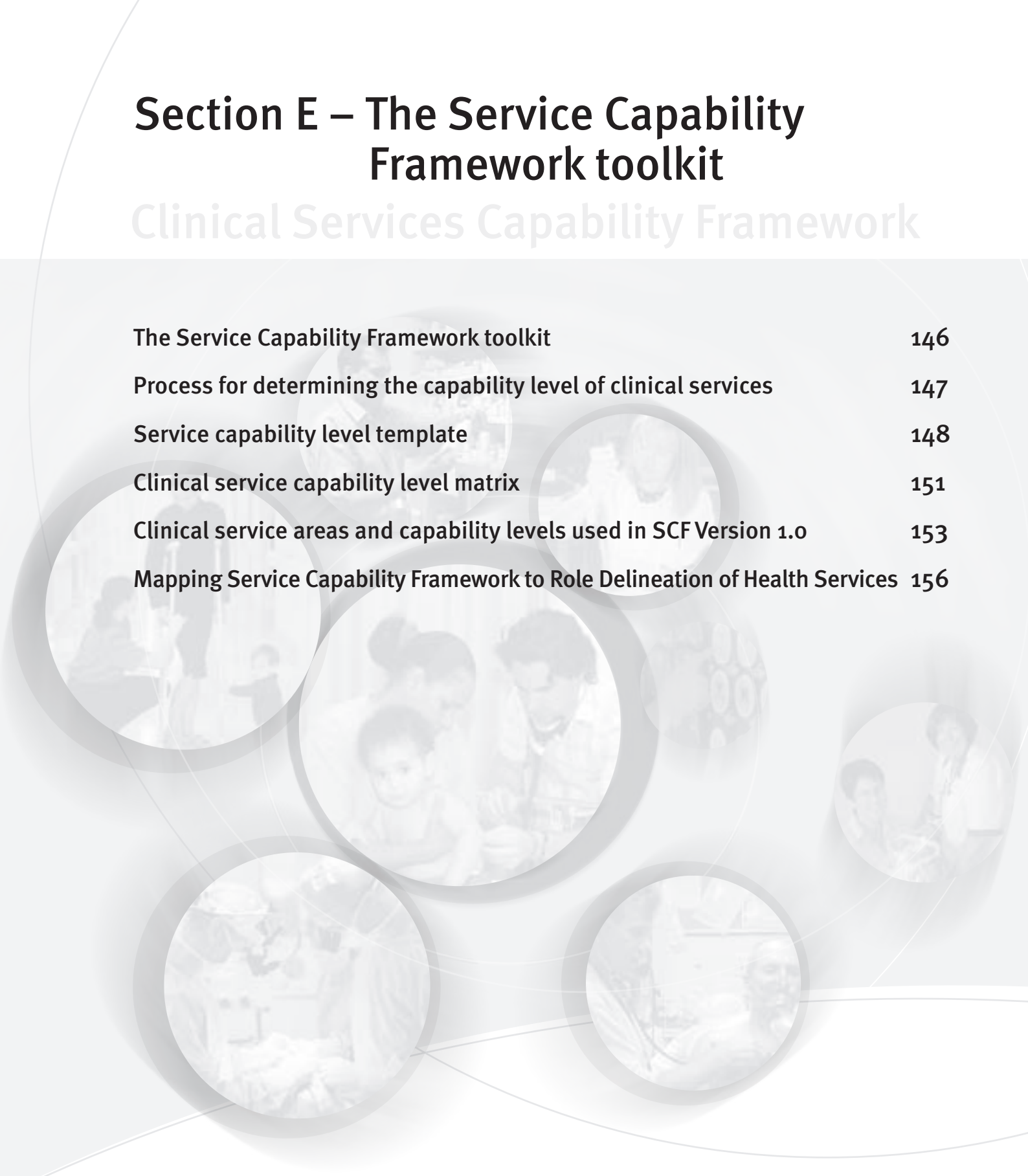
Section E – The Service Capability Framework toolkit

Clinical Services Capability Framework



Public and licensed private health facilities
Version 1.0

2004

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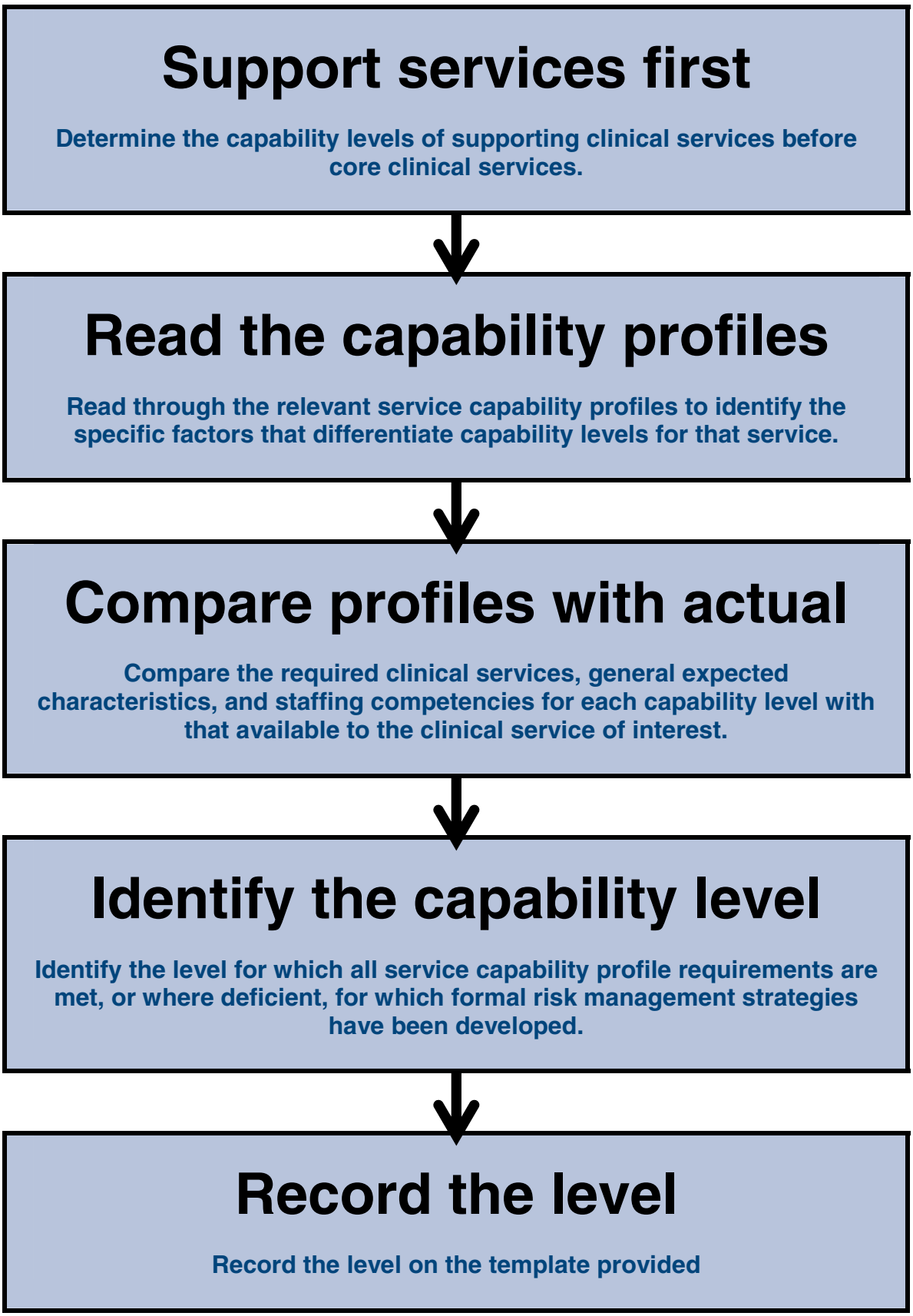
Go to Contents Page

Section E: The Service Capability Framework toolkit

The Service Capability Framework toolkit

The SCF toolkit contains a number of templates and suggested processes to assist people using the Framework. The toolkit contains:

- suggested process for determining the service capability levels of clinical services of a facility
- template for recording the service capability levels of clinical services of a facility
- matrix that identifies the interdependencies between clinical services at different capability levels
- table that displays all current service capability levels for core and supporting clinical services
- mapping of *Service Capability Framework* service capability levels against those of the *Guide to the Role Delineation of Health Services*


Support services first
Determine the capability levels of supporting clinical services before core clinical services.
Read the capability profiles
Read through the relevant service capability profiles to identify the specific factors that differentiate capability levels for that service.
Compare profiles with actual
Compare the required clinical services, general expected characteristics, and staffing competencies for each capability level with that available to the clinical service of interest.
Identify the capability level
Identify the level for which all service capability profile requirements are met, or where deficient, for which formal risk management strategies have been developed.
Record the level
Record the level on the template provided

Service capability level template

		Service Capability Levels				
		General services			Specialist services	
Clinical Services		Primary	1	2	3	Super-specialist
Supporting Clinical Services: Provided on-site or off-site	Diagnostic imaging					
	Pathology					
	Pharmacy					
	Nuclear medicine					
	Interventional radiology					
Supporting Clinical Services: Provided on-site	High dependency units					
	Intensive care units (adult)					
	Intensive care units (paediatrics)					
	Coronary care units					
	Neonatal services					
	Anaesthetic services					
	Operating suite services					
Core Clinical Services	Emergency services					
	Medical services				See separate template for medical and surgical sub-specialties	
	Surgical services					
	Endoscopy services					
	Maternity services					

	Levels of Service Complexity				
Surgical services	**Primary**	**1**	**2**	**3**	**Super-specialist**
General surgery					
Gynaecology					
Neurosurgery					
Ophthalmology					
Orthopaedic surgery					
Paediatric surgery					
Plastic and reconstructive surgery					
Cardiac-thoracic surgery					
Urology					
Vascular surgery					
Otolaryngology – head and neck surgery					
Colorectal surgery					
Ear, nose and throat surgery					
Endocrine surgery					
Gastrointestinal surgery					
Hepatobilary and pancreas surgery					
Maxillofacial surgery					
Podiatric surgery					

	Service Capability Levels				
Medical services	**Primary**	**1**	**2**	**3**	**Super-specialist**
Cardiology					
Endocrinology					
Gastroenterology					
Internal medicine					
General paediatrics					
Clinical haematology (excluding oncology)					
Clinical immunology					
Infectious diseases					
Neurology					
Rheumatology					
Thoracic medicine					
Dermatology					
Clinical genetics/medical genetics					
Geriatrics					
Burns					
Sleep medicine					
Hepatology					
Renal medicine					

			Supporting clinical services - on site or off site																Supporting clinical services - on site							
	Required clinical services →		Diagnostic Imaging				Pathology				Pharmacy				Nuclear Medicine			Interventional Radiology			Critical Care							
	Clinical services ↓	Level	P	1	2	3	P	1	2	3	P	1	2	3	P	1	2	1	2	3	HDU	ICU1	ICU2	ICU3	PICU	CCU1	CCU2	CCU3
Supporting clinical services - on-site or off-site	Diagnostic Imaging	P																										
		1																										
		2																										
		3																										
	Interventional Radiology	1			2			1					2			1					HDU	ICU1*	ICU2*					CCU3*
		2						1					2								HDU*							
		3			2			1					2			1						ICU1						
	Nuclear Medicine	P																										
		1																										
		2																										
		3											2															
	Pathology	P																										
		1																										
		2																										
		3																										
	Pharmacy	P																										
		1																										
		2																										
		3																										
Supporting clinical services - on-site	Critical Care	HDU		1				1					2															
		ICU1		1				1					2		P				2									
		ICU2			2			1						3		1			2									
		ICU3			2				2					3			2			3								
		PICU		1	2					3				3			3			3								
		CCU1						1					2															
		CCU2			2			1					2		P				2									
		CCU3			2									3			2			3								
	Neonatal	1		1			P				P																	
		2			2			1					2															
		3			2					3				3			3			3								
	Anaesthetics	1		1			P					1																
		2			2			1				2									HDU							
		3			2				2			2				1						ICU1						
		SS																										
	Operating Suite	P					P					1																
		1		1				1				1																
		2			2			1				1									HDU							
		3			2			1					2			1						ICU1						
Core clinical services	Emergency	P		1			P				P																	
		1		1			P				P																	
		2		1				1				1									HDU*					CCU1*		
		3		2*					2				2			1			2			ICU1						
		SS			2*					3				3			3	1		3				ICU3				CCU3
	Medical	P		1			P				P										HDU*					CCU1*		
		1		1				1				1																
		2			2			1					2		P													
		3			2*			1						3		1			2			ICU*					CCU2*	
		SS																										
	Surgical	P		1			P				P																	
		1		1				1			P																	
		2			2			1					2								HDU							
		3			2			1						3		1			2			ICU1						
		SS				3				3				3			3			3				ICU3				CCU3
	Endoscopy	1		1			P					1									HDU							
		2		1				1					2															
		3			2*			1						3					2			ICU1						
		SS			2*					3				3						3					PICU			
	Maternity	1		1				1				1																
		2		1*				1					2								HDU							
		3			2*			1					2									ICU1						
		SS			2*					3*				3*									ICU2					

			Supporting clinical services - on site (cont.)									Core clinical services																								
			Neonatal				Anaesthetics				Operating Suite				Emergency					Surgical					Endoscopy				Medical					Maternity			
	Clinical services ↓	Level	3	1	2	3	SS	P	1	2	3	P	1	2	3	SS	P	1	2	3	SS	1	2	3	SS	P	1	2	3	SS	1	2	3	SS
Supporting clinical services - on-site or off-site	Diagnostic Imaging	P																																		
		1																																		
		2																																		
		3																																		
	Interventional Radiology	1		1*		3*		P												2*		SS*							2							
		2		1				P												2*									2*							
		3			2			P												2									2							
	Nuclear Medicine	P																																		
		1																																		
		2																																		
		3																																		
	Pathology	P																																		
		1																																		
		2																																		
		3																																		
	Pharmacy	P																																		
		1																																		
		2																																		
		3																																		
Supporting clinical services - on-site	Critical Care	HDU			2					2									2								1								
		ICU1				3					3									3				3				2							
		ICU2				3					3									3				3				2							
		ICU3				3					3									3				3					3						
		PICU				3*					3			3						3					SS				3						
		CCU1																										2							
		CCU2																				1						2							
		CCU3				3		P						3										3					3						
	Neonatal	1																																		
		2																														2				
		3				3					3														SS							3		
	Anaesthetics	1						P																												
		2								2									2																
		3									3									3															
		SS																																		
	Operating Suite	P		1																		1*													
		1		1														1*																	
		2			2														2																
		3				3														3															
Core clinical services	Emergency	P																												P					
		1															P														1				
		2		1					1									1				1									1				
		3			2					2									2				2						2						
		SS				3					3									3				3										SS		
	Medical	P																					2*													
		1																																		
		2		1*				P															2												
		3			2			P																												
		SS																																		
	Surgical	P						P																												
		1		1					1																						1				
		2			2*					2																										
		3				3*					3													2												
		SS				3*					3														3							3			
	Endoscopy	1		1				P																							1					
		2			2				1											2															
		3				3*					3									3															
		SS	3			3*					3									3															
	Maternity	1		1*						2									2										1						
		2			2*					2									2*										1						
		3				3*					3									3										1*						
		SS	3			3*					3									3*										2						

All clinical services

		Service Capability Levels				
		General services			Specialist services	
Clinical Services		Primary	1	2	3	Super-specialist
Supporting Clinical Services: Provided on-site or off-site	Diagnostic imaging	Primary	Level 1	Level 2		
	Pathology	Primary	Level 1	Level 2	Level 3	
	Pharmacy	Primary	Level 1	Level 2	Level 3	
	Nuclear medicine	Primary	Level 1	Level 2	Level 3	
	Interventional radiology		Level 1	Level 2	Level 3	
Supporting Clinical Services: Provided on-site	High dependency units		HDU			
	Intensive care units (adult)		Level 1	Level 2	Level 3	
	Intensive care units (paediatrics)					PICU
	Coronary care units		Level 1	Level 2	Level 3	
	Neonatal services		Level 1	Level 2	Level 3	
	Anaesthetic services		Level 1	Level 2	Level 3	Super-specialist
	Operating suite services	Primary	Level 1	Level 2	Level 3	
Core Clinical Services	Emergency services	Primary Clinical	Level 1	Level 2	Level 3	Super-specialist
	Medical services	Primary	Level 1	Level 2	See separate template for medical and surgical sub-specialties	
	Surgical services	Primary	Level 1	Level 2		
	Endoscopy services		Level 1	Level 2	Level 3	Super-specialist
	Maternity services		Level 1	Level 2	Level 3	Super-specialist

Specialty surgical services

	Levels of Service Complexity				
Surgical services	**Primary**	**1**	**2**	**3**	**Super-specialist**
General surgery			Level 2	Level 3	Super-specialist
Gynaecology			Level 2	Level 3	Super-specialist
Neurosurgery			Level 2	Level 3	Super-specialist
Ophthalmology			Level 2	Level 3	Super-specialist
Orthopaedic surgery			Level 2	Level 3	Super-specialist
Paediatric surgery			Level 2	Level 3	Super-specialist
Plastic and reconstructive surgery			Level 2	Level 3	Super-specialist
Cardiac-thoracic surgery			Level 2	Level 3	Super-specialist
Urology			Level 2	Level 3	Super-specialist
Vascular surgery			Level 2	Level 3	Super-specialist
Otolaryngology – head and neck surgery			Level 2	Level 3	Super-specialist
Colorectal surgery			Level 2	Level 3	Super-specialist
Ear, nose and throat surgery			Level 2	Level 3	Super-specialist
Endocrine surgery			Level 2	Level 3	Super-specialist
Gastrointestinal surgery			Level 2	Level 3	Super-specialist
Hepatobilary and pancreas surgery			Level 2	Level 3	Super-specialist
Maxillofacial surgery			Level 2	Level 3	Super-specialist
Podiatric surgery			Level 2	Level 3	Super-specialist

Specialty medical services

	Service Capability Levels				
Medical services	**Primary**	**1**	**2**	**3**	**Super-specialist**
Cardiology			Level 2	Level 3	Super-specialist
Endocrinology			Level 2	Level 3	Super-specialist
Gastroenterology			Level 2	Level 3	Super-specialist
Internal medicine			Level 2	Level 3	Super-specialist
General paediatrics			Level 2	Level 3	Super-specialist
Clinical haematology (excluding oncology)			Level 2	Level 3	Super-specialist
Clinical immunology			Level 2	Level 3	Super-specialist
Infectious diseases			Level 2	Level 3	Super-specialist
Neurology			Level 2	Level 3	Super-specialist
Rheumatology			Level 2	Level 3	Super-specialist
Thoracic medicine			Level 2	Level 3	Super-specialist
Dermatology			Level 2	Level 3	Super-specialist
Clinical genetics/medical genetics			Level 2	Level 3	Super-specialist
Geriatrics			Level 2	Level 3	Super-specialist
Burns			Level 2	Level 3	Super-specialist
Sleep medicine			Level 2	Level 3	Super-specialist
Hepatology			Level 2	Level 3	Super-specialist
Renal medicine			Level 2	Level 3	Super-specialist

Mapping of Service Capability Framework to Role Delineation of Health Services

1994 Role Delineation		2004 Service Capability Framework	
Levels	**Description**	**Levels**	**Description**
Level 6 Level 5	• Statewide or zonal. • Located in metropolitan areas. • Provide support to and receive referrals from lower level health facilities within their zone or service catchment, which for some service may include the entire State.	Super specialist	• Statewide or zonal. • Located in metropolitan areas. • Support and receive referrals from lower level services within their zone or service catchment, which may include the entire State for some services.
Level 4	• Provide core services in provincial and major provincial areas • Provide the level of care that could be considered as "core business" for Queensland Health and is readily available throughout the State. • Level 3 and 4 services have catchments of approximately 250,000 to 300,000.	Level 3	• Provide definitive care for all patients except super-specialist. • Provide a full range of clinical sub-specialties and available supporting services.
Level 3		Level 2	• Provides definitive care for most patients. • Staffed by specialists. • Some medical and surgical sub-specialties available.
Level 2	• Levels 1 and 2 refer to services that provide basic care in rural and remote areas.	Level 1	• Provides definitive inpatient care, which may require a sub-specialty outpatient referral. • Provides inpatient treatment of illnesses or stabilisation of patients prior to transfer by a medical practitioner, with the back up of limited supporting services.
Level 1		Primary	• Services provided on an ambulatory care basis, depending on the service availability in the ambulatory setting and the patient's individual capacity and the carer capacity to support ambulatory treatment processes.