



Standards for Maternal and Neonatal Services in South Australia 2010

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These standards have been developed in accordance with contemporary professional quality and safety standards and establish the minimum standards for the provision of maternity and neonatal services in South Australia. Recommendations made by the South Australian Maternal, Perinatal and Infant Mortality Committee¹ have been considered in the development of these standards.

The development of this criterion based framework recognises the work undertaken in New South Wales, as produced in the *NSW Health Guide to Role Delineation of Health Services*, 3rd Ed 2002.

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¹ Department of Health 2006, 'Maternal, Perinatal and Infant Mortality in South Australia 2004'

Contents

Acknowledgements	3
Contents	4
Glossary of Terms	6
Introduction	7
Background	7
Definition	8
Use of the standards	9
Principles of the standards	9
General	9
Determining the risk factors	10
Models of care	13
Description of some maternity models of care	14
Workforce implications	16
Credentialing	17
Workforce education	17
Quality, safety and risk management	17
Description of perinatal service delineation	18
Perinatal service delineation	18
Level 1 Perinatal service delineation	18
Level 1 Complexity of perinatal clinical care	18
Level 1 Perinatal facilities	19
Level 1 Perinatal services workforce implications	19
Level 1 Perinatal support services	19
Level 1 Perinatal pathology services	19
Level 1 Perinatal blood and blood product services	19
Level 1 Perinatal pharmacy services	20
Level 1 Perinatal medical imaging diagnostic services	20
Level 1 Perinatal nuclear medicine services	20
Level 1 Perinatal intensive care services	20
Level 1 Perinatal operating rooms	20
Level 1 Perinatal anaesthetic services	20
Level 1 Perinatal education services	20
Level 1 Perinatal research	20
Level 1 Perinatal statewide implications	20
Level 2 Perinatal service delineation	21
Level 2 Complexity of perinatal clinical care	21
Level 2 Perinatal facilities	21
Level 2 Perinatal workforce implications	21
Level 2 Perinatal support services	22
Level 2 Perinatal pathology services	22
Level 2 Perinatal blood and blood product services	22
Level 2 Perinatal pharmacy services	22
Level 2 Perinatal diagnostic medical imaging services	22
Level 2 Perinatal nuclear medicine services	22
Level 2 Perinatal ICU services	22
Level 2 Perinatal operating rooms	22
Level 2 Perinatal anaesthetic services	23
Level 2 Perinatal education services	23
Level 2 Perinatal research	23
Level 2 Perinatal statewide implications	23
Level 3 Perinatal service delineation	23
Level 3 Complexity of perinatal clinical care	23
Level 3 Perinatal facilities	24
Level 3 Perinatal workforce implications	25
Level 3 Perinatal support services	25
Level 3 Perinatal pathology services	26

Level 3 Perinatal blood and blood product services	26
Level 3 Perinatal pharmacy services	26
Level 3 Perinatal diagnostic medical imaging services	26
Level 3 Perinatal nuclear medicine services	26
Level 3 Perinatal intensive care services	26
Level 3 Perinatal operating rooms	26
Level 3 Perinatal anaesthetic services	26
Level 3 Perinatal education services	27
Level 3 Perinatal research	27
Level 3 Perinatal statewide implications	27
Level 4 Perinatal service delineation	27
Level 4 Complexity of perinatal clinical care	27
Level 4 Perinatal facilities	29
Level 4 Perinatal workforce implications	29
Level 4 Perinatal support services	30
Level 4 Perinatal pathology services	30
Level 4 Perinatal blood and blood product services	30
Level 4 Perinatal pharmacy services	30
Level 4 Perinatal diagnostic medical imaging services	31
Level 4 Perinatal nuclear medicine services	31
Level 4 Perinatal intensive care services	31
Level 4 Perinatal operating rooms	31
Level 4 Perinatal anaesthetic services	31
Level 4 Perinatal education services	31
Level 4 Perinatal research	32
Level 4 Perinatal statewide implications	32
Level 5 Perinatal service delineation	32
Level 5 Complexity of perinatal clinical care	32
Level 5 Perinatal facilities	33
Level 5 Perinatal workforce implications	34
Level 5 Perinatal support services	35
Level 5 Perinatal pathology services	35
Level 5 Perinatal blood and blood product services	35
Level 5 Perinatal pharmacy services	35
Level 5 Perinatal diagnostic medical imaging services	36
Level 5 Perinatal nuclear medicine services	36
Level 5 Perinatal intensive care services	36
Level 5 Perinatal operating rooms	36
Level 5 Perinatal anaesthetic services	36
Level 5 Perinatal education services	36
Level 5 Perinatal research	37
Level 5 Perinatal statewide implications	37
Level 6 Perinatal service delineation	37
Level 6 Complexity of perinatal clinical care	37
Level 6 Perinatal facilities	38
Level 6 Perinatal workforce implications	39
Level 6 Perinatal support services	40
Level 6 Perinatal pathology services	41
Level 5 Perinatal pharmacy services	41
Level 6 Perinatal blood and blood product services	41
Level 6 Perinatal diagnostic medical imaging services	41
Level 6 Perinatal nuclear medicine services	41
Level 6 Perinatal intensive care services	41
Level 6 Perinatal operating rooms	41
Level 6 Perinatal anaesthetic services	41
Level 6 Perinatal education services	42
Level 6 Perinatal research	42
Level 6 Perinatal statewide implications	42

Glossary of Terms

Aboriginal Maternal and Infant Care (AMIC) workers

Aboriginal Health workers involved in supporting women during the perinatal period working in collaboration with a small team of perinatal service providers.

Appointed/nominated specialist as head of services/department

Includes clinical specialist advisors (or the equivalent) that are nominated by the specific craft groups, are recognised as experts in the relevant field of clinical practice, and work within the hospital's clinical governance framework.

Clinical service planning

Refers to the process of predicting the future for specific clinical specialities and then configuring the health service and infrastructure accordingly.

Community midwifery service

Where qualified midwife(s) provide community based midwifery care in collaboration with other perinatal health providers that is usually related to, but not restricted to the postnatal period.

Credentialing

The recognition of professional or technical competence through registration, certification, licensure, admission to association membership, the award of a diploma or degree, etc.

Criterion-based

Refers to a standard set of terms or principles used to evaluate, categorise or form a judgment.

Multiple high order gestations

Condition of bearing three or more fetuses simultaneously, e.g. triplets, quadruplets, quintuplets.

Network

A formally recognised group, principally comprised of clinicians, established to address clinical services planning, priority setting and system improvement.

Obstetric Shared Care

A statewide framework whereby accredited GPs are supported by a participating public hospital to provide antenatal and postnatal care, whilst birthing responsibilities remain with the participating public hospital program. The perinatal providers working within this model of care are supported by agreed protocols guiding the administrative and clinical management of the program.

SA Perinatal Practice Guidelines

Statewide clinical guidelines published by SA Health, that assist perinatal service providers and have been developed in consideration of research and best available research.

Introduction

Background

The *Operational Policy Guidelines and Standards in South Australia* were first published in 1987, with revisions in 1995 and 1999. Although the document has primarily been produced for application within the public health sector, it is acknowledged that the standards of practice outlined in the document are also relevant to private health services and may subsequently be used as a reference for maternity and neonatal services in this sector. This current version has been developed with consideration of the technological advances and globalisation that have increased the exposure to new developments within the field. It also recognises the apparent regionalisation of health care that has evolved over recent years, which demands a more coordinated approach to improving maternity and neonatal services.

The revision of this document has been undertaken under the direction of the South Australian Maternal & Neonatal Clinical Network, which was established in May 2007 as part of the initiatives in the SA Health Care Plan 2007-2016.

Within the context of a safe, quality health care system, a more flexible approach to maternity services has been widely advocated, including in the South Australian Women's Health Policy² from which a commitment to 'women-centred, safe and flexible birthing services' is requested. It has also been established that contemporary practices, maternity and neonatal services need to align with South Australia's Strategic Plan 2007, which clearly articulates the health care target to continue as the 'best' performer in Australia in relation to infant mortality rates³.

Previous editions of these standards incorporated the levels of perinatal care as defined in the *Guidelines for Perinatal Care*⁴, published under the auspices of the American Academy of Paediatrics. The concept of regionalisation of perinatal care within three (3) levels has been internationally accepted since the mid-1970s and was adopted in Australia by the National Health Medical Research Council in 1978. However, the structure of health care organisations and hospitals in Australia has necessitated an expansion of these levels. Previous versions of these standards created a four (4) level model. Six (6) levels of service delineation have been developed based on the model outlined by the New South Wales Department of Health⁵. It is noteworthy that the Western Australia and Queensland health systems have also utilised the New South Wales model in the reform of their maternity and neonatal services.

Service delineation relies upon the regionalisation of services, based upon population needs, and management within a coordinated, cooperative system inclusive of the health units and medical staff involved. The degree of complexity of the perinatal care each health service is capable of providing is identified, and collectively, the aim is to:

- > improve the quality of care to all pregnant women and newborn infants
- > improve access to services
- > provide linkages to an appropriate level of care
- > optimise the continuity of care across the system.

² South Australian Department of Health, March 2005, South Australian Women's Health Policy, Adelaide

³ South Australian Strategic Plan 2007 "Infant Mortality: Continue to be the best performing state in Australia."

⁴ American Academy of Paediatrics

⁵ NSW Service Delineation

Subsequently, SA Health's Perinatal Service Delineation 2004 (draft) has helped inform the development of these standards. The criterion-based framework determines the minimum clinical standards that should be afforded a given complexity of maternity and/or neonatal service. In consideration of the quality and safety of care, the framework defines the relevant workforce, equipment, protocols and service arrangements that need to be formally in place to ensure the continuity of a particular level of service.

This document does not provide clinical practice protocols for perinatal care and it is intended that health units utilise the *South Australian Perinatal Practice Guidelines*⁶ for this purpose. Further to this, it is also strongly recommended that each unit providing maternity and neonatal services has a comprehensive selection of specific procedures/protocols developed in accordance with best practice principles, relevant to the local workforce and support services provided.

Whilst these standards have been prepared in consideration of the available information and provide a description of the level of service that can be safely provided, it is acknowledged that these are not prescriptive and some degree of variation may exist at any given service because of local or contemporaneous circumstances.

Definition

This revised edition, now called the *Standards for Maternal and Neonatal Services in South Australia*, supports the principles of service delineation and aligns with the South Australian Health Reform agenda, that indicates:

*'A central component of clinical service planning is service delineation'*⁷

Service delineation is described as:

*'...a process which determines that support services, staff profile, minimum safety standards and other requirements are provided to ensure that clinical services are provided safely and appropriately supported. The aim of the guide is to provide consistent language which health care providers, and planners can use when describing health services, and a tool for use when planning service developments.'*⁸

Defining levels of perinatal care necessitates reference to the elements that distinguish perinatal care from other care provided by health services. Service delineation provides a framework assisting health services structure their perinatal services to appropriately meet the needs of the local community, whilst taking account of the local services available and those that can be better provided elsewhere.

It is recognised that service delineation is not static, and that regular ongoing assessment should be undertaken to account for variables that may become apparent in the organisation.

The role of a service described in the designated levels of service delineation depicts the complexity of the clinical activity undertaken within the service in the presence of a health care workforce appropriately qualified to execute the services defined. Mandatory credentialing and competency assessment processes of the relevant health care workforce should therefore complement the role of each facility.

⁶ South Australian Department of Health 2004, *Perinatal Practice Guidelines*, <http://www.health.sa.gov.au/PPG/>

⁷ South Australian Department of Health, 2004, South Australian Health Reform

⁸ Crown Health Enterprise Monitoring Unit (CHEMU), 1993 *Guide to the Role Delineation of Health Services in New Zealand*, Wellington

Use of the standards

Pregnancy, birthing and parenting are significant, meaningful life events and consumers of maternity and neonatal services have the right to receive accessible and safe quality services. Complementing the range and scope of maternity and neonatal services available in South Australia is an expectation that every site providing perinatal services should conform to the principles of best practice and ensure services are maintained as outlined in these standards.

The standards are not presented as a comprehensive description of all the perinatal services that a health care unit may provide, but confines itself to minimal requirements in consideration of current professional standards of practice.

These standards recognise the need to:

- > define relevant areas of responsibility for individual health units within a comprehensive health care system
- > establish referral practices and retrieval transport services enabling the timely transfer of care between different organisations as determined by the patient's needs
- > establish the necessary professional and technical infrastructure within the health services to support the defined systems
- > plan and develop services to the level necessary to meet the needs of the relevant catchment's population.

It is envisaged that these standards will be used by health care providers and service planners with the aim of providing an objective, standardised system for describing the scope and level of maternity and neonatal services provided by a particular unit and/or organisation. It is recognised that the facilities available for the mother, neonate and her family should be conducive to the care that meets their normal physiological needs. Health managers have the opportunity and obligation to determine their maternity and neonatal health care roles within this service delineation framework.

These standards may be useful when a health unit:

- > plans to (re)commence providing maternity and/or neonatal services to ensure the appropriate facilities and staff are in place
- > wishes to commence providing a higher level of care
- > evaluates its services for accreditation, licensing or review for health service agreement purposes.

It is expected that all health services have appropriate policies/protocols guiding staff in the management of emergency pregnancy presentation. Where the appropriate level of care is not available to meet the needs of the woman or her fetus/baby, health services should have a well established communication system facilitating the timely transfer or retrieval of the patient to a health unit that can provide the required care.

Principles of the standards

General

The levels of maternity and neonatal care described in these standards are differentiated by the complexity of clinical activity undertaken by the health service. This is determined by the workforce, facilities, equipment, support services, education and organisational quality and risk management systems available at each service. Whilst it is recognised

that variations in the services provided may be warranted as unique patients, resources and limitations to services arise, it is recommended that these variations are documented and substantiated with an appropriate risk management policy and strategy.

Determining the risk factors

Contemporary perinatal clinical practice standards dictate that establishing preconception health screening and providing comprehensive antenatal care will optimise the health outcomes for both the mother and her baby with early diagnosis and management of risk factors and/or complications. To ensure risk factors and any potential complications can be ascertained at the earliest opportunity, it is recommended that routine preconception health care for women of reproductive age be undertaken. Antenatal care should commence at or as close to ten (10) weeks gestation as possible. Furthermore, women should then be encouraged to maintain regular antenatal assessment for the duration of the pregnancy.

There is a progressive level of risk for pregnant women and their fetus, ranging from low to very high. Pregnant women should have their perinatal care managed at a health unit with comparable services to those determined by the woman's needs. It should be acknowledged that a woman's condition in pregnancy may fluctuate as a consequence of varying risk factors. The subsequent antenatal management plan should be modified accordingly.

It is accepted that the level of perinatal care provided is dependent upon the:

- > facilities available at the particular health unit
- > experience of medical officers (obstetric, anaesthetic and paediatric), midwives and neonatal nursing staff available at the particular health unit
- > availability of other services and facilities to manage the identified and potential complications.

These standards recognise that the complexity of clinical care provided at any given health service is predominantly determined by the relevant workforce and physical facilities available to support that care. In consideration of these factors, the following criteria for birthing services have been defined:

- > ≥ 37 weeks should be managed at a Level 3, 4, 5 or 6 health unit (Level 3 health units are further restricted to only managing a singleton fetus with predicted birth weight ≥ 2500 g)
- > ≥ 34 weeks singleton fetus and ≥ 35 weeks twin pregnancy should be managed at a Level 4, 5 or 6 health unit (Level 4 health units are further restricted to only managing those uncomplicated twin pregnancies which are at term and have a predicted birth weight ≥ 2000 g, and no other multiple high order gestations)
- > ≥ 33 weeks should be managed at a Level 5 or 6 health units where the neonate has an anticipated birth weight of 1500 g (Level 5 health units are further restricted to managing those twin pregnancies ≥ 34 weeks gestation where the neonates have an anticipated birth weight of 1500 g, and no other multiple high order gestations)
- > < 33 weeks singleton pregnancies and twin pregnancies < 34 weeks gestation, and any neonate(s) with an anticipated birth weight of < 1500 g and all multiple high order gestations should only be managed at Level 6 perinatal health units.

As well as the fetal gestation, there are perinatal risk factors that should be considered when determining the appropriate level of care for the mother or fetus. Relevant recognised risk factors may include, but are not restricted to:

a) in early pregnancy:

- > age > 35 yrs
- > previous genetic abnormality
- > known carrier or family history of hereditary condition
- > ethnic group at increased risk of hereditary disease
- > fetal abnormality detected on ultrasound
- > medical conditions plus or minus drug therapy, which may have fetal effects
- > carrier status of infections or infectious illness during early pregnancy.

b) during the pregnancy:

General factors

- > drug dependence
- > heavy alcohol consumption
- > history of psychotic illness
- > parity - \geq para five (5)
- > anaesthetic risk factors
- > obvious abnormalities of skeleton, gait or posture
- > assisted conception
- > weight, for example BMI > 30
- > smoking
- > history of depression or anxiety
- > hyperemesis gravidarum
- > incompetent cervix
- > cholestasis.

Maternal disease

- > evidence of renal disease
- > anaemia, $< \text{Hb} 110 \text{ g/L}$ & $\text{MCV} < 80 \text{ fl}$
- > cardiac disease with some organic or functional impairment
- > hypertension, for example diastolic pressure 90-100 mm/Hg
- > sexually transmitted disease diagnosed during pregnancy
- > bleeding diathesis
- > history of epilepsy
- > asthma requiring treatment during pregnancy
- > previous venous thrombosis/embolism
- > diabetes, gestational diabetes
- > systemic lupus erythematosus
- > current major depression or generalised anxiety
- > current psychotropic medication.

Previous obstetric history

- > caesarean delivery or scarred uterus
- > mid trimester abortion
- > pre-term labour
- > difficult labour/delivery
- > low birthweight infant
- > perinatal death
- > blood group antibodies
- > significant birth injury
- > recurrent miscarriage
- > shoulder dystocia.

Complications in present pregnancy

- > pre-eclampsia or pregnancy induced hypertension
- > multiple pregnancy
- > placenta praevia
- > polyhydramnios
- > pregnancy > 42 weeks gestation
- > pre-term rupture of membranes
- > malpresentation, for example breech.

c) at labour and delivery:

- > previous caesarean section delivery
- > potential anaesthetic problems
- > placenta praevia
- > previous post partum haemorrhage or retained products
- > suspected cephalopelvic disproportion
- > prolonged rupture of membranes
- > prolapsed cord or cord presentation
- > uterine rupture
- > confirmed non-reassuring fetal heart problems
- > active genital herpes at time of labour.

The early identification of these risk factors, timely referral, assessment and provision of appropriate care and services will promote good physical and mental health outcomes for the woman and her infant, and the efficient use of the finite health resources.

All health units conducting deliveries as part of their maternity service should have the appropriate staff and resources to perform a safe and prompt Category 1 Caesarean section delivery. The specific classification of the Caesarean section should be determined in relation to the objective information regarding the condition of the pregnant woman and/or fetus, such as:

Category 1: Immediate threat to life of a woman or fetus

- > cord prolapse

- > failed instrument delivery with fetal compromise (bradycardia or low pH)
- > maternal arrest
- > abnormal fetal scalp blood sample/pH (pH<7.2)
- > confirmed fetal blood (Apt's test) indicating ruptured fetal blood vessel
- > sustained fetal bradycardia (<70/min for ≥ 3minutes)
- > placental abruption
- > placenta praevia with major haemorrhage

Category 2: Maternal or fetal compromise but not immediately life threatening

- > identified, but reversible abnormality on the cardiotocographs
- > malpresentation of the fetus

Category 3: Needing early delivery but no maternal or fetal compromise

- > failure to progress
- > malpresentation in early labour
- > planned caesarean section presenting in labour
- > maternal condition requiring stabilisation, eg preeclampsia

Category 4: At a time to suit the woman and the caesarean section team⁹

In South Australia, the term 'booking to delivery interval' refers to the time between the Operating Room staff receiving the booking for the caesarean section delivery and the actual time of birth. This will allow health units to audit the time interval.

The 'booking to delivery interval' used in these standards is based on the clinical status of the pregnant woman and fetus in consideration of the available staff and facilities. While short booking-to-delivery intervals are supported when there are sufficient maternal or fetal grounds, this must be balanced with the ability to provide a safe service in a particular setting.

With the development of specific statewide birthing policies such as *Planned Birth at Home* and *First Stage Labour and Birth in Water*, each health unit is obligated to determine its capacity to provide the services implicated in any such policies and inform their patients of this decision.

Models of care

Maternity and neonatal services are being influenced by models of care that have developed in response to:

- > a demand from women
- > a need for a greater focus on women-centred care
- > primary health care principles and community based approaches
- > a strengthening of the interface between hospital care and community based care.

The most significant change in care for pregnant women over the past few years is the recognition of the benefits of the continuity of a known care provider throughout the

⁹ RANZCOG College Statement *Decision to delivery interval for Caesarean Section*, July 2007

continuum of the perinatal period. It is acknowledged that pregnancy care provided within a continuum of care model will enhance maternal satisfaction and better health outcomes for the woman and her baby.

Health units at all levels involved in maternity services should consider offering a range of models depending on demand, staff and facilities available, recognising that midwives are the most appropriate carers for women with a normal health pregnancy and acknowledging that women with an increased risk will need specialist obstetric care.

Description of some maternity models of care

Birth or birth centre

Some health units offer birth care in a birth or birth centre for women at low risk. These homelike environments are usually located close to the health unit's labour ward. In a birth or birth centre, individual midwives or midwifery teams support women through the antenatal, labour, birth and postnatal period, with medical officer assistance close at hand if required. The standard of services and care provided in birth or birth centres, as with all models of care, should be congruent with current contemporary evidence based maternity services practice.

Midwifery led care model

The midwifery led care model was developed as a continuum of care model with shared care arrangements between the local general practitioners and midwives. It has been established as an innovative model that enhances midwifery practice and provides safe maternal care with medical support at hand (should the woman's condition require this). It involves a small team of midwives attending to the antenatal, intrapartum and postnatal care of pregnant women who meet strict low risk criteria. After an initial assessment by the local general practitioner, those women deemed suitable are referred to the midwife team. Midwives attend to the majority of the antenatal/postnatal care in a roster/on-call arrangement, whilst involving the client's general practitioner at regular intervals. The midwife commonly manages birth with appropriate medical officer support readily available if required.

It should be noted that this model has been made available in some rural settings where maternity services are supported in the majority by the general practitioner.

GP obstetric shared care model

The GP obstetric shared obstetric care model has been developed in accordance with the basic philosophy that women may have ongoing or future health needs for which she consults her general practitioner. Within this model, women with low risk pregnancies may choose and receive antenatal care from their general practitioner, or at the local hospital or health service and birth in a designated hospital with appropriate maternity and neonatal facilities. All care and treatment is provided according to the *South Australian Shared Obstetric Care Protocols*¹⁰, which have been developed within a statewide collegial framework and are reviewed annually. Shared care generally takes place between a maternity unit, midwives and a doctor (general practitioner) and in some cases a specialist obstetrician. In the best interest of safety and appropriate care, some local health services

¹⁰ SA GP OSHC protocols

do not accommodate maternity services, and in this instance the woman may need to travel to another health care organisation to give birth.

It is acknowledged that not all general practitioners wish to provide obstetric shared care as an option for the management of pregnancy. However, those wishing to do so are required to undertake extra training to become accredited shared care providers.

Private funded model

As a predominantly medical model of care, pregnant women access private funded perinatal care with their preferred obstetrician who works in conjunction with a maternity unit that provides private health funded care.

In some country areas of South Australia, the model is slightly altered in that the local general practitioner and obstetrician offer private funded antenatal care and follow up with supporting the woman through her birth in the local public hospital.

Postnatal care is provided by the health unit's community midwife in conjunction with the general practitioner or obstetrician.

It should be noted that this model has been made available in some rural settings where maternity services are supported in the majority by the general practitioner.

Caseload midwifery model

A caseload model of midwifery care is essentially where a midwife undertakes the care of a group of women across the continuum of pregnancy, labour, birth and the postnatal period.

The principles that guide this model of care are that each woman will have a 'known' midwife and a 'support or back-up' midwife whom she meets regularly during her pregnancy. The 'known' midwife is the primary midwifery carer for that woman whilst also being supported by the 'support or back-up' midwife. The care can be provided in the community, the woman's home or in hospital.

The midwife consults with medical officers, allied health staff or other health professionals, if required, or refers the woman to other health professional staff, as indicated by the woman's condition.

The midwife remains the coordinator of the woman's care and continues to provide the midwifery care the woman needs.

Aboriginal family birthing programs

Aboriginal family birthing programs employ Aboriginal Maternal and Infant Care (AMIC) workers to function in direct partnership with a midwife and doctors to create an opportunity for Aboriginal women to be cared for by Aboriginal women during pregnancy, birth and the postnatal period (six-to-eight weeks). AMIC workers receive perinatal clinical skills training and day to day support from the midwives. In a reciprocal way, the midwives receive support and education in cultural issues and practices from the AMIC workers. A key quality of the program is the collegial relationship established between the AMIC worker and the midwife. This in turn facilitates a trusted rapport within the team, which reflects in the woman's confidence in the model and thus improves her willingness to access health services.

Midwifery group practice model

Midwifery group practice is the name given to a number of caseload models of midwifery care around the world and in South Australia.

The Nurses Board SA Enterprise Bargaining Agreement 2007 includes specific requirements for midwifery group practice.¹¹

The complexity of care criteria from which midwifery group practices models operate are stipulated at each site where they are available and can include only care for 'low risk' pregnancies as well as some models that provide care for 'all risk' pregnancies.

Traditional maternity care model

Traditional maternity care model is a model whereby antenatal care is provided at a maternity hospital as outpatient appointments. The woman is usually supported at that same hospital, or their alternate campus, for her labour and birth. Postnatal care is then provided at the hospital for a few days and if the woman's circumstances indicate the need, may receive domiciliary midwifery home visits for up to the first week, following postnatal discharge from hospital.

The woman may not have the same doctor or midwife throughout the pregnancy and those caring for her during the antenatal period may not be involved with her labour, birth or postnatal period. Usually there are different medical and midwifery staff in the different sections of the hospital who provide care for different aspects of the woman's maternity experience. These health units may participate in the training of doctors and midwives, and women and babies in these settings may therefore have their care managed by health professionals in training whilst under the supervision of the medical specialist or registered midwife.

Workforce implications

It is recommended that maternity services staff, facilities and equipment at each level of service be appropriate to optimise the health outcomes for both the woman and her infant. The workforce engaged to provide the designated perinatal services at each health service should be appropriately credentialed within the defined competencies and professional standards of practice as indicated by their specific professional body.

It is acknowledged that the availability and competence of the maternity services workforce, resource allocation and historical practices are some of the factors that influence the range of models of care that can be offered in maternity services.

Determinants of the suitability of the maternity services workforce available at each level of service are included in these standards, but credentialing, admitting rights and clinical privileges for these staff remain the responsibility of the employing health service.

Health services providing less complex care must have clinical capabilities to support the woman and/or neonate while waiting for assistance from the more qualified perinatal staff and/or the perinatal retrieval services.

¹¹ Nurses EB 2007

Credentialing

All nurses, midwives, general practitioners, obstetricians, anaesthetists, paediatricians, neonatologists and other health care staff should be credentialed to provide their special area of practice according to their relevant professional body/standards and/or the employing organisation's employment process. It is the mandatory role of the employing organisation to ensure adequate formal appointment and credentialing processes are in place for all clinic staff.

Level 3-6 perinatal health services must ensure that all perinatal care provided is in accordance with the Nurses Act 1999. The registered midwife should provide all maternity care and have demonstrable core competencies as indicated by the *Australian Nursing & Midwifery Council – National Competency Standards for the Midwife*¹², which have been assessed as suitable to obtain and retain their license to practice as a midwife in Australia.

Registered and enrolled nurses, midwifery students and Aboriginal Maternity Infant Care Workers supporting any perinatal care must have that care supervised by a registered midwife.

Level 1 and 2 health units must ensure all health care staff are competent in the management of an emergency pregnancy presentation.

Workforce education

The level of service described in these standards determines the complexity of clinical activity that a service can provide. The presence of suitable professionals who hold specialist care qualifications compatible with the defined level of care is necessary.

Staff working in perinatal services should have access to relevant, appropriate continuing education to maintain their professional standards of practice.

Quality, safety and risk management

The fundamental premise in caring for a pregnant woman is that the health services should be provided in a setting that is appropriate for the level of risk which the pregnancy presents for the mother and/or baby.

It is essential for each health unit providing perinatal services to identify and manage the level of risk acceptable to their own particular resources and to ensure strategies are in place to manage both expected and unexpected transition along the continuum of care.

Effective risk management includes strategies such as formal incident and complaints monitoring and tracking systems, infection control programs, regular audit of documentation in the medical record (both paper based and electronic), in addition to a systematic process of credentialing of clinical staff. Patient outcomes and clinical practices need to be monitored and audited to ensure optimal care and services are achieved. All South Australian health units providing birthing services are required to comply with the documentation requirements determined by the SA Pregnancy Outcome Unit. The *SA Supplementary Birth Record* should be completed after each birth and forwarded to the SA Pregnancy Outcome Unit for correlation and further analysis.

¹² ANMAC – National Competency Standards for the Midwife, January 2006

In accordance with the documentation standards outlined in the South Australian Records Documentation and Data Capture Standards (August 2000), the *South Australian Pregnancy Record MR 31* should be considered the woman's main record for recording antenatal care.

The design and implementation of the risk management system will be influenced by the varying needs of an organisation, its particular objectives, its products and services and the processes and specific practices employed.

In support of optimal outcomes for the mother and baby, it is intended that health units utilise the *South Australian Perinatal Practice Guidelines*¹³ as clinical practice protocols which are designed for use by clinicians working in perinatal services. Perinatal health service providers are encouraged to use these guidelines within the context of offering individualised care for pregnant women and their babies, within a uniform process of clinical assessment, decision-making and practice.

It is expected that all health units providing perinatal services should ensure staff working in the area have unrestricted access at all times, to the *South Australian Perinatal Practice Guidelines*.

Further to this, perinatal service staff should be supported by organisational policies that recognise the concept of role delineation and their specific geographical isolation. It is imperative that organisations with limited perinatal services provide policies outlining a safe and efficient method of transport for the woman and her fetus/neonate presenting with complications.

Level 6 health services, as outlined in these standards, will provide the state's perinatal retrieval services. Given that current contemporary practice indicates that it is usually safer for antenatal transfer or retrieval, careful planning and management of the woman's risk factors needs to be addressed. This may require a level of anticipation that a complication is occurring and that health units providing maternity care have an organisational policy/procedure outlining the expectations of staff facilitating an emergency patient transfer.

Description of perinatal service delineation

Within a quality and safety framework, the perinatal service delineation guidelines promotes locally based management of 'low risk' pregnancies whilst also supporting the concept of cascading, increasingly 'risk' pregnancies being managed in larger maternity services, with access to more comprehensive facilities and a greater range of clinical expertise.

Perinatal service delineation

Level 1 Perinatal service delineation

Level 1 Complexity of perinatal clinical care

The local health service facilities and the available workforce have determined that these health units cannot provide a safe perinatal service. Instead, the health unit should only

¹³ South Australian Department of Health 2004, *Perinatal Practice Guidelines*, <http://www.health.sa.gov.au/PPG/>

provide appropriate services to facilitate a retrieval team or transfer of the unexpected pregnancy emergency presentation to a more suitable health care facility.

Some local general practitioner services may be available in the area for the management of the low risk postpartum women and their infants and in some instances, the postpartum women may also be supported by a community midwifery service.

The local health unit managers and general practitioners have a responsibility to inform the community of the limitations regarding perinatal services in the district.

Health units deemed to provide Level 1 perinatal services should have appropriate formal policy/protocols which guide staff, ensuring the:

- > ability to manage unexpected pregnancy emergency presentations, including a formal policy/protocol outlining the local management of emergency pregnancy presentations
- > ability to provide emergency care to support mothers and babies until the retrieval service arrives
- > immediate access to the *South Australian Perinatal Practice Guidelines* at all times
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > appropriate documentation and register of the unexpected birth
- > services and care available are evaluated as safe and comply with the organisation's accreditation and SA Health's *Health Service Agreement* requirements.

Level 1 Perinatal facilities

Health units deemed to provide Level 1 perinatal services have:

- > no designated maternity or perinatal care facilities
- > emergency resuscitation equipment available 24 hours per day, seven days per week.

Level 1 Perinatal services workforce implications

Health units deemed to provide Level 1 perinatal services have:

- > generalist hospital staff and may not have registered midwives available
- > limited allied health services available and usually none designated to perinatal care
- > nursing and medical staff competent in adult basic life support resuscitation.

Level 1 Perinatal support services

Health units deemed to provide Level 1 perinatal services have:

- > telecommunication links established with the statewide retrieval services
- > formal protocols to guide staff contacting the retrieval team.

Level 1 Perinatal pathology services

Health units deemed to provide Level 1 perinatal services have access to limited pathology services with no 'on call' capacity for specimen analysis available.

Level 1 Perinatal blood and blood product services

Health units deemed to provide Level 1 perinatal services have no emergency transfusion supplies available on site, with no 'on call' capacity.

Level 1 Perinatal pharmacy services

Health units deemed to provide Level 1 perinatal services have access to limited pharmacy services with no 'on call' capacity.

Level 1 Perinatal medical imaging diagnostic services

Health units deemed to provide Level 1 perinatal services have access to limited medical imaging diagnostic services with no 'on call' capacity.

Level 1 Perinatal nuclear medicine services

Health units deemed to provide Level 1 perinatal services have no local perinatal nuclear medicine services available.

Level 1 Perinatal intensive care services

Health units deemed to provide Level 1 perinatal services have no local intensive care services available.

Level 1 Perinatal operating rooms

Health units deemed to provide Level 1 perinatal services have no operating room services available. These services are provided by the health unit managing the woman's intrapartum care.

Level 1 Perinatal anaesthetic services

Health units deemed to provide Level 1 perinatal services have no anaesthetic services relevant to perinatal care available. These services are provided by the health unit managing the woman's intrapartum care.

Level 1 Perinatal education services

Health units deemed to provide Level 1 perinatal services ensure nursing and medical officers have access to emergency care and resuscitation education programs.

Level 1 Perinatal research

There is no expectation that health units deemed to provide Level 1 perinatal services will be involved in research related to perinatal care. Where possible, the Level 1 perinatal services may wish to facilitate research related to perinatal care that is conducted by others.

Level 1 Perinatal statewide implications

Health units deemed to provide Level 1 perinatal services will secure the assistance of the statewide retrieval service as required, but there is no expectation that they provide a strategic role in statewide services related to perinatal care.

Level 2 Perinatal service delineation

Level 2 Complexity of perinatal clinical care

Level 2 perinatal services have locally based general practitioner service and access to midwives who collectively provide 'low risk' antenatal and postnatal care, usually within the South Australian GP obstetric shared care program. Some services may also be supported by a community midwifery service. Safety and quality issues related to the facilities available and the associated workforce implications have determined that the health units providing Level 2 perinatal services cannot provide safe intrapartum or neonatal care, nor any antenatal or postnatal services for women deemed to be 'at risk'.

The Level 2 perinatal health services unit should provide appropriate services to facilitate the retrieval or transfer of care of any neonate or the 'at risk' pregnant woman to a more suitable health care facility. The unit should provide appropriate care to the pregnant woman with complications until a retrieval team can facilitate her transfer to a more suitable health unit.

The local health unit managers and general practitioners have a responsibility to inform the community of the limitations regarding perinatal services in the district.

Health units providing Level 2 perinatal services should have appropriate formal policy/protocols which guide staff, ensuring the:

- > availability of clear and concise determinants to assess and manage the 'low risk' pregnancy
- > efficient and effective transfer of care to appropriate health services for neonatal or intrapartum care
- > efficient and effective transfer of care to appropriate health services for those pregnant women deemed to be 'at risk'
- > ability to manage unexpected pregnancy emergency presentations, including a formal policy/protocol outlining the local management of emergency pregnancy presentations
- > ability to provide emergency care to support mothers and babies until the retrieval service arrives
- > immediate access to the South Australian GP obstetric shared care program protocols and the *South Australian Perinatal Practice Guidelines* at all times
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > appropriate documentation and register of the unexpected birth
- > services and care available are evaluated as safe and comply with the organisation's accreditation and SA Health's Health Service Agreement requirements.

Level 2 Perinatal facilities

Health units providing Level 2 perinatal services have:

- > limited antenatal and postnatal care facilities with no designated birthing facilities for intrapartum care
- > emergency resuscitation equipment available 24 hours per day, seven days per week.

Level 2 Perinatal workforce implications

Health units providing Level 2 perinatal services have:

- > access to midwives for community based midwifery care usually related to but not restricted to the postnatal period

- > general practitioners formally accredited with the South Australian GP obstetric shared care program
- > formal arrangements existing between a local GP undertaking the South Australian GP obstetric shared care program and a specialist obstetrician or obstetric proceduralist general practitioner
- > limited allied health services available and none designated to perinatal care
- > nursing and medical officers competent in adult basic life support resuscitation.

Level 2 Perinatal support services

Health units providing Level 2 perinatal services have:

- > formal communication links with a specialist obstetrician or obstetric proceduralist GP for advice or referral
- > established telecommunication links with statewide retrieval services
- > formal protocols to guide staff contacting the retrieval team.

Level 2 Perinatal pathology services

Health units providing Level 2 perinatal services have limited local pathology services with no 'on call' capacity or 24 hour specimen analysis available.

Level 2 Perinatal blood and blood product services

Health units deemed to provide Level 2 perinatal services have no emergency transfusion supplies available on site, with no 'on call' capacity.

Level 2 Perinatal pharmacy services

Health units providing Level 2 perinatal services have limited local pharmacy services with no 'on call' capacity.

Level 2 Perinatal diagnostic medical imaging services

Health units providing Level 2 perinatal services have limited local perinatal diagnostic medical imaging services with no 'on call' capacity.

Level 2 Perinatal nuclear medicine services

Health units providing Level 2 perinatal services have no local perinatal nuclear medicine services available.

Level 2 Perinatal ICU services

Health units providing Level 2 perinatal services have no local intensive care services available.

Level 2 Perinatal operating rooms

Health units providing Level 2 perinatal services have no local perinatal operating room services available. These services must be available at the health unit managing the woman's intrapartum care.

Level 2 Perinatal anaesthetic services

Health units providing Level 2 perinatal services have no perinatal anaesthetic services available. These services must be available at the nominated health unit managing the woman's intrapartum care.

Level 2 Perinatal education services

Health units providing Level 2 perinatal services should support education and ongoing professional development programs ensuring the competency of the midwives and/or nurses as per the Australian Nursing & Midwifery Council (ANMC) *National Competency Standards for Midwife*.

Nursing and medical officers have access to emergency care and resuscitation education programs, including those relevant to perinatal care.

Local general practitioners should be supported in appropriate professional development including accreditation with the South Australian GP obstetric shared care program.

Level 2 Perinatal research

There is no expectation that health units providing Level 2 perinatal services will be involved in research related to perinatal care. Where possible, the Level 2 perinatal services may wish to facilitate research related to perinatal care that is conducted by others.

Level 2 Perinatal statewide implications

Health units providing Level 2 perinatal services will facilitate the assistance of the statewide retrieval service as required, but there is no expectation that they provide a strategic role in statewide services related to perinatal care.

Level 3 Perinatal service delineation

Level 3 Complexity of perinatal clinical care

Health units providing Level 3 perinatal services have an appropriate local workforce with facilities enabling the provision of comprehensive care for the uncomplicated woman deemed to be 'low risk' as per the *South Australian Perinatal Practice Guidelines*. These services are restricted to caring for the pregnant woman with no complications who delivers her singleton neonate at a gestation greater than or equal to (\geq) 37 weeks and the neonate weighs greater than or equal to (\geq) 2500 g.

Given the required increase in complexity of care required for women with less than ($<$) 37 weeks gestation and neonates weighing less than ($<$) 2500 g it is essential that this care is provided in more appropriate health units.

The Level 3 health care unit should provide appropriate services to facilitate the transfer of care of the 'at risk' complicated pregnant woman or neonate to a more suitable health care facility as per the South Australian GP obstetric shared care program and the *South Australian Perinatal Practice Guidelines*. The unit should also provide appropriate care to the pregnant woman or neonate with complications, until a retrieval team transfer to a more suitable health unit can be facilitated.

The Level 3 perinatal health services unit should consider a range of care models that complement the demographics and needs of the local community; included in these models may be the South Australian GP obstetric shared program and midwifery led models of care. The Level 3 perinatal service will also have the access to the support of a community based midwifery service usually providing care related to, but not restricted to, the postnatal period.

The local health unit managers and general practitioners have a responsibility to inform the community of the limitations regarding perinatal services in the district.

Health units providing Level 3 perinatal services should have appropriate formal policy/protocols which guide staff, ensuring the:

- > availability of clear and concise determinants to assess and manage the 'low risk', complicated pregnancy involving singleton pregnancy only
- > efficient and effective transfer of care to appropriate health services for neonates born with weight < 2500 g and for those pregnant women deemed to be 'at risk' and/or with a gestation < 37 weeks, including any multiple birth pregnancy
- > ability to manage unexpected pregnancy emergency presentations including a formal policy/protocol outlining the local management of emergency pregnancy presentations
- > ability to provide emergency care to support mothers and babies until the retrieval service arrives
- > ability to provide appropriate care for phototherapy and gavage feeding in consultation with a specialist paediatrician
- > safe, appropriate care for women undergoing cardiotocography monitoring
- > immediate access at all times to the South Australian GP obstetric shared care program protocols and the *South Australian Perinatal Practice Guidelines*
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > services and care available are evaluated as safe and comply with the organisation's accreditation and SA Health's Health Service Agreement requirements.

Level 3 Perinatal facilities

Health units providing Level 3 perinatal services have:

- > a range of antenatal, birthing and postnatal care facilities including allocated inpatient beds and a designated birthing room(s) in the health unit, supporting women centred care
- > a nursery for the transitional care and stabilisation of the unexpectedly sick neonate equipped with:
 - radiant heater
 - convection-warmed incubator
 - oxygen analyser
 - pulse oximeter
 - phototherapy lamp
- > cardiotocography monitoring available for antenatal and intrapartum care

- > access to operating room facilities adequate to accommodate a Category 1 Caesarean section delivery and achieve delivery within 60 minutes of the booking, which are maintained in accordance with relevant standards including the Australian College of Operating Room Nurses Standards¹⁴
- > emergency resuscitation equipment appropriate for an adult and neonate available 24 hours per day, seven days per week.

Level 3 Perinatal workforce implications

Health units providing Level 3 perinatal services have:

- > midwives rostered and available 24 hours per day, seven days per week
- > access to a community midwifery service usually related to but not restricted to the postnatal period
- > access to appropriately qualified operating room staff that are available 24 hours per day, seven days per week and able to assist with a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure
- > general practitioner services able to be in attendance at the health unit within 60 minutes of the need
- > formal arrangements existing between a local GP undertaking South Australian GP obstetric shared care program and a specialist obstetrician or obstetric proceduralist general practitioner
- > medical officers accredited in anaesthetics readily available 24 hours per day, seven days per week for consultation and able to be in attendance within 60 minutes of the need and able to attend a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure
- > at least three (3) medical officers with appropriate perinatal services credentials available 24 hours per day, seven days per week and able to attend a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure, (one to perform anaesthetic, one to perform the caesarean section delivery and an additional medical officer to attend to the neonate's needs immediate post delivery)
- > health professional trainees, if on campus, providing services whilst under the supervision of their accredited practitioner
- > nursing/midwives and medical officers competent in adult and neonatal basic life support resuscitation.

Level 3 Perinatal support services

Health units providing Level 3 perinatal services have:

- > formal communication links with specialist obstetrician and paediatrician services available for advice and referral, including advice regarding cardiotocograph interpretation
- > established telecommunication links with statewide retrieval services
- > formal protocols to guide staff wishing to contact the retrieval team
- > established referral pathways to appropriate allied health professionals
- > established referral pathways for mental health assessment and management

¹⁴ Australian College of Operating Room Nurses Standards for perioperative nursing

> established formal communication links with community health care, child protection, mental health and family and community health services.

Level 3 Perinatal pathology services

Health units providing Level 3 perinatal services have limited local pathology services with no 'on call' arrangement for specimen analysis.

Level 3 Perinatal blood and blood product services

Health units deemed to provide Level 3 perinatal services have only limited emergency transfusion supplies available on site, with no 'on call' capacity. These supplies are managed as an emergency response.

Level 3 Perinatal pharmacy services

Health units providing Level 3 perinatal services have limited local pharmacy services with no 'on call' capacity.

Level 3 Perinatal diagnostic medical imaging services

Health units providing level 3 perinatal services have limited local perinatal diagnostic medical imaging services with no 'on call' arrangements for obstetric ultrasound examinations.

Level 3 Perinatal nuclear medicine services

Health units providing Level 3 perinatal services have no local perinatal nuclear medicine services available.

Level 3 Perinatal intensive care services

Health units providing Level 3 perinatal services have no local intensive care services available for the mother or neonate.

Level 3 Perinatal operating rooms

Health units providing Level 3 perinatal services have access to operating room services available including 'on call' arrangements, 24 hours per day, seven days per week, whereby services can be provided within 60 minutes of the need to perform an emergency obstetric procedure, including a Category 1 Caesarean section, and achieve delivery within 60 minutes from booking the procedure.

Level 3 Perinatal anaesthetic services

Health units providing Level 3 perinatal services has anaesthetic services available including 'on call' arrangements, 24 hours per day, seven days per week, whereby services can be provided within 60 minutes of the need to perform an obstetric procedure, including assist with a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure.

Level 3 Perinatal education services

Health units providing Level 3 perinatal services have the capacity to support education and ongoing professional development programs ensuring the competency of the midwives and/or nurses as per the Australian Nursing & Midwifery Council (ANMC) *National Competency Standards for the Midwife*.

Nursing, midwife and medical officers will have access to emergency care and resuscitation education programs including adult and neonatal resuscitation.

RANZCOG (2006)¹⁵ recommends that all clinicians using and interpreting cardiotocographs should have current knowledge of:

- > fetal physiological responses to hypoxia
- > good pattern recognition skills
- > the ability to integrate this knowledge with each clinical situation.

Midwives and medical officers working at health units providing Level 3 perinatal services will have access to regular cardiotocography education with competency assessment.

Local general practitioners should be supported in appropriate professional development including accreditation through the South Australian GP obstetric shared care program.

Level 3 Perinatal research

There is no expectation that health units providing Level 3 perinatal services will be involved in research related to perinatal care. Where possible, the Level 3 perinatal services may wish to facilitate research related to perinatal care that is conducted by others.

Level 3 Perinatal statewide implications

Health units providing Level 3 perinatal services will facilitate the assistance of the statewide retrieval service as required, but there is no expectation that they provide a strategic role in statewide services related to perinatal care.

Level 4 Perinatal service delineation

Level 4 Complexity of perinatal clinical care

Health units providing Level 4 perinatal services have an appropriate local workforce with facilities enabling the provision of comprehensive care for the woman deemed to be 'low risk' as per the *South Australian Perinatal Practice Guidelines* and are able to extend this care for some pregnancy related illnesses that remain stable. These services are restricted to caring for the pregnant woman with only minor complications who delivers her singleton neonate at a gestation greater than or equal to (\geq) 34 weeks or uncomplicated twins who deliver (\geq) 35 weeks, and the neonate(s) weigh greater than or equal to (\geq) 2000 g. In general, a Level 4 perinatal service requires 500-1000 births in house births per year to achieve the critical mass required for effective delivery of clinical care.

¹⁵ RANZOG (2006) *Intrapartum Fetal Surveillance Clinical Guidelines and Good Practice Notes*. Retrieved 9th August 2006 from <http://www.ranzcog.edu.au/publications/pdfs/ClinicalGuidelinesSecEd-IFS-Summary.pdf>

Health units providing Level 4 perinatal services are generally appropriate to care for neonates who can be managed in a bassinet or cot, and/or require incubator care for short term transitional problems or convalescing after an acute illness which can reasonably be expected to resolve. For example:

- > respiratory distress requiring oxygen < 40% oxygen for ≤ 4 hours, or longer if the neonate's compromised condition is near resolution and consultant advice is sought from a Level 6 perinatal service unit regarding their management.
- > minor additional care requirements, such as IV access for antibiotics.

Given the required increase in complexity of care required for the woman with a singleton fetus less than (<) 34 weeks gestation or multiple gestations other than 'low risk' twins greater than or equal to (\geq) 35 weeks, and the neonate(s) weighing less than (<) 2000 g it is essential that this care is provided in more appropriate health units.

The Level 4 perinatal health services should provide appropriate services to facilitate the transfer of care of the more complex pregnant woman or neonate to a more suitable health care facility as per the South Australian GP obstetric shared care program and the *South Australian Perinatal Practice Guidelines*. The unit should also provide appropriate care to the pregnant woman or neonate with complications until a retrieval team transfer to a more suitable health unit can be facilitated.

The local health unit managers and general practitioners have a responsibility to inform the community of the limitations regarding perinatal services in the district.

Health units providing Level 4 perinatal services should have appropriate formal policy/protocols which guide staff, ensuring the:

- > availability of clear and concise determinants to assess and manage the 'low risk', complicated pregnancy, including management of twin pregnancy and delivery
- > efficient and effective transfer of care to appropriate health services for neonates born with birth weight < 2000 g and for those women with a singleton pregnancy deemed to be 'at risk' and/or < 34 weeks gestation or those women with a twin pregnancy < 35 weeks
- > ability to manage unexpected pregnancy emergency presentations including a formal policy/protocol outlining the local management of any obstetric emergencies
- > ability to provide emergency care to support mothers and neonates until the retrieval service arrives
- > ability to provide appropriate care for babies requiring:
 - phototherapy
 - gavage feeding
 - short term (for example < 4 hours) administration of humidified head box or cot oxygen < 40%
 - continuous inspired oxygen analysis and pulse oximetry
 - thermoregulatory care via a radiant heater or incubator
 - administration of IV therapy through an infusion pump
- > safe, appropriate care for women undergoing cardiotocography monitoring which may include 'scalp' pH measurement
- > immediate access at all times to the South Australian GP obstetric shared care program protocols and the *South Australian Perinatal Practice Guidelines*
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > ability to provide appropriate management of psychiatric emergencies

- > ability to provide mental health assessment and facilitate appropriate mental health management
- > services and care available are evaluated as safe and comply with the organisation's accreditation and SA Health's Health Service Agreement requirements.

Level 4 Perinatal facilities

Health units providing Level 4 perinatal services have:

- > a range of antenatal, birthing and postnatal care facilities including allocated inpatient beds within a designated maternity suite and including a designated birthing room(s) in the health unit, supporting women-centred care
- > cardiotocography monitoring available for antenatal and intrapartum care and may also include internal 'scalp' electrode measurement and ultrasound machine available for use in the maternity suite
- > a special care nursery for the transitional care and stabilisation of the unexpectedly sick neonate and for the care of uncomplicated convalescent preterm and term infants equipped with:
 - radiant heater
 - convection-warmed incubator
 - humidified head box, oxygen therapy < 40% for ≤ 4 hours
 - oxygen analyser
 - pulse oximeter
 - phototherapy lamp
 - infusion pump
- > operating room facilities available on site, able to accommodate a Category 1 Caesarean section delivery and achieve delivery within 45 minutes from booking the procedure; these rooms are maintained in accordance with relevant standards including the Australian College of Operating Room Nurses standards
- > emergency resuscitation equipment appropriate for an adult and neonate available 24 hours per day, seven days a week.

Level 4 Perinatal workforce implications

Health units providing Level 4 perinatal services have:

- > midwives rostered and available 24 hours per day, seven days per week
- > the maternity suite managed by a registered midwife with appropriate post registration qualifications, for example ≥ Level 3 registered midwife in public sector as per the SA Public Sector EB, 2007
- > access to paediatrician for supervision of clinical care, who is able to attend within 45 minutes and able to assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure
- > appropriately qualified operating room staff available 24 hours per day, seven days a week and able to assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure
- > general practitioner and/or appropriately accredited medical officers available 24 hours per day, seven days a week and able to attend the health unit within 45 minutes of the need and able to attend a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure

- > accredited medical officers with appropriate perinatal services credentials available 24 hours per day, seven days a week and able to assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure, (one for anaesthetic, one surgical procedure and one for resuscitation of the neonate)
- > formal arrangements between a local GP undertaking South Australian GP obstetric shared care program and a specialist obstetrician or obstetric proceduralist general practitioner
- > medical officers accredited in anaesthetics readily available for consultation and able to attend a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure
- > access to in-house mental health services or established links with community emergency mental health teams
- > a community midwifery service available usually providing care related to, but not restricted to, the postnatal period
- > health professional trainees, if on campus, providing services whilst under the supervision of their accredited practitioner
- > nursing/midwives and medical officers competent in adult and neonatal resuscitation/life support.

Level 4 Perinatal support services

Health units providing Level 4 perinatal services have:

- > formal communication links with specialist obstetrician and paediatrician services available for advice and referral, including advice regarding cardiotocograph interpretation
- > established telecommunication links with statewide retrieval services
- > formal protocols to guide staff wishing to contact the retrieval team
- > established referral pathways to appropriate allied health professionals
- > established formal communication links with community health care, child protection, mental health and family and community health services.

Level 4 Perinatal pathology services

Health units providing Level 4 perinatal services have limited local pathology services with some 'on call' arrangement, 24 hours per day, seven days a week for specimen analysis available.

Level 4 Perinatal blood and blood product services

Health units providing Level 4 perinatal services have limited blood and blood product services with 'on call' arrangements 24 hours per day, seven days per week for urgent requests.

Level 4 Perinatal pharmacy services

Health units providing Level 4 perinatal services have limited local pharmacy services with some limited 'on call' capacity, 24 hours per day, seven days a week for urgent requests.

Level 4 Perinatal diagnostic medical imaging services

Health units providing Level 4 perinatal services have limited local 'on call' arrangements, 24 hours per day, seven days a week, for perinatal diagnostic medical imaging services with the availability of an obstetric ultrasound machine for use in the labour and delivery suite/ward/room.

Level 4 Perinatal nuclear medicine services

Health units providing Level 4 perinatal services have no local perinatal nuclear medicine services available.

Level 4 Perinatal intensive care services

Health units providing Level 4 perinatal services have no local intensive care services available for the mother or neonate.

Level 4 Perinatal operating rooms

Health units providing Level 4 perinatal services have local operating room services available including 'on call' arrangements, 24 hours per day, seven days a week, whereby services can be provided within 45 minutes of the need to perform an emergency obstetric procedure, including being able to perform a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure.

Level 4 Perinatal anaesthetic services

Health units providing Level 4 perinatal services have anaesthetic services available including 'on call' arrangements 24 hours per day, seven days a week, whereby services can be provided within 45 minutes of the need to perform an obstetric procedure, including assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure.

Level 4 Perinatal education services

Health units providing Level 4 perinatal services have the capacity to support education and ongoing professional development programs ensuring the competency of the midwives and/or nurses as per the Australian Nursing & Midwifery Council (ANMC) *National Competency Standards for Midwife*.

Nursing, midwife and medical officers will have access to emergency care and resuscitation education programs with annual competency assessment of adult and neonatal basic life support skills.

RANZCOG (2006)¹⁶ recommends that all clinicians using and interpreting cardiotocograph should have current knowledge of:

- > fetal physiological responses to hypoxia
- > good pattern recognition skills
- > the ability to integrate this knowledge with each clinical situation.

¹⁶ RANZCOG (2006) Intrapartum Fetal Surveillance Clinical Guidelines and Good Practice Notes. Retrieved 9th August 2006 from <http://www.ranzcog.edu.au/publications/pdfs/ClinicalGuidelinesSecEd-IFS-Summary.pdf>

Midwives and medical officers working at health units providing Level 4 perinatal services will have access to regular cardiotocograph education including 'scalp' pH measurement.

Local general practitioners and/or accredited medical officers should be supported in their professional development.

Level 4 Perinatal research

There is no expectation that health units providing Level 4 perinatal services will be involved in research related to perinatal care. Where possible, the Level 4 perinatal services may wish to facilitate research related to perinatal care that is conducted by others.

Level 4 Perinatal statewide implications

Health units providing Level 4 perinatal services will facilitate implementation of the statewide retrieval service as required, but there is no expectation that they provide a strategic role in statewide services related to perinatal care.

Level 5 Perinatal service delineation

Level 5 Complexity of perinatal clinical care

Health units providing Level 5 perinatal services have an appropriate local workforce and facilities enabling the provision of comprehensive care of the pregnant woman deemed 'low-medium' risk, as per the South Australian Perinatal Practice Guidelines and are able to extend this care for most pregnancy related illnesses. These services are restricted to caring for the pregnant woman with a singleton pregnancy that has a gestation greater than or equal to (\geq) 33 weeks or twins at a gestation greater than or equal to (\geq) 34 weeks. Neonate(s) cared for at a Level 5 perinatal service should generally weigh greater than or equal to (\geq) 1700 g, but stable neonates weighing <1700 g but greater than (>) 1500 g may remain in the Level 5 perinatal service if they remain stable and consultant advice is sought from a Level 6 perinatal service unit regarding their management. In general, a Level 5 perinatal service requires 1000-2000 in-house births per year to achieve the critical mass required for safe and effective delivery of clinical care.

Health units providing Level 5 perinatal services are generally appropriate to care for the neonates who can be managed in a bassinet or cot, and/or require incubator care for complications requiring:

- > oxygen therapy \leq 50% oxygen (for example FiO_2 50%)
- > cardio-respiratory monitoring
- > additional care requirements, such as IV access for antibiotics.

The increased complexity of care required for the woman with singleton pregnancy less than (\leq) 33 weeks gestation, multiple gestations other than 'low risk' twins (generally \leq 34 weeks gestation), or the neonate weighing less than 1700 g makes it essential that this care is provided in a more appropriate health care unit. It is recognised that neonate weighing less than 1700 g but greater than (>) 1500 g may remain in the Level 5 perinatal service if they remain stable and consultant advice is sought from a Level 6 perinatal service unit regarding their management.

The Level 5 perinatal health services should have the appropriate workforce and facilities to support the care of the pregnant woman and/or neonate(s) until the transfer or retrieval to a more suitable health care unit can be facilitated.

The Level 5 perinatal health services facilitate a full range of mental health services, optimising the physical and mental health outcomes for the woman and her baby.

The local health unit managers and medical officers have a responsibility to inform the community of the limitations regarding perinatal services in their unit.

Health units providing Level 5 perinatal services should facilitate the promulgation and safe application of the *South Australian Perinatal Practice Guidelines* to align the unit's formal policies, procedures and clinical guidelines which guide staff, ensuring the:

- > availability of clear and concise determinants to assess and manage the 'low to medium risk' singleton pregnancy ≥ 33 weeks gestation, and/or twin pregnancy ≥ 34 weeks, within the criteria stated above
- > efficient and effective transfer of care to appropriate health services for neonates born with weight < 1700 g and for those pregnant women deemed to be 'high risk' and/or less than ($<$) 33 weeks gestation or 'at risk', including twin pregnancies less than ($<$) 34 weeks gestation and all other higher order/at risk multiple gestations. It is recognised that neonates weighing less than 1700 g but greater than ($>$) 1500 g may remain in the Level 5 perinatal service if they remain stable and consultant advice is sought from a Level 6 perinatal service unit regarding their management
- > ability to manage unexpected pregnancy emergency presentations
- > ability to provide emergency care to support mothers and neonates until the retrieval service arrives
- > ability to provide appropriate care for phototherapy and gavage feeding under the supervision of a specialist paediatrician
- > safe appropriate care for women undergoing cardiotocography monitoring which may include 'scalp' pH measurement
- > ability to provide appropriate care for neonates requiring:
 - phototherapy
 - gavage feeding
 - administration of humidified head box oxygen $\leq 50\%$
 - continuous inspired oxygen analysis and pulse oximetry
 - thermoregulatory care via a radiant heater or incubator
 - administration of IV therapy through an infusion pump
 - cardiorespiratory monitoring
- > immediate access at all times to the South Australian GP obstetric shared care program protocols and the *South Australian Perinatal Practice Guidelines*
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > services and care available are evaluated as safe and comply with the organisation's accreditation and SA Health's Health Service Agreement requirements.

Level 5 Perinatal facilities

Health units providing Level 5 perinatal services have:

- > allocated antenatal, birthing and postnatal care facilities within a designated maternity/birthing suite supporting women-centred care

- > a designated neonatal unit with neonatal special care capabilities which is maintained in accordance with the relevant professional standards
- > designated birthing facilities which include cardiotocography monitoring available for antenatal and intrapartum care and also includes internal 'scalp' pH measurement and an ultrasound machine located in the birthing suite
- > operating room facilities available on site, able to accommodate a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure. These rooms are maintained in accordance with relevant standards including the Australian College of Operating Room Nurses standards
- > neonate equipment including:
 - radiant heater
 - convection-warmed incubator
 - humidified head box, oxygen therapy
 - oxygen analyser and pulse oximeter
 - phototherapy lamps
 - IV therapy through an infusion pump
 - cardio-respiratory monitoring
 - immediate access to a blood gas machine for measurement of blood gas, plasma glucose and electrolytes.
- > emergency resuscitation equipment appropriate for the adult and neonate available 24 hours per day, seven days a week

Level 5 Perinatal workforce implications

Health units providing Level 5 perinatal services have:

- > an appointed/nominated specialist obstetrician as head of obstetric services
- > a designated specialist obstetrician available for consultation 24 hours a day, seven days a week and able to attend a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure
- > medical officers on site 24 hours a day, seven days a week, and in the SA public sector this will include a designated obstetric medical officer for the perinatal services
- > a registered midwife with appropriate post graduate qualifications designated to manage the birthing suite, for example \geq Level 3 RM in public sector as per the SA Public Sector EB, 2007
- > a registered midwife/nurse with appropriate post registration qualifications designated to manage each specific maternity area, for example \geq Level 3 RM/RN in public sector as per the SA Public Sector EB 2007
- > a registered nurse/midwife with appropriate post registration qualifications designated to manage neonatal special care unit
- > midwives rostered and available 24 hours per day, seven days per week
- > a community midwifery service usually providing care related to but not restricted to the postnatal period
- > an appointed/nominated paediatrician or neonatologist as head of neonatal services
- > an appointed/nominated anaesthetist as head of obstetric anaesthetic services

- > paediatricians available, with one designated to be available for consultation 24 hours a day, seven days a week and able to attend within 30 minutes, including being able to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure
- > appropriately accredited medical officers with a designated role to support the neonate services
- > at least 20% of the neonatal unit nursing/midwifery staff have appropriate post registration qualifications
- > qualified operating room staff available 24 hours a day, seven days a week, able to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure. These are maintained in accordance with the Australian College of Operating Room Nurses Standards for perioperative nursing
- > specialist anaesthetists accredited and available for consultation within 30 minutes of the need and able to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure
- > a designated clinical nurse/midwife educator assigned to the neonatal unit
- > access to in-house mental health services
- > health professional trainees, if on campus, providing services whilst under the supervision of their accredited consultant
- > nurses/midwives and medical officers competent in adult and neonatal basic life support.

Level 5 Perinatal support services

Health units providing Level 5 perinatal services have:

- > formal communication links with health units providing Level 6 perinatal service for advice and referral of the more complex pregnant woman or neonate
- > established telecommunication links with statewide retrieval services
- > access to appropriate mental health staff
- > access to appropriate allied health professionals
- > established formal communication links with community health care, child protection, mental health and family and community health services.

Level 5 Perinatal pathology services

Health units providing Level 5 perinatal services have a comprehensive range of pathology services with 'on call' arrangements for 24 hour specimen analysis available.

Level 5 Perinatal blood and blood product services

Health units providing Level 5 perinatal services have comprehensive blood and blood product services available 24 hours per day, seven days a week.

Level 5 Perinatal pharmacy services

Health units providing Level 5 perinatal services have a comprehensive pharmacy service with 'on call' arrangements 24 hours per day, seven days per week for urgent requests.

Level 5 Perinatal diagnostic medical imaging services

Health units providing Level 5 perinatal services have 24 hours per day, seven days a week arrangements for perinatal diagnostic medical imaging services including the availability of an obstetric ultrasound.

Level 5 Perinatal nuclear medicine services

Health units providing Level 5 perinatal services have local perinatal nuclear medicine services available with limited 'on call' capacity, 24 hours per day, seven days per week.

Level 5 Perinatal intensive care services

Health units providing Level 5 perinatal services have a neonatal special care unit and adult high dependency services and have access to, or may have onsite, adult intensive care services.

Level 5 Perinatal operating rooms

Health units providing Level 5 perinatal services have operating room services available, including 'on call' arrangements, 24 hours per day, seven days per week, with the ability to perform a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure.

Level 5 Perinatal anaesthetic services

Health units providing Level 5 perinatal services have anaesthetic services available including 'on call' arrangements 24 hours per day, seven days per week, whereby consultation services can be provided within 30 minutes of the need to perform an obstetric procedure, including the ability to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure.

Level 5 Perinatal education services

Health units providing Level 5 perinatal services have the capacity to support education and ongoing professional development programs ensuring the competency of the midwives and/or nurses as per the Australian Nursing & Midwifery Council (ANMC) *National Competency Standards for Midwife*.

Nursing, midwife and medical officers will have access to emergency care and resuscitation education programs with annual competency assessment of adult and neonatal basic life support skills.

RANZCOG (2006)¹⁷ recommends that all clinicians using and interpreting cardiotocograph should have current knowledge of:

- > fetal physiological responses to hypoxia
- > good pattern recognition skills
- > the ability to integrate this knowledge with each clinical situation.

Midwives and medical officers working at health units providing Level 5 perinatal services will have access to regular cardiotocograph education including 'scalp' pH measurement.

¹⁷ RANZOG (2006) *Intrapartum Fetal Surveillance Clinical Guidelines and Good Practice Notes*. Retrieved 9th August 2006 from <http://www.ranzcog.edu.au/publications/pdfs/ClinicalGuidelinesSecEd-IFS-Summary.pdf>

Local general practitioners should be supported in their professional development including accreditation through the South Australian GP obstetric shared care program.

Level 5 Perinatal research

Health units providing Level 5 perinatal services may be involved in a comprehensive range of research related to perinatal care.

Level 5 Perinatal statewide implications

Health units providing Level 5 perinatal services will facilitate implementation of the statewide retrieval service as required, but there is no expectation that they provide a strategic role in statewide services related to perinatal care.

Level 6 Perinatal service delineation

Level 6 Complexity of perinatal clinical care

Health units providing Level 6 perinatal services have appropriate human and material resources to provide comprehensive care of 'low' and high risk' pregnant women and their babies. The management model is multidisciplinary and provides for the care for all pregnancy related and neonatal illnesses. The provision of this level of care requires a critical workload volume. In accordance with the Royal Australasian College of Physicians and the National Health & Medical Research Council¹⁸, the overall number of births required to support such a service is approximately 8000 per annum, with a minimum of 100 neonates per annum requiring airway support. It is also indicated that the number of in-house births should be at least 2000 and preferably 3000 per annum.

The Level 6 perinatal health services provide statewide support to perinatal clinical services, enhancing the capacity of those perinatal services providing less complex care. Examples include:

- > regular clinical peer review
- > ongoing educational support
- > development of appropriate perinatal clinical protocols, policies and procedures
- > 24 hour clinical advice and support provided by a consultant
- > facilitating patient transfer for more complex care
- > provision of clinical teams capable of undertaking retrieval when appropriate.

The Level 6 perinatal health services provide organisational and clinical support for the management of the pregnancy and birthing for women of South Australia involved in the South Australian GP obstetric shared care program.

The Level 6 perinatal health services facilitate a full range of mental health services, optimising the physical and mental health outcomes for the woman and her baby.

The Level 6 perinatal health services provide an appropriate health team available 24 hours per day, seven days a week to manage and support the statewide perinatal retrieval service.

¹⁸ National Health Medical Research Council

Level 6 perinatal health service will participate in a single point of contact, specialist consultation service available 24 hour a day, seven days a week.

The Level 6 perinatal health services undertake regular clinical audits to ensure best practice clinical outcomes including perinatal mortality/morbidity review.

The Level 6 perinatal health services undertake both basic and applied clinical research related to perinatal care as one of its core functions.

The Level 6 perinatal health services facilitate the promulgation and safe application of the *South Australian Perinatal Practice Guidelines* to align the unit's formal policies, procedures and clinical guidelines which guide staff and ensure safe clinical practice, including the following:

- > guidelines for the assessment and management of all pregnancies and for the assessment and management of all newborn infants
- > the ability to manage all unexpected pregnancy and neonatal emergency presentations
- > safe and efficient transfer of the perinatal woman to an adult intensive care facility as required
- > timely and effective reporting of hazards, adverse effects and sentinel events
- > regular evaluation to ensure the services and care available are safe and comply with the organisation's accreditation and SA Health's Health Service Agreement requirements.

Level 6 Perinatal facilities

Health units providing Level 6 perinatal services have:

- > a range of antenatal, birthing and postnatal facilities including allocated inpatient beds within a designated maternity unit, supporting women-centred care
- > a full range of cardiotocography monitoring options available for antenatal and intrapartum care and onsite ultrasound facilities
- > a designated high dependency area on site
- > access to or includes an adult intensive care unit facility
- > operating room facilities available on site with the ability to accommodate a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure. These rooms are maintained in accordance with relevant standards including the Australian College of Operating Room Nurses standards
- > a designated neonatal unit with neonatal intensive care beds which are managed in accordance with the relevant professional standards and includes the capacity to provide:
 - appropriate convection-warmed and radiant heated incubators
 - electronic monitors (including ECG, respiration, arterial and central venous pressure and pulse oximetry) for all patients
 - electroencephalogram, end tidal and transcutaneous CO² monitoring
 - airway support (continuous positive airway pressure or mechanical ventilation) for all patients
 - the management of arterial and central venous lines
 - parental nutrition
 - sophisticated technical support including:
 - > high frequency ventilation

- > nitric oxide administration
- > peritoneal dialysis
- > exchange transfusion
- > therapeutic hypothermia
- a machine located in the neonate unit capable of measuring blood gases, electrolytes and bilirubin
- emergency resuscitation equipment appropriate for adults and neonates available at all times
- > access to:
 - sub-specialist paediatric medical and surgical services
 - paediatric allied health and child protection services
 - a full range of sub-specialist adult medical, surgical, psychiatry and allied health services
 - adult mental health and drug and alcohol services
 - adult intensive care services
 - a full range of lab services, including micromethod biochemistry, haematology, microbiology, serology and perinatal histopathology services
 - perinatal/neonatal blood transfusion service
 - a full range of perinatal medical imaging services including ultrasound, MRI, CAT scan, nuclear medicine and interventional radiology
 - genetic counseling services
 - foeto maternal medicine services
- > access to long-term accommodation within close proximity to the campus for rural parents and 'room in' facilities in the neonatal unit for mothers so they can be with their infant.

Level 6 Perinatal workforce implications

Health units providing Level 6 perinatal services have:

- > an appointed specialist obstetrician as head of obstetric services
- > a designated specialist obstetrician available for consultation and able to attend within 30 minutes of the need, including able to attend a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure. These services are available 24 hours a day, seven days a week
- > a designated obstetric registrar on site 24 hours a day, seven days a week
- > a registered midwife with appropriate post registration qualifications designated to manage the birthing suite, for example \geq Level 3 RM in public sector as per the SA Public Sector EB 2007
- > a registered midwife/nurse with appropriate post registration qualifications designated to manage each specific maternity area, for example \geq Level 3 RM/RN in public sector as per the SA Public Sector EB 2007
- > midwives rostered and available 24 hours per day, seven days per week
- > a community midwifery service usually related to but not restricted to the postnatal period
- > an appointed neonatologist as head of neonatal services
- > an appointed/nominated anaesthetist as head of obstetric anaesthetic services

- > a minimum of four (4) FTE neonatologists on staff, with one available for consultation and able to attend within 30 minutes to provide support 24 hours a day, seven days a week, including able to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure
- > a designated neonatal registrar/nurse practitioner available on site 24 hours a day, seven days a week
- > a neonatal fellow on staff
- > an anaesthetic registrar on site 24 hours a day, seven days a week
- > a registered nurse/midwife with appropriate post registration qualifications designated to manage the neonatal unit
- > at least 50% of the neonatal unit nursing staff (includes special care and intensive care staff) with appropriate post registration qualifications
- > community midwife service available usually providing care related to but not restricted to the postnatal period
- > a neonatal nursing care outreach program
- > a clinical coordinator to manage the post discharge follow up of high risk neonates
- > appropriate staff to manage the interface between staff and equipment for neonatal intensive care including information technology support
- > staff supporting the management of the database for both obstetric and neonatal services
- > qualified operating room staff available 24 hours a day, seven days a week and able to perform a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure. These are maintained in accordance with relevant standards including the Australian Council Operating Room Nurses' standards¹⁹
- > specialist anaesthetists accredited and available for consultation and able to attend within 30 minutes of the need, including able to assist with a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure
- > appropriately credentialed medical and nursing personnel to provide statewide retrieval services 24 hours a day, seven days a week
- > health professional trainees providing services whilst under the supervision of their accredited consultant
- > nurses/midwives and medical officers competent in adult and neonatal resuscitation basic life support
- > a designated clinical nurse/midwife educator assigned to the neonatal unit
- > access to in-house mental health staff available
- > a full range of allied health staff available (social work, physiotherapy, occupational therapy, speech pathology, audiology, psychology, dietetics, child protection).

Level 6 Perinatal support services

Health units providing Level 6 perinatal services have:

- > formal communication links with health units throughout South Australia, supporting them with perinatal advice, referral and the statewide retrieval service
- > all other relevant allied health professionals, including dentists

¹⁹ ACORN standards

> established formal communication links with community health care, child protection services, mental health and family and community health services.

Level 6 Perinatal pathology services

Health units providing Level 6 perinatal services have a comprehensive range of pathology services with 'on call' arrangements for 24 hour specimen analysis available seven days a week.

Level 6 Perinatal pharmacy services

Health units providing Level 6 perinatal services have a comprehensive pharmacy service with 'on call' arrangements for out of hours requests.

Level 6 Perinatal blood and blood product services

Health units providing Level 6 perinatal services have comprehensive blood and blood product services available 24 hours per day, seven days a week.

Level 6 Perinatal diagnostic medical imaging services

Health units providing Level 6 perinatal services have 24 hours per day, seven days a week arrangements for adult and neonatal diagnostic medical imaging, including the availability of obstetric ultrasound.

Level 6 Perinatal nuclear medicine services

Health units providing Level 6 perinatal services have local perinatal nuclear medicine services available with 'on call' capacity for out of hours requests.

Level 6 Perinatal intensive care services

Health units providing Level 6 perinatal services have onsite neonate intensive care and adult high dependency services and have access to, or may have onsite, adult intensive care services.

Level 6 Perinatal operating rooms

Health units providing Level 6 perinatal services have operating room services available including 'on call' arrangements, whereby services are able to perform a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure.

Level 6 Perinatal anaesthetic services

Health units providing Level 6 perinatal services have anaesthetic services available 24 hours per day, seven days a week, including 'on call' arrangement whereby specialist consultation services can be provided within 30 minutes of the need, including able to attend a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure.

Level 6 Perinatal education services

Health units providing Level 6 perinatal services have access to accredited education providers and have the capacity to:

- > support postgraduate training programs including vocational education for medical officers
- > support undergraduate and postgraduate education programs for allied health, nursing/midwifery and medical students, in collaboration with the relevant tertiary education centre
- > provide education and ongoing professional development programs ensuring the competency of the midwives and/or nurses as per the Australian Nursing & Midwifery Council (ANMC) National Competency Standards for the Midwife
- > provide nursing, midwifery and medical officers with emergency care and resuscitation education programs, with regular assessment of their resuscitation and life support skills, including those relevant to perinatal care
- > access regular cardiotocograph education with competency assessment for midwives and medical officers complying with the RANZCOG (2006)²⁰ recommendations; that all clinicians using and interpreting CTGs should have current knowledge of:
 - fetal physiological responses to hypoxia
 - good pattern recognition skills
 - the ability to integrate this knowledge with each clinical situation
- > support general practitioners in professional development including accreditation through the South Australian GP obstetric shared care program.

Level 6 Perinatal research

Health units providing Level 6 perinatal services are expected to be involved in a comprehensive range of research related to perinatal care.

Level 6 Perinatal statewide implications

Health units providing Level 6 perinatal services are expected to provide the clinical expertise, transport equipment and staff for the statewide perinatal retrieval service, including services for the pregnant woman and the neonate. Health units providing Level 6 perinatal services are also expected to provide educational support to less comprehensive perinatal services and play a strategic role in clinical planning of statewide services related to perinatal care.

²⁰ RANZOG (2006) Intrapartum Fetal Surveillance Clinical Guidelines and Good Practice Notes. Retrieved 9th August 2006 from <http://www.ranzcog.edu.au/publications/pdfs/ClinicalGuidelinesSecEd-IFS-Summary.pdf>

Perinatal Services Role Delineation

Complexity of Care	Facilities	Workforce	Service links	Support Services								Education	Research	Statewide Implications
				Path	Phar	Diag imag	Nuc Med	ICU	OR	Anaes	Transfusion Services			
LEVEL 1 Ability to manage emergency presentations - pregnancy only	Facilities to provide: <ul style="list-style-type: none"> ▪ emergency care ▪ patient support until the retrieval team arrives. Emergency resuscitation equipment available 24 hours per day, 7 days a week. Protocols guiding staff in: <ul style="list-style-type: none"> ▪ emergency presentations ▪ facilitating retrieval team ▪ care until retrieval team arrives. 	<ul style="list-style-type: none"> ▪ Generalist hospital staff and may not have registered midwives ▪ Nursing and medical officers competent in adult basic life support resuscitation 	<ul style="list-style-type: none"> ▪ May be local general practitioners ▪ Established telecommunication link with higher level perinatal and statewide retrieval services 	Limited local service with no 'on call'	Limited local service with no 'on call'	Access to limited service with no 'on call'	No local service	No local service	No local service	No local service	No emergency transfusion supplies with no 'on call'	Access to emergency care and resuscitation education	Not expected to participate. May wish to facilitate research conducted by others.	Facilitate retrieval team only. No statewide role.
LEVEL 2 Ability to provide 'low risk' antenatal and postnatal care only. No intrapartum or neonatal care is available.	Facilities to provide: <ul style="list-style-type: none"> ▪ emergency care ▪ patient support until the retrieval team arrives Emergency resuscitation equipment available 24 hours per day, 7 days a week. South Australian GP obstetric shared care arrangements may be in place. Access to a community midwifery service. Protocols guiding staff in: <ul style="list-style-type: none"> ▪ emergency presentations ▪ facilitating retrieval team ▪ care required until retrieval team arrives 	<ul style="list-style-type: none"> ▪ Generalist hospital staff ▪ Nursing and medical officers competent in adult basic life support resuscitation ▪ May have access to a community midwife usually providing care related to but not restricted to the postnatal period ▪ May have access to a general practitioner accredited with South Australian GP obstetric shared care program 	<ul style="list-style-type: none"> ▪ Local general practitioners proceduralist with access to specialist obstetrician for advice ▪ Established telecommunication link with allied and community services, higher level obstetric service and retrieval service ▪ Established telecommunication links between general practitioner shared care providers and hospitals providing intrapartum care 	Limited local service with no 'on call'	Limited local service with no 'on call'	Limited local service with no 'on call'	No local service	No local service	No local service	No local service	No emergency transfusion supplies with no 'on call'	Access to ANMC midwifery education. Access to emergency care and resuscitation education.	Not expected to participate. May wish to facilitate research conducted by others.	Facilitate retrieval team only. No statewide role.

Complexity of Care	Facilities	Workforce	Service links	Support Services								Education	Research	Statewide Implications
				Path	Phar	Diag imag	Nuc Med	ICU	OR	Anaes	Transfusion Services			
LEVEL 3 Maternal: Care for uncomplicated pregnancy deemed 'low risk' ≥ 37 weeks gestation Neonatal: Uncomplicated singleton neonate with birth weight ≥2500 g	Facilities to provide: <ul style="list-style-type: none"> ▪ A range of antenatal, birthing and postnatal care in a designated birthing room(s) ▪ A nursery for the transitional care and stabilisation of the unexpected sick neonate ▪ Equipped with radiant heater, convection-warmed incubator, oxygen analyser, pulse oximeter and phototherapy ▪ Emergency resuscitation equipment available for adult and neonate 24 hours per day, 7 days a week ▪ Access to operating rooms able to perform emergency Caesarean section within 60 minutes from booking the procedure to delivery 	<ul style="list-style-type: none"> ▪ Midwives rostered & available 24 hours per day, 7 days a week ▪ Access to a community midwifery service ▪ Medical practitioner available 24 hours per day, 7 days a week and able to attend within 60 minutes of the need ▪ Specialist obstetrician or GP obstetric proceduralist undertaking care through the GP obstetric shared care program ▪ Medical officers with appropriate perinatal services credentials available 24 hours per day, 7 days a week and able to attend a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure (1 for anaesthetic, 1 surgical procedure and 1 for resuscitation of the neonate) ▪ Medical officers accredited in anaesthetic and available 24 hours per day, 7 days a week and able to attend within 60 minutes of the need, and able to assist with a Category 1 Caesarean section and achieve delivery within 60 minutes from booking the procedure ▪ Nursing/midwifery and medical officers competent in adult and neonatal basic life support resuscitation ▪ May have health professional trainees providing services whilst under supervision 	<ul style="list-style-type: none"> ▪ Established telecommunication link for consultation and advice with higher level obstetric and neonatal/paediatric service, including a range of surgical and medical specialties, mental health, child protection and families and communities services and the statewide retrieval service ▪ South Australian GP obstetric shared care arrangements are available ▪ Established communication links between the GP obstetric proceduralist admitting, the health service providing the intrapartum care and the consultant obstetricians ▪ Referral arrangements with allied and community health services, including dieticians, physiotherapists and social workers 	Limited local service with no 'on call'	Limited local service with no 'on call'	Limited local service with no 'on call' for obstetric screening	No local service	No local service	Access to OR with 'on call' staff available 24 hours per day, 7 days a week within 60 mins of the need	Access to Anaes Service with 'on call' staff available 24 hours per day, 7 days a week within 60 mins of the need	Limited emergency transfusion supplies with no 'on call'	Access to ANMC midwifery education. Access to emergency and resuscitation care education for adult and neonates. Access to CTG education and competency assessment	Not expected to participate. May wish to facilitate research conducted by others.	Facilitate retrieval team only. No statewide role

Complexity of Care	Facilities	Workforce	Service links	Support Services								Education	Research	Statewide Implications
				Path	Phar	Diag Med imag	Nuc Med	ICU	OR	Anaes	Transfusion Services			
LEVEL 4 Maternal: Care for 'low risk' ≥ 34 weeks gestation singleton pregnancy or uncomplicated twin pregnancy that delivers ≥ 35 weeks Neonatal: Care for singleton ≥ 34 weeks and ≥ 2000 g and 'low risk' twins ≥ 35 weeks and neonate weighs ≥ 2000 g.	Facilities to provide: <ul style="list-style-type: none"> ▪ A range of antenatal, birthing and postnatal care in a designated birthing room(s) ▪ Cardiotocograph monitoring in antenatal and intrapartum care and may also include 'scalp' pH measurement and an ultrasound machine available for use in maternity suite ▪ Special care nursery for the transitional care and stabilisation of the unexpectedly sick neonate and for the care of uncomplicated convalescent preterm and term infants. ▪ Equipped with radiant heater, convection-warmed incubator humidified head box, oxygen therapy < 40% for ≤ 4 hours, oxygen analyser, pulse oximeter photo therapy lamp, infusion pump ▪ Operating facilities able to perform a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure 	<ul style="list-style-type: none"> ▪ Midwives rostered & available 24 hours per day, 7 days a week ▪ A registered midwife with appropriate post registration qualifications, for example ≥ Level 3 RM in public sector as per the SA Public Sector EB 2007, designated to manage the maternity/birthing unit ▪ Access to paediatrician for supervision of clinical care who is able to attend within 45 minutes of the need, including assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure ▪ Qualified operating rooms staff available 24 hours per day, 7 days a week and able to perform a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure ▪ General practitioner and/or appropriately accredited medical officers with perinatal services credentials available 24 hours per day, 7 days a week and able to attend within 45 minutes of the need, including assist with a Category 1 Caesarean section and achieve delivery within 45 minutes from booking the procedure (1 for anaesthetic, 1 surgical procedure and 1 for resuscitation of the neonate) 	<ul style="list-style-type: none"> ▪ Established telecommunication links for consultation and advice with higher level obstetric services, including a range of surgical and medical specialties, mental health, child protection and families and communities services and the statewide retrieval services. ▪ Referral arrangements with allied and community health services, including dietitians, physiotherapists and social workers ▪ Access to mental health team for the management of mental health emergencies 	Local service with 'on call' services 24 hours per day, 7 days a week for specimen analysis	Local service with 'on call' capacity 24 hours per day, 7 days a week for urgent requests	Local service with 'on call' services available 24 hours per day, 7 days a week for perinatal diagnosis	No local service	No local service	Local service available 24 hours per day, 7 days a week and able to attend within 45 mins of need	Local service available 24 hours per day, 7 days a week and able to attend within 45 mins of need	Limited blood and blood products services with 'on call' avail 24 hours per day, 7 days a week	Access to ANMC mid education. Access to emergency and resuscitation education and CTG education & competency assessment.	Not expected to participate. May wish to facilitate research conducted by others.	Facilitate retrieval team only. No statewide role.

[illegible]

Complexity of Care	Facilities	Workforce	Service links	Support Services								Education	Research	Statewide Implications
				Path	Phar	Diag Med imag	Nuc Med	ICU	OR	Anaes	Transfusion Services			
LEVEL 5 Maternal: Care for women 'low-medium' risk and able to extend this care for most pregnancy related illnesses, ≥ 33 weeks gestation singleton pregnancy, twin pregnancy ≥ 34 weeks gestation and the neonate(s) weigh ≥ 1700g. Stable neonates weighing <1700g but greater than (>) 1500 g may remain in the Level 5 perinatal service if they remain stable and consultant advice is sought from a Level 6 perinatal service unit regarding their management	Facilities to provide: <ul style="list-style-type: none"> ▪ A range of antenatal, birthing and postnatal care in a designated birthing maternity/birthing suite supporting women centred care ▪ Cardiotocograph monitoring available for antenatal and intrapartum care with 'scalp' pH measurement and ultrasound machine located in birthing unit ▪ Operating facilities able to perform a Category 1 Caesarean section within 30 minutes from booking the procedure to delivery ▪ A designated neonatal special unit able to provide: phototherapy, gavage feeding, administration inspired oxygen analysis and pulse oximetry, regulatory care via radiant heater or incubator, administration IV therapies through infusion pumps, cardio-respiratory monitoring, immediate access to blood gas machine for measurement of blood gas, plasma glucose and electrolytes ▪ Emergency resuscitation equipment available for adult and neonate 24 hours per day, 7 days a week 	<ul style="list-style-type: none"> ▪ An appointed / nominated specialist obstetrician as head of obstetric services ▪ An appointed/ nominated anaesthetist as head of obstetric anaesthetic services ▪ A designated specialist obstetrician and paediatricians available for consultation 24 hours per day, 7 days a week and able to attend a Category 1 Caesarean section and achieve delivery within 30 mins from booking the procedure ▪ A medical officer onsite 24 hours per day, 7 days a week, and in the public sector includes a designated medical officer for the perinatal services ▪ A neonatal/paediatric medical officer with a designated role in neonate services available onsite 24 hours per day, 7 days a week ▪ A registered midwife with appropriate post registration qualifications, for example ≥ Level 3 RM in public sector as per the SA Public Sector EB 2007 designated to manage the birthing unit ▪ A registered midwife / nurse with appropriate post registration qualification, for example ≥ Level 3 RM/RN in public sector as per the SA Public Sector EB 2007 designated to manage each of the specific maternity areas ▪ Midwives roster on staff and available at all times ▪ A Community Midwife service available usually providing care related to but not restricted to the postnatal period 	<ul style="list-style-type: none"> • Established links with Level 6 obstetric and neonatal services which provide consultation and advice from a full range of: <ul style="list-style-type: none"> * sub specialist paediatric medial and surgical services * paediatric allied health including dieticians, physiotherapists, social welfare, occupational therapy, speech pathology, audiology, dietetics and child protection services * adult medical, surgical psychiatry and allied health services * adult mental health, drug and alcohol services * adult intensive care services * laboratory services * genetic counselling services * feto maternal medicine services * dentistry services ▪ Established communication links with the statewide retrieval services 	Full range services with 'on call' 24 hours per day, 7 days a week	Full range services with 'on call'	Full range services with 'on call'	Full range services with 'on call'	Neonatal special care unit and an adult high dependence unit and access to an adult intensive care unit	Avail 24 hours per day, 7 days a week with additional 'on call'	Available 24 hours per day, 7 days a week with additional 'on call'	Full range of blood and blood product services 24 hours per day, 7 days a week	Access to ANMC mid education. Access to emergency resuscitation education and CTG education and competency assessment.	Supports entire multi D team	May be involved in a full range of research pertinent to perinatal services

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Complexity of Care	Facilities	Workforce	Service links	Support Services								Education	Research	Statewide Implications
				Path	Phar	Diag imag	Nuc Med	ICU	OR	Anae s	Transfusio n Services			
Level 6 Maternal: Comprehensive care for all pregnant women with a multidisciplinary management model. Neonatal: Comprehensive care for all neonates, with a multidisciplinary management model. Full range of respiratory support management options is available. Appropriate facilities and work force to support approx 8000 births per annum with a minimum 2000-3000 in-house births per annum and a minimum of 100 neonates/annum requiring airway support.	Facilities to provide: <ul style="list-style-type: none"> a range of antenatal, birthing and postnatal facilities including allocated inpatient beds within a designated maternity unit, supporting women centred care Full range of cardiotocography for antenatal and intrapartum care Ultrasound machine located in birthing facility Access to an adult intensive care facility with full range of expertise to support critically ill adults Operating facilities able to perform a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure A designated high dependency area for women A designated neonatal unit with neonate intensive care beds able to provide: <ul style="list-style-type: none"> * appropriate convention-warmed and radiant heated incubators * electronic monitors (ECG, respirations, arterial and central venous pressure and pulse oximetry) for all patients * Electroencephalogram, end tidal and transcutaneous CO₂ monitoring * airway support (continuous positive airway pressure or mechanical ventilation for all patients) * Parental nutrition 	<ul style="list-style-type: none"> An appointed/nominated specialist consultant as head of each of the services: <ul style="list-style-type: none"> * obstetric * paediatric * neonatal * obstetric anaesthetics A designated obstetric registrar onsite 24 hours per day, 7 days a week Specialist obstetrician available for consultation 24 hours per day, 7 days a week and able to attend within 30 minutes of the need, and able to perform a Category 1 Caesarean section and achieve delivery within 30 minutes from booking the procedure A registered midwife (s) with appropriate post registration qualification for example ≥ Level 3 RM in public sector as per the SA Public Sector EB 2007 designated to manage the birthing suite A registered midwife/nurse(s) with appropriate post registration qualification for example ≥ Level 3 RM/RN in public sector as per the SA Public Sector EB 2007 designated to manage each of the specified maternity areas 	Established links with access to a full range of: <ul style="list-style-type: none"> * sub specialist paediatric medical and surgical services * paediatric allied health including dieticians, physiotherapists, social welfare, occupational therapy, speech pathology, audiology, dietetics and child protection services * adult medical, surgical psychiatry and allied health services * adult mental health, drug and alcohol services * adult intensive care services * full range of laboratory services * genetic counselling services * feto maternal medicine services * dentistry services 	Full range services, with 'on call' 24 hours per day, 7 days	Full range services, with 'on call' 24 hours per day, 7 days	Full range services, incl. MRI, CAT, with 'on call' 24 hours per day, 7 days	Full range services, with 'on call' 24 hours per day, 7 days	Neonatal intensive care unit and an adult high dependency unit and access to an adult intensive care unit	Available 24 hours per day, 7 days a week with additional 'on call'	Available 24 hours per day, 7 days a week with additional 'on call'	Full range of products avail 7 days per week 24 hrs per day	Supports entire multi disciplinary team. Access to ANMC mid education. Access to emergency and resuscitation education and CTG education and competency assessment.	Will be involved in a full range of research pertinent to perinatal services	Facilitates and participates in the statewide perinatal retrieval service

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For more information

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Non-English speaking: for information in languages other than English, call the Interpreting and Translating Centre and ask them to call the Department of Health. This service is available at no cost to you, contact (08) 8226 1990.

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