Queensland Clinical Guidelines
Translating evidence into best clinical practice

Maternity and Neonatal Clinical Guideline

Stillbirth care
Disclaimer

This guideline is intended as a guide and provided for information purposes only. The information has been prepared using a multidisciplinary approach with reference to the best information and evidence available at the time of preparation. No assurance is given that the information is entirely complete, current, or accurate in every respect.

The guideline is not a substitute for clinical judgement, knowledge and expertise, or medical advice. Variation from the guideline, taking into account individual circumstances, may be appropriate.

This guideline does not address all elements of standard practice and accepts that individual clinicians are responsible for:

- Providing care within the context of locally available resources, expertise, and scope of practice
- Supporting consumer rights and informed decision making in partnership with healthcare practitioners, including the right to decline intervention or ongoing management
- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary
- Ensuring informed consent is obtained prior to delivering care
- Meeting all legislative requirements and professional standards
- Applying standard precautions, and additional precautions as necessary, when delivering care
- Documenting all care in accordance with mandatory and local requirements

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Flow Chart: Stillbirth care

**Communication**
- Ensure privacy
- Involve both parents where appropriate
- Use empathetic but unambiguous language
- Respect religious/cultural beliefs
- Provide written information
- Allow time for questions
- Allow time for decision making
- Use active listening
- Check parent’s understanding
- Repeat information
- Promote continuity of care and carer
- Involve experienced staff
- Inform relevant care providers (e.g., GP, PPM)
- Coordinate referrals
- Complete documentation

**Labour and birth**

**Consider birthing options**
- Discuss timing and options for birth with parents—provide written information
- Vaginal birth is generally preferable
- Consider method of induction relevant to gestation and clinical circumstances (especially obstetric surgical history)
- Ensure adequate analgesia
- Consider active third stage management

**Antenatal**

**Diagnosis of fetal death**
- Diagnose with USS

**Investigations of fetal death**
- Refer to Flowchart: Investigations
- Discuss with parents

**Post birth**

**Investigations following birth**
- History focused
- Refer to Flowchart: Investigations

**Autopsy considerations**
- Involve experienced staff
- Discuss reasons/location for autopsy
- Offer to all parents
- Obtain consent
- If autopsy declined: limited autopsy may be an option

**Subsequent pregnancy care**
- Consider preconception advice/genetic counselling
- Offer continuity of care and carer
- Detailed history (obstetric, medical, previous stillbirth, family tree)
- Lifestyle advice (e.g., smoking, alcohol, drugs, weight loss)
- USS—dating and anomaly screening
- Individualised management based on investigations and findings
- Consider facility level for anomaly screening
- Consider serial growth monitoring (USS) from 28 weeks or earlier if evidence of FGR
- Antepartum fetal surveillance from 32 weeks including CTG
- Discuss awareness of fetal movement
- Consider timing of birth

**Postnatal care**
- Consider the setting for care
- Facilitate the creation of memories
- Provide advice on lactation suppression/milk donation
- Discuss contraception
- Provide information on funeral planning
- Arrange follow-up and referral

**Antenatal**

**Diagnosis of fetal death**
- Diagnose with USS

**Investigations of fetal death**
- Refer to Flowchart: Investigations
- Discuss with parents

Abbreviations: CTG: Cardiotocograph; FGR: fetal growth restriction; GP: General Practitioner; PPM: Private Practice Midwife; PSANZ: Perinatal Society of Australia and New Zealand; USS: Ultrasound scan
Flow Chart: Stillbirth investigations

Core investigations

Maternal
- History – medical, obstetric, social, family, travel infectious diseases risk areas
- Examination
- Kleihauer-Betke or flow cytometry

Baby
- External examination
- Anthropometric measurements
- Clinical photographs
- Standard radiographic, CT or MRI babygram
- Full autopsy
  - If no parental consent partial autopsy* should be considered

Placenta and cord (fresh and unfixed)
- Macroscopic examination
- Histopathology
- Chromosomal micro-array

* Partial autopsy may be minimally invasive or non-invasive depending on parents wishes and consent includes:
  - Above except full autopsy
  - Needle biopsies, laparoscopic autopsy or access to tissue from small incisions

Findings

- Personal/family history of VTE
- APS** tests
- Pruritus (without rash) in pregnancy and/or Risk factors for obstetric cholestasis
- LFTs
- Bile acids
- LGA
- HbA1c
- SGA
- HbA1c
- CMV
- APS** tests
- Infections as indicated:
  - Rubella
  - Syphilis
  - Zika
  - Malaria
  - Blood group and antibody screen
  - Kleihauer/flow cytometry result
  - Parovirus
- Fetal anomalies
  - Check:
    - Chromosomal micro-array result
    - Infections as indicated
      - Rubella
      - Syphilis
      - Zika
    - Consider clinical genetics review
- Infection
  - Check:
    - PPROM history
    - Cervical insufficiency if chorioamnionitis
    - Infections as indicated

Selective investigations

- APS** tests

Refer also to PSANZ guidelines

Abbreviations: APS: Antiphospholipid syndrome; CMV: Cytomegalovirus; CT: Computed tomography; HbA1c: Glycated haemoglobin; LFTs: Liver function tests; LGA: large for gestational age; MRI: Medical resonance imaging; PPROM: Preterm prolonged rupture of membranes; PSANZ: Perinatal Society of Australia and New Zealand; SGA: small for gestational age; VTE: venous thromboembolism
Flow Chart: Perinatal death reporting in Queensland

Fetal death

No

Signs of life detected at birth? (however brief)

Yes

Signs of life:
- Beating of the heart or
- Pulsation of the umbilical cord or
- Definite movement of voluntary muscles (chest wall)

Stillbirth
Birth weight ≥ 400g and birth ≥ 20 weeks
- Consider RBDM and PDCU reporting requirements

Discuss with Coroner if:
- There is doubt about presence of signs of life

Neonatal Death
All gestations and birth weight
- Cause of death certification (Form 9) required

Discuss with Coroner if:
- Death is unexpected outcome of healthcare or
- Cause of death cannot be certified

In-utero death diagnosed AND birth occurs at < 20 weeks and/or birth weight < 400 g

Miscarriage
- Not registered with RBDM
- Not reportable to PDCU

Miscarriage
- Registration not required with RBDM
- Report to PDCU

Stillbirth
- Register with RBDM
- Report to PDCU

Burial/cremation required

Undertake clinical review or RCA (as indicated) for stillbirths:
- Unexpected without known major congenital anomalies and > 28 weeks
- All stillbirths after 36 weeks gestation
- Unexpected intrapartum event and > 24 weeks
- Other maternal, family or clinician concern about clinical decisions

*Apply clinical judgment when it is not known whether intrauterine fetal death occurred before or after 20 weeks gestation. Delivery of acardiac twin or of a fetus papyraceous when the timing of intra-uterine demise is uncertain or extraction of a dead fetus at maternal autopsy are situations undefined in the legislation. In the absence of a clear legal path it is optional to notify RBDM but it is a requirement to report to PDCU.

RBDM: The funeral director will submit the Death Registration Application (Form 8) electronically after a Cause of Death Certificate (Form 9) and Perinatal Supplement (Form 9a) have been issued or a coronial autopsy has been performed. Parents experiencing a miscarriage may apply for an Early Pregnancy Loss Recognition Certificate.

PDCU: Notification is by maternity staff electronically or using Perinatal Data Collection Form (MR63D)

Abbreviations: ≥: greater than or equal to; RBDM: Registrar of Births Deaths and Marriages; RCA: Root cause analysis; PDCU: Perinatal Data Collection Unit
Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BMI</td>
<td>Body mass index</td>
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<tr>
<td>DIC</td>
<td>Disseminated intravascular coagulation</td>
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<td>IOL</td>
<td>Induction of labour</td>
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<tr>
<td>MTHFR</td>
<td>Methylene tetrahydrofolate</td>
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<tr>
<td>NPDCAT</td>
<td>National Perinatal Death Audit Clinical Tool</td>
</tr>
<tr>
<td>OC</td>
<td>Obstetric cholestasis</td>
</tr>
<tr>
<td>PCA</td>
<td>Patient controlled analgesia</td>
</tr>
<tr>
<td>PDC(U)</td>
<td>Perinatal data collection (unit)</td>
</tr>
<tr>
<td>PI GF</td>
<td>Placental growth factor</td>
</tr>
<tr>
<td>PSANZ</td>
<td>Perinatal Society of Australia and New Zealand</td>
</tr>
<tr>
<td>QMPQC</td>
<td>Queensland Maternal and Perinatal Quality Council</td>
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Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Anthropometric measurements</td>
<td>Systematic measurement of the physical characteristics, primarily dimensional descriptors, of body size, proportion and shape.</td>
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<tr>
<td>Chromosomal microarray</td>
<td>Molecular analysis of chromosomes, with higher yield for abnormality compared to standard karyotyping techniques. Microarray testing can be performed on the placenta following stillbirth.</td>
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<tr>
<td>Expectant management</td>
<td>Close monitoring of condition without treating unless signs and symptoms appear or change.</td>
</tr>
<tr>
<td>Fetal death</td>
<td>Diagnosis made at antenatal ultrasound assessment given no cardiac activity and no signs of fetal movements or blood flow in the unborn baby or fetus.</td>
</tr>
<tr>
<td>Fetus papyraceus</td>
<td>The dead co-twin in a continuing multiple pregnancy that is delivered as part of the placenta and membranes, having died some time before birth and undergone postmortem changes. The fetus papyraceus is not easily recognisable and appears flat and paper-like with a birthweight less than 400 grams.</td>
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<tr>
<td>Live birth</td>
<td>Describes a baby where there are signs of life after delivery of the baby is completed regardless of gestation or birthweight.</td>
</tr>
<tr>
<td>Neonatal death</td>
<td>Death of a newborn baby of any gestation or birth weight within 28 days of livebirth, when heart beat or respiration or other signs of life were observed after the birth is completed.</td>
</tr>
<tr>
<td>Miscarriage</td>
<td>Describes pregnancy loss with no cardiac activity documented at less than 20 weeks gestation.</td>
</tr>
<tr>
<td>Perinatal death</td>
<td>Describes the death of a newborn around the time of birth, including both stillbirth and neonatal death.</td>
</tr>
<tr>
<td>Signs of life</td>
<td>Beating of the heart or pulsation of the umbilical cord or definite movement of voluntary muscle, e.g. chest wall.</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>Describes a baby born with no heart beat or respiration, or other signs of life with a birthweight greater than or equal to 400 g or gestation at birth greater than or equal to 20+0 weeks gestation. The stillbirth occurs when the baby is born.</td>
</tr>
</tbody>
</table>
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1 Introduction

In Queensland from 2012 to 2013 there were 6.9 stillbirths per 1000 births. This rate did not change significantly over the years 2004 to 2013 and was consistent with the Australian rate. However, for Aboriginal and Torres Strait Islander women the rate of adverse perinatal outcomes continues to be higher than for the nonindigenous population. In 2012–2013 this rate was 9.0 per 1000 births.

1.1 Queensland Clinical Guidelines

There are a number of Queensland Clinical Guidelines that help inform care of women at risk of stillbirth. These include:

- Hypertensive disorders of pregnancy
- Gestational diabetes in pregnancy
- Obesity if pregnancy
- Vaginal birth after caesarean
- Early onset Group B Streptococcal disease
- Venous thromboembolism
- Perinatal substance use; maternal
- Induction of labour (IOL)
- Intrapartum fetal surveillance
- Preterm labour and birth
- Trauma in pregnancy

1.2 Causes and risk factors

Table 1. Causes

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>In Queensland (2004–2013) stillbirths most frequently:</td>
</tr>
<tr>
<td>Placental</td>
<td>Abnormal placentation or placental dysfunction</td>
</tr>
<tr>
<td>Maternal</td>
<td>Hypoxic conditions (e.g. peripartum hypoxia)&lt;br&gt; There may be no obstetric antecedent</td>
</tr>
<tr>
<td>Placental effects from mother</td>
<td>Hypertension&lt;br&gt; Renal disease&lt;br&gt; Antiphospholipid syndromes; thrombophilia&lt;br&gt; Diabetes</td>
</tr>
<tr>
<td>Other</td>
<td>Materno-fetal transfusion&lt;br&gt; Spontaneous preterm labour&lt;br&gt; Cord accidents&lt;br&gt; Specific perinatal conditions including multiple pregnancies&lt;br&gt; Maternal trauma&lt;br&gt; Anaesthetic related complications</td>
</tr>
<tr>
<td>Fetal</td>
<td>Chromosomal and genetic disease&lt;br&gt; Structural abnormality&lt;br&gt; Infection&lt;br&gt; Anaemias of fetal origin (e.g. alpha-thalassaemia)</td>
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<tr>
<td>Potentially preventable causes</td>
<td>Pre-pregnancy weight—Body Mass Index (BMI) greater than 25 kg/m²&lt;br&gt; Domestic violence especially experienced by young women&lt;br&gt; Infections including rubella, syphilis&lt;br&gt; Smoking and substance use (e.g. cocaine, methamphetamines)</td>
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</tbody>
</table>
1.2.1 Maternal risk factors

Table 2. Maternal risk factors

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
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</thead>
</table>
| Obstetric factors           | • Past obstetric history of perinatal death<sup>27</sup>  
• Primiparity<sup>19</sup>  
• Lack of antenatal care  
• Maternal AB blood group<sup>19</sup>  
• Fetal anomalies  
• Multiple pregnancy (e.g. twin-to-twin transfusion, cord entanglement)  
• Features of abnormal placentation:  
  o Pre-eclampsia  
  o Fetal growth restriction  
  o Placental abruption  
  o Abnormal pregnancy markers  
    ▪ Low level pregnancy-associated plasma protein A (PAPP-A) (less than 0.4 MoM) at time of first trimester screen, low levels of placental growth factor (PIGF) (less than fifth centile or 100 pico-moles); notched uterine arteries  
    ▪ Suspected prenatally with small for gestational age biometry and increased pulsatility index (PI) (greater than 90th percentile)<sup>28</sup> at Doppler ultrasonography from second trimester<sup>29</sup>  
• Diabetes in Aboriginal and Torres Strait Islander women<sup>6</sup> and pre-existing maternal diabetes<sup>19,27</sup> isoimmunisation  
• Reduced fetal movement history  
• Post-term pregnancy (greater than or equal to 42 weeks gestation)<sup>25</sup>  
• Intrapartum obstructed labour and fetal injury  
| Lifestyle/pre-existing factors | • Smoking<sup>19</sup>  
• Maternal weight<sup>19,25,30,31</sup>:  
  o Overweight—BMI greater than 25–30 kg/m<sup>2</sup>  
  o Obese—BMI greater than 30 kg/m<sup>2</sup>  
  o BMI increase between first and second pregnancies of greater than or equal to 3 kg/m<sup>2</sup>  
• Maternal age<sup>19,25</sup>—increased risk for:  
  o Women over 35 years  
  o Very young women (less than 15 years)<sup>27,32,33</sup>  
• Substance use<sup>19</sup>  
• Obstructive sleep apnoea<sup>34</sup>  
• Maternal sleep position<sup>35</sup>  
• Domestic or intimate partner violence<sup>22</sup>  
• Socio-economic disadvantage<sup>27</sup>  
• Remote or very remote geographical location<sup>27</sup>  
• Maternal exposure to malaria<sup>36</sup>  
• Maternal (or paternal) exposure to infections (e.g. Zika virus<sup>37,38</sup>) although risk for fetal death unclear<sup>39</sup>  
• Ethnicity(e.g. South Asian, South African, African and Middle Eastern<sup>40</sup>)  
| Direct maternal             | • Obstetric cholestasis<sup>30</sup>  
• Metabolic disturbance (e.g. diabetic ketoacidosis<sup>18</sup>, malabsorption syndromes including Crohn’s disease)  
• Reduced oxygen states (e.g. cystic fibrosis, obstructive sleep apnoea<sup>18</sup>)  
• Uterine abnormalities (e.g. Ashermann’s syndrome<sup>18</sup>)  
• Hypertension  
| Unknown                     | • No positive investigation finding of fetal death  
  o Interpret as hypoxic event of unknown aetiology
1.3 Clinical standards

Stillbirth has a profound effect on the emotional, mental and social health of women and their family.41 Care from health professionals needs to be sensitive, empathetic and attuned to each individual woman and her family.42 Listen to and investigate any concerns expressed by the parents at any time, including seeking the advice of a more experienced clinician. Provide the parents with copies of the result(s) of any investigations performed and explain their interpretation.

Table 3. Clinical standards

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
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</table>
| Prenatal advice to women      | • Reduce risk factors (e.g. smoking and obesity19,31)  
• Consider side sleep position35  
• Understand normal fetal movements at different stages of pregnancy  
  o Provide woman with information brochure about fetal movements  
• Seek early advice regarding any change in fetal movements (e.g. extremely greater intensity and frequency35 or reduced44)  
• Seek advice early regarding a ‘gut instinct’ something may be wrong with baby43                                                                                                                                                                                                 |
| Organisational responsibilities | • Facilitate continuity of care and carer  
• Nominate a point of contact for families experiencing a perinatal death (e.g. bereavement midwife/nurse or other experienced clinician)  
• Facilitate appropriate investigation into all perinatal deaths  
• Facilitate appropriate debriefing and follow-up of all affected families  
• Provide education to staff about stillbirth procedures and investigations including autopsy (e.g. Perinatal Society of Australia and New Zealand (PSANZ) Improving Perinatal Mortality Review and Outcomes Via Education (IMPROVE) program)27  
• Provide training in bereavement counselling to staff involved in perinatal deaths45 including open communication and information sharing with women46  
• Develop senior staff skills in open disclosure  
• Provide staff with access to debriefing support services  
• Ensure support services that are culturally appropriate (including religious considerations) are available for women and their families  
• Implement local procedures for the respectful and sensitive movement of a stillborn baby between and within maternity services and the mortuary  
• Develop local procedures to support parents to take their stillborn baby home if they desire including:  
  o The use of a cold cot (cot with cooling system)(if available)  
  o Documentation applicable to the local government (council) regulations  
• A point of phone contact for the woman and partner, including out of hours  
• Implement local procedures to facilitate specimen collection and postmortem examination of stillborn baby2                                                                                                                                                                                                 |
| Perinatal mortality review     | • Review all perinatal deaths through a formal process (e.g. Perinatal Morbidity and Mortality Committee) involving the multidisciplinary team  
• Refer to:  
  o Table 1. Causes and  
  o Table 6. Legal definitions  
• Provide feedback to clinicians on clinical care, perinatal mortality investigations, documentation and communication  
• Arrange debriefing and follow-up of all families following the review and consider open disclosure (if appropriate) to the woman and her partner                                                                                                                                                                                                 |
| Criteria for stillbirth analysis | • Suggested criteria for stillbirth analysis (clinical incident analysis or root cause analysis (RCA))47  
  o All stillbirths after 36 weeks gestation as standard practice  
  o All stillbirths after 28 weeks of gestation  
    ▪ Exclude known major congenital abnormalities where stillbirth is not unexpected  
  o All stillbirths after 24 weeks of gestation where unexpected intrapartum fetal death occurs  
  o Stillbirths where there are clinician, maternal of family concerns  
• Refer to online version, destroy printed copies after use
1.4 Prevention

Interventions with proven and potential effect on stillbirth prevention and care are included in Table 4.

Prevention.

<table>
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<tr>
<th>Table 4. Prevention</th>
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<tr>
<td><strong>Aspect</strong></td>
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<td><strong>Context</strong></td>
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<tr>
<td><strong>Antenatal care(^{49})</strong></td>
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<td><strong>Diet</strong></td>
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<td><strong>Travel advice(^{38})</strong></td>
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<tr>
<td><strong>Manage pre-existing disease(^{26,27})</strong></td>
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<tr>
<td><strong>Infectious diseases</strong></td>
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<td><strong>Substance use</strong></td>
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<tr>
<td><strong>Complications of pregnancy</strong></td>
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<td><strong>Birth planning (IOL or Caesarean)</strong></td>
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<tr>
<td><strong>Fetal movements</strong></td>
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1.5 Communication

Poor communication by a health professional when a woman has had a fetal death and subsequent stillbirth can be detrimental to her mental health and may interrupt the grieving process. Deliver all care to the woman, her partner and family and the baby with sensitivity, compassion and empathy. Consider the woman’s psychosocial, cultural and spiritual believes. Seek advice when necessary, (e.g. Indigenous health worker). Refer to Table 5. Communication with parents for helpful guidance about communication strategies.54

Table 5. Communication with parents

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
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<tbody>
<tr>
<td>Communication55</td>
<td>• Provide honest and transparent information using clear and understandable language</td>
</tr>
<tr>
<td></td>
<td>• Offer verbal, written and electronic information and repeat details and answer parent’s questions</td>
</tr>
<tr>
<td></td>
<td>• Allow time for questions and discussions45</td>
</tr>
<tr>
<td>What to say</td>
<td>• I'm sorry</td>
</tr>
<tr>
<td></td>
<td>• I wish things had ended differently</td>
</tr>
<tr>
<td></td>
<td>• I don't know what to say</td>
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<tr>
<td></td>
<td>• I feel sad or, I'm sad for you</td>
</tr>
<tr>
<td></td>
<td>• Do you have any questions?</td>
</tr>
<tr>
<td></td>
<td>• We can talk again later</td>
</tr>
<tr>
<td>What not to say</td>
<td>• It's best this way</td>
</tr>
<tr>
<td></td>
<td>• It could have been worse</td>
</tr>
<tr>
<td></td>
<td>• Time will heal</td>
</tr>
<tr>
<td></td>
<td>• You can have more children or at least you have other children</td>
</tr>
<tr>
<td></td>
<td>• It's good your baby died before you got to know him/her well</td>
</tr>
<tr>
<td>What to do</td>
<td>• Use respectful language when referring to the baby including the baby's name and gender if known</td>
</tr>
<tr>
<td></td>
<td>• Answer questions honestly</td>
</tr>
<tr>
<td></td>
<td>• Use straightforward and simple language</td>
</tr>
<tr>
<td></td>
<td>• Be comfortable showing emotions</td>
</tr>
<tr>
<td></td>
<td>• Listen to the parents and talk about their baby</td>
</tr>
<tr>
<td>What not to do</td>
<td>• Refer to baby as ‘it’ or as ‘the fetus’ or as ‘products of conception’</td>
</tr>
<tr>
<td></td>
<td>• Use medical terminology or language, jargon and ambiguous descriptions</td>
</tr>
<tr>
<td></td>
<td>• including ‘incompatible with life’</td>
</tr>
<tr>
<td></td>
<td>• Argue with parents</td>
</tr>
<tr>
<td></td>
<td>• Avoid questions</td>
</tr>
</tbody>
</table>
## 2 Reporting requirements

### 2.1 Legal definitions

Table 6. Legal definitions

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
</table>
| Births, Deaths and Marriages Act 2005           | • In Queensland: Part 6, Section 33 Births, Deaths and Marriages Act 2005 a stillborn child is taken to have died:  
  o When the child left the mother’s body; and  
  o At the place where the mother was when the child left the mother’s body |
| Public Health Act 2003                          | • In Queensland: Part 1 Perinatal Statistics Division 1 Definitions 214 Public Health Act 2003 defines a baby not born alive as a baby:  
  o Who has shown no sign of respiration or heartbeat, or other sign of life after completely leaving the child’s mother; and  
  o Who has been gestated for 20 weeks or more or weighs 400 grams or more  
  • It is a clinical decision as to whether or not there are signs of life [refer to Definitions]  
  • Refer to Appendix A: Scenario based reporting aid |
| Coroner’s Act 2003                              | • Stillbirths are not reportable under the Queensland Coroner’s Act 2003  
  • Exceptions  
    ▪ The body is an abandoned newborn whose birth was unwitnessed by clinicians  
    ▪ There is clinical disagreement or doubt about whether the child was born alive  
  • Discuss with coroner when:  
    o The cause of death is likely to be asphyxia or hypoxic ischaemic encephalopathy after active resuscitation is required at birth. This includes cases considered to be a ‘resuscitated stillbirth’ when the newborn requires significant immediate resuscitation after an apparently uncomplicated term birth or after an emergency birth for an acute maternal condition in pregnancy  
| Hospital and Health Boards Regulation 2012       | • In 2016, section 29(1) of the Hospital and Health Boards Regulation 2012 was amended to include stillbirths as a reportable event for clinical incident management and allow root cause analysis in a legally privileged environment  
  • No legislation or binding policy describes which form of analysis to be undertaken  
  • Refer to Table 3. Clinical standards for management of perinatal mortality review and suggested criteria for stillbirth analysis |
2.2 Reporting and documentation

Table 7. Reporting and documentation

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Consideration</th>
</tr>
</thead>
</table>
| Perinatal data collection | - Assists:  
  o Monitoring and analysis of obstetric and perinatal patterns and outcomes  
  o Monitoring perinatal mortality rates  
  o Researching perinatal care  
  o Monitoring congenital abnormalities  
  o Planning of obstetric and perinatal health services³   |
| Documentation    | - Document clearly and accurately all relevant clinical details in woman’s medical record   
  - In Queensland complete the following:  
    o Cause of Death Certificate—Form 9  
      - If required following Perinatal Mortality Committee review², complete another Form 9 and write ‘amended’ at the top of the form (Amended Cause of Death Certificate)  
    o Perinatal Supplement (to Cause of Death Certificate)—Form 9A  
    o Birth registration application—Form 1⁴  
    o Queensland Perinatal Data Collection (PDC)³  
      - Electronic file format or  
      - Paper form MR63D  
    o Centrelink claim form for Bereavement Payment and provide this to the parents  
      - Include the full name of mother of baby, baby’s sex, date of birth, place of birth, weight and gestation  
  - Complete the discharge summary for woman’s primary care and community based health care providers (e.g. general practitioner, private practice midwife)   |
| Classification   | - Use the Perinatal Society of Australia and New Zealand—Perinatal Death Classification (PSANZ–PDC) to classify the stillbirth⁴  
  - Review each stillbirth once results of core investigations are available to correctly classify or reclassify if necessary  
  - Knowledge of the classification system is required to correctly classify the cause of the stillbirth  
  - The Queensland Maternal and Perinatal Quality Council (QMPQC) provides advice and makes recommendations on matters relating to statewide and facility specific morbidity and mortality⁵  
  - Collect and record data following PSANZ Clinical Guideline² and using National Perinatal Death Audit Clinical Tool (NPDCAT)⁵  
    - Provide copies to QMPQC of:  
      - PDC (electronic or paper version)  
      - Forms 9 and 9A  
      - NPDCAT summary  
      - Discharge summary  
      - Pathology reports—autopsy, placental pathology and cytogenic reports⁵⁹   |
3 Model of care of woman and family

Genuine engagement and individualised personal care as well as sensitivity, emotion and empathy expressed by health care providers, is appreciated by parents.\textsuperscript{45,60} An individualised plan of care and approach focuses on and validates the woman’s experiences.\textsuperscript{46}

3.1 Care at time of diagnosis of fetal death

Table 8. Time of diagnosis care

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
</table>
| Context | • Hold discussions with parents in a quiet and private area\textsuperscript{61}  
• Parents:  
  o Are at risk of detrimental psychosocial effects such as grief, depression and self-blame\textsuperscript{60}  
  o May experience culture related issues including how they relate to their family and their system of kinship  
• Health care providers can mitigate negative feelings if they are adequately trained and prepared\textsuperscript{60}  
• Referral to support groups can be helpful  
• Consideration of other family members such as siblings and grandparents is important as they may require emotional support and attention\textsuperscript{59}  
  o Offer age appropriate support to siblings in terms of explanation and their level of involvement based on discussions with the parents  
  o Provide advice regarding local support groups and school programs for children |
| Informing parents about stillbirth diagnosis and management | • Experienced practitioners are best placed to inform parents and discuss their options  
• Use cues from parents regarding their emotional state when considering the most appropriate time to inform them about the stillbirth diagnosis\textsuperscript{45}  
• Do not delay in informing parents about their baby’s death  
• Acknowledge the woman and partner as parents  
• Use empathetic and unambiguous language (e.g. ‘your baby has died’)  
• Be sensitive and non-judgemental regarding the emotions and actions expressed by the parents  
• Acknowledge and validate the emotional experience and reactions of the parents\textsuperscript{61}  
• Offer services such as a social worker, bereavement midwife, Indigenous liaison officer or pastoral care worker for support and counselling  
• After informing parents of stillbirth do not leave them alone unless they explicitly ask for privacy\textsuperscript{62}  
• Discuss a plan for the investigation into the cause of the stillbirth  
  o Avoid speculation about the cause of death until investigations are completed  
  o Explain that some stillbirths remain unexplained even after detailed investigation and review  
• Reassure parents that every attempt will be made to identify the cause of death\textsuperscript{45}  
  o Consider timing of discussion about perinatal investigations including autopsy  
• Advise the woman with a late fetal death that she may still experience passive fetal movements\textsuperscript{41} |
| Model of care | • Individualise care so that it is responsive to the parent’s needs  
• Consult with parents and establish their preferences\textsuperscript{60} for the most appropriate time and place for the woman’s birth and postnatal care  
• Allow parents as much time as they need to consider their options and make decisions  
• Provide care by known health care provider to ensure continuity of care and carer  
• Give parents the option of remaining in hospital for induction of labour or going home first to prepare for the birth\textsuperscript{62} |
3.2 Labour and birth

Discuss the options for labour and birth in detail and provide written information to the woman. Take into consideration the woman’s preferences, her previous medical obstetric history and her safety. Advise the woman who is considering expectant management that the postmortem may be affected and that the appearance of the baby may deteriorate. Generally birthing vaginally is recommended, although some women will require or request a caesarean.41 Most women will labour spontaneously within three weeks of a fetal death.41 However maternal anxiety during this time may be significant.61

Table 9. Labour and birth

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
</table>
| Preparation for birth | • Prepare parents by providing clear step by step information about induction of labour and the birthing process including potential length of labour  
• Provide information about methods of analgesia:  
  o Pharmacological including epidural, patient controlled analgesia (PCA) and nitrous oxide  
  o Non-pharmacological including water immersion, sterile water injections and heat packs  
  o Refer to Queensland Clinical Guidelines: Normal birth guideline64 and short Guides: Epidural in labour65, Opioids in labour66, Remifentanil via PCA in labour67, Nitrous oxide and oxygen in labour68  
• Reassure parents that their baby will be treated with care and respect at all times  
• Avoid over medicalisation of the event61  
  o Ask parents if they have a birth plan  
• Advise them about bringing a camera, clothes, blanket and soft toys for the baby if they wish60  
• Be aware of comments given to grieving parents of multiple pregnancy where one or more baby has died69  
  o Avoid negative comments such as “You still have one baby to take home”  
  o Parents may appreciate a photograph of the babies together69  
• Inform parents about baby’s physical appearance with regard to gestational age and development, physical abnormalities and potential injuries such as peeling skin  
• Avoid confronting descriptions that may impact their decisions about seeing their baby60 |
| Labour              | • Timing between diagnosis and birth:  
  o Collaborate with parents regarding the timing of the induction of labour  
  o Include both parents in information provision and discussion61  
  o Consider woman’s medical condition and previous intrapartum history41  
• Ensure the birthing suite is set up and equipped to support parents during a stillbirth  
• Ideally provide a designated area away from crying babies but with access to staff able to support the parents61  
  o Maternity staff may be able to provide clinical care in non-maternity ward  
  o Advise parents before birth if they will have to be cared for in Maternity Unit  

3.3 Post birth care of woman and family

Parents consider stillbirth no less tragic than a neonatal or child death.70 The impact of a stillbirth can last for many years for parents and families. Ongoing support and sensitive care from healthcare professionals may reduce the detrimental psychosocial effects of stillbirth.63 Encourage and support parents to be involved in the care of their baby.

Table 10. Post birth care

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
</table>
| Culturally appropriate care | • Acknowledge the parent’s cultural, spiritual and religious beliefs  
• Be aware of the specific cultural and religious practices when providing care  
• Assist parents to contact their preferred spiritual, religious and cultural support and services  
• Aboriginal and Torres Strait Islander people may wish support from elders, family and community members61, or Indigenous liaison officer or health worker  
• Be aware of cultural beliefs that apportion blame to the woman and who risk scorn, rejection and isolation71 |
| Post birth care          | • After discussion with the women transfer her to a single room in an appropriate area of the hospital  
  o Some women are distressed by crying babies; others may be comfortable in an area that is familiar to them  
  o Keep room door or curtain closed according to the woman’s wishes  
• Identify the woman’s room and medical record with universal symbols (e.g. a flower or butterfly so that all clinical and non-clinical staff are aware)  
• Provide referral to psychologist or social worker as required and bereavement midwife (if available)  
• Provide parents with impartial, accessible and objective information  
  o Written, verbal and electronic information to assist decision-making by parents regarding investigations and postmortem examination63  
  ▪ Provide an empathetic and sensitive approach to discussions with parents about autopsy72  
  ▪ Inform them how the baby is transported for the autopsy and the funeral home  
  o Support and provide advice (written, verbal and electronic) regarding how to register the baby’s birth and organise their funeral  
• Repeat all information as often as necessary  
• Offer debriefing [refer to Table 15. Labour, birth and post birth care]  
• Discharge woman when her clinical and psychological condition allows and following discussion regarding her preferences |
| Support                 | • Provide information about grieving process, postnatal depression, post-traumatic stress disorder and perinatal psychoses  
• Offer information sensitively about physical (physical changes, lactation, sex and contraception), emotional, psychological, social and relationship issues experienced following a stillbirth  
• Provide support to parents about how to support their other children and family members  
• Provide advice about physical activity to help self-manage grief63  
• Provide information (written, verbal and electronic) about local support groups for parents and family who have experienced perinatal loss such as Stillbirth and Neonatal Death Support (SANDS) |
### 3.4 Care of baby

**Table 11. Care after birth**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>After birth</strong></td>
<td>• Offer parents the opportunity to see and hold their baby with support from experienced clinicians  &lt;br&gt;• Respect and support parents if their decision is to not see or hold their baby  &lt;br&gt;  o Explain they may change their minds at any time  &lt;br&gt;  o Discuss any fears they may have about seeing or holding their baby  &lt;br&gt;• Support and guide parents when seeing their baby to assist with affirming the baby’s existence and their parental identity and to create valuable memories  &lt;br&gt;• Support parents to spend as much time as they would like with their baby  &lt;br&gt;  o Use cold cot if available  &lt;br&gt;  o Offer opportunity for skin-to-skin contact  &lt;br&gt;• Offer options to take their baby home (if possible) or see and spend time with their baby on more than one occasion  &lt;br&gt;• Advise parents about physical changes that may occur with their baby over time (e.g. nose bleeds, blue lips, cold to touch)  &lt;br&gt;• Be aware that parting with their baby may be extremely distressing for parents  &lt;br&gt;  o Discuss with parents how they wish to say goodbye to their baby and leave the hospital (e.g. they may feel comfortable handing their baby to a midwife as they leave)  &lt;br&gt;• Discuss option of seeing their baby again at the funeral home</td>
</tr>
<tr>
<td><strong>Post birth care of baby</strong></td>
<td>• Speak about and handle baby with care and compassion  &lt;br&gt;• Dressing the baby may help parents if the baby is macerated  &lt;br&gt;• Assist parents with bathing baby if they choose  &lt;br&gt;• Support parents with the many difficult decisions they need to make including seeing and holding their baby  &lt;br&gt;  o Normalise their fear of seeing their baby by providing examples from other parents’ experiences  &lt;br&gt;  o Gently remind them this time (prior to the funeral) will be the only opportunity they will have to see their baby and this helps create memories to share later  &lt;br&gt;• Parents appreciate health care providers speaking to and about their baby as they would for any baby that is with tenderness and respect  &lt;br&gt;• Encourage and support parents to cuddle, bathe and dress their baby to normalise and validate their feelings  &lt;br&gt;  o Involve siblings when appropriate  &lt;br&gt;• Inform and assist parents with creation of memories including:  &lt;br&gt;  o A memory box for photographs, sketches or drawings, ultrasound images, locks of hair, nail clippings, blankets, items of clothing and hand and foot prints  &lt;br&gt;  o If parents initially decline these items, offer to collect and store items (as per local hospital protocols) or give to another family member (if possible and with their consent)</td>
</tr>
</tbody>
</table>
4 Clinical management

4.1 Diagnosis of intrauterine death

Diagnosis requires appropriate, urgent assessment by real-time ultrasound assessment. Do not make diagnosis of fetal death based on fetal heart not heard on auscultation by hand-held Doppler.

The diagnosis of stillbirth requires:
- Formal confirmation by an ultrasound examination to demonstrate lack of fetal heart activity
  - Performed by experienced clinician—obstetrician, maternal fetal medicine specialist, radiologist or sonographer
- A clear and unambiguous communication with the pregnant woman and family describing the reason for the urgent ultrasound assessment
- Escort and support from a midwife/bereavement midwife (if available) while attending ultrasound examination
- Support from a social worker, bereavement midwife, Indigenous health worker, pastoral care worker or other suitable person
- Continuity of carer

4.2 Management of labour

Expectant management may increase maternal anxiety and for others it may assist the grieving process.

IOL is supported and often required following a fetal death. Refer to Queensland Clinical Guideline: Induction of labour.

Table 12. Management of labour

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
</table>
| Timing     | • Many women will go into spontaneous labour within two to three weeks of an intrauterine fetal death  
  - If the woman has ruptured membranes, infection, pre-eclampsia or placental abruption offer immediate induction of labour  
  - If the woman is physically well the risk from expectant management is low when the membranes are intact and there is no evidence of infection, pre-eclampsia or bleeding including laboratory evidence of disseminated vascular dissemination (DIC)  
    - Immediate induction is not required and timing of birth is based on the woman’s preference  
    - Provide the woman with the option of IOL, or support to delay induction for a few days if she does not want expectant management  
  - If labour delayed for more than 48 hours advise woman to have twice weekly testing for DIC

| Risks      | • Management of stillbirth in women with a favourable cervix is often uncomplicated  
  • Failed induction and uterine rupture—increase when cervix is unfavourable  
  • Obstetric complications—shoulder dystocia and postpartum haemorrhage  
  • DIC—risk increases in women retaining a dead fetus more than 4 weeks  
    - May also develop in less than 4 weeks

| Methods    | • Pharmacological:  
  - Refer to Table 14. Induction of labour regimen  
  - Mechanical induction:  
    - Balloon (transvaginal) catheter (e.g. Cook cervical ripening balloon)  
    - Artificial rupture of membranes  
  - Refer to Queensland Clinical Guideline: Induction of labour  
  - Provide adequate analgesia to the woman as requested [refer to Table 9. Labour and birth]
4.2.1 Induction of labour

If the woman declines or has risk factors for expectant management then induction of labour is indicated. Mifepristone followed by misoprostol significantly improve the rate of successful vaginal birth and shorter induction–birth interval compared with misoprostol alone after a fetal death.\(^74\)

Table 13. IOL medications and Table 14. Induction of labour regimen are suggestions for induction of labour following a fetal death. However, clinicians may choose to follow different local protocols. The dose and frequency are influenced by the maternal response to the medications (e.g. woman may become febrile or develop diarrhoea).

Table 13. IOL medications

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice points</th>
</tr>
</thead>
</table>
| Prior uterine surgery | • No specific contraindication to induction  
  o Consider the gestation  
  • Caution with the care of the woman to preserve the uterus for future pregnancies  
  • Consider intravenous cannulation and close monitoring of the woman  
  • Refer to Queensland Clinical Guideline: Vaginal birth after caesarean\(^10\) |
| Dinoprostone* (Prostaglandin E2) | • Refer to Queensland Clinical Guideline: Induction of labour for dosing regimen and further information\(^14\) |
| Misoprostol* (Prostaglandin E1) | • Superior to oxytocin as has:  
  o Shorter induction to birth interval  
  o Shorter duration of hospital stay  
  o Lower complication rates\(^75\)  
  • Indicated in a woman with an unfavourable cervix with diagnosis of fetal death\(^76\)  
  • May be used for medical management of fetal death in second trimester  
  • Less than 34 weeks gestation:  
    o Administer 100–200 microgram tablet sublingually or vaginally every 3–6 hours until birth  
    o If no response after 1200 microgram over 24 hours consider alternative treatment or repeat regimen after 24 hours  
  • Greater than 34 weeks gestation:  
    o Administer 50–100 microgram tablet sublingually or vaginally every 3–6 hours until birth  
    o If response inadequate after 5 doses consider alternative treatments or repeat the regimen after 24 hours  
  • If PGE1 analogue Gemeprost pessary used:  
    o Do not use lubricants other than water  
    o Advise woman to lie down for 30 minutes after administration  
    o Do not replace if it falls out  
    o Only use oxytocin six hours after pessary removed (due to additive effects of both on uterus) |
| Mifepristone*\(^77\) | • Effective for terminating pregnancy from second trimester where there is fetal death\(^38\)  
  • Administer:  
    o 200 mg orally (single dose)  
    o Follow 36–48 hours later with misoprostol (Prostaglandin E1)\(^77\)  
    o Optimal regimens uncertain and still evolving with regard to dosage, frequency and route of administration |
| Oxytocin* | • Refer to Queensland Clinical Guideline: Induction of labour\(^14\) for dosing regimen and further information  
  • Avoid oxytocin infusion within 6 hours of misoprostol or dinoprostone |

*Refer to an Australian pharmacopoeia for complete drug information
4.2.2 Regimen for induction of labour

Table 14. Induction of labour regimen

<table>
<thead>
<tr>
<th>Gestation</th>
<th>Pre-induction</th>
<th>Induction–no previous surgery</th>
<th>Induction–previous uterine surgery**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 13 weeks and less than 28 weeks (second trimester)</td>
<td>• Mifepristone* 200 mg orally (single dose)</td>
<td>• Misoprostol* 200 micrograms sublingually or per vagina 3–6 hourly for 6 doses over 24 hours</td>
<td>• Misoprostol* 200 micrograms per vagina 6 hourly for 8 doses</td>
</tr>
<tr>
<td>Less than 34 weeks gestation</td>
<td>Mifepristone* 200 mg orally (single dose)</td>
<td>• Misoprostol* 100–200 micrograms sublingually or per vagina 3–6 hourly for 6 doses over 24 hours</td>
<td>• Misoprostol* 200 micrograms per vagina 6 hourly for 8 doses</td>
</tr>
<tr>
<td>Greater than 34 weeks gestation</td>
<td>• Dinoprostone* or Transcervical catheter</td>
<td>• Misoprostol* 50–100 micrograms sublingually or per vagina 3–6 hourly for 5 doses over 24 hours • Oxytocin* infusion and consider artificial rupture of membranes after labour established</td>
<td>• Transcervical catheter • Oxytocin* infusion and artificial rupture of membranes • Avoid misoprostol* or Dinoprostone*</td>
</tr>
</tbody>
</table>

*Refer to an Australian pharmacopoeia for complete drug information

** Note: Consider IV access and monitor woman closely for evidence of uterine scar complications
4.2.3 Care during labour, birth and post birth

Respect and support the wishes and preferences of the parents. Provide culturally sensitive care and acknowledge and support the religious beliefs, practices, and rituals of the parents and family.

Table 15. Labour, birth and post birth care

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
</table>
| Labour                        | • Analgesia  
|                               |   o Ensure adequate analgesia  
|                               |   o Refer to Table 9. Labour and birth  
|                               | • Observe for complications including shoulder dystocia, postpartum haemorrhage and amniotic fluid embolism  
| Birth                         | • Discuss and support requests to normalise the birth (e.g. cutting the umbilical cord)  
|                               | • Suggest active third stage management  
|                               |   o Refer to Queensland Clinical Guideline: Normal birth  
| Post birth                    | • Provide the woman and partner with appropriate debriefing, support, referral and follow-up to reduce the risk of postnatal depression, anxiety and post-traumatic stress disorder  
|                               | • Provide usual post birth care  
|                               | • Lactation  
|                               |   o Provide advice about lactation suppression (pharmacological and non-pharmacological)  
|                               |   o Offer opportunity for breast milk donation if appropriate  
|                               |   ▪ Give consideration to inclusion and exclusion criteria and screening tests that may be necessary  
|                               |   ▪ Contact Milk_Bank_RBWH@health.qld.gov.au for further information  
|                               |   o Refer to Queensland Clinical Guideline: Establishing breastfeeding  
|                               | • Provide verbal and written contraception advice  
|                               |   o Return to a normal fertile cycle with lactation suppression is rapid  
|                               | • Advise on postnatal exercises  
|                               |   o Refer to physiotherapy services if required  
|                               | • Refer to home visiting midwifery service and notify primary health care provider (e.g. general practitioner, community health facility, local hospital)  
|                               | • Offer postnatal review to discuss stillbirth and further investigations  
| Management of maternal medical conditions | • Consider maternal conditions requiring further investigation and management (e.g. pre-eclampsia, HELPP syndrome)  
|                               | • Full blood examination to assist detection of:  
|                               |   o Infection  
|                               |   o Maternal anaemia (e.g. caused by thalassemia)  
|                               |   o Low platelet level—a marker for pre-eclampsia  
|                               |   o Autoimmune diseases (e.g. systemic lupus erythematosus and idiopathic thrombocytopenia)  
|                               |   o Elevated platelet level may be indicative of thrombocythemia  
|                               |   o Parental platelet typing indicated if intracranial haemorrhage identified on ultrasound scan or autopsy  
|                               | • Renal function tests—urea and creatinine if renal disease or pre-eclampsia  
|                               |   o Abnormal renal function tests may be indicator of systemic lupus erythematosus  

Refer to online version, destroy printed copies after use

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5 Investigation of stillbirth

Stillbirth continues to be a public health concern with the risk of stillbirth in a subsequent pregnancy high if the cause is known to be a potentially recurrent cause. Where the cause of a stillbirth is not known the risk in subsequent pregnancies is unclear. Stillbirth is the result of many complex and interacting factors and may be unexplained for many reasons including because of inadequate investigations. Knowledge and understanding of aetiology and association with stillbirth inform the direct investigations required. Avoid assumptions about the cause of death until the autopsy and subsequent maternal investigations are completed. Offer the woman investigations, targeted to her obstetric history and the circumstances of her baby’s death, that are going to help inform or manage her postnatal care and subsequent pregnancies.

Explain the investigations and the type of information they may provide to the parents. Offer the parents copies of any results from the investigations.

5.1 Maternal investigations

Table 16. Core maternal investigations

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>• Cause of death most likely determined by:</td>
</tr>
<tr>
<td></td>
<td>o Placental histopathology and chromosomal microarray</td>
</tr>
<tr>
<td></td>
<td>o Autopsy of baby</td>
</tr>
<tr>
<td>Maternal history</td>
<td>• Comprehensive medical, obstetric, social, family and travel history including:</td>
</tr>
<tr>
<td></td>
<td>o Current and previous pregnancies—screening, diagnostics, monitoring and outcomes</td>
</tr>
<tr>
<td></td>
<td>o Pre-existing medical conditions (e.g. diabetes, hypertension, hypothyroidism)</td>
</tr>
<tr>
<td></td>
<td>o Medications</td>
</tr>
<tr>
<td></td>
<td>o BMI</td>
</tr>
<tr>
<td></td>
<td>o Substance use including tobacco, alcohol and other drugs</td>
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<tr>
<td></td>
<td>o Pruritis history</td>
</tr>
<tr>
<td>Core</td>
<td>• Kleihauer-Betke test\textsuperscript{31} or flow cytometry to detect feto-maternal haemorrhage\textsuperscript{18}</td>
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<tr>
<td></td>
<td>o Prior to birth preferably</td>
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</tbody>
</table>
### 5.1.1 Selective testing

Consider maternal blood testing based on the woman's history and clinical presentation.

<table>
<thead>
<tr>
<th>Table 17. Selective maternal tests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aspect</strong></td>
</tr>
<tr>
<td>Blood group and antibody screen</td>
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<tr>
<td>Drug screen</td>
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<tr>
<td>Liver function tests and non-fasting bile acids</td>
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<td></td>
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<tr>
<td>Thyroid function tests</td>
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<tr>
<td>HbA1c</td>
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<tr>
<td>Thrombophilia</td>
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</tbody>
</table>
### 5.2 Investigations of baby and placenta

Table 18. Core investigations of baby

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Good practice point</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External examination</strong></td>
<td>• Initial examination by attending clinician (midwife, paediatrician, neonatologist, obstetrician)</td>
</tr>
<tr>
<td></td>
<td>• Performed by perinatal pathologist, paediatrician or neonatologist where possible</td>
</tr>
<tr>
<td></td>
<td>o Follow PSANZ guideline for clinical examination of the baby[88]</td>
</tr>
<tr>
<td></td>
<td>• Includes:</td>
</tr>
<tr>
<td></td>
<td>o Physical examination</td>
</tr>
<tr>
<td></td>
<td>o Accurate anthropometric measurements of birth weight, head circumference and length (using measuring board) plotted on Fenton growth charts</td>
</tr>
<tr>
<td></td>
<td>o Clinical photographs (available electronically)—document consent from parents and file photographs in the medical record [refer to Appendix B: Postmortem imaging and clinical photography]</td>
</tr>
<tr>
<td></td>
<td>o Medical imaging [refer to Appendix B: Postmortem imaging and clinical photography]</td>
</tr>
<tr>
<td></td>
<td>• Cord—examine for:</td>
</tr>
<tr>
<td></td>
<td>o Thrombosis</td>
</tr>
<tr>
<td></td>
<td>o True knot</td>
</tr>
<tr>
<td></td>
<td>§ Generally occur intrapartum if causative of stillbirth</td>
</tr>
<tr>
<td></td>
<td>§ Confirmed at autopsy</td>
</tr>
<tr>
<td></td>
<td>§ Keep cord insitu and wrapped around baby if possible—take clinical photograph if removed</td>
</tr>
<tr>
<td></td>
<td>o <em>Group B Streptococcus, Listeria monocytogenes and Escherichia coli</em>—culture fetal surface</td>
</tr>
<tr>
<td><strong>Surface swabs</strong></td>
<td>• Swab the ear and pharynx of the baby</td>
</tr>
<tr>
<td></td>
<td>• Culture for anaerobic and aerobic bacteria</td>
</tr>
<tr>
<td></td>
<td>• If known travel history of woman or partner to Zika infected country:</td>
</tr>
<tr>
<td></td>
<td>o Consider testing fetal tissue for Zika virus[37]</td>
</tr>
<tr>
<td><strong>Blood samples</strong></td>
<td>• Collect cord blood sample or cardiac puncture can be performed with parent's consent when insufficient cord blood available for:</td>
</tr>
<tr>
<td></td>
<td>o Microbiological culture and assessment of fetal inflammatory response</td>
</tr>
<tr>
<td></td>
<td>o Haematological assessment—full blood count, nucleated red cell count, group and antibody screen</td>
</tr>
<tr>
<td></td>
<td>o Chromosomal analysis:</td>
</tr>
<tr>
<td></td>
<td>▪ Microarray superior to karyotype as can be detected in macerated fetal tissue</td>
</tr>
<tr>
<td></td>
<td>▪ If family history or specific phenotype suspected test using fetal and/or placental DNA</td>
</tr>
<tr>
<td></td>
<td>o Neonatal screening test</td>
</tr>
<tr>
<td><strong>Autopsy/partial autopsy</strong></td>
<td>• Gold standard for determining the cause of stillbirth[7]</td>
</tr>
<tr>
<td></td>
<td>• Recommend full autopsy to all women following stillbirth</td>
</tr>
<tr>
<td></td>
<td>• Provide autopsy consent form and copies of the death certificate, clinical obstetric history, antenatal ultrasound scan reports, prenatal karyotype results (if available), clinical photographs</td>
</tr>
<tr>
<td></td>
<td>• Refer to Section 5.3 Autopsy</td>
</tr>
<tr>
<td></td>
<td>• If parents decline autopsy:</td>
</tr>
<tr>
<td></td>
<td>o Discuss non-invasive/minimally invasive autopsy</td>
</tr>
<tr>
<td></td>
<td>o Complete external examination, clinical photographs and babygram</td>
</tr>
<tr>
<td></td>
<td>o An MRI may be offered as an alternative</td>
</tr>
<tr>
<td></td>
<td>o Other alternatives include needle biopsies, laparoscopic autopsy and access to tissue by small incision access</td>
</tr>
</tbody>
</table>

Refer to online version, destroy printed copies after use
Table 19. Core investigation of placenta, cord and membranes

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External</strong></td>
<td>• Examine for: o Infarcts, calcifications, thrombosis, haematoma, abruption (clot) and vascular malformation o Signs of subclinical infection—funisitis and amnionitis</td>
</tr>
<tr>
<td></td>
<td>§ Swab between the chorion and amnion for microscopy and culture</td>
</tr>
<tr>
<td><strong>Histopathology</strong></td>
<td>• Send placenta (fresh and unfixed) for macroscopic and histological examination</td>
</tr>
<tr>
<td></td>
<td>• Inform pathology service if placenta is to be returned to parents</td>
</tr>
<tr>
<td></td>
<td>• If chronic villitis is reported consider maternal serology to exclude infectious causes o Refer to Table 17. Selective maternal tests</td>
</tr>
<tr>
<td><strong>Chromosomal micro-array</strong></td>
<td>• More likely to yield results than karyotyping o Provides better detection of genetic abnormalities o Detects small deletions and duplications</td>
</tr>
</tbody>
</table>

5.3 Autopsy

Autopsy is the gold standard for determining the cause of fetal deaths. However, the rate in Queensland has dropped to only 32.2% of stillborn babies being autopsied. Of those stillborn babies that were autopsied 41.8% were classified as unexplained antepartum death.

Table 20. Autopsy

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td>• Encourage parents to consider permission for autopsy o Benefits of perinatal autopsy include: o Explanations about cause of death o More accurate genetic counselling to the family regarding the reason for the stillbirth and the recurrence risk for future pregnancies o Help in planning for the management of future pregnancies o Auditing of perinatal program outcomes o Ensuring that families receive emotional support and bereavement care from more information about cause of stillbirth o Enhancing teaching and medical knowledge that may reduce stillbirths for other families</td>
</tr>
<tr>
<td><strong>Discussion with parents</strong></td>
<td>• When discussing autopsy include: o Options for full, limited or stepwise examination; issue of retained fetal tissues; value of autopsy and benefits to them and others o Advice about incisions, size and appearance and fragility of baby after autopsy o Provide verbal and written information that is respectful of personal, cultural and religious beliefs of parents o Respect the parents decision to decline an autopsy with sensitivity and understanding o Parents who decline may: o Feel baby has suffered enough already o Assume antenatal investigations provide sufficient information o Have received inadequate explanation by health professionals o Not be aware of options o Have personal values or cultural or religious beliefs</td>
</tr>
<tr>
<td><strong>Documentation</strong></td>
<td>• Requires comprehensive accompanying information: o Detailed history o Physical examination (external) o Laboratory investigations and placental pathology examination o Include the following: o Autopsy consent form o Placenta (fresh not in formalin) o Clinical history including current and previous obstetric history o Copy of the death certificate o Copies of antenatal ultrasound reports and antenatal karyotyping results (if available)</td>
</tr>
</tbody>
</table>
6 Follow-up care and management

Arrange postnatal follow-up with experienced medical clinician involved in the woman’s antenatal care to discuss cause of death (or progress being made) and any additional investigations that are advised to inform the cause of death and future pregnancy care.

Table 21. Follow-up care and management

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge</td>
<td>• Contact local doctor to advise of stillbirth</td>
</tr>
<tr>
<td></td>
<td>○ Provide copy of relevant medical record</td>
</tr>
<tr>
<td></td>
<td>• Ensure follow-up phone call to woman after discharge</td>
</tr>
<tr>
<td></td>
<td>• Offer clinical follow-up in area away from maternity service</td>
</tr>
<tr>
<td></td>
<td>○ Provide support as required from other clinicians (e.g. social worker,</td>
</tr>
<tr>
<td></td>
<td>bereavement midwife)</td>
</tr>
<tr>
<td></td>
<td>○ Offer debriefing and/or open disclosure meeting to woman and family</td>
</tr>
<tr>
<td></td>
<td>• If appropriate offer referral to perinatal mental health service</td>
</tr>
<tr>
<td>8–12 weeks postnatally</td>
<td>• Investigate further for thrombophilia</td>
</tr>
<tr>
<td></td>
<td>• Refer to Table 22. Further investigations</td>
</tr>
<tr>
<td>Death certificate</td>
<td>• Following review and perinatal death classification amendments to the baby’s</td>
</tr>
<tr>
<td></td>
<td>death certificate may be required</td>
</tr>
<tr>
<td></td>
<td>• Contact parents prior to sending an amended death certificate</td>
</tr>
<tr>
<td>Next pregnancy</td>
<td>• Risk of stillbirth in next pregnancy is increased (OR 3.38, 95% CI 2.61–</td>
</tr>
<tr>
<td></td>
<td>4.38(^{60}))</td>
</tr>
<tr>
<td></td>
<td>• Vulnerability, depression and anxiety in the next pregnancy and puerperium</td>
</tr>
<tr>
<td></td>
<td>may be related to the length of time since the stillbirth</td>
</tr>
<tr>
<td></td>
<td>○ More recently bereaved women are at greater risk(^{69})</td>
</tr>
<tr>
<td></td>
<td>• Offer woman opportunity to be cared for by same or different health care</td>
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<td></td>
<td>provider (if appropriate and available)</td>
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<td></td>
<td>• Provide additional support during the next pregnancy and as required</td>
</tr>
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<td></td>
<td>around the anniversary of the stillbirth(^{63})</td>
</tr>
<tr>
<td></td>
<td>• Provide lifestyle advice (e.g. smoking, alcohol, drugs and weight loss)</td>
</tr>
<tr>
<td></td>
<td>• Refer to Table 4. Prevention</td>
</tr>
<tr>
<td></td>
<td>• Individualise management based on previous investigations and findings</td>
</tr>
</tbody>
</table>
### 6.1 Further maternal investigations

Further maternal investigations may be indicated for eight to 12 weeks after birth. Investigations are based on the maternal history and findings at autopsy.

Table 22. Further investigations

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indications</strong></td>
<td>• The stillbirth is associated with:</td>
</tr>
<tr>
<td></td>
<td>o Fetal growth restriction</td>
</tr>
<tr>
<td></td>
<td>o Pre-eclampsia</td>
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<tr>
<td></td>
<td>o Maternal thrombosis</td>
</tr>
<tr>
<td></td>
<td>o Maternal history of thrombosis</td>
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<tr>
<td></td>
<td>• The stillbirth remains unexplained following core investigations</td>
</tr>
<tr>
<td></td>
<td>• Tests for thrombophilia were positive at the time of stillbirth, initial testing or not previously performed</td>
</tr>
<tr>
<td><strong>Thrombophilia studies</strong></td>
<td>• If positive at birth repeat:</td>
</tr>
<tr>
<td></td>
<td>o Anticardiolipin antibodies</td>
</tr>
<tr>
<td></td>
<td>o Lupus anticoagulant</td>
</tr>
<tr>
<td></td>
<td>• If APC resistance positive at birth test for Factor V Leiden mutation</td>
</tr>
<tr>
<td></td>
<td>• If fasting homocysteine positive then test for methylene-tetrahydrofolate reductase (MTHFR) gene mutation</td>
</tr>
<tr>
<td></td>
<td>• Protein C and S deficiency</td>
</tr>
<tr>
<td></td>
<td>• Prothrombin gene mutation 2021A</td>
</tr>
<tr>
<td></td>
<td>• Anti-thrombin III</td>
</tr>
<tr>
<td></td>
<td>• If cleft lip/palate, neural tube defect or congenital cardiac defect test for MTHFR mutation</td>
</tr>
<tr>
<td><strong>Anti-Ro or anti-La antibodies</strong></td>
<td>Evidence of atrioventricular node calcification on autopsy or hydrops in baby[^1]</td>
</tr>
</tbody>
</table>
References


38. Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Care of women with confirmed Zika virus infection during pregnancy in Australia. [Internet]. 2016 [cited 2017 June 13]. Available from: https://www.ranzcog.edu.au


Appendix A: Scenario based reporting aid

Scenario One: Singleton Pregnancy

Baby dies in utero
IUFD diagnosed

Baby births at
19 weeks gestational age

Clinical assessment
“Baby died approx 3 weeks ago, 315 g”

RBDM: No
PDCU: No

For PDCU Reporting: The date of birth drives or is the final determinant for assessing if a baby meets the criteria (i.e. ≥ 20 weeks and/or ≥ 400 g). In the example above the baby is birthed less than 20 weeks and the baby is less than 400 g so is not to be registered to RBDM nor reported to PDCU.

Scenario Two: Singleton Pregnancy

Baby dies in utero
IUFD diagnosed

Baby births at
22 weeks gestational age

Clinical assessment
“Baby died approx 3 weeks ago, 315 g”

RBDM: No
PDCU: Yes

For PDCU Reporting: The date of birth drives or is the final determinant for assessing if a baby meets the criteria (i.e. ≥ 20 weeks and/or ≥ 400 g). In this example the baby died at approx 19 weeks but is birthed at 22 weeks. The birth registration is not required with the RBDM but must be reported to PDCU.

Scenario Three: Twin Pregnancy

Baby 1

Baby dies in-utero
at 19 weeks gestational age

Miscarriage at
19 weeks 380 g

RBDM: No
PDCU: No

Baby 2

Live birth at
24 weeks gestational age

RBDM: Yes
PDCU: Yes

This a singleton pregnancy
Birth order of Baby 2 = 1
Plurality of pregnancy = 1

For PDCU Reporting: The date of birth drives or is the final determinant for assessing if a baby meets the criteria (i.e. ≥ 20 weeks and/or ≥ 400 g). In this example Baby 1 is birthed at 19 weeks with Baby 2 remaining in-utero to be birthed at 24 weeks. In this case Baby 1 is a miscarriage and Baby 2 then becomes a singleton birth of one baby. Baby 1 is not to be registered to RBDM nor reported to PDCU. Baby 2 is to be registered as a singleton as well as reported to PDCU as a singleton.

Abbreviations: IUFD In-utero fetal death; PDCU Perinatal Data Collection Unit; RBDM Registrar of Births, Deaths and Marriages; USS Ultrasound scan
Scenario Four: Twin Pregnancy

| Baby 1          | Baby dies in-utero diagnosed by USS at 19 weeks gestational age | Baby 1 remains in-utero until Baby 2 is born at 24 weeks | RBDM: Not required  
| Baby 2          | Live birth at 24 weeks gestational age | RBDM: Yes  

In this example, even though Baby 1 is an IUFD at 19 weeks, both Baby 1 and Baby 2 are born together at 24 weeks. Registration to the RBDM is not required for Baby 1 and mandatory for Baby 2. Both Baby 1 and Baby 2 are reported to the PDCU.

Scenario Five: Twin Pregnancy

| Baby 1          | In-utero death at 30 weeks gestational age | Baby 1 remains in-utero until Baby 2 is born at 33 weeks | RBDM: Yes  
| Baby 2          | Live birth at 33 weeks gestational age | RBDM: Yes  

In this example, even though Baby 1 is an IUFD at 30 weeks, both Baby 1 and Baby 2 are born together at 33 weeks. Registration to the RBDM is mandatory for both Baby 1 and Baby 2. Both Baby 1 and Baby 2 are reported to the PDCU.

Abbreviations: IUFD In-utero fetal death; PDCU Perinatal Data Collection Unit; RBDM Registrar of Births, Deaths and Marriages; USS Ultrasound scan

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Appendix B: Postmortem imaging and clinical photography

Imaging*

- Standard radiographic: computerised tomography or medical resonance imaging antero-posterior (AP) babygram
  - Position baby in the anatomic position with head turned to one side, (true lateral), limbs straightened
  - Include head and all limbs including the hands and feet
  - If structural abnormalities of limbs take separate films of abnormal parts
  - If obvious dwarfism, short limbs or obvious skeletal dysplasia take films:
    - AP and lateral all limbs
    - AP hands
    - Lateral spine

Clinical photography*

- Photographs
  - Whole body frontal including the limbs
  - Frontal and lateral aspects of face
  - Any abnormalities
  - Genitalia if uncertain
  - *

* As arranged or requested by the attending pathologist.

Source:
Wisconsin Stillbirth Service Program. [Internet] 2004 [cited 2017 November 14]; Available from:
http://www2.marshfieldclinic.org/wissp/protocol.htm
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