Aim:

To discuss the value, quality, reporting and standards of postmortem and placental examination.

Objectives:

Following completion of this module you will be able to:

1. Identify the procedure for examination of the baby and taking clinical photographs.
2. Understand the value of postmortem examination and how to seek informed consent.
3. Identify standards and reporting procedures for postmortem and placental examinations.
4. Understand the purpose and inclusion criteria for a coroner’s postmortem.
5. Be aware of ‘transport of a baby’ guidelines [WA].

External Examination of the Baby

The following slides will discuss performing an external examination of the baby.
The detailed external examination of the baby:

1. Is usually performed by a perinatal pathologist, or, if not available, a neonatologist or paediatrician.
2. Is an essential component in the investigation of perinatal death.
3. Is a component of the full postmortem.
4. May allow the identification of abnormalities when a full postmortem is declined.

Clinical Photographs:

1. Should accompany external examination.
2. Should be taken for every perinatal death for later review.
3. Are taken by perinatal pathology.
4. Are additional to bereavement photos.
5. Are clearly labelled and filed in the medical record.

Click the link to view the PSANZ Clinical Photography Checklist.

KEMH guidelines

Click the link to view the KEMH growth parameter and clinical photography guides.
Postmortem Examination

The perinatal autopsy is the gold standard in diagnosing the cause of perinatal death. Information gained can help understand events surrounding the death and enable future pregnancy management and planning.

The main purposes of a postmortem examination are to:

- Identify an accurate cause of death and exclude some causes of death.
- Identify disorders or implications for counselling and monitoring of future pregnancies.
- Assist the grieving process by enhancing the parents’ understanding of the events surrounding the death.
- Add to research, recognition or knowledge expansion of new diseases.
- Provide clinical audit information (iatrogenic conditions, suspected fetal pathology).
- Educate.
- Identify medico-legal issues in coronial or litigation cases.
The perinatal autopsy rate has steadily declined over recent years due to:

- Consent limitations/difficulties for clinicians and parents.
- Adverse publicity.
- Clinicians reluctance to seek consent.
- Workforce shortages.
- Availability and accessibility of skilled clinicians.

Educational opportunities for clinicians, both formal and informal are crucial to increasing the rates of perinatal autopsy.

Ideally, the senior clinician/primary physician should seek consent. Clinicians should be prepared to answer questions and should therefore have an in-depth understanding of the procedure.

Communication and consent for postmortem examination

- A senior clinician with established rapport with the parent/s should discuss the postmortem examination.
- The options for a full, limited or stepwise examination should be discussed (along with the issue of retained tissues), and the possibility that information gained may not benefit them but may benefit others.
- Parent/s should be given written information explaining the procedure. This is available in several languages [WA].
- When consent has been obtained for retaining specific organ/s the parent/s should be offered the choice of either delaying the funeral or specifying organ disposal measures.
- The pathologist should be available to discuss the autopsy before and/or after the procedure.
- All non-coronial perinatal autopsy examinations require consent from the parent/s following informed discussion.
- Clinicians need be aware of religious/cultural beliefs that may influence the decision.
Identifying "cause of death" is significant in providing answers to parent/s. Parent/s consent to an autopsy to find out the reasons. Parent/s may therefore be disappointed and regret their decision when a cause is not found.

"Informed discussion with parents should include the possibility that the cause of death may not be found, however the information obtained may benefit other babies in the future". [1]

Click the following link to the WA (KEMH [WA]) "POSTMORTEM" examination information. ALL parents must be given this pamphlet when a postmortem examination is being considered.

[Postmortem examinations]

Transport of deceased infants (regardless of gestation) for all non-coronial autopsy examinations will be coordinated by the Perinatal Pathology Department (KEMH [WA]).

WA hospitals

Perinatal Pathology will arrange for the collection and transport of the baby and placenta from the hospital (via road or air).

Phone 08 9340 2730 to arrange transport (provide baby details).

It is not appropriate for babies to be transported as "pathology specimens" regardless of gestation.

Wyndham WA
Transporting Deceased Babies [WA]

The perinatal death transport system provides a mode of transporting babies and placentae at all gestations that is acceptable to all users (KEMH [WA]). The system provides best practice, meets legal transport guidelines, and provides transport methods that avoid problems and delays with **NO** cost to parents. [2]

Non-coronial perinatal postmortem examinations are currently undertaken at Perinatal Pathology (KEMH [WA]).

Transport kits are provided which contain written guidelines and requirements. Kits are to be used for all babies regardless of gestation and contain:

- Unpainted transport casket
- Blue plastic hermetic sleeve
- Un-frozen ice bricks (please freeze)
- "What to do" instructions
- Documentation requirements
- Packaging requirements
- Transport documents
- Contact details

Kits are kept in most regional maternity units, and are reused and distributed as required.
The packaging requirements for sending a baby to Perinatal Pathology (KEMH [WA]) are:

- Baby and placenta sent fresh (fixatives prohibit the possibility of further tests).
- Baby and placenta each to be placed in a separate sealed leak proof container, or wrapped in an absorbent wrap.
- Wrapped babies (containers) to be clearly labelled with baby and maternal details (date of birth, time of birth).
- Documentation for postmortem and cremation (as required) included (KEMH [WA]).

Call Perinatal Pathology (KEMH) 08 9340 2730 for advice.
All babies awaiting transport must be refrigerated.

Contact details of a nominated staff member must be provided.

Click the link to access examples of the transportation documents. [2]

Transport documents

Transport kit photos

Guidelines produced by the Royal College of Pathologists (RCOP) should be used for reporting postmortems.

- A preliminary postmortem report should be forwarded to the referring clinician within 3 working days of the postmortem. [1]
- The final report should be available within 8 weeks.
- The postmortem report should be available to the parent/s when the clinician discusses the findings.
- A plain language report should be available on request.
- The general practitioner should receive a copy of the final report including a plain language report.

Click the link to access the PSANZ genetic/metabolic autopsy guidelines. [1]

Genetic autopsy

Click the link to access the RCP guidelines. [3]

Autopsy Guidelines
The preliminary report includes:

- Demographic details
- Clinical history summary
- Samples collected
- Macroscopic findings

The final report, in addition, includes:

- External and internal organ findings (weight, microscopic findings)
- Laboratory results, radiology results
- Pathophysiological pathway suggestions
- Cause of death (if appropriate)
- Records of all samples, x-rays, photographs, consent and limitations

The purpose of the coronial postmortem is to determine cause of death, specifically whether it was natural or unnatural.

Cases requiring referral include:

- Babies dead on arrival at hospital or within 24 hours of admission.
- Unattended stillbirth.
- Deaths within 24 hours of an operation, anaesthetic or procedure.
- Deaths as a result of an accident.
- Unnatural, criminal or suspicious deaths (neglect, abuse, poisoning).
- Deaths as a result of a medical mishap.
- Deaths in which the doctor is uncertain of the cause of death and unable to confidently complete the death certificate.
- Unexpected death on the ward.
Circumstances where the Coroner should be notified:

- Unattended stillbirth
- Unexpected neonatal death

Circumstances where the Coroner does not need to be notified:

- Preterm live birth at gestation less than viability
- Stillbirth

If permission for full postmortem is declined, less invasive testing may be performed. Parent/s should be informed about the possibility of missing important findings if a full postmortem examination is not undertaken.

Alternative tests are:

- External examination.
- Babygram - full body x-ray.
- Ultrasound - before and/or after birth.
- Magnetic resonance imaging (MRI).
- Clinical photographs - allowing later review by experienced clinicians.
- Needle biopsy.
- Laparoscopic autopsy.
- Small incision access.
The placenta should be sent for histopathology examination, whether or not consent for an autopsy has been given. [1]

The placenta is an integral part of the postmortem examination.

- The placenta should be checked carefully, keeping it as intact as possible.
- Any obvious abnormalities such as a true knot, hypercoiling of the vessels and/or extra long cords should be photographed and left as is.
- It should be sent fresh and unfixed for histopathological examination once cytogenetic and microbiological samples have been collected.

Click the link to read a photographic guide demonstrating how to collect placental samples. Click the link to read the PSANZ accoucheur placental examination and preparation for pathology chart. [1]

**Placenta samples**

**Placental exam chart**

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Copies of all investigations should be sent to healthcare providers involved with the case.

- Thorough investigation into the cause of death is recommended.
- These investigations are undertaken on diagnosis of fetal death and following birth.
- A non-selective approach to all core investigations is recommended and should be adopted for all stillbirths if available. [1]
- The full postmortem examination is the gold standard in investigating perinatal deaths. [1]
- In-depth knowledge of the postmortem process is necessary to obtain informed consent.
- Alternative approaches to autopsy are available if required.

Baby, placenta/swabs, cord bloods and documentation should be sent together via the perinatal transport service.

Kalbarri WA
You have now completed the Postmortem and Placental Examination Module.

Click the link to view the references for this module.

Close this module by clicking the x icon and access the next module from the web page.