Systems Analysis Review Report

Date of Incident:	25th March & 2nd April 2020
NIMS Number:	20133793
Hospital Group:	South / South West Hospital Group
Commissioner of the Review:	Chief Executive Officer, Cork University Hospital
Date Report Completed:	25th November 2022

Contents

Appendices:

1.0 Executive Summary

On two occasions, Wednesday 25th March and Thursday 2nd April 2020, a decision was taken by the Post Mortem Room Team to send retained perinatal organs[1] following post mortem[2] for incineration[3] instead of burial or cremation. This was an isolated incident due to severe pressure on the Post Mortem Room Team in unprecedented circumstances in preparation for the COVID19 pandemic.

Once the Management Teams of both Cork University Hospital (CUH) and Cork University Maternity Hospital (CUMH) were informed of the incident, a review was commissioned and arrangements were made to contact the affected parents in line with open disclosure.

As this method of disposal of perinatal organs was not in keeping with standards and policy a review team with external subject matter expertise was commissioned to undertake a Systems Analysis Review[4]. This review follows the methodology outlined in the Incident Management Framework, HSE[5].

In summary, the Review Team has concluded that the incineration of the perinatal organs was a misguided decision and a deviation from local policy and national standards. The Post Mortem Room Team have stated that they very much regret the actions taken. It was confirmed by the National Audit in relation to compliance in respect of the *Standards and Recommended Practice for Post Mortem Examination Services*, HSE 2012, that this was an isolated incident in CUH.

The Review has followed the Incident Management Framework guidance to determine the factors that led to this misguided decision and systems failures that allowed the deviation to go unchecked.

[1] Relating to the time, usually a number of weeks, immediately before and after birth (Ref - Consented Perinatal Post Mortem Booklet information for parents, CUMH)

[2] Is the examination of a body after death, it is also known as an autopsy.

[3] Incineration is the process of burning something completely. (Ref - https://dictionary.cambridge.org/dictionary)

[4] A methodical review of an incident which involves collection of data from the literature, records (general records in the case of non-clinical incidents and healthcare records in the case of clinical incidents), individual interviews with those involved where the incident occurred and analysis of this data to establish the chronology of events that led up to the incident, identifying the Key Causal Factors that the 7 Contributory Factors, and recommended control actions to address the Contributory Factors to prevent future harm arising as far as is reasonably practicable. (Ref: Health Service Executive (HSE), Incident Management Framework & Guidance, 2020)

[5] Health Service Executive

The Review Team would like to thank the parents who participated in the review and acknowledge the contribution of both parents and staff in the review process. The sharing of their experience allowed this investigation to learn further from their experiences and assisted in informing the recommendations to improve the systems and processes within CUH.

The Review Team acknowledge the distress experienced by the parents as a result of what has occurred and as a consequence of the delay in completing this report. The Team would like to sincerely apologise to the parents and families affected for the impact that both the incident and the delay in completing the report has had upon them.

The Review Team acknowledge that the hospitals and hospital group have offered apologies to all parents affected and have put in place continued supports through the bereavement and pregnancy loss team. The Team also offered the support of the independent National Advocacy Service.

The Review was commissioned in May 2020, and the Review Team was established in April 2021, to investigate the events leading up to the incident and to offer learning. The Review was carried out by:

- Dr D Sean O'Briain, Consultant Histopathologist, Blackrock Clinic, Formerly St. James's Hospital
- Ms. Sabrina Mullahy, Senior Anatomical Pathology Technician, University Hospital Limerick
- Ms. Deirdre Carey, Quality & Patient Safety Manager, Cork University Hospital

Members of the Review Team were and are not responsible for the service within which the incident occurred and no member of the Team was directly involved in the incident.

The purpose of this review is to:

- Establish the factual circumstances leading up to the incident
- Identify any findings which caused and factors which contributed to these findings
- Make recommendations which when implemented would reduce the risk of a similar incident occurring in the future.

The Review was due to commence once the subject experts were appointed and expected to be completed within a period of 125 days provided unforeseen circumstances did not arise. The complete Review Team were finally secured in April 2021. Regrettably, due to a number of unforeseen circumstances the timeframe of 125days was not achieved. See Section 2 for further details.

The Review Team have concluded the following **Statement of Finding**[6] to be the key cause as to why this incident occurred:

- Deviation from Local Policy and National Standards

Summary of Recommendations

Local Recommendations

1.	**The Operations Manager & the Clinical Director for Diagnostics to review and assure the EMB that the Management Responsibilities (section 4.1.2) outlined in the Laboratory Quality Manual are implemented and audited on a defined periodic basis.**
2.	**The Post Mortem Room Team in conjunction with the Histopathology Department (including the Perinatal Service) to:** • **Continue the disposal of adult body parts by incineration where the patient indicates on the consent form that CUH may dispose.** • **Review the practice of storing formalin fixed organs/tissue in a refrigerated space** • **Consider the use of a separate, deep freeze cabinet solely for storing body parts (where the patient indicates on the consent form they wish to have the body part returned to them)**
3.	**Laboratory Management to revise all local polices and accompanying forms to ensure that the disposal of organs by CUH is consistently detailed through burial or cremation.**
4.	**Laboratory Management with the support of Human Resources to provide workshops in relation to interdepartmental working relationships to include culture, values & behaviours.**
5.	**The Operations Manager to review the current arrangement with external stakeholders (e.g. Coroner & State Pathologists) to clarify governance and delineate the authorities, inter-relationships and responsibilities.**

National Recommendations

1.	**The HSE in conjunction with relevant stakeholders to update the "Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste", Nov 2010.**

[6] Statements of Findings", these are defined as follows:

- Factors that, if corrected, would likely have prevented the incident or mitigated the harm,
- Factors that if corrected, would not have prevented the incident or mitigated the harm, but are important for patient/staff safety or safe patient care in general (incidental findings) and
- Mitigating factors, Factors that did not allow the incident to have more serious consequences and represent solid sfeguards that should be kept in place. (Ref - HSE, Incident Management Framework, 2018, amended Framework 2020)

2. 0 Overview of the Review Process

On 21st May 2020, this Review was commissioned by the Executive Management Board (EMB) of Cork University Hospital (CUH). However, the full Review Team were not in place until April 2021 and the review did not commence until June 2021.

Regrettably, the commencement, progression and finalisation of the review was subjected to a number of delays which included the following:

- The impact of COVID-19 with periodic surges leading to the unavailability of staff
- The sourcing of External Subject Matter Experts

The composition of the Review Team outlined in the initial Terms of Reference included a perinatal pathologist. Unfortunately, the Post Graduate Forum was unsuccessful in sourcing this expert. The option of seeking a perinatal pathologist from the UK was considered. However, the legislation and practice in the UK around organ retention is different to that in Ireland. In this regard, the Post Graduate Forum were advised to source a general pathologist from this jurisdiction as this person would be more familiar with local legislation and guidelines. The full Review Team was finally secured in April 2021.

- In May 2021, impact and recovery from the Cyber-attack on the HSE
- The scope of the review being extended during the review process

In respect of the welcome participation, feedback and questions from the families a number of issues were raised that extended the scope of the review such that the Review Team tried to address all outstanding issues for the parents and families in the review process.

- Legal review of the draft report and ensuring adherence to the principles of natural justice and fair procedures

The Review Team sought legal input on occasions during the review process and all staff who participated were given the opportunity to respond where it may be perceived that there was any criticism (implied or actual) relating to a staff member prior to circulation of the draft report to other staff members. This is a graduated process to ensure that the principles are met.

The Terms of Reference are as outlined in Appendix 1**.** The Review follows a systems analysis methodology as per the HSE Systems Analysis Guidance for Services, 2018 and the updated version in 2020.

The main purpose of undertaking a review is to find out what happened, why it happened and what can be done to reduce the risk of it happening again. In accordance with the Incident Management Framework HSE 2020, a review of this nature recognises that where there are significant mitigating

circumstances a patient safety incident review needs to look beyond the action(s) of individuals to the wider system in which the incident occurred.

Details provided in the report have been obtained from a review of the relevant documentation and individual meetings with the parents and relevant staff members. Timings are based on records and the recollection(s) of those involved in the events described.

A total of 8 staff members were interviewed by the Review Team:

- Consultant Histopathologists
- Line Manager1
- The Post Mortem Room Team
- Bereavement Midwives

All 18 families were contacted and invited to meet with the Review Team. Of these families, six accepted the offer.

In advance of the interviews, each staff member was provided with a cover letter and a copy of the following documentation:

- Terms of Reference for the review.
- Information leaflet in relation to systems analysis reviews for Staff.
- Information leaflet in relation to the interview and review process.

The staff were supported through the course of the review by their respective line manager.

In advance of the meetings with the families, each family was provided with a cover letter and a copy of the following documentation:

- The Terms of Reference for the review
- An information leaflet in relation to an Incident Review for Service Users

The families were advised that the Quality & Patient Safety Manager was the key contact person for the purposes of the Review. The independent support of the National Advocacy Service was also available. Ongoing support through the bereavement and pregnancy loss services remained available.

Each of the meetings were conducted by the three members of the Review Team. The majority of the interviews were held in person and a small number remotely.

While carrying out the review, the Review Team examined the following documentation:

- Relevant Local or National Policies, Procedures, Protocols, Guidelines and Standards

- Review of the individual Patients' consent forms, these were a combination of:
    - Consent to a Post Mortem Examination
    - Options for parents regarding retained organ(s) management following Coronial Perinatal Post Mortem
- Statement from Staff Member1, Post Mortem Room Team
- Email correspondences provided by Staff Member1, Post Mortem Room Team

A list of references considered by the Review Team is included in Appendix 3.

The Review Team visited the post mortem room to further gain an understanding of the systems and processes.

Three of the six families who accepted the offer to meet with the Review Team submitted questions for the Team to consider as follows:

Family A

1. What was the exact contract with the hospital in relation to Baby A's organs and Post-mortem?
2. How long does it normally take for these tests to be done and findings / results published?
    - What is the normal reasonable time frame of an autopsy?
    - When and how often are parents / guardians updated with information pertaining to this procedure
    - Why did we only receive a post-mortem final report via email on the xx along with a letter with no subject dated the 21st of May 2020?
3. Both these letters were vague, and the report was written above our understanding with no follow up from the Hospital to help with its meaning or result.
4. Hospital burial site known as Angels Garden
    - When did the hospital become aware that no more plots were available in the Angels Garden?
    - Why were we not notified the Angels Garden was no longer available and ask if we had an alternative Burial site that we could arrange?
    - When, where and how were Baby A's remains dealt with.
    - Who authorised the change of contract from our initial understanding with the location for resting place of Baby A?
    - Who is responsible for overseeing this process of Baby A is humanely dealt with?
    - When and how did the Hospital become aware of the failure to see such contract not adhered to?
    - What actions were taken by the hospital to contact us in this regard?
5. Where was Baby A's organs removed to for disposal, and what process was used and where was she laid to rest.
6. Who was the company contracted to dispose of Baby A's organs?
7. Please provide dates and locations for the above (5,6)
8. Please provide timeline when CUMH became aware of this negligence as to the treatment of Baby A's organs and a copy of your enquiry and incident report on this matter
9. Why was the decision made not to include affected families in your review of this procedure?
10. How will the review ensure this negligence cannot happen again to other families

Family B

1. From what date is the Review starting? Why is the review not going further back? Why is the review not looking back to the date when the first of the 18 organs were available for burial? Baby B's organs were available on xx. See from files that an email was sent on xx between histopathology stating that the organs were released for disposal. What follow up took place?
2. Communication and how disclosure was handled is not included in the TOR, will this now be investigated in the review?
3. Call in May 2020 to Ms B from bereavement nurse midwife. Ms B did not understand what was being communicated. Why was there no follow up to ensure that the information was received? Why was Mr B not contacted when it must have been apparent that Ms B's English was limited? What is the hospitals policy on communication with patients who have limited English? (Family did not receive any written correspondence in 2020)
4. Why were family not informed that the review had commenced, they first learned of its commencement in the media after Primetime airing. When did the review start?
5. Why were families not included in TOR (terms of reference) prior to review commencing? Family not given opportunity to provide feedback as to scope of review.
6. Directive that went out to all hospitals re morgue capacity. When was this? Who did it come from? Who received it? Was this a national directive? There is no copy of this within files released.
7. Will family be issued with a draft report? Will family be provided the opportunity to provide feedback prior to the final report being issued?
8. If dissatisfied with the findings within the final report, will there be further avenues available?

Family C

1. How long does it usually take for the pathologist to carry out further testing on a brain? Baby C's brain was in the morgue from xx to xx which is over x months.
2. When did you receive the news to clear the morgue? Please provide evidence that the hospital attempted cremation.
3. What is the name of the Specialist Company?
4. The CUMH then commenced the process of gathering the facts of the situation; this took one week – What facts were found? We request access to the findings.
5. It is our belief that these organs were transported to another country', is there proof of this?
6. We request proof that Baby C'S organ was sent to Belgium
7. Incinerated on 25th of March– why did we only find out on May 11th?
8. Can you provide confirmation of dates/ timeline that CUMH were advised that the error had occurred?
9. We request a copy of the directive sent to all hospital in relation to morgue clear outs?
10. We request specific details of the type of review that is to take place?
11. Why were our family and the families of the 17 other babies not informed of the review commencement date?

12. Why were our family not included in the draft terms of reference on commencement of the review process?
13. Through FOI are aware that the review team is made up of Consultant Pathologist Senior Anatomical Pathology Technician, and QPS Manager. Can you provide evidence of the efforts made to recruit a perinatal pathologist to be part of the review team?
14. What timeframe is the review looking at? Does it date back to when the first of the 18 baby's organs had been available for burial?

The Review Team have summarised the details addressing these questions under the following sub headings within the report:

1. Consent to a post mortem examination
2. Perinatal Post Mortem Procedure
3. Management of retained organ(s) pathway following a Post Mortem
4. Timelines regarding the retention and release of the perinatal organ following Post Mortem
5. The Company contracted by CUH for incineration and the location of incineration
6. Communication with parents
7. COVID-19 Preparation

On completion of the meetings with staff and families and the documentation review process, a draft report was prepared. The draft report (or sections of the draft report) was shared with staff members in advance of finalising the review process. The Review Team did this in line with the principles of fair procedures and to ensure that the report was factually accurate. Amendments or additions were made to correct any inaccuracies or incomplete information.

The Review Team did not share a draft report with the families who participated in the review process. This was not in accordance with the terms of reference and the guidance within the Incident Management Framework 2020. CUH, having considered the requirements outlined in the terms of reference, whilst balancing the need for all eighteen families to be given the outcome of the review at the same time, made a decision to provide the final report to all families. This was to prevent a situation whereby some families may have become aware of the report's findings indirectly rather than from the Hospital.

3.0 Background to the Mortuary Service

Cork University Hospital (CUH), initially named Cork Regional Hospital, opened as a newly built facility in 1978. The Hospital included a mortuary and post mortem room as part of the pathology department. These facilities are also the Post Mortem Room and Mortuary for Cork City and County.

The workload largely involves deceased adults and it performs coronial and consented post mortems (also called autopsies). Prior to 2000, there was a substantial number of consented post mortems on patients who had died in CUH and the post mortems were performed by Hospital Pathologists. In recent years these cases have almost ceased, and the service now predominantly consists of coroner's cases, performed by a forensic pathologist who is not part of the hospital staff.

Consequently, this has led to the Post Mortem Room Team interacting largely with Coroners and with little day-to-day contact with the Histopathology Department.
In 2019, there were 821 coronial post mortems and 4 consented post mortems - adult
In 2020, there were 772 coroner post mortems and 2 consented post mortems - adult

Cork University Maternity Hospital (CUMH) is the amalgamation of maternity services from several hospitals in Cork. It was newly built and opened in 2007 on the same site and physically connected to CUH but now has separate governance and management structures. It has no separate post mortem facility. Post mortems are carried out on infants who have died in utero or in the neonatal period, some performed at the direction of the coroner, the remainder as consented hospital cases. These post mortems are undertaken in the Post Mortem Room, Pathology Department, CUH.
In 2019, there were 26 coronial post mortems and 55 consented post mortems - perinatal
In 2020, there were 24 coroner post mortems and 56 consented post mortems - perinatal

1. Consent to a post mortem examination

In addressing the families questions in this area, the Review Team, with the assistance of the Histopathology Department captured the process at the time. This process involved the Obstetric Team discussing a Post Mortem examination with the parent(s) and obtaining written consent for a hospital post mortem included the parents' wishes for the management of any retained organs, *Consent to a Post Mortem Examination Form* (FOR- CUH-PAT-1109, Appendix 5). (Note: Yellow coloured form).

In the case of a Coroner's Post Mortem, parental consent is not required for the examination but

a form is completed and signed outlining the parent(s) wishes regarding the management for any retained organs, *Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem* (FOR-CUH-PAT-2084, Appendix 6). (Note: Grey coloured form).

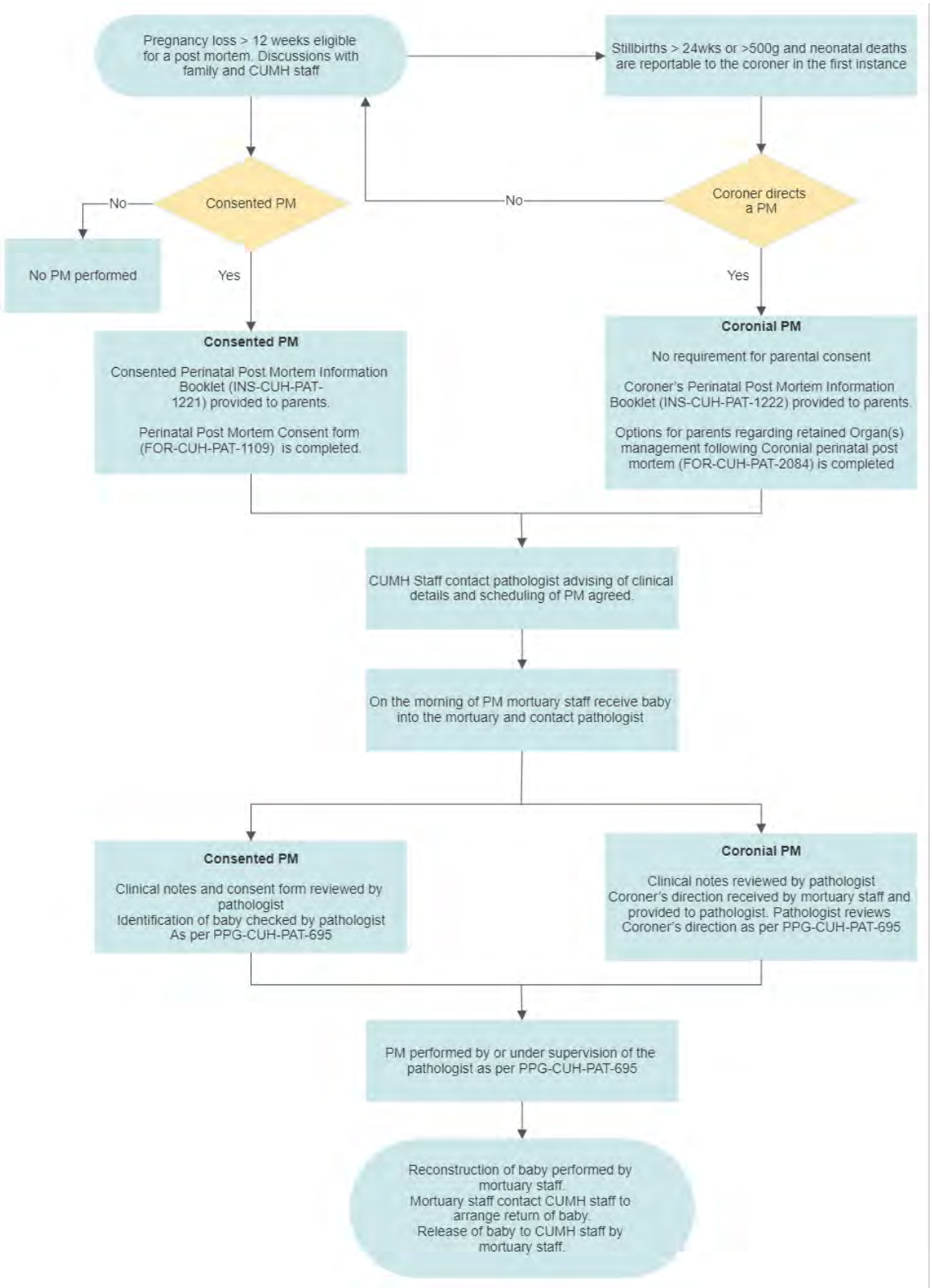
2. Perinatal Post Mortem Procedure

When a post mortem was requested, either by the family, the Clinician, or directed by the Coroner, the maternity hospital staff contacted the pathology staff to ensure that the pathologist was aware of the clinical details of the case, to agree the scheduling of the case and to ensure the appropriate paperwork was reviewed and completed.

On the morning of the post mortem, the body of the baby was brought to the post mortem room by staff from the Maternity Unit. The Pathologist reviewed the identification details and paperwork to ensure that there was the appropriate authorisation to perform the post mortem and if there were any limitations around the extent of the post mortem, photography and organ retention. For a consented post mortem this paperwork included a completed consent form and for a Coroner's post mortem consisted of written direction from the Coroner.

The post mortem was then performed and when completed the body of the deceased baby was released to the family. CUMH offers the parents the choice of arranging the funeral privately through an undertaker, or to have the hospital (CUMH)arrange the burial.

CUMH has Bereavement Midwives to assist parents and family at the difficult time of a baby's death. These Midwives also interact with the Perinatal Pathologists, the Medical Scientists and the Post Mortem Room Team. The following chart outlines the steps in relation to the procedure.



Perinatal Post Mortem Procedure 2020

3. Management of retained organ(s) pathway following a Post Mortem

If a perinatal organ was retained, the family was informed. Completion of the examination could take many weeks. If the brain was retained for analysis, as occurred in these cases, it was placed in a container filled with a preservative and fixative called formalin. For satisfactory neuropathological examination the brain needs prolonged fixation, usually for many weeks. The brain was then taken to the neuropathology department where it was examined by the neuropathologist who took tissue samples that were processed as paraffin wax blocks, stained by a variety of techniques and then examined under the microscope. The paraffin blocks and glass slides were retained in the neuropathology archive.

When the examination was complete, the sectioned brain was returned to the post mortem room and stored on shelves. The formalin was later removed and the dried tissue placed in a wooden casket which was stored in the freezer section of the post mortem room. This was the process as the Post Mortem Room Team had concerns regarding the release of formalin fumes and their additional concern was that there was potential for the beginning of decomposition at room temperature.

When complete, the family had the option of having the perinatal organ returned to them for burial, usually through an undertaker. Alternatively, they could request the hospital (CUH) to undertake the disposal of the perinatal organ and, at this time, this was by burial in the hospital (CUH) burial plot.

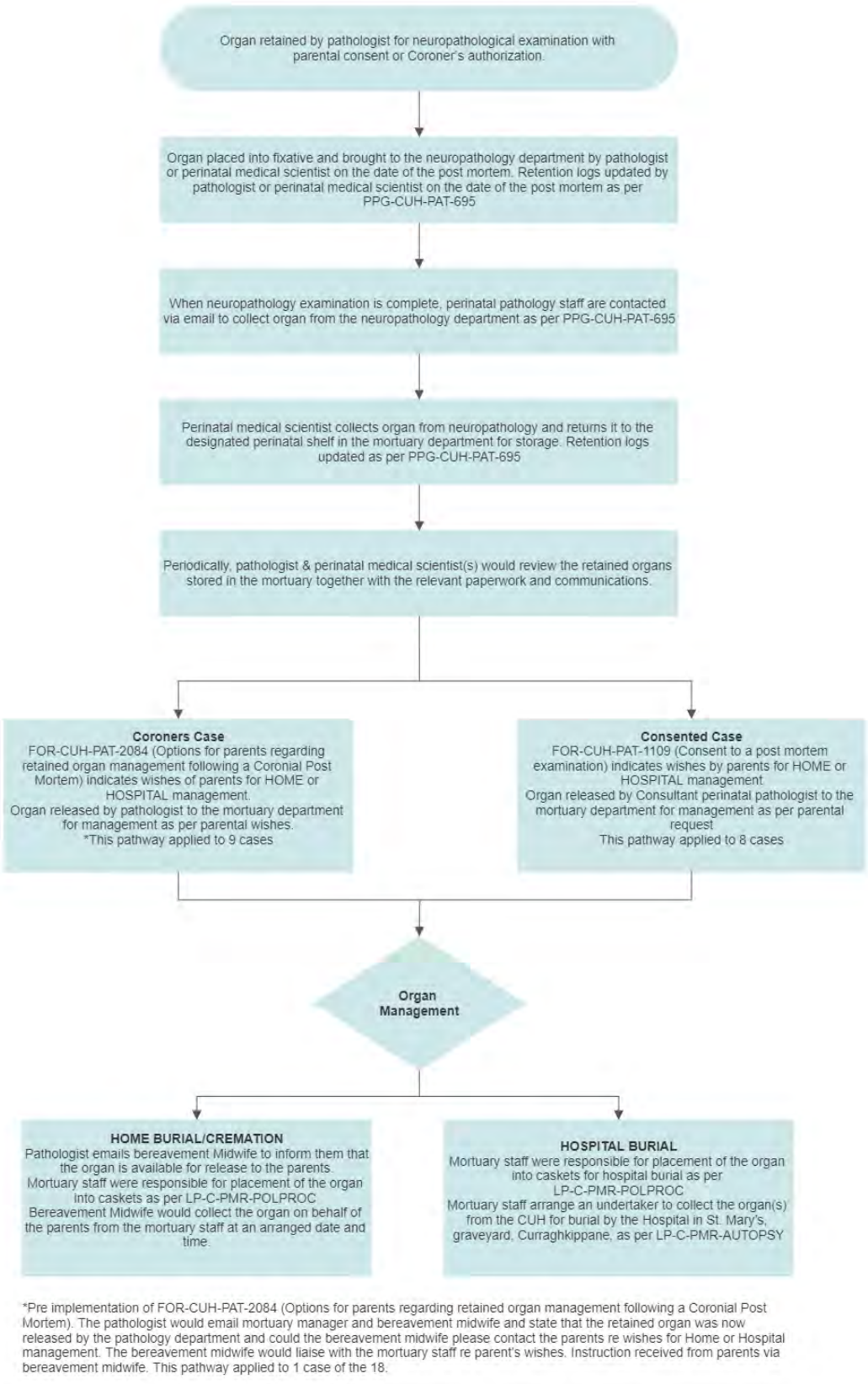
The Post Mortem Report was completed when all results and investigations were available and issued to the obstetrician, neonatologist or Coroner as appropriate.

Periodically, perinatal pathology staff reviewed the stored organs and, once they were satisfied that they were no longer needed for diagnostic purposes, they were released for burial. If an organ was due to be returned to a family, the perinatal pathology staff contacted the bereavement midwife so that they could liaise with the family to make arrangements for its return. If the family opted for hospital disposal, the Post Mortem Room Team were informed so that they could arrange to bury the perinatal organ in the hospital plot as per hospital policy.

In line with national standards, it is usual practice that where the hospital has been given permission for disposal, burial takes place when there are a sufficient number of organs for burial or at the

latest within a year of completion of the post mortem.

When retained perinatal organs are buried communally, burial should take place when there are a sufficient number of organs for burial, or at the latest within a year of completion of the hospital post mortem examination or purposes of coroner's post mortem examination. This is in line with the timeline outlined in the Standards, Section 6.4.26. The following chart outlines the steps in relation to the pathway.



Management of retained organ(s) pathway following a Post Mortem 2020

4.0 High Level Chronology of Events

4. Timelines regarding the retention and release of the perinatal organ following Post Mortem

The Review Team established the timelines regarding the retention and release of the perinatal organs in line with the family's request. This is detailed in the *Perinatal Organ Retention Log* (Appendix 13) outlining the specific dates in all 18 post mortems

a) Date the perinatal organ was retained for further examination following the post mortem
b) Date the perinatal organ was returned to the Post Mortem Room
c) Date the perinatal organ was released by the Pathologist
d) Date the perinatal organ was released by the Mortuary Team

19th September 2019

Last date prior to the incident whereby perinatal organs were buried in the CUH burial plot.

December 2019

The Post Mortem Room Team were informed by personnel in the cemetery that the CUH burial plot was full to capacity.

January 2020

The Post Mortem Room Team contacted the HSE Estates Department seeking details for the responsible person in relation to CUH burial plot and other cemeteries where the HSE has burial plots. The contact details for the city council cemeteries were provided.

March 2020

Staff Member1's Line Manager was informed the burial plot was full.

Mid-March 2020

The Post Mortem Room Team advised the Review Team, that they made enquires in relation to options in four cemeteries.

By Mid-March 2020

Predictions for the hospital and city were that extreme measures were required to increase mortuary capacity in response to the COVID-19 pandemic.

16th March 2020

Correspondence was issued to the Post Mortem Room Team from the HSE Estates Department referencing the plan in the event of mass casualties which is incorporated in the Major Emergency Plan. The Post Mortem Room Team confirmed that additional capacity in this plan would be the use of Collins Barracks.

18th March 2020

At the meeting with the Review Team, Staff Member1, Post Mortem Room Team, advised that they visited a burial plot at another hospital site but there was no agreement reached for it to be used for CUH.

20th March 2020 approx.

The Post Mortem Room Team contacted the crematorium with a view to having the perinatal organs cremated[7]. Staff Member1, Post Mortem Room Team outlined in correspondence that as only a monthly service could be provided he(she) felt that this was not an answer to the immediate and urgent needs.

20th – 24th March 2020

At this point, the Post Mortem Room Team were dealing with the unexpected and unanticipated pressures of the COVID-19 pandemic and an alternative burial site for CUH was not identified.

The Post Mortem Room Team reviewed documents including Appendix 5 *Consent to a Post Mortem Examination Form* (Note: Yellow coloured form) and the *Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste,* Ref - HSE & Department of Health, Nov 2010, in assisting to maximise refrigerated capacity. The Post Mortem Room Team made a decision to dispose of the perinatal organs and the adult body parts as recognisable anatomical waste by incineration. This was undertaken on the 25th March and 2nd April 2020.

25th March 2020

A total of 11 perinatal organs, which remained in their individual caskets, and a number of adult body parts were placed into a single container which did not contain any other materials. This container was sent for incineration.

2nd April 2020

A total of 7 perinatal organs, which remained in their individual caskets, and a number of adult body parts were placed into a single container which did not contain any other materials. This container was sent for incineration.

5. The company contracted by the hospital for incineration and location of incineration

Two families have requested the name of the specialist company that handled the incineration and this will be provided, by CUH in sharing the report with these families.

Regarding whether or not the perinatal organs were sent abroad for incineration and that this

[7] Cremation is a method of disposal of a dead persons remains, by burning, which can be preceded by a religious or non-denominational service.

occurred in Belgium, the Review Team asked the company to confirm the location used for incineration.

The company provided the following reply:

"I can confirm that the main incinerator we use for special waste is in Belgium. This incinerator shuts for maintenance each year, plus there are times when there may be capacity issues which we need to work around, during those times we use other approved incinerators, currently in Germany and Denmark".

The company were requested for more definitive information on where incineration occurred and confirmed that on the dates the perinatal organs were sent for incineration an approved contractor in Denmark was used.

3rd April 2020

At the meeting with the Review Team, Consultant Histopathologist2 outlined that when he(she) enquired with the Post Mortem Room Team on behalf of a family regarding the date their baby's organ was buried, he(she) was informed that it had not been buried, but had been sent for incineration. This information led to this review.

14th April 2020

The Review Team were advised that a sub-group of the Bereavement Committee were informed by Consultant Histopathologist2 that the perinatal organs were incinerated.

20th April 2020

At the meeting with the Review Team, Line Manager1 informed the Team that he(she) was informed by Staff Member1 the perinatal organs and the adult body parts were disposed of by incineration.

21st April 2020

Consultant Histopathologist1 advised the Review Team that he(she) informed the Bereavement Committee that the perinatal organs had been sent for incineration.

22nd April 2020

The Review Team note in correspondence that Line Manager1's line manager was informed on 22nd April 2020.

22nd April 2020

Members of the CUH Management Team were informed.

27th April 2020

The Review Team note communication from Staff Member1, Post Mortem Room Team to the HSE Estates Department to proceed with the purchase of 3 plots for CUH. The Mortuary Department received permission for the use of these additional burial plots in September 2020.

5.0 Aftermath of the incident

On 5th May 2020, CUH Serious Incident Management Team (SIMT) was convened. The SIMT established that this event had affected 18 families, who had given prior permission for the hospital to make arrangements for the retained perinatal organs and had a reasonable expectation that the hospital would arrange for their burial or cremation. Therefore, a decision was taken by SIMT that all affected parents would be contacted in line with open disclosure and that a systems analysis review would be undertaken. SIMT also identified that the composition of the Review Team would require external subject matter expertise (Pathologist and Mortuary personnel).

On 11th & 12th May 2020, Bereavement Midwives with the support of senior midwifery and obstetric clinical personnel contacted the 18 families by phone to inform them of the incident, to offer an apology, to inform them that a review of the circumstance would be undertaken and to offer ongoing care and support in receiving this information.

On 21st May 2020, correspondence was sent to the families reiterating the apology and offering a meeting with CUMH if the families wished.

In September 2021, both CUH and CUMH were advised that RTE Primetime Investigates were going to broadcast a programme in relation to the incident. In advance of the broadcast, each of the 18 families were contacted to notify them of the upcoming documentary.

On 4th October 2021, following the broadcast, the 18 families were provided with a further letter re-acknowledging that a serious mistake had been made and again offering the apologies of both CUH & CUMH for the error . Further information in relation to the ongoing review was also provided.

On 14th October 2021, a follow up letter was sent to each of the 18 families including a letter from the National Patient Advocacy Service advising of the support available to patients and families from this service. The service provides free, independent and confidential support to people who wish to make a complaint about the treatment they have received in a Public Acute Hospital. The Patient Advocacy Service is funded by the Department of Health, which means it is completely independent of the HSE.

In October 2021, the HSE Internal Audit Division undertook a national audit to determine assurance of compliance in respect of the *Standards and Recommended Practice for Post Mortem Examination Services*, HSE 2012. The Report was published on 18th February 2022 with associated findings and recommendations. The Review Team note one of the recommendations from this audit is to update the standards document now referred to as the policy. This is due by Q4 2022. Outside of the incident which is the matter of this review, CUH is fully compliant in respect of the audit.

A Perinatal Pathology working group for the South/ South West Hospital Group was established. The aim of the group is to:

1. Review all available perinatal services at all four hospital sites and audit good practice points that could be adopted at a regional level. It would be expected that members of the working group would carry out visits to all sites.
2. Determine the current and projected demand on the perinatal pathology service giving consideration to changes in legislation (Coroner's Act) and the routine assessment of all placentas in all births.
3. Determine resource requirements for a regional perinatal pathology service:
    a. Workforce Planning
    b. Facility Capacity
    c. Operational Delivery & Development
    d. Education/Training Procedures
    e. Communication Pathways (within hospitals, hospital group level and external stakeholders such as funeral directors)

At the meeting with the Review Team, Consultant Histopathologist1 outlined that further to an audit of forms and processes and in preparation for regionalisation of the service, new consent forms for both Consented Post Mortems and Coronial Post Mortems were developed. The new forms were introduced in January 2021 in all the maternity sites across the hospital group. (Appendix 7 & 8).

Since April 2021, the perinatal pathology service has been enhanced dedicated specialist staffing which has allowed for the service to be taken over by the Perinatal Pathologists and their team of Medical Scientists. It is therefore now the responsibility of this team to ensure that CUH retains, stores and disposes of retained perinatal organs is in accordance with national standards and local policy, *Disposal of Retained Perinatal Organs,* CUH Sept 2021, (Appendix 10).

6. Communication with parents

It is evident to the Review Team that communication with the 18 families identified as having been affected by the incident was of paramount importance to both the management team of CUH and CUMH. The Review Team acknowledge that it was recognised from the outset that informing the families that the perinatal organs had been sent for incineration would cause anxiety and distress and that there would be a need for ongoing support to be in place.

Open Disclosure

Since 2013, it is the policy of the HSE to openly disclose to patients (and families) in an open and honest way when things go wrong in their care. This is not intended to be a once off meeting but a structured approach to, in the first instance, acknowledge what has gone wrong, give a full explanation of the facts as known at the time and apologise for what has happened as a result of what has gone wrong. Reassurances are also given that any immediate care needs (or supports) are in place and offered and a member of staff is identified as the key contact person for the patient (and families). In the case where a serious incident has occurred there is a review of the circumstances and patients (and families) are given the opportunity to give input to the review if they wish and to be provided with the outcome of the review.

The Review Team met the Bereavement Midwives who informed them that the aim of the calls on 11th & 12th May 2020 was to inform the parents what had happened, to apologise, to inform them that a review would be undertaken, and to offer additional care and support as a result of the incident. While this incident occurred in CUH, CUMH volunteered to undertake the telephone calls as they had an existing relationship with the families affected.

The telephone calls were made by the bereavement specialists as they are highly trained in the using language that is both factual and sensitive and adapting their communication to each patient in an individualised way. A senior member of the Management Team was also present for each call in case there were questions about what had happened that the bereavement specialists could not answer. An apology was given and the families were informed that CUH would be undertaking a review into how this happened. An important point of note for the Review Team in meeting with the bereavement team is that the telephone calls did not discuss where the incineration had taken place as this was not known to the team.

All patients were given the contact details of the bereavement midwives for any questions or additional supports they required and were informed that there would be a follow-up letter from CUMH offering a meeting. These letters were sent by registered post on 21st May 2020, the apology was repeated and contact details of the bereavement midwives were included.

Six of the eighteen families whose baby's perinatal organs were sent for incineration availed of the offer to meet with the Review Team. The six parent/s outlined that the telephone calls they received on 11th & 12th May 2020 did not convey to them the details of the events that occurred, in that the word incineration was not mentioned. For one of the six families, English is not their first language and they did not understand the nature of the call they received.

Three of the families indicated that they did not receive the letter dated 21st May offering a meeting with CUMH. Two of the families outlined their dissatisfaction with the letter in that it was vague and did not provide details as to what had happened or conveyed in the telephone calls.

All of the six families informed the Review Team that they lacked full understanding that their baby's perinatal organs had been sent incorrectly for incineration and did not realise the scale of what had occurred until there was extensive media reporting in September 2021.

In exploring further why there was a difference between the intention of the telephone calls, to inform parents that an error had occurred, that the perinatal organs had been incorrectly sent for incineration, and the feedback from the six families, the Review Team met with members of the bereavement team.

The bereavement specialists confirmed to the Review Team that all families were informed that incineration of the perinatal organs had occurred, and that this was not what the service had given them to expect would happen, which was for the perinatal organs to have been buried or cremated. The staff involved in the calls outlined that it would always have been their preference to have offered a face to face meeting to openly disclose what had occurred in person, however due to global and national COVID restrictions in May 2020 this was not possible. CUMH was very aware that for some families a long time had passed since their bereavement, and they wished to be sensitive to the individual needs of each family.

The Team acknowledge that having such a sensitive conversation with parents over the telephone was a challenging process, without the benefit of visual cues to appreciate levels of understanding,

reactions, shock, or trauma.

The team confirmed that translators were available and were used but were not present for all the telephone calls that were made to the families where English was not their first language.

In relation to the letters sent to the eighteen families CUMH have provided feedback that the letters were intended to reiterate the apology to the families and outline the mechanism of receiving further information if they wished. They were never intended to provide a detailed description of events as the hospital was very aware that every family would receive the news differently and wanted to be guided by the individual needs of each of the families.

The Review Team have been advised by CUMH that the letters of 21st May 2020 were posted by registered post and no letter was returned to the hospital at the time. Consequently, CUMH believed that each letter had arrived safely at the intended address. The Review Team have been informed by CUMH that there was an error in communication in that one letter to one family was not sent at the time. This has since been corrected and an apology offered.

The Review Team appreciate the difficulty and restrictions with COVID-19 in May 2020. Acknowledging the situation, the Team believe the letters could have been more specific and less ambiguous.

The Review Team recognise that translators were available and were used but were not present for all the calls that were made to the families where English was not their first language.

The Review Team are unable to come a conclusion on the conflicting accounts as to whether the term incineration was used during the telephone calls with six of the eighteen families.

The Review Process

As mentioned above, the commencement of the review was subject to a number of delays. The composition of the Review Team was finalised in April 2021. Due to the cyber-attack on the HSE in May 2021, the Team were unable to progress the review. As with any review, the initial meetings involve the Review Team undertaking a review of both local and national policies, procedures, protocols and guidelines in relation to the event.

This Review commenced in June 2021. CUH assumed that as the families did not make contact with

CUMH following the calls and letters of 21st May 2020, they did not wish to participate in the review. CUH acknowledge that this was an incorrect assumption. Also, communication by the hospital should have occurred with the families further to the calls and letters in May 2020.

The Quality & Patient Safety Manager has been the contact person with the families and has provided the updates with regards to the progress of the Review.

Opportunities for Improvement & Learning:

1. The presence of a translator when making any call and/or at meetings with families when English is not the family's first language.
2. The letters of 21st May 2020 could have been more specific and less ambiguous, and could have provided potential dates that the families could meet with CUMH with the option that families could advise if they do not wish to meet.
3. CUH to review the structures regarding the identified nominated person as the contact for the family/families to ensure ongoing support and updates are provided in a timely manner.

Lessons Learned

The Review Team and CUH is very cognisant of the length of time it has taken to complete this review. In this regard, a review of the methodology used will be undertaken. The learning is to establish what type of review could and/or potentially should have been used.

Also, going forward, it is essential that a review of a patient safety incident is completed in a timely manner so that patients, families and staff are not waiting an extraordinary length of time for the review to complete. This leads to lost opportunities for learning.

6.0 Analysis and Findings of the Review Team

The following provides context in relation to the history of organ retention in Ireland.
During the twentieth century, little or no information was provided to relatives of the deceased concerning the post mortem procedure, whether organs had been retained, and how any retained organs were disposed of. This led to a public organ retention controversy in late 1999 and 2000.

In 2000, in response the Faculty of Pathology of the Royal College of Physicians of Ireland issued guidelines with associated forms that, for consented (hospital) post mortems, required, in addition to consent for the procedure, additional consent for any organ retention, and provided for a choice of what method of disposal the relatives wished to choose for any organs retained. For coroners post mortems (these do not require the relatives' consent for the procedure or for the retention of organs) the guidelines required that the relatives be informed if any organs had been retained and also provided for a choice of what method of disposal the relatives wished to choose for any organs retained.

It was found that in order to administer the new guidelines, hospitals needed to engage staff skilled in bereavement and this role was taken on mainly by social workers or nurses and included, in maternity hospitals, bereavement midwives.

An inquiry was established by the Minister for Health and Children in 2000 to review Post Mortem Policy, Practice and Procedure in all hospitals in the State since 1970, with particular reference to organ removal, retention, storage and disposal (The Dunne Inquiry 2000). The Minister wound up the inquiry when it had not produced a satisfactory report by 2005. Dr Deirdre Madden was asked to review the material and produced her Report on Post Mortem Practice and Procedures later that year. (The Madden Report 2005) which reviewed what had occurred and made recommendations.

One recommendation of Dr Madden was that an independent audit must be carried out of currently retained organs in all hospitals in the State. This was undertaken by Michaela Willis, who also reported on autopsy policy and practice in the hospitals (*Retained Organs Audit*. Michaela Willis, 2009).
The HSE, informed by the above guidelines, audits and the Madden report produced a comprehensive document, *Standards and Recommended Practices for Post Mortem Examination Services* HSE, 2012.

Historically hospitals did not generally differentiate between tissue removed at autopsy and tissue removed at surgery from a living patient. 'Safety in the handling and disposal of clinical waste was the primary consideration rather than the need for respectful disposal or consultation with next-of-kin'. (Madden 2005). Retained organs were predominantly disposed of by incineration until the 1980s when European environmental regulations forced hospital incinerators to close. Subsequently organs were disposed of by applicable clinical waste procedures and guidelines relating to clinical healthcare waste, often involving export abroad by a private company for incineration, but some hospitals had purchased burial plots and cremation was occasionally used for organs. (Madden 2005).

Guidelines introduced since the organ retention controversy (2000) have required that relatives are informed if organs have been retained and given options for disposal of retained organs. These options involve return of the organs to the family (usually through an undertaker), burial, or cremation. The option of incineration is not offered. The *Standards and Recommended Practices for Post Mortem Examination Services* HSE, 2012 do not discuss incineration, and in her 2009 audit report of retained organs Willis states: "*there is evidence ... that in a small number of cases disposal appears to be by incineration. It should be emphasised that such a method of disposal is disrespectful and totally unacceptable"*.

The recent national HSE audit to determine assurance of compliance in respect of the *Standards and Recommended Practice for Post Mortem Examination Services*, HSE 2012. HSE audit (2022) noted *'inappropriate organ disposal methods'* when it found that a small number of organs had been incinerated by 2 hospitals.

Current guidelines for healthcare waste management include a category that is exported for incineration, described as 'Recognisable large anatomical waste material or body parts', but this is generally understood to relate to tissue removed at surgery on a living patient. This category is not considered appropriate for post mortem tissue.

The Review Team have identified through the course of the review that the incineration of adult body part post amputation is undertaken in other hospitals nationally. The Team has considered the process of incinerating the adult body parts and find that it was appropriate to consider these

in the same category as recognisable anatomical waste[8]. The Review Team note that the Terms of Reference refer to the "incorrect disposal of body parts" and conclude that this is an inaccurate attribution.

The Post Mortem Room Team informed the Review Team that they reviewed documents including, *Consent to a Post Mortem Examination Form* (Appendix 5) and the *Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste* HSE & Department of Health Nov 2010 in an attempt to maximise existing refrigerated capacity in preparation for COVID.
The Review Team note **these guidelines are specific to waste management and are not compliant with the sensitive disposal of organs.**

The CUH Policy *Performance of an Autopsy in the Post Mortem Room* Section 16 (Appendix 9), outlines the disposal of retained organs according to normal hospital practice. It states that it is Hospital practice that organs retained at autopsy are disposed of in a sensitive manner. The Hospital will arrange burial of any organs retained in the hospital burial plot. The Review Team received assurance that this has been the practice in relation to hospital disposal of organs prior to the 2 dates on which this incident occurred. **The practice of disposal of post mortem organs by incineration is not compliant with this policy.**

The Review Team also note sections 1.4.53 and 2.4.48 in the *Standards and Recommended Practices for Post Mortem Examination Services,* HSE 2012 specifically outlines sensitive organ disposal following post mortem are burial or cremation.

On examination of all the data sources collected and considered related to this incident the Review Team conclude the following **Statement of Finding** to be the key cause

- **Deviation from Local Policy and National Standards**

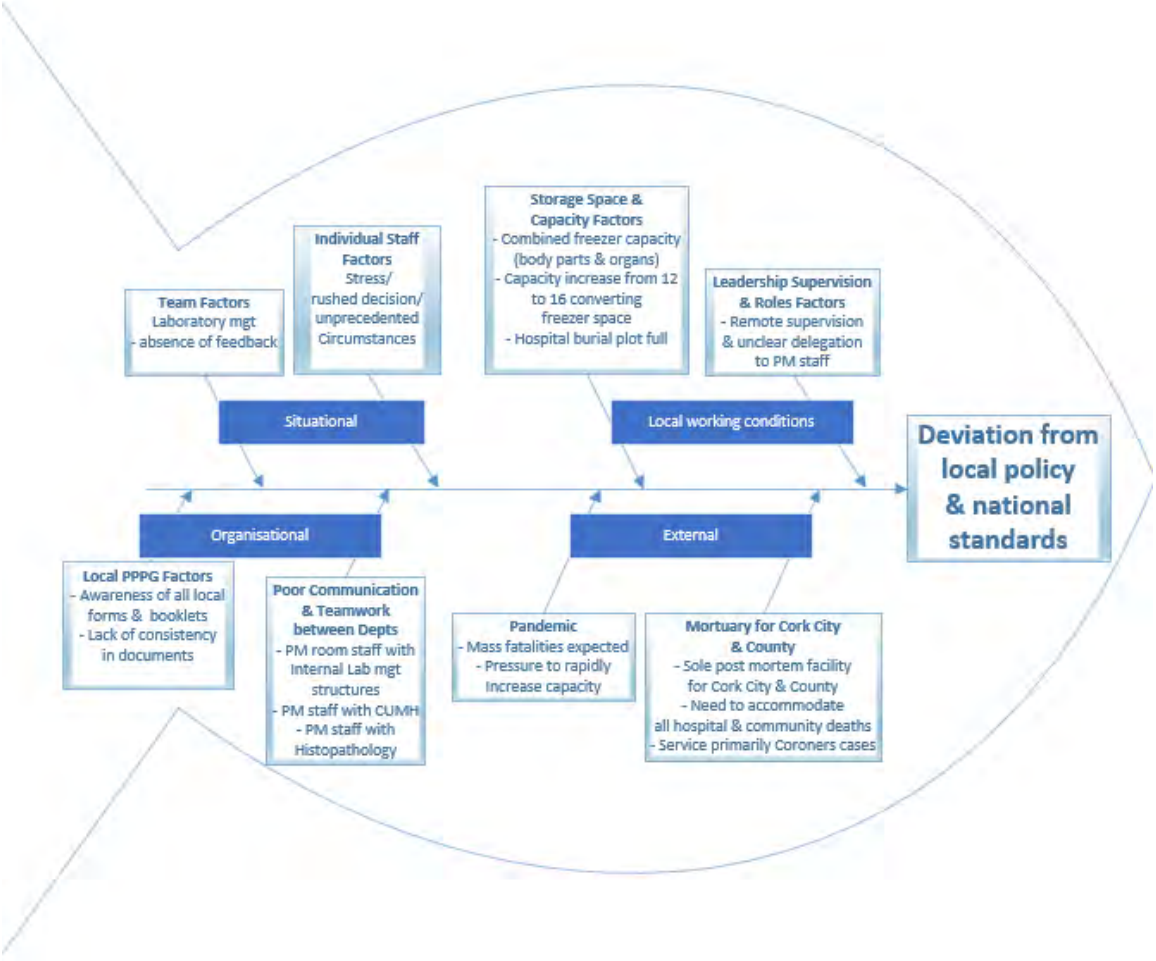
[8] The category of recognisable anatomical waste or body parts was introduced for the disposal by incineration of tissues and organs removed surgically from living patients such as a diseased colon, lung, uterus and limbs/digits.

Contributory Factors

To ensure that a systematic review of all factors that led to the deviation from policy were examined the Review Team applied the Yorkshire Contributory Factor Framework (illustrated below). This is an evidence based tool for optimising learning and addressing causes of patient safety incidents. The tool helps to understand more fully the factors that cause incidents to occur and to address the factors through changes in systems, structures and local working conditions.

Yorkshire Contributory Factors Framework

Through the review of the prompting questions (Appendix 4) and the information from all data sources the Review Team developed a fishbone diagram to capture the Team's consideration of all potential contributory factors that led to the deviation.



Situational Contributory Factor

The Review Team explored whether the staff involved in the incident functioned as a team and what individual and team factors may have contributed to the incident.

<u>Team Factors</u>

According to the Quality Manual for the Pathology Department the Post Mortem Room Team reports directly to laboratory management and has a communication line to medical consultants in the Pathology Department. The Quality Manual documents the Laboratory Medicine Quality Management System (QMS) and delineates the authorities, inter-relationships and responsibilities of the personnel within the system. The manual also provides procedures or references for activities comprising the QMS to ensure compliance to the necessary requirements of EN

ISO15189: 2012 Medical Laboratories – Requirements for Quality and Competence.

In respect of the delineation of authority and inter-relationships, the Review Team note that there is neither a reporting nor a communication line from the Post Mortem Room Team to the Clinical Lead of the Department. At the meeting with the Review Team, Line Manager1 indicated he (she) became aware that CUH burial plot was full in March 2020 but that it seemed in hand. There was an open door policy instead of regular meetings held with the Post Mortem Room Team. Therefore, the inability and unsuccessful sourcing of a burial plot was not communicated to Line Manager1.

Individual Staff Factors

In March/April 2020, the Post Mortem Room Team were presented with a situation that was unprecedented due to the potential impact from COVID-19. The Review Team found that there was significant pressure to rapidly increase capacity as predictions for the hospital and city indicated that there would be a need to accommodate mass fatalities within existing and additional mortuary facilities in response to the pandemic. Responding to the pandemic required hurried decisions. The Review Team acknowledge that there was an element of personal burden and stress that staff undoubtedly would have felt in relation to all the reported predictions at this time. However, the Post Mortem Toom Team did not escalate this prior to sending the perinatal organs for incineration.

Recommendation 1: The Operations Manager & the Clinical Director for Diagnostics to review and assure the EMB that the Management Responsibilities (section 4.1.2) outlined in the Laboratory Quality Manual are implemented and audited on a defined periodic basis.

Local Working Conditions Contributory Factor

The Review Team examined the local working conditions at the time of the incident and identified a number of factors

Storage Space & Capacity Factors

The Post Mortem Room Team indicated being under pressure to increase the holding capacity within the Post Mortem Room. The refrigerator had space for 12 bodies but could be increased to 16 spaces if the 4 space freezer compartment could be converted to refrigerator space. However, the freezer space was occupied with the perinatal organs and adult body parts.

The Review Team note that it is outlined in the *Standards and Recommended Practices for Post Mortem Examination Services,* HSE 2012 section 6.4.4.that *retained organs should be kept in appropriate containers that are clearly identified, traceable and stored in a designated secure area.* The Review Team consider that it is not required to be a refrigerated space due to the preservative nature of the solution in which the organ is stored to facilitate examination. A secure, ventilated cupboard or room at an ambient temperature is a sufficient alternative and would be regarded as common practice.

Recommendation 2: The Post Mortem Room Team in conjunction with the Histopathology Department (including the Perinatal Service) to:

- Continue the disposal of adult body parts by incineration where the patient indicates on the consent form that CUH may dispose.
- Review the practice of storing formalin fixed organs/tissue in a refrigerated space.
- Consider the use of a separate, deep freeze cabinet solely for storing body parts (where the patient indicates on the consent form they wish to have the body part returned to them).

National Recommendation

The HSE in conjunction with relevant stakeholders to update the "Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste", Nov 2010.

<u>Leadership, Supervision & Roles Factors</u>

The Review Team considered the Post Mortem Room Team's roles and responsibilities and supervision by Line Manager 1 in relation to creation of additional capacity within the mortuary. Line Manager 1 was aware of efforts to increase capacity however was not informed of the steps taken to convert the freezer storage space and the incineration until after the event.

Recommendation 1: The Operations Manager & the Clinical Director for Diagnostics to review and assure the EMB that the Management Responsibilities (section 4.1.2) outlined in the Laboratory Quality Manual are implemented and audited on a defined periodic basis.

Organisational Contributory Factor

Factors relating to local policies, protocols and procedures

The Review Team observed a number of different forms and information booklets in use at the time of the incident regarding post mortem and options in respect of both retention of organs (& perinatal organs) and disposal of any organs or tissue taken.

The majority of the babies of the parents and families affected had coronial post mortems. To support the full awareness of parents with the Coronial Perinatal Post Mortem process and to record the preference of parents regarding the options for burial or cremation of retained perinatal organs the Department of Histopathology Form, *Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem,* (Note: Grey coloured form) was used. (Appendix 6). This form is supported by an information booklet and stated that the hospital will bury or cremate the organs on behalf of the parents if the parents choose for the hospital to make the disposal arrangements.

In the remaining cases a hospital perinatal post mortem was undertaken and Department of Histopathology, *Consent to a Post Mortem Examination form* (Note: Yellow coloured form) was used (Appendix 5. This form does not specify burial or cremation but details that the hospital may dispose of the organ in a lawful and respectful way.

At the meeting with the Review Team, Staff Member1, Post Mortem Room, indicated being unaware of the form *Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem* or the existence or contents of the supporting booklet that in his(her) opinion differed from the protocols and procedures of the Post Mortem Room.

At the meeting with the Review Team, Consultant Histopathologist1 outlined that Staff Member1, Post Mortem Room Team, should have been aware of the booklet as he(she) was a member of the Bereavement Committee, CUMH. Consultant Histopathologist1 further informed the Review Team that he (she) personally provided a hard copy of the booklet to Staff Member1.

Consultant Histopathologist1 informed the Review Team the form *Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem* was drafted and developed in the knowledge of the local policy *Performance of an Autopsy in the Post Mortem Room* Section 16, (Appendix 9) and the *Standards and Recommended Practices for Post Mortem Examination Services* HSE, March 2012.

The Review Team received feedback from Staff Member1, Post Mortem Room Team, outlining that the Post Mortem Room Team were fully compliant with the *Consent to a Post Mortem Examination form* (disposal was in a lawful and respectful way). This was considered by the Review Team and noted the following:

- The information booklet provided to the parents indicate that disposal shall be in a lawful and respectful manner, and specifically state that this shall be by burial or cremation. The option of incineration is not provided.
- Similarly the *Coronial Perinatal Post Mortem form* (Appendix 6), which was used in the majority of the 18 cases, states that disposal shall be in lawful and respectful manner and also specifically indicates that this shall be by burial or cremation
- In the remaining cases, the *Consent to a Post Mortem Examination form* (Appendix 5) was used; this does not specify burial or cremation.
- Documentation reviewed included correspondence to the Post Mortem Room Team indicating a number of perinatal organs released were to be buried and further correspondence which indicated that the family in that instance agreed to the perinatal organs being buried in a consecrated cemetery in a dignified way.

As previously outlined the *CUH Performance of an Autopsy in the Post Mortem Room policy* states that the disposal of retained organs will be in accordance with normal hospital practice. It further states that it is Hospital practice that organs retained at autopsy are disposed of in a sensitive manner and that the Hospital will arrange burial of any organs retained in the hospital burial plot.

The Review Team conclude that although the *Consent to a Post Mortem Examination form* did not specifically detail burial or cremation this cannot be seen to have allowed for the option of incineration and consider this to be a misguided decision.

Recommendation 3: Laboratory Management to revise all local polices and accompanying forms to ensure that the disposal of organs by CUH is consistently detailed through burial or cremation.

The Review Ream note, in a recent national update regarding the recommendations further to an audit that was undertaken to determine assurance of compliance in respect of the *Standards and Recommended Practice for Post Mortem Examination Services*, HSE 2012 that these are due by Q4 2022. This will inform Recommendation No. 3.

Factors relating to poor communication and teamwork within the overall pathology service

The Review Team note no direct engagement and communication occurred with other staff members within the overall pathology department prior to the decision to make arrangements to incinerate the perinatal organs on 25th March and 2nd April 2020. The decision was taken at local level (Post Mortem Room Team) and there was no consultation outside of the Post Mortem Room.

At the meeting with the Review Team, Consultant Histopathologist1 outlined there were options in the absence of the availability of a CUH hospital burial plot such as returning the perinatal organs to CUMH for burial or to arrange for their cremation.

Notwithstanding the endeavours undertaken by the Post Mortem Room Team in seeking an alternative burial plot, the issue was not communicated to the Histopathology Department and the Maternity Services.

It is with regret that the Review Team found that the availability of known alternative options were not explored at this critical time due to lack of engagement and/or communication to the Histopathology Department of the challenges in sourcing a hospital burial plot.

As previously outlined, in the background to the mortuary service, the workload largely involved deceased adults and coronial directed post mortems. Consequently this has led to the Post Mortem Room Team interacting largely with the Coroners and with little day-to-day contact with the Histopathology Department.

The Review Team received acknowledgement from both the Post Mortem Room Team and the Histopathology Department that the working atmosphere between the departments was sub-optimal. It is beyond the scope of this review to further investigate the causes for this.

Recommendation 4: Laboratory Management with the support of Human Resources to provide workshops in relation to interdepartmental working relationships to include culture, values & behaviours.

External Contributory Factors

COVID-19 Pandemic Factors

On 11th March 2020, 14 days prior to the decision to send the perinatal organs for incineration, 34 cases of COVID-19 and the first death due to coronavirus was confirmed in Ireland. Media were reporting that as many as 85,000 people could die from COVID-19. There was also extensive media reporting in relation to other countries whom had experienced a significant number of deaths

On 12th March 2020, the Taoiseach announced that schools, colleges and childcare facilities will close. On 14th March, the death of a second person was announced and the total number of confirmed cases had risen to 129.

On 15th March 2020, correspondence issued in relation to creation of additional mortuary capacity. The Review Team note in this correspondence, that through additional capacity within the mortuary and the use of further mobile refrigeration (being sited and installed) at the hospital, planned mortuary capacity was in the region of accommodating 50+ fatalities. There were a number of visits from the Regional Crisis Management Team to the hospital mortuary to further efforts to accommodate mass fatalities at the hospital and alternative locations[9] for mortuary facilities (e.g Collins Barracks).

On 19th March, a third person was confirmed as having died due to COVID-19 and the total number of confirmed cases was at 557, an increase of 52% from the previous day. On 22nd March 2020 a fourth person was confirmed to have died from the virus and two days later the Taoiseach announced a series of measures to curb the spread of the virus.

On 25th March 2020, the decision was taken by the Post Mortem Room Team to send 11 of the 18 perinatal organs for incineration and on 26th March the Department of Health confirmed that Ireland had a total of 19 deaths due to COVID-19 and confirmed COVID-19 cases were in excess of 1,800. At this time the Taoiseach was also warning that intensive care units may be at capacity "within a few days".

A mandatory order was issue for everyone, across the country, to stay at home for a two-week period until 12th April 2020. On 29th March, 10 more people were confirmed to have died from COVID-19 bringing the total number of deaths to 46 and greater than 2,600 confirmed cases.

[9] CUH emergency plan identified options to be used for "mass casualty events"

By 1st April 2020 confirmed number of deaths totaled 85 with greater than 3,400 confirmed cases of COVID-19 and on 2nd April 2020 the remaining 7 perinatal organs were sent for incineration.

From the mortuary perspective, it was reported that the Irish Association of Funeral Directors had advised members that funeral services should not take place for people who die from the disease, at least not immediately, and their remains should be brought straight to the crematorium or cemetery (Irish Times, 11 March 2020).

Predictions for the hospital and city were that extreme measures were required to increase mortuary capacity in response to the pandemic. The Review Team therefore conclude that this was a period of extreme unprecedented pressure in the first wave of COVID-19. As events were unprecedented and unpredictable at this time the Review Team have not identified a recommendation to address this factor.

7. COVID-19 Preparation

Two of the families have requested information in relation to whether a directive was issued to CUH in relation to mortuary capacity and specifically one which directed to clear out the morgue. The Review Team in seeking an answer for the families conclude that whilst there are multiple documents outlining planning for mass fatalities (and excess mortality) and plans for additional mortuary capacity at local, regional and national level, the Review Team are unaware of a directive to clear out the morgue.

CUH Mortuary is both the Hospital & Cork City & County Mortuary

The Review Team received feedback from Staff Member3, Post Mortem Room Team, outlining that the mortuary facilities incorporates the hospital and also community deaths for the entire Cork City and County Region. In addition, the facilities are also the sole post mortem facility for the City and County.

As previously outlined, in the background to the mortuary service, the service now predominantly consists of coroner's cases, performed by a forensic pathologist who is not part of the hospital staff.

Recommendation 5: The Operations Manager to review the current arrangement with external stakeholders (e.g. Coroner & State Pathologists) to clarify governance and delineate the authorities, inter-relationships and responsibilities.

The Review Ream note, in a recent national update regarding the recommendations further to an audit that was undertaken to determine assurance of compliance in respect of the *Standards and Recommended Practice for Post Mortem Examination Services*, HSE 2012, that these are due by Q4 2022. This will inform Recommendation No. 5.

7.0 Notable Practice

I. The Review Team note the documentation in the Histopathology Department is exemplary. The systems in place demonstrate the ability to access and provide information assertively. This is clear from the details outlined in Appendix 13.

II. It is apparent that the parents' views are central in the development of all documentation in particular the information booklets.

8.0 Review Outcome

The Review Team identified the following **Statement of Finding:**

- Deviation from Local Policy and National Standards

Systemic factors were considered to have an adverse and causal influence on the outcome.

9.0 Recommendations

Recommendations in relation to the Statement of Finding:

Local Recommendations

Recommendation 1:

The Operations Manager & the Clinical Director for Diagnostics to review and assure the EMB that the Management Responsibilities (section 4.1.2) outlined in the Laboratory Quality Manual are implemented and audited on a defined periodic basis.

Recommendation 2:

The Post Mortem Room Team in conjunction with the Histopathology Department (including the perinatal service) to:

- Continue the disposal of adult body parts by incineration where the patient indicates on the consent form that CUH may dispose.
- Review the practice of storing formalin fixed organs/tissue in a refrigerated space
- Consider the use of a separate, deep freeze cabinet solely for storing body parts (where the patient indicates on the consent form they wish to have the body part returned to them)

Recommendation 3:

Laboratory Management to revise all local polices and accompanying forms to ensure that the disposal of organs by CUH is consistently detailed through burial or cremation.

Recommendation 4:

Laboratory Management with the support of Human Resources to provide workshops in relation to interdepartmental working relationships to include culture, values & behaviours.

Recommendation 5:

The Operations Manager to review the current arrangement with external stakeholders (e.g. Coroner & State Pathologists) to clarify governance and delineate the authorities, inter-relationships and responsibilities.

National Recommendation

The HSE in conjunction with relevant stakeholders to update the “Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste”, Nov 2010.

Opportunities for Improvement & Learning:

1. The presence of a translator when making any call and/or at meetings with families when English is not the family's first language.
2. The letters of 21st May 2020 could have been more specific and less ambiguous, and could have provided potential dates that the families could meet with CUMH with the option that families could advise if they did not wish to meet.
3. CUH to review the structures regarding the identified nominated person as the contact for the family/families to ensure ongoing support and updates are provided in a timely manner.

Appendices

Appendix 1: Terms of Reference

Introduction

These are the terms of reference for a review commissioned by the Executive Management Board of Cork University Hospital Group regarding the incorrect disposal of body parts & perinatal organs on 25th March and 2nd April 2020.

Purpose

The purpose of this review is to:

- Establish the factual circumstances leading up to the incident
- Identify any key causal factors[10] that may have occurred
- Identify any contributory factors[11] that caused the key causal factors
- Make recommendations which when implemented would reduce the risk of a similar incident occurring in the future.

Scope of the Review

The time frame of this review will be from the first communication to the Mortuary in relation to increasing capacity to 21st April 2020.

The Review members

Membership of the Review team includes:

- Dr D Sean O'Briain, Consultant Histopathologist, Blackrock Clinic, Formerly St. James's Hospital, Dublin 8
- Ms Sabrina Mullahy, Senior Anatomical Pathology Technician, University Hospital Limerick
- Ms. Deirdre Carey, Quality & Patient Safety Manager, Cork University Hospital

Through the Chairperson, the Review team will:

- Be afforded the assistance of all relevant staff (including former staff) and other relevant personnel.
- Have access to all relevant files and records.

Should immediate safety concerns arise, the Lead Reviewer will convey the details of these safety concerns to the Review Commissioner as soon as possible.

[10] Key Causal factors are issues that arise in the process of delivering and managing health & social care services which the review team considers had an effect on the eventual harm. (Ref - HSE, Incident Management Framework, 2018, amended Framework 2020)

[11] Contributory Factor is defined as a circumstance, action or influence which is thought to have played a part in the origin or development of an incident or to increase the risk of an incident. (Ref - HSE – Incident Management Framework, 2020)

Investigation method

The Review will follow a systems analysis methodology as per the HSE Systems Analysis[12] Guidance for Services, 2018 and will be cognisant of the rights of all involved in relation to privacy, confidentiality, will follow fair procedures and due process.

The review will commence once the subject expert is appointed and will be expected to be completed within a period of 125 days provided unforeseen circumstances do not arise.

Following completion of the review, an anonymised draft report will be prepared by the review team outlining the chronology, findings and recommendations. All who participated in the review will have an opportunity to give input to the extracts from the report relevant to them to ensure that they are factually accurate and fair from their perspective.

Prior to finalising the report, the Lead Reviewer will ensure that the Review Team apply a quality assurance process to ensure compliance of the review process as outlined in the HSE, Incident Management Framework & Guidance 2018 prior to furnishing the final report to the Review Commissioner. The Review Commissioner will seek assurance that the quality assurance process has been completed.

The anonymised report may be published. There is currently no specific legislation and common law dealing with the protection of individual data, confidential data, data disclosed on the basis of confidence etc. and no guarantee can be given by the HSE that information received as part of an incident review will be protected from legal discovery or disclosure. Therefore the Review Commissioner will clearly advise interviewees of this fact and will remind them of their rights to fair procedure and due process including the right of representation.

Recommendations and Implementation

The report, when finalised, will be presented to the Executive Management Board, the commissioner of the report. The Executive Management Board is responsible for ensuring that the local managers responsible for the service where the incident occurred implement the recommendations of the review report.

The Executive Management Board is responsible for communicating nationally applicable recommendations to the relevant National Director(s) for national implementation.

Communication Strategy for the Review

[12]A methodical review of an incident which involves collection of data from the literature, records (general records in the case of non-clinical incidents and healthcare records in the case of clinical incidents), individual interviews with those involved where the incident occurred and analysis of this data to establish the chronology of events that led up to the incident, identifying the Key Causal Factors that the investigator(s) considered had an effect on the eventual adverse outcome, the Contributory Factors, and recommended control actions to address the Contributory Factors to prevent future harm arising as far as is reasonably practicable. (HSE, Incident Management Framework & Guidance, 2018, updated 2020)

The Quality & Patient Safety Manager, Cork University Hospital will communicate information pertaining to the review as necessary to the families/staff member(s) affected by and /or involved in the incident.

Reference

- HSE, Incident Management Framework and Guidance, 2018, Updated 2020
- HSE, Systems Analysis Guidance for Services, 2018, Updated 2020

While the Terms of Reference were drafted in 2020 in accordance with the Incident Management Framework, 2018, the Review Team aligned this review with the updated review template. The amended framework and the template refers to statement of findings instead of key causal factor(s) in the analysis and findings section.

Appendix 2: Definitions and Abbreviations used in the report

Definitions	
Post Mortem	Is the examination of a body after death, it is also known as an autopsy. Post mortems are carried out by histopathologists (Doctors specialising in medical diagnosis) who aim to identify the cause of death.
Contributory Factor	Contributory Factor is defined as a circumstance, action or influence which is thought to have played a part in the origin or development of an incident or to increase the risk of an incident.
Cremation	Cremation is a method of disposal of a dead persons remains, by burning, which can be preceded by a religious or non-denominational service.
Findings	• Factors that, if corrected, would likely have prevented the incident or mitigated the harm • Factors that if corrected, would not have prevented the incident or mitigated the harm, but are important for patient/staff safety or safe patient care in general (incidental findings) • Mitigating factors, Factors that did not allow the incident to have more serious consequences and represent solid safeguards that should be kept in place.
Histopathology	Histopathology is the study of changes in tissues caused by disease.
Incidental Finding	Issues that arose in the process of delivering and managing health services during the course of a review which the reviewers consider did not impact on the outcomes but which serve to identify issues for system improvement.
Incineration	Incineration is the process of burning something completely.
Key Causal Factor	Key Causal factors are issues that arise in the process of delivering and managing health & social care services which the review team considers had an effect on the eventual harm.
Neuropathology	Examination of human brain tissue by microscopic techniques
Neuropathological examination	Examination of human brain tissue by microscopic techniques
Perinatal	Relating to the time, usually a number of weeks, immediately before and after birth.

Pathology	Pathology is the science of the causes and effects of diseases, especially the branch of medicine that deals with the laboratory examination of samples of body tissue for diagnostic or forensic purposes.
Systems Analysis	A methodical review of an incident which involves collection of data from the literature, records (general records in the case of non-clinical incidents and healthcare records in the case of clinical incidents), individual interviews with those involved where the incident occurred and analysis of this data to establish the chronology of events that led up to the incident, identifying findings that the reviewers considered had an effect on the eventual adverse harm, the Contributory Factors, and recommended control actions to address the Contributory Factors to prevent future harm arising as far as is reasonably practicable. The Principles of systems analysis can be applied using a comprehensive, concise or aggregate approach.
Abbreviations	
CUH	Cork University Hospital
CUMH	Cork University Maternity Hospital
HSE	Health Service Executive

Appendix 3: References

- Consented Perinatal Post Mortem, Information for parents, EXT-CUH-PAT-1221, Rev 1
- Coroner's Perinatal Post Mortem, Information for parents, INS-CUH-PAT-1222, Rev 2
- Disposal of Retained Organs, INS-CUH-PAT-3022
- Department of Histopathology, Cork University Hospital, Consent to a Post Mortem (Rev 1 (2 September 2008) FOR-CUH-PAT-1109
- Department of Histopathology, Cork University Hospital, Options for parents regarding retained organ(s) management following Coronial Perinatal Post Morten (Revision 1 – no date) FOR-CUH-PAT-2084
- Disposal of Retained Perinatal Organs, INS-CUH-PAT-3022
- Health Service Executive, Open Disclosure Policy, June 2019
- Health Service Executive, Incident Management Framework, 2020
- Health Service Executive Standards and Recommended Practices for Post Mortem Examination Services, March 2012
- Healthcare Risk Waste Management Segregation Packaging and Storage Guidelines for Healthcare Risk Waste", Nov 2010, HSE & Department of Health
- Major Emergency Plan, Cork University Hospital, PPG-CUH-CUH-215, May 2019
- Performance of an Autopsy in the Post Mortem Room, September 2010, P-CUH-PMR-AUROPSY
- Perinatal Post Mortem Training Manual, PPG-CUH-PAT-695
- Post Mortem Room Policy & Procedures, April 2018, LP-C-PMR-POLPROC
- Quality Manual, PPG-CUH-PAT-1703, V8 2018
- Report on Post Mortem Practice and Procedures (Madden Report), 2005
- Retained Organs Audit. Michaela Willis, 2009

Appendix 4: Yorkshire Contributory Factors Framework

Prompting Question	Relevant to Incident?	CONTRIBUTORY FACTOR DOMAIN Situational Factors
Did the staff involved function as a team?	☐ Yes ☐ Maybe ☐ No	Team Factors – For example: • Conflicting team goals • Lack of respect for colleagues • Poor delegation • Absence of feedback
On the day of the incident, how did you feel?	☐ Yes ☐ Maybe ☐ No	Individual Staff Factors – For example: • Fatigue • Stress • Rushed • Distraction • Inexperience
Did the task features make this incident more likely?	☐ Yes ☐ Maybe ☐ No	Task Characteristics – For example: • Unfamiliar task • Difficult task • Monotonous task
Were there any reasons this incident was more likely to occur to this particular service user?	☐ Yes ☐ Maybe ☐ No	Service User Factors – for example: • Language barrier • Uncooperative • Complex medical history • Unusual physiology • Intoxicated
Prompting Question	**Relevant to Incident?**	**CONTRIBUTORY FACTOR DOMAIN Local Working Conditions**
Did staff provision match the expected workload around the time of the incident?	☐ Yes ☐ Maybe ☐ No	Workload & Staffing issues- For example: • High unit workload • Insufficient staff • Unable to contact staff • Staff sickness
Did everyone understand their role?	☐ Yes ☐ Maybe ☐ No	Leadership, Supervision & Roles – example: • Inappropriate delegation • Unclear responsibilities • Remote supervision
Were the correct drugs, equipment and supplies available and working properly?	☐ Yes ☐ Maybe ☐ No	Drugs, Equipment & Supplies – example: • Unavailable Drugs • Equipment not working • Inadequate maintenance • No supplies delivery
Prompting Question	**Relevant to Incident?**	**CONTRIBUTORY FACTOR DOMAIN Latent/Organisational Factors**
Did the ward environment hinder your work in any way?	☐ Yes ☐ Maybe ☐ No	Physical Environment – For example: • Poor layout • Lack of space • Excessive noise/heat/cold • Poor visibility (e.g. position of nurses' station) • Poor lighting • Poor access to service user

Were there any problems from other departments?	☐ Yes ☐ Maybe ☐ No	Support from other departments This includes support from IT, HR, porters, estates of clinical services such as radiology, phlebotomy, pharmacy, biochemistry, blood bank, physiotherapy, medical or surgical subspecialties, theatres, GP, ambulance ….
Did any time of bed pressures play a role in the incident?	☐ Yes ☐ Maybe ☐ No	Scheduling and Bed Management - example: • Delay in the provision of care • Transfer to inappropriate ward • Difficulties finding a bed • Lack of out-of-hours support
Were there any issues with staff skill or knowledge?	☐ Yes ☐ Maybe ☐ No	Staff Training and Education – For example: • Inadequate training • No protected time for teaching • Training not standardised • No regular/yearly updates
Did local policies, protocols and Procedures help or hinder?	☐ Yes ☐ Maybe ☐ No	Local Policies, Protocols or Procedures – e.g. • No protocol exists • Protocol too complicated • Lack of standardisation • Contradictory policies exist
Prompting Question	Relevant to Incident?	CONTRIBUTORY FACTOR DOMAIN Latent/External Factors
Is there any characteristic about the equipment, disposables or drugs used that was unhelpful?	☐ Yes ☐ Maybe ☐ No	Design of Equipment, Supplies & Drugs - e.g. • Confusing equipment design • Equipment not fit for purpose • Similar drug names • Ambiguous labelling and packaging
Have any national policies influenced this incident?	☐ Yes ☐ Maybe ☐ No	National Policies – For example: • Commissioned resources • National Screening Policy • Interference by government organisations • National medical/nursing standards • National Performance Targets
Prompting Question	Relevant to Incident?	CONTRIBUTORY FACTOR DOMAIN General Factors
How would you describe the culture of you clinical/care areas in relation to service user safety?	☐ Yes ☐ Maybe ☐ No	Safety Culture – For example: • Service User Safety awareness • Fear of documenting errors • Attitude to Risk Management
Were the notes available, accurate and readable? Did poor or absent verbal communication worsen the situation?	☐ Yes ☐ Maybe ☐ No	Communication – Written and Verbal e.g. • Poor communication between staff • Handover problems • Lack of communication/notes • Unable to read notes • Inappropriate abbreviations used • Unable to contact correct staff • Notes availability

Acknowledgement: Yorkshire and Humberside Improvement Academy. Creative Commons Bradford Teaching Hospitals NHS Foundation Trust.

Appendix 5: Consent to a Post Mortem Examination Form

Department of Histopathology, Cork University Hospital

Consent to a Post Mortem Examination

Patient's Name: ..... Sex: ..... DOB: .....

Address: ..... Hosp: .....

MRN: ..... Consultant: ..... Date of death: .....

Consent to a post-mortem examination

I ....., being the next of kin, consent to a post-mortem examination being carried out on ..... I know that I am entitled to refuse consent, and I am not aware that other family members object to this examination.

Tick each of the following statements:

- ☐ An information booklet outlining the examination procedure has been provided to me.
- ☐ I understand the examination is carried out to verify the cause of death and to study the effects of treatment.
- ☐ I understand, and it has been explained to me, **the examination usually involves tissue samples and/or fluids being taken and held for laboratory diagnostic purposes**.

Tick one of the following statements:

- ☐ I **do not object** to diagnostic images and/or photographs of abnormalities being taken.
- ☐ I **object** to diagnostic images and/or photographs of abnormalities being taken.

Limited post-mortem examination

You may wish to limit the extent of this examination. The person who gave you this form will explain the options and implications to you.

Do you wish to limit the extent of the examination? Yes ☐ No ☐

If "Yes", where do you want the examination limited to?

- The head ☐
- The chest ☐
- The abdomen ☐

Organs being taken and held

*You may agree, or disagree, to **whole organs** being taken and held for further diagnostic examination which could provide a more detailed understanding of the illness.*

Tick one of the statements below to indicate whether or not you agree to **organs** being taken and held for further diagnostic examination.

- ☐ I **do not object** to any organs being taken and held for further diagnostic examination.
- ☐ I **object** to any organs being taken and held for further diagnostic examination.
- ☐ I **object** to the following organs being taken and held for further diagnostic examination.

(Please list) ☐

Disposal of any organs or tissues taken

After further investigations, any organs or tissues taken must be disposed of in a lawful way. You can arrange this yourself or the hospital can do so. (Note: The processed tissue blocks and slides directly related to the cause of death are part of the medical record and are stored on file.)

Tick one statement only to indicate how any retained organs or tissues should be disposed of.

☐ The hospital may dispose of the organs or tissues in a lawful and respectful way.
☐ I will arrange for the organs or tissues to be disposed of in a lawful way.

Medical Education

Tick one statement only to indicate whether you agree, or disagree, to any organs, tissues or fluids being taken and held for an unlimited time for medical education.

☐ I **do not object** to any organs, tissues or fluids being taken for medical education.
☐ I **object** to any organs, tissues or fluids being taken for medical education.
☐ I **object** to the following (*please list*) organs, tissues or fluids being taken for medical education.

Medical Research

Tick one statement to indicate whether you agree, or disagree, to any organs, tissues or fluids being taken and held for an unlimited time for medical research.

☐ I **do not object** to any organs, tissues or fluids being taken for medical research.
☐ I **object** to any organs, tissues or fluids being taken for medical research.
☐ I **object** to the following (*please list*) organs, tissues or fluids being taken for medical research.

Please read the ***Post Mortem Examination Information Booklet*** before you sign this consent form.

Relatives signature: …… Name (print): ……

Relationship to deceased: …… Date: ……

Please tick if you wish to receive a copy of this consent form ☐

Witness name (please print) …… Post held: ……

I confirm that I have spoken with …… the parent / next of kin of …… and that the consent within to a post-mortem examination was freely given on an informed basis.

Witness signature: …… Date: ……

Appendix 6: Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem Form

Document name: FOR-CUH-PAT-2084 **Revision:** 1
Approved by: Histopathology **Controlled copies:** Grey

Department of Histopathology, Cork University Hospital

Options for parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem

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Patient's Name: ..... Sex: ..... DOB: .....
Address: ..... Hosp: .....
MRN: ..... Consultant: ..... Date of death: .....

Please be assured that your baby will always be treated with care and respect.

In a Coroner's post mortem the parent's consent is not required to retain an organ(s) but an organ(s) will only be retained if it is determined by the pathologist that it is required to identify the cause of death. Once the organ(s) has been examined you will have the option to have the organ(s) returned to you for burial alongside your baby or to have the hospital bury or cremate the organ(s) on your behalf. (Refer to page 9 of the Coroner's perinatal post-mortem information booklet).

Tick one statement only to indicate your preference:

☐ The hospital may make arrangements to dispose of the organ(s) in a lawful and respectful way.

☐ I will arrange for the organs to be disposed of in a lawful way (once the organ(s) has been released the Bereavement Midwife will make telephone contact with you to make these arrangements)

Please read the ***Coroner's perinatal post-mortem information booklet*** before you sign this consent form.

Relatives signature: ..... Name (print): .....

Relationship to deceased: ..... Date: .....

Please tick if you wish to receive a copy of this consent form ☐

Witness name (please print) ..... Post held: .....

I confirm that I have spoken with ..... the parent / next of kin of ..... and that the consent for organ management was freely given on an informed basis.

Witness signature: ..... Date: .....

Appendix 7 – Cork University Hospital, Department of Pathology, Perinatal Post Mortem Consent Form (Amended)

Cork University Hospital, Department of Pathology

Perinatal Post Mortem Consent Form

Mother	Baby
(Addressograph label) *or* *Name:*_____ *Address:*_____ _____ *DOB:*_____ *MRN:*_____	**(Addressograph label)** *or* *Name:*_____ *Address:*_____ _____ *DOB:*_____ *MRN:*_____

Please be assured that your baby will always be treated with care and respect.

Please tick √ to confirm

Section 1: I/we confirm that through a process of discussion, I/we have been provided with information regarding what is entailed in a hospital post mortem examination; I/we have read the consented perinatal post mortem information booklet for parents.	☐

Please tick √ to confirm

Section 2: I/we confirm that any questions I/we had about the hospital post mortem examination have been answered to my satisfaction and understanding.	☐

Please tick √ to confirm

Section 3: I/we understand that a hospital post mortem examination usually involves the retention of small samples of tissue and/or fluids, which are taken and held for diagnostic purposes.	☐

Please tick √ to confirm

Section 4: I/we understand this is not a mandatory procedure and that I/we may give consent for a full, limited or external hospital post mortem examination.	☐

Please select one of the following options from each section regarding the hospital post mortem examination:

Please tick √ one to indicate your decision

Section 5: Medical Photography *(Select one) - See page 7 of the Booklet.*	
I/we do not object to medical photographs being taken.	☐
OR	
I/we object to medical photographs being taken.	☐

Please tick √ one to indicate your decision

Section 6: Post Mortem Examination *(Select one) - See page 7-8 of the Booklet.*	
I/we consent to a **complete** hospital post mortem examination.	☐
OR	
I/we consent to a **limited** post mortem examination. If limiting a post mortem please circle areas below that you do not want to have examined: Head Chest Abdomen	☐
OR	
I/we consent to an **external** post mortem examination only	☐

Please tick √ one to indicate your decision

Section 7: Retention of organs for more detailed examination *(Select one) - See page 10 of the Booklet.* As part of a full or limited hospital post mortem examination, it may be necessary to retain organ(s) for detailed laboratory examination for investigative purposes. Please indicate whether you consent to this.	
I/we consent to the retention of organ(s) for detailed examination.	☐
OR	
I/we do not consent to the retention of organ(s) for detailed examination.	☐
OR	
I/we object to the following organ(s) being taken and held for further diagnostic examination please specify):_____	☐

Please tick √ one to indicate your decision

Section 8: Sensitive disposal of retained organs *(Select one)* ***- See page 10 of the Booklet.*** Following completion of detailed laboratory examination of retained organ(s), there are a number of options in relation to the ultimate disposition of the organ(s).	
I/we wish to make my own arrangements for the burial or cremation of retained organ(s). I/we understand we will be contacted by a member of the Bereavement Team when the organ is available.	☐
OR	
I/we wish the hospital to arrange for the burial or cremation of retained organs.	☐

Parental consent (At least one signature required from a legal next of kin)

*** **Before signing note that each of the above 8 sections should have one tick** √

Mother's name: _____ Signature: _____

Father's/Partner's name: _____ Signature: _____

Date: _____ Time: _____

Any variations, exceptions and special concerns? _____

_____

Consent taker's statements *(To be completed and signed in front of the parents)*

- ☐ I have read the written information offered to the parents.
- ☐ I believe that the parent(s) has/have sufficient understanding of a post mortem and (if applicable) the options for what should be done with organs to give valid consent.
- ☐ I have recorded any variations, exceptions and special concerns.
- ☐ I have checked that all 8 sections are completed with 1 tick √ in each.

Name: _____ **Position/Grade:** _____ **Date :** _____ **Time:** _____

Signature: _____ **Contact details (Ext/Bleep):** _____ _____

Interpreter's statement *(if relevant)*

☐ I have interpreted the information about the post mortem for the parent(s) to the best of my ability and I believe that they understand it.

Name: _____ Contact details: _____

Signature: _____ Date: _____ Time: _____

In case of verbal consent *(if relevant)*

Reason why consent was obtained verbally: .....

.....

Witness to verbal consent (Verbal consent must be witnessed by another member of the multidisciplinary team)

Name: _____ Contact details: _____

Signature: _____ Date: _____ Time: _____

Job Title (including Medical Council Number, if applicable): _____

For Pathology Department Use Only

The consent form has been reviewed before undertaking the hospital post mortem examination by:

Name: _____ Contact details: _____

Signature: _____ Date: _____ Time: _____

Job Title (including Medical Council Number, if applicable): _____

Appendix 8: Cork University Hospital, Department of Pathology, Options for Parents regarding retained Organ(s) management following Coronial Perinatal Post Mortem (Amended)

Cork University Hospital, Department of Pathology

Options for Parents regarding retained Organ(s) management following Coronial perinatal post mortem

Mother	Baby
(Addressograph label) *or* *Name:*_____ *Address:*_____ _____ *DOB:*_____ *MRN:*_____	**(Addressograph label)** *or* *Name:*_____ *Address:*_____ _____ *DOB:*_____ *MRN:*_____

Please be assured that your baby will always be treated with care and respect.

In a Coroner's post mortem the parent's consent is not required to retain an organ(s) but an organ(s) will only be retained if it is determined by the pathologist that it is required to identify the cause of death. Once the organ(s) has been examined you will have the option to have the organ(s) returned to you for burial alongside your baby or to have the hospital bury or cremate the organ(s) on your behalf. (Refer to page 9 of the Coroner's perinatal post-mortem information booklet).

Please tick √ to indicate your decision

Sensitive disposal of retained organs *(Select one)* Following completion of detailed laboratory examination of retained organ(s), there are a number of options in relation to the ultimate disposition of the organ(s). I/we wish to make my own arrangements for the burial or cremation of retained organ(s). I/we understand we will be contacted by a member of the Bereavement Team when the organ is available.	☐
OR	
I/we wish the hospital to arrange for the burial or cremation of retained organs.	☐

Parental consent (At least one signature required from a legal next of kin)

Mother's name: _____ Signature: _____

Father's/Partner's name: _____ Signature: _____

Date: _____ Time: _____

Consent taker's statements *(To be completed and signed in front of the parents)*

Name: _____ Position/Grade: _____ Date : _____ Time: _____

Signature: _____ Contact details (Ext/Bleep): _____ _____

Appendix 9: Performance of an Autopsy in the Post Mortem Room

Cork University Hospital Division of Pathology Histopathology	LP-C-PMR-AUTOPSY Date: 23/09/10 Approved by: XXX, XXX	Revision: 2 Page 1 of 21

PERFORMANCE OF AN AUTOPSY IN THE POST MORTEM SUITE

1.0 RISK ASSESSMENT SUMMARY

Substance	Hazard Classification[1]	Exposure Route[2]	Personal Protection / Control Measures	Risk Level[3]
Milton	Xn	I, In	Gloves, Safety goggles, Laboratory coat	Low
10% Formalin	T	I, In, EC, SC	Gloves, Safety goggles, Laboratory coat, Dust mask	High
Formaldehyde Solution 38%w/w	Toxic	EC, SC, SA, I, IN	Laboratory coat, gloves, goggles	High

1. Explosive (E), Flammable (F), Highly Flammable (F+), Oxidising (O), Toxic (T), Very Toxic (T+), Harmful (Xn), Irritant (Xi), Corrosive (Co), Carcinogenic / Mutagenic / Teratogenic (CMT), Dangerous for the Environment (N), Not Classified as Dangerous According to EC Directives (NCAD)
2. Skin contact (SC), Skin absorption (SA), Eye contact (EC), Inhalation (I), Ingestion (In).
3. Low (L), Medium (M), High (H).

2.0 INTRODUCTION

2.1 Purpose and Scope

This document describes the steps involved the performance of both Coroners and Hospital autopsies.
Performance of an autopsy requires essential co-operation and communication between Pathology Technicians, the Coroner, Medical and Surgical teams and Hospital Porters.

2.2 Responsibility

It is the responsibility of the Consultant Pathologist to ensure that the technical staff are sufficiently trained and experienced and to ensure that this procedure is adequate and adhered to at all times.

The Pathology Technician establishes if an autopsy is required on deceased patients. The medical or surgical team of the deceased patient is to be contacted after death by the Pathology Technicians for clarification of autopsy examination status. Details are recorded in the Mortuary Register.

During normal working hours Mortuary staff are responsible for the reception and storage of bodies and they will liase with the portering and nursing staff to ensure that all bodies are received in the Mortuary in accordance with standards set out in Section 5.14 and Section 19 of the Pathology Laboratory Health and Safety Statement (*MP-GEN-Health and Safety Statement*). It is the responsibility of nursing staff to ensure the body of the deceased is correctly placed inside a body bag to avoid spillage.

The Pathology Technician is responsible for the preparation of the body for examination, assisting the Pathologist during the autopsy and restoration of the body after examination. It is important that all autopsies are carried out in accordance with measures outlined in Section 18 of the Pathology Laboratory Health and Safety Statement (*MP-GEN-Health & Safety Statement).*

2.3 References

The Royal Institute of Public Health 'A Handbook of Anatomical Pathology Technology' 2004

2.4 Definitions

CJD	Creutzfeldt-Jakob Disease
HIV	Human Immunodeficiency Virus
TB	Tuberculosis
Hep A	Hepatitis A
Hep B	Hepatitis B
Hep C	Hepatitis C

2.5 Related Documents

MP-C-PAT-SAFETY	Health and Safety Statement
MP-C-PMR-MANMORT	Management of the Mortuary
LP-C-PMR-POLPROC	Post Mortem Room Policies and Procedures Manual
MF-C-HIS-COMPM	Consent Form for a Post Mortem Examination
MF-C-HIS-REQPM	Request Form for Post Mortem Examination

3.0 EQUIPMENT

Description	Source	Reference Document
• Proflow Ex respirator system	Scott Health & Safety	ED-C-PMR-PROFLOW
• 3M Health Care Respirators	3M Health Care Ltd	ED-C-PMR-3M RESP
• Full body suits or Theatre top and trousers	Linen Room	
• Disposable waterproof plastic apron	Stores	
• Suture Needle Autopsy table with downdraft	Shandon Lipshaw	ED-C-PMR-SHANDON / ED-C-PMR-NDTABLE
• PM40 Blades	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Kaltek Blades 10"	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Kaltek Blades 12"	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Scalpels	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Scissors	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Forceps	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Autopsy saw	Judd Medical Ltd	ED-C-PMR-SURCASE / ED-C-PMR-AUTSAW
• Clamps	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Body hoist	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Rib shears	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Chisel	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Mallet	Judd Medical Ltd	ED-C-PMR-SURCASE /ED-C-PMR-JUDD
• Surgical gloves	Judd Medical Ltd	ED-C-PMR-JUDD
• Boots	Judd Medical Ltd	ED-C-PMR-JUDD
• Eye goggles	Judd Medical Ltd	ED-C-PMR-JUDD
• Concealment trolley	Judd Medical Ltd	ED-C-PMR-JUDD / ED-C-PMR-CTROLLE
• Instrument trolley	Judd Medical Ltd	ED-C-PMR-JUDD
• Sponges	Judd Medical Ltd	ED-C-PMR-JUDD
• Headrest	Judd Medical Ltd	ED-C-PMR-JUDD
• Cotton wool	Judd Medical Ltd	ED-C-PMR-JUDD
• Weighing Scales	Mettler Toledo	ED-C-PMR-METTLER / ED-C-PMR-REMOVTR
• Organ trays	Judd Medical Ltd	ED-C-PMR-JUDD
• Body bags	Judd Medical Ltd	ED-C-PMR-JUDD
• Alginate Bags	Linen Room	
• Linen Bags	Linen Room	
• Business Recorder	Vidicode	ED-C-PMR-BRECORD
• Flying Insect Control System	Terminix	ED-C-PMR-TERMINX

4.0 PRINCIPLE

Once a person dies, the body starts to degrade by processes known as autolysis and putrefaction. These processes have to be arrested by either preservation or refrigeration.
The aim is to store the body in a good condition until either autopsy is carried out or the remains are removed for burial.

5.0 REQUEST /DIRECTION FOR AN AUTOPSY

5.1 Notification to the Pathology Department

Autopsies are carried out either following instructions from the Coroner (Coroner's autopsy) or at the request of the Clinician with responsibility for the patient's care (Hospital autopsy).
The Coroner's office or requesting clinician notifies the Pathology Technician (Ext. 22525) that an autopsy is requested.

5.1.1 Coroner's Cases

Following a reportable death, the Coroner may direct that an autopsy be carried out to determine the cause of death.

Deaths that must be reported to the Coroner include:

a) Where the death may have resulted from an accident, suicide or homicide.
b) Where any question of misadventure arises in relation to the clinical or pharmaceutical treatment of the deceased.
c) Where a patient dies before a diagnosis is made.
d) Where a patient dies within 24 hours of admission to hospital.
e) When death occurred while a patient was undergoing an operation or was under the effect of an anaesthetic or following an operation.
f) Where the death occurred during or as a result of any procedure.
g) Deaths occurring within an Institution e.g. Prison, Mental Hospital.
h) Where the death resulted from any industrial disease, i.e. asbestos
i) Where the death was due to neglect or lack of care (including self neglect).

If in doubt as to whether or not a death is properly reportable, please consult with the Coroner who will advise accordingly. Basic clinical history is helpful when informing the Coroner.

The fact that the death is reported to the Coroner does not mean that an autopsy will always be required. Phone 021/4350020 (The Coroner is available for consultation outside office hours; however, except when the matter is urgent, cases will normally be reported before 11pm or after 8am).

5.1.2 Hospital Cases

A clinician may request an autopsy if the exact cause of death is unclear or in cases where correlation of clinical with pathological findings may provide a better understanding of the disease process.

5.2 High Risk Autopsies

High-risk autopsies are ones that are known to be of a high-risk infection e.g. CJD, HIV, TB, HEP B and C. In cases where there is such a documented communicable disease present, a limited autopsy may be carried out, subject to discussion with the coroner/clinician.
Suspected cases of CJD or other prion diseases are transferred to the Neuropathology Department in Beaumont Hospital for autopsy.

In the case of HIV, Hep B and C, Kevlar gloves should be worn in addition to the standard universal precautions. All staff must be vaccinated against Hep B.

6.0 PATIENT IDENTIFICATION

The Pathology Technician will collect all relevant documentation regarding the deceased.

6.1 Coroner's Autopsy

In the case of Coroner's autopsies, formal identification is required. The deceased is identified to a member of the Garda by the next of kin. The Garda, in turn identifies the body to the pathologist/pathology technician. The Garda will then fill in a C71 form, which is forwarded to the coroner's office and the information is recorded on the autopsy database.

The Garda will pass on the identification to the pathologist in the case of an expected inquest / prosecution or to the pathology technicians if no inquest / prosecution is expected. In addition, if later an inquest / prosecution is decided a formal statement may be required from pathology technicians to the Gardaí.

7.0 AUTOPSY CONSENT

7.1 Hospital Autopsy

In the case of a Hospital autopsy examination the medical or surgical team must obtain the permission of next-of-kin of the deceased and fill in a Consent Form. It is the team's responsibility to ensure that the Consent Form (MF-C-HIS-COMPM) and Request Form (MF-C-HIS-REQPM) have been properly filled in and completed.

All relevant documentation regarding the deceased, i.e. medical chart, consent form, etc. must be provided, and a member of the medical or surgical team must bring a brief summary to the Mortuary Department. The next of Kin must be counselled regarding the possibility of organ retention and appropriate consent obtained if necessary, in accordance with hospital policy.

7.2 Coroner's Autopsy

In the case of a Coroner's autopsy it is not necessary to obtain the consent of the next-of-kin as only the coroner's authorization is necessary to perform the autopsy. The family will however be counselled by the relevant Pathologist in relation to the retention of organs for any purpose and for later disposal of same, in accordance with hospital policy. Authorization for an autopsy from the Coroner is presented as a fax and is made available before the autopsy is performed. The documentation is copied for the Pathologist and the original copy is stored in the filing cabinet in the Mortuary office.

8.0 RECEPTION

8.1 Reception of Bodies

1. The porter transporting the remains enters the patient details in the "Patient Signing-in Book".
2. During normal working hours the pathology technician receive the remains.
3. Outside normal working hours the porters have to ensure that the bodies are placed correctly into the fridge (i.e. feet first).
4. The remains are placed inside the concealment trolley and removed form the Ward, A&E or Theatre and brought to the Mortuary by the porters.
5. The deceased's identity and origin is confirmed by the APT using Form 48 which is attached to both the outside sheet and inside sheet. If this form is not attached a member of the

nursing/medical staff who was attending the deceased must identify the body and attach an arm/ankle bracelet to it.

6. All the details of the deceased will be transferred to the main Mortuary Register in the Mortuary staff office by the pathology technician, i.e. entry no., date/time of entry, name of deceased and ward, date of death, autopsy yes/no and name of undertaker, removal and/or pick-up, date and time of removal.
7. The body will be placed on a tray on the hoist.
8. The hoist with tray and body will be aligned with available roller-guides.
9. Then the tray with the body will be placed in the fridge.

8.2 Reception of Specimens from External sources

8.2.1 Surgical Specimens (including limb amputations)

In the case of a limb amputation, the patient will indicate on the *Consent to disposal of an amputated limb* consent form (MF-C-HIS-CONLIMB) if they wish the Hospital to dispose of the limb, or if they prefer to make their own arrangements for disposal.

Alternative arrangements

(a) Submitted for pathological examination
The patient, or their nominee, will arrange with PM staff to collect the specimen for legal disposal ***3 months*** *following the date of surgery*.

(b) Not submitted for pathological examination (limb amputation)
The patient, or their nominee, will arrange with PM staff to collect the limb for legal disposal *at their earliest convenience*.

PM staff will place the specimen in a special casket for collection.
The person collecting the casket will sign the *Surgical organs / tissues disposal register* to indicate receipt.

PM staff will complete the *register* entries.

Hospital Disposal

(c) Submitted for pathological examination
PM room staff will arrange for sensitive disposal, in accordance with hospital policy, ***3 months*** *following the date of surgery*.

(d) Not submitted for pathological examination (limb amputation)
PM room staff will arrange for sensitive disposal, in accordance with hospital policy, ***3 weeks*** *following the date of surgery*.

PM staff will complete the *Surgical organs / tissues disposal register* on collection for the appropriate Box number.

8.3 Personal Property

The Pathology technician will enter any personal property accompanying the deceased into the release book.

8.4 Autopsy Check

The Pathology technician will check medical charts and liase with medical staff to establish if an autopsy is required and to establish autopsy status (autopsy yes/no, type of case: Coroners or House). If an autopsy is required the body cannot be released until the autopsy is complete.

9.0 AUTOPSY PROCEDURE

The relevant forms pertaining to the various autopsy procedures are listed below:

1. Log of organs /tissues retained at Post Mortem Examination [MF-C-PM-PMLOGPM]
2. Request for release of archived diagnostic pathological material from the Histopathology Department [MF-C-HIS-REQRAPM]
3. Consent of disposal of an amputated limb [MF-C-HIS-CONLIMB]
4. Notification to the coroner or organs retained at a Coroner's Post Mortem examination [MF-C-HIS-PMNCORO]

9.1 External Examination

The patient is transferred from the fridge and the weight is obtained at the weigh bridge in the preparation room. The patient is then placed on the autopsy table by the mortuary staff. All clothes and jewellery are removed and labelled. The patient's length is measured.

The pathology technician and pathologist should, after checking the identification of the patient, note the external appearance paying particular attention to the sex, age, build, state of cleanliness, skin colour and the presence of any distinguishing features such as scars, tattoos or malformations/ deformities. All drains and intravascular access lines should be left in situ in order that their position within the patient can be traced and assessed and microbiological samples taken if appropriate. Other external features to be specifically examined include the presence or absence of rigor mortis and peripheral oedema.

The eyes should always be inspected. The pupil size, presence of jaundice and thyroid-related eye disease may be apparent and of course glass eyes should be documented. It is always essential to inspect the mouth carefully and a note made of the presence of dentures. Other features that may be seen in and around the mouth include endotracheal tubes, any emissions, mass lesions and evidence of trauma.

The other external passages such as the nose, ears and genitalia also need close inspection.

9.2 Evisceration

9.2.1 Skin Incisions

The principles here are to cut into and reflect the skin and subcutaneous soft tissue to expose the deeper tissues.

There are three basic ways of opening the body, depending on the type of examination required.

a) Standard autopsy incision: Runs from the laryngeal cartilage to the pubis, avoiding the umbilicus. In depth the incision should reach the sternum but should not open the peritoneum and therefore avoid damage to the underlying viscera. This skin, subcutaneous tissues and muscles are then dissected off the front of the chest.
b) The upper end of the incision may take an alternative form, longitudinal incision commences at the sternal notch and above that divides in the shape of a Y on either side of the neck.
c) The upper end of the primary incision lies at the level of the fourth intercostal space and is completed by a U shaped incision ending at the acromial processes on either side.

The Y shaped incision is usually required when performing an extensive dissection of the neck. The U shaped incision is used if the body is to be later laid out in day attire, and avoids unsightly suture lines in these circumstances.

9.3 Removal of Sternum

To remove the sternum a rib-cutters is used. Sliding the lower blade of the shears beneath the cartilage close to its bony attachment to the rib and shearing through the firm tissue as cleanly as possible cut the costal cartilages. In younger patients the cartilage is usually soft enough to cut through with a knife. Cut the cartilage just medial to the bony part of the rib in order to avoid exposing shape edges. In older patients the costal cartilages may be extensively calcified making this impossible, but in this case putting a towel or the reflected skin over the potentially hazardous bony edges can optimise safety.

The sternum can now be released by grasping the lower end and lifting it as horizontal cuts are made upwards towards the deep surface of the sternum to detach the adjacent mediastinal soft tissue. It is important to slant the blade directly towards the underside of the sternum so that soft tissues such as the pericardium are not damaged, thereby releasing the pericardial contents into the pleural cavity and losing them. Knife cuts may also be necessary through the strands of tissue still attached around the costocartilagenous areas previously divided.

Using a large blade, cuts are then made through the sternoclavicular joints and the clavicles reflected. To do this the lower border of the clavicle can be traced towards the manubrial sternal edges using the large blade and the angle between clavicle, rib and manubrium divided. Occasionally this joint can be heavily calcified and the rib shearers must be brought into action again. Although this procedure often requires considerable force it should be remembered that large vascular structures lie just beneath this area and so the cuts made here should not be too deep, as these vessels will easily be damaged.

The sternum can now be lifted off. Once the thoracic cavities are exposed access can be gained to the pleural spaces, and any pleural fluid can be collected using a ladle and measuring jug for description and quantification.

9.4 Removal of Neck Organs

The tongue is brought down by making an incision around the internal surface of the mandible from below, being careful not to cut through the salivary glands or tongue. These structures should be inspected at this point to check that no significant pathological lesions are present. First a hole is produce by the knife in the midline and a finger or fingers can be pushed through this hole behind the mandible and the tongue grasped and pulled through this gap. The scalpel is placed back through this same gap and the soft tissue dissected away from the posterior aspect of the mandible laterally. The hole should now be large enough to allow the whole tongue to be pulled through it and whilst the tongue is held down and pulled firmly with the free hand a series of firm horizontal incisions are made through the soft palate and posterior pharynx down to the anterior surface of the cervical vertebrae.

The first of these horizontal incisions should be made as high as possible because the carotid arteries need to be removed with this section of tissue and it is important to remove and inspect the carotid bifurcation for atheroma, thrombus or other significant pathology. The pharynx is closely inspected at this time and any masses noted or pus swabbed/collected if infection is suspected.

9.5 EN BLOC METHOD OF GHON

Originally described by Ghon this involves extracting the organs in four separate blocks. The thoracic block (neck structures, heart, lungs and mediastinum); the coeliac block (liver, stomach, spleen, pancreas and duodenum); the intestines and the Urogenital/adrenal block.

9.5.1 Removal of the Thoracic Block

With the tongue and neck structures freed and brought inferiorly and all pleural adhesions broken down, incision through the subclavian vessels beneath the medial ends of the clavicles to free all anchoring structures. Further blunt dissection may be necessary between the superior mediastinum and vertebral column, but it should now be possible to strip along the loose soft tissue connections of the posterior mediastinum and vertebral bodies. Further traction in a caudal direction should release all of the thoracic structures from the posterior thoracic wall as far down as the diaphragm.

As the heart and lungs are pulled forward the lower ends of the oesophagus and thoracic aorta are exposed. Assuming there is no evidence of tumours, achalasia or aneurysm the lower oesophagus is cut through between two ties or clamps. The tie/clamp is important to retain the stomach contents within the gastric lumen.

In case of suspected portal hypertension with oesophageal varices the oesophagus is tied and severed at its midpoint, retaining the superior portion with the thoracic block. The inferior segment is left attached to the stomach and removed with the stomach and the rest of the coeliac block. In this way the integrity of the lower oesophagus is maintained and the varices should not collapse.

9.5.2 Removal of the Intestinal Block

First step is to identify the distal duodeno-jejunal junction and apply two clamps or two ties several centimetres apart and cut between them. Then dissect the bowel from the mesentery using large scissors or a knife. It is wise to massage the rectal contents back up into the sigmoid colon before cutting though the rectum about 3cm above the anorectal junction. Go as low as you can without piercing the anal skin. The small and large bowels can now be lifted from the abdomen.

9.5.3 Removal of the Coeliac Block

The Coeliac Block, which includes liver, biliary system, stomach, duodenum, spleen and pancreas, is removed together either from above or below by carefully dissecting along the plane just anterior to the aorta. It is usual to begin on the left side of the abdomen and first free the spleen from any peripheral attachments being careful not to damage the splenic capsule. Then proceeding medially behind the spleen towards the vertebral column, the spleen, pancreas and surrounding soft tissue are freed from the underlying retroperitoneal structures. Leave the aorta intact but cut the coeliac artery and the superior mesenteric artery close to their origins.

A similar method is followed on the right side by freeing the liver from the diaphragm superiorly and anteriorly, by dividing the falciform ligament. The liver is retracted medially and dissected from the underlying tissues, being particularly careful not to damage the nearby right adrenal gland. This group of organs can then be removed after severing the inferior vena cava.

9.5.4 Removal of the Urogenital / Adrenal Block

The kidneys are dissected first by incising the fat around the posterolateral aspect of the kidneys and tracing this medially behind the aorta. Complete the dissection of this superior group of

structures from the vertebral column by retraction of the aorta and extending the dissection of the soft tissue posterior to the abdominal aorta. At this point the kidneys and upper abdominal aorta are freed and the lower urinary tract is still intact, but requires dissection. Trace the ureters and surrounding vessels to the pelvic brim.

Now remove the pelvic organs together by dissecting around the inside of the pelvic bones and severing the large external iliac/femoral vessels. The bladder is first separated from the pubis and is continued around the urethra and prostate in the male, the vagina in the female and finally the rectum. Posterior soft tissue attachments are divided and the pelvic organs can now be pulled up whilst cutting through the floor of the pelvis. The external iliac vessels are divided and any remaining soft tissue strands are cut. The organs can now be removed from the body
The testes are removed by retracting the spermatic cord in the inguinal canal and cutting the scrotal attachments. Once freed the vas deferens within the spermatic cord can be traced to the posterior surface of the bladder close to the seminal vesicles.

9.6 EN MASSE TECHNIQUE OF LETULLE

Originally described by Letulle it is sometimes erroneously credited to Rokitanski and referred to as the Rokitanski method.

As the intestine obscure the abdominal part of the dissection and are infrequently the source of significant disease they are often removed separately before the remaining organs and opened later. If this is not appropriate, such as with matted loops of bowel due to adhesions, ischaemia of the bowel, peritonitis or widespread intra-abdominal tumour. The intestine should be removed still attached to the entire internal contents.

First step is to identify the distal duodeno-jejunal junction and apply two clamps or two ties several centimetres apart and cut between them. Then dissect the bowel from the mesentery using large scissors or a knife. It is wise to massage the rectal contents back up into the sigmoid colon before cutting though the rectum about 3cm above the anorectal junction. Go as low as you can without piercing the anal skin. The small and large bowels can now be lifted from the abdomen.

With the tongue and neck structures freed and brought inferiorly and all pleural adhesions broken down, incision through the subclavian vessels beneath the medial ends of the clavicles to free all anchoring structures. Further blunt dissection may be necessary between the superior mediastinum and vertebral column, but it should now be possible to strip along the loose soft tissue connections of the posterior mediastinum and vertebral bodies. Further traction in a caudal direction should release all of the thoracic structures from the posterior thoracic wall as far down as the diaphragm.

The diaphragm is dissected away on both sides of the internal surface of the body wall. This will require inserting a hand between the diaphragm and liver and spleen.
Then the kidneys are dissected first by incising the fat around the posterolateral aspect of the kidneys and tracing this medially behind the aorta. Now remove the pelvic organs together by dissecting around the inside of the pelvic bones and severing the large external iliac/femoral vessels. The bladder is first separated from the pubis and is continued around the urethra and prostate in the male, the vagina in the female and finally the rectum. Posterior soft tissue attachments are divided and the pelvic organs can now be pulled up whilst cutting through the floor of the pelvis. The external iliac vessels are divided and any remaining soft tissue strands are cut.

Pulling the upper thoracic/cervical tissues forward and inferiorly should free all of the posterior soft tissue attachments and all of the viscera should now be free. The entire aggregate can now be removed to the dissection area (often this is extremely heavy so care is necessary).

9.7 REMOVAL OF SPECIAL ORGANS

9.7.1 Removal of the Brain

In order to expose the brain the head is placed on a suitable headrest with the patient lying supine. The hair is roughly parted along the proposed line of incision. The scalp is divided across the vertex from a point approximately 1 – 2 cm behind one ear to a similar point behind the other. The anterior flap of the scalp is now dissected from the bone and it can be turned forward over the face. Dissection should continue down towards a level approximately 3 - 4cm above the eyebrows. The posterior flap is treated in the same way, as far backward as the occipital protuberance. In sawing through the bony cranium a line is chosen from about 2 cm above the pinna across the middle of the forehead to a similar point on the other side. It is advisable to divide the temporal muscles along this line in order to expose the bone for the saw. Experience will show if and when the inner table has been divided. The depth of sawing may be controlled by a guard, which can be fitted onto an electric saw (Saws are fitted with an oscillating blade rather than a rotating blade).

Posteriorly the saw cut is similar, but is rather nearer to the vertex so that it leaves some of the occipital bone to act as a shelf for the exposed brain. When these cuts have been made perfectly the whole thickness of the bone is divided without damaging the dura mater and at no point is the inner table left uncut.

The skull flap (cranium) is now raised by inserting a T shaped chisel (skull elevator) into the incision and twisting, in most cases the bone (cranium) can be pulled off the dura without tearing it. If the dura is too adherent it may be necessary to divide it with a scalpel or a scissors through the saw cuts. In this case after dividing the flaps the dura is dissected off the brain with the skull flap, when it remains intact it may be similarly divided under vision.

The brain is removed by gently lifting the frontal lobes dividing the optic nerves and then by lifting the temporal lobes in turn from the sides, the tentorium cerebra may be divided with knife or scissors without dragging on the cerebra peduncles. Each vessel and cranial nerve is identified before it is divided and finally the upper end of the spinal cord is cut through low down in the foramen magnum. Irreparable damage may be done if the brain is allowed to drag on its attachments to the base of the skull. In all cases, the remainder of the dura mater must be removed from the base of the skull because fractures are often invisible through the dura mater. The pituitary gland lies almost exactly in the centre of the head in the small bony nest (turkus cellacus) between the points where the carotid arteries enter the skull. It is approximately the size of a small bean.

Removal of the pituitary gland involves the posterior aspect of the pituitary fossa (turkus cellacus) being deflected using a bone forceps and the gland is winkled out of position using a scalpel.

9.7.2 Removal of the Spinal Cord

There are two ways of removing the spinal cord:

a) Posterior approach

The patient is laid face downward with the arms crossed over the front of the chest to pull the scapulae apart. A block is placed under the upper part of the thorax to flex the neck and dorsal

spine. An incision along the midline from the occipital protuberance to the sacrum down the spines of the vertebrae and then on either side down of the spines to the laminae. The soft tissues are dissected away laterally to a distance of 5cm on either side. The saw on either side, from the occiput to the lower lumbar region divides each lamina when all the laminae have been exposed and all the soft tissue has been dissected well away.

The saw must be held almost vertically and well out from the midline close to the articular processes, and the cord will not be damaged. When this is adequately completed the whole of the roof of the vertebral canal can be easily freed with a knife, lifting it from the lumbar region cranially with line forceps. The spinal cord is just exposed in its dura matter and by gentle retraction medially the spinal nerves may be divided at each segment on either side with a scalpel or a curved scissors.

The cord is then divided low in the lumbar region and lifted by its dura mater separating it from the walls of the canal, upwards to the foramen magnum. Here the dura is separated from the edge of the foramen by running a sharp knife between it and the bone.
This technique is rarely used due to difficulty is poses in reconstruction of the body.

a) Anterior approach

When the patient has been eviscerated, the patient is placed flat on its back; all the soft tissue must be cleared away from both sides of the vertebrae. Beginning at the lowest lumbar vertebra the pedical on either side of each vertebra body is divided with the saw, which, at this level, may be held with the blade horizontal. The direction of the saw blade becomes more oblique downward and inwards as the thoracic and then the cervical vertebrae are approached. When both sides of the vertebral bodies have been freed the column can be lifted away, exposing the cord in its meninges.
Removal is continued as before.

Occasionally it may be necessary to remove the brain and spinal cord in continuity. The top of the skull is removed as outlined above, but the brain is not immobilised. The posterior incision in the skin is carried upwards along the back of the skull to divide the posterior flap of the scalp, which is dissected away on either side. Two saw cuts are then made through the occipital bone down to the posterior edge of the foramen magnum and this wedge shaped piece of bone is removed. The brain is then freed and can be removed with the cord, but this is a difficult procedure and two pairs of hands are required to prevent pulling on the medulla.

9.8 Removal of the Eyes

Pathological Examination

It is not usual to remove eyes, but if required it is necessary to have suitably moulded damp cotton wool ready to replace them. The roof of the orbital fossa can easily be removed and the optic globe found in the large amount of fatty tissue. The conjunctiva and the muscles are divided form the sclera and the already divided optic nerve may be removed with the globe.

9.8.1 Removal of eyes for corneal grafting

This is done as soon as possible after death having obtained permission for such removal, and is not part of routine autopsy technique.

A medical officer usually carries out this procedure. Using an anterior approach, take the loose skin (conjunctiva) that lies around the edge of the eyeball and cut this completely around the eye, keeping quite clear of the front of the cornea.

When the conjunctiva has been cut, make hollows in the loose connected tissue on opposite corners of the eye socket. The eyeballs held in place by muscles at the top and bottom and the outside and inside. When the holes in the connective tissue have been made, insert a strabismus up round each muscle in turn, cutting the muscle with a scissors at a distance of 2-3 mm from the eyeball. When the four main groups of muscle have been cut in this way the eyeball can then be brought forward and the nerve from the eye cut, together with the two small oblique muscles. When the eye has been removed, drop it immediately into a sterile screw capped container while making sure it is completely emerged in the sterile liquid paraffin.

9.8.2 Reconstruction of eye socket after removal

The cavity of the organ is best filled with a piece of damp cotton wool where the organ has been removed and over this places the prosthesis. If such plastic eye shells are not available, then the eyelids cans be sutured very carefully on the inside of the lid.

9.9 Removal of Bones

Exposure and removal of bones may be required for three reasons and a different technique is used in each case.

a) To examine the bone marrow
Bone marrow is usually obtained from ribs, sternum, and vertebral bodies, or the shaft of the femur. In the case of the sternum it may be split longitudinally or a segment of it may be obtained by transverse cuts above and below.

After exposure of the ribs, saw or bone forceps may be used obtain a segment. The marrow's of the bodies of the vertebrae is often examined; this is best accomplished by slicing the vertebral body transversely with the electric saw. In the case of the femoral marrow, the femur is first exposed by dissection of all soft tissue. Using the saw a segment of the outer cortex can be removed to expose the marrow cavity.

b) To explore fractures
Fractures are examined by direct incision to the soft tissues and by careful dissection, which must be wide enough to expose the complete lesion with normal margins surrounding it. Bony fragments may have very sharp edges so great care must be taken.

c) Removal of a diseased bone for further examination
When a whole bone is to be removed sufficient exposure may be obtained by dissection of soft tissues through the most convenient incision. In the case of the femur of the humorous it is advised to open the knee or freeing the bone at its lower end the upper joint can be more easily approach elbow joint after exposure for by freeing the bone at its lower end the upper joint can be more easily. In either case the longitudinal incision ends in a transverse one in front of the knee of at the back of the elbow, with put, which the lateral ligaments cannot be seen. Same principles apply to other bones.

9.10 Examination of the Middle Ear

These may be exposed by chiselling away the roofs of the petrous parts of the temporal bones or by cutting around the structures using a saw, finally lifting them away by inserting and twisting a chisel from the posterior surface.

To remove the whole of the structures of the inner ear together, the scalp and pinna are first dissected of the temporal and the external auditory meatus divided. The whole of the tempuras bone both the mastoid processes may now be removed by judicious of a small electric saw.

9.11 Examination of the Nasal Cavity

Cutting away the roof with a chisel and saw and a bone forceps, may expose the frontal sinus. Chiselling away the body of the spheroid bone and carrying this process forward towards the roof of the nasal cavity can open the sphenoid and ethamoid sinuses. This is opened by cutting away the bone on either side of the crista galli, when nibbling away the lateral walls will expose the maxillary antra.

9.12 Examination of Blood Vessels

Occasionally it may be necessary to examine the arteries and veins of the limbs and neck.

a) Arms

The axillary and brachial arteries are found beneath a line running from the centre of the clavicle to a point midway between the condyles of the humerus, the arm being abducted (the arm being bent) to an angle of 45 from the body and the forearm supinated. The radial artery runs beneath the line drawn from this point to root of the forefinger

b) Legs

The femoral artery runs from the middle of Pouparts ligament to the medial condyle of the femur. The popilteal artery is found in the popilteal fossa on the back of the knee and may be traced along with its branches to the inner side of the ankle.

The veins usually run alongside these main arteries and in the lower leg, they are often exposed in the search of the origin of a pulmonary embolus.

c) Neck

It is sometimes necessary to examine the carotid arteries and their branches the common carotid artery is found behind the lower end sterno mastoid muscle and may be exposed as far as its bifurcation at the upper end of the thyroid cartilage. The external carotid artery may then be traced and its branches identified, normally interest is centred on the internal carotid artery that runs more deeply and nearer the midline until it enters the carotid canal in the temporal bone.

9.13 Examination of Nerves

Occasionally it may be necessary to remove certain nerves for histological examination. Normally they are found in the limbs running alongside the main blood vessels. For further details regarding specific nerves an anatomical textbook should be consulted.

When a nerve ganglion is required, the gasserian ganglia which lies just below the dura mater on the medial side of the temporal fossa is possibly the most convenient to procure.

10.0 TOXICOLOGY

Toxicological samples are frequently retained from autopsies. Depending on the particular investigation blood, urine, cerebrospinal fluid, vitreous humor and stomach contents.

Blood

Blood can be sampled from the heart if absolutely necessary but preferably it should be taken from a large vein (femoral, axillary or jugular). To do this a clean sterile container is required into which approximately 20ml of blood is introduced.

Urine

The dome of the bladder can be open using a forceps and scissors and a syringe is inserted through the opening and urine removed into a suitable container. If there is a large amount of urine it can be collected straight into the container without the need for a syringe.

Cerebrospinal Fluid
There are two methods for collecting Cerebrospinal Fluid (CSF). The first is by a routine lumber puncture on the intact body. The second way is by using a needle and syringe from the central cistern or lateral ventricles after the skullcap is removed. Cerebrospinal Fluid (CSF) can be removed from the foramen magnum once the brain has been removed but this will inevitably be contaminated with blood and possibly other fluids.

Vitreous Humor
Vitreous Humor can be aspirated by puncturing the sclera with a sterile needle attached to a syringe. This is introduced laterally and volumes up to 2-5ml can be removed. Using a syringe the Sclera can be refilled with water.

Stomach Contents
To collect the contents of the stomach is to lay the unopened stomach over the edge of the dissecting board and make an incision along the greater curve catching the contents as they spill from the gastric lumen.

11.0 RECONSTITUTION OF THE BODY

The cavities of the empty body and the cranium must be sponged dry and sprayed with Perma Seel (a clear plastic sealant spray). The body cavity is packed out with some absorbent cotton wool. Any organs, which are not required for preservation, are drained and mopped dry before being placed in a plastic bag. Such bags should not be airtight because putre faction sets in within an airtight bag the gases produced will cause the bag to burst. The bag is then placed within the body cavities and covered with some absorbent cotton wool. The sternum is replaced and if necessary, may be fixed to the ribs by stitching, but this is not usually required. It is probably best to suture the skin incisions in reverse order to that in which they were made, with primary incisions left until last.

Any necessary restoration of the body contours must be done with care, using damp cotton wool placed in position as the suturing proceeds.

The body is closed using strong thread and a firm stitch with a lock stitch every ten centimetres beginning at the neck and paying attention to appearances as the stitching proceeds. If the body is very obese some deep tension sutures may be necessary to obtain good skin closure. If the loose cranium does not fit well it may be fixed with sutures to the temple fascia. The scalp is sutured over it and the ends of the thread buried. Great care must be taken to ensure that the bones of the forehead are in their correct alignment and no ridge is formed at the saw cut.
If a limb bone has been removed, a wooden splint such as a broom handle or Dowling of sufficient diameter and size may be cut to length and fixed to the soft tissues to prevent movement.
The body is the cleaned and is sponged dry. The body is now ready to be laid out. Final touches such as closing eyelids, closing mouth and rearranging facial features are carried out at this time.

12.0 RECORDING DURING AN AUTOPSY

During the autopsy, the Pathology Technician records full details of the autopsy and the Pathologist records the organs retained in the Autopsy Book. The autopsy is digitally recorded by Vidicode Business Recorder (ED-C-PMR-BRECORD).

13.0 AUTOPSY REPORT

A standard autopsy reporting format is available and should be prepared as soon as possible following the completion of the autopsy. A copy of the report is filed in the Pathology office and a copy is sent to the requesting clinician/coroner. In the case of a house autopsy, preliminary findings may be telephoned to relevant clinicians. Details should be recorded in the record of telephone reports in the registrars/consultant's offices. In the case of coroner's autopsies, only the coroner may be notified by telephone. This should be recorded in the record of telephone reports also.

14.0 RELEASE OF BODIES

14.1 Main Mortuary Register

The Anatomical Pathology Technician checks that all details have been entered into the main Mortuary Register (i.e. name of deceased and ward, date of death, autopsy yes/no and name of undertaker, removal and/or pick-up, date and time of removal.

14.2 Funeral Directors

The Funeral Directors must contact the Mortuary staff to arrange funeral details and details are recorded in the Mortuary Register.

14.3 Release of Bodies for Funeral

Before a body is released to an undertaker the Anatomical Pathology Technician ensures that no autopsy is required. The Funeral Director will provide a stretcher or suitable container (i.e. coffin or plastic shell, etc.) for the removal of the remains and supply sufficient manpower to prepare the body and carry the same. Upon removal of the body a signature is required on the Release Book. Full details on this book include:

a) Name
b) Time and date of removal
c) Name of Undertaker in block capitals
d) Signature

14.4 Viewing of remains

Prior to the appointment of a Funeral Director, the next of kin may wish to view the remains. During normal working hours, the Anatomical Pathology Technicians will be responsible for preparing the body and ensuring satisfactory presentation for viewing by the relatives. This involves removing the body from the fridge and placing it on a trolley with fresh linen and then placing the body in the Viewing room or Chapel of Repose. Outside normal working hours the Pathology Technician on-call will prepare the body for viewing by the relatives. This can be arranged by contacting the switch board.

14.5 Removal of Remains

14.5.1 Preparation

The remains are placed into a coffin, which is then placed into a viewing room or chapel. If no removal is required the body is removed directly by the Undertaker without any prior preparation except to be placed in a coffin.

14.5.2 Types of Removal

- Removal with prayer service from the mortuary chapel.
  The Anatomical Pathology Technician organises details such as booking the Chaplain and informing the Undertaker.

- Direct removal without any service (i.e. to Funeral Home, Crematorium, etc.).
  The Undertaker removes the body after signing the Release Book.

- Removal of bodies donated for Medical Science (i.e. UCC).
  The University and the Undertaker are responsible for the completion of all documentation. The Undertaker appointed by the Academic Institutions signs the Release Book.

- Removal of body to external institutions for autopsy, i.e. to Beaumont Hospital for examination of CJD cases.
  The Undertaker signs the Release Book for release of the body.

14.6 Cremation

If the remains are to be cremated, it is the responsibility of the undertakers to contact the medical/surgical team or Coroner directly, if necessary, to complete all relevant documentation. The Undertaker signs the Release Book in the standard way.

15.0 RETENTION AND STORAGE OF ORGANS

15.1 Hospital Autopsy

In the case of Hospital autopsy procedures, the retention, storage and disposal of organs will follow instructions on consent forms signed by relatives. The consent form also indicates whether tissue / organs are retained for diagnostic or teaching purposes.

A copy of the consent form for every Hospital autopsy is kept with Medical records of deceased patient.

15.2 Coroners Autopsy

In Coroners autopsies, the consent of the spouse or next-of-kin is not required for organ retention. The relevant consultant pathologist will counsel the family in this regard.

An organ may be retained after a Coroner's autopsy only for the purpose of establishing or clarifying the cause of death.

Where the Coroner orders an autopsy without the consent of relatives, following the instructions of the Coroner, organs will be retained and will be disposed of sensitively according to Hospital practice. The relatives will also be offered the choice of alternative arrangements for disposal of any organs retained.

15.3 Recording of Organs Retained after Autopsy

An Autopsy Database is maintained to include information relating to the patients name, date of death, date of autopsy, Pathologist and Anatomical Pathology Technician. When organs are retained, a detailed list of the types of organs retained, their method and place of storage, and the date and method of disposal are recorded. After the autopsy the Pathology Technician transfers the full details of the autopsy and organs retained from the Autopsy Book into the Autopsy Database.

15.4 Organs/Tissue samples retained for further investigation

In some cases, autopsy material may be retained and sent to the Histopathology Department for further analysis.
Material is placed in appropriately labelled containers filled with a 10% Formalin solution.

All containers must have the following information attached before they are sent to Histology:

1. Autopsy Number
2. Date of Birth
3. Pathologist who performed autopsy

A Request Form should accompany all specimens and all specimens must be signed for in Histology.

Specimen containers without the above information will not be accepted.

16.0 DISPOSAL OF RETAINED ORGANS

16.1 Disposal according to normal Hospital practice

The process of disposal of retained organs as outlined in the *Post Mortem Room Policies and Procedures Manual*, Section 14, [LP-C-PMR-POLPROC] must be followed. It is Hospital practice that organs retained at autopsy are disposed in a sensitive manner. The hospital will arrange burial of any organs retained in a hospital plot in St. Mary's Cemetery, Curraghkippane.

16.2 Procedure for Alternative Arrangements

The family may have outlined alternative arrangements for the disposal of organs in the consent form e.g. burial or cremation.

If either of these are selected the organs are placed in small caskets to be collected by the Undertaker on behalf of the next of kin. The Undertaker will be required to sign an Organ Release Book, which is then stored in the Mortuary Office. Organs will not be given directly to the next of kin.

16.3 Disposal of Other Samples Retained

In all autopsies small aliquots of tissue are retained for histological examination and other samples such as blood and urine may be required for analysis. Details of blood and other samples retained are also recorded in the Histology Specimen Book and are disposed of according to measures outlined in Section 13 of the Post Mortem Room Policies and Procedures Manual (MP-C-PMR-POLPROC).

16.4 Disposal of Specimens from Histopathology

When the specimen is being taken, the patient or relatives will indicate preference for disposal of specimen.
No specimens are received in the Mortuary without instructions for the disposal of such specimens.

Depending on the instructions specimens may be disposed of by:

1. Burial / cremation
2. By the hospital (Clinical waste)
3. Collected by the relative or patient. In such cases details are recorded in Limb Release Book.

Details of how all specimens are disposed are recorded on the Mortuary Database /Organ Register.

Appendix 10: Disposal of Retained Perinatal Organs

Title:	Disposal of Retained Perinatal Organs	Reference:	INS-CUH-PAT-3022	Revision: 02
		Active Date:	15/09/2021	Page: 1 of 3
		Approved By:	XX, XX	
		Author:	XX	

DISPOSAL OF RETAINED PERINATAL ORGANS

Organs retained at post mortem by the Perinatal Pathologist will be disposed of on a three monthly basis as described below.

1. Following the retention of an organ(s) at a perinatal post mortem the pathologist or perinatal senior/specialist medical scientist (SPMS) completes the relevant sections of the Organ Retention/Tissue Logbook (FOR-CUH-PAT-1338) and completes the relevant sections on the Autopsy Envelope Cover (FOR-CUH-PAT-1893).

2. A record is opened in the Perinatal Organ Retention Excel Log (FOR-CUH-PAT-2094). This Excel document and the autopsy envelope are used to keep a record of all steps and communications relating to the organs and is maintained by the SPMS.

3. In the specific case of a retained brain +/- spinal cord:
   a. When the organ is taken to Neuropathology a record is maintained in the Organ Retention/Tissue Logbook (FOR-CUH-PAT-1338) of the name of the person taking the organ to Neuropathology by the Pathologist/SPMS.
   b. When Neuropathology have completed their examination they will notify the Pathologist/SPMS by email that an organ is available for return to the PM room.
   c. The Pathologist or SPMS returns the organ from Neuropathology, signing the Neuropathology Post Mortem Tissue record (FOR-CUH-PAT-958) and maintains a record in the Organ Retention/Tissue Logbook (FOR-CUH-PAT-1338) that the organ was returned to the PM room, who returned it and the date.

4. When retained organ examinations are complete the next of kin instructions with regard to organ disposal are followed as follows:

   Periodically (at least quarterly) the Consultant Pathologists and SPMS review the retained organs stored in the PM room together with relevant consent forms, logs and communications to finalise families' wishes for organ disposal (home or hospital).

   4.1 **Transfer of retained organs into caskets:**
   a. Once satisfied container details match paperwork, decant formalin from container carefully through a funnel into an empty formalin waste drum.
   b. The organ is then transferred from the original container to a plastic ziplock bag and placed into an individual casket.
   c. The casket is sealed securely and the duplicate babies label addressograph, autopsy number and date release is peeled off the original container label and transferred to the casket.
   d. The clearly labelled and sealed casket is placed back into the perinatal storage cabinet until it is collected by either a bereavement midwife in the case of HOME or the CUMH appointed undertakers in the case of hospital burial.

e. Only one case at a time is to be transferred.

4.2 In the case where an organ(s) is to be returned to the family:

a. The Consultant Pathologist will send an email to the Bereavement Midwives copying the SPMS/perinatal pathology email cuh.perinatalpath@hse.ie indicating that the organ is available for return to the family using the case number, name and mother's MRN as identifiers.
b. The Bereavement Midwives will liaise with the family to make the appropriate arrangements.
c. On the day of collection from the PM room the Pathologist or SPMS along with the Bereavement Midwife will crosscheck the name on the casket with the details in the Organ Retention/Tissue Logbook (FOR-CUH-PAT-1338). The Bereavement Midwife signs and dates in the date of release column for that case.
d. The SPMS then completes the case details in the Perinatal Organ Retention Excel Log (FOR-CUH-PAT-2094).
e. When an organ is collected by the family, the Bereavement Midwife collecting the organ will email the pathologist, SPMS/perinatal pathology email cuh.perinatalpath@hse.ie to confirm collection and handover of the organ to the family or their undertaker so that records can be completed and closed.

4.3 In the case of organ disposal by the hospital:

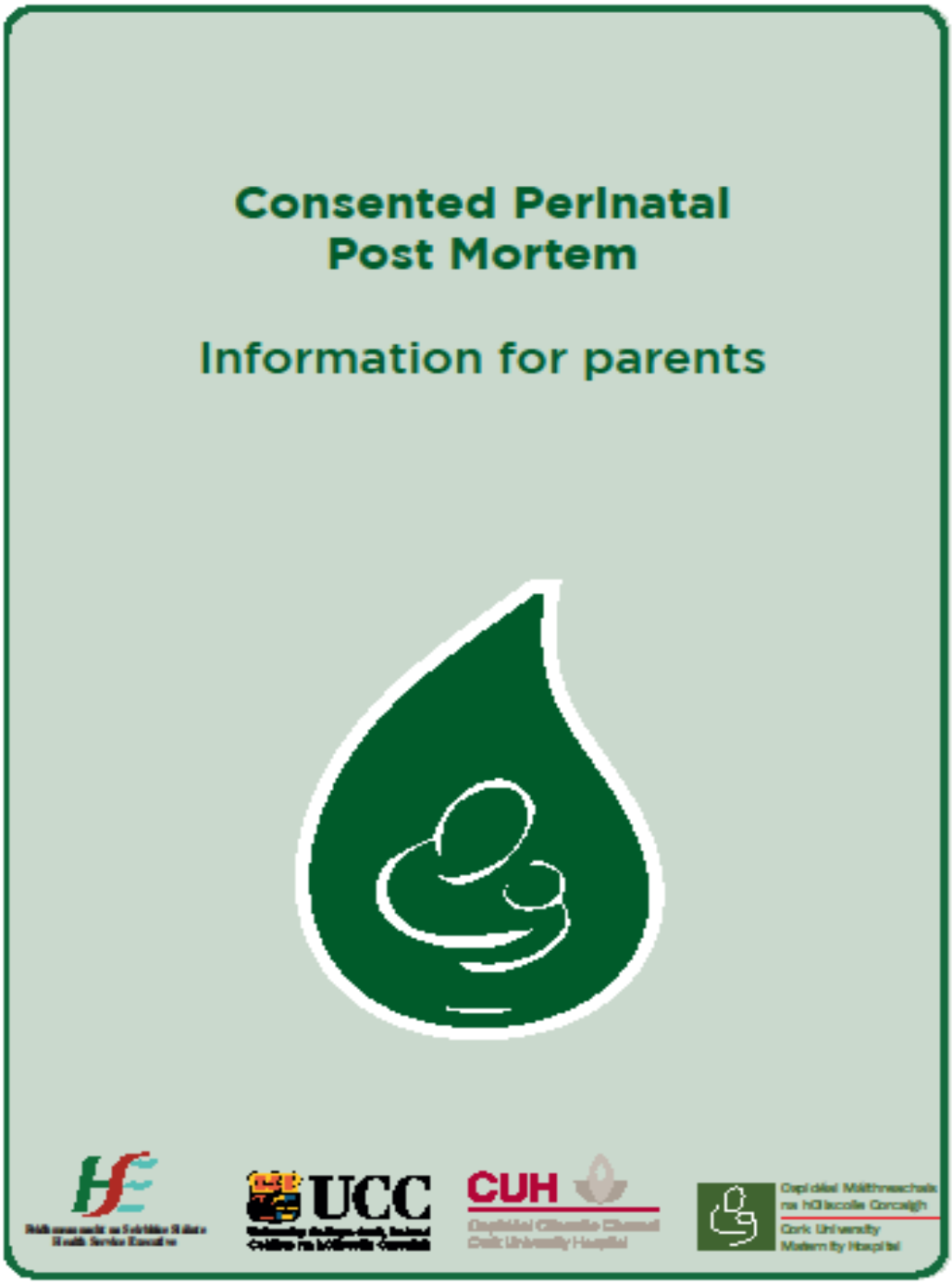
Perinatal organs are to be buried (respectfully according to HSE Standards) in the designated CUMH plot in St. Michael's Cemetery, Blackrock unless the family have another specific wish for disposal (which would be dealt with on a cases by case basis).

a. On a three monthly basis Perinatal Pathology will liaise with the CUMH undertaker (currently XX) to arrange collection of caskets awaiting disposal.
b. Four cases at a time can be facilitated by XX/St. Michaels cemetery. They need 24hr notice for availability.
   XX Undertaker Contact Details: XX
   XX Contact Details: XX
   Complete requisition with the details:
   Eg: XX to collect x4 white coffins and to transport to St.Michael's cemetery for respectful hospital organ burial on the Date 01/01/21
c. The requisition is to be scan emailed to all of the following:
   Stores – XX
   Undertaker – XX
   St Michael's cemetery – XX
h. On the day of handover to the CUMH Undertaker caskets are brought to the front of the mortuary suite by the SPMS.
i. The SPMS and the undertaker crosscheck the name on the casket with the details in the Organ Retention/Tissue Logbook (FOR-CUH-PAT-1338)
j. The undertaker signs and dates in the date of release column for each individual case.
k. The SPMS then completes the case details in the Perinatal Organ Retention Excel Log (FOR-CUH-PAT-2094)

4.4 To organise Off-Site Organ returns

a. Off-site returns will be facilitated through contact with the Bereavement team members of the site.
b. They will arrange for their Hospital Undertaker to transport the organ(s) to their hospital site.
c. All contact regarding the arrangements will be through the Perinatal mobile number 0873691513.
d. On the day of handover the organs are brought to the front of the Mortuary suite by the SPMS.
e. SPMS and the Undertaker crosscheck the name on the coffin with the details in the CUH organ retention/Tissue log book (FOR-CUH-PAT-1338).
f. The undertaker signs and dates in the date of release column for that case.
f. The SPMS then completes the case details in the Perinatal Organ retention Excel log FOR-CUH-PAT-2094.

Appendix 11: Consented Perinatal Post Mortem, Information for Parents



Contents

Introduction

We are very sorry that your baby has died. We know that this is a very distressing and difficult time, and that it is not easy to decide about a post mortem examination.

We hope you will find this booklet helpful. It explains what a post mortem is and the possible benefits of having one. It also describes the choices you can make so that you can decide what is right for you. It is based on what a number of bereaved parents have told us that they wanted to know. The information is organised as questions, so that you can look up the things you want to know and don't have to read the whole booklet. You can just pick the questions that you want answers to.

If you have any more questions please ask the healthcare professional who discusses the post mortem with you. Specialist medical words that may be unfamiliar to you are in bold type the first time they appear, and are explained on page 16 at the end of this booklet.

Deciding about a post mortem

What is a post mortem?

A post mortem is the medical examination of a body after death. Babies are examined by or under the supervision of a consultant perinatal pathologist, a doctor who specialises in identifying conditions that affect babies and their placenta, and who examines babies to find out why they died. A senior doctor, bereavement support midwife, midwife, nurse or other health professional will ask if you want to consider a post mortem. The type of post mortem discussed here cannot be done without your consent.

If you decide to have a post mortem, we want you to know that the hospital staff will respectfully take care of your baby at all times.

Making a decision

Some parents are certain from the beginning that they want a post mortem, but others may not be sure. It is your decision.

If you think you might want a post mortem but have questions or worries, the healthcare professional who discusses the post mortem with you should be able to answer them for you. Please say if you have any special wishes or concerns.

Before you decide about a post mortem, you may want to take some time to think it over, to talk to a family member or friend, to someone of your own religion, or to another doctor, midwife or nurse. You may want to talk to the pathologist or to one of his or her staff.

If you are sure that you don't want a post mortem, please say so. However, sometimes parents say "no" when first asked, and change their minds when they have had more time to think so you may find that staff ask you a second time just to be sure.

What might a post mortem tell you?

If your baby died around the time of birth a post mortem is likely to provide important information. In Cork University Maternity Hospital a cause or likely cause of death is identified in approximately 90% of cases of stillbirth and neonatal death where a post mortem has been performed as part of the investigation process. In second trimester deaths (12 to 24 weeks gestation) a cause or likely cause of death is identified in approximately 80% of cases. Although a post mortem does not always find a definite cause for a stillbirth or miscarriage, it may tell you what did not cause it.

If your baby was born alive and then died you may already know the immediate cause of your baby's death. However, a post mortem can still be useful. It may confirm the diagnosis that was made while your baby was alive, or it may discover additional problems, and this may help to assess the usefulness of any treatment that your baby was given.

Even if a post mortem does not give you any new information, it may confirm that, apart from the direct cause of death, there was nothing else wrong with your baby.

An examination of the placenta (afterbirth) often gives very useful information, especially after a stillbirth. During this examination, samples are taken for study under the microscope; this can be valuable even if you have an external only examination (see page 8).

Sometimes a post mortem does not find a definite reason why a baby died. This can be extremely disappointing. But even if no definite cause is found, a post mortem may still answer some questions and rule out some possible causes. Finding out what did not cause the death of your baby is especially helpful if you think you may have another baby in the future; it could provide useful information to the doctors who would organise your care.

The results of a post mortem can also contribute to valuable research which may prevent more deaths in the future.

Are there different kinds of post mortem?

This section describes the main points of a post mortem. If you would like a more detailed description, please see page 20.

There are three different types of consented post mortem examination: a complete post mortem, a limited post mortem or an external post mortem.

A complete post mortem is the most thorough investigation and will give you the most information. If you think you may have another baby in the future and are worried that the problem might occur again, a complete post mortem is the best way to find this out. The results can also help the doctors put into place the appropriate care for you for future pregnancies.

The outside of the body is very carefully examined for any signs of abnormality. All the internal organs are then examined in detail, measured and weighed to try and find out why your baby died. The placenta (afterbirth) is also examined. Small samples of tissue are taken from the organs for later examination under a microscope, before returning all the organs to the body and carefully repairing it. Genetic tests will usually be carried out on some tissue samples (usually placenta). Genetic testing is especially useful if your baby had an abnormality, even a very minor one, or if the doctors think that your baby may have an underlying genetic disorder (please see page 9).

Small tissue samples, including those for genetic testing, will be kept as part of the medical record: this means that they can be re-examined for more information if new tests or further information become available, or if you have more questions.

The pathologist may examine the tissue samples and samples of body fluids, such as blood or urine, for infection and other possible problems. X-rays and medical photographs will usually be taken. These photographs are specifically for medical diagnosis and are different from any photos of your baby that you or the ward staff might take.

They will be kept as part of the medical record and can be reviewed by the pathologist or by a medical geneticist to help with making a diagnosis. After the examination, the baby's body is carefully repaired in the same way as after an operation.

A limited post mortem may give you some useful information, especially if it is known that your baby had a specific abnormality. It is less likely to give you additional information about other problems or a possible underlying condition. The only difference is that you decide which internal organs or areas of the body will and will not be examined. X-rays and medical photographs will be taken as with a complete post mortem. The placenta (afterbirth) will also be examined. If an ultrasound scan has shown abnormalities in a specific organ, you might want only that part of the body to be examined. There may also be parts of your baby's body you do not want examined.

If you are considering a limited post mortem, the healthcare professional discussing it with you will tell you how useful it is likely to be in your baby's case. He or she may need to speak to the pathologist first to be sure.

Both a complete and a limited post mortem are always done carefully and respectfully, in the same way as an operation. The baby's face, arms, legs, hands and feet are not usually affected. The marks of a post mortem are not usually visible when a baby is carefully wrapped in a blanket or fully clothed.

An external post mortem is least likely to give you any new information. If you are considering this option, the healthcare professional discussing the post mortem with you will tell you if it is likely to be useful in your baby's care.

The outside of the baby's body is examined very carefully for any signs of abnormality, but there is no examination of any internal organs and no tissue is taken from them. The placenta (afterbirth) is examined. x-rays and medical photographs are taken. Tissue from the placenta (afterbirth) will be taken for genetic testing.

If you choose an external or a limited post mortem, and the pathologist thinks that a more detailed examination would provide important information about why your baby died, you may be contacted to ask whether you would consider this.

Would a post mortem include genetic testing?

A basic level of genetic testing is part of the investigation process at Cork University Maternity Hospital. More specialised genetic testing is sometimes required.

Genetic testing involves examining a baby's chromosomes (DNA). These are usually extracted from the placenta (afterbirth) but sometimes a small tissue sample from your baby is used. The DNA extracted will be kept as part of the medical record in the genetics laboratory performing the testing so that further tests can be done if recommended by a medical geneticist.

Genetic testing is especially useful if your baby had an abnormality, even a very minor one, or if the doctors think that your baby may have an underlying genetic disorder. If your baby is smaller than expected and there is no other explanation for his or her death, a genetic test may sometimes explain what went wrong. If you think you may have another pregnancy in the future, genetic testing can be particularly useful in assessing the risk of the same thing happening again. If your baby died early in the pregnancy, genetic testing may be able to confirm his or her sex/gender.

If a genetic disorder is found, you will be able to discuss it with the Doctor who sees you for follow up when he/she gives you the post mortem results. You may also be offered an appointment with a medical geneticist. If the disorder or condition is inherited, you will need to consider whether to tell other family members.

Where and when would a post mortem be done and how long would it take?

A post mortem is usually done a day or two after consent is given. It is done in a specially equipped area in the mortuary.
Your baby would be kept safely in the mortuary until the post mortem is completed. Depending on the type of post mortem you consent to, the post mortem itself will take 2 to 5 hours. The healthcare professional who discusses the post mortem with you will tell you where your baby's post mortem would be done, and when your baby should be back with you.

Who else would be present at a post mortem?

The perinatal pathologist or perinatal medical scientist performs the post mortem together with an anatomical pathology technician. Occasionally the obstetrician or neonatologist involved in your baby's care will attend the post mortem to better understand what happened. Post mortems may also be watched by trainee pathologists or other professionals who need to understand what happens at a post mortem, as part of their training. If you don't want anyone else to be present at the post mortem, tell the person who discusses the post mortem with you. Your wishes will be noted on the consent form.

What if a Pathologist recommends special examination and retention of an organ?

The pathologist may recommend keeping an organ for longer to enable much more detailed examination or to discuss the diagnosis with another specialist. This organ is usually the brain but sometimes the heart or other organs may be retained. In this case, it is necessary to keep the organ for a few weeks; this will mean that it will not be returned to the baby's body before burial or cremation. This can only be done if the parent(s) consent. While obtaining consent for retaining organs, your doctor will talk to you about your wishes with regard to burial or cremation of the retained organ once its examination is complete. If you have requested that a retained organ is to be returned to you, your bereavement support midwife will contact you by telephone to make arrangements once the organ has been released.

When do I have to decide?

To get the most useful results, a post mortem should ideally be done within two or three days of your baby's death. But it is also very important that you take the time you need to decide.

If, for religious reasons, you need to hold the funeral service within 24 or 48 hours, please tell the healthcare professional who discusses the post mortem with you straight away. They will speak to the pathologist to see if it could be completed in time. Post mortems are not currently available at weekends or bank holidays.

If I decide to have a post mortem, what happens next?

If you decide to have a post mortem, you will be asked to sign a consent form. You will be offered a copy of the form to keep.

After you sign the form you can change your mind about anything you have agreed to by bringing it to the attention of your midwife or doctor as soon as possible.

Before and after a postmortem

Would I be able to see my baby before a post mortem?

If you decide to have a post mortem, you can see your baby at any time before it takes place. Before a post mortem, some parents dress their baby or wrap him or her in a special blanket. They may add something special to be kept with their baby – for example, a small cuddly toy, a photograph of themselves or a religious item.

After a post mortem, your baby is dressed or wrapped in the same way, according to your wishes. The staff will ensure that all special items stay with your baby.

Could I see my baby after a post mortem?

If you decide to have a post mortem, you can usually see your baby afterwards if you want to.

Your baby's appearance will naturally have changed in the time that has passed since the death. The marks of a post mortem are not usually visible when a baby is carefully wrapped in a blanket or fully clothed. The healthcare professional who discusses the post mortem with you can tell you more about what to expect.

If your baby is very fragile or very small, or died some time before the birth, you may be advised to say goodbye before the post mortem.

When would I get the post mortem results?

The time taken for results to be available can vary a good deal. Some tests on tissue samples can take several weeks; a few special tests may take even longer. The healthcare professional who discusses the post mortem with you will be able to give you more definite information. When available you should be given a hospital appointment to discuss the results.

If your baby was stillborn or died in the maternity unit, the appointment to discuss the results will probably be with your consultant obstetrician or another senior obstetrician. If your baby died in a neonatal unit, your follow up appointment will be with the consultant who looked after your baby or another senior neonatologist, as well as an obstetrician.

You may want to write down any questions you think of before the meeting. You may also want to bring someone else with you to the appointment. He or she may be able to remember more than you can about the discussion, and may be able to remind you later of things you may not have taken in.

Your hospital doctor can give you a copy of the full post mortem report if you request it. It can be hard to take in all the information at the meeting at the hospital, and you may want to make another appointment to go through the results again and discuss what they mean.

Once the post mortem results are available, the doctor will complete the medical certificate so that you may complete the registration process with the National Register.

What usually happens to tissue samples after a post mortem?

The tissue samples are kept as part of the mother's or the baby's medical record in the hospital's pathology department (in small wax blocks and on glass slides). If genetic testing is done, samples of the baby's DNA are also normally kept. Tissue that is not needed for the blocks and slides is returned to the baby's body.

Keeping the tissue blocks and slides as part of the medical record is standard practice in pathology departments. If new information becomes available in the future, or more sophisticated tests are developed, it may be possible to re-examine the tissue samples to find out more about why your baby died. You might also want another pathologist to give a second opinion on the post mortem findings.

If you consider having another baby in the future, keeping the tissue blocks and slides also means that they can be re-examined later if necessary, to assess the risks of another baby being affected, so that the doctors can organise the best care for you.

How long are medical records kept?

Small tissue samples in wax blocks are kept indefinitely and tissue on glass slides is kept for a minimum of 10 years. In CUMH, a baby who has a post mortem has his or her own medical record that can be linked to the mother's medical record.

Professional training and research

You may be asked if you will consent to material taken during the post mortem being used to train professionals or, occasionally, for research to try to prevent future deaths. This is entirely your decision and will only take place if you give your consent.

Training professionals

Training future doctors and other professionals, including specialist pathologists, to identify the different conditions that can affect babies is very important. Samples of tissue, x-rays and medical photographs, and information from post mortem reports are essential for this specialist training.

If you decide to have a post mortem, you may also be asked if you consent to material that was taken as part of the post mortem being used to train health professionals. When any material is used for training, names and all other identifying details are always removed first to protect confidentiality.

Research to try to prevent future deaths

Specialist research projects are sometimes performed that may help to prevent more deaths in the future, or may help in the development of new treatments. You may be asked if you will consent to material that was taken as part of the post mortem being kept and used for research. All such research must be approved by a hospital or university ethics committee. Names and other identifying details are removed when material is being used for research. If you agree to material that was taken as part of the post mortem being used for research, you can change your mind at any time in the future. If you do change your mind, please contact your assigned bereavement support midwife.

We hope this booklet has helped you in making your decision about a post mortem for your baby. If you have any further questions, please ask the healthcare professional who discusses the post mortem with you.

Some specialist words

Anatomical Pathology Technician Professional staff who assist and support pathologists in conducting post mortem examinations, and who ensure dignity and respectful care in the mortuary.

Bereavement Support Midwife A midwife who specialises in the care and support of parents whose baby has died.

Consent Agreement that something can be done, "Consent" is the legal term used.

Consultant A senior doctor who has completed all of his or her specialist training, and is ultimately responsible for the care or all the patients cared for by his or her team.

Medical Geneticist A doctor who specialises in the diagnosis and management of hereditary disorders.

Neonatal Death has been defined as "deaths among live births during the first 28 completed days of life'.

Neonatologist A doctor who specialises in the care of newborn babies.

Obstetrician A doctor who specialises in the care of women and their babies during pregnancy and birth.

Organ A part of the body composed of more than one tissue that forms a structural unit responsible for a particular function; for example, the heart, lungs, brain etc.

Pathologist A doctor who specialises in making diagnoses from tissue samples and finding the cause of death from post mortem examinations. Perinatal pathologists are doctors who specialise in identifying conditions that affect babies and their placentas and who examine babies to find out why they died.

Perinatal The time around birth.

Perinatal Medical Scientist A senior medical laboratory scientist who has received special training in perinatal pathology and who works under the supervision of a perinatal pathologist when examining placentas and performing perinatal post mortems.

Radiologist is a healthcare professional who specialises in the imaging of human anatomy for the diagnosis and treatment of pathology.

Stillbirth A stillborn baby is a baby who is born dead after 24 completed weeks of pregnancy. If a baby dies before 24 completed weeks and weighs less than 500g, it is known as a late miscarriage.

Tissue A collection of cells that have a particular function.

More detail about a complete post mortem

You may feel you already have enough information about a post mortem to make your decision. The following page is for those parents who would like a bit more information about the examination process.

A complete post mortem is the most thorough examination possible and provides the most information. If you think you may consider having another baby in the future and are worried that the problem might occur again, a complete post mortem is the best way to try to find out; the results may help the doctors put in place the care you need.

A complete post mortem begins with a very careful external examination of the body for any signs of abnormality. The placenta (afterbirth) is also examined if it is available. Incisions (cuts through the skin) are then made on the baby's body so that the internal organs of the chest and abdomen can be removed, measured, weighed and examined in detail to see if there are any abnormalities or signs of what was wrong. Another incision is made around the back of the head. An incision is done in the same way for an operation and after the post mortem has finished the skin is carefully repaired with stitches and/or special adhesives.

Some information can be obtained just by looking carefully at organs and tissues. However, often the only way to understand fully what happened is to examine them under a microscope.

For this, small samples of tissue are taken – usually a bit thicker but no larger than a postage stamp – from the organs. These are placed in small blocks of paraffin wax, about the size of a very small matchbox. The wax blocks preserve the tissue and make it possible to cut extremely thin slices or sections of tissue from them. Each section is ten times thinner than a human hair. The tissue sections are placed on glass slides and stained with special dyes, so that they can be examined under a microscope for abnormalities or signs of what went wrong. The blocks and slides will be kept as part of the medical record. This is so that they can be re-examined to try to find out more if new tests or new information become available, or if you have further questions.

The pathologist may also examine tissue samples and samples of body fluids, such as blood or urine for infection and other possible problems. X-rays and medical photographs are also taken. These photographs are for medical diagnosis and are different from any

photos of your baby that you or the ward staff might take. The photographs and x-rays are often discussed with other specialist doctors who may be able to explain what happened; for example, a specialist paediatric radiologist who is more skilled at interpreting x-rays, or a medical geneticist who is more skilled at recognising some genetic abnormalities. The x-rays and medical photographs will be kept as part of the medical record and can be very useful if new information or new tests become available later and you want the diagnosis reviewed. They are also used in special multidisciplinary meetings where those involved in your care and the pathologist discuss your baby's death in detail, to determine what happened and to make a plan for your future care.

After the examination, the organs and the tissue that is not used for blocks or slides are put back into the baby's body, and the body is carefully repaired in the same way as after an operation.

Certain organs, especially the brain, may have to be retained so that they can be specially prepared by immersing them in a preservative called formalin before samples can be taken for examination under a microscope. This preparation usually takes 2 weeks in the case of the brain. This allows a much more detailed examination of an organ in order to get a complete diagnosis, or may facilitate asking another doctor for a specialist opinion. Any organ retention cannot be performed without your consent.

Notes

Contact Numbers

Bereavement support midwife

Bereavement support midwife

4South	021 4920688
Neonatal Unit	021 4920514
Social Work	021 4920567
Pathology Department	021 4920486
Mortuary Department	021 4922525

Your Bereavement Support Midwife contact name is:

_____

Your Consultant name and contact number is:

_____

Acknowledgements

We wish to extend our sincere thanks for the support we have received from the Stillbirth and Neonatal Death Society (SANDS), the hospital Bereavement Committee, the Pathology Department and Hospital Management for the production of this booklet.

This booklet will be reviewed every 2 years to ensure all information provided is up to date.
EXT-CUH-PAT-1221 (Rev.1)

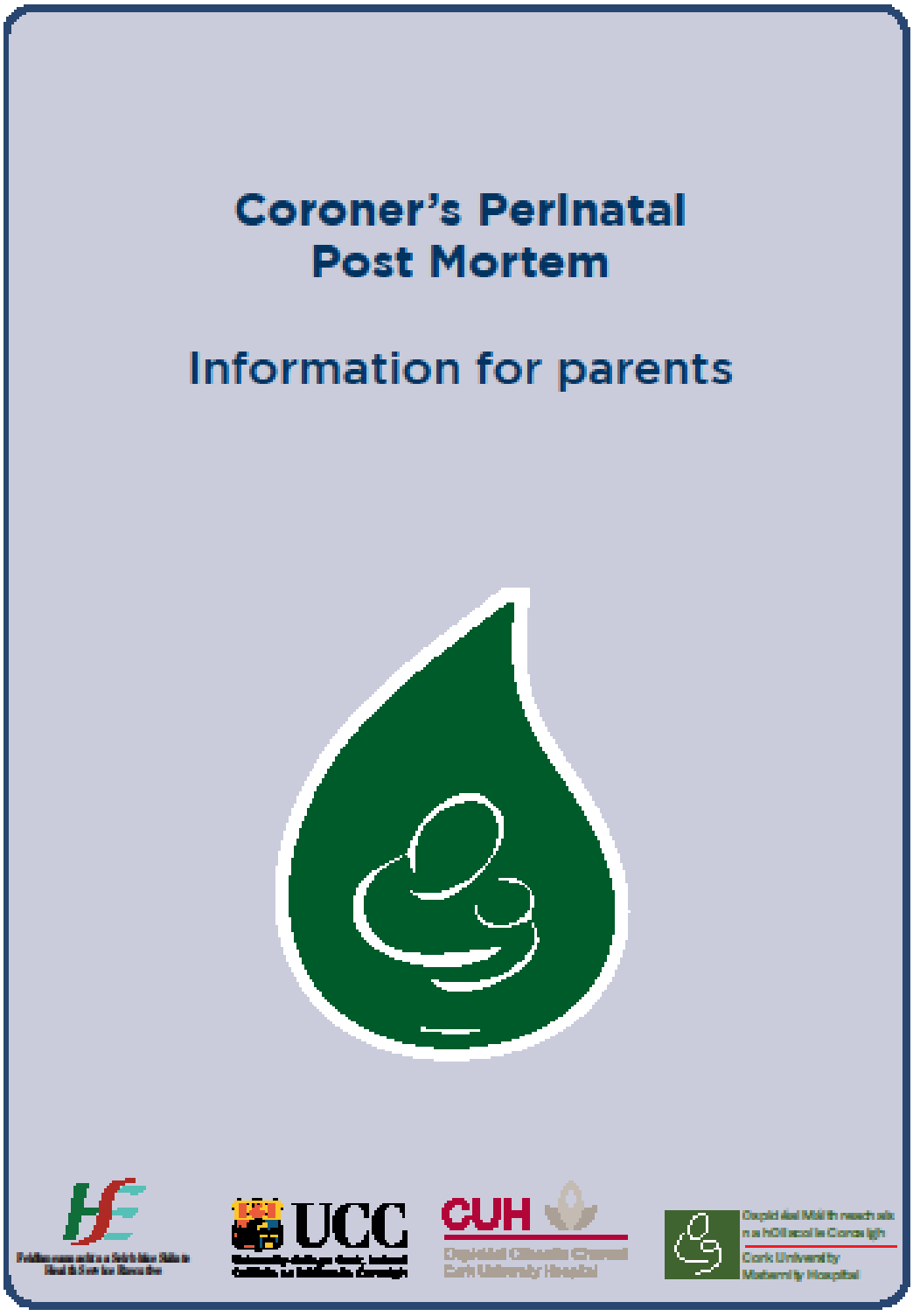
Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

CUH
Ospidéal Ollscoile Chorcaí

Ospidéal Máithreachais na hOllscoile Corcaigh
Cork University Maternity Hospital

Appendix 12: Coroner's Perinatal Post Mortem, Information for Parents



Contents

Introduction

We are very sorry that your baby has died. We know that this is a very distressing and difficult time.

This booklet is designed to explain what a Coroner's post mortem is and we hope you will find this helpful. The information in this booklet is organised in question format, so that you can look up the things you want to know without having to read the whole booklet. You can just pick the questions that you want answers to.

If you have any more questions please ask the healthcare professional who discusses the post mortem with you. Specialist medical words that may be unfamiliar are in bold type the first time they appear, and are explained on page 14 at the end of this booklet.

Coroner's post mortems

Under Irish law the Coroner must enquire into the circumstances of sudden unexplained deaths. A Coroner will order a complete post mortem to find out why a baby has died which is sometimes followed by an inquest. In this situation the post mortem is required by law and you will not be asked for your consent. Although the Coroner has ordered the post mortem the parents are always in the forefront of our thoughts during the investigation process and your baby will be treated with respect and dignity at all times. There are guidelines on the types of death in a maternity hospital which must be reported to the Coroner and your doctor will explain why a Coroner's post mortem is required in the case of your baby. Your doctors, midwife and bereavement support midwives will provide care and assistance during this time and beyond.

What is a post mortem?

A post mortem is the medical examination of a body after death. Babies are examined by or under the supervision of a consultant perinatal pathologist, a doctor who specialises in identifying conditions that affect babies and their placenta, and who examines babies to find out why they died.

What might a post mortem tell you?

If your baby died around the time of birth a post mortem is likely to provide important information. In Cork University Maternity Hospital a cause or likely cause of death is identified in approximately 90% of cases of stillbirth and neonatal death where a post mortem has been performed as part of the investigation process. In second trimester deaths (12 to 24 weeks gestation) a cause or likely cause of death is identified in approximately 80% of cases. Although a post mortem does not always find a definite cause for a stillbirth or miscarriage, it may tell you what did not cause it.

If your baby was born alive and then died you may already know the immediate cause of your baby's death.

However, a post mortem can still be useful. It may confirm the diagnosis that was made while your baby was alive, or it may discover additional problems, and this may help to assess the usefulness of any treatment that your baby was given.

Even if a post mortem does not give you any new information, it may confirm that, apart from the direct cause of death, there was nothing else wrong with your baby.

An examination of the placenta (afterbirth) often gives very useful information, especially after a stillbirth. During this examination, samples are taken for study under the microscope.

Sometimes a post mortem does not find a definite reason why a baby died. This can be extremely disappointing. But even if no definite cause is found, a post mortem may still answer some questions and rule out some possible causes. Finding out what did not cause the death of your baby is especially helpful if you think you may have another baby in the future; it could provide useful information to the doctors who would organise your care.

The results of a post mortem can also contribute to valuable research which may prevent more deaths in the future.

A complete post mortem, is the most thorough investigation and will give you the most information and is the type of post mortem required in a Coroner's investigation.

Prior to a Coroner's post mortem proceeding, a member of the An Garda Siochana will attend the hospital to identify your baby with a member of staff. This is a routine practice and you would not have to meet the Garda.

The outside of the body is very carefully examined for any signs of abnormality. All the internal organs are then examined in detail, measured and weighed to try and find out why your baby died. The placenta (afterbirth) is also examined. Small samples of tissue are taken from the organs for examination under a microscope, before returning all the organs to the body and carefully repairing it.

Genetic tests will usually be carried out on some tissue samples (usually placenta). Genetic testing is especially useful if your baby had an abnormality, even a very minor one, or if the doctors think that your baby may have an underlying genetic disorder.

Small tissue samples, including those for genetic testing, will be kept as part of the medical record: this means that they can be re-examined for more information if new tests or further information become available, or if you have more questions.

The pathologist may examine the tissue samples and samples of body fluids, such as blood or urine, for infection and other possible problems. X-rays and medical photographs will usually be taken. These photographs are specifically for medical diagnosis and are different from any photos of your baby that you or the ward staff might take. They will be kept as part of the medical record and can be reviewed by the pathologist or by a medical geneticist to help with making a diagnosis. After the examination, the baby's body is carefully repaired in the same way as after an operation.

A complete post mortem is always done carefully and respectfully, in the same way as an operation. The baby's face, arms, legs, hands and feet are not usually affected. The marks of a post mortem are not usually visible when a baby is carefully wrapped in a blanket or fully clothed.

Would a post mortem include genetic testing?

A basic level of genetic testing is part of the investigation process at Cork University Maternity Hospital. More specialised genetic testing is sometimes required.

Genetic testing involves examining a baby's chromosomes (DNA). These are usually extracted from the placenta (afterbirth) but sometimes a small tissue sample from your baby is used. The DNA extracted from them, will be kept as part of the medical record in the genetics laboratory performing the testing so that further tests can be done if recommended by a medical geneticist.

Genetic testing is especially useful if your baby had an abnormality, even a very minor one, or if the doctors think that your baby may have an underlying genetic disorder. If your baby is smaller than expected and there is no other explanation for his or her death, a genetic test may sometimes explain what went wrong. If you think you may have another pregnancy in the future, genetic testing can be particularly useful in assessing the risk of the same thing happening again. If your baby died early in the pregnancy, genetic testing may be able to confirm his or her sex/gender.

If a genetic disorder is found, you will be able to discuss it with the Doctor who sees you for follow up when the post mortem results are available. You may also be offered an appointment with a medical geneticist. If the disorder or condition is inherited, you will need to consider whether to tell other family members.

Where and when would a post mortem be done and how long would it take?

A post mortem is usually done a day or two after your baby's death. It is done in a specially equipped area in the mortuary. Your baby would be kept safely in the mortuary until the post mortem is completed. The post mortem itself will take 2 to 5 hours. The person who discusses the post mortem with you will tell you where your baby's post mortem would be done, and when your baby should be back to you.

Who else would be present at a post mortem?

The perinatal pathologist performs the post mortem assisted by a perinatal medical scientist and an anatomical pathology technician. Occasionally the obstetrician or neonatologist involved in your baby's care will attend the post mortem, with the Coroner's permission, to better understand what happened. Post mortems may also be watched by trainee pathologists or other professionals who need to understand what happens at a post mortem, as part of their training. If you don't want anyone else to be present at the post mortem, tell the person who discusses the post mortem with you.

What if a pathologist recommends special examination and retention of an organ?

A pathologist may recommend keeping an organ for longer to enable much more detailed examination or to discuss the diagnosis with another specialist. This organ is usually the brain but sometimes the heart or other organs may be retained. In this case, it is necessary to keep the organ for a few weeks so that it will not be returned to your baby's body before burial or cremation.

In a Coroner's post mortem the parent's consent is not required to retain an organ but an organ will only be retained if it is determined by the pathologist that it is required to identify the cause of death. Once the organ has been examined you will have the option to have the organ returned to you for burial with your baby or to have the hospital bury or cremate the organ. A bereavement support midwife will make contact with you to make these arrangements once the organ has been released.

Before and after a post mortem

Will a Coroner's post mortem delay the funeral?

A Coroner's post mortem doesn't usually take any extra time compared to a normal post mortem but funeral arrangements should not be finalised until your baby's body is released to you. In the case of a Coroner's post mortem a cremation cannot take place until the appropriate Coroner's certificate is issued.

Would I be able to see my baby before a post mortem?

You can see your baby at any time before it begins. Before a post mortem, some parents dress their baby or wrap him or her in a special blanket. They may add something special to be kept with their baby – for example, a small cuddly toy, a photograph of themselves or a religious item. With a Coroner's post mortem certain medical items such as tubes and dressings may have to be kept in place until after the post mortem has taken place. After a post mortem, the baby is dressed or wrapped in a blanket as he or she was before. The staff ensure that all special items stay with the baby.

Could I take my baby out of the hospital before a post mortem?

You cannot take your baby from the hospital prior to a Coroner's post mortem but your baby may stay with you on the hospital ward up to the time of the post mortem examination.

Could I see my baby after a post mortem?

You can usually see your baby afterwards if you want to. Your baby's appearance will naturally have changed in the time that has passed since the death. The marks of a post mortem are not usually visible when a baby is carefully wrapped in a blanket or fully clothed. The person who discusses the post mortem with you can tell you more about what to expect. If your baby is very fragile or very small, or died some time before the birth, you may be advised to say goodbye before the post mortem.

What usually happens to tissue samples after a post mortem?

The tissue samples (in small wax blocks and on glass slides) are kept as part of the mother's or the baby's medical record in the hospital's pathology department. If genetic testing is done, samples of the baby's DNA are also normally kept. Tissue that is not needed for the blocks and slides is returned to the baby's body.

Keeping the tissue blocks and slides as part of the medical record is standard practice. If new information becomes available in the future, or more sophisticated tests are developed, it may be possible to re-examine the tissue samples to find out more about why your baby died. You might also want another pathologist to give a second opinion on the post mortem findings. If you might consider having another baby in the future, keeping the tissue blocks and slides also means that they can be re-examined later if necessary, to assess the risks of another baby being affected, so that the doctors can organise the best care for you.

When will the results of a Coroner's post mortem be available?

It usually takes weeks to months after a baby's death before the results are available and the report finalised. Some of the tests performed can take many weeks to complete and an inquest may or may not be required. A final conclusion to the investigation and a death certificate may not be available for a significant period of time. The bereavement support midwife can liaise with you regarding the timing of the availability of the results. Once the death is certified by the Coroner or with his/her approval, a meeting will be organised for you with the hospital obstetrician or neonatologist to discuss the findings of the post mortem examination.

Once the coroner issues the final post mortem results he or she will register your baby with the National Registry of Births and Deaths.

Can I contact the Coroner?

Parents may contact the Coroner's office directly if they wish to ask for updates on the case and to request a copy of the post mortem report, once death has been certified by the Coroner. If you do request a copy of the Coroner's report yourself, we recommend that you read this report together with a bereavement support midwife and an obstetrician or neonatologist. This is because it is a medical report with complex terminology and it is better that you have experienced staff with you to help with reading and understanding the report and to support you at that time.

How long are medical records kept?

Small tissue samples in wax blocks are kept indefinitely and tissue on glass slides is kept for a minimum of 10 years. In CUMH, a baby who has a post mortem usually has his or her own medical record that can be linked to the mother's medical record.

Professional training and research

You may be asked if you will consent to material taken during the post mortem being used to train professionals or, occasionally, for research to try to prevent future deaths. This is entirely your decision. Nothing will be used unless you give your consent.

Training professionals

Training future doctors and other professionals, including specialist pathologists, to identify the different conditions that can affect babies is very important. Samples of tissue, x-rays and medical photographs, and information from post mortem reports are essential for this kind of training.

You may also be asked if you consent to material that was taken as part of the post mortem being used to train health professionals. When any material is used for training, names and all other identifying details are always removed first to protect confidentiality.

Research to try to prevent future deaths

Specialist research projects are sometimes performed that may help to prevent more deaths in the future, or may help in the development of new treatments. You may be asked if you will consent to tissue samples and other items that were taken as part of the post mortem being kept and used for research. All such research must be approved by a hospital or university ethics committee. Names and other identifying details are removed when material is being used for research. If you agree to some or all of the items that were taken as part of the post mortem being used for research, you can change your mind at any time in the future. If you do change your mind, please contact your assigned bereavement support midwife.

We hope this booklet has helped you understand a Coroner's post mortem. If you have any more questions, please ask the person who discusses the post mortem with you.

Some specialist words

Anatomical Pathology Technician Professional staff who assist and support pathologists in conducting post mortem examinations, and who ensure dignity and respectful care in the mortuary.

Bereavement Support Midwife A midwife who specialises in the care and support of parents whose baby has died.

Consent Agreement that something can be done "Consent" is the legal term used.

Consultant A senior doctor who has completed all of his or her specialist training, and is ultimately responsible for the care or all the patients cared for by his or her team.

Coroner is an independent official with legal responsibility for the investigation of sudden and unexplained deaths.

Inquest is an inquiry held in public by a Coroner, sometimes with a jury. In some deaths, inquests are legally required. In other cases, the holding of an inquest is at the discretion of the Coroner.

Medical Geneticist A doctor who specialises in the diagnosis and management of hereditary disorders.

Neonatal Death has been defined as "deaths among live births during the first 28 completed days of life'.

Neonatologist A doctor who specialises in the care of newborn babies.

Obstetrician A doctor who specialises in the care of women and their babies during pregnancy and birth.

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Stillbirth A stillborn baby is a baby who is born dead after 24 completed weeks of pregnancy. If a baby dies before 24 completed weeks and weighs less than 500g, it is known as a late miscarriage.

Tissue A collection of cells that have a particular function.

More detail about a complete post mortem

The following page is for those parents who would like a bit more information about the examination process.

A complete post mortem begins with a very careful external examination of the body for any signs of abnormality. The placenta (afterbirth) is also examined if it is available. The pathologist then makes incisions (cuts through the skin) on the baby's body so that the internal organs of the chest and abdomen can be removed, measured, weighed and examined in detail to see if there are any abnormalities or signs of what was wrong. Another incision is made around the back of the head. An incision is done in the same way for an operation and after the post mortem has finished the skin is carefully repaired with stitches and/or special adhesives.

Some information can be obtained just by looking carefully at organs and tissues. However, often the only way to understand fully what happened is to examine them under a microscope.

For this, the pathologist takes small samples of tissue – usually a bit thicker but no larger than a postage stamp – from the organs. These are placed in small blocks of paraffin wax, about the size of a very small matchbox. The wax blocks preserve the tissue and make it possible to cut extremely thin slices or sections of tissue from them. Each section is ten times thinner than a human hair. The tissue sections are placed on glass slides and stained with special dyes, so that they can be examined under a microscope for abnormalities or signs of what went wrong. The blocks and slides will be kept as part of the medical record. This is so that they can be re-examined to try to find out more if new tests or new information become available, or if you have further questions.

The pathologist may also examine the tissue samples and samples of body fluids, such as blood or urine, for infection and other possible problems. He or she usually takes x-rays and medical photographs. These photographs are for medical diagnosis and are different from any photos of your baby that you or the ward staff might take. The photographs and x-rays are often discussed with other specialist doctors who may be able to explain what happened; for example, specialist a paediatric radiologist who is more skilled at interpreting x-rays, or medical geneticist who is more skilled at recognising some genetic abnormalities.

The x-rays and medical photographs will be kept as part of the medical record and can be very useful if new information or new tests become available later and you want the diagnosis reviewed. After the Coroner's investigation is complete they are also used in special multidisciplinary meetings where those involved in your care and the pathologist discuss your baby's death in detail, to determine what happened and to make a plan for your future care.

After the examination, the organs and the tissue that is not used for blocks or slides are put back into the baby's body, and the body is carefully repaired in the same way as after an operation.

Certain organs, especially the brain, may have to be retained so that they can be specially prepared by immersing them in a preservative fluid called formalin before samples can be taken for examination under a microscope. This preparation usually takes 2 weeks in the case of the brain. This allows much more detailed examination of an organ in order to get a complete diagnosis, or may facilitate asking another doctor for a specialist opinion.

Notes

Contact Numbers

Bereavement support midwife

Bereavement support midwife

4South	021 4920688
Neonatal Unit	021 4920514
Social Work	021 4920567
Pathology Department	021 4920486
Mortuary Department	021 4922525

Your Bereavement Support Midwife contact name is:

_____

Your Consultant name and contact number is:

_____

Appendix 13: Perinatal Organ Retention Log

	Date Perinatal Organ retained	Date perinatal organ returned to the Post Mortem Room	Date Perinatal Organ released by Pathologist	Date Released by the Mortuary Team
1	13/05/2019	13/08/2019	13/02/2020	25/03/2020
2	13/05/2019	22/10/2019	06/11/2019	25/03/2020
3	12/08/2019	12/11/2019	19/12/2019	25/03/2020
4	14/08/2019	04/11/2019	06/11/2019	25/03/2020
5	20/09/2019	19/12/2019	19/12/2019	25/03/2020
6	27/09/2019	09/12/2019	19/12/2019	25/03/2020
7	03/10/2019	19/12/2019	19/12/2019	25/03/2020
8	22/10/2019	19/12/2019	19/12/2019	25/03/2020
9	22/10/2019	21/01/2020	13/02/2020	25/03/2020
10	04/11/2019	23/01/2020	13/02/2020	25/03/2020
11	12/11/2019	27/02/2020	02/04/2020	02/04/2020
12	19/11/2019	23/01/2020	02/04/2020	02/04/2020
13	26/11/2019	02/04/2020	02/04/2020	02/04/2020
14	27/11/2019	07/01/2020	13/02/2020	25/03/2020
15	16/12/2019	25/03/2020	02/04/2020	02/04/2020
16	16/12/2019	25/03/2020	02/04/2020	02/04/2020
17	30/12/2019	25/03/2020	02/04/2020	02/04/2020
18	21/01/2020	25/03/2020	02/04/2020	02/04/2020

- Total number of perinatal organs released by pathology on 06/11/2019 = 2
- Total number of perinatal organs released by pathology on 19/12/2019 = 5
- Total number of perinatal organs released by pathology on 13/02/2020 = 4
    - On 25th March 2020, these 11 perinatal organs were sent for incineration
- Total number of organs released by pathology on 02/04/2020 = 7
    - On 2nd April 2020, these 7 perinatal organs were sent for incineration