State Pathologist's Department and Northern Ireland Office

Working Group Report on the Briggs Case

March 2004

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Foreword

In October 2003 John Spellar, the Minister for Criminal Justice, established a Working Group to review the implementation of the recommendations of the Milroy and Risdon Report and those of the Craigavon and Banbridge Community Health and Social Services Trust's Case Management Review into the circumstances surrounding the death of David Briggs and the serious injuries to his brother Samuel, that relate to the State Pathologist's Department.

Members were drawn from the Department of Health and Social Services and Public Safety, the Eastern and Southern Health and Social Services Councils and the State Pathologist's Department. The group was chaired by the Northern Ireland Office.

This report sets out the recommendations in the two reports that relate to forensic pathology services and outlines progress towards their implementation. It also highlights the significant changes that have taken place in the State Pathologist's Department in the investigation of deaths in infants and young children.

The tragic circumstances surrounding David's death and Samuel's injuries cannot be reversed. However, the report demonstrates that lessons drawn from this sad case have directly led to new safeguards, put in place to minimise the risk of reoccurrence and to rebuild public confidence in the NI forensic pathology service.

The State Pathologist and the Northern Ireland Office will keep the delivery of forensic pathology services in Northern Ireland under review, to ensure that it works to, and maintains, the highest professional standards and serves the needs of the criminal justice system.

Brian Grzymek
Head of Criminal Justice Services Division
NIO

1 BACKGROUND

The Role of the State Pathologist's Department

The circumstances of all sudden and unexplained deaths of infants and young children need to be fully investigated. This usually requires an autopsy to be conducted on the instruction of a coroner. The majority of such cases are referred to the State Pathologist's Department (SPD) for investigation. Autopsies performed on infants and young children are generally more complex than those of adults and may require the application of specific processes and techniques.

The Briggs Case

In July 2000 Mr and Mrs Briggs from Portadown adopted and brought to Northern Ireland Romanian twins, David and Samuel Filipache. In the early hours of the morning of 23 October 2000, David (aged 14 months) was brought to the Accident and Emergency (A&E) Department of Craigavon Area Hospital by ambulance. He was pronounced dead on arrival.

On the same day, an Assistant State Pathologist from the SPD performed an autopsy on David's body which was preceded by a skeletal survey. At the time of the autopsy, although the cause of death was not ascertained, it was not identified as being suspicious.

On 5 November 2000, Mr and Mrs Briggs presented Samuel at the A&E Department of Craigavon Area Hospital, indicating that he was unwell. Samuel was subsequently found to have a fractured skull and other injuries. Concerns about David were raised with the police following an admission by Mr Briggs that he had caused the injury to Samuel. Subsequently, the x-rays taken following David's autopsy were reviewed by a paediatric radiologist and multiple rib fractures, plus a fresh fracture of the collarbone and a healing fracture of the left wrist, were found.

The Coroner ordered the exhumation of David's body and a second autopsy was performed by the same forensic pathologist, this time assisted by two paediatric pathologists from the Royal Group of Hospitals. On completion of the second autopsy, the Assistant State Pathologist was again unable to ascertain the cause of death.

Complaint to the General Medical Council

Following these events a Case Management Review was convened by the Craigavon and Banbridge Community Health and Social Services Trust to consider the circumstances surrounding the death of David and injuries to Samuel.

The Case Management Review was critical of the Assistant State Pathologist's failure to identify the rib fractures at the first autopsy. The Chief Executive of the Southern Health and Social Services Board wrote to the General Medical Council regarding the conduct of the Assistant State Pathologist.

NIO Internal Review

The State Pathologist, Professor Crane, in conjunction with the Northern Ireland Office, commissioned an investigation into the complaint in accordance with the Health Circular HSS (TC8) 15/91. Professor C M Milroy (Consultant Forensic Pathologist, The Medicolegal Centre, Sheffield) and Professor R A Risdon (Consultant Paediatric Pathologist, Great Ormond Street Children's Hospital, London) agreed to undertake an independent investigation. Their remit was to determine all of the relevant facts of the case and make recommendations on regarding any organisational matters relating to the effectiveness of SPD procedures and systems. The review took place between April and August 2002.

Professors' Milroy and Risdon, as part of their investigations, interviewed a number of people who were involved in the autopsy process. These included a police officer, hospital paediatricians, a mortuary technician, a hospital radiographer, and hospital paediatric pathologists, forensic pathologists from SPD and the chairman of the Case Management Review Team. Their detailed testimony, given as privileged information to a potential disciplinary review, cannot be reproduced as part of this report. However, the Milroy and Risdon conclusions and recommendations are driven by this evidence.

The Milroy and Risdon report highlighted a number of significant errors made during the autopsy process. These errors had resulted in David Briggs' rib fractures not being identified at the first autopsy and ultimately led to his body being exhumed for further examination. The report also made important recommendations on improving SPD systems and forensic pathology techniques, to minimise the risk of a similar occurrence in the future. These recommendations and progress on their implementation, are summarised in the following sections. The full recommendations from the Milroy and Risdon Review are detailed at appendix 1.

NIO Working Group

In October 2003 the Minister for Criminal Justice commissioned an NIO Working Group:

> **to review and report on the extent to which the Milroy and Risdon Review recommendations, as well as the Case Management Review recommendations, have been implemented in respect of the State Pathologist's Department**.

The group's membership is set out in appendix 2.

DHSSPS – The Lewis Review

In January 2002 the then Minister for the Department of Health and Social Services and Public Safety (DHSSPS) commissioned a separate, independent review of Health and Social Services in the case of David and Samuel Briggs. The review was conducted by R Lewis, a former Director of Social Services in England (The Lewis Review) and was published by the DHSSPS Minister, Angela Smith, in September 2003.

The Lewis Review considered the Family, Child Health and Social Care Services in the Craigavon and Banbridge Trust in relation to a range of clinical governance, management and organisational issues. The Review also considered aspects of the inter-country adoption process and the handling of the case of David and Samuel Briggs, by the Southern Board and the DHSSPS. The Lewis Review endorsed the Case Management Review's recommendations and published them as part of its own Review.

In publishing the Lewis Review the Minister for Health and Social Services and Public Safety made a commitment on behalf of Government to oversee the implementation of all of its recommendations, including those affecting the State Pathologist's Department. The Northern Ireland Office, for its part, agreed to implement the Case Management Review recommendations affecting the SPD in conjunction with the recommendations from the Milroy and Risdon investigation.

General Medical Council

The General Medical Council recently determined that Dr Michael Curtis, Assistant State Pathologist, was not guilty of serious professional misconduct. However the NIO has instigated disciplinary procedures in relation to Dr Curtis, in accordance with Health Circular HSS (TCS) 15/91 Annex E. This action is outside of the scope of the report.

The remainder of this report focuses on the key findings of the Milroy and Risdon investigation, their recommendations and the progress that has been made on their implementation.

3. SUMMARY OF KEY FINDINGS

Having conducted their investigation, Professors Milroy and Risdon found that:

- the injuries sustained by David occurred when he was alive; but these were only identified after the x-rays were again reviewed, following injuries to Samuel;
- these injuries were clearly non accidental;
- there were warning signs that this was not a typical sudden infant death case (SIDS);
- formal discussions should have taken place between the paediatricians who cared for David and the forensic pathologist in regard to the cause of the bruising on David's scalp;
- the presence of scalp bruising should have raised the question of a potential homicide investigation;
- the technique employed for looking at ribs should have identified the rib fractures, which would have been easily visible;
- a photographer and Scenes of Crime Officer should have been present at the second autopsy;
- the second autopsy should have been performed by an independent pathologist;
- the paediatric pathologists involved in the second autopsy should have had greater involvement in the process and in histological examinations;
- the case histology should have been reviewed by an independent paediatric pathologist; and
- the pathology report should have included more comment about the possible cause of death.

4. MILROY AND RISDON RECOMMENDATIONS AND IMPLEMENTATION

Based on their findings, Professors Milroy and Risdon recommended significant changes to the procedures, systems and techniques used by the SPD in autopsies performed on infants and young children. Their recommendations have been accepted in full by the NIO and are summarised below along with a summary of progress on implementation.

Recommendations	Action Taken
3.7 An independent review of the autopsy findings should be made, that will include an examination of all the available material including histology, with Perl's iron staining of the lung sections.	Dr Jean Keeling, Consultant Paediatric Pathologist, Royal Hospital for Sick Children, Edinburgh, reviewed the case and reported that she had established a cause of death. She also found that David had been subject to serious assault on more than one occasion. Her report is part of the ongoing PSNI and DPP investigations.
4.3 A written protocol for SUDI autopsies should be prepared to include: - radiological survey - examination to detect signs of trauma - examination of organs - toxicology - histology - skin - blood	The State Pathologist's Department has developed an agreed Protocol setting out forensic investigation and autopsy techniques to be applied in all cases involving infants and young children (appendix 3). In addition SPD has worked with paediatricians, A&E consultants, pathologists, DHSSPS, coroners and police to develop agreed procedures for handling all sudden infant deaths (Appendix 4). This has been issued as advice to all paediatric consultants. The NIO is working with DHSSPS with a view to re-issuing this work as formal guidance.
4.4 (i) A radiological and full skeletal survey should be taken as mandatory to include, skull, chest, spine, abdomen and limbs.	Full skeletal x-rays are carried out in all cases of sudden and/or unexpected deaths in infants and young children.
4.4 (ii) A review of radiographs should be made before the autopsy takes place by a paediatric radiologist, and reported on.	Procedures are in place in the Royal Hospital Trust to facilitate reviewing paediatric x-rays in advance of autopsies taking place. If this is not practicable at the time of the autopsy, a report on the x-ray is provided as soon after the autopsy as possible, and before the autopsy report is finalised.

Recommendations	Action Taken
4.4 (iii) Affected bone or ribcage will be re-x-rayed using high resolution techniques.	This process is accepted as best practice and is included in the SPD protocol.
4.4 (iv) The ribs, neck muscles and larynx should be examined by agreed forensic techniques.	This process is accepted as best practice and is included in the SPD protocol.
4.4 (v) Tissue blocks will be taken for histopathology examination where rib fractures have been identified. Where necessary, Perl's staining for haemosiderin of lung sections, will take place.	This process is accepted as best practice and is included in the SPD protocol.
4.5 There should be a thorough investigation of the circumstances surrounding the cause of death. In particular, epidemiological factors, child's feeding; clinic, GP and hospital attendance; social and family circumstances including details of other siblings and where there have been previous deaths in the family.	All of these factors are important and fundamental to ensuring that the case history is as detailed as possible. All factors are included in the SPD protocol and are taken account by those who are required to provide the State Pathologist's Department with such information.
4.6 The practice of police detectives attending the scene and having discussions with CID and a Child Protection Team should continue, to help gather as much information as possible.	Police from the CARE Unit will continue with this practice.
4.7 A protocol will be developed to include A&E, police, coroners, forensic and paediatric pathologists, child care and child protection agencies, for handling infant or young children deaths on or following arrival at a Hospital Accident and Emergency Department.	A set of agreed procedures have already been developed and are being taken forward as indicated in 4.3.

Recommendations	Action Taken
4.8 Joint autopsies should take place between forensic and paediatric pathologists.	Formal arrangements are in place and forensic and paediatric pathologists now jointly perform autopsies involving infants and young children. This arrangement ensures that appropriate expertise is available to cover all aspects of the case.
4.9 Police photography and Scenes of Crime Officers (SOCO) attendance at infant autopsies should be standard practice.	Photographers and SOCO will attend autopsies in all cases involving infants and children.
4.10 A single autopsy report should be produced and signed by both pathologists. The report should include a summary of the circumstances and the findings of the autopsy as well as an opinion about the causation of any injuries.	Pathologists, working jointly, now report their detailed findings of the case to the coroner in one report, signed by both.
4.11 There should be an acceptable glossary of causes of death agreed between various agencies to determine the meaning and implications between SUDI, unexplained SUDI and unascertained deaths.	Forensic pathologists in SPD accept that the terms SUDI and SIDS do not always adequately describe the cause of death. In most cases the use of the term 'unascertained' is thought more appropriate. This recommendation raises issues outside the remit of SPD, and the State Pathologist is engaging with other specialists to discuss how definitions can be further refined.
4.12 Case conferences should be held on each SUDI death and a study undertaken into other centres where joint autopsies take place as standard practice.	The State Pathologist now audits all infant and child cases before final pathology reports are submitted to the coroner. State Pathologists will attend case conferences with the police, DPP and coroners as and when required. State Pathologists will also provide expert opinion and advice to coroners when holding inquests and when conducting Child Death Reviews, in conjunction with Child Protection Agencies.

5. CRAIGAVON AND BANBRIDGE COMMUNITY HEALTH AND SOCIAL SERVICES TRUST CASE REVIEW RECOMMENDATIONS AND IMPLEMENTATION

The Lewis Review contains the recommendations from the above Case Management Review. Several of the Case Management Review recommendations related to the State Pathologist's Department. The NIO agreed to implement these recommendations in conjunction with those of Milroy and Risdon. A summary of progress in implementing each recommendation is outlined below.

Recommendations	Action Taken
4.36 The current process in relation to quality assuring forensic x-rays should be reviewed as a matter of urgency and should not continue in its present unsatisfactory form.	A formal arrangement is now in place whereby full skeletal x-rays and surveys are made of all infants and young children before the autopsy takes place. X-rays are reported on by paediatric radiologists.
4.39 An independent expert should be asked to analyse the autopsy findings. This expert should be asked to comment specifically on the likelihood of non-accidental injury as the cause of death in this case, based on the analysis of the multiple fractures, subaponeurotic haemorrhages, subpleural haemorrhages and thymic haemorrhages.	Professors' Milroy and Risdon indicated the need for a further review of the case to be carried out by an independent paediatric pathologist. Dr Jean Keeling, Consultant Paediatric Pathologist, Royal Hospital for Sick Children, Edinburgh, subsequently reviewed the case and reported that she had established the cause of death. Dr Keeling also found that David had been subject to serious assault on more than one occasion. Her report is part of the ongoing PSNI and DPP investigations.
4.40 Post mortem skeletal surveys should be read and reported on by a paediatric radiologist prior to the body being released for burial.	Recommendation implemented as in 4.3.6 above.

Recommendations	Action Taken
4.41 Only a qualified paediatric pathologist should conduct an autopsy in cases of unexplained neonatal, infant and childhood deaths.	Formal arrangements are in place to enable forensic and paediatric pathologist's to jointly perform autopsies on infants and young children. This new arrangement ensures that appropriate expertise is available to cover all aspects of the case. The revised pathology system allows for both pathologists to report their findings to the coroner using a single, joint report.

6. CONCLUSIONS

Important lessons have been learnt by the departments and agencies involved in the tragic case of David and Samuel Briggs about the need to protect and respect all those who come under our care, whether in life or in death.

The NIO accepted the recommendations of the Milroy and Risdon Report and the Craigavon and Banbridge Community Health and Social Services Trust, Case Management Review and has fully implemented those relating to the SPD.

As a direct consequence of this tragic case, the State Pathologist's Department has put in place new and strengthened procedures for engaging the expertise of other specialists when dealing with complex cases involving infants and young children. In addition the State Pathologist has worked with others to establish arrangements to ensure effective and timely communication between those involved in the autopsy process such as the police, A&E Departments, paediatricians, radiologists, coroners and child protection agencies.

The SPD protocol, together with the Northern Ireland SUDI Working Group Procedures, provide a framework to ensure that all of those directly involved in the investigation of the death, including the autopsy, work in an effective partnership to ensure that the process is well managed and regulated.

Many of the necessary changes were effected by SPD soon after the Briggs case came to light. All of the recommendations implemented by the State Pathologist, Professor Crane, have led to significant changes in the way in which paediatric cases are now performed. Change such as the introduction of joint working between forensic and paediatric pathologists, the reviewing and reporting on x-rays by a paediatric radiologist and the auditing of all cases involving infants and young children ensure that the highest quality standards are now maintained.

Another important change has been the centralisation of autopsies. All autopsies on infants and young children are now performed at the mortuary in the Royal Victoria Hospital, where there are fully equipped, modern facilities available and where specialist support is on hand, when required. A number of the changes go further than what was required by the Reviews' recommendations. For example, the Case Management Review's recommendation 4.41 calls for a paediatric pathologist to perform all paediatric cases. We believe this would not meet future requirements, and have therefore introduced a system which brings together the skills and expertise of forensic **and** paediatric pathologists, to ensure that all aspects of the investigation are covered. This helps to safeguard the quality of the autopsy process and to minimise the risk of error.

This report, which draws to a close the Milroy and Risdon Review, does not signal an end to further development. The NIO is committed to reviewing and continually improving the standard of forensic pathology services to meet the future needs of the people in Northern Ireland.

MILROY AND RISDON REPORT

SECTION 4 – RECOMMENDATIONS FOR FUTURE PRACTICE

4.1 The investigation of sudden unexpected deaths in infancy is a complex problem. Attitudes to these deaths have changed considerably in the last two decades for a variety of reasons. There has been wide recognition of important risk factors surrounding these deaths, such as maternal smoking, over-clothing and, in particular, the prone sleeping position. With better public recognition of these various factors the incidence of such deaths has decreased markedly. The CESDI Survey into SUDI conducted between 1993 and 1996, published by the Stationary Office in 2000, is the first large-scale controlled study since the "Back to Sleep" Campaign that started the rapid decline in the frequency of these deaths. This study highlighted important differences with the past, in particular, showing a diminution in the previous seasonality of cot deaths and a much closer correlation with low socio-economic status. As the incidence of these deaths has decreased, a larger proportion of those that do occur have atypical features, especially in the circumstances that surround the deaths. In a proportion there are indications that deaths may have been due, at least partly, to a lack of care, or even induced deliberately. The older idea of Sudden Infant Death Syndrome (SIDS) as being due to some undiscovered but natural process, with no implication of parental blame, has therefore undergone some modification.

4.2 It is now common practice to use SIDS as a certifiable cause of death only where there is absolutely nothing to arouse suspicion in the clinical circumstances, and where a thorough post-mortem discloses no evidence of either an unnatural death or a recognised natural cause of death. At the other end of the spectrum are those cases in which a traumatic and often inflicted cause of death is apparent from the post-mortem examination. Between these two extremes are a number of other categories; firstly there are cases where the post-mortem does demonstrate an acceptable cause of death, such as bronchopneumonia or other infection, the so-called "explained" SUDI. Secondly, there are also cases in which the post-mortem examination demonstrates clear evidence of previous inflicted injury, such as healing rib fractures, but in which there is no concrete evidence that inflicted injury can be related to the immediate cause of death. Thirdly, in recognition of the fact that babies can be killed, for example by smothering or other airway obstruction, without leaving any signs at post-mortem, a category of "unascertained" is often used where there may be strong circumstantial suspicion that such an event may have occurred, but there is no concrete evidence at post-mortem proving this beyond reasonable doubt. In some of these, the presence of extensive intra-alveolar haemorrhage, or the demonstration of numerous haemosiderin-laden intra-alveolar macrophages as indicators of previous haemorrhage, can be a valuable pointer to an asphyxial death. Lastly, a further "grey area" category lies with history, but the post-mortem, after a thorough and meticulous examination, fails to demonstrate any positive findings.

4.3 The post-mortem examination in SUDI is, therefore, ideally conducted according to a protocol that includes a radiological survey to exclude bony injury, a very careful examination to exclude signs of trauma, a detailed examination of all organs including microscopic examination, not only to exclude evidence of trauma but also to seek evidence of natural disease. Toxicological investigation to exclude poisoning should be considered and there should be microbiological investigations to exclude bacterial and viral infections. The possibility of rare metabolic causes of death, principally fatty acid oxidation defects, should also be considered. A skin sample of fibroblast culture should be taken, and fat stains should be applied to frozen sections of liver, kidney, myocardial and skeletal muscle as a screening procedure. Blood and bite spots for mass spectrometry to identify abnormal acyl carnitine profiles are a more specific investigation, but this is not universally available.

4.4 We recommend that a written protocol for SUDI autopsies should be prepared. A radiological skeletal survey is mandatory, and in our view, would involve more extensive examination (skull, AP and lateral, chest, spine abdomen, and all four limbs including the hands and feet), rather than the single babyogram performed in the David Briggs case. This survey could form part of the protocol in the Accident and Emergency Department but, in any event, there should be a formal arrangement for the radiographs to be seen and reported by a paediatric radiologist and, where circumstances allow, this should be done before the autopsy proper commences.

- The ribs, neck, muscles and larynx should be examined by agreed forensic autopsy techniques and, where there are significant external injuries, particularly bruises, the question of flaying the skin should be considered.

- Where fractures are identified radiologically or at autopsy, the affected bones, or the rib cage in the case of rib fractures, should be removed and re-x-rayed using a high resolution technique. The fractured area should then be prepared for histological examination.

- The protocol should include advice about where full neuropathological examination of the brain and/or specialist pathological examination of the eyes are appropriate, and the specialists willing to undertake these examinations should be identified.

- The protocol should include standard tissue blocks for histopathology, and Perls' staining for haemosiderin of all lung sections should be routine.

- We recognise from information given to us during our interviews, that some of these recommendations have already been established.

4.5 There should also be a very thorough investigation of the circumstances surrounding the death. This should include information about epidemiological factors such as the medical history, including details of the pregnancy, delivery, and subsequent development of the child concerned. It should include details of the child's feeding, clinic and G.P attendance, illnesses, social circumstances and housing, and details of parental ages, occupations, smoking and drug usage. Previous hospital attendance and/or admissions, and the exact time of day when the

death was discovered should be recorded. A family history and details of other siblings, particularly when there have been previous deaths in the family should be noted.

The child's sleeping environment, both at the time of death and previously should be thoroughly documented. The type of bed or cot, night attire, bed clothing and heating arrangements should be identified, and the exact circumstances at the time of death should be investigated.

4.6 We recommend that there should be a written protocol, which covers all these aspects of the investigation. From our interviews it is clear that a number of agencies are involved in cases of SUDI in Northern Ireland and that there is no equivalent of the English Coroner's Officer.

Police Officer 'X' informed us that in SUDI cases it is current practice that two detectives attend the scene and that there is discussion with CID and a Child Protection Team. Consultant 'Y' told us that the initial information about SUDI cases is now obtained by trained police officers in the CARE Unit. We welcome these developments, recognising that interviews with parents at a time of acute bereavement is a very delicate matter, since on the one hand one may be dealing with a devastating catastrophe for the parents, and on the other hand there may be issues of neglect or even deliberate harm to the dead baby.

4.7 Most SUDI cases will present through an Accident and Emergency Department in a hospital. There needs to be discussion between the various agencies involved, including Coroners, Police, Forensic and Paediatric Pathologists. Child Care and Protection Agencies, Community and Hospital Paediatricians, Accident and Emergency specialists and other relevant professionals, about formulating an agreed protocol to ensure best practice for Northern Ireland.

The issues to be resolved include where best (Accident and Emergency Department or mortuary) that radiology and the taking of specimens to exclude infective and metabolic causes of death should be undertaken. In cases where death from non-accidental injury is suspected, there are also factors relating to the collection of evidence, for example, diagnostic imaging of the head, taking of samples for blood clotting studies, and the description and photographing of retinal haemorrhages.

4.8 We note with approval that a "double-doctoring" approach has been adopted in the past 2 years, with the bodies of babies suffering SUDI being taken to Belfast for the examination. We recognise the constraints imposed by the culture of rapid burial in Northern Ireland, with regard to getting skeletal radiological surveys seen and, for example, a neuropathological examination of the brain. The growing practice in England of rapid fixation of the brain and returning the organ to the body after blocks have been taken is only possible where the funeral can be delayed for at least a week.

4.9 Consultant ‘Y’ stated in his evidence that a photographer is present for the majority of SUDI cases, and where the circumstances are even vaguely suspicious a photographer and a SOCO are always present. Police Officers involved in these deaths now often attend the autopsy room rather than waiting outside. We believe that these practices should be encouraged and, ideally, should be standard.

4.10 We believe that in joint autopsies between a forensic and a paediatric pathologist, a single report should be produced and should be signed by both the participants. This is a matter that will need to be agreed with the Coroners. The report should include a summary of the circumstances and the findings at autopsy, and where the death is not due to natural causes, the summary should include an opinion about the causation of any injuries.

4.11 In those cases of SUDI where there is no traumatic or acceptable natural cause of death, there should be an accepted glossary of causes of death, including ‘SIDS’, ‘Unexplained SUDI’ or ‘unascertained’, the meaning and implications of which are agreed between the various agencies involved.

4.12 It would be of advantage to study the practices of other centres where a “double-doctoring” approach to SUDI deaths is well established, such as those in Scotland, to develop best practice for the future in Northern Ireland. We also believe that formal case conferences, that should involve all interested professionals, would be an advantage and should be possible with the relatively small number of cases in Northern Ireland.

Appendix 2

NIO WORKING GROUP MEMBERSHIP

Brian Grzymek (Chairman)	Northern Ireland Office
Professor Jack Crane	State Pathologist's Department
Dr Ian Carson	Dept of Health & Social Services & Public Safety
Jane Graham	Eastern Health & Social Services Council
Brian Ingram	Northern Ireland Office

Delia van der Lenden, Southern Health & Social Services Council, made a valuable contribution to the earlier work of the Group.

Appendix 3

STATE PATHOLOGIST'S DEPARTMENT

PROTOCOL FOR THE CONDUCT OF INFANT AND CHILDREN AUTOPSIES IN CORONERS' CASES

Introduction

1. The State Pathologist's Department (SPD) provides an independent forensic pathology service in Northern Ireland for the conduct of autopsies when directed by coroners in cases of sudden, suspicious and unnatural deaths. During the course of its work the SPD is required to conduct autopsies on infants and young children. This type of autopsy is generally more complex than adult autopsies and requires the application of specific procedures and techniques as well as the support of specialists.

2. In all aspects of investigation, forensic and paediatric pathologists will abide by the principles of good medical practice set by the General Medical Council and Code of Practice for Forensic Pathologists set by the Royal College of Pathologist's.

Purpose

3. The following protocol provides instructions to forensic and paediatric pathologists or other specialists who may be involved in coroners autopsies on infants and young children and replaces any previous informal arrangements.

PROTOCOL

- Autopsies to be performed on infants and young children will take place in the Royal Victoria Hospital Mortuary.
- Before an autopsy takes place police/coroners officers will conduct a thorough investigation of the circumstances surrounding the cause of death. Wherever possible, and particularly where it is relevant to the investigation, forensic pathologists will require information about epidemiological factors relating to the infant or child, such as:
  - Medical History, including dates of immunisation
  - Pregnancy details;
  - Delivery;
  - Child's feeding;
  - Clinic and GP attendance;
  - Illnesses;
  - Social circumstances and housing;
  - Details of parental age, occupation, smoking and drug usage;
  - Previous hospital attendance or admissions;
  - Exact time of day when death was discovered;
  - Family history of other siblings and previous family deaths;
  - Child's sleeping environment both at the time of death and previous; and
  - Type of beds/cot, night attire, bedclothes and heating arrangements.
- Depending on the quality of information available, the forensic pathologist will decide whether it is appropriate for the autopsy to be postponed until further information becomes available. The medical history, including any other information considered relevant, will be summarised in the pathology report.
- Police officers involved in the death will be required to attend the autopsy.
- In all cases a photographer and SOCO will be present and, if requested, a forensic pathologist will attend the scene prior to the removal of the body.
- Autopsies will be performed jointly between forensic pathologists and paediatric pathologists in all cases of sudden and unexpected deaths.
- If paediatric pathology support is not available at the time of the autopsy, the State Pathologist will decide whether the autopsy should be postponed until paediatric support is available, or whether forensic pathologists should perform it. If this is not practicable, the opinion of a paediatric pathologist will be sought on the findings of the case as soon as possible.
- Cases involving young children will be individually assessed by the State Pathologist to determine the need for a joint autopsy and/or specialist support. His decision will take into consideration any additional grief and trauma caused to the family from any

unnecessary delay to funeral arrangements. The State Pathologist will record his reason for authorising the autopsy without paediatric support.

- Hospital paediatricians, who have been involved with the care of the child, will be invited to attend the autopsy.
- In all cases a radiological and full skeletal survey will be taken to include skull, chest, spine, abdomen and limbs. X-rays will be reviewed and reported on by a paediatric radiologist in advance of the autopsy. Again, if this is not practicable, a report will be sought on the x-rays as soon after the autopsy as possible.
- Where fractures are identified radiologically or at autopsy, the affected bones or the rib cage will be removed and re-x-rayed using high-resolution techniques.
- Investigation and dissection must be carried out by pathologists and under no circumstances delegated to mortuary technician staff. Techniques employed during dissection, or during any subsequent investigation, should as far as practicable be accepted and well established procedures and defendable within the wider criminal justice system.
- Forensic investigation and autopsy techniques used on infants and young children will be carried out to the agreed protocol, namely, the CESDI Report 2000.
- A full autopsy will be performed to include samples of:
  - Lung for virology and bacteriology.
  - Distal small bowel contents for virology.
  - Liver for fat stain.
  - Urine.
  - Vitreous humour for urea and sodium
- Forensic and paediatric pathologists should examine the neck and larynx, eyes and brain. Tissue blocks will be taken for histopathology examination and where necessary, Perls' staining for haemosiderin
- In joint autopsies a single pathology report will be produced and will be signed by both participants. Where death is not due to natural causes the summary will include a detailed opinion about the causation of any injuries. In particular the report will detail:
  - The information received in advance of the autopsy;
  - The inclusion of information which justifies decisions and actions taken at the examination of the body;
  - Any investigations carried out, either made personally or by submission to a laboratory for report;
  - Conclusions and explanations for those conclusions. Where unusual features are found but are concluded not to be relevant, forensic pathologists are to explain why the finding has been discounted;
  - The reason why one explanation is favoured over other possible explanations; and
  - The reasoning that supports conclusions, detailing all material drawn upon to support that reasoning and any supporting reference.

- The State Pathologist will send a copy of the autopsy report to hospital consultant paediatricians who have been involved with the care of the child.
- If when a second autopsy is requested the State Pathologist will direct qualified pathologists to conduct it.
- Forensic pathologists will attend as necessary, case conferences called by the police, coroners or the Director of Public Prosecutions to discuss pathologist's reports or other issues related to the case.
- The State Pathologist will conduct audits on **all** cases before final reports are submitted to coroners.
- Forensic Pathologists will support requests from coroners to participate in child death reviews, in conjunction with child protection agencies.

ORGANISATIONS INFORMED OF THE STATE PATHOLOGIST'S DEPARTMENT MEMORANDUM OF UNDERSTANDING OF THE PROCEDURES AND TECHNIQUES TO BE USED IN THE CONDUCT OF INFANT AND CHILDREN AUTOPSIES

- Coroners
- Coroners Association
- Police Care Unit, Photography and SOCO
- Hospital Medical Directors
- Hospital consultant paediatricians and radiologists, and those named on the coroner's list
- Deputy Chief Medical Officer (DHSSPS)
- The Director of Public Prosecutions
- Northern Ireland Court Service
- National Society For the Prevention of Cruelty to Children
- Eastern Health & Social Services Board
- Northern Health & Social Services Board
- Southern Health & Social Services Board
- Western Health & Social Services Board
- Eastern Health & Social Services Council
- Northern Health & Social Services Council
- Southern Health & Social Services Council
- Western Health & Social Services Council
- Area Child Protection Committees
- Parents Advice Centre

Organisations will be informed in writing of any change to the Memorandum of Understanding.

Appendix 4

Northern Ireland SUDI Working Group Procedures

Sudden Infant Death – Information for Clinicians

Dear Colleague

With the introduction of the "Back to Sleep" campaign the incidence of "Cot Death" or "Sudden Unexpected Death in Infancy" decreased dramatically. It has fallen by 70% in the UK since 1990. As a result such deaths are now uncommon. There are about 20 in Northern Ireland each year.

To further reduce the incidence detailed and uniform investigations of the deaths must be carried out. A group with representation from paediatricians, A&E consultants, pathologists, DHSSPS, coroners and police was formed to draw up standardised procedures for use throughout the region. It is their recommendations which make up this pack.

1. All SUDI deaths must be reported to the local coroner who will direct an autopsy to be carried out.

2. The police are involved in gathering information and the officers will be from the Care Unit closest to the hospital. It should be explained to the family that the police are acting on behalf of the coroner to gather information relating to the death and as part of this process will be required to interview the family. It may be prudent to explain that the Care Unit are involved in all unexpected childhood deaths, and do not just deal with child abuse and rape.

2. Included in this pack are information booklets for the parents relating to the paediatric autopsy and the coroner's autopsy. These will provide a basis for your discussions with the family and should help their understanding of procedures. The possibility of organ retention should be discussed as in most SUDI cases the brain will require retention for detailed examination by a neuropathologist. Shortly after the post mortem the family may be asked by an officer acting on behalf of the coroner to sign the form regarding organ retention. The retained organ may be returned to the family on completion of the case if agreed by the coroner.

4. The child's GP, Health Visitor and Social Worker may be able to provide valuable information regarding the child and the family. Much of this will not be in their records and so a report is preferable to submission of the notes only. You as the local paediatrician are in the best position to contact these professionals for such information. Letters for this purpose are included in this pack. Please pass the information received on to the paediatric pathologist involved.

5. The hospital notes of the child along with the notes from the obstetric unit and SCBU can yield very useful information and so must be available to the pathologists before the final report is issued. Enclosed in this pack are letters requesting the notes to be sent to the obstetrician and if required the paediatrician and neonatologist.

6. Within 24-48 hours of the autopsy the pathologists will provide a provisional summary of the gross findings and investigations undertaken to the coroner and the clinician. The full report will follow but may take several months to complete as it is very detailed and information is required from multiple sources. The family may obtain information regarding the progress of the case, release of the retained organ or a copy of the final report by contacting the coroner's office. Please do not suggest that the family contact the pathologist directly.

SUDDEN UNEXPECTED DEATH IN INFANCY (PROTOCOL)

This protocol should be completed by the consultant dealing with the case and must be sent with the body to the Mortuary

Background notes – please read these carefully before completing the attached pages.

This protocol has been devised to optimise the investigation of SUDI when such a baby is brought to the A&E department or mortuary. These deaths come under the authority of the coroner and an autopsy (PM) will therefore be required. This will be carried out in RGHT Belfast jointly by a paediatric and a forensic pathologist. Due to the extent of the information gathering, the centralisation of autopsies and the specialist nature of the investigations required there is likely to be a period of at least 24-48 hours before the autopsy is undertaken particularly if the death occurs at a weekend or bank holiday. It is important that the family are aware of this before making funeral arrangements.

When you complete the form, please write legibly and in BLACK so that the form can be photocopied if necessary.

Documentation

Please clearly document all attempts at resuscitation that you have made (eg IV lines, intraosseous line, ET tubes etc.) and mark the positions of the lines and attempted access points on the diagram of the baby so that the pathologist has clear explanations for marks seen on the body. The lines can be removed once the child has been certified dead by the consultant or senior registrar in charge of the resuscitation and the baby can then be given back to the parents.

Skeletal Survey

All SUDI require **a full skeletal survey** to identify any bony injury, old or recent. Please note that a babygram ie a single x-ray of the entire baby is completely inadequate.

Ensure that the x-rays are sent to the RGHT mortuary with the baby for reporting by a paediatric radiologist. It is extremely important that a full skeletal survey is carried out and reported before the autopsy commences even if there is no clinical suspicion of N.A.I.

The skeletal survey can be performed by Radiology Department, RBHSC if not available in your hospital.

Specimens

The bottles and forms you require are in this pack. The completed forms and specimens should be placed together in a bag and transported **immediately** to the Accident & Emergency Department, RBHSC from where they will be forward to other laboratories

Investigation of S.U.D.I.
Protocol for Clinicians

1. **Patient Details:**

   Name of Child: _____

   Name at Birth (if different): _____

   Age / DOB: _____

   Hospital No: _____

   Persons accompanying child: _____

   Mother's Name: _____

   Father's Name: _____

   Date of Admission: _____

   Ward / Department: _____

   Hospital: _____

2. **History of events as given by carer (Name and relationship):**

   _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

3. Further details of final episode from carer

Date and time baby found: _____

Who found baby? _____

Any resuscitation attempted?_____

Who last saw baby alive? _____

When last seen alive? _____

Which room was baby in? own bedroom / parent's bedroom / living room /

other – specify _____

Where was baby lying? – cot / parent's bed / sofa /

other – specify _____

Position of baby – on back / on face / on side _____

If co-sleeping with whom? _____

What was baby wearing? _____

What bed covers were over baby? _____

When last fed? _____

Condition of baby when found – still alive / still warm / cold / blue / stiff

Was there vomit / mucus / blood on baby? _____

Parental /carers alcohol intake in previous 12 hours_____

4. Obstetric & Neonatal History

Pregnancy - uneventful/complications_____

Hospital of delivery_____

Birthweight :_____

Gestational Age : _____

Delivery – NVD / Forceps / Elective CS / Emergency CS

Why other than NVD? : _____

Admitted to SCBU – No / Yes - Specify

Management in SCBU / Continuing morbidity? (e.g. lungs, CVS, CNS, Genetic, other)

_____

Feeding - breast fed / bottle fed

Feeding - good / poor

5. Previous Medical History

Any illnesses? No / Yes _____

Seen by HV / GP / Hospital? No / Yes _____

Any symptoms in last 72 hours? No / Yes - specify :_____

Feeding in last 72 hours – normal / abnormal – specify : _____

Vaccinations : up to date / not up to date

6. Social Background

Type of Housing – terraced / semi-detached / detached / flat

Housing Executive / Privately Owned / Other

Heating in home – type – gas fire / coal fire / central heating / electric fire / none

- Level – cold / adequate / well heated / over heated

7. Family History

Maternal illnesses + medication: _____

_____

Paternal illnesses + medication _____

_____

Parental Habits

- smoking: _____
- alcohol: _____
- recreational drugs:_____

Sibling 1 Name:
DOB:
Father's Name:
Living at home – yes / no
Health:

Sibling 2 Name
DOB:
Father's Name:
Living at home – yes / no
Health:

Sibling 3 Name:
DOB:
Father's Name:
Living at Home – yes / no
Health:

Sibling 4 Name:
DOB:
Father's Name:
Living at home – yes / no
Health:

Other people living in house: No / Yes

- Name and relationship _____

_____

Any previous SUDI in family? No / Yes - specify

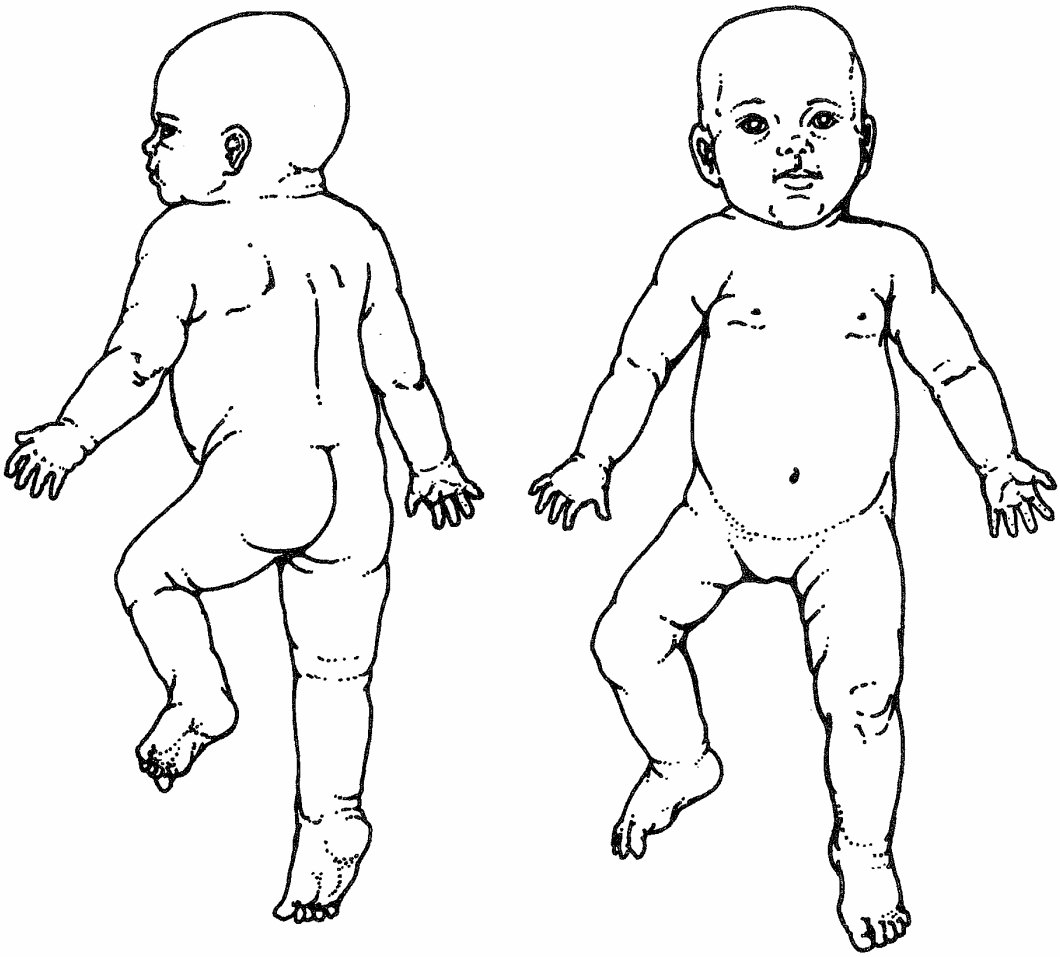
Any ALTE's in family? No / Yes - specify

Social Services involvement? No / Yes

On At Risk Register? No / Yes

8. Physical Examination Checklist (with attached diagram)

- Weight : _____
- Head Circumference : _____
- Nutritional state:_____
- Cleanliness: _____
- Bruises, lacerations or signs of injury – measure and document on attached diagram
- Visible bleeding / discharge:_____
- Sites of medical intervention – document on attached diagram
- ENT Examination: _____
- Pre-intubation mouth examination: _____
- Eye examination :



9. The following investigations should be attempted :

- Blood sampling

  Try to obtain blood by intracardiac aspiration

  Insert a number 1 (green needle) to a depth of 3- 4 cm just via the left 4^{th} – 5^{th} intercostal space, aspirating as you withdraw; no more than 2 attempts should be made. If unsuccessful the pathologist may obtain blood at PM]. Divide sample for bacteriological culture, FBP and U&E. Place 4 blood spots on the Guthrie card for metabolic screening (Tandem MS).

- Urine sampling

  Attempt to obtain a urine sample by catheterising the bladder.

  If unsuccessful, attempt suprapubic aspiration, but be aware that in many SUDI babies the bladder is already empty and hence even at PM urine will not be obtainable. If urine is obtained put part of the specimen into the sterile container for bacteriological culture and send the remainder for analysis of urinary aminoacids.

- Skin biopsy

  Skin biopsy is taken for cell culture. The cultured fibroblasts can be analysed for chromosomal abnormalities or inborn errors of metabolism and can be frozen for storage and later examination if required.

The Genetics lab is open 09.00 – 17.00 hrs Mon – Fri only. If you cannot ensure that the specimen will be received and cultured by the lab during these hours, do **not** take a biopsy as it can then be taken at autopsy. If a skin biopsy is to be taken inform the lab and arrange immediate transport to the Department of Medical Genetics, BCHT, preferably by taxi. The telephone number of the lab is 02890329241 Extension 2449 or 2597

To obtain a sample pass a fine sterile needle through a small fold of skin on the inner aspect of the upper thigh tenting up the skin that is then cut off with a sterile scalpel. Only a tiny amount of skin is required, ie 5 x 5 mm. Aseptic technique is very important in this procedure, but please note that all antiseptic should have evaporated from the area before biopsy is taken. Please explain to parents in simple terms why the procedure is being done. The biopsy site should then be covered with a small plaster. The sample should be placed in normal saline immediately and transported as soon as possible to the appropriate laboratory (BCH Genetics lab). Do **not** deep freeze - the specimen can be stored at +4 C

If you are at all worried about an inborn error of metabolism (IEM), remember that the history is very helpful. Most children with an IEM who die suddenly have been ill beforehand. Either there is a history of failure to thrive, developmental delay or an acute illness (often gastro-enteritis) with poor feeding and increasing encephalopathy. It is not common for a child with a metabolic disorder to be *perfectly* well and then be found dead.

If there is a high clinicial suspicion of IEM the investigations should be:

Collect samples : Blood - 4 spots on Guthrie card

2 ml heparinized blood, separate plasma and store deep-frozen

5 – 10 ml whole blood in EDTA bottle, mix carefully and store frozen

Urine - store in plastic container, deep frozen

Skin biopsy

CSF - if collected for any reason, store 1 ml deep frozen

Name of Child: Hospital No:

10. Investigations Checklist: (PLEASE ENSURE THAT EACH FORM / SPECIMEN IS CLEARLY LABELLED)

Blood – to be obtained via intracardiac aspiration Done

- Bacteriological culture ☐
- Biochemistry (U&E) ☐
- FBC ☐
- Tandem Metabolic Screen
  (Guthrie spots on card to be sent to Geraldine Roberts) ☐
- PCR for meningococcus ☐

Toxicology - will be done at post mortem

Urine – obtain via catheterisation (or if unsuccessful via suprapubic aspiration)

- Bacteriological culture ☐
- Biochemistry for urinary amino acids ☐

Skeletal survey NOT BABYGRAM
(the x-rays should accompany the child to the mortuary) ☐

11. For Family

1. Give Paediatrician Coroners Autopsy information booklet ☐
2. Discuss Autopsy and Coroner's procedures ☐
3. Explain involvement of police Care Unit ☐
4. Offer photography ☐
5. Offer to take handprint and lock of hair ☐

12. Checklist of urgent contacts

- Coroner informed of death ☐
- Request obstetric notes and child's hospital notes ☐
- Request GPs report (name) ☐
- Request Health Visitors report (name) ☐
- Request Social Workers report (name) ☐
- Notify Child Health system to cancel further appointments ☐
- Inform Child Protection paediatrician for the Area if necessary ☐

Please ensure that each form/specimen is clearly labelled

Signature: _____ Date / Time: _____

Name of Examining Doctor (**PRINT CLEARLY**) _____