Laboratory investigations following unexpected childhood deaths

Samples to be taken in the emergency department

The list below includes the standard recommendations for SUDI-type deaths. It also provides a basic template for investigations in other deaths of children of all ages. The final decision relating to which tests are relevant should be based upon clinical common sense and be led by the rapid response Lead Clinician. Other investigations may be indicated by the clinical presentation.

After death, the body is under the jurisdiction of the Coroner and investigations may only be carried out with the approval of the coroner. Approval for any routine investigations should therefore be agreed with the coroner in advance. Removal of tissues from a deceased person is a licensable activity under the Human Tissue Act 2004 (HT Act) and must take place on licensed premises. It is possible to obtain extensions to licences, this should be done prior to any routine collection of specimens. Further guidance is available on the HTA website (www.hta.gov.uk/guidance/licensing_guidance.cfm)

Blood samples should be taken from a venous or arterial site (e,g. femoral vein) – Cardiac puncture should only be attempted by an experienced person – a single attempt, using the subcostal approach. Multiple attempts may cause damage to the intrathoracic structures and make post mortem findings difficult to interpret. Record the site from which all samples are taken. Ensure all samples taken are properly documented and labelled in order to maintain an unbroken 'chain of evidence'. Any samples that are given directly to the police or coroner's officer should be signed for.

Sample	Handling	Test	Purpose
Blood (Serum) 1ml	Clinical Chemistry Spin, store serum at -20°C	Toxicology	Identification of poisoning (intentional and non-intentional) It is particularly important that this sample is taken and labelled very clearly, and attention is given to the continuity of evidence
Blood Cultures – Aerobic & Anaerobic 1 ml	Microbiology If insufficient blood, aerobic only	Culture & Sensitivity	Identification of infection – essential to collect as soon as possible as delays may make interpretation difficult
Blood from syringe onto Guthrie card	Clinical Chemistry fill in card – **do not put into plastic bag**	Inherited metabolic diseases	Specific investigations for metabolic disorders. Also essential to retrieve initial Guthrie card as provides an ante-mortem sample for analysis
CSF (a few drops)	Microbiology - **CSF samples should not be taken if any suspicion of cranial trauma**	Microscopy, Culture & Sensitivity	Identification of infection – essential to collect as soon as possible as delays may make interpretation difficult
Nasopharyngeal aspirate	Virology	Viral cultures, immunofluoresence and DNA amplification techniques	Identification of viral infections
Nasopharyngeal aspirate or throat swab	Microbiology	Culture & Sensitivity	Identification of infection
Swabs from any identifiable lesions	Microbiology	Culture & Sensitivity	Identification of infection
Urine (if available)	Clinical Chemistry If wet nappy available, store nappy at -20°C	Toxicology, inherited metabolic diseases	Identification of poisons and Organic acids profile indicating metabolic disorders
Skin biopsy	Clinical Chemistry Take from upper, inner arm. Send to laboratory in transport medium	Fibroblast culture	Provides DNA culture for identification of specific metabolic and genetic disorders Important to obtain early as fibroblast cultures taken after 48 hours after death will commonly not grow.

Department for Children, Schools and Families
Sanctuary Buildings
Great Smith Street
London
SW1P 3BT