

Suggested Autopsy Tests

Laboratory Tests

- C-reactive protein
- Liver enzymes
- Serum [5-HT levels](#)
- Hg and Al in blood and brain tissue
- Formaldehyde and Formalin (Not certain this is supported in the literature)
- Cytokine panel: Interleukin-1 beta (IL-1 β), Interleukin-2 (IL-2), Interleukin-6 (IL-6) Interleukin-8 (IL-8)
- Tumor necrosis factor alpha (TNF- α)
- Fibrinogen
- Vitamin C assay (Not certain necessary)
- Titer levels on all the vaccines (Not certain necessary)

Pathology

There needs to be a thorough general autopsy, with gross and microscopic examination of all major organs including:

- lungs
- heart*
- liver
- spleen
- kidneys
- adrenals
- thyroid
- thymus
- esophagus
- stomach
- small bowel
- colon

For the central nervous system, it is strongly recommend that the brain be fixed in formalin and cut after at least a week's fixation, as cutting it fresh (as many medical examiners do) means one can't cut the slices thin enough to see all the necessary structures. The critical structures in

SIDS cases include the medulla, of which all levels should be put through for histological examination, and both hippocampi, ideally sampled in coronal sections at the level of the lateral geniculate nuclei.

Other standard samples need to include:

- Cerebral cortex and white matter
- Samples of basal ganglia
- Thalamus
- Hypothalamus
- Midbrain
- Pons
- Medulla
- Cerebellum
- Hippocampus

Spinal cord is often not taken by medical examiners, but ideally should be at least removed and examined grossly, and sampled for histology if any abnormalities are seen.

For cases that might be vaccine-induced SIDS, it is important to see if there are structural abnormalities of the medulla which would help to confirm that there are likely **abnormalities of the 5HT networks that subservise respiratory activity**. This include **absence or hypoplasia of the ventral arcuate nuclei and any dysplasia of the inferior olivary nuclei**. For the hippocampi one is looking for **abnormal development of the dentate gyri**, including any **duplications or areas of granule cell dispersion**.

In children over a year old, the complete medulla is less important, and one may get by with only one or two levels. The **hippocampi** are very important, looking for the abnormalities described. One also wants good samples of cortex to look for any signs of epileptogenic lesions.

Ottaviani, G., Lavezzi, A. M., & Maturri, L. (2005). *Sudden infant death syndrome (SIDS) shortly after hexavalent vaccination: another pathology in suspected SIDS? Virchows Archiv, 448(1), 100–104.* doi:10.1007/s00428-005-0072-6

“It is crucial to identify possible morphological substrates responsible lethal reflexogenic sudden death, that is, arcuate nucleus hypoplasia in the brainstem and persistent fetal dispersion and resorptive degeneration in the cardiac conduction system. All cases of sudden unexpected death occurring in infancy and perinatal age, especially soon after a vaccination, should always undergo an investigated necropsy study, according to our guidelines.”

[Crib Death - Sudden Infant Death Syndrome \(SIDS\)](#) pp 59-97 | [Cite as](#)
Techniques and Criteria in Anatomic and Forensic Pathology of Sudden Infant and Perinatal Unexplained Death

Sudden infant death syndrome (SIDS) and sudden unexplained perinatal death are tragic events, still representing the most common form of death within the first year of life despite the progress in the field of maternal and infant health care. They remain unexplained after the usual gross and microscopic examination, and are referable to similar underlying cardiac and neurophysiological mechanisms, as frequent alterations of the autonomic nervous system, both central and peripheral, have been reported. Malignant arrhythmias are known to be a substrate of unexpected infant and perinatal death, especially following accessory atrio-ventricular pathways. Therefore, an accurate examination of the cardiac conduction system, again under the control of the nervous system, is also mandatory. These structural alterations are mainly of a congenital nature and therefore represent a common morphological substrate in both perinatal and infant sudden death. In view of the post mortem pathological findings, the need to perform an in-depth study of the cardiac conduction and autonomic nervous systems, following the guidelines reported below, is self-evident. Because this examination is not routinely performed, detailed indications are given in this protocol of the sampling, processing, cutting and staining procedures.

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