



## Pathology Biology Section – 2007

### **G14 Evaluation of Nasopharyngeal Viral Swabs in Infants Dying of Natural Causes**

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After attending this presentation, attendees will be more informed on viral nasopharyngeal swabs in the infant population regarding frequency of use, results, and their impact on cause of death.

This presentation will impact the forensic community and/or humanity by elucidating the impact of viral postmortem testing in infants dying of natural causes.

This presentation will acquaint conference attendees with viral nasopharyngeal culture swabs use in an infant population less than one- year-old, dying of natural causes as well as the use of positive results in determining the cause of death. Information on the viral nasopharyngeal swab such as appropriate collection and submission techniques, sample rejection criteria utilized at the laboratory, and laboratory technology employed in determining results and its limitations of the technology is also provided.

The Office of the Chief Medical Examiner in Richmond, Virginia has used nasopharyngeal swabs to obtain viral culture samples since 2003. Viral nasopharyngeal culture swabs are performed in the vast majority of infant autopsies at this institution. They are routinely submitted along with blood and cerebrospinal fluid cultures as part of the postmortem evaluation of all infants in whom Sudden Infant Death Syndrome is a consideration.

Autopsy charts on all infants under the age on one year dying of natural causes were reviewed. Data was tabulated on the total number of autopsies, total number of viral nasopharyngeal cultures obtained, submitted resulted and rejected or not performed and reasons for rejection, total number of positive cultures including virus type detected and total number of negative results (no virus identified).

The viral nasopharyngeal swab kit contents are discussed. Appropriate procedures for obtaining optimal results in regards to sampling, storage of the specimen and proper submission are provided. Examples of rejection criteria are included as are factors that adversely affect culture results.

A discussion of the laboratory technology employed to obtain viral nasopharyngeal culture results is included. The limitations of the technology are listed. A list of types of viruses detected is included. Other technologies for obtaining viral culture results are mentioned as well as the limitations of these methods and factors affecting culture results.

Postmortem viral nasopharyngeal swab culture results are compared with antemortem results on infants of a similar age group. Factors, which may contribute to differences in the results of the two groups, are postulated.

The influence of positive viral nasopharyngeal swab culture results on the cause of death is discussed including correlation of the viral results with other autopsy findings such as microscopy. Negative culture results and factors, which may contribute to negative results, are also mentioned. Brief case summaries on several autopsies with positive viral nasopharyngeal culture results are presented as examples of correlation of culture results with other autopsy findings to determine the causes of death.

#### **Nasopharyngeal Swabs, Infants, Autopsy**