



## Odontology Section – 2005

### F3 Use of FTA® Cards to Store Salivary DNA for Identification of Missing Children

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After attending this presentation, attendees will understand the appropriate use of FTA® cards to store salivary DNA for children. The goal of this presentation is to present to the forensic and dental communities the ease and reliability of using FTA® cards to store DNA for the identification of children.

This presentation will impact the forensic community and/or humanity by educating forensic and dental communities on the effectiveness of using FTA to store salivary DNA for children.

Patented FTA® Cards provide a safe, secure and reliable method for the collection, transportation and storage of DNA evidence. FTA® Cards is a chemical treatment, which allows for the rapid isolation of pure DNA. When samples are applied to FTA-treated paper, cell lysis occurs and high molecular weight DNA is immobilized within the matrix.

Amplification and analysis can be performed directly from the treated paper without the need for extensive extraction and quantification procedures. Genomic DNA stored on FTA® Cards at RT for over 11 years exhibits no loss in PCR efficiency. The cards are designed to kill pathogens and prevent future colonization by bacteria or fungi so the card protects DNA from microbial and environmental degradation. FTA® cards can be used to store blood samples or salivary samples. Salivary DNA is obtained through the shedding of epithelial cells (salivary glands and ducts) and white blood cells from the oral mucosa. Using current PCR technology, a profile can be determined from these cells. Dentists and parents can employ the use of buccal swabs to obtain salivary DNA. This swab is then applied to the FTA® Card and the card is allowed to dry for approximately forty-five minutes. No special storage conditions are required - enabling parents to store the cards with other child-identifiers, such as fingerprints, videotapes, and photographs.

Given the overwhelming statistics of missing children, parents are encouraged to store valuable identification information for their children. By obtaining salivary DNA on FTA® Cards, a known reference sample is stored for possible future use. Community programs are in place to obtain other information. One such product being employed that is gaining popularity in the dental community is Toothprints®. Toothprints® is an arch-shaped thermoplastic wafer that is softened in hot water. A child is instructed to bite the wafer for 50 seconds. The wafer is then placed into a plastic bag and stored at room temperature. This product is being marketed as a bite mark registration and possible DNA source. The product, however, contains no substrate for retention or preservation of the salivary DNA. Although PCR analysis is effective on as few as 50 cells, it is uncertain how long any cells will be available with this technique as no testing has been performed.

If one has the opportunity to proactively store DNA material that can be useful in the identification of missing children, a reliable, proven method such as FTA® Cards should be used.

**Salivary, DNA, FTA® Cards**