

FROM BLOOD TO BUCCAL: REINVENTING THE CALIFORNIA STATE DATA BANK

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Due to the State of California's recent financial difficulties, as well as the pending DNA initiative due to appear on the November ballot that will mandate the collection of DNA samples from all felons as well as arrestees of certain violent crimes, the California Department of Justice's Convicted Offender DNA Data Bank has been forced to undertake the transition from collecting blood samples to buccal submissions. Through NIJ grants for equipment and a long-term collaborative effort between CAL-DOJ, the Bode Technology Group, and BSD Technologies, a system has been developed to produce DNA profiles from the Bode Buccal DNA Collector in an extremely high-throughput system. The process includes transforming the filter paper from the collector into a 2X4" cassette slide through the use of a machine invented solely for this purpose. These cassette slides will then fit into the storage magazines of the BSD-1000, a high-efficiency punching and sample tracking system. The BSD-1000 punches samples into 96-well blocks from which the DNA is then extracted, amplified, subjected to capillary electrophoresis, analyzed, and eventually uploaded into CODIS through the use of an expert system. In addition to the aforementioned benefits of throughput and significant financial savings, this transition affords reduced biohazard exposure and ease of collection as ancillary benefits. The system also simplifies the archiving process by minimizing the size of sample required for archiving and allows for easy retrieval of samples to confirm hits.

This presentation will outline the reasons for the transition, the development and implementation of prototype systems as well as modifications applied to existing technologies, and the finished product's successes with high-throughput processing from collection through data analysis via an expert system.