THE BODE RESILIENT EVIDENCE COLLECTION (REC) SWAB: AN IMPROVED DEVICE FOR THE COLLECTION AND PRESERVATION OF DNA EVIDENCE

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In recent years, more and more police agencies and crime laboratories are discovering a backlog of cases awaiting DNA analysis. As many police agencies and crime laboratories are beginning to utilize DNA evidence for the investigation of property crimes, this volume of backlogged cases has the potential to increase substantially.

A common method for DNA evidence collection is the utilization of a cotton swab. The swab is used to collect a sample, packaged appropriately, and subsequently stored in a controlled area. The evidence collected for DNA analysis is a biological material. Biological materials, even when stored properly, can break down or degrade, resulting in less than desirable results. This can be exacerbated if the sample is limited in quantity or compromised from the start.

The goal of this study was to create an evidence collection swab that could preserve the DNA sample from the point of collection thru the point of analysis. The Bode Resilient Evidence Collection (REC) Swab is a swab pre-treated with a unique preservation solution. The Resilient preservation solution was designed to prevent DNA degradation from a variety of factors including enzymes, bacteria, pH, and fungi. The result is the ability to resist any degradation that may occur in the weeks, months, or years that may pass before the sample is analyzed. The utilization of the REC Swab ensures that the quality of sample that is collected at the crime scene is maintained until sampling and extraction occurs. The REC Swab is versatile, it can be adapted in to any of the Bode SecurSwab devices or it can be used independently, storing in a swab box.

This presentation will detail the development of the REC Swab. It will include both real-time and accelerated stability studies on the collection and application of biological material (saliva, blood, and touch DNA) on the swab. The data presented will include electropherograms as a visual depiction of the difference in profiles obtained when using the REC Swab compared to a standard cotton swab. In addition, Quantifiler® HP was utilized during sample processing allowing for the calculation of a degradation index score. The degradation index score will provide another method of comparison to show the stabilization effects of the preservative contained on the REC Swab.

The utilization of the REC Swab will result in significantly higher DNA yields with a significantly lower degradation index score. The combination of a higher DNA yield and less degradation will increase the chances of obtaining a complete profile upon STR amplification. The use of the preserved REC Swab will allow the evidence collector to have confidence that their collected sample will be preserved until the crime laboratory processes the case.