ADVANCED DATA MANAGEMENT FOR DNA FORENSICS LABORATORIES

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The forensics DNA field has experienced numerous advances in both technologies and techniques. As a result, the methods are becoming available to more and more crime laboratories throughout the country. With the increase of information being produced, an effective management of the data becomes increasingly important. The traditional paper and filing methods can quickly overwhelm and render a laboratory ineffective with the sheer volume of data being analyzed and reported. In distributed networks of state laboratories, the need to quickly transfer data amongst its facilities becomes critical for solving crimes. From the collection of samples, managing evidence, laboratory information management, analysis of DNA methods and customized casework reporting, a unified and vertical approach is needed to assist today's crime laboratory.

The Bode Technology Group has been developing processes and software applications to address different phases of DNA sample analyses. Beginning with a portable sample collection data management system, we seek to minimize transcriptions and begin the electronic evidentiary chain of custody process. With this system, a crime scene investigator can record and catalog samples via a portable computer and may dock or wirelessly transmit a list of the evidence.

The sample collection data is then transmitted or transferred to the DNA laboratory information management system. A sought feature of a LIMS is the ability to manage the DNA analysis process with a multitude of amplification methods and platforms. An evidence sample reconciliation module would assure forensic compliance requirements and tracking the samples throughout the analytic process. Sample accessioning, extraction, amplification and analysis can be performed through user-friendly interface applications. Whole tray tracking can be accomplished by bar codes as well as instruments.

Once data has been produced by the instrumentation, the analyst must assure that the results are accurate and within stated protocols. An expert system to assist the analyst in determining high interest calls can greatly reduce the errors and will prove to be a major time saver for the laboratory. With many laboratories charged with greater volumes of samples, an electronic method of screening will accomplish more accurate and thorough results.

When samples and results are managed in an electronic manner, the forensic laboratory should be able to achieve a greater level of productivity, accuracy and compliance. As we face the challenges of more inclusive legislation and higher demands, electronic data management will become more crucial to the forensic laboratory.