

THE DEVELOPMENT OF A VALIDATION MODULE IN ARMEDXPERT: AN IMPROVEMENT IN THE LIFE OF THE DNA TECHNICAL LEADER

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The validation process required for a forensic DNA laboratory and its Technical Leader can often be described as a necessary evil. The end result ensures confidence in protocols and a robustness of the final product for reports and testimony. However, validation requires that time and resources are set aside from casework to process samples, review data, and generate output tables for conclusions. In addition, multiple software programs and instruments are often needed for data analysis, which further complicates integrating all the necessary data.

ArmedXpert is a software program initially developed and validated by our laboratory for interpreting DNA profile results in forensic casework. It is now commercially available through NicheVision. We have recently collaborated with NicheVision to create a validation module as part of the ArmedXpert software package. The end result is that the DNA Technical Leader is now able to complete validation projects in a much more efficient and timely manner.

Specifically, this module helps with determining the analytical threshold for a particular instrument, peak height ratios, stutter products (plus, minus, and combined plus/minus), the effects of mixtures on stutter, and a stochastic threshold for both single source and mixed samples. The software determines these thresholds directly from importing laboratory empirical data using .fsa files or allele table data from both autosomal and Y-STR profiles. Concordance using any number of data tables generated by prior protocols or several protocols may also be evaluated for implementation. Finally, all necessary documentation for validation summaries is generated by the software.

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