

CONSIDERATIONS IN THE DESIGN, VALIDATION, AND ACCREDITATION OF A FORENSIC, CASEWORK-FOCUSED DNA LABORATORY

Mehul B. Anjaria

Human Identification Technologies, Inc., 440 Business Center Court, Redlands, CA 92373, U.S.A.

Objective: To offer a unique perspective on the design, logistics, and operation of a new forensic DNA casework laboratory. The intricate process flow of conception to realization will be shared with attendees along with unforeseen struggles. The information presented will help DNA analysts, supervisors, and management understand each other's roles in the larger picture and provide helpful suggestions to laboratories seeking to improve efficiency and quality.

Besides some of the more palpable considerations such as budget, architecture, engineering, and vendor negotiations, there are a host of very time-intensive steps that must be taken to achieve a superior result. Whether the laboratory is to be a public or a private entity, a formalized 'business plan' or similar document must be created in concert with allied professionals in order to frame the design of the organization. Both the scientist and the business person have key roles in this process, and it is important that appropriate weight be given to each side.

The descriptive term 'forensic' must never be ignored when designing a casework laboratory. While in the private sector there is a plethora of clinical laboratories to use as models for design, the same cannot be said for forensic, casework-focused DNA laboratories. There is no dispute that the use of automation greatly aids efficiency, however other general Information Technology solutions can greatly aid in the viability of a more classical criminalistics approach to DNA casework. Melding experience working in public crime laboratories with business principles can create an entity with superb quality and efficiency.

The tasks of validation and accreditation must be carried out in an environment in which their intrinsic scientific value is realized and these tasks not merely seen as hurdles. For example, validation studies should be carefully designed to address situations predictable and unpredictable based on the scientist's catalog of past experiences.

The design of the quality system dictates many aspects of the operation. For example the manner in which errors are dealt with will affect the retention of employees (perception of fairness, professionalism of environment, etc.). While human resource issues seem to be academic in nature, it must be considered how work environment, philosophical "buy-in", and perception of management affect the quality of the actual laboratory work product.

In summary, while discussing specific technical elements of the development of a DNA laboratory, this presentation will also address philosophical issues and demonstrate how general business principles apply to forensic laboratories, regardless if they are public or private, and serve to improve the quality of service to the criminal justice system.