

United States Senate

Senate Committee on the Judiciary

Strengthening Forensic Science in the United States

A Path forward

Testimony by:

Eric Buel, Ph.D.

Director, Vermont Forensic Laboratory

Vermont Department of Public Safety

Mr. Chairman and members of the Senate Judiciary, thank you for the opportunity to speak with you during a time when we are discussing how best to provide forensic science to the citizens of our country. I am Eric Buel, laboratory director of the Vermont Forensic Laboratory. I have been in the field of forensic science for almost 30 years, the last eleven as the laboratory director. I am privileged and honored to speak with you about forensic science and how best to implement the recommendations in the National Academy of Sciences report.

Several years ago I had the opportunity to serve as a board member for the American Society of Crime Laboratory Directors. A theme that I brought forward for consideration was a long term goal for us and for society. That goal was for every crime victim to expect the highest level of forensic science services regardless where in the United States he/she was victimized. Her case would not lie for months in a freezer awaiting examination; resources would be available to perform DNA profiling and the database would be current. Fingerprints recovered would not fade with time awaiting analysis and the AFIS database would be fully supported and recently updated. The laboratory would have the appropriate resources to provide the type of services our citizens should have in their time of need. The resources necessary to make that desire a reality

have not been provided to the State and Local crime labs. Federal funds have flowed toward the reduction of backlogs in DNA, and although this assistance is appreciated and has done much good, crimes continue to go unsolved and citizens continue to be victimized as backlogs in other forensic disciplines grow and leave cases unresolved. Mr. Chairman we need to address the capacity in our crime lab system; we need to provide resolution to these cases; we need to have comprehensive forensic reform.

As you know the National Academy of Sciences study clearly recognized this and it provided numerous recommendations to reform and modernize our system. I and the rest of the forensics community have studied this document and believe that that report can help us realize the dream that every victim receives timely and excellent forensic services no matter where the crime occurs. This dream will not be easy to achieve, it will not be cheap and it will take the concerted efforts of all to ensure we spend our limited resources wisely to reach our goal.

The NAS Committee has provided an opportunity to constructively review the science and services provided by the forensic community to allow us to better meet the needs of the people we serve. I cannot stress the importance of involving our community in discussions concerning this report leading towards writing laws to improve our field. A team approach that includes forensic scientists in policy discussions will lead to long term legislative success. In the remaining time, I would like to specifically comment on the following points addressed in the Committee's report: 1) resources, 2) quality assurance, 3) universally applied standards, and 4) research.

We at the Vermont Forensic Laboratory feel very fortunate that we will soon be moving to a new facility, vacating the pre-World War II building that has served as our home for over two decades. The resources necessary for this move have been a long time coming and point out the

need for funding in the forensic community. The required funding goes beyond bricks and mortar, it extends to the basic operational infrastructure and affects the very services we can and should provide.

The Vermont Forensic Laboratory employs twenty individuals; a third of the laboratory's workforce is reliant upon the vagaries of federal grants to complete the necessary tasks not performed by state funded positions. Nearly all of the equipment, instrumentation, and the majority of our supplies are obtained from federal funds. Additionally, most of the expensive instrumentation was purchased from a generous earmark award. Without our aggressive pursuit of grant opportunities and the creative use of a variety of federal funding sources, we would be able to offer only minimal services to the citizens of the state of Vermont. Secure and stable federal funding is critical to allow the laboratory to meet the needs of the criminal justice community and to plan for changing technology and policy demands. This funding must be provided to the labs in need. Funding must not be dependent upon the skill of the administrator to write grants, but upon the need of the citizens for whom the laboratory serves. Federal budgets need to be adequate to provide funding to improve capacity to promote long term improvements facilitating backlog reductions of State and Local laboratories.

Quality assurance is another critical component to ensure quality work by quality conscious employees. The forensic community has made great strides in this regard through the accreditation process. I agree with the findings of the NAS report that all laboratories performing forensic science must be accredited and employ the quality assurance practices dictated by accreditation. Staff certification is a NAS recommendation that should be facilitated via a process defined by an existing national organization as determined by the Congress and the Department of Justice. Accreditation and appropriate certification of both laboratories and

individuals should be prioritized with accompanied funding to allow these activities to occur as soon as possible. This will not be an easy task. Although greater than 95% of the 400 or so traditional or full-service crime labs in the US are accredited, there are thousands of forensic service providers housed in local law enforcement agencies providing forensic services that are not accredited. Accrediting all these forensic service providers will take a great deal of effort by accreditation bodies, and will be costly to the law enforcement agency. It will also require significant changes in staffing and support of the accrediting bodies to provide the necessary on-site inspections and reviews to insure compliance.

Standardization of methods, protocols, and reports must become a national priority. Validated best practice methods should be available for all disciplines. Methods that meet strict scientific scrutiny and are accepted at a national level offer a level of standardization to ensure the same science is applied across the country. These standardized methods facilitate analytical expertise, enable uniform report language, and minimize arguments about the science applied to a particular examination. To meet this level of standardization, best practice methodologies must be clearly stated, and adequately funded to support both the in-house validation and the training necessary for their implementation.

Compared to other scientific endeavors, very limited financial support is devoted to forensic science research. The NAS report clearly states that research must start immediately in a number of key areas. The VFL has participated in forensic research and has made small contributions to the field. But we, and other forensic laboratories, do not have the instrumentation or the necessary resources that academia can bring to answer many of the questions posed in the report. Given appropriate funding, and guidance, academia and the forensic community can work together to define how best to perform those analyses questioned in the NAS report, improve

upon them and plot a course that allows us to be prepared for tomorrow's questions. Traditionally the forensic community has relied upon academia and industry to produce tools that could be adapted and applied in a forensic setting. Imagine if we could reverse that process and develop technology and procedures that worked to specifically answer particular forensic questions. Research, time and resources could make this a reality and improve the way forensic science is performed.

During the early days of DNA analysis there were many questions concerning how to apply this new science appropriately to forensic casework. Studies by the National Research Council (NRC) culminated in two reports that offered recommendations and suggestions for DNA testing by the forensic community based on adherence to high quality standards and uniform procedures. Through the work of the Council, and standards created by working groups and the DNA Advisory Board (DAB), a pathway was created for the forensic DNA community to follow. These quality assurance standards and appropriate procedures have provided guidance to the community for best practices in the analysis of forensic casework. The federal government recognized the need to fund this emerging science, and did so; this provided laboratories the resources to properly train their scientists and purchase state of the art instrumentation. These funds permitted laboratories to initiate programs that met the expectations of the NRC and DAB and has resulted in the implementation of what has become a very successful forensic program. This model needs to be replicated for the other disciplines with the proper resources directed to them from the federal government.

The history of the forensic DNA program could be used to establish a model to fully develop the potential of other forensic disciplines. The establishment of National Research Committees or similar entities to perform a comprehensive review of particular forensic disciplines could

become the model that provides the impetus for any changes found necessary. The funding of such an entity or organization must become a congressional imperative. A committee/organization mandated and funded to perform a comprehensive review of a discipline would have the time necessary to examine all the supporting data accumulated by the forensic community. Through the full vetting of the data, methods and procedures used by a discipline, appropriate procedures can be modified or additional standards applied if the research indicates the need for change. If further research is needed, congress must fund this research to resolve unanswered questions. The committee members must include experts from both academia and the forensic community to allow a mutual exchange of ideas and an understanding of the work that is performed.

Vermont has had the opportunity to build a successful DNA program, constructed with significant federal funds and based upon quality assurance standards required by accreditation. Without federal funding I am certain that a number of significant cases would have been seriously delayed or gone unsolved. In Vermont federal funds allowed the processing of samples to provide crucial information about two old, unsolved homicide cases. One case was a 14 year old case that was solved with DNA and the other case was 27 years old before an arrest was made using DNA evidence. More recently, two violent rape-homicides were solved in a matter of weeks, in part, by the application of DNA testing. The resolution of such cases is of paramount importance to the families and protects Vermont citizens from the repetitive acts of violent offenders. These cases moved through the judicial system through the use of federal funds that have supported our purchase of necessary instrumentation and supplies.

The recognized success of the forensic DNA program could and should be realized by each forensic discipline. This can be achieved through devoting resources to make those necessary changes as prescribed by a comprehensive review of each forensic discipline. Similar federal programs that built our DNA program and programs like it throughout the country could be designed for each forensic discipline to allow the appropriate use of quality assurance standards and technology.

The National Academy of Sciences Committee has identified the needs of the forensic community, and we have an opportunity to use the report to make the necessary improvements to our science. Ideally a crime victim should expect the highest level of forensic science services no matter where in the United States he/she was victimized. This ideal could, and should become a reality. I would recommend that Congress take appropriate steps to meet the challenges discussed in the report to promote and provide the best possible science for the people we serve.