

EDITORIAL

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Past President's Editorial

As president of the American Academy of Forensic Sciences, I have been privileged to serve our 6000+ members from the U.S. and from 51 other countries around the world. This has been a 12-month period filled with trepidation for some and hope for others. As I complete this year entrusted with the presidency of the most respected forensic science organization in the world, I would like to comment on two of the more significant issues I have given thought to since February 2010: The theme for the 2011 Academy meeting in Chicago and the reactions of the Academy membership and my own opinions as they relate to the document that has come to be known as the "NAS Report." More on the Report later.

I have been questioned regarding the meaning of the theme leading up to the 2011 American Academy of Forensic Science meeting: *Relevant, Reliable and Valid Forensic Science: Eleven Sections, One Academy*. I will always believe that the words we choose and how we fit those words together to express a concept, answer a question, or express an emotion will impact those on the receiving end of what we are saying. As someone perceived as a spokesperson for any organization, one's choice of words must not be problematic or arbitrary. Diplomacy will always be acknowledged more readily than perceived confrontation. If we expect others to listen to what we are saying, the words we choose must resonate with a positive connotation; if we expect a positive impact from the words we use to convey ideas, others must be motivated to act on those words, rather than react to the words. My choice of these thematic words was not arbitrary; rather it was calculated. I wanted to underscore the nonnegotiable factors associated with forensic science as I have understood the profession over the past 35 years and to recognize the impact of the Academy's mission statement on the forensic science community we serve. What may have been deemed good enough in the past is no longer good enough in the present.

There are two parts to this theme.

Relevant, Reliable and Valid Forensic Science

My intention was to focus the discussions this past year on what is right about forensic science, while at the same time acknowledging that we have a responsibility to change those elements of our profession when change is appropriate. I am not talking here about what some have described as "tweaks" to the way in which we approach our responsibilities to the sciences and to the judicial systems we serve. There are some elements of our profession which require major transformations and not because what we are doing is wrong. Rather, we have an obligation to require higher standards of ourselves in how we address our responsibilities as scientists. Report writing and the verbiage chosen to document our



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conclusions is the first example that comes to mind when I think about "change." If we do not raise the bar in what we expect of ourselves in enhancing the sciences in our laboratories, how we document our conclusions in our reports, and how we then convey those conclusions in the courtroom, we do not deserve to be called professionals.

Eleven Sections—One Academy

We are a multidisciplinary professional organization. The scientific disciplines represented by the 11 sections of the Academy encompass a cross-section of professionals who apply the physical, natural, and observational sciences to the purposes of law. In many discussions with members of the Academy Board of Directors over the past few years, I have come to recognize that, depending on our disciplines, we all have different thought processes in the ways we problem-solve, evaluate challenges, address controversial issues, and speak to one another. Again, the intentions of the speaker and interpretations of the listener change depending upon who uses the words and who is on the receiving end of the words. An example: Consider the word "investigation." In my world, "investigation" implies that there has been an impropriety that must be scrutinized. In someone else's world, the word "investigation" can mean "let's look at what has occurred." *Eleven Sections—One Academy* means that we must learn to speak to one

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another in a common language before we can begin to grasp the meaning of what is being said. I have experienced a number of “why didn’t I think of that” moments in my discussions with my colleagues from other sections and other professions.

The Academy meeting that will have just been completed when this editorial appears in print will have afforded many of us the opportunity to speak intelligently and with minimized confrontational tones with attendees from other sections and to gain exposure to other ideas that we can then take back to work environments for implementation. One of the advantages that stems from the interactions among the 11 disciplines represented by the Academy can be described as the recognition that we cannot understand those questions directed at situations to which we have never been exposed, and until and unless we learn to ask better questions, we will never find the optimal answers. Personal interaction leads to exposure and recognition of other perspectives; exposure and recognition lead to questions; questions lead to answers.

In an interview this year, I was asked to explain the meanings of the words, “relevant, reliable, and valid.” My first inclination was to cite the definitions in the *Federal Rules of Evidence*, or the Supreme Court’s 1993 decision in *Daubert v. Merrill Dow Pharmaceutical*. As I am not a lawyer, I chose to pursue a different, yet tactful response. I did not search <http://www.dictionary.com> or <http://www.wikipedia.com>. Rather, I opted to think about and describe what these words mean to me in a nonlegalistic way and in the context the forensic science laboratories most associated with my own experiences.

“Relevant” forensic science provides an applicable and direct answer to a specific question by placing the results of the scientific experiment into a context that is as clear, concise, and unambiguous as possible. That can include the response: I don’t know.

“Reliable” forensic science provides the correct answer consistently whenever a test method or investigative protocol is properly applied. There is an implied recognition that there will be instances where the science is reliable; however, the scientist may have made a mistake in using the method or erred in the interpretation of the data or images. Some have argued that because mistakes are made in the method application or the interpretation part of this definition, the science is not reliable. I could not disagree more. There is a definite difference between the method being flawed and the interpretation being incorrect.

“Valid” forensic scientific methods have been tested, the results are reproducible, and the conclusions are based on data or images that can be challenged and successfully defended. Validated methods are based on protocols that are capable of being tested by the generation of data. That data can then be used to formulate conclusions that can be evaluated by another qualified professional and subjected to rigorous scrutiny and what is referred to in court as “cross-examination.” There are undoubtedly questionable methods used in some laboratories which are invalid. In the real world, demonstrating that a method is invalid is not difficult. However, the vast majority of valid forensic science methods practiced by the membership of the Academy have been used in accredited laboratories for many years. These methods and the results of examination from these valid methods have played an integral role in achieving justice in the courtroom. Are there times when someone crosses a line in the interpretation of data from the application of a valid method, or uses an invalid method to form a conclusion? Yes. When that happens, there are processes in place within the Academy to take action and determine culpability.

I have spoken on behalf of the Academy at many scientific and legal conferences across the country and abroad this past year. I have emphasized our commitment to strengthen everything we do in our laboratories, in our classrooms, in our research facilities, in our investigative facilities, and in our courtrooms. I delivered a speech entitled “Forensic Science Needs a Lot Less Finger Pointing and Lot More Solutions” at an American Bar Association Criminal Justice Section Meeting at Fordham University in New York. I stated my conviction that the time has come to take a hard look across the spectrum of comments directed at forensic science and acknowledge the fact that we can improve what we do only by at least considering the views of others, especially those with whom we disagree most. At the same time, those who are on the outside looking in and yet continue to espouse a belief that only they know what is best for all forensic science disciplines may want to engage in collegial discussions rather than professorial discourse.

On February 19, 2009, the National Research Council of the National Academies issued its report entitled *Strengthening Forensic Science in the United States: A Path Forward*. I want to make a few comments to set the tone for what follows below: Contrary to what some have portrayed in the press and in the many conference/meeting sessions I have attended this year, “The Report” was not an indictment of forensic science, nor was it a source document to determine the admissibility of forensic science evidence in the courts. The title of the Report includes six of the most important words in the document: “Strengthening Forensic Science” and “A Path Forward.” Most of the core issues addressed in the Report have been known to forensic scientists for years and have provided us with bullet points for consideration and implementation over the years. I personally have subscribed to the belief that if we do not address these issues, others will do so for us. I also predicted that we might not like what those on the outside looking in might have to say about how we address certain aspects of how we do our jobs. That is exactly what happened in some parts of the Report. There are other parts of the Report ripe for discussion; however, this editorial is not intended to criticize or to rewrite what has already been written about the Report.

Where are we more than 2 years after the issuance of the Report? Some would argue that not much has changed because Congress has not enacted any legislation that addresses how we do what we do. We have seen a draft outline proposal without specific language from the Senate Judiciary Committee (SJC) related to how legislation might look in the coming months. The House Judiciary Committee (HJC) has met recently with representatives from the Consortium of Forensic Science Organizations (CFSO) to begin to formulate its own proposal for what constitutes a “path forward.” I have, as a part of my responsibilities as president of the Academy, participated in many face-to-face, across the table discussions with staff members from both the SJC and the HJC ensuring that the Academy’s interests are being addressed. The views of the Academy are important to these staffers because our membership reaches out across all 50 states.

The National Science and Technology Council, Committee on Science, Subcommittee on Forensic Science (SoFS) is also moving forward with addressing the needs of the forensic science community:

The SoFS is charged with developing practical and timely approaches to enhancing the validity and reliability of the federal government’s forensic science activities. This includes ensuring that regional, state, and local entities adopt best practices in forensic sciences and facilitating a strong coordinated effort across federal agencies to identify and address

important federal policy, program, and budget matters. (<http://www.forensicscience.gov>)

The Interagency Working Groups (IWGs) have been formed as an element of the SoFS:

The subcommittee oversees five interagency working groups, which convene with the purpose of exchanging views, information, and advice relating to the management and implementation of Federal programs relating to forensic science that are established pursuant to statutes that share intergovernmental responsibilities or administration. Such statutes include, but are not limited to, 42 U.S.C 14132 and the Justice for All Act. (<http://www.forensicscience.gov/iwg.html>)

In evaluating the responsibilities of the five working groups which comprise the IWGs, the following words define their responsibilities: identify, recommend, determine, conduct, and inventory (http://www.forensicscience.gov/iwg_standards.html).

The words “require,” “mandate,” and “enforce” are noticeably absent from what appears as work products from these meetings of members of the IWGs. For any recommendations from the IWGs to be accepted and implemented on a state level, there should be a “buy-in” requirement. The IWGs have exerted commendable efforts engaging committee members from outside of the Federal government as a part of the IWGs. That is the first step in buy-in; however, there must be follow-up with all those who will be impacted by forthcoming recommendations.

Considering the Academy's active participation in the CFSO and with representation in IWG subcommittees, our voices are being heard as a part of the process. This means that both the Legislative and Executive branches of government responsible for taking action on strengthening forensic science are reaching out to those who work in the laboratories, academics, and others who are the stakeholders in this process.

There is, however, a political reality in the year 2011 to which we cannot turn a blind eye. In Congress, if legislation is enacted, and considering the political climate in Washington as this editorial is being written, that is a big “if,” a serious consideration remains: Where will the money come from to implement the legislation? My prediction is this: Best case scenario, in the near future, we will be looking at unfunded mandates.

While the probabilities for funding to address many of the issues addressed in the Report are not promising, there are steps that can be taken immediately to strengthen forensic science:

The Scientific Working Groups (SWGs) are not by any means functioning at optimized levels to address the challenges we face. However, they have provided a foundation for recommendations that are currently followed by many laboratories. The recommendations from most SWGs have been adopted by many laboratories. Many of those SWGs can and have in most cases worked diligently to address many of the elements of forensic laboratory analysis and reporting:

- Standardize terminology.
- Define minimum methods and materials, procedure, results, and conclusions.
- Implement best practices as opposed to minimum standards in determining forensic science analysis protocols.

As witnessed by a National Institute of Justice sponsored seminar this past summer in Phoenix, Arizona, representatives from medical examiners' offices and coroners' offices are at least meeting in the same room to discuss how to address the two

different systems they both represent. These discussions are crucial to addressing medical legal issues impacting our justice system.

The presentations at forensic science meetings this year demonstrate that forensic scientists across all disciplines are not passively sitting on the sidelines while the world revolves around them. Research and practical applications papers can be found in the meeting programs from the American Academy of Forensic Sciences, the International Association for Identification, the Association of Firearms and Toolmark Examiners, multiple DNA conferences, the NIJ Sponsored Pattern Evidence Symposia, and Trace Evidence Symposia. Many professionals from within laboratories and academia around the world are conducting and publishing the results of their research for peer review. This ongoing applied research is also being conducted in forensic science-based academic programs in the U.S. and abroad. There is little argument with the contention that we need to improve what we are doing in all of these research and method enhancement endeavors. It is the conclusions that some have drawn regarding the quality of our work that leads to some disagreement. Science is about the confidence others have in what we do, and anything we can do to elevate those levels of confidence should be considered. Those who continue to point to the Report as an instrument of self-affirmation and division rather than as a source of recommendations for improvement in the forensics sciences may want to reconsider. Please suggest real-world solutions to the real-world challenges we face. There are many unanswered questions related to how we can strengthen forensic sciences. At the same time, there are many unquestioned answers that remain unchallenged. I respectfully request that we put aside at least for the moment some of those proposed solutions that have applicability in the alternate self-contained universe of disagreement.

There may be some who equate strengthening with “starting over.” Except in the rarest of instances, that is not what this discussion is about. Science is about confidence. Some believe that science is a collection of facts and equations; I believe that science provides a mechanism for interrogating the world around us by asking smarter questions to arrive at the truth. In the context of this discussion, “strengthening” means increasing our ability to arrive at the truth. That should be the goal of every profession. With the challenges faced by the forensic scientist, the optimal manner for addressing any challenge is by striking a balance between reinvention and renovation. This can mean designing a hybrid between what we are already doing effectively and considering alternative ways to do those things better. In looking back at the ways scientific methods across all professions were conducted 20+ years ago, there have been some huge changes in all scientific endeavors. The same applies to forensic science. This relates to more than just the ways in which body fluids are analyzed in DNA protocols. Forensic science laboratories have introduced new methods across all disciplines. We must continue to develop and use those methods that will enable us to introduce more specificity and higher confidence levels in our reporting.

There is another term that has occurred repeatedly in publications this year and is used as a reason to promote and perhaps remove the forensic scientist from the decision-making processes in formulating conclusions and writing reports. That term is “error.” Every adult human has and will continue to make errors. In our world, the challenge is discovering and acknowledging those errors as a part of the review process before the report leaves the laboratory. However, the fact that an error occurs in a process is not a reason to terminate the process.

Summary

The years ahead will present challenges that today remain unimaginable. Where are we going and how will we get there? There are no road maps; there are no predictors. The only certainty is the uncertainty in where we will be in the year 2020. One bit of advice for my younger colleagues: Get ahead of the curve; remain

open minded; listen to the critics; and explore the unexplored. Maintaining the status quo is the surest way to fall behind in strengthening the forensic sciences. Pick up the ball and run with it, because if you do not, someone else will take the ball away. You can determine what will happen in the future not by watching it happen, but rather by making it happen.