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THE NEED TO STRENGTHEN FORENSIC SCIENCE IN THE UNITED STATES: THE NATIONAL ACADEMY OF SCIENCES' REPORT ON A PATH FORWARD

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THE NEED TO STRENGTHEN FORENSIC SCIENCE IN THE UNITED STATES: THE NATIONAL ACADEMY OF SCIENCES' REPORT ON A PATH FORWARD

WEDNESDAY, MARCH 18, 2009

U.S. SENATE,
COMMITTEE ON THE JUDICIARY,
Washington, DC

The Committee met, pursuant to notice, at 10:02 a.m., in room SD–226, Dirksen Senate Office Building, Hon. Patrick J. Leahy, Chairman of the Committee, presiding.

Present: Senators Leahy and Durbin.

OPENING STATEMENT OF HON. PATRICK J. LEAHY, A U.S. SENATOR FROM THE STATE OF VERMONT

Chairman LEAHY. Good morning. Today, we are going to examine the pressing need to strengthen forensic science in America. Just a few weeks ago, the National Academy of Sciences completed one of the most thorough reviews of forensic science ever undertaken in the United States. That is the good news. The bad news is it demonstrates that we have a problem, and the problems can go to the heart of our whole criminal justice system.

I was just speaking before we started with Judge Edwards, who is going to be our witness, that unlike the image that so many of us see on television shows like "CSI," forensic scientists too rarely get to review crime scene evidence in sleek, ultra-modern, state-of-the-art laboratories. I have been to enough crime scenes to know that is not the usual way. And though it is an excellent program, the effect of it may be suggesting that forensic sciences are well funded and that their results are always infallible. As it turns out, the National Academy of Sciences says that is not the reality. I will give a couple of examples.

Just last fall, the city of Detroit had to shut down its forensic laboratory after an independent audit found that the lab's ballistics reports were wrong or false in one out of every 10 cases. The lab had not kept records of tests performed, nor calibrated instruments properly, in many additional cases. Similarly, in 2003, the city of Houston had to close its DNA and toxicology testing facilities after an audit found untrained staff, shoddy methodology, and potential contamination. I mention that because those findings resulted in a review of more than 1,300 criminal cases and required retesting in 30 percent of these cases. In both of the instances, outside review-

ers found that labs lacked adequate staff, training, or equipment to do the job right.

It is not limited to just a few underfunded labs with overworked staffs. According to the latest available statistics from the Justice Department, in 2005, the backlog of forensic exams was more than 350,000 nationwide, up 24 percent from just 3 years ago. I wonder how many rape kits, for example, are still sitting on shelves that have been unexamined with the perpetrators at large and the victim has not seen justice? One out of every five labs does not meet the standards for accreditation set by the National Academy of Crime Lab Directors. The National Academy of Sciences says it is obvious in this case, you cannot let this continue.

It is critically important to our criminal justice system that we have accurate, timely forensic science so we can find and punish the guilty, but also exonerate the innocent. It helps no one if you imprison the wrong person. If you have a serial killer or a serial rapist, and you say, "Great, we got the person, we have locked him up," and you have got the wrong person, you have created two problems—two major problems: one, of course, is locking up an innocent person; but, second, you have not made society any safer because the perpetrator is still out there. So forensic science has become critically important. It is also critically important in supporting homeland security and counterterrorism missions. So we cannot wait for the next scandal to break or for the backlogs to grow worse. We have to pay attention now, and I want to work with Senators Specter and Durbin and other interested members of the Committee on this.

This morning, we are fortunate. We have Judge Edwards of the D.C. Circuit Court of Appeals at this hearing. Judge Edwards was the co-chair of the distinguished Committee of scientific and legal experts who worked so hard over the past 2½ years to complete this report, as requested by Congress. And, Judge, I want to publicly thank you and the other members of your Committee for doing this. It is not as though you did not have enough things to do to occupy your time, but I am glad you have taken it on. With your own credibility and your own well-deserved reputation for fairness, I knew that it would have a very, very good look and an honest look at the problem.

The report is detailed and it is far-reaching, and I think it can provide a foundation for building broad consensus for change. It calls for mandating national standards, enforcing "best practices." It points to a need for standards for the certification of individual examiners, the accreditation of their laboratories, more money in research.

But even in traditional methods we see problems. Fingerprint comparisons can rely heavily on interpretation. We all remember the Brandon Mayfield case from a few years ago, when the FBI had to recant its initial findings that Mayfield's fingerprint matched a print found in the Madrid terrorist bombings. An FBI examiner submitted an affidavit claiming there was a "100 percent" match when, in fact, the FBI later admitted the comparison was of no value for identification purposes. Other than the fact that you are going after the wrong person and the right person is off free, also,

as I recall, the U.S. Government paid a very, very substantial claim in that case.

We know how faulty forensic science has gotten into the courts as evidence. We know this from our own experience and this Committee's recent efforts to push the FBI to identify and correct the thousands of criminal cases where bullet lead analysis was improperly used.

The report emphasizes the need to preserve evidence properly at all crime scenes and even after court proceedings. I know the importance of this firsthand from the experience of my friend Kirk Bloodsworth, an innocent man who was twice convicted of murder and rape, served 8 years in prison, including two on death row, and then they finally tested the DNA and found, oops, we got the wrong guy. And guess what? They found who the right guy was. And he was exonerated. But 8 years in prison, 2 years on death row. So we worked hard to pass the Kirk Bloodsworth Post-Conviction DNA program to encourage the States to retain test evidence from crime scenes. But that is meaningless if we do not preserve it.

I will put my whole statement in the record because, frankly, I would rather hear Judge Edwards.

[The prepared statement of Chairman Leahy appears as a submission for the record.]

Chairman LEAHY. Please go ahead, sir.

STATEMENT OF HONORABLE HARRY T. EDWARDS, SENIOR CIRCUIT JUDGE AND CHIEF JUDGE EMERITUS, UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT, AND CO-CHAIR, COMMITTEE ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIENCE COMMUNITY, NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, WASHINGTON, DC

Judge EDWARDS. Chairman Leahy, and other members of the Committee to whom I have submitted material, thank you for inviting me to appear today. As you have indicated, my name is Harry T. Edwards. I am a circuit judge on the U.S. Court of Appeals for the D.C. Circuit, where I have served for 29 years. And I am appearing today in my capacity as Co-Chair of the Committee on Identifying the Needs of the Forensic Science Community at the National Academy of Sciences. The Committee, as you have indicated, Mr. Chairman, recently issued a report, "Strengthening Forensic Science in the United States: A Path Forward." In my very brief prepared remarks, I will highlight some of the salient points of the report.

The impetus for our Committee's report came in 2005, when Congress, at the urging of the Consortium of Forensic Science Organizations, representing professionals in the forensic science community, passed legislation directing the National Academy of Sciences to create an independent Committee to study the forensic science community. The Consortium's call for help was prophetic. After more than 2 years of study, our Committee concluded that the forensic science community is plagued by serious problems that cannot be cured without significant congressional action.

I started this project with no preconceived views about the forensic science community. Rather, I simply assumed, as I suspect

many of my judicial colleagues do, that the forensic science disciplines typically are well grounded in scientific methodology and that crime laboratories and forensic science practitioners follow proven practices that ensure the validity and reliability of forensic evidence offered in court. I was surprisingly mistaken in what I assumed. The truth of the matter is that the manner in which forensic evidence is presented on television—as invariably valid and reliable—does not correspond with reality.

There are scores of talented and dedicated people in the forensic science community, and the work that they perform is very important. However, the quality of practice in forensic science disciplines varies greatly, and it often suffers greatly because of: the paucity of scientific research to confirm the validity and reliability of forensic disciplines and establish quantifiable measures of uncertainty in the conclusions of forensic analyses; the paucity of research programs on human observer bias and sources of human error in forensic examinations; the absence of scientific and applied research focused on new technology and innovation; the lack of autonomy of forensic laboratories; a gross shortage of adequate training and continuing education of practitioners; the absence of rigorous, mandatory certification requirements for practitioners; the absence of uniform, mandatory accreditation programs for laboratories; the failure to adhere to robust performance standards; the failure of forensic experts to use standard terminology in reporting on and testifying about the results of forensic science investigations; and the lack of effective oversight.

In my written statement to the Judiciary Committee, I cited a few examples of the problems uncovered by our Committee, underscoring the needs of the forensic science community. The examples included, as the Chairman has already recounted some of them: court opinions reporting that an FBI fingerprint expert had "testified that the error rate for fingerprint comparison is essentially zero," a claim that is scientifically implausible; reports of crime laboratories having been shut down and officials fired due to unqualified practitioners, lax standards that generated questionable or fraudulent evidence, and the absence of quality control measures to detect questionable evidence; evidence raising doubts about the efficacy of technical protocols adopted by Scientific Working Groups and serious concerns about the extent to which these protocols are actually followed by forensic practitioners; and the absence of qualified medical examiners and pathologists in States that still use coroners. These and other problems cited in the report highlight glaring weaknesses in the forensic science community.

The principal point of our report is simple: There is an obvious and a compelling need to overhaul the existing system of forensic science in the United States. Forensic science experts and evidence are routinely used in the service of our criminal and civil justice systems. So it matters a great deal whether an expert is qualified to testify about forensic evidence and whether the evidence is sufficiently reliable to merit a fact finder's reliance on the truth that it purports to support. Unfortunately, the adversarial approach to the submission of evidence in court is not well suited to the task of finding "scientific truth." Judicial review, alone, will not cure the ills of the forensic science community.

And simply increasing the number of staff within existing crime laboratories and medical examiners' offices will not solve the problems of the forensic science community. What is needed is interdisciplinary, peer-reviewed, scientific research to determine the validity and reliability of existing disciplines, and to achieve technological advancements. We also need to upgrade organizational structures, establish better education and training programs, adopt uniform and enforceable practices, require *mandatory* certification and accreditation programs, and ensure operational autonomy for forensic laboratories. This overhaul of the system is essential if we expect forensic practitioners to serve the goals of justice.

The Committee found that, not only does the forensic science community lack adequate resources, talent, and mandatory standards; it also lacks the necessary governance structure to address its current weaknesses and to adopt and promote an aggressive, long-term agenda. Truly meaningful advances will not come without significant concomitant leadership from the Federal Government. With these considerations in mind, the Committee's principal recommendation is that Congress should authorize and fund the creation of an independent Federal entity, the National Institute of Forensic Science, or NIFS. This new entity should be staffed by professionals who have expertise and experience in scientific research and education, physical and life sciences, forensic sciences, forensic pathology, engineering, information technology, standards, testing and evaluation, law, and public policy. And it should be headed by professionals who understand and are experienced in Federal oversight, regulatory regimes, and Federal-State relations. We believe that an entity like NIFS will serve our country well, as a new, strong, and independent entity, with the authority and resources to implement a fresh agenda designed to address the problems found by the Committee.

Mr. Chairman, I have submitted a more complete written statement to the Committee for your review; however, I am happy to answer any questions that you may have at this time.

[The prepared statement of Judge Edwards appears as a submissions for the record.]

Chairman LEAHY. Thank you very much, Judge, and obviously any extra time you need, feel free.

I read your report, and it is rather chilling. I hope that prosecutors and defense attorneys around the country are reading it and raising questions.

One of the most glaring examples is the lack of national standards in death investigations. Back in 1928—even though I have been here a long time, I was not here then—the National Academy of Sciences called for the coroner system in this country to be abolished. Coroners were to be replaced by qualified medical examiners, and my little State of Vermont follows that. Even back in my days as a prosecutor, we did not have a coroner; we had a medical examiner. It had to be a physician, had to be trained in this area. We had what we called "untimely deaths," a murder or suicide, anything where there was any question about it. But in a lot of States, they do not have the expertise or the training. They are simply elected officials with little or no medical training. Appar-

ently, a third of all the States have such a coroner system, more than 1,500 of these officers around the country.

Your Committee concluded it should be abolished, much like the National Academy of Science report in 1928.

Judge EDWARDS. Right.

Chairman LEAHY. Why hasn't it been corrected? I was amazed to read that because my experience had been with the Vermont system. We are the second smallest State in the Union, and we made a determination 40 years ago when I was a prosecutor, which had been in place for years before then. If a little tiny State like ours could do it, why don't other States do that?

Judge EDWARDS. Political inertia, possibly. I am not sure. These systems, some of them may be even embedded in State constitutional provisions which make it hard to make the change. Nonetheless, it is a good example of why we think change is likely to happen if we have a push from the Federal Government; that is, where standards are promulgated at the Federal level and are announced for the country to look to and to follow.

Chairman LEAHY. Well, let me ask you about that. Suppose you had a degree in forensic science, and I have to assume this goes everywhere from correspondence courses to courses at some of our finest universities where it really means something. Simply saying you have a degree in forensic science, does that mean you really know how to work your way around a forensic lab?

Judge EDWARDS. No. No, it does not. The less sexy part of the report has to do with the need for scientific research and better educational programs. But it is a critical need. We have to build it up from the bottom; that is, the educational foundation and the scientific research have to be established.

The universities are not excited about doing work in forensic science. If we can get the universities interested in interdisciplinary, multidisciplinary work, that is, if there are incentive funds that we can find to give to the universities to do this research—it has not been done. I mean, that is the problem with most of the disciplines where you are talking about subjective examinations as opposed to DNA and drug analysis, which are on much more secure footing. We just do not have the research, and we do not have the educational programs.

When we looked, as best I recall, we found that there was no Ph.D. program strictly in forensic science. Well, that is fairly appalling given what we expect of the forensic science community.

And so the educational programs are not what they should be. There are some decent programs, but not nearly enough to serve the needs of the community.

Chairman LEAHY. I would think just to say from a law enforcement point of view, I would think they would want it, because if you flip to the other side for the defense attorneys, I mean, I would think this was one of the areas I would move to attack, that the State's witness is not qualified, does not have—you know, fill in the blank. I am not asking you to prejudge a case that might be coming before the Court of Appeals. But if you were a defense attorney in one of those areas, isn't that one of the things you would think of attacking?

Judge EDWARDS. Yes, but I think it is going to be easier for these questions to be raised and for the problems with forensic science to be exposed if we move to systems that include things like mandatory certification and mandatory accreditation, because then judges are going to be better able to determine who is and who is not qualifiable as an expert.

There are a lot of people testifying now who I think bring dubious credentials to the courtroom, and it is very hard for judges to figure that out. If we had a national system, a nationally approved system of certification, and attorneys and judges could now ask the questions such as, are you certified, and if so, where, and is it a program that we understand and recognize, that will begin to effect some change.

Chairman LEAHY. But, Judge, there are areas—not in this area, but there are certain things in courtrooms that you ask for your certification, whether you are an accountant, whether you are a psychiatrist, a brain surgeon or whatever else. You have to show your credentials. They have to fit a certain standard that is accepted, whether it is in Vermont or Oklahoma or California or Illinois or anywhere else.

Judge EDWARDS. We have not asked very much, so under the Federal Rules of Evidence, what has happened is the way Rule 702 is written and has been applied, experience counts, and the judge can credit someone as an expert based on alleged skill and experience, and so that person may not be certified pursuant to any useful standards, but will attest to the fact he or she has been doing this a long time.

Well, the Committee's is that qualifying experts in this way does not give good assurance that the person understands the limits of the forensic discipline. If an examiner is certified under a good, mandatory certification program, this would tell us much more than a person merely saying, "I have been an examiner for a lot of years."

Chairman LEAHY. I am 100-percent certain that this fingerprint is the one except, Oops, no, found out it was not.

Judge EDWARDS. It is not a scientific notion. There is no such concept as a "zero error rate" in good scientific methodology.

Chairman LEAHY. Senator Durbin.

Senator DURBIN. Judge Edwards, thank you very much.

Chairman LEAHY. Incidentally, I want to thank Senator Durbin for the hearing he held yesterday on Mexican drug cartels. This is something that should frighten every single person in this country, so thank you very much, Senator, for doing that.

Senator DURBIN. Well, I am glad to do it.

Judge EDWARDS. Thank you, Senator.

Senator DURBIN. We had good participation, and I would say the Attorney General of Arizona has said this is the new crime syndicate in America. You know, we have some vision of what organized crime is all about. It is all about the Mexican drug cartels at this point. For another day, we will be back on it.

Thank you for doing this and raising some critically important questions. And I am just wondering what you might think the next time that someone appears in a courtroom across America and says, when fingerprint evidence is produced, "Well, I would like to

quote for you a statement from Judge Edwards' Committee on forensic science where he said, 'With the exception of nuclear DNA analysis . . . no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source'"?

Judge EDWARDS. Well, I think advocates will certainly raise questions, having read the report, and a number of judges will have looked at it. And I think questions are likely to be raised in court in a way that they have not previously been raised.

You know, there has been an interesting split, when I talk to attorneys, in how we have proceeded on the civil as opposed to the criminal side. There are a lot of civil attorneys who are well funded on both sides, plaintiff and defendant, who feel like they can use the *Daubert* standards effectively to prevail in their individual cases.

In criminal cases, however, what we have seen is a lot of defense counsel who do not have the resources to be able to raise the right questions; and we have had the problem of judges, lawyers, and jurors not knowing much about science; and trial judges operating alone; and a very limited standard of review when cases are appealed.

Often there is not much we do at the appellate level if and when these cases come up on appeal, because we must give great deference to the trial judges. And if the right questions are not being asked in trial, the issue is not preserved for appellate review.

Senator DURBIN. And you probably heard or read of this March 15th announcement in Wayne County, Michigan, which backs up what you have to say here: 147 cases in a police lab mess called the "tip of the iceberg." I think this was ballistic testing, if I am not mistaken. Too much of this is coming out, and it is accumulating. I thought it was particularly interesting. My gut reaction when I heard about the problem was the National Science Foundation. But you make it pretty clear in here that you say they are not really equipped to do this. They do not have the relevant expertise, as you say, needed to strengthen the practices of forensic science. And then you caution, and I think this is an important caution: "The entity that is established to govern the forensic science community cannot be principally beholden to law enforcement."

Judge EDWARDS. Right.

Senator DURBIN. So your conclusion then is we have to really create a new entity.

Judge EDWARDS. Yes. We really do need a new entity that is not beholden to the past dysfunctions of the community. I mean, you really need new people coming from multidisciplinary backgrounds. There are plenty of good sources for them to tap, ASCLD labs on accreditation; SWGs on technical protocols; and a number of smart people in the field and smart scholars and commentators who know the field well. these resources can be tapped by the leaders of the new entity—people who have no agenda based on the prior dysfunctions.

We were thoroughly convinced that we must move from what presently is, which is not very good—it is dysfunctional—to a new

agenda. If we had a Director of NIFS like the President's new Science Adviser, John Holdren, we would be in really good shape. The NIFS director would put together a really smart team, and he would have some really smart people who would think about the interdisciplinary science questions that need to be addressed.

Senator DURBIN. And the solutions are not only standards and accreditation, but obviously resources dedicated——

Judge EDWARDS. Absolutely. Scientific research and the resources, yes.

Senator DURBIN. And I would assume, as in my State of Illinois and others, it is the coordination of many disparate jurisdictions, law enforcement whether it is at the local level or the county level or State level, that they start sharing some resources here so they can have the very best.

Judge EDWARDS. Right.

Senator DURBIN. Now, I do not know if you happened to see a few weeks ago when "60 Minutes" had a program about eyewitness identification, and it was a very troubling situation where a woman literally identified her rapist and picked him out of a group of photographs, then picked him out of a line-up, and then went through the entire conviction of this man, and sat in the courtroom when he said, "I didn't do it and found the man who did," and said, "He is wrong, he did it." And then, of course, the DNA tests proved he did not do it, and the person that he had suggested did it was ultimately identified as the culprit.

It really kind of calls into question in my mind—I am trying to get to the bottom line here—about what we expect of our criminal law enforcement system in a democratic society. We want bad people to be punished and taken away so that they do not hurt us again—at least until they are rehabilitated, not to be released. We will get into that in another hearing. But this really brings into question—it seems to me like DNA is the one bright line, the one gold standard where we say this is objective—at least at the moment, we say it is objective—and this can give us some certainty, a yes or no answer. Everything else is more subjective and subject to human error.

Judge EDWARDS. Yes. It is not just that some forensic disciplines rely on subjective analyses. The problem is that some disciplines are not supported by good scientific research to determine the accuracy of forensic practice, to determine the extent to which observer bias is in play, and to quantify sources of variability and possible error.

The Committee listened to a number of experts. We asked for that research. It is not there. So it is not that these other disciplines cannot service us. It is that we have not ever supported them the way we supported DNA.

It goes with our recommendation that you should give the labs autonomy so that the science side of this enterprise can operate the way it ought to operate. The law enforcement/police side of it is terribly important, and the labs serve them. But the labs should not be beholden to the law enforcement side, because labs should be about science. And if we supported the rest of the disciplines the way we supported DNA, the forensic science community would have an entirely different look.

Senator DURBIN. Do I have time for one more question?

Chairman LEAHY. Take all the time you want.

Senator DURBIN. Tell me about fingerprints, because I thought that that was kind of a solid, objective piece of evidence that we could rely on here. I think you raise questions about fingerprint analysis as well.

Judge EDWARDS. The reason fingerprinting became a subject of so much conversation is because it has had a long history of being credited as being essentially infallible. And, indeed, as I mentioned in my opening statement, there were FBI experts who testified in Federal courts that there fingerprint analysis has a "zero error rate." Well, there is no "zero error rate" in science. There is no such thing. But the courts were led to believe otherwise. And one court would cite it, and the next court would cite the prior court's statement to that effect; it was most unfortunate.

One of the most telling moments for me during the Committee's hearings occurred when I heard the testimony of an expert fingerprint analyst who is a member of the Scientific Working Group on Friction Ridge Analysis, Study, and Technology. At one point in his testimony, he was asked what was the scientific basis for determining a match in prints in a situation when the examiner has only a partial or smudged print. The expert did not hesitate in conceding that the research has yet to be done.

When there is no good scientific basis to support a forensic discipline, and when experts cannot quantify certainty and uncertainty, the testimony that they offer is too often exaggerated (as with the claims of "zero error rates"); and sometimes testimony is even fabricated. You may have seen the recent story in the *San Jose Mercury News* reporting that, for years, San Jose police never told anyone when fingerprint technicians could not agree about whether a suspect's prints matched those taken from the crime scene. Instead, the police department's Central Identification Unit generated a report indicating that two technicians agreed that the suspect's prints had been positively identified, while omitting that a third technician dissented. Stories like this are disheartening, to say at least.

Senator DURBIN. Is that discoverable, incidentally? If I am criminal defense——

Judge EDWARDS. It should be.

Senator DURBIN [continuing]. Lawyer—now do you think it is discoverable?

Judge EDWARDS. It should be. It should be available. And that is one of the reasons that we have said in the report that the reporting requirement should be changed; there should be a national standard on how you report what it is that you found in the lab. There should be model lab reports. We do not mean to micromanage lab reports, but what we are suggesting is that there ought to be a national notion of the information that is included in these reports so that the judge and the jury are weighing the facts, all of the facts, fairly. And if a fingerprint examiner can only say, "Based on good science, my quantifiable estimate is this"—which is something less than 100 percent, that should be weighed against the other evidence presented. A fingerprint examiner should not, in my view, testify ethically that "I have a match," when, in fact,

science says you do not know that you have a match. You know that you have some good indication——

Senator DURBIN. Probabilities.

Judge EDWARDS. Right.

Senator DURBIN. Thank you.

Thanks, Mr. Chairman.

Chairman LEAHY. I am going back—we all do this. I am going back in my own mind to some of the cases I tried, trying to remember just what was said there. I am thinking, in 2004, Judge, we passed the Justice for All Act that had combined new forensic programs and resources from law enforcement, especially for DNA testing, along with protections for defendants, even after conviction, to have access to DNA testing. I think a lot of it strengthened our whole system. That was in the area of DNA, but many key provisions of this landmark are supposed to expire this year.

I think maybe what we should do is, if we go back to reauthorizing that, we should be looking at some of the recommendations in your report to see whether it should be done. I have seen the enormous cuts in the amount of money that is available for forensic science in the past few years. But you are saying that it is not just the money. You have got to have the training, you have got to have some basic standard—you can say you have got to have this much training—and experience, I suppose.

Judge EDWARDS. We need a Federal entity, we think, that can oversee extramural research to get the universities interested in doing some serious scientific research, just like they were when we started our moves on DNA. That is the kind of work that we need, we need both private and public research and university institutes to do some serious work to back up what is going on in the forensic disciplines.

Chairman LEAHY. Are there any universities that are concentrating on this today that you know of offhand?

Judge EDWARDS. There are some, and there are some decent programs, and we list them—I do not want to speak out of turn. We list the ones that we know of in the report. But I think all of the good forensic science people with whom I have talked have agreed, that the number of good programs is nowhere near what it should be. We really need interdisciplinary research. It is not enough for the forensic disciplines to simply continue to train people in their limited practice realm because that means we are not considering whether that practice realm is valid and reliable. All you are doing is teaching a new group of young people to do the same things that we are not sure are valid and reliable. And so what we need is to bring multidisciplinary research to the fore to look at these forensic disciplines to see whether or not they really are valid and reliable.

Chairman LEAHY. So it is not so much a problem of having honest, hard-working professionals——

Judge EDWARDS. No.

Chairman LEAHY [continuing]. But having the scientific research to back them up and back them up by everything we know today, but also start providing everything we are going to know tomorrow and the next day.

Judge EDWARDS. Exactly. Innovation, scientific innovation. I want to make it very clear we did not intend to damn the profes-

sionals who are working in the field. There are some terrific people working in the field, and we had a number of them on the Committee. So that is not the problem. The problem is, as they said back in 2005, they need help.

Chairman LEAHY. So we have to strengthen—just from some notes I have here, we have to strengthen our forensic science system; we have to fund new research; we have to improve our labs, fully train our examiners, and have standards that one can look at. And if we do that, that improves our criminal justice system.

Judge EDWARDS. Mandatory standards.

Chairman LEAHY. Mandatory standards.

Judge EDWARDS. Yes.

Chairman LEAHY. I understand. Well, I have received written testimony from the American Society of Crime Laboratory Directors, the International Association for Identification, National Association of Medical Examiners. I understand the Innocence Project intends to submit written testimony. All of it is going to be made part of the record, and we will keep it open for a week for that.

This Committee has done a great deal, for example, on ensuring the testing of rape kits when there has been an unacceptable backlog. I will use the personal privilege of being Chairman to notice that Rob and Debbie Smith are in the audience here today. They have done an enormous amount, given an enormous amount of their own time in bringing that law about, and I want to thank them.

Well, Judge, I want to thank you. I will probably be getting back to you on this matter. I appreciate that you took the time. I suspect it turned out, once you got into it, it took a lot more time than you thought. But I am very, very thankful that you did.

Judge EDWARDS. Thank you, Mr. Chairman. I appreciate the opportunity afforded me to speak on behalf of our committee. After more than two years of hard work, the committee realized that it was dealing with a very serious issue. We are pleased that careful attention is being given to the report. Thank you for allowing me to share my thoughts with you.

Chairman LEAHY. Thank you, and we will keep the record open for a week. We stand in recess.

[Whereupon, at 10:43 a.m., the Committee was adjourned.]

[Questions and answers and submissions for the record follow.]

QUESTIONS AND ANSWERS

UNITED STATES COURT OF APPEALS

DISTRICT OF COLUMBIA CIRCUIT
333 CONSTITUTION AVENUE, N.W.
WASHINGTON, DC 20001-2805

HARRY T. EDWARDS
SENIOR CIRCUIT JUDGE

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April 6, 2009

The Honorable Patrick Leahy
Chairman
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Chairman Leahy:

I am in receipt of your letter of March 30, 2009, following up on my testimony before the United States Senate Committee on the Judiciary on March 18, 2009, regarding "The Need to Strengthen Forensic Science in the United States: The National Academy of Science's Report on a Path Forward." Your letter was accompanied by written questions from Ranking Member Arlen Specter and other committee members which you have asked me to answer in conjunction with my hearing testimony. The questions are listed below, along with my answers.

***Question One**: Judge Edwards, the NAS Report suggests at Recommendation Seven that "No person (public or private) should be allowed to practice in a forensic science discipline or testify as a forensic science professional without certification." You have spent nearly three decades as an Article III judge—all of them on the court of appeals. In* Daubert v. Merrell Dow Pharmaceuticals, *509 U.S. 579, 597 (1993), the Supreme Court held that trial judges should serve as gatekeepers to "ensur[e] that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." Are you comfortable with Congress shifting that gatekeeper function from the courts to the proposed National Institute of Forensic Science (NIFS) and its accreditation process?*

ANSWER TO QUESTION ONE: The Committee did not intend to limit the gatekeeper role of trial judges. What the report says is that, in order to better serve the courts, the forensic science community should require certification and accreditation as self-imposed standards that would effectively prohibit examiners from testifying unless certified. In considering questions of admissibility, trial judges might then take into account the absence of certification and accreditation in applying Rule 702.

Question Two: Judge Edwards, how would you go about encouraging law enforcement to support Recommendation 1, that Congress establish and appropriate funds for an independent federal entity, the National Institute of Forensic Science (NIFS) that "must not be part of a law enforcement agency"? Would you expect law enforcement—including prosecutors and police officers—to push back significantly

and, if so, what would be your chief argument to support Recommendation 1 and its suggestion of absolute detachment?

ANSWER TO QUESTION TWO: Law enforcement officials have everything to gain if crime labs are improved. The recommendation calling for the removal of all public forensic laboratories and facilities from the administrative control of law enforcement agencies or prosecutors' offices is seen by some as controversial, because it raises political issues over the control of crime labs and their funding. The argument is made that it is easier for law enforcement units to secure appropriations to support the work of crime labs than it would be for labs to do it on their own. Thus, it is claimed that labs must stay under the control of law enforcement in order to be properly funded. In my view, this is a specious argument. Law enforcement units would be less effective if they did not have the support of crime labs. Therefore, directors of law enforcement units will be hard pressed to reasonably oppose adequate funding for crime labs. This issue is not about funding; it is about control.

There are a number of laboratories in the United States that are not subject to the administrative control of law enforcement agencies or prosecutors' offices, so this is not a novel idea. Some examples are: Alabama Department of Forensic Science; New York City Office of Chief Medical Examiner; Crime Laboratory of the Harris County (Texas) Medical Examiner's Office; Allegheny County (Pennsylvania) Medical Examiner's Office; Office of the Suffolk County (New York) Medical Examiner; Southwest Institute of Forensic Sciences (Dallas County, Texas); and Rhode Island State Crime Laboratory at the University of Rhode Island.

As the report makes clear, the simple point here is that forensic scientists should function independently of law enforcement administrators in the performance of their scientific work. The best science is conducted in a scientific setting as opposed to a law enforcement setting. Because forensic scientists often are driven in their work by a need to answer a particular question related to the issues of a particular case, they sometimes face pressure to sacrifice appropriate methodology for the sake of expediency or for other nonscientific reasons. This is not as it ought to be. Such pressures inhibit good science and ultimately adversely affect the credibility of the field.

***Question Three**: Judge Edwards, the NAS Report disclaims an intent to undermine any particular criminal case in which someone was convicted, in whole or in part, based upon forensic science. For instance, in Chapter 3, the Report notes, "No judgment is made about past convictions and no view is expressed as to whether courts should reassess cases that already have been tried." NAS Report at 3-1. Nonetheless, the Report does note, "Some non-DNA forensic tests do not meet the fundamental requirements of science, in terms of reproducibility, validity and falsifiability . . . ." Report at 1-6. The Report goes on to discuss judicial dispositions of questions related to the admissibility of DNA evidence, drug identification, fingerprint analysis, and other forensic disciplines while citing dozens of cases. See Report at 3-11 through 3-20. Do you worry that criminal defendants will cite the Report to obtain post-conviction relief?*

ANSWER TO QUESTION THREE: The committee's report does not mean to offer any judgments on any cases in the judicial system. The report does not assess past criminal convictions, nor does it speculate about pending or future cases. And the report offers no proposals for law reform. That was beyond our charge. It will be no surprise if the report is cited for its findings about the current status of the scientific foundation of particular areas of forensic science. And it is certainly possible that the courts will take the findings of the committee regarding the scientific foundation of particular types of forensic science evidence into account when considering the admissibility of such evidence in a particular case. However, each case in the criminal justice system must be decided on the record before the court pursuant to the applicable law, controlling precedent, and governing rules of evidence. The question whether forensic evidence in a particular case is admissible under applicable law is not coterminous with the question whether there are studies confirming the scientific validity and reliability of a forensic science discipline. The report focuses on the latter point, not the former.

***Question Four**: If there is a separation between the laboratories and law enforcement (police and prosecutors), are you concerned that the laboratories will be less responsive to urgent requests from law enforcement or to shifts in crime trends that might otherwise suggest that resources should be focused upon particular types of crimes or crime problems? In short, would you be concerned if the Director of the FBI or a State Attorney General could not tell the crime lab to prioritize certain cases?*

ANSWER TO QUESTION FOUR: The report does not mean to suggest that the Director of the FBI or a State Attorney General could not act to prioritize the cases that they send to crime labs, only that the *scientific work* should be under the sole control of the scientists, not law enforcement officers. Nor does the report mean to suggest that law enforcement officers and prosecutors cannot communicate with crime lab officials regarding pending cases. What the report recommends is that forensic practitioners working in crime laboratories should operate autonomously in performing their scientific analyses and in writing reports that state their findings.

***Question Five**: While we do have several national crime labs at the FBI, Secret Service and DEA, it is also true that suburban and rural police forces have much more limited resources and rely heavily upon their own officers to conduct tests. If we are imposing new certification, accreditation and educational standards on all persons designated to testify about forensics, are we creating an unfunded mandate for smaller departments that can ill afford to reassign officers for the particularized training necessary?*

ANSWER TO QUESTION FIVE: Because of the importance of forensic evidence in criminal prosecutions, it is *essential* that forensic practitioners follow best practices, pass proficiency tests, and be certified in their work. It is also essential that crime labs be accredited. We need rigorous certification and accreditation standards to avoid situations of the sort uncovered in the Houston, Detroit, and Baltimore labs. We cannot afford the risks that come with unqualified forensic examiners, any more than we can afford to allow persons without medical degrees to conduct autopsies. We must find incentive funds to support state and local jurisdictions to allow them to improve their forensic practices where they are wanting.

***Question Six**: The notion that fingerprints are a reliable form of unique identification is ingrained in our society. We use fingerprints for background checks, some states' driver's licenses, computer logins, bank check deposits, etc. How do we reconcile these sometimes long accepted uses of fingerprints with the findings in the NAS Report that question the scientific underpinnings of fingerprint identifications?*

ANSWER TO QUESTION SIX: As you suggest, it is not easy to reconcile the sometimes long accepted uses of fingerprints with the findings in the NAS Report that raise concerns about the scientific underpinnings and accuracy of fingerprint identifications. However, the report does not say that fingerprint analyses have no uses – rather, it raises important questions about the absence of research to support the validity and reliability, *i.e.*, the accuracy of fingerprint analyses, especially in cases in which there are only partial or smudged prints. As the report indicates, the absence of research can have unfortunate consequences in cases in which an examiner is looking at something other than a clear, clean, full print.

The report does not mean to suggest that fingerprint analysis must stand on par with DNA. Nor does the report mean to say that DNA analyses are flawless. Rather, the report notes that DNA analysis has had a level of scientific study and development that should be done for other disciplines (such as fingerprint identifications) that are used to support individualization claims. In other words, each discipline/modality should be evaluated scientifically in order to assess its accuracy using current technical capabilities and to identify areas in which new research and development are needed.

In a recent speech at Arizona State University, at a conference on "Forensic Science for the 21st Century: The National Academy of Sciences Report and Beyond," I offered the following thoughts on fingerprint analysis:

> For years, the courts have been led to believe that disciplines such as fingerprinting can be safely relied upon to support claims of individualization. For example, in a decision issued by the Seventh Circuit, the court reported that an FBI fingerprint expert had "testified that the error rate for fingerprint comparison is essentially zero." In a later decision issued by the Fourth Circuit, that court cited the Seventh Circuit opinion approvingly, noting that an expert from the FBI had testified that the error rate for fingerprint comparison was "essentially zero."
>
> The committee's report rejects as scientifically implausible any claims that fingerprint analyses have "zero error rates." There is no such concept as a zero error rate in good scientific analysis. Yet, for years the courts were led to believe otherwise. Of even greater concern is the dearth of scientific research to establish limits of performance, to ascertain quantifiable measures of uncertainty, and to address the impact of the sources of variability and potential bias in fingerprint examinations and in other forensic disciplines that rely on subjective assessments of matching characteristics.

> One of the most telling moments for me during the committee's hearings occurred when I heard the testimony of an expert fingerprint analyst who is a member of the Scientific Working Group on Friction Ridge Analysis, Study, and Technology. At one point in his testimony, he was asked what was the scientific basis for determining a match in prints in a situation when the examiner has only a partial or smudged print. The expert did not hesitate in conceding that the research has yet to be done.
>
> When there is no good scientific basis to support a forensic discipline, and when experts cannot quantify certainty and uncertainty, the testimony that they offer is too often exaggerated (as with the claims of "zero error rates"); and sometimes testimony is even fabricated. You may have seen the recent story in the San Jose Mercury reporting that, for years, San Jose police never told anyone when fingerprint technicians could not agree about whether a suspect's prints matched those taken from the crime scene. Instead, the police department's Central Identification Unit generated a report indicating that two technicians agreed that the suspect's prints had been positively identified, while omitting that a third technician dissented. Stories like this are disheartening, to say the least.

There may be good science to support fingerprint analyses, but we need to do the necessary research to confirm this. I was told at the Arizona State conference that the National Institute of Justice has recently funded "foundational" studies to assess the accuracy of fingerprint identifications, and also that a task force recently has been established to consider the problem of contextual bias in forensic examinations. But I was also told that we have a long way to go before meaningful studies will be completed to determine the scientific basis for determining a match in prints in situations when an examiner has only a partial or smudged print.

***Question Seven**: To the extent that one hopes the conceived NIFS would be establishing standards and best practices, how do you ensure that it can focus on that mission without becoming the default expert in every case?*

ANSWER TO QUESTION SEVEN: With the right people in charge of the NIFS operation – people of the caliber of John Holdren, the new director of the White House Office of Science and Technology Policy – and with adequate funding to promote important programs, a new entity like NIFS will effectively promote positive change in the forensic science community. Smart leaders know how to do their jobs well without thinking that they are the "default experts" in every case.

As the committee's report makes clear, what is needed is a massive overhaul of the forensic science system in the United States, both to improve the scientific research supporting the disciplines and to improve the practices of the forensic science community. And the creation of NIFS is the keystone for such an overhaul. I do not believe that truly meaningful reforms will be uniformly adopted by the forensic science community without the support and oversight of an entity like NIFS. The committee's report surely will promote some changes in current forensic practices, but more is needed.

The impetus for our committee's report came in 2005, when Congress – at the urging of the Consortium of Forensic Science Organizations (representing professionals in the forensic science community) – passed legislation directing the Academy to create an independent committee to study the forensic science community. In other words, Congress passed the legislation in response to a *call for help* from forensic professionals who understood the problems. In retrospect, I now realize that a principal part of the committee's assignment was to document what the professionals and a number of commentators already knew – namely, that the problems that afflict the forensic science community are serious and they cannot be cured without significant congressional action.

***Question Eight**: Judge Edwards, the Second Recommendation in the Committee's report, "Strengthening Forensic Science in the United States: A Path Forward," involves establishing "standard terminology to be used in reporting on and testifying about the results of forensic science investigations." Among other things, the report calls for requiring the use of "model laboratory reports" as part of the accreditation and certification process. Do you worry that by dictating the form of laboratory reports, the proposed National Institute of Forensic Science will be viewed as micromanaging laboratories and experts?*

ANSWER TO QUESTION EIGHT: The report does not mean to dictate the "form" of laboratory reports, nor does it mean to suggest that the National Institute of Forensic Science should micromanage laboratories and experts. Rather, the report recommends the adoption of model laboratory reports with specifications regarding the *minimum information* that should be included in a lab report. This recommendation is intended to facilitate the ability of lawyers, judges, and jurors to better comprehend the limits of forensic evidence that is offered in a case. Obviously, this is crucially important, as is the recommendation that "standard terminology" should be used by experts in reporting on and testifying about the results of forensic science investigations.

Professor Jennifer Mnookin offers a very useful critique that highlights the problems of exaggerated expert testimony:

> At present, fingerprint examiners typically testify in the language of absolute certainty. [They] make only . . . "positive" or "absolute" identifications – essentially making the claim that they have matched the latent print to the one and only person in the entire world whose fingertip could have produced it. In fact, if a fingerprint examiner testifies on her own initiative that a match is merely "likely" or "possible" or "credible," rather than certain, she could possibly be subject to disciplinary sanction! Given the general lack of validity testing for fingerprinting; the relative dearth of difficult proficiency tests; the lack of a statistically valid model of fingerprinting; and the lack of validated standards for declaring a match, such claims of absolute, certain confidence in identification are unjustified, the product of hubris more than established knowledge. [*Confessions of a Fingerprinting Moderate*, J.L. Mnookin. 2008. The Validity of latent fingerprint identification: Confessions of a fingerprinting moderate. *Law, Probability and Risk* 7(2):127].

This critique could be applied to several forensic disciplines that rely on subjective assessments of matching characteristics. When their testimony is admitted, forensic experts should offer as evidence nothing more than what they actually know, leaving it to the jury or judge to weigh the evidence offered against the other evidence that is presented in a case. My concern is that some forensic practitioners may not know what they do not know about the limits of their discipline; they will have to be taught this so that they can be circumspect in their testimony.

***Question Nine**: Judge Edwards, Recommendation Six suggests that NIFS should promote "studies to determine the effects of contextual bias in forensic practice" and appears to suggest blind tests with standard operating procedures "to minimize, to the greatest extent reasonably possible, potential bias and sources of human error in forensic practice." The FBI's errors in the Brandon Mayfield fingerprint identification case come to mind. How would you expect that case to have been handled differently if your recommendations had already been adopted?*

ANSWER TO QUESTION NINE: Having strong science and validated, reliable, and enforceable procedures and regulations undoubtedly will help to prevent errors by forensic examiners. But it is risky to make a one-to-one correspondence between an erroneous case and a specific scientific procedure (such as "blind" testing). Blind testing, proficiency testing, and strong quality controls are among the things that can be done to promote better forensic practice.

The point that the report means to stress is that we need good scientific research to ascertain quantifiable measures of uncertainty, and to address the impact of the sources of variability and potential bias in forensic disciplines that rely on subjective assessments of matching characteristics. The results of this research will allow crime labs to establish mandatory operating procedures, proficiency tests, and quality controls to avoid errors in forensic analyses and expert testimony. In my view, we should do everything in our power to ensure that the forensic science community serves our system of justice as well as it can. We cannot afford not to do this, for there is too much at stake.

Thank you for allowing me to testify before the committee. All the best.

Sincerely,

Harry T. Edwards
Senior Circuit Judge

UNITED STATES COURT OF APPEALS
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HARRY T. EDWARDS
SENIOR CIRCUIT JUDGE

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April 9, 2009

The Honorable Patrick Leahy
Chairman
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Chairman Leahy:

In my letter to you dated April 6, 2009, following up on my testimony before the United States Senate Committee on the Judiciary on March 18, 2009, regarding "The Need to Strengthen Forensic Science in the United States: The National Academy of Science's Report on a Path Forward," I gave some examples of independent crime laboratories in the United States. After I sent the letter, an expert in the field sent the following list of laboratories in the United States that are not subject to the administrative control of law enforcement agencies or prosecutors' offices:

Independent Crime Laboratories

* Excludes government toxicology laboratories, coroner offices, and private laboratories

State Laboratories:
Alabama Department of Forensic Sciences [includes Death Investigation]
Arkansas State Crime Laboratory [includes ME office]
Delaware Office of the Chief Medical Examiner & Forensic Sciences Laboratory
Puerto Rico Institute of Forensic Science

Independent County/Regional Labs:
Indianapolis-Marion County [IN] Forensic Services Agency
Onondaga County [NY] Forensic Sciences Laboratory
Westchester County Dept of Laboratories and Research, Div of Forensic Science Laboratory
Bexar County [TX] Criminal Investigation Laboratory
Acadiana Crime Lab [LA]
North Louisiana Criminalistics Laboratories
Southwest Louisiana Criminalistics Laboratory

Under Medical Examiner:
St. Tammany Parish, LA [Coroner] -- DNA lab only
Pinellas County, FL [ME]
Sedgwick County, KS [ME]

Nassau County, NY [ME] -- DNA lab only
New York City, NY [ME] -- DNA lab only
Suffolk County, NY [ME]
Westchester County [ME] -- DNA lab only
Allegheny County, PA [ME]
Dallas County, TX [ME]
Harris County, TX [ME]
Tarrant County, TX [ME]

I would appreciate it if you would attach this letter as an addendum to my letter of April 6, 2009. Thank you. All the best.

Sincerely,

Harry T. Edwards
Senior Circuit Judge

SUBMISSIONS FOR THE RECORD

AMERICAN SOCIETY OF CRIME LABORATORY DIRECTORS

LABORATORY ACCREDITATION BOARD

March 16, 2009

The Honorable Patrick Leahy
433 Russell Senate Office Building
United States Senate
Washington, DC 20510

Dear Senator Leahy:

Thank you for the opportunity to provide feedback on the NAS report. On March 15, 2009, the ASCLD/LAB Board of Directors discussed the NAS recommendations. While ASCLD/LAB supports most of the recommendations of the NAS report, the Board would like to highlight the recommendations that we believe would provide the most significant impact on the quality of forensic services.

It is ASCLD/LAB's position that mandatory accreditation supported with adequate funding is the recommendation that could have the most significant and immediate positive impact on the quality of forensic services. In 1974 the membership of the ASCLD recognized the need for improvements in the quality of forensic services provided to the criminal justice system. As a result of initiatives by the American Society of Crime Laboratory Directors, the ASCLD/LAB accreditation program was introduced in 1981. Since that time, over 360 crime laboratories have achieved accreditation through ASCLD/LAB. Still, there are far more small forensic units outside of traditional laboratories that provide forensic services, such as latent prints, questioned documents, firearms, and digital evidence analysis. It is ASCLD/LAB's position that all forensic units regardless of size and makeup should be subject to mandatory accreditation.

ASCLD/LAB supports most of the NAS recommendations and has previously incorporated many of the recommendations of the NAS, including; proficiency testing; personnel qualifications and training; competency testing of new analysts and career-long proficiency testing; reporting requirements including the use of qualifying statements in reports to make clear the significance of associations; root cause analysis to determine the cause of errors as well as a review of past casework to determine if the error affected other cases and a review of future work to ensure that the error does not reoccur; guidelines for professional responsibility and ethical conduct; and quality assurance and quality control practices. ASCLD/LAB is also implementing additional NAS recommendations into its accreditation program as enhancements of existing requirements or as new requirements.

ASCLD/LAB supports the use of an ISO 17025-based accreditation program as described by the NAS as a model for accreditation. In 2003, the ASCLD/LAB Delegate Assembly adopted the implementation of an ISO 17025-based accreditation program. Effective April 1, 2009, ASCLD/LAB will only offer accreditation under ISO 17025 standards, supplemented by forensic specific requirements that have proven to be essential to the operation of a quality forensic program.

ASCLD/LAB supports funding for research to enhance forensic services and federal funding for forensic providers which have demonstrated a commitment to providing quality services by seeking and maintaining accreditation.

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One of the few recommendations that ASCLD/LAB is not prepared to support is the removal of laboratories from law enforcement agencies or prosecutor's offices. While we agree that crime laboratories must have scientific autonomy from their parent agencies and the freedom to report non-biased results without external pressure, accreditation standards in ISO 17025 already require that laboratories be guarded against undue influence in the work of the scientist by the parent agency or any other interested party. We believe that this standard, as enforced by ASCLD/LAB, addresses the concerns expressed by the report and achieves the goal of the NAS.

Finally, although ASCLD/LAB does not support the formation of a new government entity to perform the oversight of forensic service providers, we do support identifying an existing coordinating body that possesses the authority to cut across federal agencies and budgets and can make recommendations to Congress regarding funding necessary to continue the improvement of the forensic sciences.

Sincerely,

Jami StClair

Jami StClair
Chair, ASCLD/LAB Board

cc: ASCLD/LAB Board
Ralph Keaton, Executive Director

March 17, 2009

The Honorable Patrick J. Leahy
Chairman, Senate Committee on the Judiciary
433 Russell Senate Office Building
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the American Society of Crime Laboratory Directors (ASCLD), we thank you for this opportunity to present our views with respect to the findings of the National Academy of Sciences report entitled "Strengthening Forensic Science in the United States: A Path Forward." **ASCLD believes the complexity of the report distills down to two fundamental issues that affect forensic laboratory operations: the need for (*i*) standardization in education, training and forensic science delivery and (*ii*) adequate, sustainable resources across the forensic community.** ASCLD has long been a strong advocate on these issues because they are critical in order to safeguard the integrity and value of our profession.

During the course of the NAS committee's work, ASCLD was invited to present its position concerning issues facing forensic science. These issues included critical needs in the following areas:

- **Technology and Scientific Advances** – *improving the current fragmented and inconsistent technology available in crime laboratories across the United States and addressing the need for standards in forensic science*
- **Personnel and Training** – *mandating ethics guidelines, ensuring quality through establishing standards for education, training, accreditation, certification, and use of common language*
- **Best Practices and Efficiencies** – *identifying means toward improvement such as benchmarking, process improvements, balancing service priorities*
- **Financial Resources** – *appropriating sustainable, flexible funding sources at the national, state and local levels*

ASCLD welcomes and appreciates the scientific and scholarly peer review of our profession as well as the constructive discussions and debates centering on science and policy issues. However, as you and your committee moves forward with policy and implementation strategies, we respectfully ask that you consider the perspectives of crime lab directors and managers across the United States.

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Although ASCLD supports many of the important issues covered in the NAS report recommendations, we do not support the formation of a new government entity at this time. **Clearly, the need identified in the NAS report is directed specifically to enforceable standards**. However taking the current fiscal realities into mind, the need for enforceable standards within forensic science outweighs the ability to fund, create and implement a new national entity. **Congress should identify an existing government body that cuts across federal agencies and budgets at the highest level to be charged with this important task.** The report clearly identifies a wealth of existing resources within the professional scientific community; within our strategic partners in science, education and policy; and among the many criminal justice stakeholders available to the forensic science community that this body can partner with to strengthen the forensic sciences.

ASCLD supports proper and continuous funding that is critical for all forensic science laboratories and operations to meet their operational demands as well as their training and continuing education needs. Doing more with less, crime laboratories today are generally forced to address the heavy workload demands placed upon them with limited resources and ability to address equally important professional needs such as training, research and new, innovative technology development and transfer. The forensic community has benefited from grant funding, but the limited terms and conditions only provide temporary relief of symptoms. Fortunately, these all important funding needs have been equally recognized in the NAS report. **Congress should support funding that must be substantial and consistent for all disciplines (not just DNA) in order to provide accurate, timely and meaningful results that can identify the guilty and exonerate the innocent.**

ASCLD strongly supports the mandatory accreditation of all forensic science operations as an essential quality component and supports specific financial support for those forensic operations which have demonstrated a commitment to quality by seeking and maintaining accreditation. ASCLD was formed in 1974 after recognizing the need for improvements in forensic services and later implemented the ASCLD/LAB accreditation program in 1981. Current accreditation programs, with movement toward ISO/IEC 17025 based international standards as currently offered by our strategic partners, provides confidence and assurance to a parent organization, its employees, the criminal justice community, and the public that the operation can meet the most comprehensive forensic quality management system requirements. **Congress should implement mandatory accreditation as one of the key deliverables that can be achieved in the short term with the support of federal legislation and existing funding streams that would make immediate, substantial, and positive impacts toward the improvement of the practice and delivery of forensic science in the United States.**

ASCLD believes all forensic operations should require responsible, professional ethics and laboratory policies that guard against undue influence. The practice of forensic science is built on a foundation of ethics and objectivity and that must be supported at all levels in the organization. Therefore, regardless of whether a laboratory is a part of a police or sheriff's department, a local or state attorney's office, a medical examiner's office or any other parent agency, laboratory managers and employees of forensic laboratories must avoid any activity, interest, influence, or association that interferes or appears to interfere with their independent ability to exercise professional judgment. **Congress (*i*) should not remove crime laboratories from parent agencies if the parent agency is required to document how crime laboratories have**

scientific autonomy with the freedom to conduct testing and report results without pressure from activity, interest, or influence; and (*ii*) should support funding and research to explore the potential for influence or biases that could affect the quality of results in forensic laboratory operations to strengthen public confidence.

As a community working together with our stakeholders, ASCLD is committed to identifying and proving the existence of valid, reliable science and interpretations behind our forensic analyses. Many crime laboratories across the United States have robust, validated methods, and are confidently producing accurate and reliable scientific work. The erroneous public perception that our science is unreliable can only be changed through engagement, collaboration and healthy debate. One must remember the words of William Cowper: "The absence of proof is not the proof of absence." Accordingly, although the validation documentation may not be readily available in or published in literature by some laboratories, the lack of that data does not mean the science is unreliable. **Congress should prioritize funding for research efforts to crime laboratories and educational institutions to create, publish and deliver the proper validation documentation to restore the trust and confidence regarding forensic science testing within the criminal justice system.**

In summary, ASCLD recognizes that the in-depth NAS report paves the way for a significant national focus on the needs of forensic science – a focus that includes policy, scientific and funding improvements. Laboratory directors and managers are doing their part to properly educate their staff and stakeholders on the issues raised in this report. The forensic science community understands that there will undoubtedly be on-going, intense discussion and debate with forensic science stakeholders. However, the immediate focus must remain on the two most important goals: (*i*) standardization in education, training and forensic science delivery and (*ii*) adequate, sustainable resources across the forensic community.

ASCLD is encouraged by and very thankful for all the efforts being made by the current Administration, Congress, the National Academies and our stakeholders to make forensic science a priority in national policy. ASCLD is committed to being a leading resource in the long process ahead to indeed create "a path forward" for forensic science that focuses on continuous improvement and excellence. Forensic science is an essential component of the criminal justice system, and with appropriate standardization and sufficient resources, it can become even more valuable to those we serve.

Respectfully Yours,

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American Society of Crime Laboratory Directors

Purpose of ASCLD

The American Society of Crime Laboratory Directors (ASCLD) is a non-profit professional organization of crime laboratory directors and forensic science managers dedicated to providing excellence in forensic science through leadership and innovation. As an organization, ASCLD provides leadership in the forensic community as well as assistance to its members by providing information, training and networking opportunities.

The ASCLD was founded in 1973 by a small group of crime lab directors from throughout the United States to foster professional interests and to assist in the development of laboratory management principles and techniques. Today, ASCLD is composed of over 650 crime laboratory directors and forensic science managers that represent over 250 local, state, federal and private crime laboratories in the United States. Membership also includes directors from 30 international laboratories, as well as national and international academic affiliates.

Our ***Mission Statement***:

"To promote the effectiveness of crime laboratory leaders throughout the world by facilitating communication among members, sharing critical information, providing relevant training, promoting crime laboratory accreditation, and encouraging scientific and managerial excellence in the global forensic community. "

ASCLD Position Statements

The purpose of this document is to provide guidelines to those outside our community for the positions we support in order to safeguard the integrity and value of our profession. These are not immutable laws nor are they all inclusive. However, they represent ASCLD's positions on what each laboratory operation should strive to meet.

ASCLD recognizes the tremendous value, trust and responsibility that the forensic sciences bring and the role our laboratories play within the broader justice community

and to the public it serves. In keeping with ASCLD's history of providing leadership to the forensic community, we are proud to offer our 2008 Position Statements.

ASCLD Position #1 – Ethics and Objectivity. ASCLD believes the practice of forensic science must be built on a foundation of ethics and objectivity. Regardless of whether a laboratory is a part of a police or sheriff's department, a local or state attorney's office, a medical examiner's office or any other parent agency, laboratory managers and employees of forensic laboratories must avoid any activity, interest, influence, or association that interferes or appears to interfere with their independent ability to exercise professional judgment. Our professional ethics provide the basis for the examination of evidence and the reporting of analytical results by blending the scientific principles and the statutory requirements into guidelines for professional behavior. Laboratory managers must strive to ensure that forensic science examinations are conducted in accordance with sound scientific principles and within the framework of the statutory requirements to which forensic professionals are responsible.

ASCLD Position #2 – Financial Resources. ASCLD believes proper and continuous funding is critical for all forensic science laboratories and operations to meet their near-term and long-term operational demands as well as their training and continuing education needs. Adequately resourced budgets allow forensic managers to provide the proper space, technological support and staffing levels to meet (*i*) the quality and time demands of casework and (*ii*) the on-going competency requirements for training, research, technological development, and innovation. Funding must be substantial and consistent in order to provide accurate, timely and meaningful results that can identify the guilty and exonerate the innocent.

ASCLD Position #3 – Accreditation. ASCLD believes accreditation of ALL forensic science operations is an essential quality component. Accreditation, with movement toward ISO/IEC 17025 based international standards as currently offered by our strategic partners, provides confidence and assurance to a parent organization, its employees, the criminal justice community, and the public that the operation can meet the most comprehensive forensic quality management system requirements.

ASCLD Position #4 – Education, Training and Certification. ASCLD believes highly educated, technically competent and qualified forensic professionals are essential to our mission. Forensic laboratories must hire and retain qualified

personnel who have the integrity necessary in the practice of forensic science. ASCLD recognizes the essential need for enforceable standards in educational programs and the benefits of certification of all forensic practitioners. Proper training and individual certification provides confidence and assurance that the forensic practitioner can meet the stringent knowledge, skill and ability requirements for his/her discipline(s).

ASCLD Position #5 – Standardization and Best Practices. ASCLD believes laboratory managers and parent organizations need to develop, share and support the best practices of technological and fiscal efficiency in order to achieve standardization within the forensic disciplines. The development of standardized methods and procedures, the development of common language in benchmarking performance studies, and the careful analysis of fiscal and operational metrics will provide improved accountability to the justice community and standardization between all forensic science laboratories and operations.

ASCLD Position #6 – Oversight. ASCLD believes the creation and support of an advisory infrastructure which includes the appropriate stakeholders is a means to promote and encourage scientific and managerial excellence in the forensic community. Such an infrastructure, however named and formed, must be advisory (non-controlling) in function and comprised of individuals with the knowledge and understanding of forensic science which could identify and help resolve legitimate concerns while discrediting criticisms that are unfounded or unsupported.

It is the intent of ASCLD to actively promote open communication and a better understanding of the guiding principles of our profession with all interested parties so we may collectively benefit from meeting our core mission.

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STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD

Statement of

The Honorable Harry T. Edwards
Senior Circuit Judge and Chief Judge Emeritus
United States Court of Appeals for the D.C. Circuit
and
Visiting Professor of Law
New York University School of Law

and

Co-Chair, Committee on Identifying the Needs of the Forensic Science Community

The Research Council of the National Academies

before the

United States Senate
Committee on the Judiciary

March 18, 2009

Chairman Leahy, other members of the Committee, thank you for inviting me to appear today. My name is Harry T. Edwards, and I am a Senior Circuit Judge and Chief Judge Emeritus of the U.S. Court of Appeals for the D.C. Circuit. I am also a Visiting Professor of Law at the New York University School of Law, where I have taught for the past 19 years.

I am appearing in my capacity as co-chair of the Committee on Identifying the Needs of the Forensic Science Community at the National Academy of Sciences. The Committee recently issued a report entitled, "Strengthening Forensic Science in the United States: A Path Forward." The impetus for the report came in 2005, when Congress passed the Appropriations Act of 2006. Pursuant to this legislative action, the Attorney General was directed to provide funds to the National Academy of Sciences to create an independent committee to, among other things,

- "assess the present and future resource needs of the forensic science community,"
- "make recommendations for maximizing the use of forensic techniques,"
- "make recommendations . . . [on how to] increase the number of qualified forensic scientists and medical examiners,"
- "disseminate best practices and guidelines . . . to ensure quality and consistency in the use of forensic technologies and techniques," and
- "make recommendations for programs that will increase the number of qualified forensic scientists and medical examiners."

This congressional action came at the strong instigation of the Consortium of Forensic Science Organizations that sought to establish national support for funding and good policies for the forensic science disciplines at all levels of government. In other words, Congress passed the legislation in response to a call for help from professionals in the forensic science community.

Given the breadth of the congressional charge, it was no mean feat for our committee to complete its work. The committee was composed of a diverse and talented group of professionals, some expert in various forensic science disciplines, others in law, some in higher education, and others in different fields of science, engineering, and medicine. It was gratifying to work with my co-chair, Dr. Constantine Gatsonis, the Director of the Center for Statistical Sciences at Brown University, and with the other wise and dedicated members of the committee as we waded through the complex maze of science, law, and policy issues before us.

During the more than two years that we worked on the report, the committee heard from and reviewed materials published by countless experts, including forensic science practitioners, heads of public and private laboratories, directors of medical examiner and coroner offices, scientists, scholars, educators, government officials, members of the legal profession, and law enforcement officials. The picture that these experts and their research painted of the forensic science community was compelling.

I started this project with no preconceived views about the forensic science community. Indeed, as best I can recall, when I commenced my work as co-chair of the committee, I had never heard an appeal in which a criminal defendant challenged the admission of forensic evidence at trial. And I do not watch CSI programs on television, so I was not affected by Hollywood's exaggerated views of the capacities of forensic disciplines. Rather, I simply assumed, as I suspect many of my judicial colleagues do, that forensic science disciplines typically are grounded in scientific methodology and that crime laboratories and forensic science practitioners generally are bound by solid practices that ensure that forensic evidence offered in court is valid and reliable. I was surprisingly mistaken in what I assumed. The truth is that the manner in which forensic evidence is presented on television – as invariably conclusive and final – does not correspond with reality.

A SYSTEM PLAGUED BY A PAUCITY OF GOOD RESEARCH, FRAGMENTATION, INCONSISTENT PRACTICES, AND WEAK GOVERNANCE. For decades, various forensic science disciplines have produced valuable evidence that has contributed to the successful prosecution and conviction of criminals, and also the exoneration of innocent people. In recent years, advances in forensic science disciplines, especially the use of DNA technology, have demonstrated that some areas of forensic science have great additional potential to help law enforcement agencies identify criminals. There are scores of talented and dedicated people in the forensic science community, and the work that they perform is very important. They are often strapped in their work, however, because of (1) a paucity of strong scientific research, (2) a lack of adequate resources and national support, and (3) the absence of unified and meaningful regulation of crime laboratories and practitioners. It is clear that change and advancements, both systemic and scientific, are needed in a number of forensic science disciplines – to ensure the reliability of the disciplines, establish enforceable standards, and promote best practices and their consistent application.

The committee found that the forensic science community is plagued by fragmentation and inconsistent practices in federal, state, and local law enforcement jurisdictions and agencies. The quality of practice in forensic science disciplines varies greatly. And the quality of practice often suffers greatly because of

- the frequent absence of solid scientific research demonstrating the validity of forensic methods, quantifiable measures of the reliability and accuracy of forensic analyses, and quantifiable measures of uncertainty in the conclusions of forensic analyses;

- the paucity of research programs on human observer bias and sources of human error in forensic examinations;

- the paucity of interdisciplinary scientific research to support forensic disciplines and forensic medicine;

- the absence of solid scientific and applied research focused on new technology and innovation;

- the lack of autonomy of forensic laboratories (which are often subject to the administrative control of law enforcement agencies or prosecutors' offices);
- a gross shortage of adequate training and continuing education of practitioners;
- the absence of rigorous, mandatory certification requirements for practitioners;
- the absence of uniformly mandatory accreditation programs for laboratories;
- failures to adhere to robust performance standards;
- the failure of forensic experts to use standard terminology in reporting on and testifying about the results of forensic science investigations; and
- the lack of effective oversight.

A few examples of the problems uncovered by the committee amplify the needs of the forensic science community:

EXAMPLE ONE – SUBJECTIVE INTERPRETATIONS, EXAGGERATED TESTIMONY, AND A PAUCITY OF RESEARCH. Often in criminal prosecutions and civil litigation, forensic evidence is offered to support a claim that an evidentiary specimen is a "match" to a particular individual or other source. With the exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source. Yet, for years, the courts have been led to believe that disciplines such as fingerprinting stand on par with DNA analysis. For example, in a decision issued by the Seventh Circuit, the court reported that an FBI fingerprint expert had "testified that the error rate for fingerprint comparison is essentially zero." In a later decision issued by the Fourth Circuit, that court cited the Seventh Circuit opinion approvingly, noting that an expert from the FBI had testified that the error rate for fingerprint comparison was "essentially zero." The committee's report rejects as scientifically implausible any claims that fingerprint analyses have "zero error rates." A "zero error rate" is a myth in fingerprint analyses and in all other forensic disciplines. That is no surprise, however, because there is no such concept as a zero error rate in good scientific analysis. Of greater concern is the dearth of solid research to establish the limits and measures of performance and to address the impact of the sources of variability and potential bias in most disciplines.

Another serious concern is contextual bias. Some studies have demonstrated that identification decisions on the same fingerprint can change solely by presenting the print in a different context. In one study, for example, fingerprint examiners were asked to analyze fingerprints that, unknown to them, they had analyzed previously in their careers. Contextual biasing was introduced – that is, examiners were told that the "suspect confessed to the crime" or the "suspect was in police custody at the time of the crime." In one-third of the examinations that

included contextual manipulation, the examiners reached conclusions that were different from the results they had previously reached.

EXAMPLE TWO – INCONSISTENT PRACTICES IN CRIME LABORATORIES. In recent years, the integrity of crime laboratories has been called into question, with some highly publicized cases highlighting (1) unqualified practitioners, (2) sometimes lax standards that have generated questionable or fraudulent evidence, and (3) the absence of quality control measures to detect questionable evidence. In one notorious case, a state-mandated review of analyses conducted by a West Virginia State Police laboratory employee revealed that the convictions of more than 100 people were in doubt because the employee had repeatedly falsified evidence in criminal prosecutions. At least 10 men had their convictions overturned as a result, and subsequent reviews questioned whether the lab employee was ever qualified to perform scientific examinations.

Other scandals, such as one involving the Houston crime laboratory in 2003, highlight the sometimes blatant lack of proper education and training of forensic examiners. In the Houston case, several DNA experts went public with accusations that the DNA/Serology Unit of the Houston Police Department Crime Laboratory was performing grossly incompetent work and was presenting findings in a misleading manner designed to unfairly help prosecutors obtain convictions. An audit by the Texas Department of Public Safety confirmed serious inadequacies in the laboratory's procedures, including routine failure to run essential scientific controls, failure to take adequate measures to prevent contamination of samples, failure to adequately document work performed and results obtained, and routine failure to follow correct procedures for computing statistical frequencies.

This past fall, it was reported that the Detroit police crime lab was shut down after an outside audit found errors in evidence used to prosecute cases involving murder and other crimes. The audit found erroneous or false findings in 10 percent of 200 random cases, subpar quality control compliance, and a "shocking level of incompetence" in the lab. It was also reported that the chief of the police crime lab in Baltimore was fired after it was revealed that DNA samples had been contaminated by lab employees.

EXAMPLE THREE – SWGS. There are a number of Scientific Working Groups (SWGs) for forensic disciplines. For example, the SWGDRUG group recommends minimum standards for the forensic examination of seized drugs and seeks the international acceptance of these standards. An official from the Drug Enforcement Administration, who was the chair of SWGDRUG, testified before the committee and explained how his SWG group operates. His answers to my questions indicated that some SWG standards undoubtedly incorporate good technical protocols that should enhance forensic science analyses; however, his testimony also confirmed that, as a general matter, SWGs are of questionable value. Why? Because

- SWG committees meet irregularly and have no clear or regular sources of funding.
- There are no clear standards in place to determine who gains membership on SWG committees.

- Neither SWGs nor their recommendations are mandated by any federal or state law or regulation.
- SWG recommendations are not enforceable.
- A number of SWG guidelines are too general and vague to be of any great practical use.
- SWG committees have no way of knowing whether state or local agencies even endorse the standards.
- Complaints are not filed when a practitioner violates a SWG standard.
- SWG committees do not attempt to measure the impact of their standards by formal study or survey.

In other words, even if we were to assume that some SWG standards make sense and result in good practice, there is nothing to indicate that the standards are routinely followed in a way to ensure best practices in the forensic science community.

EXAMPLE FOUR. THE CORONER SYSTEM. In 1928, the National Academy of Sciences strongly recommended that the coroner system should be abolished in the United States. In 2008, the committee determined that 28 states still operate with coroners, instead of medical examiners. Less than one-third of the states with coroners require training for those who hold the positions. Recently, in Indiana, a 17-year-old high school senior successfully completed the coroner's examination and was appointed a deputy coroner. Obviously, the teenager was not a trained physician; and, like many coroners, she was not qualified to conduct an autopsy or make sophisticated assessments of the dead for disease, injury, medical history, and laboratory studies, assessments that we need from qualified medical examiners and pathologists in the wake of homicides, natural disasters, suicides, and breaches of homeland security.

THE OBVIOUS NEED TO OVERHAUL THE EXISTING SYSTEM. Problems such as these highlight some glaring weaknesses in the forensic science community. Existing data suggest that forensic laboratories and medical examiner offices are under-resourced and understaffed, which contributes to case backlogs and likely makes it difficult for laboratories to do as much as they could to (1) inform investigations, (2) provide strong evidence for prosecutions, and (3) avoid errors that could lead to imperfect justice. Being under-resourced also means that the tools of forensic science – and the knowledge base that underpins the analysis and interpretation of evidence – are not as strong as they could be, thus hindering the ability of the forensic science disciplines to excel at informing investigations, providing strong evidence, and minimizing errors.

The work of the forensic science community is critically important in our system of criminal justice. Indeed, as one scholar has noted, "forensic science is but the handmaiden of the legal system." The goal of law enforcement actions is to identify those who have committed crimes and to prevent the criminal justice system from erroneously convicting the innocent. Forensic science

experts and evidence are routinely used in the service of the criminal justice system. So it matters a great deal whether an expert is qualified to testify about forensic evidence and whether the evidence is sufficiently reliable to merit a fact finder's reliance on the truth that it purports to support. As one commentator has aptly noted:

> Forensic evidence, especially DNA evidence, is heavily relied upon as a means to not only convict the guilty but also protect the innocent. When flawed or false forensic evidence makes its way into the courtroom, the integrity of the entire criminal justice system is called into question. Individuals are at risk of being wrongfully convicted and the public's trust in our system of justice is eroded.

Unfortunately, the adversarial approach to the submission of evidence in court is not well suited to the task of finding "scientific truth." The judicial system is encumbered by, among other things, judges and lawyers who generally lack the scientific expertise necessary to comprehend and evaluate forensic evidence in an informed manner, defense attorneys who often do not have the resources to challenge prosecutors' forensic experts, trial judges (sitting alone) who must decide evidentiary issues without the benefit of judicial colleagues and often with little time for extensive research and reflection, and very limited appellate review of trial court rulings admitting disputed forensic evidence. Furthermore, the judicial system embodies a case-by-case adjudicatory approach that is not well suited to address the systematic problems in many of the various forensic science disciplines. Given these realities, there is a tremendous need for the forensic science community to improve. Judicial review, by itself, will not cure the infirmities of the forensic science community.

Simply increasing the number of staff within existing crime laboratories and medical examiners' offices will not solve the problems of the forensic science community. What is needed is an upgrading of systems and organizational structures, better training, the widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. The forensic science community and the medical examiner/coroner system must be upgraded if forensic practitioners are to be expected to serve the goals of justice.

Apart from improving forensic practices, the committee was also very concerned about the paucity of solid interdisciplinary scientific research to support forensic disciplines. Adding more dollars and people to the enterprise might reduce case backlogs, but it will not address fundamental limitations in the capabilities of forensic practices to pursue scientific research to confirm the validity and reliability of existing disciplines and to achieve technological advancements.

In the course of its deliberations and review of the forensic science enterprise, it became obvious to the committee that, although congressional action will not remedy all of the deficiencies in forensic science methods and practices, truly meaningful advances will not come without significant concomitant leadership from the federal government. The forensic science enterprise lacks the necessary governance structure to improve upon its current weaknesses. In other words, the committee found that, not only does the forensic science community lack adequate resources, talent, and mandatory standards; it also lacks the necessary governance structure to address its

current weaknesses. The forensic science community needs strong governance to adopt and promote an aggressive, long-term agenda.

THERE ARE NO EXISTING AGENCIES THAT ARE WELL SUITED TO GOVERN THE FORENSIC SCIENCE COMMUNITY. In thinking about how best to address the problems that now encumber the forensic science community, the committee first considered whether a governing entity could be established within an existing federal agency. We concluded that no existing agency has the capacity or appropriate mission to take on the roles and responsibilities needed to govern and improve the forensic science community.

The Committee considered the National Institute of Standards and Technology ("NIST"), for example, but rejected the idea of this agency assuming the role of leader of the forensic science community. NIST is a non-regulatory federal agency within the Department of Commerce. The agency's mission is to promote innovation and industrial competitiveness. NIST Laboratories, located in both Gaithersburg, Maryland, and Boulder, Colorado, conduct research in a wide variety of physical and engineering sciences, responding to industry needs for measurement methods, tools, data, and technology (*e.g.*, from automated teller machines and atomic clocks to mammograms and semiconductors). However, a key goal for the new agency that will oversee the forensic science community will be to build up the research base and educational infrastructure that will enable the forensic science disciplines to move forward. NIST has little or no experience in establishing and running an extramural research program, and its ability to stimulate new academic programs and strengthen existing ones is untested.

Another key goal for the agency that will oversee the forensic science community will be to strengthen the practice of forensic science disciplines. While NIST has expertise in establishing laboratory standards, it has never assumed sweeping responsibilities of the sort that should be assigned to any entity that is authorized to oversee the forensic science community. These responsibilities will include establishing a coherent set of standards for laboratory practice, reporting, and professionalism (including codes of ethics), along with standards and practices for laboratory accreditation and professional certification and incentives for their widespread adoption. This work is of a very different character than the traditional work of a measurement and standards laboratory that is performed by NIST.

The committee also considered the National Science Foundation ("NSF"), but concluded that this agency should not be assigned the role of leader of the forensic science community. NSF is an independent federal agency created to promote the progress of science. The agency is the funding source for approximately 20 percent of all federally supported basic research conducted by America's colleges and universities. In many fields such as mathematics, computer science, and the social sciences, NSF is the major source of federal backing. NSF fills its mission chiefly by issuing limited-term grants – currently about 10,000 new awards per year, with an average duration of three years – to fund specific research proposals that have been judged the most promising by a rigorous and objective merit-review system. Obviously, NSF has good ties to the academic community and it understands the demands of rigorous scientific research; but the agency has very thin ties to the forensic science community and very little expertise in building and reinforcing the foundations of areas of applied science and practice such as are found in the forensic science disciplines.

In addition, there is nothing to indicate that NSF has the relevant expertise needed to strengthen the practices of forensic science. Nor does it appear that NSF could build a coherent set of standards for laboratory practice, reporting, and professionalism (including codes of ethics), along with standards and practices for laboratory accreditation and professional certification and incentives for their widespread adoption.

Neither NIST nor NSF has experience in running a comprehensive regulatory program, which will be a major role for any agency that is assigned to develop and promulgate standards and incentives to oversee and effectively "regulate" the forensic science community. Neither NIST nor NSF has any meaningful expertise in legal issues that invariably will affect the work of any agency that is assigned a major governance role over the forensic science community – *e.g.*, designing federal programs that attempt to influence state and local choices and overseeing staff with knowledge of the criminal justice system and the role of forensic evidence and experts within the legal system. And, of course, neither NSF nor NIST has expertise in or meaningful experience with the medicolegal death investigation system or in the matters that need to be addressed to strengthen that system.

There was also a strong consensus in the committee that no existing or new division or unit within the Department of Justice ("DOJ") would be an appropriate location for a new entity governing the forensic science community. DOJ's principal mission is to enforce the law and defend the interests of the United States according to the law, not to pursue serious scientific research and education. Agencies within DOJ operate pursuant to this mission. The FBI, for example, is the investigative arm of DOJ and its principal missions are to produce and use intelligence to protect the Nation from threats and to bring to justice those who violate the law. The work of these law enforcement units is critically important to the Nation, but the scope of the work done by DOJ units is much narrower than what is necessary to create and oversee a strong forensic science community. Forensic science serves more than just law enforcement; and when it does serve law enforcement, it must be equally available to law enforcement officers, prosecutors, and defendants in the criminal justice system.

The entity that is established to govern the forensic science community cannot be principally beholden to law enforcement. The potential for conflicts of interest between the needs of law enforcement and the broader needs of forensic science are too great. In addition, the committee determined that the research funding strategies of DOJ have not adequately served the broad needs of the forensic science community. This is understandable, but not acceptable when the issue is whether an agency is best suited to support and oversee the Nation's forensic science community. In sum, the committee concluded that advancing science in the forensic science enterprise is not likely to be achieved within the confines of DOJ.

Finally, there is little doubt that some existing federal entities are too wedded to the current "fragmented" forensic science community, which is deficient in too many respects. Most notably, these existing agencies have failed to pursue a rigorous research agenda to confirm the evidentiary reliability of methodologies used in a number of forensic science disciplines. These agencies are not good candidates to oversee the overhaul of the forensic science community in the United States.

CONGRESS SHOULD ESTABLISH A NEW, INDEPENDENT AGENCY – THE NATIONAL INSTITUTE FOR FORENSIC SCIENCE ("NIFS") – TO OVERSEE THE FORENSIC SCIENCE COMMUNITY. The committee believes that what is needed to support and oversee the forensic science community is a new, strong, and independent entity that could take on the tasks that would be assigned to it in a manner that is as objective and free of bias as possible – one with no ties to the past and with the authority and resources to implement a fresh agenda designed to address the problems found by the committee and discussed in the report. A new organization should not be encumbered by the assumptions, expectations, and deficiencies of the existing fragmented infrastructure, which has failed to address the needs and challenges of the forensic science disciplines.

With these considerations in mind, the committee's principal recommendation is that Congress should authorize and fund the creation of an independent federal entity, the National Institute of Forensic Science, or NIFS. This new agency should have a full-time administrator and an advisory board with members who have expertise in research and education, forensic science disciplines, the physical and life sciences, forensic pathology, engineering, information technology, measurements and standards, testing and evaluation, law, national security, and public policy.

NIFS, as the committee envisions it, will, as appropriate, establish, enforce, oversee, and/or encourage:

- best practices (including the enforcement of robust performance standards);
- mandatory accreditation of forensic science laboratories;
- mandatory certification of forensic science practitioners;
- peer-reviewed interdisciplinary scientific research and technical development to support forensic science disciplines and forensic medicine;
- improved forensic science research and educational programs;
- the funding of state and local forensic science agencies, independent research projects, and educational programs, with conditions that aim to advance the credibility and reliability of forensic science disciplines and achieve technological advancements;
- education standards and the accreditation of forensic science programs in higher education;
- programs for lawyers and judges to better understand the forensic science disciplines and their limitations;
- the development and introduction of new technologies in forensic investigations; and
- programs to improve medical examiner services in the United States.

The committee was convinced that if NIFS is established as envisioned, it will serve our country well, as a new, strong, and independent entity, with no ties to the past dysfunctions of the forensic science community, and with the authority and resources to implement a fresh agenda designed to address the many problems found by the committee.

THE COMMITTEE REPORT IS NOT A LAW REFORM PROPOSAL. The findings and recommendations of the committee do not mean to offer any judgments on any cases in the judicial system. The report does not assess past criminal convictions, nor does it speculate about pending or future cases. And the report offers no proposals for law reform. That was beyond our charge. It will be no surprise if the report is cited authoritatively for its findings about the current status of the scientific foundation of particular areas of forensic science. And it is certainly possible that the courts will take the findings of the committee regarding the scientific foundation of particular types of forensic science evidence into account when considering the admissibility of such evidence in a particular case. However, each case in the criminal justice system must be decided on the record before the court pursuant to the applicable law, controlling precedent, and governing rules of evidence. The question whether forensic evidence in a particular case is admissible under applicable law is not coterminous with the question whether there are studies confirming the scientific validity and reliability of a forensic science discipline.

Although the report offers no proposals for law reform, the committee believes, that with more and better educational programs, mandatory accreditation and certification, sound operational principles and procedures, and serious research to establish the limits and measures of performance in each discipline, forensic science experts will be better able to analyze evidence and coherently report their findings in the courts.

Good science includes two attributes that the law needs from the forensic disciplines: (1) reliable methodologies that enable the accurate analysis of evidence and reporting of results, and (2) practices that minimize the risk of results being dependent on subjective judgments or tainted by error or the threat of bias. Because of the many problems presently faced by the forensic science community and the inherent limitations of the judicial system, the forensic science community as it is now constituted cannot consistently serve the judicial system as well as it might. As the committee's report makes clear, what is needed is a massive overhaul of the forensic science system in the United States, both to improve the scientific research supporting the disciplines and to improve the practices of the forensic science community. And the creation of NIFS is the keystone for such an overhaul.

THE HONORABLE HARRY T. EDWARDS

Senior Circuit Judge, Chief Judge Emeritus, United States Court of Appeals for the D.C. Circuit
Visiting Professor of Law, NYU Law School

Harry T. Edwards was appointed to the United States Court of Appeals for the District of Columbia Circuit by President Carter in 1980. He served as Chief Judge from September 15, 1994 until July 16, 2001, and he took senior status on November 3, 2005. He has continued as an active member of the court since taking senior status. Before joining the bench, Judge Edwards was a tenured Professor of Law at the University of Michigan Law School (1970-75 and 1977-80) and at Harvard Law School (1975-77). He practiced law in Chicago with Seyfarth, Shaw, Fairweather & Geraldson from 1965 to 1970.

Judge Edwards received a B.S. degree from Cornell University in 1962 and a J.D. degree from the University of Michigan Law School in 1965. He graduated from law school with distinction and was a member of the Michigan Law Review and the Order of the Coif; he also received American Jurisprudence Awards for outstanding scholarship in Labor Law and Administrative Law. He has been admitted to practice in Illinois, Michigan, and the District of Columbia.

He is currently the co-chair of the Forensic Sciences Committee established by the National Academy of Sciences, and a member of the Board of the Institute of Judicial Administration at NYU Law School. He is a member of the American Law Institute; the American Academy of Arts and Sciences; the American Judicature Society; the American Bar Foundation; the American Bar Association; the Supreme Court Historical Society; and an advisor to the Unique Learning Center in Washington, D.C., a volunteer program to assist disadvantaged inner-city youth.

Judge Edwards has received numerous awards, including the Society of American Law Teachers Award (for "distinguished contributions to teaching and public service"); the 2001 "Judicial Honoree Award" presented by the Bar Association of the District of Columbia; and the 2004 Robert J.Kutak Award presented by the American Bar Association Section of Legal Education and Admission to the Bar "to a person who meets the highest standards of professional responsibility and demonstrates substantial achievement toward increased understanding between legal education and the active practice of law." He has also received a number of Honorary Doctor of Laws degrees.

Judge Edwards is the coauthor of five books. His most recent book, EDWARDS & ELLIOTT, FEDERAL STANDARDS OF REVIEW, was published by Thomson West in 2007. He has also published scores of articles and booklets and presented countless papers and commentaries, dealing with administrative law, labor law, equal employment opportunity, labor arbitration, higher education law, alternative dispute resolution, federalism, judicial process, comparative law, legal ethics, judicial administration, legal education, and professionalism.

Following his appointment to the U.S. Court of Appeals, Judge Edwards has continued to teach law on a part-time basis. Since 1980, he has taught at a number of law schools, including Duke, Georgetown, Harvard, Pennsylvania, and Michigan. He is presently a Visiting Professor of Law at NYU Law School, where he has taught since 1990.

International Association for Identification

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The Honorable Patrick J. Leahy
Chairman, Senate Committee on the Judiciary
433 Russell Senate Office Building
United States Senate
Washington, DC 20510

March 18, 2009

Dear Mr. Chairman,

The International Association for Identification (IAI), with a membership of over 7,000 individuals, is a professional association of forensic practitioners covering fifteen forensic disciplines, most whom practice in the United States. The IAI has studied the report issued by the National Academies of Science titled "Strengthening Forensic Science in the United States: A Path Forward" at length along with the thirteen recommendations that the NAS Committee has prepared. While there are some topics of greater interest to the IAI and others less so, there is at least some interest by the IAI in each recommendation before the Committee. The IAI believes that the forensic disciplines represented by our Association are capable of providing reliable conclusions based on sound scientific principles when conducted by individuals, trained to competency, using scientific and professionally accepted practices and procedures.

The forensic science disciplines represented by this association are not a nouveau science invoked for the purposes and convenience of law enforcement. On the contrary, they have a deep seated history of research based on the hard sciences. Bloodstain pattern analysis can be traced back to the Institute for Forensic Medicine in Poland, to Dr. Eduard Piotrowski. In 1894 Piotrowski published his manuscript "Concerning the Origin, Shape, Direction and Distribution of the Bloodstains Following Head Wounds Caused by Blows." The science of fingerprints can be traced even further back in time to the year 1686 to the University of Bologna in Italy, where a professor of anatomy named Marcello Malpighi noted the common characteristics of spirals, loops and ridges in fingerprints, using the newly invented microscope for his studies. Then in 1823 a thesis was published by Johannes Evengelista Purkinje, professor of anatomy with the University of Breslau, Prussia. The thesis details a full nine different fingerprint patterns. Although the use of fingerprints can be traced back to 1000-2000B.C. where they were used on clay tablets for business transactions in ancient Babylon, no reference to personal identification was made until 1880 when Dr. Henry Faulds, a British surgeon and Superintendent of Tsukiji Hospital in Tokyo, published an article in the Scientific Journal, "Nautre" where he discussed fingerprints as a means of personal identification.

We also believe that the NAS Executive Summary regarding certain forensic disciplines does not fully convey the findings of the NAS as spelled out in the report in its entirety. Although we agree with the NAS that additional research needs to be conducted, we would like to point out the following statement in regards to fingerprint analysis contained on page 5-12: "it seems plausible that a careful comparison of two impressions can accurately discern whether or not they had a common source." Therefore we submit that the fingerprint examinations conducted and continuing to be conducted across this country are reliable when conducted by individuals, trained to competency, using scientific and professionally accepted practices and procedures following accepted standards.

The IAI offers the following insights regarding the recommendations found in the Executive Summary:

Recommendation 1

The IAI believes that each of the forensic disciplines represented by the Association would benefit from an improved national infrastructure which provides 1) a standardized education and training program, 2) a short and long term research agenda and strategic plan, 3) standardized operating procedures, 4) enforcement mechanisms to comply with one through three, and 5) adequate funding necessary to achieve one through four and to maintain the infrastructure. Based upon the aforementioned, the IAI strongly endorses and supports the *concept* behind Recommendation 1 concerning the formation of a National Institute of Forensic Science (NIFS) along with those nine areas of focus enumerated in the summary. We believe that this national agency should be one of support, not governance, recognizing the proper role of the Courts and the States. We fully understand that the formation of such a body is not without out conflicting issues but the IAI does believe that there needs to be an entity able to address those issues as highlighted in the report.

Recommendation 2

The IAI agrees that standardization of terminology and model reporting of testing results would help eliminate confusion when interpreting examination findings. These standardized formats would also act as guides to examiners and the legal profession and reminders of what may be properly deduced from the testing effort.

Recommendation 3

The IAI has, for many years, sought support for research that would scientifically validate many of the comparative analyses conducted by its member practitioners. While there is a great deal of empirical evidence to support these exams, independent validation has been lacking. Daubert and Frye hearings of recent years have focused on the lack of scientific validation in a number of these forensic disciplines. Unfortunately, although some funds have been made available, definitive research has been elusive.

Part of the problem with conducting independent research is that many of the records and data needed for analysis is locked away as evidence or protected identity information. There is currently an effort on the part of the Federal Bureau of Investigation to develop biometric databases that could be used for research and the development of automated systems. It is hoped that these will be made available to researchers who undertake these validation projects.

Recommendation 4

In regards to Recommendation 4 concerning "removing all public forensic laboratories and facilities from the administrative control of law enforcement agencies or prosecutors' offices" again the IAI believes that the summary does not reflect the information contained in the body of the report. In the body it also eludes to insulation of laboratories as an alternative. We believe that the genesis of this section is insuring the adequate funding to and importance given to the laboratories that in some cases may not be the norm. There have been references to the removal of the laboratory due to pressures from the law enforcement environment of which they are a part or a question of integrity of its examiners. We do not feel that it is necessarily a question of integrity or external pressure since these issues may arise in any laboratory setting. We also believe that Recommendation 9 concerning a Code of Ethics, if not already in place in a laboratory, should be adopted along with a means of enforcement that would deal with those issues. For those who would argue for removal of the laboratories, we feel that a substantial counter argument can be made and supported if required. We believe that there needs to be a separate funding structure for crime labs and identification units so they don't compete with public safety and first responder resources.

Some would say these types of forensic service providers should be completely eliminated and all forensic analyses be conducted in crime laboratories. While perhaps a noble goal, given the large amount of forensic work done in identification units, this is not feasible. For example, approximately 66% of fingerprint analyses are not conducted in crime laboratories but rather in identification units. West Virginia University (WVU) is currently conducting a census of non-crime laboratory forensic service providers to get a better idea of how many non-crime laboratory entities are doing forensic work, what kind of analyses are conducted, staffing, budgets, etc. The study will mirror the Bureau of Justice Administration document, Census of Public Crime Laboratories of which you have a copy. That census will provide a much better idea of this oft overlooked segment of the forensic science system.

Recommendation 5

One of the more difficult factors to quantify in a forensic examination is the effect and cause of human error in the testing and analysis of evidence. Unlike machines and computers, humans can't be calibrated to exacting tolerances or measured against a product standard. Recognizing this difficulty, the National Institute for Justice (NIJ) and the National Institute of Standards and Technology (NIST) have sponsored an expert working group to study the effects of human factors in latent print analysis. It is believed that the findings of this group will be able to be extrapolated to other comparative analysis disciplines.

Issues of "contextual bias" on the part of forensic examiners are based on poorly structured research and limited testing among the relevant population. None of the existing research involved test subjects who were pre-qualified through skill based testing. It is a great stretch to believe that a professional analyst would risk their integrity and jeopardize the rights and freedoms of the innocent to satisfy some desire to be "accepted" by clients and client agencies.

A mistake often made by critics is to lump acts of fraud, intentional misinformation, with acts of error in calculating the impact on the criminal justice system and society in general. This lumping only serves to confuse the true causes of problematic analyses and does not serve the effort to correct deficiencies.

Recommendation 6

The IAI supports the effort "to develop tools for advancing measurement, validation, reliability, information sharing and proficiency testing in forensic science and to establish protocols for forensic examinations, methods and practices."

Recommendation 7

The IAI endorses the accreditation of forensic science operations. Accreditation by the American Society of Crime Laboratory Directors, Laboratory Accreditation Board (ASCLD-LAB), Forensic Quality Services (FQS) and others is widely accepted by many crime laboratories, but much less so by other forensic service providers such as identification units, often found in law enforcement agencies. In order to meet the ongoing movement toward accreditation, those forensic service providers must be made aware of the benefits of accreditation and quality systems in general. Quality managers must be identified and appropriate reporting, documentation and other aspects of accreditation be implemented. Accreditation does not come without a cost. Agency administrators must be convinced that accreditation is important and worthy of funding with scarce dollars.

The IAI endorses certification of forensic science practitioners. A natural progression from the quality systems of the organization (accreditation) is the competency of the individual, or certification. Certification in forensic disciplines is widely available from the International Association for Identification (IAI), the American Board of Criminalistics (ABC), the American Board of Forensic Toxicologists (ABFT), the American Board of Forensic Document Examiners (ABFDE) to name but a few. All crime laboratories and other forensic service providers should move toward certification of their analysts. While no program of certification or accreditation can guarantee quality, certification, at a minimum, attests that the individual performing the analysis has met a certain standard of competence as evidenced by the certification program. Continuing proficiency testing is also desirable to assure that competency is maintained over time. As stated previously, the IAI has several certification programs for forensic practitioners. The IAI believes certification is a demonstration of a practitioner's ability to perform a forensic examination reliably, providing the public and judicial communities with a measure of competency and credibility. As previously mentioned, practitioner certification is a continuum of the quality program, which includes periodic proficiency testing to ensure that competency is being maintained. The IAI endorses both practitioner certification and proficiency testing.

The IAI believes that any entity, public or private, performing forensic science examinations, whether for criminal or civil purposes, should be accredited by an independent, professionally recognized and authorized accrediting body. While this will not eradicate errors or preclude unethical behavior of practitioners, it will insure that acceptable quality assurance mechanisms are in place to reduce the risk of error and to more easily detect and correct unacceptable practices, as well as unethical behavior. Forensic science laboratory accreditation is a desired objective by the IAI.

Recommendation 8

The IAI agrees that "forensic laboratories should establish routine quality assurance and quality control procedures to ensure the accuracy of forensic analyses and the work of forensic practitioners." It should be noted that such procedures are already in place at accredited laboratories.

Recommendation 9

The IAI currently has in place a Code of Professional Conduct and Code of Ethics for its members and persons certified by the IAI in one of the forensic disciplines. The IAI also has an enforcement mechanism which provides due process and penalties if appropriate. We would therefore support any measure to establish a national code of ethics for forensic practitioners.

Recommendation 10

In regards to Recommendation 10 the attracting of students into the forensic science disciplines, the IAI firmly supports this recommendation as well. The IAI has noted a significant increase in the number of individuals interested in pursuing the forensic sciences. The IAI suspects this is primarily due to the current popularity of crime related television programs exploiting the use of forensic science to solve crime. Our experience in working with these highly motivated students is that most of the forensic science programs offered in universities today teach general crime scene investigation with little detail into the actual technical aspects of forensic science examinations. Most courses only provide theory and procedures but lack actual performance based instruction. What results from this limited formal education is that a law enforcement agency hiring one of these graduates must still provide a complete forensic science training program. Many agencies' training programs range from six months to 24 months.

For example, in the latent print discipline (as well as other comparative analysis disciplines) many individuals are hired having a university degree, to include scientific graduate and doctoral degrees, that have never conducted an impression comparison, or have conducted a miniscule number of impression comparisons that are not representative of those encountered in actual case work, giving them an unrealistic expectation of the comparison process. Whereas, comprehensive comparison training exercises designed to address all levels of difficulty and unusual circumstances would provide a measurement of the student's ability. Accomplishing this goal would provide the student with tens of thousands of comparisons and result in a better prepared individual with a performance record for potential employers to assess. A new hire having these demonstrated and proven skills would significantly reduce the training time needed to be provided by the law enforcement agency or laboratory, as well show aptitude for conducting impression comparisons.

Recommendation 11

The IAI endorses the effort to improve medicolegal death investigations, increased training for forensic pathologists, the supervision of autopsies by certified forensic pathologists and the accreditation of medical examiner facilities and laboratories.

Recommendation 12

In regards to Recommendation 12 "to achieve nationwide fingerprint interoperability", the IAI enthusiastically supports this position. The intent of the IAI is to improve and increase latent print services via the use of Automated Fingerprint Identification Systems (AFIS). Latent print identifications are not only reliable as a means to individualize but offer powerful probative forensic evidence. As such, latent print examinations should be afforded the broadest possible opportunities to positively identify perpetrators of crime and those responsible for terrorist acts. Given that the standards to be interoperable and the technology to be widely connected have existed for at least a decade, coupled with the fact that fingerprints and palm prints have been

utilized successfully for over 100 years, one would expect that searching a latent print against every conceivable fingerprint and palm print repository is something that not only currently exists but has existed for quite some time. To the contrary, the capability to search latent fingerprints in an automated, widely networked manner is quite limited and does not provide all of the potential that should be exploited for such a powerful tool in our arsenal to fight crime, identify terrorists and even potentially prevent acts of terrorism.

The IAI supports the need to pursue the opportunities to improve and increase impression evidence services via the use of automation technology and electronic networking. Improving and increasing latent and recorded print services encompasses more than just having connectivity between AFIS systems or being interoperable from a technical standpoint. By more, it is meant to be far more reaching than just the capability to search another agency's fingerprint repository. Such things as better utilization of unidentified latent print repositories being accessed and shared, access and sharing 10-print fingerprint records and images, increase in qualified latent print experts, and appropriate funding for handling such an increase in personnel and AFIS computer and connectivity related resources. There are underlying and periphery matters as well, such as improved fingerprint image quality, advanced training of experts, research into next generation fingerprint matcher technology, and many others.

The current AFIS latent print concept of operations for exchanging latent print services is, at best, to utilize the FBI's Integrated AFIS (IAFIS) coupled with the FBI Criminal Justice Information Systems (CJIS) Wide Area Network (WAN), or CJIS-WAN. This concept limits latent print searching via electronic means to a sequential process that starts at the local agency level, and migrating through the state agency to the FBI. The concept supports the philosophy that local crime will most likely be solved at the local level, then the state, and, if all else fails, the national level. While at first blush this seems reasonable, it is quite limited. The fact is there are many advantages that are excluded from this concept. To further complicate this matter, given today's highly mobile society, jurisdictional boundaries are meaningless to criminals or terrorists. The aforementioned concept should not be rejected as flawed or replaced as it has proven to be quite effective and has resulted in positive identifications of many individuals and solving many crimes; and is expected to continue to be effective. But rather, this concept needs to be expanded to better exploit more opportunities to identify more individuals and aid in solving even more crimes. The successes to date only exemplify the tip of the iceberg if latent services were to be expanded.

What specifically needs to be improved and what increases are needed? The major stumbling blocks to such improvements and increases are many and each has several underlying issues. This does not mean that the improvements and increases cannot be accomplished but rather that a thorough investigation and sound advice is crucial to making good recommendations. The first and most significant hurdle is the political will to proceed towards these objectives. The underlying issues, to no surprise, are the unknown cost/benefits, increased personnel resources, and unknown impact on current AFIS systems. Law enforcement managers seem to be reluctant to permit the open connectivity without understanding the consequences, and rightfully so. Regardless, it is widely acknowledged that success would result from such improvements and increases; it is just very difficult to accurately predict cost/benefits and their impact from such an endeavor.

A second hurdle that needs to be overcome is the connectivity/networking requirements. While the FBI's CJIS WAN is currently in place it is only currently being utilized as a one-way street to the FBI. It is not currently utilized for state X to search a latent print against state Y's fingerprint or palm print repository. Further, it does not permit a Federal law enforcement agency

to search latent prints directly against state X's fingerprint repository. The FBI has clearly stated that they would support such procedures via the CJIS WAN provided all the participating parties have the appropriate Memorandums of Agreement (MOA) in place. Here lies the hurdle. Obtaining MOA's from all parties is not a simple undertaking and generally requires legal considerations. The expectation of these MOA's being achieved from all parties or in any reasonable timeframe (probably years) is very low. A different approach needs to be considered. National legislation with funding is an alternative.

A third hurdle is that all fingerprint records are not centrally located. Given the 50 states and the Federal regulations there are as many reasons why all fingerprint records are not centrally located. If this hurdle cannot be overcome then it bolsters the need for an electronic network in which all are connected.

A fourth hurdle is to address the need to maintain accuracy. It serves no purpose, or at best, a limited purpose, to be connected but not be able to achieve accurate search results. The interoperability of different AFIS technologies can be addressed either from latent print images or latent print minutiae templates. By going the image route generally requires human input on the receivers end and would require additional personnel resources depending on the workload increase. By going the minutiae template route there remains accuracy issues. Both can be supported and are supported by the IAI.

A fifth hurdle is workload management. Issues arise about how one manages their own agency's needs with that of high priority requests from outside requests is just one of numerous others.

A sixth hurdle is the need to provide up-to-date information for what each agency can support. Does the agency have a palm print repository? Is there an unsolved latent print repository? What is the current AFIS technology in place? These are just a few of the many types of functions that would need to be managed.

Recommendation 13

The IAI supports the recommendation to incorporate good forensic science practices in the effort to bolster Homeland Security effectiveness.

We would hope that Congress takes advantage of this report and its recommendations by implementing improvements in a manner which guarantees the citizens of this great country and all those subject to its laws that evidence which has been recovered, examined, and introduced by competent examiners in a judicial proceeding be scientifically sound whereby justice can be served for all.

The IAI is grateful for the opportunity to address the committee and provide our positions, recommendations, and insight on key issues affecting various disciplines within the forensic science community.

Respectfully,

Robert J. Garrett
President, I.A.I.

Statement Of Senator Patrick Leahy
Chairman, Senate Judiciary Committee
Hearing on "The Need to Strengthen Forensic Science in the United States:
The National Academy of Science's Report on a Path Forward"
March 18, 2009

Today, we examine the pressing need to strengthen forensic science in America. Just a few weeks ago, the National Academy of Sciences completed one of the most thorough reviews of forensic science ever undertaken in this country. It demonstrates that we have problems. Such problems can go to the heart of our criminal justice system.

Unlike the image that so many of us see on television shows like "CSI," forensic scientists too rarely get to review crime scene evidence in sleek, ultra-modern, state-of-the-art laboratories. Ironically, the so-called "CSI effect" may be doing harm by suggesting that forensic sciences are well funded, and that their results are almost always infallible. As it turns out, that is not the reality examined by the National Academy of Sciences.

Just last fall, the city of Detroit had to shut down its forensic laboratory after an independent audit found that the lab's ballistics reports were wrong or false in one out of every 10 cases. The lab had not kept records of tests performed, nor calibrated instruments properly, in many additional cases. Similarly, in 2003, the city of Houston had to close its DNA and toxicology testing facilities after an audit found untrained staff, shoddy methodology, and potential contamination. Those findings resulted in a review of more than 1,300 criminal cases and required retesting in 30 percent of those cases. In both of these instances, outside reviewers found that labs lacked adequate staff, training, or equipment to do the job right.

This problem is not limited to a few underfunded labs with overworked staffs. According to the latest available statistics from the Justice Department, in 2005, the backlog of forensic exams was more than 350,000 nationwide, up 24 percent from just three years earlier. How many rape kits are still sitting on shelves unexamined with the perpetrator at large and the victim without justice? One out of every five labs does not meet the standards for accreditation set by the National Academy of Crime Lab Directors. As the National Academy of Science report makes clear, we cannot allow these nationwide deficiencies in forensic sciences to continue.

It is critically important to our criminal justice system that we have accurate, timely forensic science, so we can find and punish the guilty, and exonerate the innocent. It helps no one if we imprison the wrong person. What helps is when we take perpetrators of serious crimes off the streets. Forensic science has also become critically important in supporting homeland security and counter-terrorism missions. We cannot simply wait for the next scandal to break or for the backlogs to grow worse. We must pay attention now and work together to find solutions. I look forward to working with Senator Specter, Senator Durbin, and the other interested members of this Committee on this priority.

This morning we welcome Judge Edwards of the D.C. Circuit Court of Appeals to this

hearing. Judge Edwards was the co-chair of the distinguished committee of scientific and legal experts who worked so hard over the past two and half years to complete this report, as requested by Congress. I take this moment to publicly thank him and his fellow Committee members. They have provided all of us with a look at the realities facing forensic science today.

This National Academy of Sciences report is detailed and far-reaching and can provide a foundation for building broad consensus for change. At its core, the report calls for mandating national standards for establishing and enforcing "best practices." It points to a need for standards for the certification of individual examiners and for the accreditation of their laboratories. The report also calls for us to invest in the research underlying modern forensic science.

Even in traditional methods we see problems. Fingerprint comparisons can rely heavily on interpretation. We need only remember the Brandon Mayfield case from a few years ago, when the FBI had to recant its initial findings that Mayfield's fingerprint matched a print found in the Madrid terrorist bombings. An FBI examiner submitted an affidavit claiming there was a "100 percent" match when, in fact, the FBI later admitted the comparison was of no value for identification purposes. More research is needed to strengthen our use of traditional techniques, and also to make sure that forensic sciences advance and create the new tools to solve the crimes of the future.

The report also describes how faulty forensic science has too often made its way into our courts as evidence. We know this from our own experience and this Committee's recent efforts to push the FBI to identify and correct the thousands of criminal cases where bullet lead analysis was improperly used.

The report emphasizes the need to preserve evidence properly at all crime scenes and even after court proceedings. I know the importance of this firsthand from the experience of my friend Kirk Bloodsworth, an innocent man who was twice convicted of murder and rape and served eight years in prison, including two on death row, before DNA testing later exonerated him. His case is not unique. As part of the Justice For All Act we passed a few years ago, I worked hard to pass the Kirk Bloodsworth post-conviction DNA program that encourages states to retain and test evidence from crime scenes. This is meaningless if the evidence is not preserved properly.

We do not have time this morning to review all the findings and recommendations in the report, and I expect this Committee will hold further hearings and continue to work closely with those in all parts of the forensics community to understand the full scope of what needs to be done and the best way to get it done. We must work together to ensure that forensic science will be a tool for justice in this country.

# # # # #

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March 24, 2009

The Honorable Patrick J. Leahy
Chairman, Senate Committee on the Judiciary
433 Russell Senate Office Building
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

The National District Attorneys Association (NDAA), an association representing over 6,000 State and local prosecutors throughout the United States, is dedicated to securing public safety through the proper administration of justice. NDAA welcomes measures to enhance the quality of forensic resources available to criminal justice practitioners in identifying and prosecuting the guilty and excluding the innocent. NDAA supports many of the recommendations of the recently published National Academy of Sciences (NAS) report: *Strengthening Forensic Sciences in the United States: A Path Forward,* including a specific need for additional education for practitioners in the use of forensic evidence in the courtroom, increased funding for forensic research and the establishment of standards, uniform reporting practices, certification and accreditation by all parties offering forensic evidence in a legal proceeding. NDAA believes several other recommendations require further and more detailed analysis beyond that offered in the report.

The report acknowledges that "[s]tate courts receive 200 times more criminal prosecutions than federal courts' because [f]orensic science is used most commonly in crimes of violence, and most crimes of violence are tried in state court." [1] The report also notes the decline in forensic continuing legal education opportunities for prosecutors at all levels of government.[2] Unfortunately, little or no professional training in criminal case prosecution is offered through law schools as the traditional approach to legal education seldom includes representing victims of violent crime, insuring public safety or homeland security. As forensic evidence is increasingly collected in state criminal investigations, the unfortunate corollary is fewer prosecutors are trained to understand and apply this scientific evidence today[3]. For example, in 2008, NDAA, through its subsidiaries, the American Prosecutors Research Institute (APRI) and the National College of District Attorneys (NCDA), trained fewer than 175 prosecutors nationwide on the use of forensic evidence due to lack of funding.

NDAA supports funding for forensic science research in order to further demonstrate the validity and reliability of forensic evidence associated with criminal cases. Allocating funding for forensic science research will increase documentation and strengthen public confidence in the courtroom use of forensic evidence. In the interim, however, the size of a particular forensic discipline's catalog of supporting research does not alter the reality that forensic evidence assists

[1] National Academy of Science, *Strengthening Forensic Sciences in the United States: A Path Forward*, pg 3-9.
[2] Id. pg. 8-15.
[3] Ritter, Nancy, *DNA Solves Property Crimes (But Are We Ready for That)*, NIJ Journal 261 (2008)

law enforcement in focusing investigations, narrows potential suspects and assists legal practitioners in identifying and excluding parties in legal proceedings. It should be noted while the report recommends additional funding for research as a means of quantifying the validity and reliability of forensic evidence, it should be noted that the report itself does not question the basic foundation of the disciplines discussed.

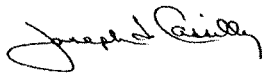
NDAA supports measures to develop uniform standards and reporting practices within the various forensic disciplines mentioned in the report as a means to assist court personnel and the public's understanding and confidence in forensic evidence. Developing a base line of information provided in a forensic report and a commonality of terminology used by analysts to report and interpret forensic data will reduce post-conviction claims of misrepresenting the strength of the forensic evidence at trial.

Recent Congressional Hearing testimony indicates that approximately 90% of the nation's publicly funded full-service crime laboratories have voluntarily become accredited.[4] Accreditation requires both the laboratory itself and its forensic analysts undergo rigorous proficiency testing to demonstrate a level of proficiency. Unfortunately, a similar showing of proficiency does not extend to analysts operating in unaccredited laboratories. Both State and Federal prosecutors routinely use accredited laboratories whereas defendants frequently use more costly private but unaccredited labs. NDAA welcomes the report's recommendations for mandatory accreditation by both public and private laboratories and certification by all forensic analysts. Currently in some communities, individual analysts may be certified within their individual forensic fields but working in laboratories which are not yet accredited. NDAA highly recommends allocating federal funding so that qualifying laboratories who currently lack sufficient funding to become accreditation can do so.

NDAA believes the report's recommendations regarding establishing an independent federal entity to oversee and regulate all forensic matters and recommendations regarding crime laboratories and law enforcement agencies requires greater analysis at this time. NDAA recommends that many of the functions outlined by the report can be accomplished within existing organizations and that, at least for the immediate future, this should be explored.

Members of the National District Attorneys Association will be happy to discuss the contents of this letter with members of the Committee and look forward to participating in future hearings on this matter.

Sincerely,



Joseph I. Cassilly
President

[4] Testimony of Peter M. Marone, Executive Director of the Virginia Department of Forensic Sciences before the House Science and Technology Committee, March 10, 2009.

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STATEMENT OF PETER NEUFELD
CO-DIRECTOR, THE INNOCENCE PROJECT
SENATE COMMITTEE ON THE JUDICIARY HEARING ON
"THE NEED TO STRENGTHEN FORENSIC SCIENCE IN THE UNITED STATES: THE NATIONAL ACADEMY OF SCIENCE'S REPORT ON A PATH FORWARD"
MARCH 18, 2009

The Innocence Project would like to thank Chairman Leahy, Ranking Member Specter, and members of the Committee for holding a hearing examining the National Academy of Sciences' report *Strengthening Forensic Science in the United States: A Path Forward.* We appreciate your decision to hold this hearing and thank you for providing us with the opportunity to share our thoughts with you regarding this report, which has significant implications for the nation's criminal justice system.

My name is Peter Neufeld and I am the co-director of the Innocence Project, affiliated with the Cardozo School of Law, which co-director Barry C. Scheck and I founded in 1992. The project is a national litigation and public policy organization dedicated to exonerating wrongfully convicted people through DNA testing and reforming the criminal justice system to prevent future miscarriages of justice.

The criminal justice system has always endeavored to focus only on the guilty, but as with any human venture, it is not perfect. To date, post-conviction DNA testing has identified 234 people convicted of serious crimes despite their actual innocence. These exonerations are important not simply for the critically important purposes of freeing the innocent or helping to identify the true

perpetrators of those crimes, but also to provide us all with a way to identify those points in the criminal process that mislead the justice system to focus on innocent people instead of the crimes' real perpetrators. The Innocence Project has reviewed all of the nation's post-conviction DNA exonerations for precisely this purpose, and our research reveals that police and prosecutors' reliance on unvalidated or improper forensics is the second greatest contributing factor to those wrongful convictions. A copy of our analysis, which is available on the web at http://www.innocenceproject.org/docs/DNA_Exonerations_Forensic_Science.pdf, is attached for the Committee's review.

Given what those DNA exonerations have taught us about the shortcomings of forensic science, the Innocence Project is extremely grateful to Congress for authorizing and appropriating funds to establish the National Academy of Sciences Committee on *Identifying the Needs of the Forensic Science Community*. By convening some of the very best minds in the nation – under the leadership of Judge Harry Edwards and his colleague Dr. Constantine Gatsonis – to focus on the needs and shortcomings of forensic science in America, the nation has been provided with both an alarm regarding the serious shortcomings of existing forensic evidence and a roadmap for providing the improvements to the forensic system necessary to ensure the most accurate criminal evidence – and therefore justice – possible.

While the Innocence Project is known for its association with DNA evidence, the fact is that DNA is not probative in at least 90% of all crimes. The Bureau of Justice Statistics' 2005 Census of Publicly Funded Forensic Crime Laboratories reported that new lab requests for DNA work consist of only approximately 3% of all of all new requests for lab work. It is this 97% of lab work and the other forensics performed outside of the lab that the Committee notes is in dire need of attention and improvement.

As our review of DNA exonerations shows, unvalidated and improper forensics contributed to approximately 50% of wrongful convictions overturned by DNA testing. In the DNA exonerations alone, unvalidated or misapplied serological analyses, microscopic hair

comparisons, bite mark comparisons, shoe print comparisons, fingerprint comparisons,[1] forensic geology (soil comparisons), fiber comparisons, voice comparisons, and fingernail comparisons[2] contributed to these tragic miscarriages of criminal justice.

The National Academy's report proves what the Innocence Project's DNA exoneration case reviews have strongly suggested: That the scientific shortcomings of most non-DNA forensic analyses have a strong tendency to mislead and undermine our system of criminal justice. Strong action is needed in the scientific arena to provide our justice system with the fundamental tools necessary to actually provide the highest levels of justice and safety possible. Given that the NAS report clearly establishes the critical needs in forensics and how best to address them, we sincerely hope this Committee and Congress will provide the policymaking leadership necessary to ensure that these dire needs are met.

The federal government has done this before. Long before there was a national forensic DNA testing program, the National Institutes of Health and others funded and conducted extensive and relevant basic research in DNA and followed it with work to develop practical applications for this body of knowledge. Sensing the need to properly guide the evolution of this technology into the forensic setting, the federal government played a central role in the standardization and regulation of forensic DNA testing. In aiding scientists as they took on the challenge of transferring the technology from research lab to clinical lab, and from clinical lab to crime lab, forensic methods were validated for case work, and individual crime labs further validated the kits and protocols for use in their own laboratory settings. By facilitating the scientific transfer of this technology into its application in the criminal justice system, the federal government helped establish the certainty that forensic DNA testing provides today.

In contrast to DNA, the vast majority of non-DNA forensic assays have not been scientifically validated, and there is no formal apparatus in place to do so for developing forensic technology. Most of the assays currently used in crime lab settings have no other application; they were

[1] Garrett and Neufeld, Virginia Law Review, Vol. 95, No.1, March 2009, p. 8.
[2] Ibid. p. 13.

developed for the purpose of investigation, prosecution and conviction, and have taken on a life of their own without being subjected to the rigors of the scientific process. Many of these forensic disciplines – some of which are experience-based rather than data-based – went online with little or no scientific validation and inadequate assessments of their robustness and reliability. No entity comparable to the National Institutes of Health facilitated the development of standards and regulations, nor did an entity comparable to the Food and Drug Administration ever scrutinize, test, and approve, the full spectrum of forensic devices and assays in use. On the contrary, most crime laboratories are not subject to mandatory accreditation and professional certification is not required for forensic service practitioners. Enforceable parameters for interpretation of data, report writing, and courtroom testimony have also never been developed.

Our work has shown the catastrophic consequences of such a lack of research, standards, and oversight. It is clear that the nation's forensic science community is ready and willing to work with the federal government, law enforcement, and other scientists to ensure a brighter future for forensic science. Science-based forensic standards and oversight will increase the accuracy of criminal investigations, strengthen criminal prosecutions, protect the innocent and the victims, and enable law enforcement to consistently focus its resources not on innocent suspects, but on the true perpetrators of crimes. For as the nation's post-conviction DNA exonerations have proven all too clearly, when the system is focused on an innocent suspect, defendant or convict, the real perpetrator remains free to commit other crimes.[3]

The Innocence Project whole-heartedly supports the primary recommendation of the National Academy of Sciences' report to create a federal National Institute of Forensic Sciences. We agree with Judge Edwards that such a federal oversight body must conduct research into the scientific validity and reliability of forensic disciplines, set standards for their use in the courtroom, and ensure that compliance to these standards is enforced. A federal entity is needed to ensure that we don't have 50 states operating under 50 definitions of "science;" forensic science in America needs one standard of science so we can have one standard for justice.

[3] In the wake DNA exonerations of the wrongfully convicted, that same DNA analysis has enabled us to identify 100 of the true suspects and/or perpetrators of those crimes.

Finally, while this work is critical to the future success of our criminal justice system, as the NAS report repeatedly stresses, it is just as critical that the work required be conducted under the leadership of those dedicated solely to science. In the words of the report, "The major federal resources – NIJ and the FBI Laboratory – have provided modest leadership…[b]ut again, neither entity has recognized, let lone articulated, a need for change or a vision for affecting it…. And because both are part of a prosecutorial department of the government, they could be subject to subtle contextual biases that should not be allowed to undercut the power of forensic science."[4] "The proposed entity must…have a culture that is strongly rooted in science, with strong ties to the national research and teaching communities, including federal laboratories."[5] "The premium that science places on precision, objectivity, critical thinking, careful observation and practice, repeatability, uncertainty management, and peer review enables the reliable collection, measurement, and interpretation of clues in order to produce knowledge."[6] "The best science is conducted in a scientific setting as opposed to a law enforcement setting."[7]

Simply put, if we let scientists focus on the scientific foundation and quality assurances necessary for strong forensics, then our justice system can rely on those forensics without concern for the other agendas that may have existed for those who led or conducted the work.

Thank you again for addressing this critical issue today. As Chairman Leahy notes, we must work together to ensure that forensic science will be a tool for justice in this country. The Innocence Project stands ready to work with our colleagues in the forensic science community and with Congress and the Administration in the weeks and months ahead to do just that.

[4] Strengthening Forensic Science in the United States: A Path Forward, Committee on Identifying the Needs of the Forensic Science Community, The National Academies Press (2009), p.2-19.
[5] Ibid. p. 2-20.
[6] Ibid. p. 4-11.
[7] Ibid. p. S-17.