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DNA CRIME LABS: THE PAUL COVERDELL NATIONAL FORENSIC SCIENCES IMPROVEMENT ACT

HEARING

BEFORE THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

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DNA CRIME LABS: THE PAUL COVERDELL NATIONAL FORENSIC SCIENCES IMPROVEMENT ACT

TUESDAY, MAY 15, 2001

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

The Committee met, pursuant to notice, at 2:13 p.m., in room SD–226, Dirksen Senate Office Building, Hon. Orrin G. Hatch, Chairman of the Committee, presiding.

Present: Senators Hatch, Sessions, Leahy, Feingold, and Durbin.

OPENING STATEMENT OF HON. ORRIN G. HATCH, A U.S. SENATOR FROM THE STATE OF UTAH

Chairman HATCH. Good afternoon. I am pleased to welcome all of you to today's hearing on forensic science.

I appreciate the efforts of Senator Sessions, who has agreed to chair the hearing.

While the topic may at first blush sound somewhat dry, I assure you that any reader of Patricia Cornwell's novels or any viewer of the television programs "Quincy" or "CSI: Crime Scene Investigation" knows the work performed by our Nation's forensic scientists is truly fascinating. These are the people who, by analyzing fingerprints, DNA samples, fibers, hair, ballistics and other crime scene evidence, help solve some of our most difficult crimes. Without them, I don't think we would solve a lot of crimes.

The work performed by these scientists carries with it an awesome responsibility. Because of their expertise, the testimony of forensic scientists often carries great weight with a jury in a criminal trial. In that regard, we are all troubled by allegations that mistakes by a police chemist helped send innocent people to prison.

This isolated situation should not be used unfairly to indict the thousands of forensic scientists who perform their work professionally and responsibly. It should, however, remind us that those who work in our criminal justice system have an obligation to be diligent, honest and fair-minded. And we as public policy leaders have the obligations to ensure that our forensic scientists have the resources necessary to carry out their critical work. Thanks in large part to Senator Sessions, we now have legislation that will do just that.

The Paul Coverdell National Forensic Sciences Improvement Act of 2000, introduced last session by Senator Sessions and signed into law by President Clinton, authorized substantial resources for

State and local crime laboratories. These resources, awarded to States by the Attorney General in the form of block grants, can be used by laboratories for personnel, facilities, training, equipment and other supplies. The legislation also contains an important safeguard that will ensure testing accuracy.

To apply for a grant, a State must certify that it has either a forensic laboratory system, coroner's office or medical examiner's office that is accredited by the Laboratory Accreditation Board of the American Society of Crime Laboratory Directors or the National Association of Medical Examiners, or that the State would use a portion of the grant to prepare and apply for such accreditation. This provision is critical given that less than one-half of all crime laboratories in the United States are currently accredited.

The resources authorized by this legislation are dearly needed. To cite one statistic that I am certain we will hear again this afternoon, a recent study by the American Society of Crime Laboratory Directors found that 9,000 additional forensic scientists are needed to have a 30-day turnaround of evidence. The study also found that the majority of labs do not even have the basic equipment needed to respond to the caseloads that they currently have.

I know that the administration supports the Coverdell Act, and I am confident that I can work with Attorney General Ashcroft to see that the needs of our Nation's crime labs are addressed.

Many of our witnesses today are officials with State forensic laboratories. In closing, I want to urge you to be creative and proactive in seeking solutions to your personnel and resource needs. For example, there are now private institutions that offer cost-effective training programs and other services for forensic scientists. One such institute, the non-profit Virginia Institute of Forensic Science and Medicine, on whose board I am proud to sit, trains many of Virginia's crime scene investigators, forensic scientists, medical examiners and other law enforcement investigators. In many cases, the Institute can provide training at a lower cost than State-run laboratories. Many of you may want to go there and take a good look at what they are doing.

Let me now turn to our Democratic leader on the Committee, Senator Leahy, for his opening statement, and I will turn the remainder of the hearing over to Senator Sessions, whose efforts and leadership on this issue have been very, very critical in getting these matters on their way. I am very grateful to him. I am grateful to our Democrat leader on the Committee, as well, for his hard work in these areas as a former prosecutor and as somebody who fully understands these problems.

[The prepared statement of Chairman Hatch follows:]

STATEMENT OF HON. ORRIN G. HATCH, A U.S. SENATOR FROM THE STATE OF UTAH

Good afternoon. I am pleased to welcome you all to today's hearing on forensic science. While the topic may at first blush sound somewhat dry, I assure you that, as any reader of a Patricia Cornwell novel or any viewer of the television programs Quincy or CSI: Crime Scene Investigation knows, the work performed by our nation's forensic scientists is truly fascinating. These are the people who, by analyzing fingerprints, DNA samples, fibers, hair, ballistics, and other crime scene evidence, help solve some of our most difficult crimes.

The work performed by these scientists carries with it an awesome responsibility. Because of their expertise, the testimony of forensic scientists often carries great weight with the jury in a criminal trial. In that regard, we are all troubled by alle-

gations that mistakes by a police chemist in Oklahoma helped send innocent people to prison. This isolated situation should not be used unfairly to indict the thousands of forensic scientists who perform their work professionally and responsibly. It should, however, remind us that those who work in our criminal justice system have an obligation to be diligent, honest, and fair-minded.

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The legislation also contains an important safeguard that will ensure testing accuracy. To apply for a grant a state must certify either that it has a forensic laboratory system, coroner's office, or medical examiner's office that is accredited by the Laboratory Accreditation Board of the American Society of Crime Laboratory Directors or the National Association of Medical Examiners, or that the state will use a portion of the grant to prepare and apply for such accreditation. This provision is critical given that less than ½ of all crime laboratories in the United States are currently accredited.

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Many of our witnesses today are officials with state forensic laboratories. In closing, I also want to urge you to be creative and proactive in seeking solutions to your personnel and resource needs. For example, there are now private institutes that offer cost-effective training programs and other services for forensic scientists. One such institute, the non-profit Virginia Institute of Forensic Science and Medicine, on whose board I am proud to sit, trains many of Virginia's crime scene investigators, forensic scientists, medical examiners, and other law enforcement investigators. In many cases, the institute can provide training at a lower cost than state-run laboratories.

I'll now turn to the Ranking Member, Senator Leahy, for his opening statement.

Senator Leahy, we will turn to you.

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

Senator LEAHY. Thank you, Mr. Chairman. I thank you for calling this hearing on the Paul Coverdell National Forensic Sciences Improvement Act. In the last Congress, I was proud to cosponsor this legislation which is named after a friend and colleague of ours who was, I think it is safe to say, extremely well liked on both sides of the aisle.

This legislation brings an infusion of Federal funds to enable State and local crime labs across the Nation to update their facilities and improve their crime-solving abilities. I want to applaud Senator Sessions for his efforts in working together with me to revise the bill's funding formula to make it fair for all States. Senator Sessions helped make it possible to get the kind of bipartisan consensus we needed.

We got the bill passed and President Clinton signed it into law on December 21, 2000. It authorized $85 million in the upcoming fiscal year and $738 million over the next 6 years. For some reason, the new administration did not request any funding for this new, bipartisan law. I think that was a mistake on their part and

I am going to work with them, and I know Senator Sessions is, to put the money back in because we need this funding for our State and local crime labs.

Senator Sessions and I are both former prosecutors. We know that especially today, if you don't have good labs, more than adequate labs—you have really got to have the best—law enforcement and the prosecutor are hampered.

Then Senator Ashcroft had been a cosponsor of this bill, and then Senator Abraham was also a co-sponsor so if we go back to those two Cabinet members, they might be able to convince the President to put the money back in, along with Senator Byrd, Chairman Hatch, Senator Cleland and Senator Durbin.

I have already requested the full $85 million in the Appropriations Committee. Senator Harkin and I offered a $1.5 billion amendment to the Budget Act which would have part of this.

I also notice that there is a vote, and I will put my whole statement in the record, but if I could just be a tiny bit parochial, and I want to mention this has probably never happened in this Committee on matters that anybody has ever been parochial, but let me talk about Vermont.

The Vermont Forensics Laboratory is currently operating in the old Vermont State Hospital building in Waterbury, Vermont. It is one of only two fully accredited forensics labs in all of New England. In population, we are the smallest State in New England, so I am proud of that, but it is trying to do 21st century science in a 1940's building—very limited space with no central climate control.

With an outdated facility and limited resources, the scientists in Vermont are trying to overcome a heroin crisis in my home State. Heroin cases have gone up 400 percent. It is a heavy caseload, in addition to the usual demands on the crime lab which serves 92 local, State and Federal law enforcement organizations in Vermont.

I think they have done a superb job there, but if we could fully fund the Paul Coverdell National Forensic Sciences Improvement Act, they could do much more. I know Dr. Eric Buel, who is here, has done a great deal; in fact, he helped me when we were putting together the bill.

So, Mr. Chairman, I will put my whole statement in the record, but I join with you and Senator Hatch and so many colleagues on both sides to make sure we get this through.

[The prepared statement of Senator Leahy follows:]

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

I commend Chairman Hatch for calling this hearing on the Paul Coverdell National Forensic Science Improvement Act.

In the last Congress, I was proud to cosponsor this legislation, named after our departed friend and colleague, to provide an infusion of federal funds to enable state and local crime laboratories across the nation to update their facilities and improve their crime-solving abilities. Senator Sessions and I worked together to revise the bill's funding formula to make it fair for all states. We reached bipartisan consensus and Congress quickly passed the Paul Coverdell National Forensic Science Improvement Act. President Clinton signed it into law on December 21, 2000.

The Paul Coverdell National Forensic Science Improvement Act authorizes $85 million in the upcoming fiscal year and $738 million over the next six years for Department of Justice grants to help our state crime labs. Unfortunately, the Bush Administration did not request any funding for this new bipartisan law. I do not un-

derstand why the Administration failed to request funding to help our state and local crime labs. Forensics are the science of fighting crime, and we cannot afford to under-use all the tools that modern technology offers in helping us to continue to bring crime rates down after eight years of progress. This is a particular mystery since Attorney General Ashcroft, when he served in this body, was a cosponsor of the Paul Coverdell National Forensic Science Improvement Act.

I look forward to working with Chairman Hatch, Senator Byrd, Senator Sessions, Senator Cleland, Senator Durbin and other strong supporters of the Coverdell Act to fully fund our legislation. As a senior member of the Senate Appropriations Committee, I have already requested the full $85 million for the next fiscal year for the new law.

During the debate on the budget resolution, Senator Harkin and I offered an amendment to add $1.5 billion to the Department of Justice account in FY 2002 to fund programs to assist state and local law enforcement, including the Coverdell Act. The Senate unanimously approved the Leahy-Harkin law enforcement budget amendment. The budget resolution conference report, passed last Thursday by the Senate, retained most of the funding increases in the Leahy-Harkin law enforcement amendment so additional resources are available in the Department of Justice budget to fully fund these investments in forensic science.

Forensic science workloads have increased significantly over the past five years, both in number and complexity. Since Congress established the Combined DNA Index System in the mid1994s, States have been busy collecting DNA samples from convicted offenders for analysis and indexing.

But funding has simply not kept pace with this increasing demand, and State crime laboratories are now seriously bottlenecked. Backlogs have impeded the use of new technologies like DNA testing in solving cases without suspects—and reexamining cases in which there are strong claims of innocence—as laboratories are required to give priority status to those cases in which a suspect is known.

In some parts of the country, investigators must wait several months—and sometimes more than a year—to get DNA test results from rape and other violent crime evidence. Solely for lack of funding, critical evidence remains untested while rapists and killers remain at large, victims continue to anguish, and statutes of limitation on prosecution expire.

Let me describe the situation in my home state of Vermont. The Vermont Forensics Laboratory is currently operating in the old Vermont State Hospital building in Waterbury, Vermont. Though it is proudly one of only two fully-accredited forensics labs in New England, it is trying to do 21st Century science in a 1940s building. The lab has very limited space and no central climate control -both essential conditions for precise forensic science.

With an outdated facility and limited resources, the scientists at the Vermont Forensic Laboratory are trying to overcome a heroin crisis in my home state. In the last year alone, heroin cases in Vermont have risen by 400 percent. This heavy caseload is in addition to the usual demands on the crime lab, which serves 92 local, state and federal law enforcement organizations in Vermont.

I commend the scientists and lab personnel at the Vermont Forensics Laboratory for the fine work they do every day under difficult circumstances. But the people of the State of Vermont deserve better. Fully funding the Paul Coverdell National Forensic Science Improvement Act is our chance to provide them with the facilities and equipment they deserve.

I look forward to the hearing the testimony today of Dr. Eric Buel, the Director of the Vermont Forensic Laboratory, on the importance of the Coverdell Act to states like Vermont, which desperately need federal support to handle the increased workloads placed upon their forensic science systems.

Today's hearing is about the need to fund the Paul Coverdell Forensic Sciences Improvement Grants. But I want to say a few words about another aspect of the same legislation. When the Senate took up this legislation, I proposed and the Senate adopted a modest Sense of Congress amendment. Among other things, this amendment calls on the States to make post-conviction DNA testing more widely available.

In recent years, DNA testing has led to the exoneration of more than 80 men and women who, for one reason or another, were prosecuted and convicted of crimes that they did not commit. This number includes at least 10 individuals who had been sentenced to death and in some cases came within days of being executed. It also includes more than a dozen cases in which the DNA tests not only exonerated an innocent person but also helped identify the real perpetrator.

Just last week, a man named Jeffrey Todd Pierce was freed from prison in Oklahoma as a result of DNA testing. He was convicted of rape and served 15 years of a 65 year sentence based in large part on the so-called "expert" testimony of a police

chemist named Joyce Gilchrist. She claimed that hair found at the crime scene was "microscopically consistent" with Jeffrey Pierce's hair. The DNA tests proved that she was wrong.

The Pierce case may be just the tip of the iceberg. The FBI did a little investigation into other cases involving the same police chemist and concluded that she exaggerated her results not just once or even twice, but repeatedly. Governor Keating has promised a review of all of the felony cases in which she was involved—that is roughly 3,000 cases, including 23 in which the defendant was sentenced to death. The odds are that Jeffrey Pierce was not the only innocent person who was convicted in Oklahoma based on sloppy lab work.

I mention the Pierce case because he was released just last week. But I could have pointed to many other cases in which people were wrongly convicted because forensic specialists were incompetent or because they fabricated or overstated test results to support the prosecution's theory of the case. In 1997, we learned about major problems at the FBI's crime labs, ranging from unqualified forensic scientists to contamination of evidence and the doctoring of laboratory reports. Before that, there were similar problems in various state crime labs.

All this is to say two things. First, we need to fund the Paul Coverdell National Forensic Sciences Improvement Act, which will help improve the quality and credibility of our nation's crime labs. Second, we must honor our commitment to ensuring broader access to postconviction DNA testing. Jeffrey Pierce is free today because, after years of requesting a DNA test, without success, he was able to take advantage of Oklahoma's new post-conviction DNA statute. But most States have yet to act.

I look forward to hearing from Dr. Buel and our other witnesses today about the importance of the Paul Coverdell National Forensic Science Improvement Act.

Senator SESSIONS [presiding]. Thank you very much, Senator Leahy. You helped us move this bill forward. It will help labs in Vermont, particularly, but it will help others all over the country and it is important that we get the funding.

We had legislation that we were pleased to work on last year to give a substantive tribute to and honor Paul Coverdell. We named it after him following his untimely death, and it was passed unanimously. Unfortunately that doesn't mean we have got the money yet, and I am glad to know how strongly you feel about it, and so do I.

I have talked to Attorney General Ashcroft and I think they will give us a fair hearing, and I believe the facts are going to indicate quite clearly that we need more funding for laboratories. According to a report issued by the Bureau of Justice Statistics, as of December 1997, 69 percent of crime labs reported DNA backlogs in 6,800 cases and 287,000 convicted offender samples.

In my home State of Alabama judges report that typically 25 percent of cases set for trial are delayed because of incomplete forensic data. Sixty-six percent of drug cases are rescheduled for the same reason.

As a former prosecutor, I know how dependent the criminal justice system is on fast, accurate and dependable forensic testing. With backlogs in the labs, the prosecutors are forced to wait for months, even years, to pursue cases.

Let me just say, in my experience of over 15 years as a prosecutor, I am absolutely convinced that the single most easy fixed bottleneck in the criminal justice system is our inability to fund forensic laboratories and an inability for those laboratories to get reports back promptly to the prosecutor. Justice delayed is justice denied. There is something exceedingly unhealthy about arresting a person on a plain case of drugs—maybe it is part of that heroin increase that the Senator sees in Vermont—the defendant is arrested by the police and you have to wait months or a year before the case

can go to trial because the chemist has not come forward and has not had time to establish that it is, in fact, heroin. The case cannot go to trial until that report is in.

So I believe we are dealing with a matter that impacts criminal justice in America adversely in far more ways than we know. I don't think our State legislatures are as attuned to it as they should be, and I don't think the Congress has been as attuned to it as it should be.

For a small amount of money, compared to what we spend on so many other things, we can, by helping our forensic laboratories, improve criminal justice more than almost anything I can imagine. So I am excited about the legislation; I think it is good.

I am also pleased that we are having this hearing. I thank Senator Hatch for his leadership and commitment to it. We are just going to have to battle as hard as we can to make sure that we get the funding that this program requires.

At this point, we will insert into the record prepared statements from Senator Thurmond and Senator Grassley.

[The prepared statements of Senators Thurmond and Grassley follow:]

STATEMENT OF HON. STROM THURMOND, A U.S. SENATOR FROM THE STATE OF SOUTH CAROLINA

I am pleased that we are holding this hearing today regarding the need for increased funding for America's crime laboratories.

As technology is revolutionizing the fight against crime, law enforcement on all levels must increasingly rely on scientific evidence. This is especially true regarding DNA evidence, which is the most revolutionary development in law enforcement since fingerprinting. The use of DNA has risen dramatically in the past decade, and is becoming a routine part of criminal investigations.

Today, all states require certain violent criminals, especially sex offenders, to provide DNA samples that can be matched in DNA databases to help solve crimes. The more complete and integrated our DNA criminal databases are throughout the country, the more violent crimes we can solve.

However, DNA evidence must be processed to be of any benefit, and the crime labs have not been able to analyze the samples as quickly as they are collected. Today, there is a huge backlog in the states in evaluating samples from offenders and from crime scenes. For example, a 1998 Department of Justice Report found that almost 70% of all crime labs had a backlog that totaled 6,800 cases and 287,000 convicted offender samples. It is very difficult for crime labs to eliminate these backlogs, especially as the demand for their services is increasing. Moreover, it is extremely expensive for crime labs to keep up with advances in technology.

In recent years, the Congress has taken steps to help address the lack of resources in our crime labs. But more needs to be done. Last year, we passed the Paul Coverdell National Forensic Sciences Improvements Act, of which I was an original cosponsor. This legislation authorized a total of over $400 million dollars over the next four years to provide grants to states for facilities, equipment, personnel, and other needs. It is critical that we allocate sufficient funding in this Congress to help states in this area.

Resources for law enforcement has increased considerably in recent years, but funding for crime labs has not kept pace. We must help our crime labs keep up with the demand and meet the challenges of tomorrow. This hearing will help us understand the needs of law enforcement as we fight crime in a new century.

STATEMENT OF HON. CHARLES E. GRASSLEY, A U.S. SENATOR FROM THE STATE OF IOWA

First, let me commend the fine work of the men and women in the area of forensic science. Their "behind the scenes" work done in the field and at our crime labora-

tories is rarely given the weight of recognition commensurate with their contributions. While I applaud these efforts, it should come as no surprise to most of you that I have developed a healthy concern in this area through my oversight experience with the FBI, and specifically with the FBI Crime Lab problems in the late 90's. I share concerns that the serious backlogs that exist at the labs and are being discussed today will result in rushed and sloppy work. I continue to be deeply concerned about the deplorable conduct uncovered at the FBI, such as lab contamination, lack of quality assurance standards, mishandling of evidence, testimonial errors, and the withholding of exculpatory evidence. I would caution those who argue that funding is the panacea for all your problems. I worry about organizations that foster a culture of arrogance and seek to stifle dissent. I've seen, first-hand, what happened at the FBI when a laboratory scientist came forward with information on improper actions. These occurrences have resulted in somewhat of a "loss of innocence" within this area of expertise. And it has been disturbing to learn that what was previously thought to be an irrefutable and impartial opinion isn't necessarily the case. While I understand that these may be exceptional occurrences, it has also been discomforting to see that many state and local agencies are not immune to this type of conduct. So, without appropriate and ongoing training, management, and oversight, a fullyfunded program is no better off than it was before because the truth is not being served.

Senator SESSIONS. Senator Leahy, the lights are not going, but we are on a vote now. Is that correct?

Senator LEAHY. The first lights are on. Do you want to just go ahead and start?

Senator SESSIONS. Well, we might start, I think, with our first panel and we will get as far as we can go.

Let me introduce to you our first panel, and the record we will establish here today we will utilize as we talk with the appropriators and the full Congress as we seek to justify the funding this program needs.

Our first witness is Dr. David Boyd, the Deputy Director of the National Institute of Justice, in Washington, D.C.

Mr. Keith Coonrod, with the New York State Police Forensic Science Investigation Center in Albany, New York, is here today in his capacity as Chairman of the Consortium of Forensic Science Organizations, as well as the President of the American Society of Crime Laboratory Directors.

Congratulations on those honors.

Mr. William Peterson is co-producer and star of the new hit CBS prime time television series "CSI: Crime Scene Investigation." In its debut season, "CSI" was the only new show to be nominated for a Golden Globe honor, and won a TV Guide award for the best new show of the season.

Congratulations, Mr. Peterson. We will be delighted to hear from you.

Senator LEAHY. I might say, Mr. Chairman, that everybody who has to run a lab in the country is jealous of the lab on that show, which I think Mr. Peterson is going to point out.

Mr. PETERSON. Very true.

Senator SESSIONS. Dr. Boyd?

STATEMENT OF DAVID G. BOYD, DEPUTY DIRECTOR, NATIONAL INSTITUTE OF JUSTICE, DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF JUSTICE, WASHINGTON, D.C.

Mr. BOYD. Good afternoon, Mr. Chairman and Senator Leahy, and thank you for this opportunity to testify today. I also serve as the Director of the Office of Science and Technology for the Na-

tional Institute of Justice, which is the research and evaluation arm of the U.S. Department of Justice, and we provide the principal funding for R and D for the forensic sciences in the United States.

Forensic scientists working in the more than 300 public crime laboratories across the Nation have the scientifically challenging responsibility of discovering as much about the evidence left at a crime scene as possible. But as a recent RAND report pointed out, this job is made more difficult by huge case backlogs which makes it hard or impossible for laboratories to perform the timely analyses that could shorten investigations.

Further, budgetary constraints suppress their ability to modernize or upgrade equipment. Yet, recent court decisions are forcing forensic scientists to reevaluate, and in some cases augment both the science and the implementation upon which their results are based.

Addressing these needs has been the focus of several programs at NIJ. One of these, the $40 million DNA Laboratory Improvement Program, has already increased the number of DNA-capable laboratories in the United States from fewer than a dozen in 1996 to more than 130 separate laboratory facilities in all 50 States by the end of last year.

But 95 percent of the laboratory directors surveyed in the RAND report indicated that the single greatest need was for a qualified, properly educated workforce for the laboratories. We have accordingly begun the creation of a technical working group of forensic practitioners, educators, trainers and others to formulate a standardized curriculum for undergraduate and graduate forensic science majors to ensure a relevant knowledge base for those entering the forensic workforce.

The Forensic DNA Research and Development Program has been providing enhancements to existing methods, techniques and technologies, as well as creating new tools for the future of DNA evidence.

Current projects aim to reduce the risk of loss of crucial evidence to equipment failures; to develop a mitochondrial DNA screening method that allows labs to examine old, degraded, or very small evidence samples without resorting to expensive and technically demanding DNA sequencing methods; develop high-throughout, low-cost mass spectrometry instrumentation and to exploit nanotechnology for forensic applications.

We expect the first forensic nanotechnology project, a DNA chip with all 13 of the required genetic markers for databasing, to be in the hands of practitioners for evaluation by October of this year. This chip can produce a reliable result in under 10 minutes, instead of the several hours currently required, thus saving thousands of analyst-years of productivity. This chip may even eventually offer new ways to use DNA earlier in investigations.

The forensic workforce is so severely constrained that it is simply not possible for them to work harder, so we have to find ways to help them work smarter. Accordingly, this year's non-DNA general forensic solicitation will fund projects that can increase the sensitivity, speed, or reliability of traditional forensic methods in areas

such as trace evidence, latent prints, toxicology, controlled substances, and other forensic techniques.

But new technologies, methods and techniques can help to achieve better productivity only when laboratories have the time and ability to thoughtfully evaluate and validate them. As the RAND report notes, the laboratories are so overwhelmed by a lack of human resources that infusion of new technology is incredibly difficult, at best. These circumstances make the need to support crime laboratory improvement paramount before these critical gains through technology transfer can be made.

I have spent much of my testimony describing our successes in transferring the application of DNA to state and local forensic laboratories. But it is important to remember that DNA comprises less than 3 percent of the type of evidence needed by the criminal justice system.

Controlled substances represent fully 54 percent of cases and are the most frequently examined evidence, followed by latent prints, blood alcohol and toxicology. The Coverdell Act's attention to all types of forensic lab improvement rather than just DNA is one of its greatest strengths.

It is imperative that we work to create an environment where crime laboratories can function beyond case triage and start performing the work that will save the entire criminal justice system time and resources. It is that critical investigative stage where forensic analyses can rule out suspects, direct leads with real data, and help solve crimes more quickly and more accurately than canvassing and eyewitness interviews that require the use of already overburdened investigators.

Supporting the full modernization and upgrading of our Nation's crime laboratories means more than just saving time and money; it means saving lives, stopping crimes, and promoting public safety in a very real, tangible way. We believe we have made great progress in enhancing the ability of public crime labs to analyze many types of forensic evidence, and we believe that the provisions outlined in the Coverdell Act will help us build on that important work.

I would be happy to answer any questions you may have.

[The prepared statement of Mr. Boyd follows:]

STATEMENT OF DAVID G. BOYD, DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY, DEPUTY DIRECTOR, NATIONAL INSTITUTE OF JUSTICE

Good afternoon. Mr. Chairman, thank you for the opportunity to testify before you today orr this important issue. My name is David Boyd. I am the Deputy Director of the National Institute of Justice and the Director of its Office of Science and Technology. NIJ is the research and evaluation arm of the Justice Department. My office, the Office of Science and Technology, works to explore technology and other resources that could be used by law enforcement officials to solve and prosecute crimes.

NIJ believes it has made great progress in enhancing the ability of public crime labs to improve their capacities to analyze many types of forensic evidence. We believe that the provisions outlined in the Paul Coverdell National Forensic Sciences Improvement Act of 2000 (P.L. 106–561), if funded, will help us build on that important work.

DNA and other types of forensic evidence are valuable tools that investigators, prosecutors, and other law enforcement officials use in this manner. It is the job of forensic scientists working in the more than 300 public crime laboratories across the nation to reveal as much about the evidence as possible. This job, already a scientifically challenging endeavor, is made more difficult by the restrictions faced by

virtually all of the public crime laboratories. A recent RAND report, Challenges and Choices for CrimeFighting Technology, pointed out that public crime laboratories face huge casework backlogs, forcing them to prioritize work according to upcoming court dates, and making it difficult for them to perform the timely analyses that might aid or shorten investigations. Further, budgetary constraints suppress their ability to modernize or upgrade equipment, yet recent court decisions are forcing forensic scientists to reevaluate and, in some cases, augment both the science and the implementation upon which their results are based.

The needs faced by the public crime labs have been the subject of several important programs at the National Institute of Justice over the last six years. The first of these programs, the DNA Laboratory Improvement Program, a $40 million initiative meant to improve the capabilities and capacities of our nation's crime laboratories to implement and conduct forensic DNA analysis, has already shown significant and easily measurable results. When the program began in 1996, under the authority of the 1994 DNA Identification Act, fewer than a dozen states had the capability to perform forensic DNA testing. By the end of FY 2000, more than 130 separate laboratory facilities had DNA capabilities. Many of these laboratories were able to use federal funds to leverage their laboratories' priorities with their own state legislatures. A number of states responded to NIJ's encouragement to form consortiums across their state and local laboratories to make more efficient use of funding and services.

An outgrowth of the DNA Laboratory Improvement program has been the Crime Laboratory Improvement Program (CLIP), developed to aid all facets of public crime laboratories, because DNA evidence is applicable in a small portion of crimes. For most crimes, in addition to DNA, other kinds of evidence must also be collected, analyzed, and explained.

Important gains have been made in several areas that will improve the capacity and capability of all public crime labs. One effort that addresses what many believe is the most critical need in the crime laboratory community is the creation of a Technical Working Group (TWG) of forensic practitioners, educators, trainers, and others to formulate a standardized curriculum for undergraduate and graduate forensic science majors to ensure a relevant knowledge base for those entering the forensic work force. Training, education, and human resource issues are those cited as the most critical need by more than 95 percent of the crime laboratory directors responding to the RAND survey.

NIJ is also undertaking the development of a Forensic Resource Network that will be accessible to the forensic community to assist in quality assurance, validation and evaluation, new technologies, and surplus property distribution. We believe our experience with the DNA Laboratory Improvement Program demonstrates that CLIP will have as significant an impact in upgrading non-DNA forensic applications as the DNA Laboratory Improvement Program had on DNA forensics for our nation. NIJ has had great success in working to assist labs to address critical issues and develop meaningful proposals that include measurable long-term goals, and deliverables that will have important consequences for bettering their productivity, capacities, and capabilities beyond the life of the grant. The Coverdell Act's provision calling for state plans to be developed prior to funds being released to a state should help to continue this important aspect of laboratory improvement.

Finally, there is the Forensic DNA Research and Development Program, which has been providing enhancements to existing methods, techniques, and technologies, as well as creating new tools for the future of DNA evidence. Such technological innovations were identified in a report by a working group of the National Commission on the Future of DNA Evidence as important in enhancing the value of DNA in solving and preventing crime. Some of the program's $5 million annual budget is used to develop technologies and techniques that will immediately improve the use of DNA in today's laboratories. One such improvement allows laboratories to predict instrumentation failures before they occur, thus reducing arbitrary laboratory shut-downs and the risk of loss of crucial evidence. Another example is the development of a mitochondrial DNA screening method that allows labs to examine old, degraded, or very small evidence samples without resorting to the expensive and technically demanding DNA sequencing methods needed beyond the screening stage. The program also supports future improvements such as high throughput, low cost mass spectrometry instrumentation and the exploitation of nanotechnology for forensic applications.

We expect the first forensic DNA chip with all 13 of the required genetic markers for data basing to be in the hands of the practitioners for evaluation by October 2001. This chip, under development at MIT's Whitehead Institute of Technology, uses standard, commercially available reagents with a capillary electrophoresis format, but instead of the several hours currently required to analyze a sample, the

chip can perform the same task and produce a reliable result in under 10 minutes. This type of instrumentation can save many thousands of man-years of productivity when it is implemented in our nation's labs and may eventually offer new ways to use DNA earlier in investigations.

Increases in productivity such as these are a crucial need in forensic laboratories today. The forensic workforce is so severely constrained that it is simply not possible for them to work harder, so we must find ways to help them to work smarter. This is also the goal of NIJ's current non-DNA general forensics solicitation, which will fund projects that can increase the sensitivity, speed, or reliability of traditional forensic methods in areas such as trace evidence, latent prints, toxicology, controlled substances, and other forensic areas.

But new technologies, methods, and techniques can help to achieve better productivity only when laboratories have the time and ability to thoughtfully evaluate and validate them. As the RAND report notes, the laboratories are so overwhelmed by a lack of human resources that infusion of new technology is incredibly difficult at best. These circumstances make the need to support crime laboratory improvement paramount before these critical gains through technology transfer can be made.

I've spent much of my testimony describing our successes in transferring the application of DNA to state and local forensic labs. But it is important to remember that DNA comprises less than 3 percent of the type of evidence needed by the criminal justice system. The attached table shows that, far and away, controlled substances (fully 54 percent of cases) are the most frequently examined evidence, followed by latent prints, blood alcohol, and toxicology. The Coverdell Act's attention to all types of forensic lab improvement, not just DNA, is one of its most obvious strengths and comports with NIJ's expansion to include all types of forensic lab improvement.

It is interesting to note that if labs could modernize their equipment and, as just one example, add autosamplers to recent model mass spectrometers (a total investment of approximately $3,000 for the autosamples and about $90,000 for a decent recent model mass spectrometer), they could double the number of controlled substances they examined on each machine, but actually decrease the manpower needed. That manpower could then be devoted to other types of analyses that could actually aid in the ongoing investigation of crimes, rather than just at the prosecution stage.

It is imperative that we work to create an environment where crime laboratories can function beyond case triage and start performing the work that will save the entire criminal justice system time and resources. It is that critical investigative stage where forensic analyses can rule out suspects, direct leads with real data, and help solve crimes more quickly and more accurately than canvassing and eyewitness interviews that requires the use of already overburdened investigators. Supporting the full modernization and upgrading of our nation's crime laboratories means more than just saving time and money. It means saving lives, stopping crimes, and promoting public safety in a very real, tangible way.

That concludes my remarks. I'd be happy to answer any question you may have.

Table 15. Distribution of Evidence Received by Laboratories

Type of Evidence	Percent of Total Received[42]	Type of Evidence	Percent of Total Received
Controlled substances	53.57%	DNA	2.19%
Latent prints	15.70%	Trace analysis	1.59%
Blood alcohol	10.74%	Questioned documents	1.09%
Toxicology	6.88%	Fire debris	0.47%
Firearms, tool marks, etc.	4.51%	Computer crime evidence	0.07%
Forensic biology	3.19%	Explosive residue	0.03%

SOURCE: FTS, 22. Values are percentages for each analysis of the total number of all tests that that responding laboratories reported.

"Challenges and Choices for Crime Fighting Technology," Page 50, RAND Corporation, April 2001.

Senator SESSIONS. Thank you, Dr. Boyd.

We have got a great panel to hear. I think the vote is about over and it will take me about 7 minutes to go and vote. So if you don't mind, we will temporarily recess and start back as soon as we do that, and perhaps Senator Leahy can be back by that time also.

Thank you. We will be recessed and return shortly.

[The Committee stood in recess from 2:33 p.m. to 2:49 p.m.]

Senator SESSIONS. We will get started again, and I apologize again for—I guess they pay us to vote around here, and hold us accountable sometimes for it, too.

Next will be Mr. Keith Coonrod, from the New York Police Forensic Science Investigation Center there in Albany, who also is here as Chairman of the Consortium of Forensic Science Organizations, as well as President of the American Society of Laboratory Directors. That is a mouthful, but they are important duties.

We are glad to have you, Keith.

STATEMENT OF KEITH K. COONROD, CHAIR, CONSORTIUM OF FORENSIC SCIENCE ORGANIZATIONS, ALBANY, NEW YORK

Mr. COONROD. Good afternoon, Mr. Chairman and members of the Committee. I would like to thank the Senate Judiciary Committee for this opportunity to provide testimony here today regarding the needs of our forensic laboratories and the strong support shown by the Committee in passage of two very important pieces of legislation last year—the Coverdell National Forensic Sciences Improvement Act and the DNA Backlog Elimination Act.

My name is Keith Coonrod. I am currently employed by the New York State Police as Director of Toxicology, Drug Chemistry, Trace and Breath Testing, in our forensic laboratory system. I am here as Chair of the Consortium of Forensic Science Organizations, which is comprised of seven leading forensic organizations. These include the American Society of Crime Laboratory Directors, known as ASCLD, which represents over 400 crime laboratory managers and directors, of which I am currently president; the American Society of Crime Laboratory Directors Laboratory Accreditation Board, known as ASCLD/LAB, which is the accrediting body for forensic crime laboratories, for which I am currently an ex officio member of the board of directors, and have been team captain responsible for many inspections of laboratories undergoing the accreditation process; the International Association for Identification, known as IAI, which is the oldest and largest forensic identification association in the world; the American Academy of Forensic Sciences, known as AAFS, which is a professional organization representing numerous forensic specialties such as criminalists, engineering sciences, jurisprudence, odontology, pathology and biology, physical anthropology, psychiatry and behavioral sciences, questioned documents, toxicology, and multi-disciplinary general section; the National Association of Medical Examiners, known as NAME, which represents medical examiners, coroners and other physicians who conduct death investigations; the National Forensic Science Technology Center, known as NFSTC, which is dedicated to assisting forensic science facilities to achieve the highest quality of operations; and the National Center for Forensic Science, known as NCFS, which represents research, education, training tools and technology to meet the needs of forensic science, investigative and criminal justice agencies.

While the public thinks of forensics as DNA, it is essential that the Committee understand that it is just one of many tools available to the criminal justice community by our forensic laboratories.

While DNA is indeed an important discipline, forensic science is more broadly defined as the examination of evidence submitted by criminal justice agencies to forensic laboratories for the purpose of determining how that evidence pertains to the law and/or the courts.

Forensic laboratories support the criminal justice community by offering services in clandestine laboratory investigations, explosives analysis, controlled substances analysis, firearms examinations, alcohol analysis, toolmark examinations, toxicology, impression evidence, arson analysis, trace evidence examinations, death investigations, digital evidence, physical match, crime scene investigations training, as well as biological examinations, including DNA.

However, as you know, the use of forensic science by the criminal justice system has increased dramatically over the past several years, but our funding has not. We find ourselves in a situation where we are unable to keep up with the demands of the system, and unfortunately many cases are either held up because we cannot deliver evidence on time or, worst yet, the prosecutor goes to court without the proper information from the forensic laboratory.

It is an unfortunate reality that with the staggering backlogs, not all cases submitted to our Nation's laboratories will be examined. Laboratories must decide which cases they will analyzed.

Recently, the American Society of Crime Laboratory Directors completed a study to determine those resources that forensic laboratories need to adequately support our Nation's criminal justice community with the quality examination of evidence in a timely manner.

Forensic crime laboratory managers and directors were asked to provide an accounting of resources needed to provide quality analysis in a timely manner. A timely manner was defined as 30 days, unless shorter timeframes were required by a particular State statute.

We actually don't know how many forensic laboratories exist in the United States, as many facilities never before considered as crime laboratories are now providing forensic examinations in one or more forensic disciplines and should be included. Therefore, these results are based on a very conservative estimation of 500 forensic facilities throughout the United States.

We conducted the study by surveying 224 crime laboratories. The results show that an additional 9,000 forensic scientists are needed to properly staff our laboratories. An additional $1.3 billion is needed for adequate laboratory facilities, and $285 million is needed to purchase the equipment necessary to conduct analysis of submitted evidence. More than 26 percent of our Nation's crime laboratories do not even have basic laboratory management systems which assist laboratories in documenting the chain of custody of their evidence.

The reality of the situation is that a budget of $35 million to improve our Nation's crime laboratories, divided among 50 States, would mean an average of $700,000 per State, or $70,000 per laboratory.

Mr. Chairman, a crucial piece of scientific instrumentation called the gas chromatograph-mass spectrometer, which is the backbone

in a forensic laboratory utilized to analyze a simple drug case, costs the laboratory $100,000.

The need to hire 9,000 forensic scientists would cost the Nation's laboratories more than $650 million. Additional laboratories rely on mentoring relationships to train new forensic scientists, and this requires that the laboratory utilize their limited resources of seasoned forensic scientists and equipment for training purposes instead of actual case work.

If the Chairman would like, I can submit the rest of presentation in written form.

Senator SESSIONS. That would be great. We appreciate that very much.

Mr. COONROD. Thank you.

Senator SESSIONS. You made some stunning disclosures there about what it really takes to get us up to where we need to be.

[The prepared statement of Mr. Coonrod follows:]

STATEMENT OF KEITH KENNETH COONROD, CHAIR OF THE CONSORTIUM OF FORENSIC SCIENCE ORGANIZATIONS

Good afternoon Mr. Chairman.

I would like to thank the Senate Judiciary Committee for this opportunity to provide testimony here today regarding the needs of our forensic laboratories and the strong support shown by the committee in passage of two very important pieces of legislation last year - The Coverdell National Forensic Science Improvement Act and the DNA Backlog Elimination Act.

My Name is Keith Coonrod and I am currently employed by the New York State Police as Director of Toxicology, Drug Chemistry, Trace and Breath Testing in the forensic laboratory system. I am here as the chair of the Consortium of Forensic Science Organizations which is comprised of 7 leading forensic organizations. These include:

- the American Society of Crime Laboratory Directors (ASCLD) which represents over 400 crime laboratory managers/directors - I am currently President;
- the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) which is the accrediting body for forensic crime laboratories for which I am currently an ex-officio member of the Board of Directors and have been Team Captain responsible for many inspections of laboratories undergoing the accreditation process;
- the International Association for Identification (IAI) which is the oldest and largest forensic identification association in the world;
- the American Academy of Forensic Sciences (AAFS) which is a professional organization representing numerous forensic specialties such as: Criminalistics; Engineering Sciences; Jurisprudence; Odontology; Pathology and Biology; Physical Anthropology; Psychiatry and Behavioral Sciences; Questioned Documents; Toxicology and a Multi-disciplinary General Section;
- the National Association of Medical Examiners (NAME) which represents medical examiners, coroners and other physicians who conduct death investigations;
- the National Forensic Science Technology Center (NFSTC) which is dedicated to assisting forensic science facilities to achieve the highest quality of operations; and
- the National Center for Forensic Science (NCFS) which provides research, education, training, tools and technology to meet the needs of forensic science, investigative, and criminal justice agencies.

While the public thinks of forensics as DNA, it is essential that the committee understand that this is just one of many tools available to the criminal justice community by our forensic laboratories.

While DNA is indeed an important discipline, Forensic Science is more broadly defined as the examination of evidence submitted by criminal justice agencies to forensic laboratories for the purpose of determining how that evidence pertains to the law and/or courts.

Forensic laboratories support the criminal justice community by offering services in Clandestine Laboratory Investigations, Explosive Analysis, Controlled Substance Analysis, Firearms Examinations, Alcohol Analysis, Toolmark Examinations, Toxicology, Impression Evidence, Arson Analysis, Trace Evidence Examinations, Death Investigations, Digital Imaging, Physical Match, Crime Scene Investigations, Training as well as Biological Examinations including DNA.

However, as you know, the use of forensic science by the criminal justice system has increased dramatically over the past several years but our funding has not. We find ourselves in a situation where we are unable to keep up with the demands of the system and unfortunately, many cases are either held up because we cannot deliver evidence on time or worse yet, the prosecutor goes to court without the proper information from the forensic laboratory. It is an unfortunate reality with the staggering backlogs that not all cases submitted to our nation's laboratories will be examined. Laboratories must decide which cases they will analyze.

Recently the American Society of Crime Laboratory Directors completed a study to determine those resources that forensic laboratories need to adequately support our nation's Criminal Justice Community with quality examinations of evidence in a timely manner. Forensic Crime Laboratory Managers and Directors were asked to provide an accounting of resources needed to provide quality analysis in a timely manner. A timely manner was defined as 30 days unless shorter time frames where required by a particular state's statute.

We actually don't know how many forensic laboratories exist in the United States as many facilities never before considered as crime laboratories are now providing forensic examinations in one or more forensic disciplines and therefore, should be included. Therefore, these results are based on a very conservative estimation of 500 forensic facilities throughout the United States. We conducted our study by surveying 224 Crime Laboratories.

The survey results show that an additional 9,000 forensic scientists are needed to properly staff our laboratories, an additional $1.3 billion is needed for adequate laboratory facilities and $285 Million is needed to purchase the equipment necessary to conduct analysis of submitted evidence. More than 26% of our nation's crime laboratories do not even have basic Laboratory Management Systems (LIMS) which assist laboratories in documenting the chain-of-custody of their evidence.

The reality of the situation is that a budget of $35 million to improve our nation's crime laboratories divided among 50 states would mean an average of $700,000 per state or $70,000 per laboratory. Mr. Chainnan a crucial piece of scientific instrumentation called the Gas Chromatograph—Mass Spectrometer, which is the backbone in a forensic crime laboratory utilized to analyze a simple drug case, cost the laboratory $100,000!

The need to hire 9,000 additional forensic scientists would cost the nation's laboratories more than $650 million. Additionally, laboratories rely on mentoring relationships to train new forensic scientists. This requires that the laboratory utilize their limited resources of seasoned forensic scientists and equipment for training purposes instead of actual casework.

To address this issue, regional forensic training centers need to be established in strategic locations utilizing existing talents and staff of universities in conjunction with local forensic laboratories. Many forensic laboratories have already started working with existing universities in addressing these needs. Discussions are already occurring between universities and crime laboratories in states such as Illinois, Florida, Virginia, West Virginia, California and New York.

Finally, less than ½ of all crime laboratories in the United States are ASCLD/LAB accredited. The quality of forensic analysis conducted in our nation's crime laboratories is paramount. Quality analysis can be achieved by utilizing the current ASCLD/LAB accreditation process for those laboratories that are not currently accredited. Laboratories that accept money from the Coverdell National Forensic Improvement Act that are not accredited must achieve accreditation within 2 years. However, ASCLD/LAB currently does not have the infrastructure to handle this potential wave of applicants and would have to shift the substantial cost of accrediting these facilities to those laboratories already accredited unless ASCLD/LAB receives funding needed to offset these bridging costs.

As my concluding remarks Mr. Chairman, I would like to thank the committee for allowing me to share with them the facts regarding the desperate needs of our forensic laboratories who provide valuable support to our criminal justice community. I thank this committee for their strong support in passage of the Coverdell National Forensic Science Improvement Act and urge your continued support in obtaining adequate funding and appropriation for this law.

Senator SESSIONS. Mr. Petersen, we are delighted to hear from you, and thank you very much for taking time out of your busy day to be with us.

STATEMENT OF WILLIAM PETERSEN, ACTOR, VALENCIA, CALIFORNIA

Mr. PETERSEN. Thank you so much, Senator, for inviting me. I feel completely honored to be able to address this distinguished group.

I am here to speak to you on behalf of a television show that highlights crime-solving technology. As a result of my role in the CBS crime drama series "CSI," I began to research the field of forensic science and became fascinated with it.

Each week, our 23 million viewers find forensic science equally fascinating. What motivates these viewers to tune into "CSI" is the believe that as Americans, I think they know that our criminal justice system is about the truth, and I believe they find comfort in the fact that the evidence is ultimately the essence of that truth.

The forensic laboratory that my character, Gil Grissom, inhabits is one that knows no budget constraints nor budget cuts. It has adequate space and funding for every technological advance imaginable. We have a sufficient number of expertly trained employees to solve every crime that we encounter. We have few, if any, backlogged cases.

My "CSI" lab processes evidence and solves crimes in the mere 44 minutes of screen time allotted to us by our network. My character's lab is a technological wonder and absolutely state-of-the-art. But unfortunately we all know that this is not the reality of the approximately 500 crime labs and coroners' labs across our country. Their reality is quite different than the manufactured world of my character and of "CSI."

Our country's crime labs are faced with a plethora of problems. Caseloads have grown faster than funding and their backlogs are constantly expanding. Many labs have outdated facilities and equipment. They have to operate with an insufficient number of qualified personnel and outmoded technology to conduct the analyses that are so vital to our criminal justice system.

For every 44 minutes that "CSI" spends solving a crime on Thursday nights, 44 days, 44 weeks, sometimes 44 months are spent by real victims and suspects waiting to receive the truth. "CSI" restores people's belief in America's system of justice before they go to bed that night, but in reality it is frequently weeks, months, and sometimes years that the innocent are held hostage and the guilty roam free while evidence sits untouched in our Nation's overburdened crime labs.

Recently, the media has focused some attention on the failures of certain individuals in the forensic community. These scientists are the exception rather than the rule. As I am sure each of you would agree, we must never let the misguided behavior of any one person taint the dignity and honor of a whole profession.

The forensic scientists I have met are dedicated professionals committed to objectivity. They are advocates for the truth. They recognize the consequences that their analyses and decisions can have on both the accused and the victim. They need and want the

tools and training that are so vital to keeping the scales of justice level.

In conclusion, let me say that I am deeply committed to this issue and I recognize the needs of the laboratories doing this important work. I want them to have help and I completely and wholeheartedly support the efforts of our forensic scientists and the funding of the Paul Coverdell National Forensic Sciences Improvement Act.

Again, Mr. Chairman, thank you for allowing me the opportunity to express my beliefs.

[The prepared statement of Mr. Petersen follows:]

STATEMENT OF WILLIAM PETERSEN, CSI, ACTOR, VALENCIA, CALIFORNIA

Thank you, Mr. Chairman and members of the Committee. I am greatly honored to have been invited to address such a distinguished group. I am here to speak to you on behalf of a television show that highlights crime solving technology. As a result of my role in the CBS dramatic series, CSI, I began to research the field of forensic science and became fascinated with it. Weekly, twenty three million viewers find forensic science just as fascinating. What motivates these viewers to tune in to CSI is the belief that, as Americans, our criminal justice system is about the truth, and they find comfort in the fact that the evidence is, ultimately, the essence of that truth.

The Forensic Laboratory that my character, Gil Grissom, inhabits is one that knows no budget constraints or budget cuts, that has adequate space for every technological advance imaginable, that has sufficient employees to solve every crime that we encounter, and has no backlogs. The CSI lab processes evidence and solves crimes in a mere 44 minutes allotted to a network program. My character's lab is a technological wonder and state of the art. But, we all know that this is not the reality of the approximately 450 crime labs and coroner's labs across our country. Their reality is quite different than the manufactured world of my character and CSI.

Labs across the country are faced with a myriad of problems. Caseloads have grown faster than funding and backlogs are expanding. Many labs have outdated facilities and equipment and an insufficient number of qualified personnel to conduct the analyses that are so vital to our criminal justice system. For every 44 minutes that CSI spends solving crime, 44 days, 44 weeks, or 44 months are spent by victims and suspects waiting to receive the truth. CSI restores people's belief in the criminal justice system before they go to bed at night, but in reality it is frequently weeks, months, and sometimes years, that the innocent are held hostage and the guilty roam free, while evidence sits untouched in overburdened labs.

Recently the media has focused some attention on the failures of several in the forensic community. These scientists are the exception, rather than the rule. As I am sure you would agree, we cannot let the behavior of any one taint the whole profession. The forensic scientists that I have met are dedicated professionals committed to objectivity—they are advocates for the truth. They recognize the consequences that their analyses and decisions can have on both the accused and the victim—they need and want the tools and training that are so vital to keeping the scales of justice level.

In conclusion, let me say that I am deeply committed to this issue and recognize the needs of the laboratories doing this important work. I support the efforts of the forensic scientists and the funding of the Paul Coverdell National Forensic Sciences Improvement Act. And again, thank you for providing me with the opportunity to express my beliefs before this esteemed Committee.

Senator SESSIONS. Thank you very much. That was a good presentation from one not in the system and it is good to hear that. I do think that the American people do like the pursuit of truth. They do like the idea that we know something with relative certainty and can determine that scientifically.

Do you think that is part of the charm or the lure of the program that you have?

Mr. PETERSEN. I absolutely do. I don't want to analyze the last 25 years of culture and society here in America, but I believe that

we are at a place in time where certainly our show has come at the right time and place for a very, very large amount of the American population. And I think it is that certainty; I think it is the idea of knowing something absolutely.

My character on the show often says, you know, people lie. Whether they intend to lie or whether they forget something or they thought they saw something that they didn't see, they end up ultimately being lies and very difficult to deal with in any sort of legal situation.

The great thing about our forensic scientists in this country is that they are able to say, no, that couldn't have happened because of this, that and this. And I think that is one of the true points of why our show has been so successful because it is what all of these crime lab directors and their associates manage to do with evidence that makes the difference.

Senator SESSIONS. Well, in my experience as a prosecutor of 15 years, I never had a problem with good scientific evidence. In those years, I have seen two or three instances of a wrongful identification where a witness literally believed that was the person they identified as robbing them. But I have never seen a fingerprint turn out not to be true or a chemical analysis not come back in the right way.

Perhaps because of the shows and Patricia Cornwell books and other things, people do expect good scientific evidence. They expect that the professionals who are doing that have had time and equipment, and so forth, to get the job done correctly.

Dr. Boyd, do you have any indication or numbers of how much increase there has been in the demand for forensic analyses to be done in the last, say, decade?

Mr. BOYD. I don't know that we can give you specific numbers. What I can tell you is that it is very clear, based on what has been happening in the courts especially with DNA and other things, that DNA evidence is clearly expected in those cases when it is actually available.

I think we can take for granted that the success, kind of the gold standard of DNA, has made the American public and the courts generally expect there to be more scientific evidence, for it to be better analyzed and for it to be more positive than has been the case, I think, in the past.

I think there is an assumption that if it is available, it ought to be used, and quite literally a demand. I think juries expect to see it, I think judges expect to see it, I think the public expects to see it.

Senator SESSIONS. I think you are correct. I know when I first began prosecuting you would have a witness to testify that they bought cocaine from the defendant. Then we used audio and video recordings of the drug bust. So I think the juries expect more, and you just can't go into a trial with DNA from two samples and not all 20 drops of blood or whatever is on the scene.

Mr. BOYD. I think one particular point to make is that we know in drug cases one of the first things you have to do is prove what the drug is. So all we have to do is look at the number of drug cases and we can take that as just one part of the growth because every drug case entails a laboratory analysis.

Senator SESSIONS. Well, as I believe you indicated, 54 percent are drug cases, and that is a big part of the bread-and-butter work that just needs to be done in a timely fashion.

Senator Feingold, we are glad you can join us, and I know you may have other things, but I would defer to you at this time. Thank you for coming. You may make a statement or ask questions.

STATEMENT OF HON. RUSSELL D. FEINGOLD, A U.S. SENATOR FROM THE STATE OF WISCONSIN

Senator FEINGOLD. Thank you, Mr. Chairman. I will make a couple of remarks and ask a question or two. I regret that I couldn't be here earlier. I very much appreciate the witnesses being here.

I want to commend you, Mr. Chairman, and our distinguished ranking member, Senator Leahy, for holding the hearing. I am very pleased to see this Committee once again address the need for improving the tools for seeking the truth in our criminal justice system.

Last year, we had a very informative and lively hearing about post-conviction DNA testing, and I was a cosponsor last year and am proud to be a cosponsor again this year of Senator Leahy's bill that will ensure access to post-conviction DNA testing, the so-called Innocence Protection Act.

DNA testing of biological material has played an incredible role in the pursuit of truth and justice. DNA testing has identified perpetrators or provided other important probative value to the police and prosecutors who are investigating a crime. But DNA testing has also further exposed what you might say is a piece of the dark underbelly of our criminal justice system, the conviction and sentencing of innocent people for crimes they did not commit.

All Americans are becoming increasingly familiar with the stories of people wrongfully convicted, sentenced and sent to prison finally walking free as a result of DNA testing. Nationwide, scores of innocent people have been able to walk free, and the value of this test is even more poignant, of course, for those sitting on death row.

Since the reinstatement of the modern death penalty, ten death row inmates have been exonerated as a result of DNA testing. While DNA has unlocked the prison doors for many innocent people, it has also led us to the real perpetrator.

Mr. Chairman, our State crime labs play an important role in identifying, receiving, handling, testing and storing the biological evidence that is subject to DNA testing. In addition to DNA testing, they, of course, conduct other aspects of forensic science, like hair analysis, fingerprint analysis and ballistics identification and imaging. The Federal Government can provide meaningful support and resources to assist crime labs with meeting these needs.

So, Mr. Chairman, I am very pleased that our late colleague, Senator Coverdell, championed the need for additional resources for our State crime labs, and I am very pleased that you, Senator Sessions, have continued Senator Coverdell's work. I am glad that this bill was signed into law and I hope our State crime labs get the resources they need.

Let me ask a question of all of you with a bit of material at the beginning and then you can just take it where you wish.

As you are all aware, Joyce Gilchrist, an Oklahoma City crime lab scientist, has been accused of shoddy lab work, or even falsifying test results and testifying falsely on the stand. Over a 15-year period, it is believed that she was involved in hundreds of felony convictions, including 11 in which the defendant was executed and 12 in which the defendant is currently on death row.

Oklahoma Governor Frank Keating has said he is confident not a single innocent person has been executed. I don't see how he can be so confident, given that a full review of all cases in which she was involved is only just beginning. In fact, just last week Oklahoma released Jeff Pierce from prison after serving 15 years of a 65-year sentence for a rape he did not commit, and Joyce Gilchrist testified falsely in his case that hair taken from the crime scene matched hair samples taken from Mr. Pierce.

Mr. Pierce's lawyers had argued that Ms. Gilchrist had overstated the certainty with which hair comparisons could be used to identify a single person. As if this was not serious enough, Ms. Gilchrist then violated a court order by failing to forward the hair evidence to a private lab hired by the defense. The evidence she did send leaked out of the package; it could not be analyzed. This meant the defense could not fully analyze the evidence before trial.

The State appeals court said that, while she violated the court order, her failure to turn over the evidence was insufficient to overturn the conviction. It was not until Mr. Pierce was able to test certain biological evidence with modern DNA testing that he finally won his release and walked out of prison a free man just last week.

On Friday, May 11, Barry Scheck and Peter Neufeld of the Innocence Project writing in the New York Times suggested that we should place quality assurance standards on forensic labs in the same way that we do on medical testing labs. They suggest a model for improvement among forensic labs would be the 1988 Clinical Laboratory Improvement Act which provided accountability for medical testing labs.

Now, I would ask you, do you agree that Federal standards are needed to promote quality, accountability and integrity of forensic labs?

Mr. BOYD. One of the principal roles of the National Institute of Justice has been to try to help to develop standards for the conduct of certain forensic or investigative disciplines. Over the last, I think, 3 years we have published a guide which is now kind of a standard for the way homicide investigations should be conducted, one for the use of eyewitnesses, one for arson and one for bombing investigations, and one for crime scenes in general.

We also this year received from Congress in a reprogramming authority to use $1.7 million of asset forfeiture money that we will be using to reduce the DNA backlog to use expressly for quality assurance to ensure that the testing that is being done, in fact, meets those kinds of standards. NIJ has also supported strongly the development by ASCLD and by the American Academy of Forensic Sciences both accreditation and proficiency testing kinds of programs for forensic scientists and for the laboratories themselves.

I think one of the things that we need very much to do, though, is now to look at developing a standard, consensus-based set of curricula for the education of forensic scientists. The reality today is that if you were to ask someone with a forensic science degree what it meant, you would get different answers, depending on where they got the degree, and you would have seriously different questions about what they were qualified to do in the forensic arena, so that they typically have to be retrained for 6 to 12 months once they have finally come to work in the laboratory.

So I think you need all of those things. You need the development of standards in the forensic community by AAFS and by ASCLD. You need a quality assurance process and you need better education for forensic scientists.

Senator FEINGOLD. Mr. Coonrod?

Mr. COONROD. Quality is certainly an issue that we are all concerned about, and one of the things we have to recognize is less than one-half of our laboratories are currently accredited. The accreditation process provides the quality mechanism for our laboratories whereby, through the mechanisms of external proficiency testing, audits, review of courtroom testimony, different policies and procedures are developed by those laboratories that are actually accredited so as when those are implemented they provide a sound basis of quality for the laboratory to ensure that they are indeed providing the highest quality service.

I believe that as more laboratories become accredited—and one of the things that is most important about the Paul Coverdell Forensic Sciences Improvement Act is it does provide that laboratories utilizing monies from this must have applied for accreditation within 2 years, and I think that that is very critical in improving the quality of our Nation's laboratories.

Senator FEINGOLD. Mr. Petersen?

Mr. PETERSEN. Well, Senator I agree with Mr. Coonrod, and certainly defer to these gentlemen in terms of their expertise about the accreditation of these crime labs. Obviously, the situation in Oklahoma City, if true, is despicable and hopefully isolated. I am not sure whether that is an accredited lab.

Mr. COONROD. It is not.

Mr. PETERSEN. It is not accredited. Certainly, these are the gentlemen who know how to best handle that situation.

Senator FEINGOLD. Thank you very much, and thank you, Mr. Chairman.

Senator SESSIONS. Thank you. I appreciate those insights.

With regard to the Oklahoma problem, which was troubling to anybody who cares about justice in America, Mr. Coonrod, you indicated that that was not an accredited laboratory.

Mr. COONROD. That is correct, sir.

Senator SESSIONS. Do you have any suggestions about how a laboratory could better manage itself or be managed so that those kinds of events are less likely to occur?

Mr. COONROD. Absolutely.

Senator SESSIONS. What would you suggest?

Mr. COONROD. Well, as I said, less than one-half of our Nation's laboratories are accredited. This provides a very valuable mechanism whereby the accreditation process has a series of standards

and principles by which those laboratories that seek accreditation must comply with those standards and criteria. They include, as I said, a series of quality assurance measures like having a quality manager and quality systems.

One of the problems we face in our Nation's laboratories today is we need 9,000 more forensic scientists, as I said, in order to be able to deal with the backlog we have. Many laboratories are faced with if I have one or two positions that I can hire, do I hire those one or two people as forensic scientists to deal with that backlog or do I hire a support person, known as a quality assurance manager?

The unfortunate reality is our laboratories are dealing with a backlog and are concerned about getting the cases out and they have to put a sideline on hiring, let's say, a quality manager, which is a key cornerstone of quality of our forensic laboratories and is required in seeking ASCLD lab accreditation. So they are making these hard decisions because they don't have the money available or the resources available to be able to implement these quality systems which are part of the accreditation process.

The accreditation process also has a very strong program on proficiency testing whereby laboratories actually utilize external proficiency test providers who are outside of the laboratory where tests are made. They are submitted to the laboratory and used to ensure that the quality of the laboratory exists.

There is an audit mechanism whereby the laboratories must go through a very extensive audit program where inspectors come in. They come in and ensure that the policies and procedures established by that laboratory do meet quality standards, that these standards are scientifically valid and what they are doing is good science. One of the other things is courtroom testimony to ensure that there is follow-up, that these people are actually presenting themselves in court correctly.

So to answer your question, yes, the accreditation process, I feel, would do an excellent job.

Senator SESSIONS. Dr. Boyd, you mentioned quality assurance. Would you describe for us what you think a quality assurance program should be in an accredited lab?

Mr. BOYD. I could talk to you about the DNA quality assurance program. What we are doing in quality assurance and the backlog reduction program is to take a part of the samples which are being tested in this case primarily by contract laboratories, and we take a percentage of those out and have another laboratory look at that analysis to make sure that it has been executed correctly and that they are getting the right kinds of results.

I think that you have to establish as a matter of policy within any scientific activity some method for both internal and, when appropriate, external reviews of the quality of the work you have done. And I think one of the strongest such activities in the country today is the ASCLD laboratory accreditation process which brings in people not in that laboratory to come in and look at that laboratory's process.

I think you need those things together in laboratories to do that, but as long as we have half of our laboratories unaccredited, then I think we have some reason to suggest that things like the Cover-

dell bill which requires that kind of accreditation to be the kinds of things we are going to need to improve and strengthen all of our labs.

Senator SESSIONS. Mr. Petersen, you have shown on your program a number of new and effective laboratory technologies. Would you describe some of those? And maybe I will ask these gentlemen if they are common around the country.

Mr. PETERSEN. Well, we fortunately have a lot of fabulous technical advisers who are actually either former criminalists or current criminalists who work with us. Invariably, everyday they come into our lab and are just amazed.

The other thing is our stuff is given to us by the manufacturers of those products. Just the other day, I believe it was Kodak that gave us an unbelievable camera, you know, a $30,000 digital camera that can do all kinds of stuff in the field and you can computer it back to the lab. I mean, it is just amazing equipment that obviously is quite expensive. We have a gas chromatograph-mass spectrometer.

Senator SESSIONS. You have got it. Good.

Mr. PETERSEN. Yes, we have got one for free, because, of course, they are promoting it. Often, I feel bad about it, quite frankly. We also have an unlimited amount of personnel; we call them "extras," and they fill out all the rooms in our lab and they are all quite qualified to stare into the microscope.

I am truly amazed at what these criminalists in this country do in terms of dealing with the criminal situation and the crimes that take place in this country and I realize how difficult it would be to not have this equipment. I mean, obviously we take great liberal stretches in terms of how we are able to put all this stuff together and solve our crimes in one evening.

The amount of work and manpower and knowledge and equipment that is required to actually do it in reality is quite different, and it has just been very informative to me in the last several days in terms of looking at this issue how important obviously the assistance from the Paul Coverdell Act would—I mean, I can't imagine us being able to go further without it.

Senator SESSIONS. Well, I thank you for those good words.

Keith, do you have anything to add to this as a leader of forensic scientists around the country?

Mr. COONROD. Well, I agree with what Mr. Petersen says. Programs like this have brought to light forensics to the public community and that certainly has helped us, but I don't think there is a laboratory that hasn't gotten a phone call asking us to provide the service that they have seen on "CSI."

The disappointing thing is quite often the answer is, no, we can't do that. We don't have the technology. We haven't bought or we don't have available that piece of equipment, or the research and development has not been done to ensure that it would meet the standards in court of the technology that you have seen on that TV show. So it is sometimes frustrating, but enlightening, in that it does bring the public awareness of forensic science and what forensics sometimes can and cannot do.

Senator SESSIONS. With regard to the Federal Government, Keith, you are not a part of that beast, but it strikes me, and it

always has, that the Federal Government by virtue of being involved with all 50 States should not hesitate to play a role in research, in equipment development and that sort of thing, because each individual State has got its duties everyday to do those reports.

Do you think the Federal Government could do a better job of helping do scientific research and provide training and that sort of thing for the labs around the country?

Mr. COONROD. Well, first of all, the Federal Government is trying to do the best they can in providing that. Certainly, we have gotten support from many different Federal labs, but as we know, 90 percent of the forensic work is done by State and local laboratories.

With the need that we have in education and training, what we need is actually more cooperative efforts with universities and crime laboratories, and there already have been discussions between universities and crime laboratories to provide the needed training and education. They have occurred in various different States such as Illinois, West Virginia, New York, Florida and California, to name a few.

What we need is we need to expand on those discussions so actually we have, let's say, regional training centers which also can be worked with different forensic laboratories and assisting so we work collectively in helping to train and provide education and training.

Right now, our training is done on a mentoring basis, basically one on one in the laboratory. Laboratories do not have the resources available to tie up a person to train one-on-one for sometimes, let's say, a questioned documents exam that can take 2 to 3 years' worth of training. They are not only tying up the examiner to work with a trainee, but also the equipment that that laboratory needs to perform its analysis. Laboratories cannot afford to utilize their limited resources.

Senator SESSIONS. Dr. Boyd, would you briefly like to answer or make any comment on that?

Mr. BOYD. Well, a significant part of what we are trying to do is to develop new tools with a focus on affordability, which makes that a real challenge. It is important to note that while, for example, the Department of Defense may spend $200 million or so on a single aircraft or piece of equipment, we have today the largest forensic research and development budget in the history of the United States and that comes, including DNA, to probably less than $10 million total, out of which we are now trying to do things like develop a new DNA micro chip that can do the processing for a matter of a few dollars.

We figure if this thing costs more than $15 per sample, it is not going to work because they are not going to be able to afford it. These laboratories actually have to make hard decisions between buying film for their cameras or buying new equipment.

We are also working with New York, for example, in the Albany crime laboratory in trying to take some things that we developed for telemedicine to reduce the costs of medical care in prisons and apply it in forensic sciences, where we call it teleforensics.

We are actually working with NASA to see if we can take some of these long-distance kinds of analytical devices they have devel-

oped, make them affordable and put them into systems so that a local crime laboratory that doesn't have a Henry Lee or a Keith Coonrod available can make a link to Keith and say, can you help me, can you look at this, can you help me figure this out, can you remotely help analyze that, can you make a connection to a laboratory to do that.

We are now trying to expand that demonstration project which has worked very well in New York to a number of other States, but it is going to take continuing effort to continue to address the development of these technologies. The only one in which the Federal Government has invested substantial money, and it has made a difference in the United States because it has invested that money, is DNA and that is the model, that is the success.

The difference DNA has made, I think, is an example of the difference R and D in the forensic sciences could make in other areas, as well, in that 97 percent of cases that don't involve DNA.

Senator SESSIONS. Well said. I think those are excellent points.

Mr. Petersen, we will be seeing you, if you won't be seeing us as often. We thank you gentlemen for coming, and thank you very much for what you do with your program. I think it does help restore confidence in justice in America. In a big big country of nearly 300 million people, we will have some problems. Everything won't go perfectly, but day after day the forensic laboratory scientists that I have dealt with year after year are men and women of the highest integrity and I have never doubted the quality of their work. I think that is important for us to recognize, particularly when we see a problem develop.

Thank you.

Mr. PETERSEN. Thank you, Senator.

Senator SESSIONS. Thank you.

We will take our next panel, and I think we have got a good table now of true experts.

Senator Durbin, we are glad you have joined us. I was about to introduce the panel, but do you want to make an opening statement first?

STATEMENT OF HON. RICHARD J. DURBIN, A U.S. SENATOR FROM THE STATE OF ILLINOIS

Senator DURBIN. Thank you, Mr. Chairman. I appreciate coming together with you on this bill that we are cosponsoring, the Paul Coverdell Forensic Sciences Improvement Act.

We have DNA testing and a lot of other technology to unlock the secrets of forensic evidence and to learn whether we should put people behind bars or set them free. But unfortunately, as I am sure the Chairman has made clear, our crime labs are critically backlogged.

We will hear from Mr. Michael Sheppo, with the Illinois State Police, about the situation we are facing in our State of Illinois where we have 11 forensic labs, 9 of which are operated by the Illinois State Police. They oversee the third largest system of crime labs in the world, surpassed only by the FBI and Scotland Yard.

Recent data from the Illinois State Police shows a total of 8,965 forensic evaluations backlogged in the month of July; 1,069 of these backlogged cases were DNA cases, and almost 1,000 of these cases

were over 30 days old. The laboratories just can't keep up. This kind of backlog dilutes the benefits of forensic testing to criminal investigations. In many cases, the trail is allowed to run cold.

Forensic evidence can tell us the truth. DNA, for example, can literally tell us whether people should be freed or kept behind bars. We need to use this technology, and use it effectively.

I am going to put the rest of my statement in the record in its entirety, with the approval of the chairman, and look forward to the testimony of the panel.

Senator SESSIONS. Thank you. I do appreciate your support on this bill, and we just heard from the previous panel how less than half the labs in America are accredited. This bill will require them to either be accredited or be moving toward accreditation, so I think that could be a good end of this legislation.

Let me introduce the panel and we will just go down the list and hear from each one of you.

Mr. Richard Townsend is with the Utah Department of Public Safety's crime lab in Salt Lake City. Mr. Michael Sheppo is with the Illinois State Police Division of Forensic Sciences. We just heard about your office.

Dr. Eric Buel is Director of the Vermont Forensic Laboratory in Waterbury, Vermont.

Do you know Senator Leahy?

Mr. BUEL. Just a little bit.

Senator SESSIONS. He is a good one to know.

Dr. Jamie Downs is Director and Chief Medical Examiner of the Alabama Department of Forensic Sciences in Auburn, Alabama.

War Eagle, Dr. Downs?

Dr. DOWNS. War Eagle.

Senator SESSIONS. Dr. Downs, among other things that he does, has been working on the recovery of the remains of the individuals inside the Hunley submarine in South Carolina, which is his home State.

Dr. Milton E. Nix, Jr. is the Director of the Georgia Bureau of Investigation. We appreciate you, Mr. Nix. You have been here working on this bill for a long time. I know you and Paul Coverdell believed in it, and it is a pleasure for me to be able to make a difference in making it a reality.

Dr. Michael Yura is Director of the Forensic Identification Program at West Virginia University, in Morgantown, West Virginia. Thank you, Dr. Yura, for being here.

So, Mr. Townsend, we will hear from you.

STATEMENT OF RICHARD J. TOWNSEND, DIRECTOR, UTAH BUREAU OF FORENSIC SERVICES, SALT LAKE CITY, UTAH

Mr. TOWNSEND. Thank you, Senator.

It is my distinct honor and privilege to appear before the Committee to discuss this subject which has become a vital component in criminal justice investigations. I am going to attack my testimony from an anecdotal story, inasmuch as I am not a scientist. I am a police officer and investigator, and as such am Director of the Utah State Criminalistics Laboratory System.

In July 1999, two very brutal crimes occurred in the western part of Salt Lake Valley. The first involved the sexual assault of

a female victim during a home invasion. After raping and terrorizing the victim for a lengthy period of time, the suspect attempted to destroy bodily fluid evidence using catsup and hand lotion.

When police investigators were summoned to the crime scene, the victim underwent a physical examination by a nurse practitioner in order to capture any physical evidence left by the suspect. A rape investigation kit was delivered to the State criminalistics laboratory, and scientific analysis provided a DNA profile of the suspect in spite of his attempt to destroy the evidence.

Two weeks later, in the same general vicinity of the sexual assault, a second victim was brutally raped and this time murdered. In this particular case, the suspect set the dead victim's bed on fire and when police investigators responded to the crime scene, only a burned out torso was left of the victim.

Although the victim's body had been mostly consumed by the fire, bodily fluids were extracted from the victim which ultimately led to the DNA profile of the suspect. In an instant, the DNA profiles from both of these crime scenes were compared and an exact match was made. The same suspect was responsible for these atrocities. Sadly, the murder victim was a well-known stage actress who had performed hundreds of times in front of Utah audiences.

The entire west side of Salt Lake County was traumatized by these two incidents. Once it was discovered both of these crimes were committed by the same individual, law enforcement was fearful of a serial rapist and killer on the loose. Sheriff Aaron Kennard put his entire police agency on high alert and extra patrols in the west side neighborhoods.

Approximately 1 week after the murder of the second victim, a deputy sheriff stopped an individual who generally matched the description of the suspect from the composite drawing given by the rape victim. The deputy felt he had enough probable cause to arrest the subject. Within a few hours, a police lineup was conducted and the rape victim picked this individual out whom the deputy had arrested.

The sheriff and all police agencies throughout the Salt Lake Valley were greatly relieved that the dangerous individual had been captured and taken off the street. The sheriff indeed called a news conference in order to calm the community's nerve. A crime lab state member was sent to the jail in order to extract a blood standard from the suspect in order to make a positive DNA match from the evidence collected at the two crime scenes.

Everyone was shocked when the results came back negative, indicating this particular individual was not responsible for these two crimes. Indeed, many police officials and others questioned the DNA analysis from our crime lab and felt that we had made a mistake.

Due to the exact nature of the science surrounding DNA and, I might add, all of the other evidence that we have talked about, from fingerprints, to trace, to drug analysis, the crime lab staff was certain that this was not the individual who had committed these crimes.

The first rape victim recognized she had picked out the wrong individual from this lineup and gave a second composite sketch drawing to an artist. A correctional officer at the Utah State Prison was

walking down a hallway and noticed the sketch of the suspect hanging on a bulletin board. She immediately recognized the drawing as being very similar to an individual who had been paroled from prison some 6 months earlier. She immediately contacted the detective in charge of the investigation.

The investigator contacted the crime lab, indicating he had a solid lead. In a wonderful twist of fate, the crime lab had received a blood standard from this suspect upon being paroled from prison. States across the country, as you know, are taking blood standards from convicted and paroled offenders in order to place their DNA profiles into the CODIS system, or Combined DNA Index System. I immediately authorized my staff overtime pay to work on the DNA profile throughout the night. An "attempt to locate" was put out on the identified offender because an exact match was made after the DNA profile was done.

This particular case captures all the essential elements of DNA technology. First, DNA evidence tied two serious crimes together. Second, DNA evidence exonerated an innocent individual. Third, using DNA technology along with the wonderful advantages of the combined DNA indexing system, a multiply convicted and extremely dangerous individual was taken off the streets of Salt Lake City. During his stay in prison, this individual has confessed his incidents of terror had only just begun.

The advantages of DNA evidence processing, along with all the other issues that the distinguished first panel discussed, are so vitally important to law enforcement. I commend this Committee for the work that you are doing and hope that you will continue on this path.

Thank you very much.

[The prepared statement of Mr. Townsend follows:]

STATEMENT OF RICHARD J. TOWNSEND, DIRECTOR, UTAH BUREAU OF FORENSIC SERVICES

It is my distinct honor and privilege to appear before the Senate Judiciary Committee to discuss a subject that has become a vital component in criminal justice investigations. In July of 1999, two very brutal crimes occurred in the western part of the Salt Lake Valley. The first involved a sexual assault of a female victim during a home invasion. After raping and terrorizing the victim for a lengthy period of time, the suspect attempted to destroy bodily fluid evidence by pouring ketsup and hand lotion into the victim's genitalia. When police investigators were summoned to the crime scene, the victim underwent a physical examination by a nurse practitioner in order to capture any potential physical evidence left by the suspect. A rape investigation kit was delivered to the State Criminalistics Laboratory. Scientific analysis provided a DNA profile of the suspect, in spite of his attempt to destroy the evidence.

Two weeks later, in the same general vicinity of the sexual assault, a second victim was brutally raped and murdered. In this particular case, the suspect set the dead victim's bed on fire and when police investigators responded to the crime scene, only a burnt out torso was left of the victim. The Medical Examiner was summoned to the crime scene for the purposes of swabbing the victim for any potential bodily fluid evidence. Although the victim's body had been mostly consumed by the fire, bodily fluids were extracted from the victim which ultimately led to a DNA profile of the suspect. In an instant, the DNA profiles from both of these crime scenes were compared and an exact match was made. The same suspect was responsible for these atrocities. Sadly, the murder victim was a well-known stage actress who had performed hundreds of times in front of Utah audiences.

The entire west side of Salt Lake County was traumatized by these two incidents. Once it was discovered both of these crimes were committed by the same individual, law enforcement was fearful of a serial rapist and killer on the loose. Sheriff Aaron Kennard put his entire police agency on high alert and ordered extra patrols in west

side neighborhoods. Approximately one week after the murder of the second victim, a deputy sheriff stopped an individual who generally matched the description provided to law enforcement by the first rape victim. Although traumatized by this incident, the victim was able to provide a composite drawing of the suspect which was broadly distributed throughout Utah and surrounding states. The individual stopped by the deputy had an extensive criminal history in property crimes including robbery, burglary, et and several other thefts. The deputy felt he had enough probable cause to arrest the subject. ' Within a few hours a police line-up was conducted and the rape victim picked the individual out who the deputy had arrested. The Sheriff and all police agencies throughout the Salt Lake Valley were greatly relieved that a dangerous individual had been captured and taken off the street. The Sheriff called a news conference in order to calm the community's nerves. A Crime Lab staff member was sent to the jail in order to extract a blood standard from the suspect to make a positive DNA match from the evidence collected from the two crime scenes. Everyone was shocked when the results came back negative, indicating this particular. individual was not responsible for these two crimes. Indeed, many police officials and others questioned the DNA analysis from the Crime Lab and felt we had made a mistake. Due to the exact nature of the science surrounding DNA, the Crime Lab staff was certain this was not the individual who had committed the crimes. The Sheriff was not convinced and continued to hold this subject in jail.

The first rape victim recognized she had picked the wrong individual out from a police line-up and provided a second composite drawing to a sketch artist, with finer details of the subject's eyes and facial features. The second composite drawing was re-issued and posted in law enforcement agencies throughout the west. A correctional officer, at the Utah State Prison, was walking down a hallway and noticed the sketch of the suspect hanging on a bulletin board. She immediately recognized the drawing as being very similar to an individual who had been paroled from Prison some six months before the two crimes were committed. She immediately contacted the detective in charge of the investigation. The investigator contacted the State Crime Lab indicating he had a solid lead. In a wonderful twist of fate, the Crime Lab had received a blood standard from this subj ect upon being paroled from Prison. States from across the country are taking blood standards from convicted and paroled offenders in order to place DNA profiles into the Combined DNA Index System (CODIS) database. I immediately authorized overtime pay for the DNA analysts to examine this particular blood standard. In less than 24 hours, an exact match was made from the blood sample taken from the paroled offender and the DNA evidence left at the two crime scenes. An Attempt To Locate was put out on the identified offender and he was arrested by a local law enforcement agency less than 24 hours after the identification was made.

This particular case captures all of the essential elements of DNA technology. First, DNA evidence tied two serious crime scenes together. Second, DNA evidence exonerated an innocent individual. Third, using DNA technology, along with the wonderful advantages of the Combined DNA Indexing System, a multiply convicted and extremely dangerous individual was taken off the streets of Salt Lake City, Utah. During this last stay in Prison, this individual has confessed his incidents of terror had only just begun.

Senators, the advantages of DNA technology cannot be overstated. It has to be considered the most significant breakthrough science has made to assist law enforcement in identifying perpetrators of crime. This is only one case of numerous I could cite where DNA evidence has been the key to solving serious crimes. DNA has far exceeded law enforcement investigators expectations in identifying perpetrators of crime. However, there are challenges to this technology which include staying abreast of changing equipment and processes, along with funding this expensive analysis and retaining highly qualified personnel. The instruments involved in DNA are expensive but are essential in decreasing the turnaround time in evidence analysis. The Committee can have a profound influence on the direction this country is taking with DNA technology. I recognize my testimony may be considered as only anecdotal, but I assure you the funding of DNA technology and equipment for laboratories across the country will be one of the most significant criminal justice decisions this committee will make. The Utah Bureau of Forensic Services and statewide law enforcement applaud your efforts and encourages you to continue on this course of DNA funding.

Senator SESSIONS. Thank you. That is a great story, Mr. Townsend. I think it is something that we do hear too often, and I think sometimes eyewitnesses get shaky. Those things are not perfect, but a good DNA analysis is hard to argue with.

Mr. Sheppo, we are delighted to hear from you.

STATEMENT OF MICHAEL G. SHEPPO, BUREAU CHIEF, ILLINOIS STATE POLICE DIVISION OF FORENSIC SERVICES, FORENSIC SCIENCES COMMAND, SPRINGFIELD, ILLINOIS

Mr. SHEPPO. Thank you, sir.

Mr. Chairman, Honorable Senators of the Senate Judiciary Committee, ladies and gentlemen, my name is Michael G. Sheppo. I am a Bureau Chief with the Illinois State Police Division of Forensic Services, Forensic Sciences Command, the immediate past president of the American Society of Crime Laboratory Directors, and the president of the board of directors of the National Forensic Science Technology Center.

Allow me to begin by first thanking the Committee for passing last year the Paul Coverdell National Forensic Sciences Improvement Act. This important piece of legislation is a tribute to Senator Coverdell, as well as a recognition of the crucial need to support and improve forensic sciences nationwide.

I began my career in forensic sciences in the early 1970's in the Georgia laboratory system and was initially paid with Federal funds from the Law Enforcement Assistance Act. At that time, LEAA funding was used by some law enforcement agencies to establish, expand, and sometimes improve crime laboratories. Unfortunately, the LEAA and similar later programs did not specifically address all of the critical needs of the Nation's laboratories.

The NFSIA is the first comprehensive piece of legislation which addresses all the aspects of our work—drug chemistry, toxicology, post-mortem medical examinations, latent print and firearms examinations, DNA analysis, trace evidence, and microscopic and document examinations.

During my 30-year career, I have been fortunate to have worked in two States that have supported their forensic science laboratory systems. However, today, in Illinois and throughout our Nation, we are facing a crisis, a crisis caused by a shortage of forensic science resources.

In the 21st century, the criminal justice system relies heavily upon the forensic sciences as an integral part of the investigative and judicial process. While billions of Federal dollars have been spent on virtually every aspect of the criminal justice components, the highly technical and very expensive forensic sciences have received very little Federal support.

In most States and municipalities, funding has simply not kept pace with the increasing demands for crime laboratory usage. This neglect has resulted in severe backlogs in forensic laboratories nationwide. For example, since 1990 the average U.S. forensic laboratory has experienced an increase in caseload of 23 percent, while budgets have grown only 10 percent and staff size by only 9 percent. This problem becomes even more significant considering the fact that most laboratories have long experienced resource shortages.

Further compounding the caseload growth, the backlogs and the new technologies, the most important variable in crime laboratory operations is quality assurance, and the cornerstone of that is lab-

oratory accreditation. It is the fundamental step in the process of quality assurance.

But due mainly to the high costs of becoming accredited, only 5 in 10 forensic laboratories have now reached the accreditation mark. To meet accreditation standards, laboratories must upgrade their facilities, purchase or improve equipment, enhance analytical techniques, and add professional and support staff. All of these standards and laws that have been enacted in good faith by Federal and State governments also exhaust some of the resources of the forensic sciences laboratories.

The Illinois State Police forensic laboratory system is the third largest system in the world. In 1982, we became the first accredited laboratory system. We have an extensive training program, a systemwide quality assurance program, and a research and development program. However, backlogs and turnaround times continue to increase. We find it necessary to implement service reductions, and the implementation of new technologies stretches our resources and challenges our ability to provide timely services.

The Illinois State Policy has reviewed our ability to provide quality services to the citizens of Illinois and has determined that there are three organizational areas that we must address over the next 5 years, the first being staffing. In order to process our current caseload and maintain our forensic data bases, an additional 160 scientists and support personnel are required. The total cost for these personnel is in excess of $41 million, and $17.5 million is needed in operational funding to support them.

The second area is training. Due to the attrition and retirement of individuals who began their career in Illinois in the 1970's, we could lose potentially 190 personnel by the year 2005. In order to properly train their replacements, the Illinois State Police is proposing a Forensic Science Institute. The Institute would be centrally located in Illinois and can potentially serve as an initial training site for Illinois and the whole Midwest region of our Nation.

The initial training of forensic scientists is a considerable challenge and the Illinois State Police has developed and implemented a training program which has been recognized for its excellence. Facility construction for the Institute would cost approximately $42.3 million, with additional monies for equipment in the neighborhood of $2.2 million and $6.2 million for staffing.

The last area of improvement in Illinois is in facilities. Short-term renovation for expanded services is needed in all nine of our laboratories. We estimate that to cost approximately $20.5 million. Additionally, major facility renovations in Chicago and new laboratory facilities in Joliet, Springfield, the Metro-East and St. Louis area, and Carbondale are also necessary.

Funding through the NFSIA certainly would help address our budgetary shortfalls in Illinois. I know that forensic science laboratories throughout our Nation are facing similar and probably greater problems. I also know that our forensic scientists can have a profound effect on the lives of all Americans. Our highly discriminating technology and data bases can identify perpetrators of crimes and stop them from committing additional offenses. But the

same wonderful technology can also exonerate those individuals falsely accused of a crime.

Your help is needed to enable our forensic scientists to provide critical scientific information to the criminal justice system. I want to thank the Committee for your support in the passage of the NFSIA and respectfully request your support in the appropriations process.

Thank you.

[The prepared statement of Mr. Sheppo follows:]

STATEMENT OF MICHAEL G. SHEPPO, BUREAU CHIEF, ILLINOIS STATE POLICE, DIVISION OF FORENSIC SERVICES

Chairman Hatch, Senator Leahy, honorable members of the Senate Judiciary Committee, ladies and gentlemen, allow me to begin by first thanking the committee for passing last year the Paul Coverdell National Forensic Science Improvement Act (NFSIA). This important piece of legislation is a tribute to Senator Coverdell as well as a recognition of the crucial need to support and improve the forensic sciences nationwide.

I began my career in the forensic sciences in the early 1970s in the Georgia laboratory system, and was initially paid with federal funds through the Law Enforcement Assistance Act (LEAA). At that time, LEAH funding was used by some law enforcement agencies to establish, expand, and improve crime laboratories. Unfortunately, the LEAH and similar later programs did not specifically address all of the critical needs of forensic science laboratories. The NFSIA is the first comprehensive piece of legislation which addresses all aspects of our work—drug analysis, toxicology, post-mortem medical examinations, latent print examinations, firearms examinations, DNA analyses, trace evidence and microscopic examinations, and document examinations.

During my thirty-year career, I have worked as a chemist and serologist; served as the first director of the Augusta, Georgia crime laboratory; and in 1985 began my career in Illinois as an Assistant Bureau Chief in charge of the seven Illinois State Police operational laboratories. I have been fortunate to have worked in two states that have supported their forensic science laboratory systems. However, today in Illinois and throughout our nation, we are facing a crisis—a crisis caused by a shortage of forensic science resources.

In the 21th century, the criminal justice system relies heavily upon forensic science services as an integral part of the investigative and judicial process. While billions of federal dollars have been spent on virtually every other criminal justice component—police officers, the courts, prisons, and information technology—the highly technical and expensive forensic sciences have received very little federal support. In most states and municipalities, funding has simply not kept pace with the increasing demand for crime laboratory analyses. This neglect has resulted in severe backlogs in forensic laboratories nationwide. For example, since 1990, the average U.S. forensic laboratory has experienced an increase in caseload of 23 percent, while budgets have grown only 10 percent and staff size by only 9 percent. This problem becomes even more significant considering the fact that most laboratories have long experienced resource shortages, and the demands by the criminal justice system to implement new crime fighting technologies such as the Combined Offender DNA Identification System (CODIS) stretch existing resources to intolerable limits.

Further compounding the caseload growth, backlogs, and added new technologies is the issue of quality—the most important variable in the operation of forensic laboratories. Many forensic science professionals are concerned that the growing demands on laboratories have, or can have, a negative impact on the quality of the results achieved. Laboratory accreditation (which is voluntary) is generally accepted as the fundamental step in quality assurance and consistency in forensic science processes. But, due mainly to the costs associated with accreditation, only five in ten forensic laboratories are now accredited. To meet or exceed the stringent standards and proficiency testing requirements established by accreditation, most laboratories must upgrade facilities, purchase or improve equipment, enhance analytical processes, and add professional and support staff.

Additionally, federal and state governments have set and mandated certain analytical standards and enacted laws which have fiscally impacted the nation's forensic science laboratories. Examples of these include the standards promulgated by the Department of Justice's DNA Advisory Board (DAB), standards set by federally sponsored scientific and technical working groups (SWGS/TWGS), state laws which

require the creation and/or expansion of forensic databases, and federal and state laws which impact the analytical testing of controlled substances. All of these standards and laws are enacted with good intentions and are beneficial. However, their implementation often exhausts the limited resources of our nation's forensic science laboratories. In Illinois an amendment to the Criminal Code requiring that additional offenders be included in the ISP CODIS would require approximately $0.5 million/year in additional funding for us to analyze and enter these samples.

HOW WOULD NFSIA FUNDING BE USED IN ILLINOIS?

The Illinois State Police forensic science laboratory system is the third largest forensic system in the world. In 1982, we became the first accredited forensic laboratory system, and look forward to our fourth reaccreditation in 2002. We have an extensive training program, a systemwide quality assurance program, and a research and development program. However, backlogs and turnaround times continue to increase; we find it necessary to implement service reductions; and the implementation of new technologies stretch our resources and challenge our ability to provide timely services. In Illinois, there are two additional forensic science laboratories, the DuPage County Sheriff s Department Crime Laboratory and the Northern Illinois Police Crime Laboratory. Both of these accredited laboratories face the same resource challenges that we face.

The Illinois State Police has reviewed our ability to provide quality and timely forensic science services to the criminal justice system in Illinois. Three organizational areas have been identified that will require significant additional monetary support during the next five years:

1) Staffing—In order to process the current caseload, the increase in CODIS database samples, and the increase in firearms submissions for the Integrated Ballistic Identification System (IBIS), an additional 160 scientists and support personnel are required. The total cost for these personnel over a five-year period is approximately $41 million. To train these additional people, buy equipment and supplies, and fully support the new and expanded techniques, approximately $17.5 million in additional operating funds are needed over the next five years.

2) Training—Due to attrition and the retirement of individuals who began their careers in the early 1970s, we could potentially lose as many as 190 personnel by 2005. In order to properly train their replacements and the additional personnel needed to meet operational needs, the ISP is proposing the establishment of a Forensic Sciences Institute (FSI). The FSI would be centrally located in Illinois and could potentially serve as a training resource for Illinois, and the whole midwest region of our nation. The initial training of forensic scientists is a considerable challenge, and the Illinois State Police has developed and implemented a training program which has been recognized for its excellence. The proposed FSI would not only meet our needs, but would provide trained forensic scientists for laboratories outside of Illinois. The facility, administrative offices, dormitories, and the training area construction costs for the FSI is approximately $42.3 million. Equipment lease purchase costs are estimated at $2.2 million/year over a five-year period. Personnel costs at full operation are estimated to be $6.2 million per year.

3) Facilities—The Illinois State Police forensic science laboratory system is made up of eight operational laboratories and a research and development laboratory. Short-term renovation for expanded services is needed at each facility which would require $20.5 million in funding. Additionally, major facility projects over the next five years include an addition to the Chicago Laboratory (FSC–C) and new laboratory facilities at Joliet, Springfield, Metro-East (St. Louis), and Carbondale.

Funding obtained through the NFSIA would certainly help address the Illinois State Police budgetary shortfalls cited in the above three areas. I know that forensic science laboratories throughout our nation are facing similar problems. I also know that the forensic sciences can have a profound effect on the lives of all Americans. Our highly discriminating technology and databases can identify perpetrators of crimes and stop them from committing additional offenses. But the same wonderful technology also can exonerate those individuals falsely accused of a crime. Your help is needed to enable our nation's forensic scientists to provide this critical scientific information to the criminal justice system. I want to thank the committee for supporting the passage of the NFSIA and respectfully request your support in the appropriation process.

Senator SESSIONS. Thank you, Mr. Sheppo. I understand you have a flight that you are going to need to catch before long.

Senator Durbin, if you have any questions that you would like to ask now, it is a little out of turn, but that would be all right.

Senator DURBIN. Thank you, just so Mr. Sheppo will have a chance to catch his flight and get back to Illinois.

Can you give me an idea of how long it takes for your division to process a typical forensics analysis request?

Mr. SHEPPO. Yes, sir. It would depend upon the type of analysis. Right now, it is taking somewhere in the neighborhood of 8 to 10 months for a typical DNA case to get processed, as an example. That has been improved actually through State and Federal funding that we have received from at one point 16 months, although we are able to meet the needs of critical, rush cases to the law enforcement community when necessary.

In other areas, it would depend on the discipline. In drug chemistry, for example, we can turn cases over generally within 30 days. We have the staff to do that at the present time.

Senator DURBIN. Are you able to give us any kind of an estimate of the cost of each of these services that you provide?

Mr. SHEPPO. Yes, sir. I think overall, more or less for the 9 laboratories, our personnel services for 1 year is $28 million, $11 million in operational costs. In addition to that, there are some funds that we utilize that also help us make it through the year.

Senator DURBIN. Specifically, let's say on DNA testing, have you broken that out in terms of the equipment that is dedicated to it and the individuals? Have you costed out what each test would cost the taxpayers?

Mr. SHEPPO. Depending upon the size of the case, a sample, for example, could be anywhere from $350 to $500 when you are looking at actually doing it. Of course, when you are doing more and batching samples, that cost does come down.

Senator DURBIN. I will just close with this comment on the Forensic Institute that will be a source, we hope, of future personnel, people who would be dedicated to this field. It appears that this is going to be a growing field. My guess is we are here today talking about DNA and a few years from now we will be talking about something else, some other test that has been devised that will test science and lead us, I think, toward better appreciation of the truth.

I thank you very much for coming.

Mr. SHEPPO. I thank you, sir.

Senator SESSIONS. Dr. Buel?

STATEMENT OF ERIC BUEL, DIRECTOR, VERMONT FORENSIC LABORATORY, WATERBURY, VERMONT

Mr. BUEL. Thank you, Mr. Chairman. I am very honored to be here today to offer support for the Paul Coverdell National Forensic Sciences Improvement Act. I thank you for the opportunity to express my views on the need for such legislation for our laboratory and for the forensic community as a whole.

Forensic laboratories provide critical information to the criminal justice system. Without analyses conducted by forensic laboratories, many cases would go untried, many police investigations would be stalled, innocent individuals may not be exonerated, and criminals would be on the street victimizing our citizens.

The criminal justice system is a puzzle. Forensic science represents a significant piece to that puzzle that must be appro-

priately supported. Supporting a greater police presence to fight the drug problem must be balanced with additional resources to the laboratories to provide the drug analysis necessary for court action.

Vermont has seen a 130-percent increase in arrests for heroin in just 3 years. The drug problem in Vermont is real and demands across-the-board support. The forensic laboratory must not be forgotten when the challenge of meeting the demands of the criminal justice system are addressed.

The challenge of improving and expanding services comes with a cost. Instrumentation is expensive and requires regular maintenance. Many forensic analyses are complex and require considerable training and experience. New techniques and technologies continue to drive our science. We cannot sanction the use of this new science without appropriate training, but we are asked to provide the latest methods to the people we serve.

We would not ask an engineer with minimal training or outdated tools to design a bridge. We must not ask forensic scientists to perform analyses without proper training and instrumentation. We must do everything we can to supply the training and tools necessary to provide the types of analysis the people of our State and country expect and deserve.

The analytical tools and methods employed in the analysis of evidence should be housed in facilities designed for 21st century science. The establishment of well-designed forensic laboratories in each State capable of supporting well-trained staff should become a priority.

Vermont is a small, rural State with a population of about 600,000. The crime rate in Vermont is relatively low, but we have seen an increase in the submission of sexual assault cases, other violent cases and drug cases. Case submissions requesting DNA analysis have nearly doubled in 3 years. Each DNA case takes considerable time and effort. Additional staff is required to keep up with current casework. Other forensic disciplines have encountered similar staffing shortages as a result of casework increases and changes in analytical procedures.

As the Senator pointed out, we are housed on the third floor of a building constructed in 1941 as part of a State mental hospital. At times, it seems that we belong there. A study conducted on our facility detailed many problems with our building.

Our laboratory must often repeat DNA analytical testing as a result of room temperature fluctuations which cause quality control problems with our instrument. Basically, the temperature goes up and down and the instrument doesn't run properly. The laboratory has about half the space it needs.

Forensic science takes its ideas and techniques from other fields and incorporates those that have merit within its own complement of protocols. The field is constantly engaged in finding new and better techniques to allow more information to be obtained from smaller evidentiary items. This quest has brought us to a point where the sweat from a hat band left at a crime scene could reveal the identity of a rapist, or fluorescent dyes used to locate fingerprints on old evidence, and where small fragments of paint can identify a car from a hit-and-run.

The field of forensic science has stepped up to the plate to offer the methods and techniques required to analyze the evidence found at crime scenes. We as a society need to make this science a priority, to allow every citizen who is the victim of a crime and every individual who is accused of a crime the opportunity to have the evidence associated with that crime analyzed by a well-trained, well-equipped team. It can and should be done.

I am concerned about the quality of life in Vermont and know it will diminish if crime is allowed to grow and impact the citizens of the State. The Paul Coverdell National Forensic Sciences Improvement Act will allow laboratories to improve the quality and timeliness of the forensic sciences services provided in that State.

The forensic laboratory does make a difference to the quality of life, and with NFSIA our laboratory will do everything it can to expand and improve its services to ultimately bring the best possible forensic analysis to the people of the State of Vermont, who should expect nothing else.

Thank you very much.

[The prepared statement of Mr. Buel follows:]

STATEMENT OF ERIC BUEL, PH.D., DIRECTOR, VERMONT FORENSIC LABORATORY, VERMONT DEPARTMENT OF PUBLIC SAFETY, WATERBURY, VERMONT

Thank you, Mr. Chairman. I am Eric Buel, Director of the Vermont Forensic Laboratory. Our laboratory is the only forensic laboratory in the State of Vermont. The forensic services we provide to the citizens of Vermont include the traditional forensic disciplines such, as fingerprints and drug analysis, and also modern DNA analysis. The American Society of Crime Laboratory Directors has accredited our laboratory and we follow national standards in the analytical procedures we perform.

I am here today to offer support for the Paul Coverdell National Forensic Sciences Improvement Act and I thank you for the opportunity to express my views on the need for such legislation for our laboratory and for the forensic community as a whole.

Forensic laboratories provide critical information to the criminal justice system. Without the analyses conducted by forensic laboratories many cases would go untried, many police investigations would be stalled, innocent individuals may not be exonerated, and criminals would be on the street victimizing our citizens. The criminal justice system is a puzzle with interlocking pieces. Any piece removed, and the puzzle is incomplete. Forensic science represents a significant piece to that puzzle that must be appropriately supported. Supporting a greater police presence to fight the drug problem must be balanced with additional resources to the laboratory to provide the drug analysis necessary for court action. Vermont has seen a 130% increase in arrests for heroin in just three years. The drug problem in Vermont is real, and demands across-the-board support. The forensic laboratory must not be forgotten when these issues are addressed.

I started my forensic career some twenty years ago as a bench chemist performing drug and body fluid analyses. Instruments in those days were unsophisticated, typically inexpensive, and many types of analyses didn't require an instrumental approach. Our analysis of body fluids led to courtroom testimony in which linking a suspect to a piece of evidence with a statistic of 1 in 10 was considered powerful testimony. Today methods for the analysis of body fluid evidence can, in essence, uniquely link a suspect to a crime. Minute traces of evidence that were considered analytically insignificant now yield valuable information.

About 10 years ago DNA analysis became available and many forensic laboratories across the country began to offer this service. The ability to offer truly powerful testimony concerning the source of biological stains put forensic science in the spotlight. Experts from outside the forensic community critically appraised the analyses that were performed. Other forensic disciplines soon found their work evaluated and critiqued. The entire forensic community began to form working groups that reviewed and made recommendations concerning protocols and procedures. Laboratories with an eye towards improving current services began to implement these recommendations and sought to expand the services provided to the criminal justice system.

The challenge of improving and expanding services comes with a cost. Much of the instrumentation now considered routine had not been invented or perfected for forensic applications twenty years ago. This instrumentation is expensive, requires regular maintenance, and must be replaced after a certain defined lifetime. Many forensic analyses are complex and require considerable training and experience. Forensic fingerprint and firearms examiners require years of training to allow them to proffer testimony in court. The ability to obtain a DNA profile from a drop of blood the size of a pinhead and offer testimony in court concerning the relevance of that result takes considerable training and experience. New techniques and technologies continue to drive our science. We cannot sanction the use of these new sciences without appropriate training, but we are asked to provide the latest methods to the people we serve. We would not ask an engineer with minimal training or outdated tools to design a bridge. We must not ask forensic scientists to perform analyses without proper training and instrumentation. We must do everything we can to supply the training and tools necessary to provide the types of analysis people of our state and country expect and deserve.

The analytical tools and methods employed in the analysis of evidence should be housed in facilities designed for 21 St century science. These facilities must be constructed to address contamination issues, instrument needs, variable analytical demands, and worker safety. Old or poorly designed facilities may compromise proper evidence analysis. Appropriate facilities should be constructed specifically for forensic science with adequate space to perform the wide variety of forensic examinations encountered in the field. Working environments that allow for safe and healthy working conditions should not be considered a luxury, but should be standard in all laboratories. Support personnel should be available to allow highly trained scientists to concentrate on casework analysis without ancillary distractions. The establishment of well-designed forensic laboratories in each state capable of supporting well-trained staff should become a priority.

Vermont is a small rural state with a population of about 600,000. The crime rate in Vermont is relatively low compared to that of the nation. However, we have seen an increase in the submission of sexual assault cases, other violent assaults, and drug cases. Case submissions requesting DNA analysis have nearly doubled in three years. Each DNA case takes considerable time and effort; and additional staff is required to keep up with current casework and to expand into the analysis of non-suspect DNA samples for inclusion into the national DNA database known as CODIS. Other forensic disciplines have encountered similar staffing shortages as the result of caseload increases and changes in analytical procedures. Years ago a simple dusting with powder sufficed to check a piece of evidence for latent fingerprints. Now new technologies allow us to find prints that dusting cannot reveal through the use of a superglue chamber and fluorescent dyes. Use of new technologies throughout the laboratory results in better, more thorough analysis, but requires additional examination time. Today we find that an evidentiary item may undergo many examinations to provide the forensic scientist with the most information possible. These additional exams coupled with increases in caseload place additional demands upon the forensic scientist, mandating that managers ask for increases in staff and training to appropriately meet the growing demands for service.

Vermont's forensic laboratory is housed on the third floor of a building constructed in 1941 as part of a state mental hospital designed to house mental health patients. A study conducted on our facility published in the spring of 2000 detailed many problems with our existing facility. In short the building was never designed to house a laboratory and lacks, for instance, proper ventilation, space, and environmentally controlled rooms for instrumentation. Our laboratory often must repeat DNA analytical testing as room temperature fluctuations cause quality assurance problems with our instrument. This results in time delays for court-required casework, reduces the number of total cases that may be completed, and increases the overall cost per DNA analysis. Health and safety problems also exist. The laboratory has about half the space it needs to do the work currently performed let alone allowance for growth. The ASCLD accreditation team informed us that our facility probably would not pass the expected inspection standards in 2004, our reaccredidation date.

Forensic Science takes ideas and techniques from other fields and incorporates those that have merit (after much evaluation) within its own complement of protocols. The field is constantly engaged in finding new and better techniques to allow more information to be obtained from smaller evidentiary items. This quest has brought us to a point where the sweat from a hatband left at a crime scene could reveal the identity of a rapist, where fluorescent dyes are used to locate fingerprints on old evidence, and where small fragments of paint can identify a car from a hit and run. The field of forensic science has stepped up to the plate to offer the meth-

ods and techniques required to analyze the evidence found at crime scenes. We as a society need to make this science a priority, to allow every citizen who is a victim of crime and every individual accused of a crime the opportunity to have the evidence associated with that crime analyzed by a welltrained, wellequipped team. It can and should be done.

I am concerned about the quality of life in Vermont and know it will diminish if crime is allowed to grow and impact the citizens of the State. The Paul Coverdell National Forensic Sciences Improvement Act will allow laboratories to make necessary progress towards facility and instrumentation modernization. Together these enhancements will improve the quality and timeliness of the forensic science services provided in the State. The forensic laboratory works in conjunction with police, state's attorneys, and the courts to assist the criminal justice system fight crime. The forensic laboratory does make a difference to the quality of life and, with NFSIA, our laboratory will do everything it can to expand' and improve its services to ultimately bring the best possible forensic analysis to the people of the state of Vermont who should expect nothing less.

Senator SESSIONS. Thank you.

Dr. Downs, we are glad to have you. I have visited at least two of your laboratories and I have seen that they are crowded and busy.

STATEMENT OF JAMES CLAUDE UPSHAW DOWNS, M.D., DIRECTOR/CHIEF MEDICAL EXAMINER, DEPARTMENT OF FORENSIC SERVICES, STATE OF ALABAMA, AUBURN, ALABAMA

Dr. DOWNS. Well, we very much appreciate your coming and seeing our facilities, and thank you, Mr. Chairman and the Committee, for allowing us the privilege of coming before you today. I speak today on behalf of our Nation's medical examiners and coroners, and please accept our sincere appreciation and gratitude for this opportunity.

I think it is highly significant that members of the forensic sciences community come before you today mere days following the successful prosecution of the perpetrator of one of the most cowardly acts on record; that is, the bombing deaths of children in a church.

In a nutshell, the investigations conducted by forensic scientists, medical examiners and coroners are targeted to collecting sufficient evidence from the examination of crime scenes and from the autopsy examination of broken and bloodied bodies to provide the court with sufficient, credible scientific evidence to ensure that justice is done. We are impartial scientists and physicians charged with the awesome responsibility of determining how and why someone met their end.

Regrettably, due to limited resources, most medical examiners and coroners do not have sufficient staff and equipment to perform at an optimal level. This shortfall adversely affects our criminal justice system because the lack of needed materials and personnel hinders the pathologist's ability to expedite reports in criminal cases. Such reports are necessary for successful criminal prosecution.

Suspects, innocent until proven guilty, sit in jail awaiting their day in court. In Alabama, that wait recently has been as long as 30 months, this despite our Constitution's guarantee of the right to a speedy trial.

While we oftentimes think of forensic matters as they relate to high-profile cases—mass disaster, terrorism, homicides and the

like—I would like to speak for a moment on other forensic pathology issues that might be underappreciated.

While perhaps less important at least to some than the high-profile cases, overall most of the cases that medical examiners deal with are those involve the sudden, unnatural, suspicious death of an adult or child. In short, the medical examiner/coroner investigation is the final word as to whether or not a death is due to natural causes, foul play, or preventable means. If the medical examiner can assist by preventing even one additional death, then the resources invested in the system are worth it.

In dealing with the victims of tragic, sudden death and their families, the forensic pathologist plays a critically important role in the lives of innumerable other people—the surviving family members, friends, neighbors, the community at large, the police, the courts; in short, all of us.

To illustrate a typical non-homicide investigation, allow me to share a situation I was involved in just 2 weeks ago. The case involved the untimely death of a 6-month-old baby who had been born prematurely. The mother awoke one morning to find the child dead in bed. Both parents were obviously distraught at their loss, and yet they, as well as the investigators, wanted to know what had happened.

The autopsy was performed, and 4 months later they still had no answers. The reason for the delay was that the toxicology lab—that is the area that looks for drugs and poisons in the blood—was backlogged and could not analyze the sample more quickly. Imagine the grief, frustration and anger of not knowing why your baby had been taken away from you. Imagine that feeling every day for a month, 2 months, 3 months, 4 months. Imagine in some areas where that analysis doesn't get performed for a year simply because of lack of resources. This is even more tragic when we realize that it only takes a week to actually perform the analysis once we get around to working the evidence.

In the end, the autopsy and scene analysis allowed us to determine that the child did die from accidental suffocation, that there was not foul play involved, and allowed us to reassure the parents there was nothing that they could have done, given the circumstances, to prevent their child's untimely demise.

But this case affects law enforcement agencies that are involved in the investigation. They can then target their resources, which are also limited, to investigate the homicides, the important cases that they need to spend their resources on.

It is not at all uncommon for us as medical examiners to get calls from families requesting insurance payments for burials; they need a death certificate expedited. It is shameful that the answer to these problems is merely a matter of resources, money.

Different systems need different things, depending on the particular concerns of the area. Some might need an adequate building, others modern, efficient equipment, others more personnel. The real strength of the Paul Coverdell National Forensic Sciences Improvement Act is that it allows different forensic systems to establish a plan in deciding how their particular population would be best served.

We were reminded of the medical examiner component of this law by the untimely and tragic death of the bill's namesake, Senator Coverdell, who was called home far too soon. His passion was for justice and truth. Those core principles are the essence of this law. Providing the resources so that forensic examinations and autopsy reports can be completed in a timely manner will allow more efficient use of all of our resources.

By fully funding the Paul Coverdell National Forensic Sciences Improvement Act, the Pledge of Allegiance's assurance of justice for all can be fulfilled—justice for those suspects awaiting a speedy trial, those loved ones awaiting closure, and those in financial need awaiting insurance benefits. Most importantly, it will help ensure the rights of those who did not choose or desire to become homicide victims whose lifeless bodies cry out from their graves for a swift resolution to their cases so that their attacker can be put behind bars and so that their families can begin the healing process. That surely is justice for all.

Mr. Chairman, Committee members, I thank you very much for your interest in this matter and appreciate your past and continued support.

[The prepared statement of Dr. Downs follows:]

[Additional material is being retained in the Committee files.]

STATEMENT OF JAMES CLAUDE UPSHAW DOWNS, M.D., DIRECTOR/CHIEF MEDICAL EXAMINER, DEPARTMENT OF FORENSIC SCIENCES, STATE OF ALABAMA

Thank you Mr. Chairman and ladies and gentlemen of the committee for the privilege of coming before you to address this distinguished body. I come before you today on behalf of our nation's Medical Examiner and Coroner community; please accept our sincere gratitude and appreciation for this opportunity.

As you are no doubt aware from the many important and pressing matters that come before the committee on a regular basis, there is a tremendous interest in all the forensic sciences, including medical examiner/coroner activities. I think it highly significant that members of the forensic sciences community come before you today, just a few days following the successful prosecution of the perpetrator of one of the single most cowardly acts on record—the bombing murder of children in a church. In a nutshell, the investigations conducted by all forensic scientists, medical examiners, and coroners is targeted to collecting sufficient evidence—from the examination of the crime scenes and from the autopsy examination of the broken and bloodied bodies—to provide the courts with sufficient credible scientific evidence to ensure that justice is done. We are impartial scientists and physicians charged with the awesome responsibility of explaining how and why a fellow human being's life has been taken away.

Regrettably, due to limited resources, most medical examiners and coroners do not have sufficient staff and equipment to perform at an optimal level. This shortfall adversely affects our criminal justice system because the lack of needed materials and personnel hinders the pathologist's ability to expedite reports in criminal cases. That report is necessary for successful criminal prosecution. A suspect—innocent until proven guilty sits in jail awaiting their day in court. In Alabama, that wait recently has been as long as thirty months. This despite our constitution's assurance of the right to a speedy trial.

While we oftentimes think of forensic matters as they relate to high profile cases—mass disasters, acts of terrorism, homicides and the like—I would like to speak on other forensic pathology issues that might be underappreciated. While perhaps less important, at least to some, than high profile cases, overall most of our cases involve investigations involve sudden, unnatural, and suspicious deaths of adults and children. In short, the medical examiner/coroner investigation is the final word as to whether or not a death is due to natural causes, foul play, or preventable means. If the medical examiner can assist by preventing even one additional death, the funding invested in the office has been wellspent. In dealing with the victims of tragic sudden death and their families, the forensic pathologist plays a critically important role in the lives of innumerable other people—the surviving family members, friends, neighbors, the community at large, the police, the courts, ...

To illustrate a typical non-homicide investigation, allow me to share a situation I was involved in just two weeks ago. This case involves the death of a 6-month-old baby, born prematurely. The child was healthy and had been doing well until one morning when the mother awoke to discover her lifeless child's body. Both parents were obviously distraught at their loss. And yet they—as well as the investigators—wanted to know what had happened. The autopsy was performed and four months later, they had no answers. The reason for the delay is that the toxicology lab, that area that looks for drugs and poisons in the blood, was backlogged and could not analyze the sample any more quickly. Imagine the grief, frustration, and anger of not knowing why your baby had been taken from you. Imagine that feeling every day for a month. . .two months. . .three months. . .four months. Imagine in some areas where that analysis takes over a year simply because the medical examiner laboratory does not have the resources available to perform the test more quickly. This is even more tragic given that in most cases it takes less than a week to actually perform the test. Eventually, four months after the fact, and only because they called to request assistance, the toxicology testing was completed. In the end, the autopsy and scene investigation allowed determination that the child had died from an accidental suffocation and that no foul play was involved. This is vitally important to the parents in reassuring them that there was nothing they could have done differently, given the circumstances.

This case then affects the law enforcement agencies involved, who can then save their resources to investigate homicides and suspicious deaths. It also affects any insurance benefits that might be pending the results of the autopsy. It is not at all uncommon to have urgent calls from families pleading for an autopsy report for insurance purposes so that they can pay for the burial expenses or make the payment on their home. Another area of public concern is death due to infectious disease, such as meningitis. The community at large needs to know if there is a potential concern for transmission of this potentially lethal disease. Likewise, the medical examiner may be able to determine through autopsy, toxicology, and drug analysis if a "bad batch" of drugs is circulating in the community.

It is shameful that the answer to the problem is simply a matter of providing adequate resources. Different systems need different things, depending upon the particular needs of the area served. Some might need an adequate building. Others perhaps modern and more efficient equipment. Still others may require additional personnel. The real strength of the Paul Coverdell National Forensic Sciences Improvement Act is that it allows different forensic systems to establish a plan in deciding how their particular population would best be served in allocating new resources.

We are reminded of the medical examiner component of this law by the untimely and tragic death of the bill's namesake, Senator Coverdell, who was called home far too soon. His passion was for justice and truth. Those core principles are the essence of this law. Providing the resources so that forensic examinations and autopsy reports can be completed in a timely manner will allow more efficient use of all our resources. By fully funding the Paul Coverdell National Forensic Sciences Improvement Act, the pledge of allegience's assurance of "justice for all" can be fulfilled—justice for those suspects awaiting a speedy trial, those loved ones awaiting closure, and those in financial need awaiting insurance benefits. Most importantly, it will help ensure the rights of those who did not choose or desire to become homicide victims—whose lifeless bodies ciy out from their graves for a swift resolution to their case so that their attacker can be put behind bars and their families can begin the healing process. That is surely justice for all.

I thank you for you kind consideration of this matter and your interest in trying to help our nation's crime laboratories and medical examiners.

Senator SESSIONS. Thank you, Dr. Downs. Well said, and it is good to be reminded that medical examinations and other aspects—that it is more than just crime. There are families and personalities and lives at stake.

Mr. Nix, it is good to see you again. We are delighted to hear from you.

STATEMENT OF MILTON E. NIX, JR., DIRECTOR, GEORGIA BUREAU OF INVESTIGATION, DECATUR, GEORGIA

Mr. NIX. Thank you, Senator Sessions, and thank you so much for your visionary leadership. I think we all recognize that we

would not be here today absent your hard work and the research that you have done on this problem.

I am honored to be on this distinguished panel. I am not a scientist, I am not a doctor. I don't have a Ph.D. in chemistry or biology, but I can tell you that it didn't take me very long after I was appointed by then Governor Zell Miller to realize the greatest problem facing the Georgia Bureau of Investigation and our agency was providing adequate crime lab resources for the State of Georgia.

For all practical purposes, we are the sole provider of forensic services to 159 sheriffs' offices and over 500 police departments in Georgia that service a total population of about 8 million. We provide medical examiner services for 143 of Georgia's 159 counties.

What I discovered when I came back to Georgia after 23 years with the FBI was a State and local criminal justice system that was absolutely dependent on the work being done by a State crime lab that was not adequately funded or staffed. With increasing demands for quality, productivity and timeliness, but faced with inadequate resources, what I saw was an absolute formula for disaster. I saw a system that was not accredited. We had no structured quality system in our laboratory.

As a result of what I saw, we looked for solutions outside the State of Georgia. I turned to my counterparts in other States. In 1997, under the leadership of Commissioner Tim Moore, with the Florida Department of Law Enforcement, 11 State law enforcement representatives formed the States Coalition to discuss common challenges that we were facing.

What we determined is that we were all facing the same problem, and that was a problem with inadequate resources in our crime labs, and I can tell you that this issue has been the priority of the Coalition ever since. We developed and fought for the concept of Federal funding for our crime labs because this is a national issue and it clearly affects the timely delivery of justice in our country.

Please remember that 95 percent of all crime lab services that are delivered in this country are delivered at the State and local level, not by the FBI, not by DEA, ATF, the Secret Service, but by State and local crime labs across the country.

Currently, the lack of resources is causing laboratories across the country to be serious bottlenecks for justice. Now, through organizations such as the International Association of Chiefs of Police, the Association of State Criminal Investigative Agencies, the States Coalition, and certainly the Consortium of Forensic Science Organizations, efforts have been made to address the resource problem in our labs at the Federal level.

You ask why is Federal support so critical in solving the crime laboratory crisis. No. 1, crime labs have never played a more critical role in the administration of justice in our country. Because of the new technological advances and computerized ballistics identification and imaging, DNA, automated fingerprint identification system and many other areas, we are looking at resource potential that can solve crimes, can identify offenders as well as the innocent, and literally prevent our citizens from suffering at the hands of society's most dangerous criminals. Our crime labs can provide

timely leads that solve crimes, and we must develop and take full advantage of that potential.

Having spent 37 years on the law enforcement side of our Nation's criminal justice system, you may find this an unusual statement from me, but I am in absolute, total agreement with the National Association of Defense Attorneys when it comes to quality and accuracy of crime lab examinations and analysis. It is imperative that absolutely accurate and quality examination standards must be applied to each and every piece of evidence analyzed. No corners can be cut, regardless of backlogs.

Just remember that without a strong sense of quality, public confidence in our labs is undermined, and in turn so is justice. Because of GBI's emphasis on quality and a hundred percent peer review of all cases, in 1999 our caseload expanded to a backlog of over 35,000 cases. Some of these cases were taking 6 to 8 months to complete. Suspects were waiting in jail because crime lab reports had not been submitted. However, we could not, we would not and we did not compromise quality for expediency. Quality is the cost of doing business in forensics, and the citizens of our country deserve nothing else.

Why is this a Federal issue? The timely administration of justice demands it. The work being done by crime lab scientists everyday can have the impact of opening or closing a cell door forever. The work has to be done in each and every case with perfection. There is no room for error.

Victims of violent crime deserve the timely application of appropriate and most technologically advanced forensic resources. Until that happens, the closure they seek to the horror of being victimized is unfairly delayed. Falsely accused suspects deserve to be cleared with all due speed. Just imagine the horror of being accused of a rape, of sexually violating a child or perhaps a murder, knowing full well that there was evidence that had been submitted to the crime lab that if it was timely analyzed the results would be there and an innocent person could be set free.

Because the Federal Government has made a commitment to strong drug enforcement, Federal monies pour into State and local drug enforcement programs. But who works that evidence? Who does the work that those multi-jurisdictional task forces submit? Remember that 40 to 50 percent of crime lab analysis relates to drug identification.

The Federal Government has recognized the importance of such programs as DNA by supporting the CODIS program through the FBI and creating a DNA data base available for nationwide access. The CODIS program is a wonderful program and it is paying dividends everyday in solving crimes. Enormous amounts of Federal dollars have been spent on the law enforcement side, providing more police officers. We have got 100,000 new police officers out there that are being trained and they are submitting evidence to our crime labs everyday. Somebody has got to do that work.

The funding will support areas that are tailored for State and local crime labs for equipment, for forensic education training, laboratory information management systems that can increase productivity by 20 to 25 percent, accreditation and quality assurance programs, laboratory facility improvements, and personnel enhance-

ments. I can assure you that full funding for this bill will return a tremendous investment.

In closing, I look back to the words in our Constitution that calls for Government's role in ensuring the domestic tranquility. In forensic science and our crime laboratories, we can have the tools to ensure that justice is properly served, that the innocent are set free, and that the guilty are identified and convicted.

Never before have we been able to offer so much return for such a small investment, and I encourage you to support full funding for the Paul Coverdell National Forensic Sciences Improvement Act. It was an honor and privilege for me to sit side by side with him and talk about the needs of the criminal justice system. He was a student of the system and he was a student of identifying problems and identifying solutions, and I thank you for taking up his vision and moving forward with it in such an effective way.

I apologize for going over.

[The prepared statement of Mr. Nix follows:]

STATEMENT OF MILTON E. NIX, JR., DIRECTOR, GEORGIA BUREAU OF INVESTIGATION

In 1993, after being appointed as Director of the Georgia Bureau of Investigation by then Governor Zell Miller, it quickly became clear to me that the greatest challenge we faced as an agency was providing adequate resources for the GBI Crime Lab.

What I discovered when I came back to Georgia after 23 years with the FBI was a local criminal justice system that was absolutely dependent on the work done by a state crime lab that was neither adequately funded nor staffed.

With increasing demands for quality, productivity, and timeliness but faced with inadequate resources to work with, I saw a formula for disaster. As a result, we set out to try to fix the problem in Georgia. In the process, we looked outside of our state for solutions.

In 1997, 11 state law enforcement agency representatives formed the State's Coalition to discuss common challenges we were facing. Quickly, one common problem came to the forefront—the lack of resources in our crime labs. This issue has been the priority of this coalition ever since. We developed and fought for the concept of federal funding for our crime labs because this is a national issue and clearly affects the delivery of justice in our country. Ninety-five percent of all crime laboratory casework in this country is done at the state or local level. Currently, lack of resources is causing crime laboratories across the country to be bottlenecks for justice.

Now through organizations such as the International Association of Chiefs of Police, Association of State Criminal Investigative Agencies, the States' Coalition and the Consortium of Forensic Science Organizations, efforts have been made to address the resource problem in our labs at the federal level. Why is federal support so critical in solving the Crime Laboratory Crisis?

Crime labs have never played a more critical role in the administration of justice in our country. Because of new technological advances in ballistics identification and imaging, DNA, and many other areas, we are looking at a resource that can solve crimes, identify the offenders as well as the innocent and literally prevent our citizens from suffering at the hands of society's most dangerous criminals. Our crime labs can provide timely leads that solve crimes every day. We must develop and take full advantage of that potential.

You may find this an unusual statement, but I am in total agreement with the National Association of Defense Attorneys when it comes to quality and accuracy of crime lab examinations and analysis. It is imperative that absolute accurate and quality examination standards must be applied to every piece of evidence analyzed. No corners can be cut regardless of backlogs. Without a strong sense of quality, public confidence in our labs is undermined and, in turn, so is justice.

Because of GBI's emphasis on quality, peer review of cases and assurance that the work is right, our case backlog exploded to over 35,000 cases in 1999. Some cases were taking as much as 6—8 months to complete. Because some suspects waited in jails for lab reports to complete, justice could not be served; however, we could not compromise quality for expediency. Quality is a cost of doing business in forensics and the citizens of our country deserve nothing less.

WHY IS THIS A FEDERAL ISSUE?

- The timely administration of justice demands it.
- The work being done by crime lab scientists everyday can have the impact of opening or closing a cell door forever. This work must be done with perfection each and every time.
- Victims of violent crime deserve the timely application of appropriate forensic resources. Until that happens, the closure they seek to the horror of being victimized is unfairly delayed.
- Falsely accused suspects deserve to be cleared with all due speed. Imagine the horror of falsely being accused of a rape or other sexual offense while at the same time knowing you could be cleared if evidence submitted to a crime lab was expeditiously processed.
- Because the federal government has made a commitment to strong drug enforcement. Federal moneys pour into state and local drug enforcement programs but who works the evidence in those cases? Forty to fifty percent of crime analyses relates to drug identification.
- The federal government has recognized the importance of such programs as DNA by supporting the CODIS program through the FBI—creating a DNA database available for nationwide access.
- Large amounts of federal money have been spent on the law enforcement side, providing more police officers for local agencies. We totally agree that this is vital but you must also consider who works the increasing numbers of cases submitted by these additional police officers.
- The funding will provide support in areas that tailor to the needs of state and local laboratories:

Equipment
Forensic Education/Training
Laboratory Information Management Systems
Accreditation/Quality Assurance Programs
Laboratory Facility Improvements
Personnel Enhancements

- For the dollars spent, the return is tremendous. Justice is better served; officers have the tools to identify, arrest and convict suspects; and the innocent are set free in a timely manner.

In closing, we look back at the words of our Constitution that calls for government's role in insuring domestic tranquillity. In forensic science and our crime laboratories, you have the tools to insure that justice is properly served; that the innocent are set free and the guilty identified and convicted. Never before have we been able to offer so much return from such a small investment. I encourage your support of full funding of the National Forensics Sciences Improvement Act.

Thank you for the opportunity to speak on this issue today.

Senator SESSIONS. Thank you, Mr. Nix. Those were excellent comments, and I thank you for recalling for us Paul Coverdell's leadership. It was a good bill and something that I had known for a long time that we needed to do better about crime lab support, and it was an opportunity for this Congress to do something. I think we responded well and now we need to get it funded.

Dr. Yura, we are delighted to have you with us from West Virginia.

STATEMENT OF MICHAEL T. YURA, DIRECTOR, FORENSIC IDENTIFICATION PROGRAM, WEST VIRGINIA UNIVERSITY, MORGANTOWN, WEST VIRGINIA

Mr. YURA. I really appreciate it. Thank you.

Mr. Chairman and members of the Committee, I greatly appreciate the opportunity to speak to you concerning the funding of the National Forensic Sciences Improvement Act of 2000. As you know, this piece of legislation was passed and sign into law last year, but it was not included in this year's budget to support this critical piece of legislation. We would greatly appreciate your support in providing the appropriate funding for this activity.

I am currently the Director of the Forensic Identification Program at West Virginia University, in Morgantown, West Virginia. The primary impetus for the development of our forensic identification program was that there was a great need for educational programs not only within the State of West Virginia, but the United States and throughout the world that specifically trains people and individuals and grants degrees in the area of forensic identification.

The FBI, in response to a major training and educational void, requested that West Virginia University develop these degree programs in forensic identification, with academic concentrations in latent fingerprints examiner, forensic chemistry, biology and toxicology within our forensic investigative science major, and within our biometrics, including DNA and molecular biology.

Therefore, this program was created in December 1998 and graduated its first class last Sunday, May 13, 2001. We currently have 140 students who have come to our campus and enrolled in this program. These new programs address the current and future needs of individuals with increased scientific expertise in identification technologies and forensic science. They will be employed in the domestic law enforcement community, forensic laboratories, the FBI and other Federal agencies, as well as the biometrics industry.

The use of advanced identification technologies and forensic science technology within the forensic community and security industry has created a significant need for scientifically trained persons with technical skills in the forensic disciplines, computer science, engineering, biometrics, natural sciences and criminalistics.

Educational recommendations from technical working groups from the National Institute of Justice have required that identification specialists hired in the new millennium have the appropriate college background. The combination of these educational recommendations and significant advances in forensic identification and forensic science has created a significant demand for well-trained forensic specialists.

But another issue we are helping to solve is that of rural States having access to forensic science. Small States like West Virginia have unique problems in the development of our forensic laboratory capacity. The State of West Virginia has only one crime lab under the West Virginia State Police.

Because of the geography of our State, bringing evidence to the crime lab involves considerable loss of time and manpower because of the significant travel distances necessary to get evidence to laboratory personnel. Because there is only one crime lab, cases have been handled on the basis of time submitted and nature of the case, therefore causing significant delays in the processing of other cases in need of speed and professional resolution.

We are currently developing plans for a major renovation and development in our current law in South Charleston, West Virginia, as well as the creation of a regional crime lab in north central West Virginia. This would allow the State to be divided into two major portions, providing quality and speedy response to evidence from our law enforcement community.

Development of these facilities can only be accomplished through this type of legislation. The State of West Virginia cannot manage

the creation and upgrade of these forensic facilities under current State economics. There are many small, rural States like West Virginia which need the support of this type of legislation to keep up with new technology and develop crime labs and forensic facilities comparable to the larger States, as well as facilities similar to the expansion currently going on at the FBI in the creation of their new crime lab in Quantico, Virginia.

Like the Federal Government, demands for processing scientific forensic evidence has grown and will continue to grow geometrically. As technology has been developed for the processing of evidence such as fingerprints and DNA, crime labs have not been able to keep up with all the innovations necessary to provide the public with timely and professional analysis of forensic evidence.

We would greatly appreciate your support in providing the broad forensic community, including various disciplines such as medical examiners and other forensic specialists, with the most updated tools and facilities available. This will help convict the guilty and also provide swift exoneration of those persons wrongly accused.

Scientists in the forensic community take a neutral stand in the processing of evidence gathered by the State and local police agencies. They provide the highest-quality, impartial forensic processing which will greatly benefit the community at large.

This piece of legislation is critical for all forensic laboratories that provide the necessary technical processing, from latent fingerprints to the expanded emphasis on digital evidence. Funding of this legislation will provide support for these activities, as well as upgrading and development of professional forensic experts to help them maintain the highest quality of academic and scientific knowledge.

I thank you for your time and support. The funding of the National Forensic Sciences Improvement Act will have a monumental impact on the forensic community and law enforcement agencies for years to come.

Thank you, sir.

[The prepared statement of Mr. Yura follows:]

STATEMENT OF MICHAEL T. YURA, PH.D., WEST VIRGINIA UNIVERSITY, FORENSIC IDENTIFICATION PROGRAM

Mr. Chairman and Members of the Committee, I greatly appreciate the opportunity to speak with you concerning the funding of the National Forensic Science Improvement Act 2000. As you know, this piece of legislation was passed and signed into law last year but this year's budget does not include the appropriate sum of funding to support this critical piece of legislation. We would greatly appreciate your support in providing the appropriate funding for this activity. I am currently the Director of the Forensic Identification Program at West Virginia University in Morgantown, West Virginia. The primary impetus for the development of the forensic Identification program was that there is currently no program within the State of West Virginia, the United States, or throughout the world that specifically trains individuals and grants degrees in the area of forensic identification.

The Federal Bureau of Investigation (FBI) in response to this major training and educational void requested that West Virginia University (WVU) develop degree programs in Forensic Identification with areas of academic concentration in Latent Forensic Examiner, Forensic Chemistry, Forensic Biology, and Forensic Toxicology within the major of Forensic and Investigative Science and within the Biometric major include DNA/Molecular Biology. Therefore this program was created in December 1998 and graduated its first class on May 13, 2001.

These new programs address the current and future need for individuals with increased scientific expertise in identification technologies and forensic science. They

will be employed within the domestic law enforcement community, forensic laboratories, the FBI, and other federal agencies, as well as the biometric industry. The use of advanced identification and forensic science technology within the forensic community and security industry has created a significant need for scientifically trained persons with technical skills in the forensic discipline, computer science, engineering, biometrics, natural sciences, and criminalistics. Educational recommendations from a National Institute of Justice Technical Working Group (TWG) have been made requiring that identification specialists hired in the new millennium have the appropriate college background. The combination of these new educational recommendations and the significant advances in forensic identification and forensic science has created a significant demand for well-educated forensic specialists. Another issue that we are helping to solve is that of rural and small state's justice system having access to forensic science. Small states like West Virginia have some unique problems in the development of our forensic laboratory capacity.

The State of West Virginia has only one crime laboratory under the West Virginia State Police. Because of the geography of our state, bringing evidence to the crime lab involves considerable loss of time and manpower because of the significant travel distances necessary to get the evidence to our laboratory personnel. Because there is only one crime lab, cases have to be handled on the basis of time submitted and nature of the case, therefore, causing significant delays in the processing of other cases in need of speedy and professional resolution. We are currently developing plans for a major renovation and development of our current crime lab in South Charleston, West Virginia as well as the creation of a regional crime laboratory in North-central West Virginia. This would allow the state to be divided into two major portions providing quality and speedy response of evidence from the law enforcement community. The development of these facilities can only be accomplished through this type of legislation. The State of West Virginia cannot manage the creation and upgrade of our forensic facilities under the current state economics. There are many smaller rural states like West Virginia who need the support of this type of legislation to keep up with new technology and to develop crime lab and forensic facilities comparable to some larger states as well as facilities similar to the expansion currently underway by the FBI in the creation of their new crime laboratory in Quantico, Virginia. Like the federal government, the demands for processing scientific forensic evidence has grown and will continue to grow geometrically.

As technology has been developed for the processing of evidence, such as fingerprint and DNA evidence, crime labs have not been able to keep up with all of the innovations necessary to provide the public with timely and professional analysis of forensic evidence. We would greatly appreciate your support in providing the broad forensic community, including various disciplines such as medical examiners and various forensic specialists, with the most updated tools and facilities available. This will help convict the guilty and also provide swift exoneration of those persons wrongly accused. Scientists in the forensic community take a neutral stand in processing evidence gathered by state and local police agencies. They provide the highest quality impartial forensic processing which will greatly benefit the community at-large. This piece of legislation is critical to all forensic laboratories that provide the necessary technical processing from latent fingerprints to an expanded emphasis on digital evidence. Funding of this legislation will provide the support for these activities as well as the upgrading and development of professional forensic experts to help them maintain the highest quality of academic and scientific knowledge.

I thank you for your time and your support. This funding in support of the National Forensic Science Improvement Act will have a monumental impact on the forensic community and law enforcement for many years to come.

Senator SESSIONS. Thank you, Dr. Yura, and thank you, all of you. I appreciate very much your coming and sharing your time and expertise and background on this important subject.

You know that the Federal Government is not going to fund all the forensic laboratory demands in America. They really should not. The States have undertaken that and done that pretty well, but we do spend a lot of money on law enforcement in Washington. I think there is a growing concern that sometimes it is used to take over criminal justice rather than support it.

To me, there is no takeover, there is nothing but a real form of assistance. So I think that is what good public policy should be about. We analyze the needs in criminal justice and we see what

we can do consistent with good public policy and respect for States' roles and responsibilities. I think we are on the right track here.

Mr. Nix, you head the GBI and the laboratory is a part of the GBI?

Mr. NIX. It is one of our three divisions.

Senator SESSIONS. Three divisions?

Mr. NIX. Yes, sir.

Senator SESSIONS. That is the Georgia Bureau of Investigation which, by the way, is an outstanding investigative agency, of which I know you are quite proud. You have an investigator and they go out and make a case. Maybe there is ballistics analysis that needs to be done on a weapon, or maybe there is a drug analysis that needs to be done.

How does it impact an investigator when he submits that evidence off to a laboratory and months go by before he receives an answer?

Mr. NIX. Well, the more timely the evidence can be analyzed, the better lead value that is to the investigator. There is just so much that the investigator cannot do until that work has been done. You know, in the DNA area there may very well be a focus of one individual, that circumstantial evidence is pointing to that person. But if that DNA evidence can be accurately analyzed, you are going to know whether or not you are heading down the right road or whether or not you need to redirect resources. The same thing is true in the ballistics area.

We have talked about the DNA and some of these areas, but we haven't even given any attention to some of the very basic things that we do in the lab. There has been so much Federal attention given to DUI and deaths on our highways. Just a simple DUI case can't go forward until we have done our work in the crime lab. That is a big part of what we do.

Senator SESSIONS. My observation is it has got to be demoralizing to an officer's enthusiasm if he is ready to make a breakthrough in a case and take the case for prosecution, but he can't get his analysis back to see if it is drugs or see if the hair was a match or something like that. Do you agree with that?

Mr. NIX. Yes, Senator. In Georgia, I have been very privileged to work for two visionary Governors. I was appointed by Governor Miller and reappointed by Governor Roy Barnes, and both of them were students of the criminal justice system and they realized the direction that we were headed in. And as we were able to educate our legislature, we have made vast improvements in our delivery of crime lab services. I know what dollars can do in providing a solution.

And you say, well, why are you here if, in Georgia, so much progress has been made? Well, last year the legislature passed legislation that requires us to take DNA samples for our data base for all convicted felons. We will have anywhere from 35,000 to 50,000 new DNA cases this year. I think every crime lab and every law enforcement agency such as GBI is being faced with cyber crimes. There are very few crime laboratories in the country that have the capability of dealing with cyber crimes.

In a lot of places, law enforcement and prosecutors are turning their backs on some very serious crimes in that area because there isn't anybody in the crime lab who can do the work.

Senator SESSIONS. Does anyone else want to comment on that? Mr. Sheppo or Mr. Townsend, what is it like for the prosecutor or for the investigator if there is a delay at the laboratory?

Mr. TOWNSEND. Well, I absolutely concur with Director Nix' statement. In the State of Utah, our prosecutors are demanding less than a 30-day turnaround time, which makes it an extremely difficult brick wall that we face. If we don't meet that, then many times charges are dismissed. In fact, we had a significant case dismissed just last week for this very reason. We just simply could not meet the demands and so the prosecutor dismissed the case.

Senator SESSIONS. Well, I know that is true in Alabama. I know Dr. Downs has been working to get more funding, but we are in a funding crisis, a proration in the State, so the funding that we would like to see increased may not be as great as he would like to see.

I do know that when you are waiting 60, 90 days on a routine drug case, in my view, to get the maximum impact on a routine, not a large drug case, you need prompt turnaround. The individual needs to be arrested. If he is guilty, he needs to be brought into court promptly and something done. He doesn't have to be sent away for 25 years, perhaps, but he needs to be brought in and confronted.

But if you are talking 60, 90, 120 days before you get the lab back and then the next trial docket is another 4 or 5 months down the road, then you have gone a year before this case is processed effectively. I think that undermines law and justice.

Dr. Buel?

Mr. BUEL. We have found a rippling effect to this on the police officer. If he submits fingerprint evidence to us and we don't get a chance to analyze that, he may go to another scene and not collect the fingerprint evidence that he should because he knows that it is not going to come back in a timely fashion.

So it compounds, too. Some of the evidence may not come in because they are not getting the reports back. So that affects the citizen, the homeowner who expects us to go there and collect the evidence and bring it in and find the B and E, which affects us all to some extent at some point. When somebody breaks in and we see the "CSI" folks going in with their magic wands, they expect us to find the fingerprints and analyze those and make the hits. But with an overburdened crime lab, it becomes hard to do that.

Senator SESSIONS. That is a good observation.

Do any of you sense that State legislators that you deal with or your friends and colleagues do are becoming better informed on the need for improving funding for laboratories? I think we are behind the curve there, or the politicians were for some time.

Dr. Downs?

Dr. DOWNS. In Alabama, we certainly have been in the forefront of trying to educate our State legislators. Through the assistance of Attorney General Bill Pryor and our Governor, we have tried to get the word out there. Our legislators do understand, but as you pointed out, we are in a serious funding situation within the State

and try to be all things to all people simply can't be done. We have made strides. We have a long way to go and this will put us over the top, the full funding for the Paul Coverdell bill.

Senator SESSIONS. Any other comments? Mr. Sheppo?

Mr. SHEPPO. Also, in Illinois, I would echo exactly what Dr. Downs has said. We have had our laboratory directors work with our State legislators and it has helped. Of course, there is still a long way to go.

Senator SESSIONS. Well, this is not going to solve all your funding problems. As one of you has said, it is just not enough to solve the crisis you are facing. In a way, it provides some quick-fix money, an infusion of money for 5 years, enough money to make a difference, if not solve all your problems.

Perhaps it can be part of a highlighting of this issue that gets the attention of our State and local officials, because in my experience if we can't keep our laboratories at the highest possible quality level where an examiner has the time to do a complete and accurate analysis and still get it back to the investigating agency in a short period of time, then the system really isn't working well.

For the amount of money we spend in all of law enforcement, from jails to police and everything in between, you are still a very small part of that budget. You could double your budget and it wouldn't really impact the criminal justice budget in most States.

Any other comments?

Mr. YURA. I would like to make one comment echoing the same thing. In the State of West Virginia, Governor Wise and our new Superintendent of the State Police, Colonel Hill, have the same thing. They are acutely aware of these issues. They came into office with the idea of trying to solve it.

I think everyone is so sensitive to these issues. It is a critical time for all of us because of the awareness level, and you see television shows that highlight it and the expectation of truth. Everyone wants that, and it is just providing that support system so we can actually go out and both train those individuals to work as well as provide the services, as laboratories are supposed to.

Mr. NIX. Senator, there is just an acute need for training facilities. About a year-and-a-half ago, we could not hire enough firearms examiners and we couldn't find anyplace that we could send scientists to become firearms examiners. I was able to partner with Tim Moore of the Florida Department of Law Enforcement and both of us kicked in about $150,000 to train firearms examiners. But there is a real need for training facilities that we can send our scientists to.

I think that there is a place here for the FBI. The FBI has done such a good job through the years with the FBI National Academy. I think there is a need on the national level for a national academy of forensics, a place that we can send our crime lab scientists for advanced training. There is always going to be a need for continuous training as new innovations come down the line, and we want to cross-train scientists from one discipline to another. I think this really be a wonderful legacy for a new administration coming in to take a strong look at that as a possibility. But in the meantime, we have got to have the funds on the State and local level to get

the work in the door and out so that there is not a bottleneck to our system.

Senator SESSIONS. That was a good suggestion, Mr. Nix. I have often felt that there is a healthy role. The FBI Academy is a very good model, but it takes only a very few people for specialized matters, and maybe expanding that would be a good contribution.

Do all of you see that if you were able to expand your labs—who was that who said we need 9,000?

Dr. DOWNS. Nationwide.

Senator SESSIONS. Nationwide. Are there 9,000 people out there? Is there enough training and salaries sufficient to attract enough people?

Mr. SHEPPO. Yes, sir, I think there probably are enough scientists out there, but they would have to be trained. That is why exactly what Director Nix has said is so applicable. It is important to find these scientists and then have them properly trained so that they can come into a laboratory and we don't have to spend years training them. That down time in training really hurts as far as case productivity.

Mr. YURA. That is why the FBI came to us because they recognize exactly what Mr. Nix is saying. There was an incredible need that they saw out there not just for the FBI; it is at the State and local level. They asked us to begin those kinds of programs because they could just see the near future, let alone the distant future, and the demand for these types of highly qualified personnel.

Senator SESSIONS. I want to thank each of you. This has been a very worthwhile hearing. I believe that we will receive some fruit from it.

On behalf of Senator Hatch, I want to make clear that the record will be kept open for 2 weeks so interested persons can submit additional material, any of you or any of the Senators could.

I also want to offer into the record a letter that Senator Jon Kyl has asked that we make part of the record from the city of Phoenix Police Department talking about technology and the matters that we are dealing with today. Senator Kyl has been a strong advocate of good, effective law enforcement.

If there is nothing else on our agenda, I will say again how much we appreciate your testimony, and we will be adjourned.

[Whereupon, at 4:30 p.m., the Committee was adjourned.]

Questions and answers and submissions for the record follow:]

[Additional material is being retained in the Committee files.]

QUESTIONS AND ANSWERS

Questions submitted by the Committee on the Judiciary

QUESTIONS FOR PANEL II WITNESSES

1. What is the laboratory accreditation process for your states and what other types of external reviews do your laboratories undergo?
2. What is your method for resolving disagreements among examiners over forensic methods or the interpretation of results?
3. What is your work assigned, is terms of principal and auxiliary examiners, and who is responsible for the preparation of reports?
4. What are the training requirements for your personnel?
5. How do you guard against prosecutoria1 bias?
6. Brain Fingerprinting is the use of computer-based technology to identify the perpetrator of a crime by measuring brain-wave responses to crime relevant words

or pictures (memory and encoding related multificated electroencephalographic responses), which are elicited when the brain processes noteworthy information that it recognizes. According to the technology's proponents, when details of the crime that only the perpetrator would know are presented, a MERMER is emitted by the brain of the perpetrator. The brain of an innocent suspect would not emit a MERMER because these would be not be a recognition of the information presented.

A. Are you familiar with the Brain Fingerprinting technology? If you are, do you have an opinion on the validity of this technology?
B. Is this technology being used in your laboratories, and if so, how successful has it been?

7. How do your crime labs maintain the integrity of the chain of custody, so that evidence is not compromised?
8.How do you preserve evidence containing DNA for use in later testing and for how long do you keep such evidence?

Questions submitted by Senator Feingold

QUESTIONS FOR DAVID BOYD (PANEL I) KEITH COONROD (PANEL I) AND ALL PANEL II WITNESSES

Question 1: On May 11, 2001, Barry Scheck and Peter Neufeld of the Innocence Project wrote in the New York Times that "Conventional hair analysis. . . is subjective junk science. . . .Unsound techniques survive because forensic science has been woven into the culture of prosecution and insulated from routine quality assurance standards we impose on medical testing labs. . . .Too often, forensic laboratories are run by law enforcement officers in lab coats." Scheck and Neufeld conclude, in part, by suggesting that forensic labs should be independent agencies, serving as independent fact finders for both the prosecution and the defense. Do you agree with this suggestion? Why or why not?

QUESTIONS FOR KEITH COONROD (PANEL I) AND ALL PANEL II WITNESSES

Question 1: The Paul Coverdell National Forensic Sciences Improvement Act contains a provision that expresses the sense of the Congress that states that receive these grants should agree to ensure post-conviction DNA testing in appropriate cases. When we are talking about the possibility of an innocent person sitting in prison, even death row, fairness and justice demand that we allow post-conviction access to DNA testing.

(a) What is the current status of post-conviction access to DNA testing in your state?
(b) What role have you played in urging this important reform in your state?

Question 2: One problem sometimes faced by people seeking to prove their innocence is that the biological evidence has not been stored properly or, even worse, has been discarded by the state.

(a) What procedures do you have in place in your lab to store biological evidence?
(b) Once a conviction has been obtained, how do you maintain the integrity of the biological evidence and store it?
(c) In your state, how long is the state crime lab required to store biological evidence of a convicted offender?
(d) What are the procedures that your state crime lab follows in the event that the defense seeks access to the biological evidence and needs it transferred to a forensic lab retained by the defense?

Responses of Eric Buel to questions submitted by the Committee on the Judiciary

Answer 1: We follow the ASCLD accreditation process. ASCLD sets standards, for training of personnel, quality assurance programs, documentation and security of

evidence. Part of the ASCLD process is to ensure that laboratories have written procedures, which are followed in all of the areas of testutb performed. The DNA unit follows DNA Advisory Board (DAB) guidelines. External proficiency testing occurs in each discipline followed by blind proficiency testing yearly in each discipline. In addition, external review of the DNA unit occurs every other year

Answer 2: There are seldom disagreement, about methods, in that procedures are described in the standard operating protocols. Concerning the interpretation of a result, examiners must review the material and if the examiners do not reach an agreement the supervisor is consulted. More testing may then be suggested. If there is still doubt/nonagreement the test may be called inconclusive or the supervisor may consult with additional examiners from outside agencies. Our procedures require that a number of tests have two "readers", where two trained analysts must agree on the conclusions

Answer 3: Examiners work only within his/her discipline and work the oldest cases first unless the supervisor assigns a priority, based on court or investigative needs. The examiner prepares a report, which is peer reviewed and administratively reviewed before it is released.

Answer 4: Training requirements are detailed in training manuals and were reviewed during the accreditation process. The trainee must undergo training in the specific methods used in the forensic community and in the laboratory. This includes passing a competency test prior to undertaking casework. The DAB specifies that DNA analysts have specific areas of training including biochemistry, genetics, statistics and molecular biology.

Answer 5: The analyst examines evidence and provides the data obtained from that analysis. The procedures used are well established and the results must be supported by worksheets showing the test results. The worksheets and notes are available for review by the defense. Our policy provides that we try to maintain a portion of the evidence for future testing by the defense if they have reason to question our work.

Answer 6: Brain fingerprinting:

i. About a year ago I read some material on this subject. At that time, I felt that insufficient research had been conducted to prove the technique scientifically reliable. It may have promise, but I was not convinced at the time.
ii. Not used in our laboratory

Answer 7: Chain of custody of evidence is maintained through a paper record that records each transfer of evidence. We have secure and appropriate storage spaces for evidence and employ handling procedures that minimize the possibility of contamination or sample mix up

Answer 8: Biological evidence is dried and placed into a plastic bag with desiccant. The package is heat sealed and maintained at -20 C for at least one year. After that time it is returned in a sealed state to the submitting agency. In a dried and sealed condition it should be useful and available for future testing for years.

Responses of Eric Buel to questions submitted by Senator Feingold

Answer 1: Many forensic laboratories are under agencies such as a department of public safety or other criminal justice type organization. Some laboratories have managers who are police officers or civilian managers who report to a police officer. In Vermont we have a civilian director who reports to a civilian director of Criminal Justice Services who in turn reports to a civilian commissioner. Our laboratory employs one sworn officer in the capacity as a liaison between the laboratory and police departments. All examiners in our laboratory are civilians. These examiners perform the examinations and report what they find. Most forensic laboratories have civilian examiners who are scientists. These scientists are trained to report their bindings, without prejudice. The accreditation process reviews protocols, training and quality assurance issues. The National Forensic science Improvement Act will force laboratories to become accredited or they will not be able to receive the funds. This will be a very motivating force to drive laboratories towards accreditation. Concerning conventional hair analysis, this must be performed by only well trained examiners whose work is peer reviewed. Improper training will lead to an improper analysis in any field. In the medical field, cancer cells are misdiagnosed in 1 out

of 71 cases, and are misclassified in 1 out of 5 cases. Training is imperative in any field and NFSIA will assist labs get appropriate training

POST CONVICTION TESTING:

a) No law currently exists in the state. If a request were made for this, we would honor the request.

b) We have discussed this issue with the Vermont Defender General's office and are currently seeking model legislation to offer for the next legislative session.

STORAGE OF EVIDENCE:

a) Biological evidence is dried and placed into a plastic bag with desiccant. The package is heat sealed and maintained at -20 C for at least one year. After that time it is returned in a sealed state to the submitting agency. In a dried and sealed condition it should be useful and available for future testing for years.

b) We usually do not know when a conviction has been obtained. As described above after about one year, the evidence is returned in a sealed pouch, which will maintain DNA evidence for a considerable length of time.

c) No Vennont statues exist for the length of time required to store biological evidence.

d) The evidence does not belong to the laboratory but belongs to the submitting agency. Once the submitting agency is informed of the request from the defense, we obtain a written release from the submitting agency and a written request from the defense concerning the samples that need to be transferred and the laboratory that will be receiving the samples. We then will transfer a portion of the sample to the forensic laboratory retained by the defense. The defense may ask the court to order such a transfer and then we would only require a letter from the defense directing us as to which samples need external testing and the forensic laboratory retained for the external analysis.

Responses of J.C. Upshaw Downs, M.D. to questions submitted by the Committee of the Judiciary

1. The National Forensic Sciences Training Center (NFSTC) accredits our DNA Labs (4). In the past, the National Association of Medical Examiners (NAME) bas accredited our Forensic Pathology (medical Ewer) Labs (4). The NAME accreditation was dropped several years ago due to a lack of resources necessary for compliance with accreditation guidelines, viz, most toxicology reports should be completed within 30 days per NAME guidelines while in Alabama the delay is routinely 3 to 6 mouths and in some areas, over 12 months.

None of the other laboratory disciplirm are accredited.

External reviews have included the examination and analysis of quality control samples submitted by Collaborative Testing Service and Check Samples.

2. Methods for resolving disagreements among examiners include:

a) Review by peers within the same lab or between labs in the state system. This is accomplished under the auspices of the Discip Chief , [technical leader—the state system's senior scientist in a particular area of the forensic sciences (DNA, fmearmshoolmarks, illicit drugs, toxicology, trace evidence)] for the respective scientific discipline. This method is used in over 95% of all cases.

b) Review by recognized peers from a laboratory outside the state's system.

In, all cases the Discipline Chief reports the findings and recommendations to a Deputy Director who reports same, with recommended course of action, to the Director. Tire Director decides if further action is required. The Discipline Chief makes the technical decision and determines the appropriate method of reporting after the Director is satisfied that all pertinent issues have been addressed.

3. Work is assigned through the Laboratory Director to each laboratory's Section Chief (the individual lab's senior scientist in a particular area of the forensic sciences). In all disciplines except Toxicology, the work is assigned to each qualified examiner who performs the examination/analysis, prepares the report and testifies in court. The trainees in, each section are supervised by the Section Chief and qualified examiners.

In order to maxinize the throughput of casework, the toxicology sections operate differently. In each of the Toxicology Sections (3) the Section CWef assigns work to the other examiners, supervises their work, prepares all reports and testifies in all court cases.

4. The training requirements include a mbttum of on-the-job training, attendance at various schools and sennanars and other activities that follow a protocol set by the respective Discipline Chief The protocols follow national standards set by the Technical Working Groups of the various disciplines. In order to verify scientific veracity and impartiality in testimony, this training also includes courtroom procedures and testimony in a moot court setting.

5. Prosecutorial bias is avoided in the same manner as is defewe bias. Our agency is a separate entity of state gont that is not attached to any law enforcement agency. The department of Forensic Sciences is a separate agency in the executive branch, answering to the Governor. The Director's position is apolitical—the Director can only be removed from ofce for an impeachable offense.

Departmental reports are public record and contain a scientific description of evidence examined with a clearly demarcated Werpretation of said evidence. Personnel are trained to be open and unbiased to both prosecution and defense. Department personnel meet individually with either or both sides in an adversarial criminal proceeding to review findings and interpretations of evidence.

No fees or benefits come to the Department as a direct result of the reports and examinations conducted by the agency.

Evidence analyses, including post conviction DNA analyses, are available on request and at no fee, to either side in a criminal proms. In order to ensure that limited samples are not consumed in testing and that the results will. have some bearing on the outcome of the case, this testing is coordinated with both parties in such an instance.

Responses of J.C. Upshaw Downs, M.D. to questions submitted by Senator Feingold

Question 1: Should forensic labs be independent agencies serving as independent fact finders for both the prosecution and defense

Answer: The Department of Forensic Sciences of the State of Alabama is proud to act as such an independent agency. In so doing, we believe we provide an ideal model fox the operation of a state forensic laboratory system. The Alabama Department of Forensic Sciences has been independent since its inception in 1935. The creation of state's forensic system, was tied, in large part, to a tragic miscarriage of justice related to evidence—biological (DNA) evidence. The cases of nine young Black men (known as "the Scottsboro Boys") unjustly convicted of rape pointed out the absence of a competent impartial evidence collecting and interpreting agency within the state.

Our scientists are certified as peace officers and have the power to enter any crime scene for the purpose of securing evidence. All reports of our investigations, both on the scene and in the lab, are public record. Departmental reports of analyses clearly indicate factual results and scientific expert opinions based on those results. It has always been our policy to entertain any request by the defense to examine evidence in, a case in which we are involved by virtue of an initial request by an investigating law enforcement agency.

Consultation with counsel for prosecution and defense is another area of our scientific neutrality- On request, department scientists will meet privately with representatives for either or both sides, separately or together. During these sessions, the scientist way be requested to provide scientific commentary and/or observations to prove or disprove certain theories proffered by counsel. Attorneys for either side may review all scientific data used in formulating reports arid opinions during these consultations. The content of such meetings is held in strict confidence, unless counsel requests or agrees to release of information.

The same spirit affects courtroom testimony by Departmental employees. Impartial scientists are not ethically allowed to "shade the results" or to take sides in any adversarial action. Scientific truth is scientific truth. Our reputation is one of true impartiality. Both prosecution and defense have complimented The Alabama Department of Forensic Sciences for being truly independent finders of scientific fact, no matter to whom the benefit.

Question 1a: What is the current status of post-conviction DNA testing?

Answer: Post-conviction DNA testing is available, just as is pre-conviction testing, on request. It has always been our policy to entertain any request by the defense to examine evidence in a case in which we are involved by virtue of an initial request by an investigating law enforcement agency.

Question b: What role have you played in urging this reform?

Answer: We have not taken a pro-active role in national reform on availability of post conviction DNA testing, primarily because Alabama's Department of Forensic Sciences DNA laboratories have an active case backlog of over 20 months. Put another way, if Alabama's labs were to receive no new evidence at all, we already have almost 2 years worth of evidence in criminal cases awaiting analysis,

Fundamentally, we agree that DNA cars provide powerful evidence in criminal proceedings. It should be given the same weight in exonerating suspects as in implicating the guilty. One must remember that DNA is only one item of evidence considered in a criminal case. Other evidence and testimony is often presented

Rarely, court. Rarely, DNA evidence has shown a convict was not the donor of a sample in a particular case. This result has been used to free those falsely convicted fox a crime they did not commit. The Alabama Department of Forensic Sciences applauds those who have helped secure freedom for those unfortunate few who have been wrongly imprisoned.

One must understand why DNA evidence was not available and/or was not used in such cases. Most instances where an individual has been freed based on post-conviction. DNA evidence involve old cases. The injustice of today is based on the inadequacy of the past. In short, just a few years ago, the power of DNA evidence—for inclusion and exclusion of suspects—was not recognized. This lack of knowledge was a significant factor in the failure to secure DNA testing in many of these older cases.

Ignorance of the significance of DNA and other scientific evidence is no longer the issue. Of far greater concern to scientists is the failure to sufficiently fund crime laboratories and medical examiners to deal with evidentiary issues today. We now know the value of DNA arid forensic evidence. It is not only recognized by the courts but often is expected by juries. As a society, it is unconscionable to have the ability to perform such a specific test—one that can literally mean the difference between life and death—and to not perform a competent analysis in a timely manner. The answer simply comes down to a lack of available resources.

The constitution of these United States guarantees the right to a speedy trial and assures justice for all. Sufficient funding to staff and accredit forensic laboratories is in the national interest if we truly value these core principles.

THE INADEQUACIES OF TODAY MUST BE ADDRESSED BEFORE THEY BECOME THE INJUSTICES OF TOMORROW.

Question 2a: What are your procedures for store biological evidence?

Answer: Generally, biological evidence is stored in secure, climate-controlled environments following guidelines mandated by national standards. Some items are stored as dry stains in paper containers at room temperature, others are stored under refrigeration, and others are frozen.

Question b: How is the host-conviction evidence stored and its integrity maintained?

Answer: If any evidence remains in our custody after conviction, it is stored much the same as described in 2(a) above. The integrity is maintained at all times in secure, limited-access areas; the chain of custody is documented through the use of written receipts housed in the respective case files. Evidence that passes through our system is usually returned to the submitting agency upon completion of the examination/analysis, along with any special instructions for long-terra storage.

Question c: How long are convicted offender biological stains stored?

Answer: Blood samples from convicted offenders (prisoners, parolees, probationers, and those seeking pardons) are stored in dried stain form in a secure area for an indefinite period of time.

Question d: What procedures must be followed by the defense in order to obtain biological evidence for testing by another lab?

Answer: Normally a defense attorney obtains a court order outlining the items to be released and the conditions under which they are to be released, viz. directly to the attorney or transferred by our lab to another (defense) lab. We make the transfer utilizing normal chain of custody procedures documented by written receipts and shipping documents. The reports concerning our analysis of evidence are public record and the defense lab has access to them in that manner or through the defense attorney.

Response of National Institute of Justice to a question submitted by Senator Schumer

Question: How many unexamined rape kits remain in storage awaiting DNA testing nationally and in New York State?

Answer: Nationally, there are approximately 180,000 unexamined rape kits. At this time, there are approximately 2,000 unexamined rape kits in the State of New York. In New York State, there are approximately 6,000 rape kits collected annually.

Responses of Milton E. Nix, Jr. to questions submitted by Senator Feingold

QUESTIONS FOR PANEL 11 WITNESS:

Answer 1: On May II, 2001, Barry Scheck and Peter Neufeld of the Innocence Project wrote in the New York Times that "Conventional hair analysis. . .is subjective junk science. . .Unsound techniques survive because forensic science has been woven into the culture of prosecution and insulated from routine quality assurance standards we impose on medical testing labs. . .Too often, forensic laboratories are run by law enforcement officers in lab coats. "Scheck and Neufeld conclude, in part, by suggesting that forensic labs should be independent agencies, serving as independent fact finders for both the prosecution and the defense. Do you agree with this suggestion? Why or why not?

Most crime laboratories perform extensive scientific testing on hair evidence. A conclusion on hair evidence that is as definitive as that obtained from DNA is not possible. However, the use of properly scientific analyzed hair evidence can add valuable information for the judicial system. Forensic sciences has been evolving just as other sciences continue to evolve as new technologies and techniques are discovered and developed. Forensic science laboratories have always been after the truth through science. Their function is in criminal justice system is to provide independent scientific fact. There have been countless reports issued by crime laboratories across the county that have led law enforcement to the guilty person while exoernating the innocent. In most cases, the public only hears about the crime laboratory when an individual is prosecuted. The public does not hear about the scientific reports that do not support prosecution of an individual.

Almost all forensic scientists are scientists. Today, there are very few individuals practicing forensic science that do not have a science type degree. Accreditation programs such as ASCLDLAB support standardization and quality assurance. Such groups as the American Board of Criminalistics (ABC) support individual certifications. Forensic laboratories prove the identity of a drug compound beyond any scientific reasonable doubt. Medical testing laboratories do not.

Forensic crime laboratories are fact finders of the truth. Their reports are used by both the prosecution and the defense.

In Georgia, the defense has the ability to question any results reported by the state's crime laboratory through a policy of independent examinations using, in many cases, the very same scientific instrumentation used by the state.

The next question is who pays for a defense crime laboratory? In has been the practice and custom in the United States that defense counsel is not provided by the public except in special needy case situations. As crime laboratories are the fact finders of truth, their reports are used by the criminal justice system by both the prosecution and the defense.

Answer 2: The Paul Coverdell NFSIA contains a provision that expresses the sense of the Congress that states that receive these grants should agree to ensure post-conviction DNA testing in appropriate cases. When we are talking about the possibility of an innocent person sitting in prison, even death row, fairness and justice demand that we allow post-conviction access to DNA testing.

(a) What is the current status of post-conviction access to DNA testing in your state?

In the State of Georgia, post-conviction access to DNA testing can by granted by court order as outlined in Georgia law.

(b) What role have you played in urging this important reform in your state?

Georgia Bureau of Investigation has supported this reform and assisted in the passage of the bill containing this provision.

Answer 3: One problem sometimes faced by people seeking to prove their innocence is that the biological evidence has not been stored properly, or, even worse, has been discarded by the state.

(a) What procedures do you have in place in your lab to store biological evidence?
The GBI Division of Forensic Sciences crime laboratory retains blood samples for one year after the year of submission. All other evidence is returned to the submitting law enforcement agency after DNA analysis is completed. If the only remaining DNA is what was used in the testing, the testing sample is retained indefinitely at the laboratory.
(b) Once a conviction has been obtained, how do you maintain the integrity of the biological evidence and store it?
Following DNA analysis, evidence is returned to the submitting agency. If the only remaining DNA evidence is what was used for testing, then the laboratory retains the sample in a freezer indefinitely.
(c) In your state, how long is the state crime lab required to store biological evidence of a convicted offender?
The GBI Division of Forensic Sciences crime laboratory stores convicted offender DNA samples indefinitely.
(d) What are the procedures that your state crime lab follows in the event that the defense seeks access to the biological evidence and needs it transferred to a forensic lab retained by the defense?
If the laboratory were still in possession of the evidence, it would be transferred as per court order and Rules and Regulation of the Board of Public Safety for Independent Examinations.

Responses of Michael G. Sheppo to questions submitted by the Committee on the Judiciary

QUESTIONS FOR PANEL II WITNESSES:

Question 1: What is the laboratory accreditation process for your states and what other types of external reviews do your laboratories undergo?

Answer: The Illinois State Police forensic science laboratory system was first accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) in 1982 and has subsequently received re-accreditation every five years. External DNA audits are conducted every other year. We additionally require that each laboratory director inspect their laboratory each year using ASCLD/LAB and internal criteria. Also, each laboratory is inspected annually by an Illinois State Police, Division of Forensic Services, Forensic Sciences Command inspection team. Included on the inspection team are external auditors who we believe add a different perspective in evaluating our laboratory operations.

Question 2: What is your method for resolving disagreements among examiners over forensic methods or the interpretation of results?

Answer: Disagreements may be resolved by discussions between the examiners to come to a common decision—if that is not possible, then a peer review board is formed to review the disagreement and resolve the issue. The peer review board is made up of the quality review coordinator for the section, two analysts chosen by the examiner who do not work in the examiner's laboratory, the training coordinator for the section, and one analyst chosen by the quality assurance program administrator. This board meets and reviews the issue and renders a decision, which is final upon approval by the commander.

For a case already reported to an agency, if no agreement can be reached between the analysts, separate reports may be issued which explain/cover the individual merits or reasons made for the conclusions reached. This would also require the commander's approval.

Forensic Science Command Policy EVH 9—Case Analysis and Reporting Errors and Situation Reports is attached. Specifically paragraph III.D.2. addresses the Quality Assurance Review Board process. The Quality Manual QM 7—Quality Assurance Measures also addresses quality measures for situations in which there is a disagreement with a technical review of reports.

Question 3: How is your work assigned, in terms of principal and auxiliary examiners, and who is responsible for the preparation of reports?

Answer: The Illinois State Police's forensic science laboratory system employs both forensic scientists and evidence technicians. The forensic scientists are responsible for all analytical work and report preparation. Evidence technicians may handle evidence and prepare reagents, but are not involved in critical analysis, analytical interpretation, nor do they issue reports.

Question 4: What are the training requirements for your personnel?

Answer: Applicants for forensic scientist positions must have, as a minimum, a bachelor's degree in a science such as chemistry or biology. Each applicant is required to pass a pre-employment written test in the targeted specialty area of interest (e.g., drug chemistry, forensic biology/DNA, patterned evidence such as latent prints and firearms). An oral interview is conducted, and if selected for hiring, the individual is pre-screened for any additional criteria such as DNA Advisory Board course work requirements.

Upon hiring, new employees enter a structured formal training program under the leadership of a training coordinator in the specialty area in which they will work. The training program consists of modules with specific goals and objectives. Each module requires the student to pass criteria tests that can be written and/or practical in nature, demonstrating theory, practical knowledge and analytical skills. Students must successfully pass a module before beginning another module. Modules include: theoretical information, demonstration of analytical techniques on practice cases and/or non probative cases, 100 percent passage of a final set of unknowns before beginning supervised casework, final mock trails and/or oral boards, and a specified period of supervised casework. Each training program has a specific length of time for completion. Written academic criteria, which establishes grading guidelines as well as student continuation in a program, are strictly followed. Appropriate modifications to the training program are made for individuals we hire with experience at another forensic science laboratory and for individuals within the Forensic Sciences Command who wish to change specialties and if the command has an operational need to permit cross-training. Academic criteria for that program is also attached.

Question 5: How do you guard against prosecutorial bias?

Answer: Prosecutorial bias is something that all forensic scientists need to be aware of and ever vigilant to avoid. All forensic scientists must strive to report all the scientific facts in an understandable manner so that the information can then be used by the judicial system to determine an individual's guilt or innocence. The Illinois State Police starts stressing the importance of impartiality with novice forensic scientists. All of our forensic scientists attend a week long Courtroom Demeanor Training that teaches them their role in the judicial process. The scientists also attend an ethics seminar which stresses the need to accurately report all scientific findings. These basic principles are stressed throughout the forensic scientist's career. To ensure all scientific findings are reported accurately and completely, the Illinois State Police has a thorough quality assurance program that includes case file reviews, random reanalysis of already reported cases and court room testimony monitoring by supervisors. Part of the quality assurance program also includes the use of court cards which are given to the prosecutor, defense attorney and the judge by each forensic scientist who testifies so that those individuals can evaluate and comment on the testimony given by our scientists.

Question 6: Brain Fingerprinting is the use of computer-based technology to identify the perpetrator of a crime by measuring brain wave responses to crime-relevant words or pictures presented on a computer screen. These brain wave responses are called MERMERs (Memory and Encoding Related Multifaceted Electroencephalograph icResponses), which are elicited when the brain processes noteworthy information that it recognizes. According to tile technology's proponents, when details of the crime that only the perpetrator would know are presented, a MERMER is emitted by the brain of the perpetrator. The brain of an innocent suspect would not emit a MERMER because there would not be a recognition of the information presented.

A. Are you familiar with the Brain Fingerprinting technology? If you are, do you have an opinion on the validity of this technology?

Answer: I am not familiar with Brain Fingerprinting technology.

B. Is this technology being used in your laboratories, and if so, how successful has it been?

Answer: We are not using Brain Fingerprinting technology in the Illinois State Police laboratory system.

Question 7: How do your crime labs maintain the integrity of the chain of custody, so that evidence is not compromised?

Answer: The Illinois State Police laboratory system has in place a number of evidence handling policies which guide personnel in the proper receipt, handling, analysis, storage and ultimate disposition of evidence submitted. Policies include: receiving evidence in a sealed condition, maintaining evidence seals while in vault storage, limited vault access, limited access to analytical work areas, chain of custody records are maintained, clean techniques are observed, buildings and work areas have security plans and devices, employees undergo extensive background checks including drug screening, protocols are in place to detect extraneous DNA and for the running of blanks between samples to ensure no carry over from a previous analysis occurs. A representative sampling of these policies are included as attachments.

The Illinois State Police laboratory system regularly monitors evidence handling through a number of mechanisms such as internal inspections, both announced and unannounced, external inspections, employee observation and performance reviews, quality assurance reviews such as case file reviews and random reanalysis.

Question 8: How do you preserve evidence containing DNA for use in later testing and for how long do you keep such evidence?

Answer: Evidence received in criminal cases is kept in the laboratory evidence vault under proper storage conditions (room temperature, refrigerator, or freezer, depending upon the type of evidence) until the case is analyzed and the case questions are answered. The evidence is then returned, along with any pertinent directions concerning evidence storage conditions, to the original submitting law enforcement agencies for appropriate evidence disposition.

Responses of Michael G. Sheppo to questions submitted by Senator Feingold

Question 1: On May 11, 2001, Barry Scheck and Peter Neufeld of the Innocence Project wrote in the New York Times that "Conventional hair analysis . . . is subjective junk science . . . Unsound techniques survive because forensic science has been woven into the culture of prosecution and insulated from routine quality assurance standards we impose on medical testing labs. . . To often, forensic laboratories are run by law enforcement officers in lab coats." Scheck and Neufeld conclude, in part, by suggesting that forensic labs should be independent agencies, serving as independent fact finders for both the prosecution and the defense. Do you agree with this suggestion? Why or why not?

Answer: I do not agree with the suggestion that forensic laboratories should be independent agencies. I have had the opportunity to work for two law enforcement agencies during my thirty-year career as a forensic scientist and forensic science administrator. These agencies, the Georgia Bureau of Investigation (GBI) and the Illinois State Police (ISP) both provide the vast majority of forensic science services to their respective state's criminal justice systems. My experience in both agencies allow me to emphatically state that I have never known of a situation where scientific evidence was withheld, misinterpreted, or compromised to enhance the prosecution of a case. In fact, I am pleased to inform the committee that I have had experiences in both agencies in which law enforcement officials have relentlessly pursued scientific evidence that resulted in not substantiating the investigatory leads made by law enforcement personnel. I know that both the ISP and GBI advocate and practice unbiased investigations to include those scientific analyses performed in their forensic laboratories.

In the ISP, for example, we strive to report all the scientific facts in an understandable manner so that the information can then be used by the judicial system to determine an individual's guilt or innocence. The Illinois State Police starts stressing the importance of impartiality with novice forensic scientists. All of our forensic scientists attend a week-long Courtroom Demeanor Training that teaches them their role in the judicial process. The scientists also attend an ethics seminar which stresses the need to accurately report all scientific findings. These basic principles are stressed throughout the forensic scientist's career. To ensure all scientific findings are reported accurately and completely, the ISP has a thorough quality assurance program that includes case file reviews, random reanalysis of already reported cases and courtroom testimony monitoring by supervisors. Part of the quality assurance program also includes the use of court cards which are given to the prosecutor, defense attorney and the judge by each forensic scientist who testifies so that those individuals can evaluate and comment on the testimony given by our sci-

entists. Additionally, both the ISP and GBI laboratory systems are headed by individuals who are scientists who have worked in a forensic science laboratory. Finally, I believe that forensic science laboratories need the support of large organizations that are able to provide the necessary resources to adequately provide these expensive scientific services. As an independent forensic science agency, we would not have the political leverage to compete with other large state agencies. Even though we have needs in the ISP laboratory system, our laboratories have been a priority in our agency and have received resources on par with other department divisions.

Question 2: The Paul Coverdell National Forensic Sciences Improvement Act contains a provision that expresses the sense of the Congress that states that receive these grants should agree to ensure post-conviction DNA testing inappropriate cases. When we are talking about the possibility of an innocent person sitting in prison, even death row, fairness and justice demand that we allow post-conviction access to DNA testing.

(a) What is the current status of post-conviction DNA testing in your state?

Answer: Since 1998, section 116-3 of the Illinois Code of Criminal Procedure of 1963 (725 ILCS 5/116-3) has allowed a defendant to have physical evidence subjected to forensic DNA testing that was not available at the time of trial, if certain requirements are met (see attachment). To obtain DNA testing, a defendant must present a prima facie case that identity was the issue at trial, and that the evidence to be tested has been under a secure chain of custody. Testing is permitted if (1) the method of DNA testing requested is generally accepted within the relevant scientific community, and (2) "the results of the testing has the scientific potential to produce new, noncumulative evidence materially relevant to the defendant's assertion of actual innocence."

On May 24, 2001, in *People* v. *Savory* (Docket No. 88786), the Illinois Supreme Court addressed the meaning of this criminal code requirement for what the results of DNA testing must have the potential to produce (see attachment). The case defendant, Johnny Lee Savory, had been convicted of the stabbing deaths of a Peoria, Illinois brother and sister in 1977. The evidence Savory wanted tested was blood stained trousers taken from his home by the police. At trial, the State had introduced the trousers as evidence; had contended Savory was wearing the trousers at the time of the murders; and had established the trousers had been stained with blood of the same type as the murdered sister. Savory alleged new DNA tests available since his conviction would establish the trouser blood was not the murdered sister's.

The State argued, and had won in lower Illinois courts, taking the position Savory was not entitled to the new DNA tests he sought. In the Illinois Supreme Court, the State contended the Criminal Code only allowed defendants to seek a new DNA test on old evidence when the tests results would completely vindicate them. The State pointed out that even if the new DNA tests Savory wanted established the blood stain on the trousers was not the dead sister's, this did not mean Savory had not stabbed her to death.

Writing for a unanimous seven justice Illinois Supreme Court, Justice Mary Ann McMorrow explained evidence which is "materially relevant" to a defendant's claim of actual innocence is simply evidence which tends to advance the claim significantly. Justice McMorrow wrote, "Accordingly, we hold that section 116-3 is not limited to situations in which scientific testing of a certain piece of evidence would completely exonerate a defendant." Justice McMorrow then moved on to rule that even given this fact, Savory was not entitled to the new DNA tests he requested. The bloodstained trousers, Justice McMorrow noted, were essentially a collateral issue at trial and were not central to the State's evidence of Savory's guilt.

The consequence of the *People* v. *Savory* decision for justice in Illinois will be large. First, while past judges receiving prima facie case petitions might have been inclined to accept them at face value, in the future they should be more likely to look behind the defendant's claims for what the evidence really will show. Second, lawyers representing prisoners alleging innocence regularly confront situations where information from evidence analysis may produce important facts, but will not totally exonerate their clients. These lawyers now have a ruling supporting ongoing, stepby-step attempts to collect facts that will accumulate and could be beneficial to people alleging wrongful convictions.

(b) What role have you played in urging this important reform in your state?

In 1998, the ISP, Division of Forensic Services, Forensic Sciences Command (DFS, FSC), supported the legislation that became section 116-3 of the Illinois Code of Criminal Procedure of 1963. With ISP backing, this legislation passed the Illinois General Assembly and was signed by then Governor Jim Edgar. The ISP, DFS, FSC top command's position on this legislation was that anyone wrongfully convicted would want the opportunities this proposal provided to prove their innocence. At

that time, the ISP, DFS, FSC top command understood the proposal would put additional demands on the ISP laboratory system's personnel and equipment. The ISP provided the proposal's sponsors and the governor with "best estimate" costs for these new analysis services, and followed with an explanation that what was really at issue was not costs, but was a matter of the fundamental fairness everyone had a right to expect from our criminal justice system.

Question 3: One problem sometimes faced by people seeking to prove their innocence is that the biological evidence has not been stored properly or, even worse, has been discarded by the state.

(a) What procedures do you have in place in your lab to store biological evidence?

Answer: Evidence received in criminal cases is kept in a sealed condition in the laboratory evidence vault under proper storage conditions (room temperature, refrigerator, or freezer, depending upon the type of biological evidence) until the case is analyzed and the case questions are answered.

(b) Once a conviction has been obtained, how do you maintain the integrity of the biological evidence and store it?

In most cases, the evidence has been introduced into court and therefore is no longer at the laboratory. If the evidence is not turned over to the court, the evidence is then returned in a sealed condition, along with any pertinent directions concerning evidence storage conditions, to the original submitting law enforcement agencies for appropriate evidence disposition.

(c) In your state, how long is the state crime lab required to store biological evidence of a convicted offender?

On June 23, 2000, Governor Ryan signed a bill (House Bill 4593) creating a uniform statewide evidence retention policy after the trial and conviction of a defendant. Responsibility to retain the evidence rests with the submitting law enforcement agency, not the crime laboratory. Retention times for the evidence vary depending upon the crime, from seven years following a conviction for a felony which requires the defendant's genetic profile to be taken for comparison with a forensic DNA database of unsolved offenses, up to permanent retention for other specific convictions.

(e) What are the procedures that your state crime lab follows in the event that the defense seeks access to the biological evidence and needs it transferred to a forensic lab retained by the

When the defense seeks access to biological evidence, the ISP forensic science laboratories will, working through the state's attorney's office, either send the evidence directly to the defense forensic laboratory if all parties agree, or return the evidence to the submitting law enforcement agency where the defense can obtain the evidence to send it to a laboratory of their choice.

Responses of Richard J. Townsend to questions submitted by the Committee on the Judiciary

ANSWERS TO QUESTIONS FOR PANEL II WITNESSES

Answer 1: In the state of Utah, Bureau of Forensic Services, in an accredited laboratory with the American Society of Crime Lab Directors—Laboratory Advisory Board. We became accredited in 1996 and are being inspected in July of 2001 (for reaccreditation during the next five years). Our laboratory system undergoes yearly internal and external reviews by AS CLDLAB approved auditors and we must present evidence of internal and external reviews on a yearly basis to ASCLD–LAB.

Answer 2: One hundred percent of our case analyses are technically and administratively reviewed. The peer review is generally conducted by a trained analyst in the discipline of the case. An administrative review is typically conducted by a peer or supervisor. Disagreements are resolved at the peer review level and, if necessary, a supervisor can interject his/her opinion on the results of the analysis.

Answer 3: All cases are assigned to principle criminaiists in each discipline, i.e., DNA cases to DNA criminalists, drug cases to chemistry criminalists, fingerprint cases to latent fingerprint examiners, etc. Each criminalist is responsible for his/her case reports which are logged into the Utah Evidence Tracking System.

Answer 4: Each new employee who will be doing case work undergoes an extensive training process in the discipline he/she is hired for. In drug chemistry, the typical training period is approximately one year, while it takes two years for a DNA analyst to become qualified and certified. There is a set training protocol for each

discipline and every must undergo a certification process and pass proficiency examinations on a yearly basis.

Answer 5: Although the Bureau of Forensic Services is a section of the Utah Department of Public Safety, there is a pledge of mutual science in this laboratory system. We testify to scientific fact as determined by training, experience, instrumentation and education. Under no circumstances, are employees allowed to be persuaded or biased by the prosecution. By state statute, we are also obligated to perform analyses for the defense.

Answer 6a: I have never heard of Brain Fingerprinting technology.

Answer 6b: No.

Answer 7: In Utah, we have developed a software program called the Utah Evidence Tracking System (VETS). Any piece of evidence brought to the Laboratory for analysis is bar coded prior to being accepted into the Laboratory system. All evidence must be properly sealed and labeled prior to being accepted by the evidence technicians.. Each time the evidence changes hands, a signature must be made on an evidence tracking sheet and the evidence is bar coded to the next examiner, who is assigned a personal bar code.

Answer 8: Biological fluids containing DNA evidence are preserved by freezing. If the sample being analyzed contains enough fluid for future analysis (either for reanalysis or defense analysis), the residual evidence is frozen. We store DNA profiles and DNA evidence indefinitely.

Responses of Richard J. Townsend to questions submitted by Senator Feingold

ANSWERS TO QUESTIONS FOR PANEL II WITNESSES

Answer 1: . To make a statement that "too often, forensic laboratories are run by law enforcement officers in lab coats" is both erroneous and offensive. As a law enforcement officer myself, one of the aspects I have admired most about the scientists who work in our forensic laboratory system is standing up for "the neutrality of the analysis" and going to the wall in defense of their analysis. It is a fact that at certain times police officers make an attempt to interject their opinions or persuade the analysis to go a certain direction. In my four years of being the Lab Administrator, I cannot cite one single case where that has been a factor in determining the results of the analysis.

Answer 1a: This Laboratory System strongly supports post-conviction DNA analysis and is supported by Utah Senate Bill 172 which passed the 2001 general session of the Utah Legislature and is entitled "Post-Conviction DNA Testing".

Answer 1b: I personally testified in favor in the passage of SB172 and the Bureau of Forensic Services currently has a board member serving on. the "Innocence Project" to screen any and all potential post-conviction DNA cases.

Answer 2a: This Laboratory System does everything in its power to preserve DNA evidence in freezers. Many times, however, there is not enough of an evidentiary sample to preserve evidence after the analysis is completed. In certain cases, there is not even enough evidence preserved in order for it to be tested by a defense expert.

Answer 2b: We continue to maintain the evidence by keeping it in a freezer.

Answer 2c: There is no statutory mandate for the retention of biological evidence of a convicted offender in the state of Utah. However, we keep the evidence anyhow.

Answer 2d : If enough of the evidence is present for defense expert examination, we will release the evidence to the defense in the very same way we release the analysis back to law enforcement and prosecutors.

Responses of Michael T. Yura to questions submitted by the Committee on the Judiciary

Question 1: What is the laboratory accreditation for your states and what other types of external reviews do your laboratories undergo?

Answer: The West Virginia State Police Forensic Laboratory is an accredited Laboratory through the American Society of Crime Laboratory Directors (ASCLD). ASCLD accreditation is a voluntary process in which the lab demonstrates that its

management, operations. personnel, procedures, equipment, physical plant, security, and health and safety procedures comply with established standards.

According to ASCLD, the accreditation is part of the laboratory's quality assurance program, which includes proficiency testing, continuing education, and other programs to help the laboratory provide better overall service to the criminal justice system. Accreditation is granted for a period of five years provided that a laboratory continues to meet ASCLD standards, including completion of the annual Accreditation Review Report and participation in proficiency testing programs as prescribed In order to maintain accreditation, a laboratory must submit a new Application for Accreditation every fifth year, and undergo another on-site inspection. Also, each section of the laboratory is required each year to undergo . proficiency testing conducted by ate outside source.

Question 2: What is your method for resolving disagreements among examiners over forensic methods or the interpretation of results?

Answer: Currently, the West Virginia State Police Forensic Laboratory has no policy on resolving conflicts or disagreements of interpretations of results. However, efforts are in progress to address this with the intention of implementing a policy that will set a procedure for the handling of the types of matters.

Question 3: How is your work assigned, in terms of principle and auxiliary analysts, and who is responsible for the preparation of reports?

Answer: Cases are assigned to qualified analysts as they are submitted to the laboratory. The Section Head of each laboratory department is responsible in overseeing that the work of each qualified analyst is completed as well as verified. As for the writing of the reports, analysts are responsible for writing up reports for the evidence that they analyzed Afterwards, each written report is subjected to both as administrative and technical review.

Question 4: What are the training requirements for you personnel?

Answer: The West Virginia State Police Forensic Laboratory is composed of seven sections. Due to the differences in each section, the type of training required is also different; however, each person is required to meet a certain criteria through training in order fin meet the standards of a qualified analyst. Each person is subject rigorous on-the-job training, must regularly participate in specialized schools related to their field, undergo proficiency testing on a regular basis, and participate in continuing education in laboratory standards and procedures. Also the length of the training varies from section to section as the entry-level educational requirements.

Question 5: How do you guard against prosecutorial bias?

Answer: Analysts within the West Virginia State Police Forensic Laboratory act as an interpreter of the evidence, not as an advocate of the prosecution or the defense. In court, the job of the analyst is to help the jury and other members of the court understand only what can be determined from the evidence- This philosophy is instilled into analysts during their training process and is continually strengthened during their career.

Question 6: Brain fingerprinting is the use of a computer-based tecnology to identify the perpetrator of a crime by measuring brain-wave responses to crime-relevant words or pictures presented on a computer screen. These brain wave responses are called MERMERs (memory and encoding related multifaceted electronencephalographic responses), which are elicited when the brain processes noteworthy information that it recognizes. According to the technology's proponents, when details of the crime that only the perpetrator would know are presented, a MERMER is emitted by the brain of the prepetrator. The brain of an innocent suspect would not emit a MERMER because there would not be recognition of the information presented.

A. Are you familiar with the Brain Fingerprinting technology? If you are, do you have an opinion on the validity of this technology?

B. Is this technology being used in your laboratories, and if so, how sucessful has it been?

Answer A: Yes, members of the West Virginia State Police Forensic Laboratory are familiar with the new technology of Brain Fingerprinting. As mentioned in the statement above, it is a type of program developed by Dr. Lawrence Farwell of the Harvard Medical School that fingerprints brain waves of a suspect as they relate to crime-related information. According to the results of studies conducted, Brain Fingerprinting appears to be a new valid technology in the criminal justice system. According to results, Farwell Brain Fingerprinting has proven 100% accurate in 100 tests conducted, including tests done on FBI agents, US intelligence agents, and for the US Navy. Also Brain Fingerprinting was presented in an Iowa court and was found admissible by the judge. Three science utilized by the Farwell technique was evaluated under the Daubed standard and passed all four aspects of tie standard.

Answer B: This technology is currently not being conducted in our laboratories. The Farwell Brain Fingerprinting technique is a new technology, and unfortunately, is only being used in a handful of laboratories across the nation.

Question 7: How do your crime labs maintain the integrity of the chain of custody, so that evidence is not compromised?

Answer: The West Virginia State Police Forensic Laboratory operates under a strict guideline for chain-of-custody. As evidence is received, it is checked for proper packaging, which includes appropriate seals. An inventory is made of the evidence and it is resealed by the analyst and placed in a secure storage locker until processed. After processing, it is resealed until such time that it is returned in person or sent by certified mail. If the evidence is transferred to another section for examination, the appropriate documentation is made and follows the evidence. The packaging, the actual evidence, and any labels will be marked with the analyst's case number and initials.

Question 8: How do you preserve evidence containing DNA for use in later testing and for how long do you keep such evidence?

Answer: As is standard procedure, DNA evidence is kept in secure freezes at a constant temperature of -76° C. The West Virginia State Police Forensic Laboratory Biochemistry Section houses all DNA evidence indefinitely.

SUBMISSIONS FOR THE RECORD

Federal Bureau of Investigation, FBI Laboratory, Washington, DC

Mitochondrial DNA (mtDNA) is very abundant in most human cells. Each cell literally has thousands of copies of MtDNA. This is contrasted to the two copies (maternal and paternal) of nuclear DNA present in most human cells such as semen, blood, and skin. The multitude of mtDNA copies present in tissue samples, however, increases the likelihood that some will persist intact in samples where nuclear DNA has been degraded by bacteria, sunlight, or other insults. Consequently, certain tissues (e.g., hair, bones, teeth) having little nuclear DNA often can be successfully analyzed for mtDNA when conventional DNA analysis would not be effective.

MtDNA is passed to each generation through the maternal line and is most useful in abduction and assault cases (in which hairs may be recovered) and identification of human remains. Biological evidence recovered in missing persons cases is often in advanced stages of decomposition (with little or no nuclear DNA remaining intact). In such cases, mtDNA may be the only form of DNA testing possible. Because mtDNA is inherited through the maternal line, reference samples for comparison purposes can be collected from the mother or other living maternal relatives of the putative victim. Although it provides less statistically significant results than conventional DNA when matches are found, mtDNA is often the only means of analyzing degraded tissue and has proven to be a very powerful investigative tool in recent years.

The FBI Laboratory began forensic mtDNA analysis in June 1996 after four years of research and validation. To date, nearly 700 cases have been completed and testimony has been provided in 26 states, Canada and Australia. As its success has grown, demand for mtDNA testing far outstrips the FBI Laboratory's current or likely future capacity. Anticipating the need for other crime laboratories to develop their own mtDNA capabilities, in 1998, the FBI Laboratory began training forensic scientists in mtDNA analysis in a two-week course at the FBI Academy in Quantico, Virginia. So far, personnel have been trained from sixteen state and local crime laboratories, and three foreign countries.

The FBI's Combined DNA Index System (CODIS) includes a Missing Persons Index which matches DNA profiles resulting from analysis of tissue samples containing nuclear DNA or mtDNA. Unfortunately, none of the 123 state and local laboratories currently participating in CODIS can take full advantage of the Missing Persons Index because they do not conduct mtDNA analysis required to enter mtDNA profiles in the Index. For CODIS to reach its full potential as an investigative tool, and if all the nation's criminal justice system is to benefit from mtDNA testing, capacity must be expanded to provide nationwide coverage.

The FBI Laboratory remains the only public crime laboratory conducting mtDNA testing—mostly for reasons related to funding. Although laboratory equipment required for mtDNA analysis is similar to other current methods for DNA analysis, three major factors significantly increase the cost and difficulty of establishing mtDNA analysis, even in crime laboratories with well-established DNA programs.

First, and most significant, stringent quality assurance standards require dedication of separate rooms and laboratory equipment—which is expensive, consumes precious laboratory space, and cannot be used for other purposes. Second, supplies and laboratory reagents required for mtDNA are more expensive than for any other routine forensic analysis technique, including conventional DNA analysis. And, Third, mdDNA requires special software for data analysis which is relatively expensive.

The FBI Laboratory proposes to establish a nationwide mtDNA laboratory network. As envisioned, the FBI Laboratory would administer a network of six to eight state and local crime laboratories that are Federally funded to provide mtDNA testing services to state and local criminal justice agencies. With new appropriations for program expenditures, the FBI will be responsible for selecting laboratories in the network, training personnel, providing annual funding, and assessing adherence to standards for quality assurance.

To carry out program management responsibilities, including training and quality assurance for regional laboratories conducting forensic mtDNA analysis, the FBI Laboratory will require one GS-14 Program Manager, two GS-13/14 Examiners, two GS-11/12 Biologists and two GS-13/14 Quality Assurance Specialists. Funding for additional training equipment and related supply and reagent costs associated with mtDNA testing would also be required that would be similar to start up costs for a regional laboratory (i.e., approximately $1 million). Current equipment in the FBI Laboratory used for casework would be inappropriate for quality assurance testing necessary for monitoring the network laboratories.

With appropriate support, several public crime laboratories in the U.S. could successfully conduct mtDNA in forensic casework. Such laboratories have already established testing programs for nuclear DNA and, with additional equipment and supply budgets, could provide mtDNA analysis within specified regions of the U.S. That way, all crime laboratories would have access to service that is close to home while avoiding duplication of mtDNA capabilities because mtDNA laboratories would be of sufficient size to operate efficiently. Thus, access to mtDNA would expand while minimizing overall costs to the nation.The FBI Laboratory estimates that the average start-up cost for each laboratory to prepare for mtDNA testing is approximately $1 million. This estimate is based on laboratory building enhancements, equipment needs, supply purchases, and training requirements. In addition to start-up costs, each laboratory will need an additional $100,000 - $200,000 annually for supplies and reagent related to mtDNA analysis.

2 genetic analyzers (sequencing, i.e., ABI 3100, ABI 377)	270,000
4 luminometers (mtDNA quantitation)	100,000
2 to 4 Taqman or Beckman CEs (post-PCR quantitation)	300,000
thermal cyclers, dedicated sampling equipment	130,000
dedicated extraction, PCR and sequencing reagents	200,000
Estimated TOTAL	1,000,000

PROSPECTIVE SITES FOR MTDNA LABORATORIES

The following state and local crime laboratories are recognized leaders in nuclear DNA testing and have the potential and desire to develop a mtDNA testing capability. Some have begun making laboratory renovations required for mtDNA testing. Many have sent analysts to the FBI Laboratory mtDNA school. This list is not inclusive of potentially qualified sites, but highlights possible participants in the program.

Albuquerque Police Department Crime Laboratory
400 Rorna Northwest, Albuquerque, NM 87102
Phoenix Police Department Crime Laboratory
620 Washington Street, Phoenix, AZ 85003
Arkansas State Crime Lab
#3 Natural Resources Drive, Little Rock, AR 72215
Illinois State Police Research and Development Laboratory
2060 Hill Meadows Drive, Springfield, IL 62702
Harris County Texas Medical Examiner's Office
1885 Old Spanish Trail, Houston, TX 77035
New York City Medical Examiner's Office
520 First Avenue, New York, NY 10016
Georgia Bureau of Investigation(GBI) Crime Laboratory
Post Office Box 370808, Decatur, GA 30037
New York State Police Crime Laboratory
1220 Washington Avenue, Albany, NY 12226

California Department of Justice
626 Bancroft Way, Berkeley, CA 94710
Florida Department of Law Enforcement
4211–A North Lois Avenue, Tampa, FL 33614
Virginia Division of Forensic Science
1501 East Franklin Street, Richmond, VA 23219
Arizona Department of Public Safety Crime Laboratory
2102 West Encanto Boulevard, Phoenix, AZ 85009
Ohio BCI and Crime Laboratories
P.O. Box 365, London, OH 43140

Statement of Terry W. Fenger, Marshall University, Forensic Science Program

As director of the Forensic Science Program and the West Virginia, CODIS laboratory at Marshall University in Huntington, WV., I would like to congratulate Senators Hatch, Sessions, Leahy and Feingold on your efforts to fund the Paul Coverdell National Forensic Sciences Improvement Act. The hearing on May 15, 2001 emphasized urgent needs of the forensic science community and how delayed testing of crime evidence is directly related to understaffed and minimally funded forensic laboratories. As many forensic scientists near retirement, it is even more imperative that a new generation of forensic specialists be trained in this technologically oriented field.

With this objective in mind the Master's degree granting program in Forensic Science at Marshall University has been working in close association with the West Virginia State Police. Under a Memorandum of Understanding Marshall's Program has provided continuing education courses, in addition to courses that allowed 5 State Police forensic scientists to graduate with Master's degrees. Our relationship is unique and dates back to 1992. In addition, over the last 5 years 70 forensic scientists have graduated from the program and have been eagerly recruited by the forensic community.

Marshall University's Forensic Science Center is also responsible for performing the State's DNA profiling for the state's offender database under the authority of the WV State Police. Through the use of bar coding of offender samples and other secure methods, we are able to maintain confidentiality and meet standards issued by the DNA Advisory Board.

As many new and exiting technologies become available for use in forensic science, the courts and the communities that we serve, expect that sophisticated instruments will be used to solve cases. The price tags on many instruments can be daunting and at the present time most local and even some state labs lack these capabilities. Furthermore, once the instruments are acquired extensive training and validations studies are necessary. Higher education can provide instrument training, which will allow crime laboratories to concentrate on casework and testifying in court.

It is my opinion that Marshall University and the WV State Police have developed a beneficial association, which serves as a model for similar collaborations, nationally. We are maximizing the use of our limited resources, but we look to your leadership to for enhanced funding for forensic laboratories as we move into the next millennium.

This statement is given on behalf of the May 15', 2001 US Senate Judiciary Committee hearings on the Paul Coverdell National Forensic Science Improvement Act. We thank the Members of the Committee for this chance to explain the need for an increase in support for forensic science research and education.

Forensic science is relatively young, with its roots stretching back only 150 years. Modern forensics and criminalistics is even younger, having emerged as a valid and accepted format of investigation during the early Twentieth Century, very much in parallel with Quantum Theory. Just as Newtonian Theory changed to Quantum Theory, so has forensics undergone an evolution, from looking at the large to the microscopically tiny. However, the importance of forensic science is in no way microscopic. Simply put, forensic science solves cases and catches criminals. It exonerates the innocent and convicts the guilty, even years after the crime has been committed and without the need for witnesses.

"The most tangible way in which science, especially chemistry, can be concerned with the well-being of society is its use in the maintenance of the fabric of society as expressed in constant vigil against crime."

Forensic science is the tool that allows the justice system to increase security through order, thus establishing peace in society. Order means fewer redundant arrests via the removal of recidivist criminals, and speedy and efficient trials without excess appeals due to the improper collection, handling, storage and analysis of evidence.

It will be imperative, using the Coverdell Bill, to increase funding for the field of forensic science in general, and the National Institute of Justice in particular. There are several vital reasons for the advent of increased funding. First, there is a titanic backlog of unsolved and uninvestigated cases in the United States. Because of this backlog, there are a great number of repeat offenders that haven't been caught and jailed. Second, there is also a need to develop new forensic science technologies. Criminals continue to gain access to better technology for use in their crimes, and so the justice system must endeavor to advance its own technology in order to capture them. More advanced technology will help deal with the escalating amount of scientific analysis casework. It will also help to deal with the increase of technology-related crimes including cyber-crimes. However, creating new forensic science technology will take time. Many labs lack equipment or have equipment that is outdated. These labs need access to current forensic technology simply to make them viable and accredited. Finally, investigators and scientists in the justice system need continuing education and the justice system, itself, needs more investigators and scientists.

Large sums of money are currently being allocated for the creation of new police officers (including community policing), and new courts and community-based non-police justice efforts. By diverting a small percentage of these funds, combined with a modest increase in the general fund allocation for the Coverdell Bill, an estimated $50–100 million in new money could be raised for forensic science. These funds would allow forensic science to help the justice system solve and investigate more criminal cases, train personnel, and replace outdated equipment. Such benefits would make a large increase in new police officers unnecessary, allowing currently allocated funding to be distributed among existing police officers, thereby increasing salaries, and health and retirement benefits.

Four specific groups will immediately benefit from increased forensic science funding: law enforcement personnel, courts, taxpayers, and government officials. Law enforcement personnel will see a decrease in the backlog of criminal cases as they gain the tools they need to investigate and solve crime. This also means an enhanced ability to catch and convict repeat offenders. Funding for forensic sciences means greater physical safety and less job-related stress to law enforcement personnel. These things combined will result in lower healthcare and worker's compensation costs and increased job satisfaction. Courts will be able handle trials with speed and efficiency, leading to a larger throughput with lowered court costs, and ultimately fewer hearings and appeals. These substantially lowered court costs will mean that taxpayers will have less tax to pay for a more efficient and just legal system. In addition, this more efficient and just legal system will reduce crime dramatically. Reduced crime means reduced associated costs on society. These costs include healthcare, insurance, item replacement (due to theft and fire), and more. These benefits mean more satisfied taxpayers. More satisfied taxpayers mean an increase in political support and participation by satisfied constituents. With satisfied constituents government officials will be able to continue to enact programs and policies that advance health, education, and welfare in society.

Once again, we thank the Members of the Committee for having had this chance to explain the need for an increase in support for forensic science research and education, including the National Institute of Justice, through the Paul Coverdell National Forensic Science Improvement Act.

James Kirchoff, Jonathan Lucke, Frank McManus, Francis Nottke
Pima Community College, the University of Arizona, Opto-Forensic Technologies

Statement of the Police Executive Research Forum, Washington, D.C.

OVERVIEW

In August and September 1999, the Police Executive Research Forum (PERF) and The Justice and Safety Center, Eastern Kentucky University (EKL1), conducted a survey of law enforcement agencies on behalf of the National Commission on the Future of DNA Evidence. The purpose of the survey was to estimate the number

of rape or sexual assault cases with possible DNA evidence that have not been submitted for DNA examination and the reasons why that evidence was not submitted for testing. Eastern Kentucky University conducted a survey of smaller law enforcement agencies, while PERF examined the larger police and law enforcement organizations. The scope of inquiry was restricted to the examination of rape and sexual assault cases, based on the notion that DNA evidence was regularly considered in the course of those investigations.

METHODOLOGY

For the purpose of analysis, a distinction was made between larger and smaller law enforcement agencies, since an agency's size, resource base, and investigative experiences influenced how cases with DNA evidence were addressed. As a result, EKU examined a total of 153 organizations where the population in the jurisdiction did not exceed 50,000 and the department employed ten officers or less. PERF conducted a survey of 1221aw enforcement agencies in which each department served a population of 50,000 or more or employed more than one hundred full time sworn and civilian personnel. While a final report related to smaller organizations has been prepared by EKU, results from their survey have been incorporated into this document for comparative purposes.

A survey target list of larger polis agencies was drawn from the PERF membership directores, specifically from the category of "General Member." General Members must meet the following criteria:

a. The executive head of a municipal, county or state-funded agency that provides general and basic police services;
b. The agency must have at least 100 full-time employees, or serve a population of 50,000 or more people; and
c. The executive head must have at least a baccalaureate degree from an accredited college or university.

Although the PERF membership list includes a number of international and national organizations, the agencies asked to participate in the survey were based in the United States, and having the authority to engage in criminal investigations where there existed a potential to examine evidence containing DNA. Organizations selected under the above criteria were divided into two groups. A minimum of 50 agencies would supply answers to an in-depth telephone survey and the remaining qualifying agencies would be asked to respond through a shorter fax survey.

The telephone survey consisted of a series of questions in a three-page format. The agencies were contacted by telphone and arrangements were made to send copies of the three page questionnaire for completion. Respondents would transmit their results by telephone to a PERF reqpresentative. This process was adopted because some of the survey questions required an examination of records that would involve research by the respondent. To ensure a minimum response quota of 50, a total of 73 agencies received copies of the telephone survey. Within the allotted time period of August 23 to September 17, 1999, 50 out of a possible 73 responses were received.

The fax survey was sent to 125 agencies and 72 were received within the allotted time period of September 2 to 22, 1999. The fax format incorporated a truncated version of the telephone survey, comprising two pages of questions that looked at the number of rape kits in storage, the percentage of rape kits with potential DNA evidence that are tested, and factors which the agencies perceived to be barriers to submissions for DNA testing.

RESULTS

DEMOGRAPHICS

Combining the EKU and PERF surveys resulted in a total of 275 responses. Table 1 illustrates the originating states of the individual survey respondents, organized into the regional categories used in this study. Table 1 also shows the proportionate groupings by region along with the total number of responses. Representation across regions is roughly equal apart from the Southwestern states since this region is composed of fewer states than other regions.

Table 1: State and Regional Groupings

Southeast	Northeast	West	Southwest	Midwest
Alabama	Connecticut	Alaska	Arizona	Illinois
Arkansas	Delaware	California	New Mexico	Indiana

Table 1: State and Regional Groupings—Continued

Southeast	Northeast	West	Southwest	Midwest
Florida	Maine	Colorado	Oklahoma	Iowa
Georgia	Maryland	Hawaii	Texas	Kansas
Kentucky	Massachusetts	Idaho		Michigan
Louisiana	New Hampshire	Montana		Minnesota
Mississippi	New Jersey	Nevada		Missouri
North Carolina	New York	Oregon		Nebraska
South Carolina	Pennsylvania	Utah		North Dakota
Tennessee	Rhode Island	Washington		Ohio
Virginia	Vermont	Wyoming		South Dakota
West Virginia				Wisconsin
79	56	52	24	64
28.7%	20.4%	18.9%	8.7%	23.3%

Municipal police agencies represented the largest number of survey respondents, with 76.4% reporting results. The second largest group, county sheriffs, represented 18.9% of the total, or 52 agencies. County police, other agencies, state police, and university police agencies comprised the remaining agencies. Urban, rural and suburban organizations were included in the study. In terms of agency size, agencies with two to fifteen sworn personnel made up 35.6% of the total number, with the next highest proportion in the one hundred to four hundred sworn member agencies at 25.8% . Organizations of one thousand or more sworn members represented 6.2% of the survey population. Tables 2 and 3 present the distribution between agency types and the compositions of the agencies by sworn and civilian personnel.

Table 2: Agency Distribution

Agency Type	Number	Percent
County Police	8	2.9
County Sheriff	52	18.9
Municipal Police	210	76.4
Other	3	1.1
State	1	.4
University	1	.4
Total	275	100

Table 3: Sworn and Civilian Personnel Distribution

Sworn Personnel	Number of Departments	Percentage
2–8	49	17.8
9–15	49	17.8
16–22	27	9.8
23–29	10	3.6
30–50	18	6.5
51–100	15	5.5
101–200	39	14.2
201–400	32	11.6
401–1000	19	6.9
1000+	17	6.2
Total	275	100

Civilian Personnel	Number of Departments	Percentage
0–6	106	38.5
7–13	33	12.0
14–20	12	4.4
21–27	10	3.6
28–75	48	17.5
76–200	41	14.9
201–500	13	4.7
500+	12	4.4

Civilian Personnel	Number of Departments	Percentage
Total	275	100

Population distribution values revealed that 62.2% of the agencies surveyed provided policing services to areas of 1,000 to 100,000 people, 12% of the survey group worked in areas with populations of 100,000 to 500,000, and 5.4% of the agencies were responsible for areas of 500,000 or more people. One agency failed to provide service population data. Table 4 presents the population variations and agency distributions between population groups.

Table 4: Population Distribution

Population	Number	Percent
1,000–13,000	104	37.8
14,000–26,000	30	10.9
27,000–39,000	14	5.1
40,000–50,000	15	5.5
50,001–100,000	63	22.9
100,001–250,000	22	8.0
250,001–500,000	11	4.0
500,001–1,000,000	8	2.9
1,000,000+	7	2.5
Missing Data	1	.4
Total	275	100

The 275 agencies responding to the survey accounted for approximately 118,000 employees, sworn and civilian, and a service population of nearly 46,000,000 people.

DNA PROCESSING DATA

The agencies were asked to respond to a series of questions related to their experiences with evidence and DNA testing and evaluation. In the first series, respondents were asked if their department assessed evidence to determine whether potential DNA samples could be present. In the overall analysis, 70.2% of all agencies surveyed revealed that they did assess evidence for potential DNA samples, 29.8%, indicated they did not make such assessments. Marked differences were seen when the practices of larger departments were measured against the practices of smaller organizations. The data revealed that within the group of larger organizations, 86.9% would examine evidence with an eye to the potential of DNA analysis, while in the smaller agencies, only 56.9% would assess evidence for potential DNA. These differences can be attributed to the likelihood that more serious criminal offenses, those that could generate requests for DNA analysis, would be prevalent in the jurisdictions of the larger agencies. Additionally, training opportunities and a corresponding increased general awareness on the part of individuals in larger organizations may prove to explain the marked differences in practices. Table 5 illustrates the proportional variances.

Table 5: Assessment of Evidence for Potential DNA

	Total Number	Total Percent	Large Depts.	Percent	Small Depts.	Percent
No	82	29.8	16	13.1	66	43.1
Yes	193	70.2	106	86.9	87	56.9
Total	275	100	122	100	153	100

Many of the agencies (64%) indicated that they submitted evidence to the state laboratory for analysis. A large number (27.3%) either failed to respond to the question, or did not know where samples were sent. Six respondents, or 2.2%, used county laboratories, and private laboratories were used by an equivalent number of agencies at 2.5%. In 2.9% of the responses, samples went to combinations of state and private laboratories, or state and county laboratories. Where funds existed, some jurisdictions developed in-house laboratories. Three of the jurisdictions surveyed reported having or developing in-house laboratories: the Albuquerque Police Department, the Los Angeles County Sheriff, and the Phoenix Police Department.

The data illustrated, however, the predominance of the state laboratories as DNA testing centers.

Table 6: Laboratory Frequencies

Laboratory Type	Number	Percent
County Lab	6	2.2
Private Lab	7	2.5
State Lab	176	64.0
Private & State Labs	6	2.2
In-house Lab	3	1.1
State & County Labs	2	.7
Unknown	3	1.1
No Response	72	26.2
Total	275	100

When asked if their respective departments had policies regarding submissions of samples to laboratories, the data showed that nearly three quarters of the survey group have no specific policies (74.5%). Variations between larger and smaller departments showed that the larger departments were more likely to have a policy than the smaller departments. Table 7 illustrates the variations between larger and smaller departments.

Table 7: Policies Governing DNA Submissions

	Total Number	Total Percent	Large Depts.	Percent	Small Depts.	Percent
No	205	74.5	85	69.7	120	78.4
Yes	70	25.5	37	30.3	33	21.6
Total	275	100	122	100	153	100

Potentials for DNA evidence arising from reported rape or sexual assault incidents, and the number of cases that actually end up being analyzed for DNA, were explored through two specific questions. The first question sought to estimate the percentage of reported rape and sexual assault cases that have the potential for DNA evidence. An analysis of the total number of responses showed that most departments felt that DNA was potentially available in 25% or more of their cases. The real differences were seen in the breakdowns between larger and smaller departments. Within the group of larger departments, 78.7% felt that more than 25% of their rape and sexual assault cases had potential DNA evidence. Only 9% of the larger departments did not know how many cases could have DNA evidence. An analysis of the responses from smaller departments showed that only 47.6% of the departments felt that more than 25% of their rape and sexual assault cases had potential DNA evidence. A total of 30.1 % of the smaller departments, however, did not know how many cases could have DNA evidence. Table 8 presents the data obtained in relation to the first question.

Table 8: Percentage of Reported Rape and Sexual Assault Offenses That Have the Potential For DNA Evidence

	Total Number	Total Percent	Large Depts.	Percent	Small Depts.	Percent
No Resp.	1	.4			1	.7
0–10%	22	8.0	3	2.5	19	12.4
11–25%	26	9.5	12	9.8	14	9.2
26–50%	56	20.4	31	25.4	25	16.3
51–75%	55	20.0	30	24.6	25	16.3
76–100%	58	21.1	35	28.7	23	15.0
Unknown	57	20.7	11	9.0	46	30.1
Total	275	100	122	100	153	100

The second question considered the number of reported rape and sexual assault cases with potential DNA evidence against the number that are actually analyzed for DNA. With the larger departments, 45.1% saw 76-100% of their cases analyzed for DNA, while 34.6% of the smaller departments had 76-100% of their cases tested. Real differences surfaced under the "Unknown" category. Of the larger departments, 14.8% did not know how many of their cases were actually analyzed. The smaller

departments showed a higher percentage, with 34.6% not knowing how many of their cases were analyzed. Table 9 illustrates these values.

Table 9: Percentage of Reported Rape and Sexual Assault Offenses That Are Analyzed For DNA Evidence

	Total Number	Total Percent	Large Depts.	Percent	Small Depts.	Percent
0–10	34	12.4	10	8.2	24	15.7
11–25	29	10.5	23	18.9	6	3.9
26–50	23	8.4	12	9.8	11	7.2
51–75	9	3.3	3	2.5	6	3.9
76–100	108	393	55	45.1	53	34.6
Unknown	71	25.8	18	14.8	53	34.6
Missing	1	.4	1	.8		
Total	275	100	122	100	153	100

Differences were also noted when the survey respondents were asked if they submitted DNA samples to the state offender database. The larger departments were more likely to submit DNA samples to a state offender database, with 85 or 69.7% responding in the affirmative. Of the smaller departments, 58 or 37.9% indicated that they make submissions to their state database. It should be noted that the survey of the smaller departments also included a question on submissions to a national database. Of those smaller departments that responded, 67% stated they did not make submissions, 7% indicated that they did make submissions, and 26% failed to answer the question. Table 10 presents the breakdown of submissions to the state database.

Table 10: Submissions to State's Offender Database

	Total Number	Total Percent	Large Depts.	Percent	Small Depts.	Percent
No	1121	44.0	34	27.9	87	56.9
Yes	143	52.0	85	69.7	58	37.9
Missing	11	4.0	3	2.5	8	5.2
Total	275	100	122	100	153	100

The fifty larger agencies responding to the telephone survey were asked an additional question about laboratory acceptance guidelines. A larger number (62%) indicated that the laboratories have acceptance guidelines which may include stipulations such as requiring an offender or suspect profile, limitations onthe types of tests that could be performed, specific packaging procedures, or testing only for a specific group of offenses. In general, the more serious offenses would receive first consideration by the laboratories, supplanted only by cases with impending court dates. Cases with tight court-related time limits would be pushed forward in the queue of cases waiting for testing, creating the conditions for a backlog. Table t I illustrates the proportional responses.

Table 11: Laboratories With Acceptance Guidelines: Large Agency Telephone Survey

	Total Number	Total Percent
No	13	26
Yes	31	62
Unknown	6	12
Total	50	100

The survey process addressed the issue of case backlogs and the relationship to police perceptions of why DNA evidence may not be processed. One indicator of case backlogs is the number of rape kits remaining in storage, or left unprocessed for DNA testing. Two qualifiers must be attached to any examination of the number of unprocessed rape kits and relationships to backlogs in conducting DNA tests. First, in many jurisdictions, some rape kits are not processed for DNA testing because of cases categorized as unfounded, or where the victim failed or refused to attend court. Further, in some jurisdictions, approval to forward a sample for analysis rests with the prosecutor because of these court-related issues. Secondly, the total number of rape kits must be regarded as preliminary because of the various protocols around the storage and the accounting of the rape kits. Some jurisdictions store

rape kits in laboratories and police property facilities, and others in area hospitals where the respective examinations occurred. In some instances, police agencies were only able to provide estimations because they had no accurate account of the number of kits in storage. Notwithstanding these issues, the number of stored rape kits still serves as a reasonable estimation of the magnitude of backlogged cases (restricted to rape and sexual assault offenses) relating to DNA analysis. Of the 232 agencies that responded to the question, 14 or 5.4% of the total sample retained the largest number'" of rape kits, a total of 24,943 kits.

Table 12: Rape Kits Not Submitted For Processing

Number of Rape Kits Not Processed	Number of Depts.	Percent of Sample	Total Number of Unprocessed Rape Kits
0	113	41.1	0
1–10	47	17.1	177
11–50	32	12	943
51–100	15	5.7	1183
201–500	11	4.2	4262
501+	14	5.4	24,943
Totals	232		31,508

The survey subsequently examined the reasons why cases would not be submitted for DNA testing. The respondents were asked to consider a list of reasons, or commonly held beliefs, around the difficulties of having samples sent for DNA analysis. These reasons included: Cost/Financial Restrictions, Lack of Technology at the Designated Crime Laboratory, Backlog at the Laboratory, Laboratory Guidelines Restrict DNA Processing, Departmental Limitations to Cases with a High Likelihood of Prosecution, Department Awaiting New Technology that Would Enable Searches of CODIS, and Other Factors. Those completing the surveys were then asked to rate each of the reasons along a scale from 1 to 6, with 1 signifying the most important consideration and 6 being the least important consideration. The "Other Factors" category was included for commentary in the event none of the primary reasons applied in a department's considerations. The exercise proved useful in terms of identifying the important issues, either experienced or perceived, facing law enforcement agencies when they consider submission of evidence for DNA analysis. The results were averaged, thus, the data portrayed in Tables 13 and 14, illustrate the most important considerations as lower values, the less important considerations as higher values. Table 13 compares the responses between the large (those with 50,000 or more population or more than 100 full time employees) departments and the smaller agencies (with less than 50,000 populations). Table 14 illustrates the distinctions between departments with large backlogs (50 or more rape kits unprocessed) and departments with smaller backlogs (under 50 unprocessed kits).

Table 13: Reasons For Non-Submission—Large vs. Small Departments

Reasons	Large Depts.	Small Depts.	All
Financial restrictions	3.73	3.88	3.80
Lack of laboratory technology	4.39	4.46	4.42
Backlog at laboratory	3.39	4.52	3.89
Lab guideline restrictions	3.43	4.89	4.09
Department limits cases	3.54	4.53	4.00
Department waiting for new technology	5.05	5.08	5.05

Table 14: Reasons For Non-Submission—Large Backlogs vs. Small Backlogs

Reasons	50 & Over	Under 50
Financial Restrictions	3.22	4.26
Lack of laboratory technology	4.42	4.61
Backlog at laboratory	2.87	4.28
Lab guideline restrictions	3.44	4.46
Department limits cases	3.63	4.26
Department waiting for new technology	4.88	5.07

The responses showed that backlogs at the laboratory and restrictions imposed at the laboratory or at departmental levels were cited as the predominant reasons for non-submissions. Backlogs and restrictions, moreover, were noted as important fac-

tors more frequently with the larger departments than the smaller agencies. Those with 50 or more rape kits in storage saw the laboratory backlogs as a problem more frequently than those with less than 50 rape kits in storage. For the agencies with 50 or more rape kits in storage, moreover, backlogs at laboratories stand significantly apart from the other reasons with an average of 2.87. Financial restrictions are seen to occupy the second most important category, with laboratory and departmental guidelines as being the third and fourth most perceived or experienced impediments to DNA submissions.

RESULTS FROM THE EXPANDED TELEPHONE SURVEY

From the telephone surveys of the larger agencies, it was revealed that in most cases, detectives in charge of the individual cases and secondly, their supervisors, would decide if evidence was suitable for DNA analysis. Many agencies relied on standard evidence collection techniques in reference to DNA samples. The survey revealed little formal training for investigators charged with the responsibility of collecting DNA samples, and national training standards for investigators were not evident. Crime Scene Technicians are more likely to have formal training in collection techniques and often made decisions on the viability of samples for DNA analysis, notwithstanding the detectives were officially recognized as the ones making the decision. In the absence of Crime Scene Technicians, investigating detectives would often consult with a supervisor when making decisions on evidence to be forwarded for DNA analysis.

Table 16: Who Decides What Evidence Will Be Submitted For DNA Analysis

Position	Number	Percent
Crime Laboratory Technician	4	8
Crime Scene Technician	2	4
Investigating Detective	35	70
District Attorney	2	4
Detective Supervisor	7	14
Totals	50	100

The group of larger agencies responding to the telephone survey was asked to identify the offenses for which DNA analysis would be considered if evidence were found. Of the 50 respondents, 6 agencies considered the possibility of DNA evidence when investigating all felonies, and 34 agencies considered DNA evidence only when investigating rapes and homicides. Indeed, agency representatives often advised that policies of their respective departments did not preclude DNA analysis for all qualified offenses, they merely acknowledged that submission of samples from an unrestricted list of crimes would unnecessarily burden the laboratory and delay the analysis of all samples, including those from serious crimes. Further complicating the issue of submissions for DNA analysis, 22 of the agencies stated that they do not submit DNA samples unless they have a suspect profile against which a comparison can be made from existing records, 25 stated that they submit samples in all cases, and 3 respondents did not know if their submissions were limited to those with suspect profiles.

Costs are generally not assessed against the submitting police agency if a state or county laboratory conducts DNA testing. In some jurisdictions, county or district prosecutors would be responsible for the costs ofDNA testing after arraignment or if they wanted the sample to be tested at a private laboratory. If backlogs prevented samples from being tested with expediency, police agencies would often send the samples to private laboratories and assume the costs of the tests. Costs billed to police agencies from the private laboratories ranged from $1000.00 to $5000.00 per sample. Table 17 illustrates a breakdown of estimated costs as provided by survey respondents.

Table 17: Summary of Cost Estimates

Illinois State Crime Lab	$450 to $1000.
North Carolina State Crime Lab	$50 to $2500.
Oklahoma State Crime Lab	$50 to $100.
Texas State Crime Lab	$50 to $150.
Johnson County Kansas Crime Lab	$550.
Georgia State Crime Lab	$600.

Table 17: Summary of Cost Estimates—Continued

Massachusetts State Crime Lab	$600 to $800.
New Jersey State Crime Lab	$1500.
Colorado State Crime Lab	$130.
Westchester County Crime Lab (NY)	$250 (paid by D.A.) .
Michigan State Crime Lab	$50.
MiamiDade County Crime Lab	$50.
South Carolina State Crime Lab	$100.
Washington State Crime Lab	$900.
Arizona State Crime Lab	$50.
New York State Police Lab	$1400 to $1500.
Hamilton County Coroner's Lab (OH)	$480 (by police) .
Erie County Central Police Lab (NY)	$3000.

(Data provided by survey respondents)

A comparison was made between the number of reported forcible rapes against the total number of untested: rape kits in storage from data supplied by the 50 agencies that submitted responses to the telephone survey and Uniform Crime Reports (UCR) of the latest year, 1997. During 1997, forty-two of the fifty agencies reported 3133 incidents of forcible rape. The fifty agencies collectively had 8487 untested rape kits in storage over varying periods of time. Reported rapes for 1997, therefore, represent 36.9% of the total number ofrape kits in storage—The percentages remain relatively consistent when we considered the entire group (n = 122) of PERF respondents. In 1997, a total of 12,472 forcible rapes were reported in the UCR, and the 122 agencies indicated that they were collectively storing 31,292 untested rape kits. Reported rapes for the entire group represented 39.8% of the total number of stored and untested rape kits. The data show that reported rapes for a given year represent slightly over one third of the total number of rape kits in storage.

CONCLUSIONS

Results of the surveys show that the predominant issue facing the national DNA analysis infrastructure is the perception or experience ofundercapacity. As the benefits of DNA analysl?, become known on a bi oader scale, further pressures will be directed to laboratories to increase their capacities. At the present time, case backlogs and policy guidelines are generally limiting DNA analysis to only the major crimes like homicide and sexual assault. The potential for DNA analysis to regularly assist in the clearance of other offenses is acknowledged, but the data and interviews suggest the need for more laboratories and qualified personnel to conduct the tests.

The state crime laboratory system handles the bulk of DNA testing requests. In nearly 50% of cases for some of the larger agencies, DNA testing will be conducted only when a suspect profile is available. Submissions and comparisons of unknown suspect samples are not being done or are falling behind in priority. Generally, private laboratories are seldom used to assist with backlogs. The higher cost of sending samples to privately run laboratories limits the number of cases to those which are serious, only if a process is not available at a state laboratory or if expediency in testing is required. Given the higher costs for tests, the private laboratory system does not appear to be a viable adjunct to the state system in reducing the backlog.

Remarkable differences exist between the larger and smaller agencies in their understanding of the potential for DNA analysis. Nearly 78% of the larger departments felt that more than 25% of their cases have DNA evidence, while only 48% of the smaller departments held a similar view. Additionally, only 9% of the larger departments had no knowledge of the potential for DNA evidence to their respective cases, while 30% of the smaller departments could not indicate the extent to which they felt DNA had an impact on cases. In reference to submissions to an offender database, 69.7% of the larger departments made submissions, compared to 37.9% of the smaller departments. As such, the data suggests a higher level of awareness and practice with DNA evidence with the larger law enforcement agencies. The value of DNA analysis to a broader spectrum of offenses is becoming widely accepted. As knowledge about the benefits of DNA analysis increases, especially to the smaller law enforcement agencies, so too will the requests for testing in other than the more serious cases.

This survey suggests two key barriers must be overcome before the potential for the widespread use of DNA evidence in crime solution is realized. The first barrier

is the perception on the part of law enforcement agencies that analysis capacity is limited. This study was not intended to determine the validity of this perception. If capacity is in fact limited, then capacity should be increased. If capacity is adequate, then an educational campaign needs to be conducted for law enforcement agencies.

The second barrier is a result of perceptions of limited analysis capacity. The survey discovered that many agencies limit their submissions of DNA evidence only to cases with known suspects or offender profiles. Such policies and practices will change as perceptions of capacity limitations change.

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