JONATHAN McGRATH: Welcome back to the National Commission on Forensic Science Meeting 13, Day 2. Thank you for those that are dialing in through the webcast. We will get started in a few minutes. I'm going to hand the microphone over to Nelson before we get started with our first speaker.

NELSON SANTOS: Good morning, everyone. Before we start with Dr. Speaker, I'd like to give Pam the floor to go over some of the amendments that were made to the summary document as a result of the votes we got yesterday. We had indicated that we would go back and fix those so that we can see what that looks like. I think John has it available for viewing. Again, unless there are issues with this, we're just going to move forward without a vote; I think it's pretty benign.

PAM KING: When we voted on this document yesterday, I had highlighted for the group that there was this language, which is now up on the board, that references the two documents that we voted on yesterday. As a result of voting both of those documents down, I thought it was appropriate to change the documents, which was what we voted on – to approve the document, with an additional change, once these were voted on one way or another.

The language that I've added to the document is what is below in blue. The highlighted portion, which says, "These two documents are currently in draft form and may be finalized by the subcommittee for discussion and vote by the full Commission at the upcoming Meeting #13, in April of 2017," that would be deleted. Then the new language, which you can see below, would be, "At the 13th meeting, neither draft received the required two-thirds majority vote; however, the issues each report addresses have been of concern to the Commission since its inception and remain crucial to the forensic science community."

UNIDENTIFIED MALE SPEAKER: So moved.

UNIDENTIFIED MALE SPEAKER: Second.

GREGORY MOTTA: I just want to ask, do we document other documents throughout the process that were voted on but turned down?

PAM KING: All of the documents appear in the Appendix, which has not yet been amended to reflect this change as well; but within the document itself, yes, almost all of the—

NELSON SANTOS: Pam, I don't know that we've had one that has been voted down. It usually goes back to subcommittee and then readdress itself; but because it's the last meeting, it doesn't have that opportunity. I think it's consistent with some of the other topics that we had indicated for future to address. So I think putting this statement in is consistent with what we've done before on other topics we wanted to look at.

PAM KING: And certainly the document itself identifies all other issues.

NELSON SANTOS: Yeah, I think it's consistent.

Any other concerns? All right, so that's what it will look like then finalized. Thank you.

Our first speaker goes by the name of Speaker, so this is very apropos; it is Paul Speaker from West Virginia University.

PAUL SPEAKER: Good morning.

First a little bit about who I am and what we're going to go through here this morning. As Nelson mentioned, I am from West Virginia University; and my connection to the forensic science community is consistent with our Forensic Science Initiative at WVU. Early on in the process, Max Houck, who was running a project, brought us in to be able to speak to some of the scientists with ASCLD to try to give them a little bit of a sense on becoming an organization on their own and running things. So he asked

some of his friends in town to come in and speak to them about strategy, about budgeting, about a variety of business issues that we had; and I got invited to that, and that was my start.

Out of that Forensic Science Initiative, one of the things that became apparent very quickly was we had all of these people in very prominent positions running organizations but very few who had any formal training. Their formal training became as scientists; they were very good as scientists, but put into management and decision-making places.

So he, along with Dick Riley, one of our colleagues in forensic accounting, put together a proposal funded by NIJ, which is Project FORESIGHT. I'm going to talk a little bit about the history of the project. I'll try to do as little as possible, enough to keep you informed; hopefully, those who are very familiar with the project, not to bore you in the process; and then spend a little bit of time talking about the work that we currently have underway, including some results that have just finished up on a couple of the papers that we're working on, but to give you an idea of what this can help do for forensic science services in general.

As I said, Project FORESIGHT is a natural development out of the Forensic Science Initiative. For those of you that know Suzanne on the Committee, you probably have a little bit of a sense of what we're doing at West Virginia; but it is a byproduct of some of the efforts of Senator Byrd to be able to bring more things to the State of West Virginia. With the fingerprint identification facility moving nearby, we have the birth of the Forensic Science Initiative here.

Our Project FORESIGHT was something that followed on the heels of a project that had been conducted in Europe, the Quadruple Study, where we had four laboratories in Europe that got together and said: How do we begin to connect some of the various things that we have in place here on casework and the details you would have on casework, but to connect that with the financials and the budgetary restrictions that you have in the laboratory and to be able to talk about some of the personnel things that we have in place?

NIJ funded this project for their fiscal year 2009 and then again for 2010, and we were able to do quite a bit with this. Now, the difficulty of course in the laboratories is that the systems that house the information on casework were generally separate systems from what would hold anything on financials and may also be completely separate from anything on personnel matters. So it was not a simple matter to extract data, to be able to get to that; and what we did is we gathered a group from 17 laboratories in North America – I say North America because we had two Canadian laboratories that participated from the onset of the project – but to come together to, first of all, define a language.

Now, for me, I'm from the dismal science, from economics; so I'm not from the physical sciences, but I do read voraciously. So you'll notice that in leading up to just opening this meeting, I had my kindle open; and I was here reading, of all things, a novel about a crime. So I do that all the time. So I thought I understood the language. When I read crime novels, I seem to get a pretty good sense of what we mean by a case, a sample, an item, a test – whatever these things were.

What we discovered when we sat around the room was that 17 laboratories, 17 different definitions for *everything.* So it took us about a year-and-a-half, and it was this dance that we would do – two steps forward, one step back. I got very good at it. But we came up with a language; and from the perspective of people in the business school, it did not matter to us what people wanted to call things, just that everybody agreed to call it the same thing.

So fortunately, we had the Quadruple Study to begin with; and we had, really, quite a bit of work – every two months coming together for a day-and-a-half of meetings to be able to kind of hash things out. But we came up with something. Is it perfect? No, but it was agreed upon; and so the agreed upon, as you're finding, is a really remarkable thing to be able to come with something where everybody says this is what we're going to do.

Now, our incentive here was not to *tell* people what to do but to simply find out what's going on, what's working, what's not, where do some of the principles we have from our disciplines help to be able to

explain what's occurring here. Above all, as we have in the last of that, is we want to share what works; we want to get the information out there. If somebody is doing something well, describe, figure out why that is happening, what's going on; and if something's not, to identify it and find ways to be able to improve it.

So amongst other things, we break our data down by areas of investigation. You can see here it had been a longer list, but we've compressed some of the data to simply have enough that we would have something that we could talk about in some detail. But blood alcohol, crime scene investigation, digital, DNA casework, database, and so on, all the way down to trace. Trace is one of the areas where we did have to combine a couple of areas. We didn't have enough reporting separately on things like hairs and fibers, paints and glass; so we combined some of those within trace.

But this fit very, very nicely; and some of the data I'm going to show you is just from one of these areas. I chose DNA casework largely because we have the greatest number of participants who do DNA casework, so we get some nice large data properties that go along with that. But anything that I go through here and show you today, these are things that can be looked at down to the detail of any of these areas of investigation.

Now, along with these, what we do when we talk about budgets and expenditures here, we are talking about a full accounting of all of these kinds of things. So we're taking from the specifics of what's going on, on personnel; looking at what's going on with, say, consumables in a particular area; capital expenditures spread over time -- laboratory equipment, for example, falls into the IRS' five-year class for depreciation purposes, so we look at five years and spread that out.

But we also have all of the infrastructure of the laboratory in place. We're asking, "What are the utilities?" I've gone into laboratories, and I notice the lights *are* on. I know that there is heating and cooling. Sometimes it happens to be heat in the summer and cooling in the winter, but there is heating and cooling going on. So we look at all of those costs that are going on and allocate these to be able to kind of see what is happening and what goes on through there across each area of investigation.

Participation in FORESIGHT is voluntary. Now, I have data; we began this in fiscal year 2009, but we have laboratories that were able to go backwards and extract data for us all the way back to a few of the laboratories from the fiscal year 2005. We've just collected and are analyzing the fiscal year 2016 data with that. In fiscal year 2016, I had 136 laboratories provide data. To provide data, what they are doing is they are sending me an Excel workbook that has one page that's extracting a good bit of detail on casework. By casework, they'll talk about how many cases do they have for each area of investigation. So certainly, you have cases that come in across multiple areas; so we're going to report that in each area.

How many items of evidence have been submitted across those cases? How many items have been examined internally? How many have been outsourced? How many samples taken from the items that are examined internally? How many tests that are run on all of those samples? How many reports are written?

We have a series of examples that show people how to count – you know, how would you count across these things; and time has continued to add additional examples with those. Along with this, they report some information with respect to personnel -- so how many full-time equivalent employees are both from a technical side and from a support side in each area of investigation; how much are generally out there that are working across areas – and we have a way to allocate those; hours that are spent in casework versus other types of activities – so we look at all of these things on the casework page.

On the financials, we break down to a great bit of details on this. Sometimes it's just general laboratory expenditures in a particular area. The biggest thing is personnel expenditures, which we get detailed by area of investigation; and we allocate those with the FTE to be able to talk about compensation and things that fit in from there. It talks about consumables and, as I said, all of the things in the infrastructure.

Then in the report, they are automatically provided some detail on the output. So immediately upon filling it in, they get some output results. We go ahead further, analyze the data, and provide reports back to each individual laboratory. The reports go anywhere 80 to 120 pages in length, detailing how do they compare to other laboratories around the world; how do they appear over time; and each year, we add some new items to that.

We had 116 of the laboratories were U.S. laboratories in the most recent year, which is nice because we're getting a growing number of international laboratories. We *do* have representation from six continents; we're getting a lot more.

Now, this last piece of this is Project FORESIGHT 2020; that is the big addition, and I want to show you a little bit about this. This is a project that is currently underway. But the biggest difficulty for laboratories to participate in the study – there's no charge to them for participation, that was thank you to NIJ really for taking care of paying for our time historically on this to be able to analyze it. But the cost is in the time to prepare it. So we put together, along with ASCLD – worked with the leadership at ASCLD -- to put together a proposal to fund a project called FORESIGHT 2020, which will automatically extract the data.

Now, to give you more detail on the metrics, I have listed at the end of this slideshow 20-something publications that we've had out of the project already. This is one that appeared in 2015 that gives you a really good idea on what kinds of things we extract from the data. If you want to go in and look at more, this is *Forensic Science Policy & Management*, and it really kind of shows you what we produce and the kinds of things that come out of there.

Now, FORESIGHT 2020, this is the project that is currently underway. It is a project that is awarded to ASCLD; but Max Houck serves as the Project Manager, and I serve as the technical consultant on this project. This is what's funded by the Laura and John Arnold Foundation. This is an *amazing* couple in terms of what they've done, in particular for things that improve the justice system. In this, we had spoken to them; and what they wanted to be able to do is to make it easier for more laboratories to be able to benefit by this analysis.

So we have a cooperative effort with the major LIMS providers to basically provide freeware to be able to connect this with existing LIMS systems so that the data that we have is automatically generated. I'm going to be able to show you a couple of screenshots of what we have on the beta testing on this to give you an idea of what comes out. It's not only to be able to generate our report, which is currently annual, or to be able to generate automatically some of the reports, say, from grant work for NIJ that it can extract the data and put that report together; but the key is this last one, is that it offers a dashboard, something that a manager can look at for *any* time period to see what is going on and to be able to work their way through.

So if you want it for the entire year, you want to compare it to prior years, you want to look monthly/quarterly, you want to look by individuals in the laboratory, how they're performing – it has that capability. So this is a little bit easier to be able to see, I'm sure, from the slides directly. But just to give you an idea on this, this would be the first level of the screens just looking at what is happening. So this screen would scroll down. There are all kinds of graphics that go along with this.

You have the ability to dictate the time period at the top. So you can say: I want it for the most recent quarter; I want it for the current year; I'd like to look at what happened last year. It automatically updates to what is going on in the laboratory – how many cases have you seen over that period of time, what is the current activity, what kinds of requests for services out of each of those cases, how many tests are going on, and so on. Then you get a graphical depiction on how this is working over time. That's just the Home Page.

The next page is strictly the FORESIGHT Page; and in this, these are the items that we're asking for – so, again, defining the time period that you want across the top. What it's doing is it's breaking down for each area of investigation. You can see there you have a crime scene investigation; you have fingerprint identification; you have this working its way down, digital evidence. This is the total number of cases over

that period that have come into the laboratory. It also has these are the number of items that we're looking at in here, or how many samples have been examined in here, how many tests have been run. It continues to track these down at each level.

If you are interested in additional items that we have from this, looking at the next one breaks down to these. Those bottom graphics give information, for example, on turnaround time – so how long are things taking, what's going on with that relating to any of these things. And of course, the manager has these at their fingertips. They can say what happened last week, what's going on today, last year – really being able to make this a very, very prime managerial tool. And it's free – free for all laboratories, again, thanks to the Laura and John Arnold Foundation for funding this to make it available.

We've had great cooperation certainly from at least three of the major LIMS vendors; they're excited about this, putting this in place. We're going through the testing with some individual laboratories right now, and the project is scheduled to wrap up at the end of February next year, in which it will be released and available for laboratories, whoever would like to have it, take advantage of that.

So that's the project that's currently underway. I would say certainly to anybody who is attending the ASCLD meetings this year, we have our annual FORESIGHT meeting there; and everybody is always invited. We like to get questions, new topics. Things are going on, but Max will be there to speak a little bit more about where that project is.

Now, that's a little bit on the history; and I'll certainly take any questions you have later about the project. I want to give you an idea on some of the work that we're doing currently, including I've got some results from projects that are currently underway, not yet published, but hopefully were now results to writing up things for submission on a couple of these.

To give you a little bit of an idea, we get our ideas on projects first and foremost from our membership. When we have our meeting, we find that people ask us questions: Do you know about this? What's going on here?

They give us ideas on things to investigate. Other times, we see things in the data itself that raise questions that we have. I published a piece a couple of years ago on lease versus purchase. Lease versus purchase in corporate finance is a big topic, but it's one that's pretty much been settled; and I was surprised to see how little leasing was going on, recognizing that this is a way to expand budgets. So Will McAndrew and I did a piece together on that that was published. So we look for scientists to tell us, managers to tell us, this is an issue and so we start looking at those.

Four of those that I want to talk about – one of these is probably jumping higher and higher to the top of the list, given the current political climate – and that is return on investment. So what is the return on investment?

We're working with RTI right now, the Forensics Technical Center of Excellence, on a project, this very first one, which is what is the return on investment from the DNA database? I want to talk a little bit about that and some of the results that we have.

The second is process improvement. You'll notice that a lot of laboratories are investing in Lean Six training and what's this going to do. We want to be able to measure what can you actually get out of this, and so we'll talk a little bit about that here this morning.

The other is one now that I have more international labs: Is there a difference between the performance in U.S. laboratories versus worldwide? That one is sparked in part by a very talented young man, a master student in biostatistics, who has been working with me, who jut noticed something in the data. So I want to talk a little bit about that.

The last of these is *extremely* important, which is the predictive capability of efforts that are currently underway. So when you invest in reducing backlog, what's going to happen? We can predict this; we

have very, very good economic law that sits behind this. Now we have measures to be able to talk about this. So I'm going to talk about those four here.

The first of these, I want to give some credit to an article you see in there from Jenn Doleac at the University of Virginia. If you've not met Jenn, this is a brilliant young woman who just does some really cool things that happen to be affiliated with forensic science. She published a paper in one of *the* leading journals on *The Effects of DNA Databases on Crime*. This is kind of the first really, really good return on investment.

Now, what Jenn is able to show in this – you can see there the quote that it opens with: "In 2010, 761,609 offender profiles were uploaded to CODIS. This cost the State and the Federal Government approximately $30.5 million but saved at least $1.2 billion – that's billion with a "b" – dollars by preventing new crimes. So you want to look at what the return on investment is there. Now, the difference that we have, or the contribution we can make to what Jenn has done here, is she was going from some very general data in terms of what the actual costs are.

By our study, and where we can detail what it cost laboratories – and it's a little bit higher than that when you take a fully loaded view of the cost of the laboratory and spread those things out – we can also individualize what the contribution is by laboratory; and that's what we're taking a look at. So what we're working out is to try to take a general look at the benefits and measuring the societal benefits and taking a look at this down to the jurisdictional level and what these impacts are going to be, and it certainly has some policy implications here.

Now, if you think about this, one additional entry to the DNA database – not one hit, just an entry and what the cost of that is -- brings back to society roughly $20,000 in societal benefits. Show me anything that has that kind of rate of return, and you want to see what the value is.

So this is what we've been looking at is to say things that you're doing to improve it, what can you expect to get?

So there are some questions about right-sizing, where to put your money, how to organize things, how to be able to work it to get the greatest returns. Now, we're going to see some increased demand for services as more is put towards this, so turnaround time reductions are going to have some effects that we'll talk about in a moment. It is going to be a moving target that you're planning for, but there is good economic science to help project what that path is going to be. We're talking about more data-driven kind of decision making. But just taking results that we have currently, this is suggesting that even a small laboratory that is not producing at a high level or at a very low cost, we're talking about returns in the nature of 890% for an addition to the DNA database.

For a laboratory that's operating at peak cost effectiveness, you're talking about 3,800% returns for that laboratory. To put that into perspective, the leading company on the Dow Industrials, Apple Computer, its return on investment is 28%. So if you want to be able to talk about what the contribution of the forensic sciences is going to be, in this case, dramatic – and this is just one area. This is one of 19 areas that we're going to be, hopefully, looking at over time to be able to talk about overall returns.

Okay, now process improvement – we wrote a paper back in 2009 when we first looked at the data; and in that paper, we did a decomposition of the data. How do you describe what's going on? What should a manager be looking for? What can they compare to?

In our early study in 2009, we have a small group of labs; but out of those laboratories, one of our participants was from Orange County, California. Another of our participants was the State of West Virginia. Well, economic climate in the state of West Virginia, where the laboratory is located in South Charleston, where the laboratory was located in Orange County, there are very, very different economic conditions. In particular, there is a big difference in terms of salaries, compensation that you have to pay; so there are market forces at play.

We wanted to be able to take account of that. We wanted to be able to take account of productivity differences – a variety of different things in this. So we wrote a paper on decomposition that we have there. We've looked at this and were able to come up with a sense of efficiency and what you should anticipate based on jurisdictional size – what is the level of activity, and what is efficient for you versus in a market economy, where I come from. In corporate finance, I was working in the banking community and analyzing the banking community. Well, what happens in the private sector is in for-profit environments, you knock everybody out who is not the lowest cost provider. But in a jurisdictionally-based market, such as you have in forensic sciences, things operate differently.

So we wanted to try to take a look at that; and, in particular, what happens if you want to instill your own improvements. So Lean Six is one we talk about; there are many other process improvement methods. What can you expect to gain and some of the policy implications you're going to have with that?

Here are some data, and this is kind of interesting. By the way, people have seen me geek out on this one before; but what you see theoretically in economics, in the for-profit sector you don't get to observe what you know theoretically goes on because you knock everybody out that is not operating at the lowest costs. So what I have is data here. This is for DNA. I wanted to ask questions about, well, if you undertake a project on something like Lean Six, what can you gain?

So what this data shows is on that vertical axis, we're looking at how many DNA cases are processed -- and this is DNA casework, not the database but DNA casework -- per $1,000 spent. Along the horizontal axis, it's the number of cases submitted over a year. So you find the amount that comes out per $1,000 is relatively low when you've got a very low volume; but if you can see in here, there is a specific shape that is suggested by this. This is what we look at econometrically. That curve that's in there, that isn't a freelance curve; that is the best linear unbiased estimator of this relationship. So what it is – it's the result of a quadric regression.

Now, there are better, more complicated techniques that can fine tune this a little bit; but you get the rough idea. This is what we refer to with respect to productivity is that there is an ideal size. So if you were talking the private sector, you're going to find in any business there is a right size to be, where productivity is going to be its highest for the level of activity that you have with that.

So for those of you – I see several coffee containers around the room. There was a difference in size between the place where you stopped for coffee and perhaps the Walmart that you passed on the way. There is a right assistance for a big box retailer – although we're not sure what that size is going to be anymore, thank you, Amazon; but there is a right size for Starbucks. Everything has its right size.

The same is true in terms of processing work at the laboratory level -- whether it's DNA, fingerprint identification, trace, whatever it might be. There is a size in which you're going to get the highest level of production. What we're trying to do is to be able to measure that; taking the data that we have in any particular area and say, okay, here's what we would see. So I'll give a term to that curve and call it the efficient frontier.

Now, what we'd like to be able to do for any laboratory whose market size is determined by jurisdiction, to say for your size, how do you fit relative to that efficient frontier? What gains can you get? Not what can you be to be the so-called perfect size that we would have in a market economy, but how do you fit in this?

This has been one of the bright spots of what we've discovered, is that while the image of the public sector is often maligned, certainly by free market economists who would say, oh, the government sector can't do things right – because we have this image – and please forgive me anybody that works for the Department of Transportation – but we have this image of the Department of Highways and eight workers and one shovel and everybody is sitting around.

But we're not finding that in the laboratory. What we're finding is that laboratories tend to operate near this efficient frontier. Now, occasionally there are issues; and we try to help identify what those things would be.

So here is what we'd like to be able to look at. If you are below this curve in productivity, can we measure what a program such as Lean Six can do for you? What's that gap? What are the gains? Is it worth the expense going through this? Because you may be really close and the exercise itself costs more than what the gain can be.

So I was first noticing this in a very, very interesting project that went on in the Netherlands. To go through a process with Lean Six, and this is one of the citations with this in science and justice; and it's a remarkable project. What happens if you really invest in quality in this sense, in process improvement – what kind of gains?

When I saw the presentation – in fact, it was an invitation from NIST almost three years ago -- thank you, Mark – and it was a great presentation; it was fascinating. I kept looking in the data and saying they made a couple of comments. They found that as they improved, their level of activity went way up. And I thought, well, you've got several things happening. Can we separate out how much of this is an improvement from Lean Six and how much of it is a natural improvement that you get from scale economies – economies of scale, rightsizing –- and to try to be able to split these things down. So you'd like to be able to combine this work to be able to say, here's where we're headed; this is what we're going to see; this is what our policies should funding as we move forward. At the time, they increased their work dramatically. So they had to rebudget and recalculate what everything was going to be.

Now, the inverse of this is just looking at the same data with respect to average costs. So people are always happy about productivity – what are you getting per dollar spent? Well, maximizing that is the same as minimizing the average cost; they're two sides of the same coin. This is the traditional economies of scale that an economist would look at. So again, this is what I geeked out on; I was just so excited to see the data -- so trying to look at things that improve and minimize that case – so size does matter.

Now, what does this mean?

Well, in the case of forensic sciences, we're also working with public health laboratories on this. Public health laboratories have found in some areas of work that they do regionalizing some activity has been an improvement for everybody. By simply saying, you know, not everybody can be the one that looks at this particular problem. But if we can work something within a region that everybody can benefit, everybody can lower the cost; and we've seen some success with that in the forensic sciences.

We did a study in Canada in which we took a look at the entire forensic services in Canada. One of the things that they discovered is by moving all trace evidence activity to a single laboratory, everybody lowered their costs. The difficult part was how do you prioritize; how do we move money? Those turned out to be fairly easy to be able to deal with, but scale of economies helps to tell that.

In looking at this, this is what saw with the data. We're beginning to tell people with this, to be able to say, you know, you're too close to get a lot of gain from investing in this; you may want to think about some other things to be able to do to improve. To be able to hand each laboratory, here's what you measure; you're already at efficient. So a new productivity improvement isn't going to change things.

Now, this next one – as I said, John Bassler is this young man whose been working with me; he's finishing up his masters in biostatistics. Interesting guy – he's the biggest research assistant I've ever had. He was in football; he was a lineman at WVU. You don't find too many math and stat undergrads, but they exist on the football team. So he noticed in the data that over time, anybody who has the data about their laboratory, they just tend to improve – no particular program, knowledge alone seems to be a behavioral trait that improves things.

So we're looking at how this moves over time. We began asking questions about U.S. labs versus international labs and is there really a difference, or is it just that the domestic labs that we've had in our study have been there long enough to notice improvements and to get better? So we're working through a study on that: Does knowledge alone improve your operations? Early data on that is suggesting some things in that direction.

Now, this is the one that I find most fascinating. We were invited in the fall to speak with respect to sexual assault kits and policies trying to improve this. While this particular interest was in sexual assault kits and backlog reduction, we were just interested in all backlog reduction programs and what happens with this. So as backlogs go down, so does turnaround time seem to be affected by this.

Now, in economics, there is a metric that we use; it's called "price elasticity of demand." For *any* industry, you can *very* precisely predict what the reaction is going to be when you change your price. So what happens if you lower it? Well, if you lower it, we know from the law of demand, the quantity demanded is going to go up; people want more. But they want enough more that you make more money out of it.

Well, forensic science for the most part, there's not a charge. So there is no price. Your price becomes wait time. So I gave this a name; and rather than call it the wait time elasticity, I liked the name the queueing elasticity of demand – get in line. So what happens when you reduce the line?

What we found first of all just on some simple metrics in looking at this is that it was less than minus one. What that means is this; if you reduce turnaround time by 1%, the demand for your services goes up by more than 1%. So I was teasing Gerry last year and saying backlog reduction program was the wrong name because if you're successful, you'll never be successful. Huh? By being successful and actually enhancing capacity, and he came to me immediately afterwards and said, "We changed the name already, capacity enhancement."

So a very, very important clue about what's going on – but we can measure it. It's a moving target, but we can measure it. So we got the results – not yet published, but I'm going to run through some of these now.

The first of these is the metric with respect to casework. Now, this is looking from data that we have on laboratories from 2005 through 2016, 531 observations. So we measured this – the elasticity with turnaround time with respect first of all to casework. Across that dataset what we have found: that a 1% reduction in turnaround time increases casework by 1.29%. So part of this that's going on – yes, there are other factors that could be at play in here; but largely, it's suggesting this. Cases are being submitted that weren't being submitted before. So, okay, you've got to plan for these increases as you get better; but it goes much deeper than that.

We looked at this with respect to the number of *items* presented – minus 3.9 for a 1% reduction in turnaround time. Yes, we have an increase in cases; but back up the U-Haul because more items are being – almost 4% increase in the *items* that are asked for consideration. The better the job you do, the more the demand for the services. That doesn't mean that every item is going to be examined. So when we go down and look at what the laboratories are doing here, what we find is the number of samples that are actually examined is increasing at dramatic rate. For a 1% reduction, it's almost a 3% increase in the throughput.

How do you fund this?

You've got to plan for it; you've got to be able to look at this. And these are very rough estimates simply based on annual submission of data. Once we get data from our FORESIGHT 2020 project, where we can then begin to examine for much shorter periods of time, what are these impacts – when does that knowledge become generally known that, hey, they're getting better at this; they're getting faster; let's give them more.

Right now, I can only use annual data. So I look at what was your turnaround time one year; what happened to the submissions the next year? Now if I can begin to do a quarterly or monthly or whatever it would be to try to find out and predict what this is, to be able to take every individual market and to say this is what the demand for your market looks like because I've got time series data for the individual laboratories. FORESIGHT 2020 allows us to do that.

So what do you need? What do you put into the funding awards? How do you go to your funding body and say, "Look, here's what's going to happen here." Not here's what happened historically; I now have a predictive model. You can look at program effectiveness, and you can go back. I'm still struck by things in 2013's GAO Report and saying, well what does it --? You've got it. Does this work? Yes, you can come out and you can pull it right out of these things. Policy implications – to be able to now extend to that return on investment to the individual laboratory, to be able to talk about what goes on there; and we can track it better as we work our way in here.

Moving forward, as I said, topics we look at are occasionally something we find in the data; but generally, it's an observation that some lab director has – What's happening with this? What's going on there?

As I said, we have at ASCLD 2017, once again, that's Sunday evening right before the meetings begin. Anybody that wants to is invited. Please talk. This is how we get our ideas. We welcome anybody to participate with that.

The FORESIGHT 2020 support continues through February 2018, but we are about to be flooded with data. The ease with which laboratories are able to provide data and get it through there and the big thing comes as an *industry*. One individual laboratory does not necessarily have the incentive to go through this. And it's figuring out how, as an industry, you share, you get more people. I've got a small group of us that are working with this data. We'd love everybody to have access to the data and have other people researching things – but to look at ways to house the data, to collect the data, to make that available.

Our project funding, as I said, for FORESIGHT – that ran through fiscal 2010. We stretched it out as long as we could to be able to keep funding the activity that goes in there. This foundation – some grants from RTI is keeping this in mind. But as an industry, there is so much that you can benefit from by learning these things – keeping that on the table.

Finally, if you look within the current climate, certainly being able to speak a language that is a language of business – and whether you like calling forensic science an industry, it is. It is a collection of, yes, public sector corporations that are units that are making decisions for different goals, certainly. But collecting that information and being able to learn from each other and how to do things better – not just in the science, but how to select across these – is just a very important thing to keep in there as something as we work forward.

I'd be happy to take any questions that anyone has with this.

NELSON SANTOS: I'll start off with a question because now I'm really concerned. So I have 25,000 samples in backlog; and if I read what you said right, the more efficient I get, the greater my backlog is going to get.

PAUL SPEAKER: Yes.

NELSON SANTOS: When does it plateau?

PAUL SPEAKER: Well, that's the thing. What you see is a demand schedule; it's not one elasticity measure. So this is kind of an average across the industry. So this is where we'll begin to get that out of FORESIGHT 2020, is to be able to look at that where we can go and we can look at *your* individual demand schedule and say, "How's that going?"

So what you find is typically at very high prices, you find very elastic responses. You lower price a little bit, and you get big increases percentage wise – big increases; but eventually, it eases off with this. We'll be able to see where that point is. We'll be able to measure that for you, for any individual laboratory and say, "This is what your demand schedule looks like; as you get across that, you're going to find at lower and lower levels it begins to ease up."

NELSON SANTOS: Okay, because I think what's happening with us is exactly what you're saying. The demand – so we can't provide it quick enough. So they're going to state and locals – our DEA agents. So once they start seeing it come back, you're right; it's going to come back to us. But I'm hoping there's a complement.

Cecilia?

CECILIA CROUSE: Thank you, Paul. I've heard your presentation several times; and once I get past the word "economics" I'm okay.

I just had a couple of questions. We've conducted Lean Six Sigma in our forensic biology unit, and it took us about a year-and-a-half through a grant from NIJ, which we sincerely and deeply appreciate. The most important things was buy-in. The second most important thing was that we ended up making sure that there were black belts that stayed in our laboratory so that when issues like this happened, they could use their Lean Six Sigma training.

What we have found out was – and this is my concept of what we have found out. First of all, the team approach – they love it. They are cranking out a lot of work. They are finding out *exactly* what you're saying; and we have a case submission policy, where you're only allowed so many items depending on the type of case. That's helped to regulate it, but now we're getting more cases. So that initial ceiling – this is what we know is coming through the door every month, this is where we need to be – that's moving because of this.

The question that I had is I want to know what the effect of critical thinking is. Has anybody thought about the fact that what we are finding out is that there are occasions when having this production line, this robotic line, that the critical thinking on some of these cases is not happening because other people are making the decision. The serologist comes in; they do the screening; *they* put what should go forward. And then the DNA teams all get them, and they all rotate; and it's this big dance that kind of happens.

Then at the end, for example, someone would say, "I don't understand why you did the boots; we really needed to have the bandana done."

"Well, there was blood on the boots."

"Well, yeah, but they were bleeding; it's not…"

So my concern is, are we creating through this – we're creating efficiency; backlog has come down; they love the process. My concern is do we have technicians and what happens to the scientific critical thinking that comes with casework?

Well, that's a great question and a very timely one since I just took a call about a month ago from some guys working in the area. My background is economics and finance; so my tendency is to be more interested in the projects that are really looking at numbers from that standpoint. I got a call from somebody working on their master's thesis in management that wanted to measure more of those qualities. So they'll be presenting at ASCLD on a proposal for a project looking at those: How do we marry both of these metrics – and the critical thinking being the key one on this?

So what they've done is they've taken from studies across *all* kinds of businesses – any kind of industry that you have – and looking at those predictive capabilities on your ability to improve. Do you have those things in place as well, combining them. Where we're simply trying to measure what the potential is from

a financial standpoint or a productivity standpoint, and we want to marry to the two concepts to be able to say, okay, this is how you're going to gain and this is how you're going to be able to sustain it.

What we're finding, anecdotally at least in a few laboratories, is they've gone into a process; but some failures are happening later down the road. The ability to sustain it – and a lot of it comes back to that critical thinking aspect. So how do you get the sustainability to get the improved results but also get the intellectually stimulating environment so you're getting good kinds of results? So that's one of the topics that we'll be discussing at ASCLD.

NELSON SANTOS: All right, Susan and then a couple more, and then we've got to close.

SUSAN HOWLEY: Mr. Speaker, I was wondering how well you've been able to isolate a causal relationship between the reduction of the turnaround time and increased demand. It seems that when people are addressing backlogs, you also have other things going on – like new State legislation that has timelines for how fast samples need to be submitted to the lab. And then there's all this accompanying increased public awareness, or especially awareness among law enforcement that, okay, now we really do need to count the evidence that's been sitting in the closet and get it turned in.

So how much have you been able to really say it's the fact that we're reducing the time and offering better service that's led to the increased demand?

PAUL SPEAKER: Typically, when you're going to look at elasticity, there are a variety of things that you assume are held constant. So certainly having a smaller time period in there to be able to look at things becomes an essential piece of that. Other things that would affect it – so if I'm looking in here, the results I gave you were just for DNA casework. So what's going to affect that? Well, the turnaround time in other areas is going to have an impact on that.

So if fingerprint identification is taking longer, then you may shift some of the emphasis in a particular case over to that activity, for example. So we know there are a lot of things that are going to affect that; and that's where the time series work with FORESIGHT 2020 is going to help us, where we can narrow that down to a scenario in which we have more of a constant environment.

Right now, what we won't pick up is if there was one thing that occurred from one year to the next. Now, will that one activity have affected so many things across time? No, so we're not terribly bothered by the – in economics, we always refer to "ceteris paribius," all things equal. We're going to hold everything else constant with that. But we'll be able to do more of that once we have the shorter time periods to be able to measure on that – be able to correct for seasonality, for cyclical behavior, and be able to talk about very specific events as you look at an individual laboratory – this law went into place or this thing changed.

NELSON SANTOS: All right, Jim and then Jules, and then we'll go to our next panel.

JIM GATES: Thank you.

Paul, thank you for the wonderful brief. I'm a scientist, and so I love data; and this was a data rich presentation.

My question had to do with something that you touched on, but I'd like to hear an expanded response. Many of my fellow Commissioners know that I have, on a number of occasions, brought up the issue of performance evaluation versus proficiency evaluation. One of your comments was looking at the issue of performance evaluation across, I think, international borders – I believe it is. Could you expound on that, particularly on the axis of do you have *data* that will sort of tease out whether one of these approaches – namely, performance evaluation versus proficiency evaluation – needs a more efficacious treatment of caseloads?

PAUL SPEAKER: One of the things that we do in decomposing the data is we're able to take a look at a lot of the detail as well as the explanation. Our decomposition is a fairly simple one; and it's a process that

now is one hundred years old right now, a thing called a "DuPont expansion," and named after the company DuPont, where an employee – I won't go through my normal dynamite salesman jokes here – but he said, "How do you look at data and performance? It looks too good to be true."

At the time, DuPont was looking at investing in General Motors. They had all this excess money, and they wanted to be able to put it in something. So this employee, who was at Carnegie Tech, had a couple years of that good quant work, said, "All you have to do is multiply by the number one in a variety of forms and create a series of ratios, and you can kind of break down what's going on."

So we've done that here. In looking at the laboratories, we look at what their overall performance is and we say, well, let's try to explain, to see what are the pieces that are telling us what's going on with this. So I just showed a couple of the curves with this; but we do that. We go ahead and we look at the overall performance; we look at productivity; we look at markets; we look at investment in capital because any laboratory can improve its performance and particularly by let's put off that investment in the new GC Mass Spec or whatever it might be. We can get more out of it right now. So we break all of those things down.

Now, at the international level, our interest in looking at this was more out of our very early discussions where particularly our Canadian counterparts would talk about some of the loss that they had to contend with and why differences would be in place. We get a lot of those similar comments that are coming out of our Australian laboratories, where they talk a little bit about the detail.

So what we've done is we have a look where we can compare to the efficient frontier – and we're trying to figure out what the best metric is on that; right now, it's a fairly crude one. It's simply what's the percentage gap from that? And we look at that percentage gap over time, and it turns out that everybody narrows in on that efficient frontier, regardless of where they're from. So it's really a matter of taking a look and saying, okay, how long have you been tracking your own data that you've got some improvement?

A good case in point for why this happens is a 2010 article that's listed at the back there by John Newman, myself, and David Dolly, where we looked at how did the Toronto laboratory use the data? And I'll say this – very, very smart director. He went and showed the results to every unit manager and said, "What would you do differently?" And, boom, they tracked it and began to find things.

So you can track a lot of very, very particular events to the results; and say, yeah, this is a performance-related thing. We can pull other things out and separate things and say, "This is purely a size phenomenon that this is happening."

JULES EPSTEIN: Good morning and thank you. I have one quick question; and if it's off topic, please say so.

One of your slides talked about this remarkable economic gain from having DNA databases. So I went and read the article, and I realized it's not your article; and if it's tangential, say so. But are you really confident in those numbers? It seems, at best, to be a correlation, not a causation; and it's based on a theory of the author that people who commit crimes actually think to themselves when they get out, "Aha, they have my DNA; I will be more circumspect."

So again, I've really enjoyed learning a lot about everything else; but it seemed to be a big part of this. So I'm just asking, is that good – I was going to say economics or science?

PAUL SPEAKER: Yes, it is very, very good economics that's in there. This is probably – I think it's the second most cited journal in economics, where this appears and the rigor that it's gone through. So I have a lot faith in the work that appears there.

JULES EPSTEIN: All right.

NELSON SANTOS: Okay, thank you, Paul.

[Applause]

All right, we're going to move right into our next panel, which is actually our first feedback about our work from the legal perspective. So if I can have the speakers come up, please.

BILL FITZPATRICK: Good morning, everybody.

My name is Bill Fitzpatrick. I've been the elected District Attorney of Onondaga County, located in Central New York, a community of about half a million people, for the past 26 years. I've been a homicide prosecutor most of my adult life. I've taken over 80 defendants to trial, 4 homicides, most of those cases involving forensic evidence; and I did an extensive period of time as a defense lawyer in my community. I'm a long-time member of the New York State Forensic Science Commission. I've served with Peter Neufeld for a number of years. I currently have the honor of representing America's 2,500 elected and appointed prosecutors and am Chairman of the Board of the National DAs Association; and I speak to you today on their behalf.

Although I will not dwell in my comments on it, there is much about the National Forensic Science Commission that my members find troubling. It's the belief of NDAA that state or national forensic science commissions, as the title suggests, should actually be composed of practicing forensic scientists with input from any advisory panel that a government deems necessary, composed of practicing defense attorneys, prosecutors, judges, ethicists, and certainly other scientists. It is an inherent conflict for prosecutors and/or defense attorneys to sit on an accreditation or policy board determining whether or not crime laboratories are practicing under acceptable standards and then to use that determination in court to either validate or attack the evidence that lab has analyzed.

In addition, discovery rules, reporting standards, testimonial parameters, et cetera, should not be determined by a majority vote of a Commission. If I were to have taken the PCAST report seriously, which I did not, or the 2009 NAS report, which I did not as well, and to embrace some recommendations suggested, I could actually picture myself in my office telling a grieving father of a domestic violence victim that even though his daughter's ex-boyfriend was ID'd fleeing the scene, even though he left a fingerprint that matched his left thumb in the victim's blood at the scene, and even though a forensic odontologist matched a bite mark on the victim's chest of the defendant, and the .32 caliber recovered from his jacket pocket was ballistically matched to the projectile in his daughter's head, it's just right now the case is too thin to proceed, and I won't be able to prosecute. Please.

Finally, I see the word "customer" leaking itself into our vocabulary when talking about the Defense Bar and public crime laboratories. Defense lawyers are not customers of crime laboratories. A customer does not buy a car, be totally satisfied with every aspect of the car – its performance and reliability – and then spend the next year trying to denigrate the salesman.

With that said, let me point to common ground that should unite all practitioners and scientists in getting sound, reliable information to the factfinder and assisting them in making one of the most profound decisions that our system allows – whether or not someone has been proven guilty beyond a reasonable doubt.

My members believe that, number one, all forensic crime laboratories should undergo rigorous accreditation by ASCLD Lab, ANAB, or other recognized agencies with some time left over to actually analyze evidence.

Secondly, we believe the comparative identification disciplines – such as tool marks, identification, ballistics, fingerprints, bite mark evidence, tire and footwear impressions, are reliable science; have withstood the test of time; and should be constantly tested, improved, checked for error rates; have recognized standards; and be presented in a *fair* manner in court by certified scientists working in accredited labs to help a jury make its determination.

Thirdly, that an Office of Forensic Science should be created under the auspices of the Department of Justice. Its mission should be the constant improvement of forensic science; how best to present conclusions in court; and it should develop rigorous ethics training for forensic scientists working in public laboratories with continuous monitoring so that mistakes, such as composite bullet lead analysis or exaggerated hair comparison testimony, are avoided and eliminated.

It would also develop training programs for judges who, as the gatekeepers in criminal trial, must make the initial determination of what evidence presented and what experts, pseudo or otherwise, are allowed to testify. Such a body would also provide advancement of accreditation, certifications, research, grant money, interoperability of databases, and guidance for testimony reviews.

The Office – and this, I speak for myself and not on behalf of my members – but it's my belief that the Office would ensure that coroner systems in the United States are replaced by medical examiner systems. This could be accomplished with a program with tuition relief for forensic pathologists who will commit to serve underserved areas. I assure you from personal knowledge that there is a serious scandal in this country of homicides going undetected because of lack of competent forensic autopsies.

Fourthly, every DAs office should make conviction integrity a priority. DNA testing, it is our belief, should be allowed at *any* time during the course of a criminal trial, including post-conviction; and it should be allowed anytime if possible or germane to the issue of guilt or innocence.

Fifthly, that states that do have forensic science commissions, whether appointed by the governor or state legislatures, that those commissions should be populated by forensic scientists. Secondly, we believe that each state should have a prosecutorial best practices committee. They currently exist in 30 states in the Union. These would provide rigorous training on the latest developments in forensic science, the bounds of permissible testimony, the examination of past errors, and constant ethics updates. Thirdly under this category, a Defense Bar best practices committee with similar training responsibilities and a recognition by each state that in cases involving complicated forensic science issues, a court-appointed lawyer must be certified by said committee as competent to practice in that area.

I hope this Commission will consider these criticisms and suggestions as you near completion of your mission. Sadly, neither an unethical prosecutor nor an unethical defense attorney is going to be much bound or deterred by any recommendations that this or any other body makes. The overwhelming number of people that I represent care passionately about justice. A district attorney in a medium-sized office will exonerate more defendants in a month than a busy defense lawyer will in his or her lifetime.

But our ultimate mission is to keep our community safe, to speak through the victims of violent crime. We all take these oaths to protect and defend the United States Constitution, and we need evidence to accomplish our goals to convict the guilty and, just as importantly, to exonerate the innocent -- evidence that is fairly obtained, rigorously tested, and presented in a manner that assists – not misleads – a jury.

Tomorrow morning, I will be in New York for a meeting of the New York State Forensic Science Commission to discuss and debate an issue that I have been pushing for, for over five years – familial DNA searching, a proven, acceptable method of scientific analysis that has demonstrated concrete results in the states where it has been used, and yet has been withheld from my citizens by the same worn-out clichés about racism and privacy and the sky is falling that are the exact same arguments that were made against the use of DNA databases in the '90s. This issue, in a nutshell, represents the very, very best and the very, very worst of matters that we discuss. I hope this body opts for the very, very best.

I appreciate your time very much, and I wish you Godspeed in completing your important task.

NELSON SANTOS: Judge?

DAVID WAXSE: Well, from a slightly different point of view, my name is Dave Waxse; and I am a Federal Magistrate Judge. I know that not many of you are judges, so let me give you a quick background on what a Federal Magistrate Judge is.

We are considered the same as district judges, with certain limitations. The great limitation that I appreciate is we don't do any felony cases; we can do anything else a district judge can do, but even at the party's consent, we don't do felony cases. We do preliminary criminal matters, and that's where my interest in forensic science developed because one of the preliminary things we do is something called an "identity hearing." I've been on the bench 18 years now, and I've only had one of these.

What an identity hearing is, is when someone in the Federal system is arrested in one district by a warrant out of another district, they have a right to challenge the question of whether they are the person named in the warrant. So I, a couple years ago, had a case where the defendant said, "That's not me." He had been living in Kansas for 30 years, had no criminal record, had a job and a house.

According to this warrant, in 1972 in Texas, he failed to show up at a trial. It had a different name; but what had happened is this guy was not a citizen. He had a green card for the last 30 years; and every 10 years you go in and check and redo your green card, and they do a fingerprint scan. The fingerprint scan said he was this same guy in Texas that had this warrant from 1972. He said he wasn't. So the statute says if there's that dispute, they have a right to a hearing.

So we set it for hearing. Having read some about forensic science, I was interested to see how the attorneys would approach this. Neither attorney – neither the prosecutor, the assistant U.S. attorney, or the public defender – had any concept about science and hearings. So they called as their witness a fingerprint examiner, who was not the FBI's person because she was busy; this was a local woman, who started testifying in a manner that seemed a little shaky to me. But neither attorney asked any questions. She said that was a match, and that was the extent of that. I thought, "If I'm going to send this guy away for something he says he didn't do, I'm going to get to the bottom of this."

So I started asking the normal Rule 702 questions about what she had done. It was kind of astounding to me because education wise, she said she'd taken a correspondence course in fingerprint examination; but she couldn't remember who the course was from. I started asking her how she does her fingerprint examination; she said, "Simple, I just look at the fingerprints; and they're either a match or they're not."

I said, "Is there any, to your knowledge, any scientific research backing that method of identifying people."

She said, "No, I don't know of any; but this is what I do, and this is a match."

I said, "Well, I've got to have a little better information." So under Rule 706, I have the right to appoint the court's expert to do this. Having read that National Academy of Science report, I called Professor (inaudible), who she said she'd be glad to be the expert in this. What happened in the interim, since this guy had no criminal record I had released him on bond. Unbeknownst to me, the Government had appealed that release to a judge in Texas, who quickly reversed me and said, "Keep him in custody until he gets here."

Well, while I'm trying to get the expert set up, the public defender decided they'd had enough waiting in Kansas. He came in and said, "We're going to waive this hearing and go to Texas." Because one of the problems had been there was no clear law in the United States on who had the burden in these identity hearings and what the standard was. There are so few of them that there was no law.

He said, "We don't know what the law is here; but we know in Texas, they've got to prove beyond a reasonable doubt this is the defendant."

So they went to Texas; and within a day they were back because the prosecutor looked at all the evidence and said, "I'm not wasting my time on this," and dismissed the charges.

So with that background, I got interested in how all this works or should work; and just coincidentally, at that time I was Chair of the Judicial Division of the American Bar Association. Are there any ABA members in this group?

A few -- for those of you who aren't members, we are an association of approximately 400,000 members that's been in existence since 1878; and our purpose is to serve equally our members, the profession, and the public by defending liberty and delivering justice. The ABA is a membership organization that's governed by an elected House of Delegates and the Board of Governors. One of the groups making up the ABA is the Judicial Division, which consists of approximately 4,500 both Federal and State judges in the United States. As the Chair of the Judicial Division, I was able to select a program for the Division to focus on during my year. I selected forensic science and criminal justice as the program and appointed a committee to work on an issue, which coincidentally included Judge Hervey and Professor Henderson and Barry Scheck, who have been here and part of this meeting.

The committee then drafted a resolution for the House of Delegates to consider; and it's kind of ironic because our resolution was that we urged the NCFS to develop a model curriculum for judges in the law on forensic science. The ABA passed that resolution; and as far as I know, that's the last thing that happened on that issue because the ABA structure is not very good at following up on resolutions. To my knowledge, your group has not been approaching to find the solution to that problem with the curriculum.

But the committee has continued to work, and what we've done is worked with other groups. Right now, we're working with CSAFE at Iowa State to work on such a curriculum. Part of our effort has been to attempt to educate judges through both programs and written materials in the interim. One of my duties as Chair was to write a monthly column for something called the JD Record, which I did all those on forensic science. We also published, as a Division, a quarterly judges' journal that included an issue on forensic science.

One of the things we did is with Northwestern School of Law, we conducted a symposium on forensic science; and that symposium ended up in this law review article in the *Journal of Criminal Law and Criminology* containing the papers from the symposium. Some of us have been continually making presentations to various groups; and these have included ABA webinars, one of which we got Judge Harry Edwards, the Chair of the NAS Commission, to be on our webinar to explain to lawyers and judges what they had found. The most recent one I've been involved in, former Judge Gertner and I made presentations on forensic science to a conference in Kansas City of about 400 lawyers and judges.

In addition to the efforts of the Judicial Division, the ABA Criminal Justice Section, through its own Committee on Science, Technology and Forensics, has been doing similar things; and they've been having annual seminars on forensic science, I think, for about 10 years. The last one was chaired by Barry Scheck.

The point I want to make though is this problem still exists. There are still cases that just amaze me, where I read opinions by judges who clearly have not understood the forensic issues. And a common way of avoiding that is to simply say, "Well, we've always done it this way; and I don't see any reason to start checking on it now." So that's why we still have bite mark cases, when the science says you don't have very much there with some guy saying, "This is a bite mark and it came from this person."

The ABA's goal is to try, through various means, to educate judges and lawyers about this problem and try and get to the situation where the number of exonerations goes down because there are fewer bad convictions. It's just been amazing when you start studying these exonerations. For those of you that are interested in that area, there's a book now, maybe three years old, on convicting the innocent that looks at the first 250 exonerations the Innocence Project did and tried to analyze, well, if they weren't guilty, how did they get convicted.

The statistics are pretty scary because the largest cause of improper convictions is bad eyewitness testimony. The second largest cause is bad forensic science. They sort of tie together because there's a lot of scientific research pointing out the problems human beings have of identifying other human beings.

It involves both what you see and what you remember, and we're not good at it; and when you start doing it cross racially, it's unbelievable. It's almost like it never happens correctly when you start asking one race to identify someone in another race; and yet that's the largest cause of wrongful convictions.

So many of these things, like eyewitness identification, could be helped by judges allowing expert testimony on what jurors should understand about eyewitness testimony and the problems with it. Because in addition to the problems of human beings having difficulty doing it, there's the problem of some law enforcement being very successful at using various techniques to convince witnesses this is who they saw. In some of those cases, the testimony is just amazing. When you see these situations where someone is saying with 100% certainty, "This is the person," and it turns out, whether it's through DNA or other evidence, they were not the person; and some of them have spent long years in prison based on improper eyewitness identification.

So the probation, from our perspective, continues; and since our resolution to ask you to do something hasn't resulted in it yet, and since the attorney general has apparently decided you're finished, we're going to have to redo our resolution, I think, and find somebody else to help us.

Any questions about the ABA's position or role?

NELSON SANTOS: We'll take questions after.

VANESSA ANTOUN: Hi, I'm Vanessa Antoun from the National Association of Criminal Defense Lawyers. So already I have demonstrated the problem some lawyers have with technology and science.

I'm here from the National Association of Criminal Defense Lawyers, and thank you for inviting me to give a little bit of our input and perspective and our positions on the use of forensic science in the courtroom. NACDL is a membership organization of criminal defense lawyers; and we even have some members that aren't criminal defense lawyers, some associate members who are scientists or practice forensic evidence. We have judges. We have over 8,000 members, and their background and practice areas range greatly. We have public defenders; private practitioners; we have individuals who have absolutely no experience in forensic science issues; and we have individuals who are actually scientists or who have great experience doing this in their cases.

A little bit of my background – prior to coming to NACDL, I was a public defender for over seven years and eventually ran the Public Defender Office out in Fairfax County, Virginia, and was in private practice for a short time before coming to NACDL. I give that background just to illustrate where we're coming from.

Some of the things NACDL has done in the forensic area include developing some principles and statements. Our position statements, just like any organization, are developed and ratified. We have a collaboration with the DOJ, the FBI, and the Innocence Project on the microscopic hair comparison analysis review; and some of those experiences have informed our position. One of the important things we do regarding forensic science is conduct trainings for attorneys to understand how to use it and to be better equipped to address it in court.

I want to say at the outset, NACDL and its recommendations and principles – it is not about any effort of the Criminal Defense Bar to prevent the use of reliable scientific evidence or to prevent prosecution in any way. What we are striving to do is to help everyone strengthen forensic science and its use in the courtroom. To that end, NACDL did develop principles and recommendations for strengthening forensic science, particularly its presentation in the courtroom; and I will just briefly go over those. I believe you have the full document in your materials, but I think it will serve as an outline to some of the comments we have about the impact the Commission has had on what we do.

As far as those recommendations and what we are working towards as an organization, one of the main points is the forming of a central science-based agency independent of law enforcement, such as the National Commission on Forensic Science, or an equivalent organization; promoting the culture of

science that encourages independence, openness and objectivity; adopting a national code of ethics; reinforcing that prerequisite research to ensure the reliability and validity of forensic theories and techniques, and their limitations or measures of uncertainty; providing greater education to legal professionals, who often lack scientific experience, so they can fully understand and evaluate forensic evidence; ensuring transparency of the process; and providing appropriate discovery and disclosure; and, of course, having the appropriate accreditation and accrediting bodies.

We would support the continued existence of the National Commission of Forensic Science, or a body like it; and there are many perspectives from our membership in NACDL as to why this would be important. First of all, from our perspective, it's very important to have scientists working together in an open manner, open debates, public comment, and coming up with a consensus product that everyone can see. This perspective is very much needed in the criminal justice system, as we have heard from others on my panel, because the folks working on these cases are not in a good position to determine the reliability of forensic evidence in most instances.

There are few in the criminal justice system working as lawyers on either side or judges that have a serious scientific background and are in a position to even necessarily understand what the terminology means. Does this word mean what you think it means? In many cases, to a lawyer, it means something completely different than what the scientist is trying to convey; and that can become a real problem, as we've seen looking at testimony and looking at cases where it is not necessarily that anyone is saying the individual providing the testimony is mischaracterizing anything in many instances; but the fact that words mean different things to different people and without understanding what those terms mean, it's very difficult to even present the testimony in a fair way.

So work this Commission does on things like language for reports and what goes into a case record are very important in the criminal justice system for people to be able to have that open view of what goes into these conclusions.

Another reason why work from this group, or a similar independent body, is important is because there is an overburdened system. It simply isn't the case that we can say the players in the system – the judge and the prosecutor and the defense lawyer – are in the best position to determine what evidence is reliable and judge it because we don't have the resources to do that in terms of training, in terms of time. And that becomes a problem when that factors into what evidence is used and how it's presented.

The forensic disciplines, many of them – and I do not have a scientific background at all – came about as a tool to identify individuals and potentially catch perpetrators and bring them to justice, as opposed to trying to find an explanation for a phenomenon that occurs in the natural world.

From the perspective of NACDL, one of the important things about the work of the Commission, or a similar body, is that the scientists bring that independent, non-adversarial perspective to what is going on – not just can this be used to convict somebody, but what does it mean independent of the other implications surrounding that piece of evidence. As lawyers, we need scientists to tell us what good science is and what bad science is and what they look like because the fact of the matter is many times we can't tell ourselves. Even if we have an idea of a potential problem with a certain discipline or a certain individual's conclusions that we want to address, we're not sure how to do it.

This is aided by Views Documents and other reports that this Commission has put forward on ethics, on the use of terms such as "reasonable scientific certainty." This openness and explanation really does help, from our perspective, defense attorneys to understand what they're looking at; to better challenge it if that is appropriate or to better understand that there isn't any challenge there at that point.

NACDL would also like to thank the Commission for being productive during all these years so far with the understanding that with any organization, it is not always easy to come to a consensus or produce consensus documents. But we have been pleased to see that this has happened many times, and those documents are out there for all of us to use.

Another reason why bodies such as this are important, from our perspective, is accreditation is not a solution to all the problems and all the issues that can arise with the use of forensic science in the criminal justice system. Because it's brought transparency and debate to these issues and gives scientists and the scientific community an opportunity to openly discuss this and receive comments from the public, gives people like me at NACDL and prosecutors an opportunity to get an outside view, we believe that brings value and openness and can create an environment that furthers the reliability of forensic science and aids everybody in the criminal justice system in presenting it.

The idea that we would move away from the National Commission on Forensic Science and the suggestion that all of this work would be placed under law enforcement's exclusive is very problematic to NACDL. That is certainly not in line with what our principles are; and it just because of some of the items I have mentioned in regard to the transparency, the lack of resources, and putting this type of forensic evidence under an adversarial system. That is how some of the issues began, and we all know the impact of forensic evidence and how, if it's not used correctly or if it's misinterpreted or mischaracterized by anyone on either side – defense attorneys included, it can lead to wrongful convictions and serious consequences. We're not equipped to determine these things, but we are aided by some of the work product from this body.

Lastly, NACDL would like to recognize that there is obviously still much to be done. I don't need to tell you that, but I would like to formally state from our perspective that there are so many items still on the table where work needs to be done by an independent scientific body – standards; the uniform language for testimony and reports that had been proposed and may be revised and released again; issues related to defense; access to experts; providing feedback on the forensic science discipline review or now what may be done in place of that or what may replace it; and the importance of having such a review to make sure evidence that has been used in the past was reliable and that the testimony was appropriately within the limits of the science.

NACDL looks forward to continued work on forensic science through open debate and an independent agency that by its work promotes a culture of science, provides necessary education to the criminal justice players outside the adversarial system. Yet science is always changing, and it's very hard for a lay person to absorb those changes and to understand them and to use them in such a high-stakes setting as a criminal trial. A body like this *does* make it easier, and that understanding is crucial to promoting fairness in the system.

I thank you for this opportunity to give some comments and am happy to answer any questions.

NELSON SANTOS: Okay, let's open it up for questions.

Just so the record is straight, we did pass a work product on training curriculum. It wasn't a curriculum. The AG endorsed it and asked researchers and others to develop a curriculum. That's the extent, and actually we're going to have a panel later on to discuss that exact issue.

All right, Greg?

GREGORY MOTTA: My question is for the ABA and the National Criminal Defense Lawyers Association. The Commission issued a series of recommendations, and the mandate of the Commission was aimed at government laboratories and resources because it's a Commission of the Attorney General. But as came up frequently during the discussions, it was recognized that some of the failure -- like the use of vague terms such as "a reasonable degree of forensic certainty" or "a reasonable degree of scientific certainty" -- applied and confused jurors whether it was offered by the Government's expert or the defense's expert.

So my question to the American Bar Association and to the NACDL is you have the recommendations of the Commission, and you have the press releases of the Department as to those which they've adopted. You have a current effort underway to examine those and to determine whether or not you're going to issue recommendations to your members to voluntarily adopt and impose those with regard to defense experts.

DAVID WAXSE: From our perspective, those issues are still being looked at. The ABA has numerous sections, divisions, committees; and I don't have knowledge of what all of them are doing in this area. From my limited research, the Criminal Justice section is working on many of these issues. The Science and Technology section is also working on some of them. The Judicial Division right now has kept its committee in place on forensic science; and they are working, as I said earlier, with CSAFE to try and get a curriculum developed so they can be submitted to the proper agencies that would be able to actually adopt it.

VANESSA ANTOUN: So if I'm correct, what you're asking is if NACDL has in the works the adoption of a formal policy advising defense attorneys to not use the same terminology you discussed.

GREGORY MOTTA: (Inaudible)

VANESSA ANTOUN: To my knowledge, that is not specifically in the works. I will go back and see, but that's definitely an idea that I can propose or that we should consider because it seems like something that might be important in raising awareness to defense attorneys about what's going on, a formal position. So I'll take it back.

DAVID WAXSE: Let me add one little piece to this. When Judge Gertner and I did this presentation a couple of weeks ago, it was amazing to me because it was for both judges and lawyers; and large numbers of them afterwards said, "This is just amazing stuff. We wish we had understood this when we were practicing in these kinds of situations." And it's just constantly amazing to me how many lawyers and judges don't even recognize this being an issue.

NELSON SANTOS: Paul?

PAUL GIANNELLI: I'd like to make a comment, just for the record. Actually, some of the presentations illustrate what's wrong with the criminal justice system. I was really in favor, very pro forensic science. I was a prosecutor for two years, turned out to be more, and then they sent me to the GW forensic science cause, and I taught forensic science at the JAG school, and then I've been teaching. So it's 47 years of dealing with these issues. Over that time, I went from very pro to very skeptical and, on some of my bad days, just so cynical.

Some forensic science disciplines – and that's an important statement because it is a huge field – but the pattern disciplines have not been grounded in science. Prosecutors and defense attorneys and judges have abdicated their responsibility to challenge this testimony. I have no confidence – and I'd like to submit an article to the Commission as a public comment to support my views, which I've studied for a long time and written about, that deal with the manipulation of science that is controlled by law enforcement.

What I didn't see is any self-correction. I haven't seen the pattern evidence, people correct, unless they were forced to do it; and that's very unscientific -- the lack of self-correction. In fact, it's a circle the wagons in my research I've found attitude, and fight everything and everybody. It's incredible that I've looked at and was trained in bite marks 47 years ago, and there's just no research that supports it; and incredibly, it's still being admitted at trial.

That's an embarrassment to the criminal justice system; it's an embarrassment to the legal system and the lawyers that that has still happened. And we had these pattern evidence people who were testifying that they're infallible, that they can make statements this is the person to the exclusion of all others. And they were doing that for 50 years, and nobody questioned it. They got a zero error rate; and that, yes, hair evidence is consistent. That doesn't mean it's positive, but there may be some other person in the world that has the same hair. I mean, that is incredibly misleading; and no one did anything about it.

I'd disagree. I think that the National Academy of Science report was good precisely because it had independent scientists. I don't mind taking the lawyers off the commissions and stuff, but you need

independent scientists. So I'm very concerned about the future. And so I disagree with Bill about the bite marks and the other evidence, as if it's scientific. I think it's been demonstrated *not* to be scientific, and a lot of times I'm embarrassed. You don't look at these death penalty cases and the arson investigations – I was on the Bullet Lead Committee -- the overstatements in fingerprints and firearms identification, the overstatements in hair evidence. So you see this over and over and over again.

Now, I'm not saying they're junk science – well, some of them are – but other ones have just made unscientific statements. You say I am a forensic scientist, but don't apply scientific protocols and analysis to what I testified to. That is hypocritical to take that position.

So I just wanted to go on the record; and I will submit my research, if you want to read it, on what I have documented – I think I've documented – the manipulation of supposed scientific research when it is controlled by law enforcement. Thank you.

BILL FITZPATRICK: I don't want to get into a debate about the criminal justice system in America; but let me correct one thing. That law enforcement is not self-correcting, that is just absolutely not true. New York State, we started a Best Practices Committee about seven years ago; and as I mentioned earlier during my testimony, it's been copied in 30 states. I expect it to be in all 50 states. And what we do is exactly that; we self-correct. We root cause/analyze any wrongful convictions; we try to prevent wrongful convictions; we look at developing trends in science. Myself and Peter Neufeld spent a great deal of time in New York working collaboratively to correct the over exaggerated hair testimony that occurred throughout the United States – issues such as witness interrogation, defendant interrogation, eyewitness testimony, improving identification techniques. These are all things that we do in a self-correcting manner and discuss on an almost weekly basis.

NELSON SANTOS: Gerry?

GERALD LaPORTE: I'm just going to tail off of Paul's comments; but, Paul, one of the unfortunate things about this Commission is we have come together to try and solve a problem. I think that we all agree on that we need to get better at. But getting up here and bashing law enforcement, prosecutors and that sort of thing, that's not a constructive way to do this. I think unfortunately those kinds of comments have really divided the community.

I've enjoyed working with everybody on this Commission; and it's been truly, truly beneficial for me. I've learned so much. But we've got 18,000 law enforcement agencies, and I'm guessing that most of them don't want to get it wrong either. They're doing their job; they're working hard every day. None of us want to get it wrong.

But I want to direct a couple of questions sort of as a going forward to the panel. First of all, thank you very much. I don't know if each of you could just give me like sort of a quick thing on there's going to be some continuation of this work, I think, going forward; and I'm kind of interested in like if we were to do something to improve upon the work that's been done in here, what's kind of one thing that each of you would like to see carried on?

I realize training is a big issue, but I think training can go on around this country without this Commission. That can go on. So I'm kind of wondering if you each could pick one thing of something that – in essence if this Commission was to go on -- what's one thing that you would like to see the group kind of do.

BILL FITZPATRICK: Well, if we go in the same order, I'm sure the Judge is going to talk about training. If I'm preempting you, Your Honor, I apologize. I think training is something that pops into my mind immediately; but because it appears to be the Judge's bailiwick, let me leave that to him. I would say constant reexamination and improvement of forensic sciences.

I started as a prosecutor in 1977. In 80 murder trials, I used hair testimony once; and it was not comparison testimony. The defendant had a genetic defect that caused his hair to twirl around itself. It

was so unusual, that the microscopist mentioned that it seemed to be very similar to the hairs that were found at the scene; and there was a tremendous amount of other evidence that wound up convicting him.

But constant improvement, delineation of scientific standards, improvement about DNA – I suspect that we're in an area right now, and we discussed this in New York, where DNA can be analyzed at a crime scene. Is that a good thing or a bad thing? I've urged caution on that because I don't want police officers making determinations and possibly destroying evidence at a crime scene. But these things are developing exponentially; and I think that much good could come, Gerry, from continual exploration into improving that product in a way to get it into court. That would be (audio break).

DAVID WAXSE: Well, I think clearly training and education would be the No. 1 thing for us. Part of the problem is that I've talked about reasoning lawyers and judges; but there's also this problem out there of training or educating the public because these people end up on juries with the idea that every case can be solved by some kind of scientific thing, based on what they've seen on television. And it's hard to get them to actually listen to what the judge and the lawyer are presenting about science because they've already made up their mind that this is the answer, so we don't need to spend too much time thinking about this.

As I said earlier at the beginning, I don't try felony cases; but I try jury trials, and it is a very scary thing to talk to jurors after a verdict and find out the basis for their decision. It may be the best system we can come up with; but it's scary when you start analyzing what goes on in there because it just amazes me some of the things that are used to make decisions that didn't even come up in the trial, but the jury has somehow gotten hooked on something.

So the system has lots of things that need to be improved; but we've got to start, I think, with the lawyers and judges.

VANESSA ANTOUN: Since training has already been addressed, I will say that I believe one of the things that would be very important to NACDL is an independent group with independent scientists, such as this, developing, in an open and subject to debate and transparent way, some consensus documents as you all have been able to produce as opposed to potentially views and policies being developed by an agency in a non-transparent manner, where defense, prosecution and judges don't know what went into it and it doesn't aid in their understanding like the open process with the comments from all the scientists does.

NELSON SANTOS: Jim?

JIM GATES: Thank you, and I'd like to thank the panel for the briefing.

My comments mostly are directed towards Attorney Fitzpatrick.

NELSON SANTOS: Can you move closer to the mic?

JIM GATES: Certainly, I first of all would like to thank the panel for the briefings; they were informative as usual.

I have some comments mostly I'd like to address to Attorney Fitzpatrick, who had a very stimulating opening set of comments. I was a member of the PCAST Working Group that wrote the forensics report, which I suspect you probably know; and I guess a couple of things come to mind from your opening remarks.

The first thing is that – well, let me go to sort of the big one. You mentioned the word "race" in your presentation at some point, I think; did you not?

BILL FITZPATRICK: I made reference to arguments that are made against familial DNA searching and being racist, the same arguments that were made in the '90s about the DNA data.

JIM GATES: Sure, and so that sort of rung a bell with me because I'm probably the only person around this table whose had a policeman, on more than one occasion, draw a gun on them for no good reason. I'm also the only person around this table who is of the African diaspora; I suspect those two things are connected in some way and so when people bring these sorts of charges, not in an absence of evidence.

Speaking of evidence and the PCAST report, I'm not sure if you are the gentleman who made this statement; but there was a statement from the NDAA about the PCAST report actually directed towards a version of the report that had not even been released. One might have a little bit of issue with evidence there, as you're criticizing something that's not in its final form; but that happened.

Speaking of evidence, there was a time when leeches were used in medical practice. It was a tradition of some long standing. We don't do it today because, well, we've learned that we can treat in better ways. You mentioned pattern matching evidence in your opening statement, bite marks. When we talk about evidence from the point of view of science, we're talking about things that have an empirical basis in measurement. In fact, Einstein actually says that Galileo is the father of all science because he's the person in the Western tradition who pointed out that if you use the word "science," it has got to be based on measurement and observation. If you don't have a body of knowledge based on observation and measurement, then you cannot call it science, according to Einstein and Galileo.

So while there may have been traditional practices, a body of literature established/used, if it's not based on observation and evidence that you can test, then it doesn't qualify as science. That was the main point that was attempted to be made in the PCAST report. The PCAST report, unlike some of the ways that it has blown up, is very limited; it's on pattern matching, and not all of pattern matching but the pieces of pattern matching where we were confident, where you could put metrics on the measurements and then say we have a good way to proceed with arguments.

The other part of the PCAST report was indeed on probative testimony in the courts. I suspect that you've probably tried cases where you've had forensic experts perhaps use some variation of the term "scientific certainty." For those of us who are scientists outside of the discipline, that rings a bell because I don't think there's any other part of science where that expression would exist. That suggests that within the forensic sciences, there's something that's very different about understanding the definition of science.

That also suggests that it's extraordinarily important that forensic science include in its conversation scientists who are not part of the company, who are not part of the community, because we will bring you back – this community – we will bring you back to what science is as it has developed in the entire Western tradition.

My final comment is I've been the last couple of days talking to a couple of reporters because they've noted the sunsetting of this group. And let me use this as an opportunity to thank every single Commissioner around this table; I have learned a tremendous amount about this community. I am still a student of this community. I think most of you have concluded I'm pretty collaborative; but the part of this community I find that is likely the most resistant to change is the part of the community that you represent. So with this, I'm finished; and any response that you'd like to make, I'd love to hear.

BILL FITZPATRICK: Very, very quickly, I don't know the circumstances of an officer drawing a gun on you; but I think it's that type of logic that has something to do with what this group is doing that permeated the PCAST report.

Secondly, the fact that NDAA criticized the report before it was actually published is actually not correct; what we criticized was a version of the PCAST report in the *New York Times* leaked to them by a PCAST member before the appropriate community had a chance to examine it and comment on it. The National DAs Association has written a very, very extensive critique of the PCAST report which, in my judgment, has had zero effect on any criminal justice matter in the state of New York. I can't speak for the other 49 states.

NELSON SANTOS: Let's go to you, Suzanne, since I missed you the last time; and then we'll come back – a couple more, and then we'll break.

SUZANNE BELL: Bless you, Nelson.

I think my colleagues have done a great job of defending the role of independent science. So I want to direct a question to the panel; and this is more about cases where we see, like for example, where drug tests in the field are used and end up in plea bargaining convictions, so the juries never get to see this. Is the answer to that kind of problem – because one of the things, and I'd talked to Peter about this, it seems to me that one of the core issues is lack of access to scientists by all parties. And it's appalling to me to read about those cases because drug chemists know what (inaudible) tests are for. They're not for identifying drugs; they're for something different. They're for screening presumptive; but there never was, except in the 1860s, that's not what they're for.

Similarly when things that scientifically have really been debunked, yet they keep getting into court. And the scientists amongst us, all of us, are probably just shaking our heads and saying, "How can this continue to happen?"

So my question to the panel is in particular thinking about plea bargain cases, which are the vast majority of cases now, how does forensic science get in the game; and how do scientists get in the game, and how can they get integrated into the system to help address those kinds of issues? And that's to all of you. Thank you.

DAVID WAXSE: It all gets back to the proper education of the lawyers and judges because the lawyers involved in those plea negotiations should not let the fact that a field test that's not valid determine whether their client pleads guilty.

One of the sad things is the Supreme Court got into this area years and years ago with a Delbert decision that said, in essence, scientific approaches need to be taken to evidence; and the simple things of you have to have the science in a situation that can be replicated and can be tested. It's now been put in a Federal Rule of Evidence; 702 says almost the same thing. And yet, we have all these cases where it's not being followed. I hope it's just simply because they've not learned – the lawyers or the judges – that it's there and it needs to be followed. The sad thing would be if they recognize it and still ignore it.

BILL FITZPATRICK: Susanne, this may be a little off topic but one of the great problems that we have in New York is the dangers now of field testing. Some of these concoctions that are out there can be so dangerous to the officer that you almost have to wear a hazmat suit. I'm only speaking for my community. In other major metropolitan areas, a young man comes in and the field test was positive for X. If he wants to get the hell out of there, he pleads guilty, not realizing the ramifications of a long-term criminal conviction. That would never happen in my community which, as I said, is about half a million people. We would never take a plea until the drug has been properly identified.

But in terms of – and forgive me, I don't know your background; but I would love to discuss this with you further if you have some ideas about that – how to improve that system – not only for officer safety, but for the accuracy of the results as well.

SUZANNE BELL: It seems like for there to be access to a review of something like that, external to that. I don't know if you'd consider making a BS in chemistry a requirement for law school, but that's not going to happen. But my concern is how do you say as a defense lawyer or – I mean, somebody is working on a plea agreement -- do you have a database where you can go and say, oh, here's somebody who will do this for me; who will look at this. Because reviewing a field test result or something along those lines, it seems like that's a resource that's not available to you; is that correct – in the plea bargaining stage? Because your jurisdiction, that's terrific; it may not be that way everywhere else, right? Anyway, that was my question, how can we address that?

VANESSA ANTOUN: I'll just briefly try to address it – not specifically in the terms of the field tests, but generally speaking the use of lab reports in a plea negotiation or what might cause someone to enter a plea. Two of the things that have been addressed are the training, but also the communication with the forensic analyst who did the results. Letting the prosecutor know this is what it means, letting the defense attorney know this is what it means, and having them absorb that information can sometimes be two different things.

So I think there needs to, where possible, the lab report reflect as much information as it can to be able to explain what that result really means because there are many situations, and will continue to be many situations, where it's just the lawyers looking at it. And they don't have the funding or resources to ask an expert. So they look at it; they don't understand it; and the consequences can be serious. So hopefully, increased use of terminology that is maybe more understandable and part of it at least tailored to an understanding from the legal community.

DAVID WAXSE: I think one more little piece is that judges have an obligation to make sure that justice is being done. If you get a situation where it looks like both sides have not really done what they should have done to make sure this is the correct approach, the judge has an obligation to do that. And the judge has tools, as I mentioned in the beginning. Federal judges have the right to appoint their own experts. If you have a question as a judge as to what's being done here, you should not just go along with it because both sides have agreed; you have an obligation to make sure it's being done correctly.

NELSON SANTOS: Okay, we've got to break for lunch so they can distribute it.

Julia, your tent was up and Matt; and then we'll close it. sorry.

JULIA LEIGHTON: I wanted to address Greg.

I think that there was an important question that you put, where you were essentially asking about whether the defense is adopting some of the recommendations. And I wanted to point to that directly. Actually, I do a lot of training; that's what you do when you retire. You don't *do* anymore; you teach. And we are in the process of planning training where one of the things we're talking about is the various recommendations of this Committee, with an eye towards getting the courts to adopt them and therefore uniformly apply them.

The reason I don't turn around to you, my client, and say, "Hey, is it okay with you? This jurisdiction let's everybody use reasonable degree of scientific certainty. But you and I, we're going to take the high road; and we're not going to do it. But by the way, you didn't get to pick me as your lawyer; I was court appointed to you."

So I can't, if you will, unilaterally disarm on essentially the cases of poor people that can't afford lawyers. What I can do, and what we are doing, is training people about these recommendations with the hopes of implementing them through the courts with the understanding that the courts, we hope, will apply them uniformly to both sides. And I think that that's the best role the defense can play because we have to represent the individual interests of each client, and I can't make policy decisions that might adversely impact an individual client. But there *is* a way to do this through the courts, which is the uniform application.

I think the ABA – Matt can address the ABA and what they're doing because I think they also are looking for ways to do uniform application.

GREGORY MOTTA: So if I could just say, my question was actually a factual question. Both of the witnesses had said they were tracking the documents and the recommendations and so on like that. So given the discussions we had here – which is if this language is deceiving to a jury, it's deceiving to a jury whether it comes from the mouth of a Government expert or a defense expert. In that sense, it doesn't support any end of justice.

So the natural question was these are nationwide organizations that represent lawyers who are outside of the Government service. What are they doing to address these issues relative to their old ranks?

With regard to defense experts, there are a number of defense experts who are routinely and regularly used. And the question, I think, does have to be asked of the defense expert, even in civil litigation on some of the issues we've look at. We haven't addressed civil litigation; but some of the very same issues of cause of death occur in wrongful death actions, all kinds of other things that we've discussed here.

So I guess the question really is for this population of lawyers who serve outside of Government service, are their associations looking at that and entering into a dialog with lawyers saying, "You need to be having these discussions; you're a defense expert. What are your limitations? What do you see? What are your reported crimes? How much open discussion are you allowing, and how is it consistent or inconsistent with the recommendation coming out of Commission and adopted by the Department? Because even though we have a limited mandate, unless I heard something wrong, these were issues that cut across all plains.

JULIA LEIGHTON: And my point is that we can do that. We can't dictate a policy and impose it on an individual defendant; but we *can* do it, and *are* doing it, by training and by getting people to make these requests of the courts. Then the courts can apply them, and presumably will apply them, to both sides.

GREGORY MOTTA: So I'll make sure I'm arrested in the District of Columbia?

JULIA LEIGHTON: Because…?

GREGORY MOTTA: Because that's where you practice.

MATTHEW REDLE: And, Greg, I'm this year's Chairman of the Criminal Justice Section of the ABA. I want you to know that the ABA had already adopted policy by way of a resolution that came through the Criminal Justice section on many of the topics that we've weighed in on since and adopted. They have been displayed in our publications and available to practitioners; but like, as frequently happens, that hasn't been enough; and we're looking at other ways of doing that.

Additionally, it's my understanding that the leak of the PCAST report to the *New York Times* may very well not have come from a PCAST member but rather from some individual in Government.

NELSON SANTOS: You know, I wish I had the standards like they do at the confirmation hearings where you get two minutes and then they defer time. It's hard to control. One minute, please, because we've got to break.

PETER NEUFELD: Just three things, just to clear them up – one is that – and I appreciate Bill, as an honorable person mentioning our work; but I think there are a couple of misunderstandings here.

Professor Gates, there were meetings of the New York Commission; but, frankly, they were dysfunctional. In contrast to the work of the Texas Commission, that New York Commission not once in 20 years ever reviewed a body of cases where wrongful convictions had occurred and attempted to do an audit. In fact, whereas 12 states decided to do their own error reviews, New York simply said, "No," and kicked the bucket to an Attorney General.

Two, there has been a case recently in New York, contrary to Mr. Fitzpatrick's assertion, that actually *did* rely on the thinking of the PCAST report to suppress expert testimony from a handwriting example. It happened in the fall of 2016 in New York City.

Three, and most importantly, is I think that Mr. Fitzpatrick's statement on behalf of the NDAA where he says that *he* knows that these disciplines are scientifically reliable, including bite marks, is exactly the reason why *this* Commission, by more than two-thirds vote, decided that those kinds of decisions and assessments should not be made by prosecutors, should not be made by defense attorneys, but should

be made by an independent scientific body. And it's why *this* body, *this* group, voted to recommend that NIST take on that responsibility, just to avoid those kinds of categorical pronouncements by people like you and me, who are basically scientifically illiterate and said that in the interim, until NIST can do that, that other *independent* scientific bodies are free to do it as well.

But those decisions about reliability and validity should not be coming from lawyers making those decisions, when they don't know better. They should be coming from independent scientists. And I only hope that NIST continues to take on that responsibility and other independent scientific groups do it as well. Thank you.

NELSON SANTOS: Do you have a comment?

BILL FITZPATRICK: Yes, as you usually do, Peter – as you do in New York – you usually wait till the end and think you can get the last word on something. I have never used bite marks in a case. The only times I have ever used bite marks is to exonerate an individual. The case that you're very familiar with in my jurisdiction, it was actually the withholding of legitimate bite mark evidence that led to a conviction.

I'm not saying that bite marks are the equivalent of fingerprints or DNA. If you listened to what I say, exactly what I said, these decisions should not be made by Commissions.

PETER NEUFELD: That's not what you said in the first paragraph, Bill. You said—

BILL FITZPATRICK: I see that nothing about you has changed.

NELSON SANTOS: Excuse me, wait, wait, wait, I wish I had the control that the Chairman at confirmation. Okay, that's fine, but it's getting argumentative and it's not productive at this point.

(inaudible)

NELSON SANTOS: I understand, but it's not productive. You said your thing. Let's break. Thank you. Please come back at 11:40 a.m.