UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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In the matter of: *
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FORUM ON SAFETY, MOBILITY AND *
THE AGING DRIVER *
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NTSB Board Room and Conference Center
490 L'Enfant Plaza
Washington, D.C. 20024

Wednesday
November 10, 2010

The above-entitled matter came on for hearing, pursuant to Notice, at 9:00 a.m.

BEFORE: DEBORAH A. P. HERSMAN, Chairman

APPEARANCES:

NTSB Technical Panel

DEBORAH A. P. HERSMAN, Chairman
BRUCE MAGLADRY, Director, Office of Highway Safety
STEVE BLACKISTONE, Acting Chief, Safety Advocacy Division
ELISA R. BRAVER, Ph.D., Transportation Research Analyst, Office of Research and Engineering
DEBORAH BRUCE, Ph.D., Project Manager, Office of Highway Safety
IVAN CHEUNG, Ph.D., Transportation Research Analyst, Office of Research and Engineering
DENNIS COLLINS, Senior Accident Investigator (Human Performance), Office of Highway Safety
STEPHANIE DAVIS, Safety Advocate, Office of Communications
MITCH GARBER, M.D., Medical Officer
ROBERT MOLLOY, Ph.D., Chief, Report Development Division, Office of Highway Safety
KRISTIN POLAND, Ph.D., Senior Biomechanical Engineer, Vehicle Performance Division

Witness Panel 4

LISA J. MOLNAR, MHSA, University of Michigan Transportation Research Institute (UMTRI)
RICHARD MAROTTOLI, M.D., MPH, Yale University of Medicine
ARTHUR KRAMER, Ph.D., Director, Beckman Institute for Advanced Science and Technologies, University of Illinois
ELIN SCHOLD DAVIS, OTR/L, American Occupational Therapy Association (AOTA)

Witness Panel 5

JANE STUTTS, Ph.D., University of North Carolina (UNC) Highway Safety Research Center
CARL SODERSTROM, M.D., Maryland Department of Transportation (Maryland DOT)
ESSIE WAGNER, Program Analyst, National Highway Traffic Safety Administration (NHTSA)
LOREN STAPLIN, Ph.D., TransAnalytics

APPEARANCES (Cont.)

Interested Parties

RICHARD ASHTON, International Association of Chiefs of Police (IACP)
THOMAS MANUEL, American Association of Motor Vehicle Administrators (AAMVA)
BARBARA HARSHA, Governors Highway Safety Association (GHSA)
JONATHAN KING, National Institute on Aging (NIA)
BETH ALICANDRI, Federal Highway Administration (FHWA)
JOHN MADDOX, NHTSA
SCOTT SCHMIDT, Alliance of Automobile Manufacturers
KELLY BRAITMAN, Insurance Institute for Highway Safety (IIHS)
JUREK GRABOWSKI, AAA Foundation
JACOB NELSON, AAA Foundation
RODNEY PEELE, American Optometric Association (AOA)
ELIN SCHOLD DAVIS, AOTA
JANA LYNOTT, AARP
NANCY BELL, AARP
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ELINOR GINSLER, AARP
JEFF MICHAEL, NHTSA

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P R O C E E D I N G S

(9:00 a.m.)

CHAIRMAN HERSMAN: Good morning and welcome back. Welcome to our second day of the Safety, Mobility and Aging Driver public forum.

Yesterday, our three panels discussed the safety risk posed by aging drivers and we established that, with the exception of the very old, there was not really a disproportionate crash risk associated with aging drivers. However, when the elderly are involved in a crash, they're more likely to be fatally injured because of their frailty and low tolerance for injuries.

We looked at what vehicle occupant protection systems could do to improve crash outcomes for the elderly and we also looked at what technology and highway designs could do to improve the performance of aging drivers and all drivers in general.

So today, we're going to turn to our last two panels and the first panel looks at enhancing driver performance. This panel will be discussing the ways that we assess driver capability, both in terms of mental and physical abilities. The initial question will be how do we assess performance? An assortment of tests and evaluation approaches will be covered in the panel today: road tests, vision tests, occupational therapy abilities for driving testing, medical assessments, medical review boards and self evaluations. A great deal of public interest has been focused on driver screening methods and the panel will open with a survey of

that work.

Once a limitation or a performance decrement is identified, the focus shifts to a second important question, what can be done to remediate the driver?

Dr. Deborah Bruce and Dr. Ivan Cheung have prepared questions for this panel. Dr. Bruce, will you please introduce the panelists?

DR. BRUCE: Good morning.

Lisa Molnar is a lead research associate at the University of Michigan Transportation Institute's behavioral sciences group. She joined UMTRI in 1986 and her primary areas of interest are traffic safety and driver behavior. Ms. Molnar holds a BA in sociology from Michigan State University and a master's in health services administration in public health policy and administration from the University of Michigan. She's co-author of a recent book, *Maintaining Safe Mobility in an Aging Society*.

Dr. Richard Marottoli is an associate professor of medicine at the Yale University School of Medicine. He's also a medical director of the Alder Geriatric Assessment Center at Yale-New Haven Hospital and he is a staff physician at the Veteran's Administration Connecticut Health Care System. He received his undergraduate and medical and public health degrees from Yale University. Among many things, he's the former chair of the TRB Committee on the Safe Mobility of Older Persons and a member of the Connecticut Department of Motor Vehicle Medical Advisory

Board.

Dr. Art Kramer is the director of the Beckman Institute for Advanced Science and Technology at the Swanland, chair and professor of psychology and neuroscience at the University of Illinois. Professor Kramer served as an associate editor of *Perception in Psychophysics* and is currently a member of seven editorial boards. He is a recent recipient of the NIH Tenure Merit Award. He received his Ph.D. in cognitive experimental psychology from the University of Illinois.

Elin Schold Davis has coordinated the American Occupational Therapy Association's Older Driver Initiative since 2003. She is a registered, licensed occupational therapist and a certified driving rehabilitation specialist. She holds a BS in occupational therapy from the University of Minnesota and has been an occupational therapist for 30 years.

Thank you all for coming.

I would like to start with Lisa. I often see screening and assessment as sort of paired in the same sentence. Would you give us a general description of driver screening and maybe distinguish it from assessment?

MS. MOLNAR: Madam Chair. Just by way of background, you know, as we heard during many of the sessions yesterday, driving is a complex task that requires visual, cognitive and motor abilities, and as we age, most people experience some loss in these abilities due to medical conditions that become more

prevalent with aging and also, the medications used to treat them. And we know that this process has a lot of variability from individual to individual.

People are very unique and the older driver population is very heterogeneous so making informed decisions about driving really requires meaningful information about driver's functional abilities. So the issue of evaluating driver fitness, which is what we really want to talk about today, is really complex and it's often controversial for a number of reasons. And one that you just mentioned is that often there's a lack of clarity about the difference between screening and assessment. And I'll be talking about that.

So in the work that we've done at the University of Michigan, and I think that among many other researchers, policy makers and practitioners, this is becoming also the case, there needs to be a clear distinction between what we mean when we talk about screening and what we mean when we talk about assessment. So screening and assessment really represent different and distinct domains of driver evaluation and screening is really the first step in a multi-tiered process. It's not something that, in and of itself, should be used for making licensing decisions.

On the other hand, assessment provides a basis for identifying reasons for functional deficits, determining the extent of driving impairment and making recommendations about licensing actions. And also, identifying options for driving

compensation or remediation, which I know we'll be talking about later on in the panel.

So when we think about driver screening, we're talking, again, as I said, about the first step in a multi-tiered process. Screening is something that we use to identify very obvious impairments in functional abilities and vision cognition, psychomotor skills. It's intended to lead to more in-depth evaluation if gross impairments are identified, but it should not be used to make final licensing decisions. And again, driver assessment provides the basis for identifying the reasons for the functional deficits that might be observed and the extent of driving impairment. It's used to identify options for driving compensation or remediation recommendations and licensing actions.

And so as we conceptualize driver screening, we think about it, really, as part of a more multi-faceted, multi-disciplinary approach to driver evaluation. It's something that can occur in a variety of settings and at various levels of complexity.

Yesterday, we heard Dr. Dobbs talk about a process of identification of drivers, assessment, and then options at the end for maintaining mobility. And screening is really that part of the identification process that involves a number of players from the community. It's done in licensing agencies. It's done in physician offices and other clinical settings, by occupational therapists. It's something that can be done by law enforcement

who are making traffic stops of older drivers. It's something that's also done in the community, by friends and family members of older drivers who might be experiencing problems and it's done by older drivers themselves.

So it is part of a comprehensive, multi-faceted, multi-disciplinary approach to drivers who may be at risk. That being said, I think it's important, as was said many times yesterday, that when we talk about identifying drivers who may be at risk, we're focusing on the safety aspects of transportation. We can't lose sight of the fact that, although it's important as researchers, policy makers and practitioners to find effective ways to identify drivers who may be at risk, we need to also think about how we can provide community support to drivers who are not able to drive or who choose not to continue driving so that they can maintain their independence and well-being and quality of life.

DR. BRUCE: Thank you. So I'm hearing you say that we need to do screening by medical providers, social services providers, law enforcement, licensing, older drivers, caregivers?

MS. MOLNAR: Um-hum.

DR. BRUCE: Those are a lot of different players and I would assume that the screening tools differ. So would you give us some discussion about the types of tools, self-assessment tools and the value of each of those?

MS. MOLNAR: Yes, I would be happy to.

So as I mentioned, screening can be done in a variety of settings and in the licensing agency, for example, there are a number of forms that screening can take. Observations can be made of people as they come in to the counter to renew their license or take care of licensing issues. I'll get to -- there's also review of medical history that can occur in the licensing agency and there are a variety of tests that can be done in the licensing setting to screen for deficits in vision, cognition and psychomotor skills.

Within the physician's office, there are also a number of tools that are available for physicians. Physicians have a unique opportunity to screen as part of regular medical care and treatment. One of the challenges has been that many physicians feel that they don't have the tools to really make fitness to drive decisions. And also, there are issues of not wanting to really disrupt the patient/physician relationship.

And so screening, I think, really, you know, offers an opportunity to intervene early to identify red flags and if necessary, refer patients on for more in-depth assessment. Some of the work that's been done in the physician area has included developing guides for physicians like the AMA Guide for Assessing and Counseling Older Drivers that offers information about the kinds of red flags that might alert a physician to something that might be problematic with driving. The physicians' guide also contains a screening battery called the ADReS, which has a series

of tests that can be administered.

And similarly, in the licensing area, there's been a lot of work on developing some protocols for doing observations at the counter, as well as developing batteries that look at the kinds of limitations in physical functioning that we know are associated with problems with driving.

Having said all of that -- I guess now, if you could go to the state of the research?

UNIDENTIFIED SPEAKER: Slide 3.

MS. MOLNAR: So having said that, I think that, you know, in general, although there's been a lot of research to develop screening tools that are valid, reliable, low cost and easily administered, these are particular constraints faced by physicians and licensing agencies.

To date, there are really no tools that have been developed that satisfy all of these components. We've been doing the research for a long time. That research continues on ways to improve the sensitivity, which is maximizing the correct decisions that an individual is a high, you know, crash risk and the specificity, which is minimizing the incorrect decisions that an individual is a high crash risk.

So that research continues and hopefully I'll have an opportunity to talk more about some of that, but in the meantime, I think there's widespread consensus, as came out of yesterday's discussion, that screening tools really need to focus on looking

at these functional declines in vision, cognition and psychomotor as opposed to focusing on age, per se, or even looking at the complex array of medical conditions that people might be experiencing.

And then, in addition to, I think, the licensing agencies and physician and clinical settings, I mentioned law enforcement has an opportunity to do screening at the roadside. And there have been a number of efforts over the last several years to develop curriculums and training materials for law enforcement so that they have a standardized way of using cues to look at drivers who they may have stopped during a traffic stop and make a determination of whether there seems to be some impairment. A lot of these cues have to do with cognitive functioning.

So, for example, they might include something like, you know, assessing whether the person is oriented in time and space, you know, where they -- if they're getting lost and they don't know where they are or where they're going, those kinds of cues that can then lead to referrals for more in-depth assessment.

DR. BRUCE: All right. Thank you.

I recently went to my DMV to turn in my motor scooter license, so I've got some questions about how the practicality of that might work. But I'm going to, in the interest of time, proceed on through the panels and go through the questions by the parties. And then, if there are any at the end, I'll reserve my

time for then.

So with that, I'm going to turn to Ivan Cheung and Dr. Marottoli.

DR. CHEUNG: Good morning.

Dr. Richard Marottoli is an associate professor at the Yale University of Medicine and we're going to talk -- we're going to ask Dr. Marottoli and talk about some of the cognitive assessments. And please give us your introduction.

DR. MAROTTOLI: Thank you, Dr. Cheung.

I would like to start just by talking, giving an overview from the medical perspective sort of more broadly and then I think we can get into some of the individual aspects. I also didn't bring any slides, so -- but if there are specific things that people want, let me know. I can get you slides.

DR. BRUCE: If you have any you want to submit, just send them to me --

DR. MAROTTOLI: Okay.

DR. BRUCE: -- and I'll put them in the docket.

DR. MAROTTOLI: Will do.

So I would just like to cover, sort of, from the -- thinking from the clinician's end of the process, sort of what is realistic to expect and why do people need to get involved. So why should we evaluate, what do we evaluate, how, who does it and what do we do with the information. And then, I think from there, a lot of the other questions will come.

We heard about sort of the demographic imperative, which is a large part of the why, but also there is the issue that was raised earlier about the clinician's role in concern about the safety and health and quality of life of their patients as well, which is another reason to get involved.

In terms of what to assess, I would argue that actually, there is a benefit to looking at diseases and conditions in addition to functional abilities and impairments, in part because we're looking also for interventions and we're looking for things that we can improve. And in this patient population, this age group, oftentimes, our ability to intervene is limited in terms of the extent to which we can make a big difference.

So if we can have several different avenues and make smaller improvements in each of those, hopefully, cumulatively, there will be an additional benefit. So I think both the disease process in terms of its manifestations and severity and also, functional impairments that result either from the disease or from the aging process alone are both avenues for both assessment and intervention.

The third arm of possible, both things to look at and intervene upon, are medications and this was touched on briefly yesterday in the question of polypharmacy. But there are many different categories of medications that can have both beneficial and potentially negative effects on either the conditions that they're being used to treat, but also on abilities relevant to the

driving task.

In terms of how we assess that, there are a variety of ranges and it was covered a bit in terms of the specific aspects of vision, visual acuity, visual fields, contrast sensitivity, cognitive ability or a variety of different global measures that can potentially be used by clinicians, as well as looking at individual cognitive domains. The ones of those that come up most often are things like information processing speed, attention in a variety of forms, visual spatial ability and executive function. And then, lastly, physically ability, particularly rage of motion and speed of movement are the two areas.

One area that tends not to get looked at a lot, but that comes back and is relevant to everything, particularly, and we talk about patients with cognitive impairment, is issue of awareness or insight in deficits. And we're trying to think about interventions and having people change or modify their behavior, their awareness or insight into their deficits is critical in recognizing the need for change.

We also, clinically, also like to have some measure of driving performance. So it's nice to have all these assessments of different capabilities, but in terms of convincing people the need for a change, it's really helpful to relate those to how people actually drive. And we have the advantage of often having families in their clinic visit, so we'll recommend the families ride with them and get a sense of that. That's helpful in

providing both information, also in affecting that change ultimately. Oftentimes, particularly for cognitively impaired patients, it's the family that ends up having to actually do the dirty work in terms of making that transition. So it's helpful to have them on board with that. And there are also formal assessments that can be done and Elin, I believe, will talk a bit more about those.

Then we get to the question of who does the actual screening, assessment, et cetera, and this was touched on briefly. But I mean the issue is sort of the self-assessment, the driver themselves; their clinician, office staff; or lastly, a licensing agency. And there are pros and cons of each of those.

Then the last segment of issues is what to do with that information. And ultimately, the goal of gathering that information is to convince, from the clinical perspective, to convince the clinician of the need for change and then, ultimately, to convince the patient or driver and the family that indeed change is necessary and what that change should be. So that's the ultimate purpose of gathering that information and then transmitting it, and also, to identify interventions where adaptive strategies that may help ameliorate some of these problems and allow people to continue driving for a longer period of time more safely. And lastly then, the issue of reporting to licensing agencies and how that process goes on.

I think there have been -- from a Gestalt perspective,

there have been two major areas of development over the course of the last 10 to 15 years in this and one that's been touched on by a number of speakers, and that's the appreciation of a more holistic approach to this, rather than just dealing specifically with the issue of driving or not driving or licensing and not licensing, but really looking at the broader perspective of a person's mobility and how they get where they need to go and their ability to fill in that void if they're not able to drive or choose not to drive.

And then, secondly, is increasing evidence for the effectiveness of a number of interventions, particularly relating to those functional abilities I outlined, which, hopefully, over time, will allow us to really sort of change the tenor of a lot of that discussion from one that's very negative to something that's slightly more positive in the process. And there are also a variety of education interventions that can work more broadly rather than focusing on specific individual functional abilities, but take the actual driving task and look at that in more detail.

DR. CHEUNG: Thank you, Dr. Marottoli, and thank you for giving us a very good succinct distinction between various medical conditions and functional ability.

And I'm wondering if you can comment on some of this distinctly different professional training that our medical care professions need in order to deal with those very different aspects of driving performances?

DR. MAROTTOLI: So that's a difficult question because there's many different levels at which one could answer that. First is getting people, clinicians to recognize that it's something they should do in the first place. And I think that that's an initial barrier that needs to be overcome. And partly that's because there's a negative perception to the issue and the negative effects it has on the clinician/patient relationship. And secondly is the broader issue of not knowing what to actually do and the third is what happens to that information after the clinician gathers it. And so, potentially, each of those are areas to look into.

I think, from the first perspective is convincing them of the need from a clinical perspective that it's really the safety and the mobility of their patient that is of interest. And this is part of that, as well as their obligation to society in terms of public health and public safety and working on that aspect. And most people will recognize that and weigh that against potential negative effects on their patient.

The second is the issue of what specifically to address and that, again, depends on, I think, what we realistically want people to do, as well as what they will do or can do. And I think focusing on sort of the medical aspects, both the conditions and functional impairments potentially related to that, is realistic. I think a lot of people have difficulty then making the next step of linking that to driving safety implications.

And so I think, to the extent that one can focus the physician's task or the clinician's task to something more limited, specifically on the nature and presence, severity of a condition or a functional impairment, I think there's a greater likelihood of getting people to do it.

And then there are also the issues of specific tools or things that they can do fairly readily in the clinician's office. And there are a lot of different tools out there, a lot of different things that have been looked at, many of which are impractical in that setting. And it's becoming increasingly difficult because time is of the essence. There is a limited number of things that people can do in that setting and I think everything that we look at has to be considered in terms of its potential burden in displacing something else from that interaction. And so those are tradeoffs that we need to think about.

And lastly is the issue of what happens to that information afterwards. And partly it's sort of dealing in discussions with patients and families about affecting a change, and then separately and perhaps the subject of a much longer discourse is the issue of reporting and actually providing that information to a licensing agency. And I think -- I won't go into detail on that. We can deal with it with specific questions.

But I think, again, keeping that process as transparent as possible, making sure that everyone understands their

responsibilities; the driver, as well as the clinician knows what their obligations and responsibilities are in that jurisdiction and then having a process that is as straightforward and simple as possible and that also provides some communication back and forth. It tends not to be a two-way street in most areas, so we're asking clinicians to provide that information to a licensing agency, but very often there's no information that comes back unless there's an irate patient or family that then comes back and is very angry about the nature of that. But the clinician is often clueless as to what actually happened or transpired. So some way of feeding that information back akin to the more typical medical consultation where you ask someone to provide input, they then send a letter or a note back saying this is what my impression was or this is what happened, anyway, and I think that would facilitate some of that interaction as well.

DR. CHEUNG: Thank you.

Just one more question before we move on to Dr. Kramer. Dr. Dobbs yesterday talks about premature driving cessation, particularly for older women. And do you think that, are these drivers really underestimating their own competency, or perhaps our current assessments or screening tools or process are actually not picking up some of the problem that they actually experience?

DR. MAROTTOLI: Yeah. I think that's a very good question. Obviously, premature is a relative term in terms of this and we tend to typically hear about this when it's in the

other end of the spectrum and people go on too long, as the video yesterday demonstrated so nicely. And those are the ones that really come to the public's attention, come to our attention and really sort of create a media flurry.

We tend to hear very little or know very little, in fact, about appropriate cessation and premature cessation. And I suspect that it does occur a lot, but there are a number of studies, even looking -- even in cognitively impaired populations, suggesting that by the time they reach either a dementia assessment center or a geriatric assessment center, most people have already stopped driving.

So, in fact, they're regulating in some way on their own or with their family or primary physician's input. So they've made that determination. It's a relatively small proportion that go beyond that, fortunately; an infinitesimal proportion that really is the problem one who refuses under any circumstance.

But I think it is worth understanding what contributes to people stopping and this question of prematurely stopping. Is it outside influences that force them to do that, other people's impressions of their driving capability, or do they have some innate sense that they're just uncomfortable with that and they're better at figuring that out than we are. And therefore, it's not really premature, but it's appropriate for that person and I just think we don't really have a good way of measuring that precisely and really identifying that information at present.

DR. CHEUNG: Thank you very much.

Dr. Kramer, would you please give us your remark?

DR. KRAMER: Sure. Well, thank you for inviting me. I appreciate being here. My task was to talk about driver enhancement through cognitive training, so I'll be a bit more focused than the last two presenters.

And what I wanted to start by saying is that most cognitive training programs are still in the experimental stage. Think of it as a Phase II drug trial, I suppose, if we want to apply it to drugs. But there are an increasing number of commercial products that purport to improve driver training. In fact, some of them even advertise that if you go through this training program, you can reduce accident rates by 50 percent. And I think it's worth evaluating them in terms -- with the same level of scrutiny that we evaluate drugs in drug trials because I think they can have same benefit or -- and/or harm depending upon what the assessment is.

My bottom line, to start with a bottom line, is that there is some interesting and potentially promising results from these cognitive training programs. But if I was to evaluate them by virtue of the same information that is used in National Institute of Health consensus statements to evaluate research in a particular field, and I did participate in one of these within the last year on Alzheimer's and aging, I would say at present, given the present state of refereed journal articles, the evidence is

weak at best, and let me tell you why I say that.

Even the gold standards, and by gold standard, I mean the randomized control trials that have randomly put people into one training group, another training group, or perhaps a control group. And control groups are always tough because no contact controls have their disadvantages. It's a control group that often gets used but perhaps isn't the optimal one.

When we look at those randomized control groups, control studies, there aren't many, number one. They tend to be underpowered quite substantially, number two. Number three, the effect sizes tend to be rather small. And what I mean by that is small in a statistical sense in terms of effect size, but also small in terms of the number of variables that are relevant to driving that show changes, that is, beneficial effects from various cognitive training programs.

I'm not going to mention any particular studies unless you decide you want me to do that. But perhaps one of the gold standard studies compared one cognitive training program that looks promising, by the way, in terms of on-the-road driving and driving simulation -- those were the outcome variables prior to and subsequent to the training program -- and found a benefit for 1 out of 19 variables. Simulator training, which has been around for a long time, both in aviation as well as driving, and in many fields, actually showed two beneficial effects for two different variables.

So I'm not suggesting that cognitive training programs aren't efficacious. I'm suggesting we need to collect the kind of data that we collect for drug trials and other kinds of trials; that is, set the same high bar and standard for these trials.

I think it's also the case that we maybe, as scientists, and I am a scientist as well as a research administrator, haven't been creative enough in terms of the kinds of cognitive training programs we've pursued. And as we've already heard from our two speakers, this is really a multivariate problem. It's not a univariate problem in which it's just one aspect of cognition or one aspect of perception or physical function or disease or polypharmacy, but truly, a multivariate problem. And in terms of cognitive training, we don't focus on the complete -- the richness of this problem, the multivariate sense; we tend to focus on particular areas. And I think this is even true with respect to cognition.

Some of the programs focus on what's called speed of processing, which is probably much more than that when you look at the specifics of the training programs, but there are many other aspects of sensory function, whether it's vision or hearing, motor function, and cognition in terms of visual spatial memory, executive control, as well as perception and speed of processing that may be important. So I think we need to look at -- we really need to look at the breadth of the cognitive changes that take place and, of course, with respect to the assessments, how they

relate to driving performance to use them in a theoretically principled way to target in terms of our training interventions.

I think, in addition to the randomized control trials, which really are the gold standard, we need more observational studies. Think of it as epidemiology for driving, in which we track different driver populations based on the choices they make in life, at least to give us hints as to what randomized control trials we might perform in the future. And again, there are precious few of those -- of the observational studies that would provide information and hints as to what kinds of training interventions we might pursue.

I think just like drug trials, we need broader replication of the promising results we've seen. We need independent validation -- these studies tend to be done at a very small set of laboratories -- again, for us to have some assurance that they really are broadly applicable. We need to go beyond single laboratories or groups of researchers.

I think even more importantly, we need to understand mechanism and I think for many of the training approaches that are pursued today, there are most black box engineering approaches, and I don't say that pejoratively because I taught in engineering for 15 years at the University of Illinois. But they work in some cases. They give you small, positive benefits. Of course, we need replication, but why they work, just like why drugs have particular actions. Knowing the molecular pathways tends to be

very important to understanding the process and more specifically and maybe more effectively targeting the intervention. So we need much more detail about mechanism and studies that focus on mechanisms so we understand what's going on.

I think stratified sampling is very important and many of the studies that have been done have focused on individuals that are older and individuals that have very specific problems, whether it's in vision or visual attention or what have you. So we really don't know, if we look at these studies, how these training interventions and these successes, even with small effects, apply to the broader community of older and middle-aged. In fact, middle-aged people are pretty much ignored in many of these studies. So I think we need to move on with that.

Accidents are certainly the bottom line, the gold standard in terms of the outcome variables, but it takes a large study to get enough accidents to make much sense of the data. And I think there are a number of studies in the literature now, that if you look at them, the data doesn't make a whole lot of sense, perhaps because the sample size is so small. So I think we need to come up with better proxies, better proxy measures, just as we do in terms of drug target effects, for accidents; that we can have some faith in that are both valid and reliable in being related to accidents so we can use them in simulator studies or on the road studies or randomized control trials.

That's my statement.

DR. CHEUNG: Thank you, Dr. Kramer.

DR. KRAMER: Sure.

DR. CHEUNG: And I guess the take-home message is that there is some positive sign, but at the same time it needs to be -- you know, concerns and that it be cautionary, taking the process.

You know, I'm wondering if you can give us a -- sort of like a high level observation. Can we actually say that perhaps some of these positive evidence of the effectiveness of all this cognitive training, perhaps maybe they were -- you know, some the people who takes all these cognitive trainings, actually the safer subsets of the older driver.

DR. KRAMER: Yeah.

DR. CHEUNG: And so therefore, we really don't know a lot about the driving history of them in comparison to those who actually don't take all these cognitive training.

DR. KRAMER: Sure. I think this is a problem we have in any study, be it a drug study or a driving study. Certain people volunteer for studies and we always have to worry about those not volunteering who might need it the most. But it has been the case with a number of these -- not all, but with a number of these cognitive training studies, that the researches have specifically selected individuals who did poorly on some screening test. And it's often a screening test of visual attention or processing speed or what have you, probably both of the above.

So I think population is very important. Volunteers tend not to be representative of the whole population. We need to be careful about that, but at least in some of the studies, they have targeted people who had deficiencies in certain functions that have been related to driving.

DR. CHEUNG: Great. Thank you.

I did have one more question before we move on to the next panelist. Yesterday, we heard a lot about, you know, the newer technology, the newer vehicles, actually, perhaps collecting a lot of data about their own driving. Do you think that the advancement of that kind of technology may perhaps help us out with, you know, what you have just described to us about a lack of observational data that perhaps can be a better case for cognitive training.

DR. KRAMER: I think that's certainly the case. I mean, it seems very similar to the whole research domain of bioinformatics and gene-wide screens. We can collect a massive amount of physiological data, health data, genetic data. The question then is what do we do about it? And we can take a brute force approach. There are many modeling techniques that we can use to look at the relationship of that data to some outcome: accident rates, mortality, what have you. Or we can take a more principled approach. And maybe we need to take both, and a more theoretically driven approach based on some of the information that we heard from the first two speakers about the kinds of

problems that older adults have and how those problems, in terms of physical function, disease, polypharmacy, cognition, sensory function, motor function, relate to driving.

So I think there are a number of ways to use the kinds of data that the sensors that now exist and are possible in automobiles might be used to build models in -- for large populations and really stratify the populations. Of course, there is always the issue of confidentiality here too.

DR. BRUCE: Thank you.

So we're actually marching down this multi-tier process that we first introduced with the panel. So we start with screening, trying to identify candidates who need to be evaluated. We look at cognitive testing as one aspect, one type of that evaluation. We presented the question to Dr. Kramer of, once we've identified that, what do we think about cognitive training? And we've gotten to the end of the table. Elin Schold Davis is the occupational therapist who is often called in to actually take what we have decided is a driver problem and see what can be done to either further assess it or to remediate it.

So my first sort of general question to you is, occupational therapy is a broad field and so I would like for you to describe what aspects of it -- what you actually do and then, more specifically, there is a driver rehabilitation specialist component of it that I want some description of. Thank you.

MS. SCHOLD DAVIS: Thank you. Thank you. And thank you

for inviting me and including me in this esteemed panel. So I appreciate the opportunity to speak on driver rehabilitation.

Yeah. Occupational therapy is a very broad field and we address activities of daily living and instrumental activities of daily living which are really core to people's functioning, their abilities to do the things that they want to do. When we look at driving, occupational therapists look at driving as an instrumental activity of daily living as -- and what Dr. Eby said yesterday, being the last in the panel is kind of handy because a lot of things have been said. So I will go through some of these very quickly, but to set the stage, again, we look at driving concerns as an issue of function, not an issue of age.

We have issues with driving across all age spans, but certainly, when we're looking at the older driver issues, we want to be looking at the minimum skill set that's required for the task of driving. So all occupational therapists, in their evaluation process, for a person that finds themselves in the rehabilitation setting or in the hospital setting will look at this minimum skill set in the domains of vision, physical ability and cognition.

And then we want to think about, would those impairments challenge one's role as a driver? Would those impairments challenge their critical roles of transporting other people, driving grandchildren? So we find seniors equally as concerned, making sure that they're safe to do these roles, participate in

these roles that they are responsible for, as well as doing these activities.

And so we want to be able to provide an evaluation that looks at that driver as an individual. As we've gone down the table, when Dr. Molnar was talking about screening, we're looking at more population-based criteria, cut points that help us recognize flags and when there's a concern. The driver rehab specialist is really there to look at the individual. And so we're part of the team and part of the process. Not everybody needs a comprehensive driving evaluation, but if it were you being told by the results of a screening tool that you needed to stop driving, would you want the opportunity to be having your individual situation looked at, your individual skills and abilities measured so that you have that opportunity to see if there's anything that can be done?

When I think of any diagnosis as catastrophic as a cancer diagnosis might be, the first question is what can I do about it? Is there anything I can do to restore this ability? And I think that's where the driver rehabilitation comes in to assist with that.

Driver rehab dates back to the beginning, really, of the vehicle. Franklin Roosevelt drove with hand controls. It originated looking at people with disabilities and assisting them with driving. It's important to keep in mind, when we see some of the variability and programs around the country, part of it is

related to the fact that the issue of older drivers, the issue of aging with medical conditions, really the issue of deciding when a person should stop, is somewhat new. It's new and being placed upon this field and it's really requiring a different skill set. Helping anyone be able to drive is a different skill set than deciding when they need to stop.

So thinking about the purposes for our evaluation and our intervention, it's really to see if we can ready somebody to drive and this could be the occupational therapy, the driver rehab or the medical setting. And then we can look -- in looking at what the key signs if somebody is in a declining condition, such as a dementia, of when they should stop.

Who administers a driving eval? We've had some discussion along with the different panel members, but I just want to make the point that there are different domains of where people enter this system. And different places -- unfortunately, we have a language problem that I think driving evaluation is a one name for many different services. These are very good services, but they have different personnel, different training and different outcomes.

At the driver licensing level, you have a performance-based test that's really a pass/fail. At a physician level, you have a medical -- you know, you're looking at the medical condition. At a driving school, their mission is to teach people to drive. A comprehensive driving evaluation by an OT is looking

at a mixture of the assessments that Lisa Molnar talked about, pulling them together to a comprehensive evaluation. We look at their history. We look at physical assessments, looking at concerns like their arthritis and how that might effect their driving, looking at getting in and out of a vehicle and loading their equipment. We look at visual perception. We look at cognition. We also add, for a comprehensive driving evaluation, the performance-based, behind-the-wheel assessments so that we can see how these impairments play out in the context on the road.

In many models, you need to kind of qualify to go on the road. Sometimes you don't need that part if there's enough impairment or lack of impairment to not need that specific on-road piece, but it's part of the package.

There are several possible interventions because in occupational therapy, if we do an evaluation, it's followed by treatment. When we try to figure out what a person's problem is, our mission is to then figure out what we can do about it. So our goal is to remediate. And I think it's important that -- a lot of times when we think about, I think, driving evaluations and older drivers, and the high profile media cases might be represented by a group that may fall into the dementia category in a group that is declining and isn't a candidate for restoring these sub-skills, but there's a bunch of people that are.

And we need to make sure that we not forget them and that we have the services so that if they have a remediable

problem, that we can develop interventions to assist them. Whether it's putting hand controls in their vehicle, extending their pedals for driving, making sure they not only have a scooter, but they can get it in their car, so they're still not homebound because now they can't get anywhere with their mobility device because they can't get it in their car, so that they can be doing the things they want to do and their mobility is getting them to the places that they want to be.

There are several possible interventions, be we also, as occupational therapists, have the intervention if a person needs to stop. And we have to provide mobility counseling and assist people if you have an impairment that says -- that leads you to not being able to drive, it likely puts you at risk, to just go take public transportation, go hopping on a bus if you feel the driving evaluation probably puts you at risk.

So the mission of our work is a spectrum and trying to help get people to continue to driving if we possibly can or helping them to safely transition from driving.

Thank you.

DR. BRUCE: Thank you.

We are delightfully on time and I thank you for your remarks. They've been very pointed. It's a treat.

I do have one last question for you and that is, who is a driving rehab specialist, how did I get to be one, and I'm going to wait and see if the party questions don't cover any other

aspects that I would have had cued up for you, but --

MS. SCHOLD DAVIS: Okay.

DR. BRUCE: -- briefly, just describe to me how that varies state by state.

MS. SCHOLD DAVIS: A driving rehabilitation specialist is -- there is a -- is a little bit difficult to answer, unfortunately, for the clarity for the panel. Part of it has been the evolution of the field. Driver rehabilitation is a professional that has been trained in how to evaluate and treat driving.

There is an association called the Association for Driver Rehabilitation Specialists, which is a multidisciplinary field. The field addressing driving involves occupational therapists. The majority of the professionals are occupational therapists, but it also involves driving school educators, driving instructors. It also includes rehab engineers and vehicle modifiers. So there's -- just as in other areas of medicine, there's a constellation of professionals that are involved in this area.

DR. BRUCE: Am I tested and certified?

MS. SCHOLD DAVIS: There are the -- the Association for Driving Rehab Specialists has a test that gives the credentials of certified driving rehabilitation specialists. This makes sure that that person has a basic understanding of driver rehabilitation, but it's not specific to any professional field.

The American Occupational Therapy Association has a certification in driving and community mobility. It's a performance-based certification that makes sure that the occupational therapist working in that area understands the evaluation, the intervention and the mobility counseling side to transition somebody from driving to non-driving, which is more in keeping with the occupational therapy frame of reference for living life to its fullest and being able to address getting people off the road, as well as keeping them on the road.

DR. BRUCE: Thank you.

MS. SCHOLD DAVIS: Um-hum.

CHAIRMAN HERSMAN: Good morning. We'll move to the panels and we'll begin with the first table and NHTSA will be asking the questions. And if you could for the cameras, identify yourself by name and organization? Thank you.

MR. MICHAEL: Yes. Thank you for the opportunity. My name is Jeff Michael. I'm with the National Highway Traffic Safety Administration.

Question for Dr. Marottoli. Are there validated protocols available for physician screening of patient driving ability? The analogy I'm thinking of here is screening and brief intervention for alcohol abuse problems. A number of validated tools are available for physicians and the availability of these tools has, I think, fostered the growth of the screening and for options for treatment. Are there similar validated tools

available for clinician use for evaluating driving ability?

DR. MAROTTOLI: Yes and no. So there are many tools that are available, many of which have been validated, although, usually those are for individual components or have been validated in a relatively small sample. There are a number of composite measures, so the AMA ADReS composite measure that was mentioned before is based on individual elements, some of which have been looked at and validated specifically for their driving relevance. Others of which, it's sort of an amalgam of things. So the entire grouping has not necessarily been looked at, but the individual -- some of the individual components have. And that is, I think, the limitation that often comes up, is that there are individual elements that have been done, but not necessarily a composite, sort of multidimensional one that has.

MR. MICHAEL: Thank you.

Can I keep going?

DR. BRUCE: Are there other questions from your table?

MR. MICHAEL: Yes. I apologize. Another question for Dr. Marottoli. Could you say something about the incentives and disincentives for physician reporting to licensing authorities?

DR. MAROTTOLI: The incentives are easy. There are none. There are many disincentives. So the -- we had actually did a study a long time ago where we specifically asked, we polled clinicians in Connecticut with 2,000 respondents and asked them specifically about this issue.

The positive, the one positive -- and I'm being a bit glib, but the one positive was the sense of obligation to societal safety and public health, and that is a very real one. And people who do participate in it do that, as well as the issue of protecting, if they truly feel that their patient is at increased risk and they feel the need to intervene to protect that person, as well as those around them. So there are some positives to that.

Those, unfortunately, are often outweighed by the many negatives of that. One is the opaque process that often is in place. Two is the very real negative effect on the doctor/patient relationship or the clinician/patient relationship. And this is something that most, if not all physicians and clinicians hold very dear. And the nature of reporting typically changes that from one of being an advocate to being more of an adversary. And many clinicians are very reluctant to sort of make that transition.

And then third is sort of the practical aspects of, you know, what they assess and how they actually gather that information and the timing of that and the cost of that. But those don't necessarily effect the reporting aspect as much.

MR. MICHAEL: Thank you.

A question for Ms. Molnar. Are there screening tools available for family use and have these been validated?

MS. MOLNAR: There are a number of materials available

for families to help them think about changes that an older driver might be undergoing and how to initiate conversations about driving concerns. There are also several self-screening tools that have been developed over the last few years. And although it hasn't been tested actually, about the effects on family members, one idea is that these tools can be used by older drivers and their families to initiate these conversations.

What the research has shown with regard to self-screening tools is that they really represent, I think, a special case of screening in that, their best strength is for increasing self-awareness among older drivers and generating general knowledge about declines that people might be experiencing, the impact of these declines on driving and recommendations for further evaluation.

So unlike other kind of more rigorous, I think, screening tools, self-screening at its best really focuses more on increasing self-awareness and some of the studies that have been done, looking at how well how well the outcomes of various self-screening tools kind of predict real problems on the road or problems with declining abilities, kind of find no statistically significant, but modest correlations between the outcomes of the tools and actual driving. Some self-screening tools haven't been evaluated at all in this way, but I think there's enough that's positive that shows that these kinds of screening tools do have promise for increasing self-awareness and might be used to

facilitate those kinds of family discussions.

MR. MICHAEL: Thank you.

Another question for Ms. Davis. It seems that changes in driving ability might be better assessed over a period of time rather than a single point of time. Would it be feasible or cost effective to identify a minimal driving or cognitive performance battery to serve as a baseline for drivers and to assess against over a period of time?

MS. SCHOLD DAVIS: That's an excellent question. And if we had our wish, I think many of us would wish that we could get the discussions about driving to happen earlier. If they can happen earlier, it gives us time to plan. It gives us time to think about transitioning from driving.

So certainly, what we are working on in the Occupational Therapy Association and really increasing occupational therapists role at the clinical level or the practice level is to be identifying driving as a concern, having red flags that show concern about it, addressing strengthening those concerns that we could, but also starting the discussion that we're -- just as we do for financial planning, we do for housing planning, we should be thinking about driving planning. And so at the medical level, we can start screening and helping people understand how changes may be heading them that way.

People are living longer with medical conditions that they didn't drive with so long: MS, Parkinson's disease, as

examples. And if we can intervene earlier, help people have strategies earlier, we believe they might be able to be on the road longer and safer and enhance their ability to be self-aware and be the leader in helping decide when the time is right to make that change.

MR. MICHAEL: Thank you.

One more testing -- one more question about evaluation. It seems that aging-related driving deficits may appear under stress rather than in less stressful driving. Do the driving evaluations conducted by therapists typically involve any stressful situations such as heavier traffic, faster decision times, darkness, glare, et cetera?

MS. SCHOLD DAVIS: That's an excellent question and it's certainly something being debated and studied right now. As many areas in medicine are working toward having a more evidence-based criteria for how decisions are made, the same is true with driving. And there is work going on trying to look at some of these factors.

I think that, as the practice stands right now, the experienced driving rehabilitation specialists would like to take people on the road to give them real live experience with merging, with traffic conditions and try to challenge them in planning, go back and find where you last were, doing some navigation. There's certainly some look at simulators and being able to give more challenge, but then we have the -- we aren't sure if people are

really reacting in those simulated situations in a realistic enough way to make a decision about their driving competence. So we do, as driving rehab specialists, try to add the appropriate challenge that we think is safe for both the driver and the tester.

MR. MICHAEL: Thank you.

And finally, a question for Dr. Kramer. The cognitive training sounds very interesting. Could you give a specific example of sort of the theory of the relevance of cognitive training for older drivers? That is, what is an example of a driving deficit that could be addressed by a type of cognitive training and then what would be the desired outcome?

DR. KRAMER: Sure. I think there could be a number of examples. One would be that as we get older, we're slower to respond, slower to extract information from the visual environment which is a large part of the environment in driving. So there have been training programs that have specifically looked at whether we can broaden the amount of visual field from which we can extract information per unit time. And these programs have often tried to force attention farther and farther out into the periphery, as I was forcing the microphone.

And there certainly is some evidence that you can train these aspects of visual attention and visual perception that we know decline as you age. But of course, there are many other aspects of cognition that decline as we age, not just, you know,

visual sensory function or perceptual function, but decision-making ability, various aspects of memory and so forth. And these other aspects of cognition that show age-related cognitive decline have been addressed less frequently in terms of driving-related training.

MR. MICHAEL: Thank you.

That concludes our questions. We thank the panel for their interesting presentations and for the answers to the questions.

CHAIRMAN HERSMAN: Thank you.

And we'll move to the second table, AARP.

MS. LEE: Good morning. My name is Julie Lee. I'm from AARP and with me is Rodney Peele from the American Optometric Association. And thank you very much for all the information you've shared so far this morning.

We have a couple questions for you. You've talked a little bit about assessments and cognitive training and brain training. And for the panel, I would like to know what your opinion is on the benefit of older drivers taking a defensive or refresher driver safety course?

DR. MAROTTOLI: Well, I'll take a shot at that one.

So I think they're very valuable and they're useful. They have a lot of face validity in terms of the content of those programs. If you look at the studies of their actual demonstrated benefit, they're somewhat variable from, perhaps, slightly worse

to slightly better. There have been a couple of studies now that have added on-road training to that sort of fairly succinct -- on-road training to the classroom setting and those have shown consistently positive benefit in terms of that.

I don't think that the sort of mixed data on the classroom alone sort of is a detriment necessarily because I think there is useful information that can be provided and certainly recommend that people do. And it also just raises the awareness, and getting back to the issue that some of the other panelists have raised, just sort of making people aware of what they need to attend to. I think there's a lot of information that's provided in there. They're fairly easy to do. They're inexpensive and there's also often an insurance discount that goes with that. So there is actually an incentive for the person to take that. So I think there are many potential benefits for that and I think they can possibly be tweaked to make them even more beneficial.

MS. LEE: Okay.

MS. MOLNAR: I would like to respond also. Yesterday, we heard a great deal about self-regulation or self-restriction of driving as a way to compensate for declining abilities and kind of extend the period over which people can safely drive. And to self-regulate appropriately, people need information to become more self-aware, so I also see the driver training courses as a forum for providing that kind of information, generating discussions among people.

DR. KRAMER: I think Dr. Marottoli was being humble because one of the excellent studies was his that he published in 2007 in which he combined both classroom training with on-the-road training. And in looking across the literature to prepare for this panel, I did notice that the studies that combine both the instructional training, the classroom training with some on-the-road or simulator training tend to fare better in terms of the outcome variables. So if we're looking for programs that might be useful for older adults, knowledge is important, but so too is feedback and actual practice with someone experienced to provide that feedback, whether it's a driving instructor or whatnot.

MS. SCHOLD DAVIS: And if I may add one more comment? And that is, again, strategies and interventions are not a one-size-fits-all with this population. And I think insight-based programs are excellent for the majority of senior drivers or older drivers, but we need to help families and persons with certain conditions where they're not a good match or we can't be expecting of people to be coming away with the insight. And that particularly is probably the group with dementia or cognitive impairment. And we can't expect families to be using an insight-driven approach to be expecting the change that they're looking for. So it's important that families understand that what can be good for many might not be the right thing for their situation.

MS. LEE: Okay. Thank you.

Since vision screening is low sensitivity and does not

ensure treatment, what do you recommend to the NTSB for vision assessment and improved vision function for the aging driver?

DR. KRAMER: We're missing our vision person today, so well, the default. I'll try. I think -- so it is a bit tricky because obviously the associations for the most common measures of static visual acuity are relatively weak in terms of their association. But again, in terms of face validity, it has an obvious relevance to the driving task and there is an association that's there. People are also very familiar with it. Licensing agencies are familiar with it. So I think -- and it is reasonable to still have a general standard on that. The question is what to supplement that with to perhaps enhance the benefit of that.

Visual fields and contrast sensitivity would seem to be the two most likely candidates in sort of their ease of measurement and also, familiarity to the general audience. It depends a little bit on where you do those because not everywhere can do them relatively accurately. They're a little bit trickier.

I mean, a visual acuity can be done anywhere fairly simply and cheaply and everybody knows how to interpret it. It's a little bit trickier when you actually quantitatively measure visual fields in the horizontal frame. In contrast sensitivity, you typically need a specialized chart, which most people don't have, although, you could make those more readily available and you could have more widespread, you know, use of them.

And again, as was mentioned yesterday, sort of a

combination of those have been shown to be beneficial in terms of identifying people who are at risk for driving-related difficulties and also, in terms of contrast sensitivity, fall risk as well. So another added benefit if you want to implement its usage, giving sort of another angle where that would be potentially beneficial.

MS. SCHOLD DAVIS: And if I may add, just to respond to the questions earlier about over-restricting. Certainly, there is -- vision screening is a health screen as well for the health of the eye and getting in to get a new glasses prescription; the prompt to get in and maybe get cataracts treated is certainly, oftentimes, for some people, that's where they get the trigger that they need to get that assistance.

I also want to make a plug. There is a specialized field called low vision driving and in some states, the visual acuity and the vision guidelines allow for an exception when people have training in low vision driving. It's quite -- I find, quite a fascinating specialty area. It is only licensed in certain states and sometimes people with low vision want to know what states they can go to so that they are able to meet the criteria to be able to drive.

MS. LEE: Thank you.

Couple more questions. Doctors are reluctant to tell patients they should no longer drive, but occupational therapists are trained to do so. Can you -- how can we get more doctors to

work with the occupational therapists to help us with this?

DR. MAROTTOLI: So, one is to make people aware, like the first question on, you know, what is a DRS and how do they get licensed and who are they. I think, one, many physicians I have are not necessarily aware of the different therapy professionals and what the distinctions are and what they do. So many people cannot distinguish specifically what a physical therapist does from what an occupational therapist does. And then, within the spectrum of what occupational therapists do, the sort of niche of driving rehab specialists is also not necessarily recognized. So one is making people aware of what they do and what the benefit is to their patients and to themselves.

The second issue, and one that Elin and I have talked about many times in the past, is the dearth of people who are actually available and trained to be able to do that. And there are many reasons for that.

The main one from my perspective being economic and that even in our area, many programs have closed and have used -- they've sort of transitioned their occupational therapists to doing more traditional occupational therapy as opposed to driving assessment simply because of the costs of the program and the remuneration. And so it's easier for them to get paid and to make more money doing it that way. So they've closed those programs and moved them to different things. So the access to those people is much more limited. So partly, it's sort of broader recognition

and enhancing the way that those are compensated.

MS. SCHOLD DAVIS: Is it fair to say, when you said these programs are closing, it's not based on no need; it's been based on -- they've been closed despite having the need. So we certainly are -- one of the things that we've been doing at American Occupational Therapy Association is working on educating all occupational therapists about driver rehabilitation, because we can be our own triage. We can't always expect physicians to understand the difference between our sub-specialties, but we need to be identifying driving by all practitioners.

If you can put this slide back up, I forgot to mention it when I asked you to put it up before. And then I didn't comment on it. It's just the idea that all -- we've been working very hard that all occupational therapists are addressing driving as an instrumental activity of daily living. And then, if there are concerns that are flagged within the medical setting, they will be finding and referring to a specialist.

We have a chicken and an egg problem of getting more driver rehabilitation programs because we need people requesting them or referring people to them so that we can get more programs to grow, certainly using the more -- beginning with the medical model, the screening for driving is certainly part of our typical occupational therapy evaluation and that is reimbursed. It's as you get into the subspecialty area that we have variability across the country for reimbursement.

And this is just describing -- all of these are different things all occupational therapists can do. Only the green triangle is where you need the subspecialty, not unlike oncology or other areas of medicine where many things are handled by a number of people and you send people to the specialist when they're -- when we've identified that that's the right place for them to go. I do believe, as we get more efficient at getting the right people to these specialists, it also helps make it more financially appropriate.

MS. LEE: And as a follow-on to that, do insurance companies pay for the OT evaluation and if so, how do we get more insurance companies to buy into this evaluation?

MS. SCHOLD DAVIS: Reimbursement is variable. It's an answer that doesn't please people, but it's just true. It varies by state and it varies by interpretation of the statutes. Some areas have reimbursement for occupational therapists performing the complete comprehensive driving evaluation, particularly when they really describe it by its functional components, which it is. And in other areas, it's sometimes, for convenience, they have actually pulled the whole program out of the reimbursement system and they ask people to pay for it privately.

I think what can help is demand of trying to make sure that we are getting reimbursement for the areas that at least fit well within our practice.

MS. LEE: Thank you very much.

CHAIRMAN HERSMAN: We'll go to the third table and it looks like the Alliance of Automobile Manufacturers is going to be questioning for the third table.

MR. SCHMIDT: Yes. And I'm joined by Keli Braitman with IIHS and Jurek Grabowski with AAA.

First question is a three-parter. The panel stated that there is no one accepted screening tool. What does the panel recommend as elements of a model screening and assessment system? And then, what elements are known to be ineffective and will the public view screening as profiling, especially in minority communities? And how can this impression possibly be mitigated?

MS. MOLNAR: Well, I'll take a stab starting.

I think, in terms of what would be the optimal screening tool, you know, I think the challenge is that the science really, right now, lags behind the need by practitioners for tools and instruments and procedures that they can use right away. We know that -- and we've talked about the various functional abilities that are important in driving.

And if you could put up -- I think there's -- I have a slide on the MaryPODS study, which is some of the early work that came out on screening tools for licensing agencies. And that study identified a number of functional abilities that are associated with crash risk and it also identified a battery that had a number of tests for those abilities. So I think that's one kind of starting point that we know that we have to look at the

kinds of abilities that relate to driving.

Part of the challenge in implementing something in a licensing agency like this, as has been discussed, is that there are a lot of other considerations in terms of constraints on time, constraints on costs, constraints on the resources that are available, trained personnel to do these kinds of tests. But we do need to think about which abilities are related to safe driving and start there.

And I think, similar to what Dr. Kramer spoke about in terms of evaluating cognitive training programs, in thinking about coming up with a good screen, we really need to think about the kind of research that's necessary. And unfortunately, that research is often time consuming and very expensive. We need more longitudinal studies. We need studies that have sufficient samples so that we can reach meaningful conclusions about the impact on crash risk, for example. And we haven't really been able to do those kind of studies.

Although, I think it's very promising that there's been a lot more collaboration in recent years and there actually are some research efforts under way to try to get at what would be the best kind of screening tool, particularly that could be done in physician offices. That research is being carried out by a consortium of Canadian researchers. It's called Candrive and they have funding for five years. They're using a sample that's recruited from seven sites across Canada, as well as one site in

Australia and one site in New Zealand now.

They'll have sufficient numbers of drivers that they can test a screen that they're identifying and look at crash risk. They'll have about 1,250 drivers. So I think that's really exciting and hopefully in the next few years, we might have some more definitive results on that.

MS. SCHOLD DAVIS: If I may comment, I think one of the best protections is making sure that screening is screening and not -- doesn't become an evaluation. I think that we have to recognize the context where these different screens occur, the purpose of them and the scope of them. If we develop screening tools at a DMV level, they should be referring somebody for the next level of expertise. I certainly understand population-based screening. I think it's very important.

I don't support screening everybody for things. You know, I think that that's too costly and it's not probably warranted. However, we need some kind of different -- at different entry points, whether it's at the DMV level, obviously you're going to have a different skill set and a different tool than you'll have at a physician's office, than you'll have at a seniors' center, than you'll have in different contexts. These all might be entry points. They all might be places where screening tools will be used, but we need to ensure that we're getting people then to the right service so that their needs will be met, they will not be over-restricted and they won't be missed,

ideally.

MS. MOLNAR: I could just follow up very quickly. I wanted to add too that I think these issues of sensitivity and specificity are really key. We have a lot of screening tools and the research can really inform about what are the effects of different cut points, those kinds of things, but ultimately, I think policy makers have to weigh in and decide what's acceptable in terms of sensitivity and specificity.

So, for example, if a screening tool can identify, you know, all drivers who would have failed a road test, but they also identify a considerable number of people who actually passed the road test and passed those people on as well, those are considerations that policy makers need to think about and weigh in on, kind of what's the tradeoff between the potential for losing mobility or forcing people to incur considerable costs for further evaluation that may not be necessary, those kinds of issues that go well beyond the state of the research.

DR. MAROTTOLI: I think one of the difficulties is it's inherently a multi-factorial issue and so it's hard to come up with a narrow set of tests that will sort of cover the full range of that, which is ideally what you're trying to do with this screening test and maximizing its sensitivity.

Getting to your last point, which I think is the trickiest of that, the issue of profiling. I don't think, from the perspective that we usually think of that in terms of racial

or ethnic or socioeconomic one, but I think age is the equivalent here in terms of a visually identifiable or perhaps physical frailty or other things that are visibly identifiable in terms of singling out individuals who would subsequently undergo screening and as opposed to other individuals. And that becomes a trickier aspect, and I think one that needs to be guarded against, but the question is, how do you identify who is at increased risk as an initial step and then move that person through the system into a more detailed assessment?

MR. SCHMIDT: Okay. The next question is, when drivers are presented with information or evaluations suggesting that they may not be safe to drive, what resources are then available to transition them from drivers to non-drivers?

DR. MAROTTOLI: Nobody's reaching. Okay. I'll go.

So I mean, I think the difficulty is it varies from location to location, so there's no set answer. In some places there are none or very few, and others there are more. And so part of the difficulty is that it's very hard to generalize. And also one needs to figure out what those resources are in a given community and what the possibilities are based on that person's own sort of social network family and other resources.

The question is who does that and where does that get done or does anybody do that? And that's part of the problem, is that there's no readily identified individual or group of individuals to whom that responsibility falls. And I think that,

perhaps, is the biggest gap. I think if you can figure out who's going to work on that, then the question is can you muster those resources? And in many places you can, even with informal ones, but it would help to have a more systematized approach and a standardized way of dealing with it.

MS. MOLNAR: I would just add that I think, from a research perspective, it's been gratifying to see that over the past several years there's more emphasis on research to help facilitate the transition from driving to non-driving. For example, Dr. Dobbs talked yesterday about the work that she's done on putting together support groups for drivers with dementia to help them move toward driving retirement.

So I think there's kind of two pieces. First, we need to have more evidence-based practices about what are effective ways to help drivers transition. We need to have something for drivers to transition to when they're no longer able or they can't drive. And there was a lot of talk yesterday about really a focus on providing alternative transportation. Maybe not in the traditional way we think about it, but in new ways that are acceptable to people and available in the areas in which they live.

And then also making that information available to people. And I think there's a lot of discussion about, you know, who should be responsible for doing that. I know we had a licensing workshop a couple of years ago that was sponsored by AAA

Foundation. We brought together about 40 experts from around the country in older driver issues and the consensus was that licensing agencies, given all of their other responsibilities, do need to think about how they can also participate in making resources available. So I think it's really a community-based approach.

MS. SCHOLD DAVIS: And speaking for the occupational therapists in the rehab setting, which is probably a net where we're capturing a lot of people that are facing medical conditions, we're certainly working with our therapists to be moving from identifying that a person should be stopping driving to how else they're going to get around.

There's a number of tools that have been created that we have been distributing to the OTs and that -- like, for example, the Beverly Foundation has come up with a dementia-friendly calculator to assist with determining what public transit options would be appropriate and what kind of safeguards would need to be in place for a person using those.

There's a field that's been gaining strength called mobility management at the transit side, trying to help match people with the public -- with the support services they need. And travel training has been gaining -- there's a gaining interest and gaining training and support through Easter Seals, has a travel training program to try to bridge -- if a person should be using alternative transportation, they might need to learn how and

we're trying to increase the number of professionals that know about this and so they can employ it.

I think the upshot is where we find ourselves saying it sort of takes a village. We need a number of groups and professionals in different areas. It may differ in different communities, but if each community works on trying to have a network of services, we're hopeful that that will be an important way toward a solution.

MR. SCHMIDT: Thank you.

CHAIRMAN HERSMAN: Okay. We'll go to the last table and AAMVA will be asking the questions.

MR. MANUEL: My name is Tom Manuel. I'm with the American Association of Motor Vehicle Administrators and with me is Barbara Harsha. She's from the Governors Highway Safety Association.

Our first question is why haven't we made progress in developing screening and assessment tools that have been evaluated, generally accepted and widely used, and can there be anything done to expedite this?

MS. MOLNAR: I guess I'll start.

Well, I think we are making some progress, as I mentioned, some of the more comprehensive studies that are underway now. But I think that some of the challenges are that the research that's needed to come up with really valid and reliable tools, as I said, is often expensive and time consuming.

And we're not always able in this field to do the kind of randomized control trials that are essentially the basis of work in other areas like in biomedical areas. We can't necessarily randomly select older drivers. By its very nature, older driver research often depends on recruiting volunteers and then we get into self-selection bias and things like that.

But I think apart from that, there's also been some disagreement on the best way to validate measures. You know, what is the gold standard for looking at outcomes? Should it be crash risk? Should we be differentiating, you know, scores by crash involvement? And you know, to that end, then we need large samples. What's the rigor required? You know, there's still, I think, a lot of discussion on what levels of specificity and sensitivity do we need those kinds of things.

And then I guess, also, I think it goes beyond just having valid and reliable screening tools. We have all of these other constraints. For example, as we've talked a lot about, licensing agencies face a number of constraints. Physicians have a small amount of time with patients. Comprehensive driving evaluations are expensive and we don't really have enough certified driving rehabilitation specialists.

So there are a lot of these different issues that I think make it maybe a little messier than in other areas.

DR. MAROTTOLI: I think a lot, also, of the same methodological issues that I was describing before for the

interventions apply to screening as well. So you need individual impairments of sufficient prevalence in the community that you're looking at to find it and then, depending on the outcome that you choose, you need a large enough study. So if you're dealing with a relatively uncommon functional impairment or condition and a relatively uncommon event such as a crash, then linking those two together requires a large sample to be able to do that. And part of the problem is gathering enough of that.

Some of the best efforts, as have been alluded, have been sort of state based, large state-based programs where they're having a large number of drivers that come through that can test out a number of things and then follow those people or have the records available to monitor that in looking at different systems in doing that. The downside is gathering that information sufficiently in that environment. Particularly if you have a limited amount of time with those large number of individuals, you typically have less detailed information on them, and so linking those two together.

So I think, you know, gathering that information, putting it together, and ultimately considering sort of larger scale studies is the way to try and narrow that a bit.

MS. SCHOLD DAVIS: And if I can follow on that. I do think that, as we look at the broad population, we may be seeing more forward motion in subareas like dementia. I think that we've -- I think we have more confidence and we're seeing some

more clarity in the tools and the criteria for driving retirement from dementia.

I think, in a broader scale, when we talk about these evaluation tools, I think there's been a recognition in the transportation community that evaluations without options for people, the evaluations don't get used because you're sentencing people to being stranded. And so it's not about just evaluating. It's about making sure we can help people stay mobile and we need all the spokes on the wheel. So I think we've seen increased energy in the transportation world of making sure we're getting a family of services in place so that an evaluation that might result in cessation would actually end with having a person not be on the road. Otherwise, we're just pulling licenses and some people may continue to drive despite that because they have no other option.

MR. MANUEL: My next question is how does a license agency reconcile screening that identifies gross impairment and the lack of a license decision and the associated liability with that?

MS. MOLNAR: I'm not sure I understand the question that you're asking because I see the screening for gross impairments as very distinct from later licensing decisions that would be based on more in-depth assessment.

MR. MANUEL: If you're identifying someone that has an impairment, how would -- you're not making a decision about their

licensing, but they're identified as an impairment, how would a licensing agency, say, reconcile that difference? As an impairment and you're -- they're continuing to drive, how would they reconcile that? Or could they or can they?

MS. MOLNAR: Well, I think that's one important role that medical advisory boards would play, that those are boards that are comprised of physicians and other experts who not only can help formulate policy about, you know, criteria for licensing decisions, but can review on a case-by-case basis and would review in more in-depth assessment information.

DR. MAROTTOLI: Yeah. I think that, again, from the perspective -- it's usually in the context of a multi-tiered assessment. So there's the initial determination that someone has a gross impairment, as you've described it. That person would then have to move on to another level of more detailed assessment to determine whether or not that has any effect on their driving capability, either with an on-road test, more detailed testing or review of their record previously to see if there's been any evidence of violations or crashes. And then making a determination on some composite of that information rather than necessarily assuming that just because that impairment is present, that their driving is necessarily affected.

MS. SCHOLD DAVIS: One thing that might be correlated to that as well is immunity for reporting and I do think that, as we look at policy issues, immunity for reporting in all

jurisdictions, so that professionals that are concerned have this immunity to report, is an important step forward and we don't have that consistently.

MR. MANUEL: Is there a danger in using screening tools that haven't been evaluated and are these tools better than no screening at all?

MS. MOLNAR: I think that's a tough one because I think there can be negative consequences when screening tools aren't valid. You know, they can either cause someone to worry when they shouldn't or not to worry when they should. And so I think it is a dilemma. And as we've talked about before, people need resources to use and yet if the science isn't there -- and so I think with screening, that's really one reason it's so important to kind of confine the outcome of screening to being this first step and not to use it in and of itself as a licensing decision. I think that would be extremely dangerous.

DR. MAROTTOLI: This is a little like the anti-jeopardy. I'm hesitating as we push for the thing.

You know, I think that there is a danger to labeling and I think it does have a tendency to stigmatize people and it depends on the nature of that. But we haven't really delved deeply into the issue of dementia or mild cognitive impairment, but it is something that is fraught with a lot of angst for people. And I think if you label someone as being impaired, regardless of the nature of that impairment, that that can affect

them very adversely.

And so I think one needs to do that in a sensitive context of what you're trying to do with that information. And also, that -- not to use those terms loosely or lightly. And I think that there -- you know, there's a wide range of ability within any capability. And even when we get to the issue of dementia or cognitive impairment, there's a very wide range of manifestations in terms of that, many of which may have no effect on driving capability until much later stages. And distinguishing that becomes very difficult.

So I think the difficulty is not sort of labeling based on the presence of that, but using that information to then work, but not necessarily just sort of stopping at that level, but actually figuring out in more detail, what the importance or meaning of that particular deficit may be.

MS. SCHOLD DAVIS: I wholeheartedly agree and just want to add the caution that self-screening tools run the same risk. And so I think we -- that's -- just to be cautious about over-interpreting or how we can mis-administer them. They could be very valid given as they were supposed to be, and we have no control how people are actually using them, and we have to be careful for the language that we're giving people about what the results mean.

MS. MOLNAR: Yeah, I just want to echo what was just said and I was going to add that self-screening tools are intended

for people who are cognitively intact. And so they're not an appropriate instrument for people with dementia who lack insight into their abilities and they can be even detrimental if they're reinforcing inappropriately that the driver is safe to drive when they're not.

And so I think we -- in using self-screening, there needs to be communication within the community of professionals about who to recommend that kind of self-screening to and to make sure that, hopefully, it's done by people who can appropriately use it.

MR. MANUEL: My next question. When we're talking about screening and assessments, do they find there's any markers or indicators that identify those that may not be qualified to drive or those that would be able to continue to drive?

DR. MAROTTOLI: Would you repeat that question again?

MR. MANUEL: When we're talking about the screening or assessment tools that you have out there presently, are there any markers or indicators that would identify those that would be able to be disqualified to drive or those that would be able to continue to drive?

MS. SCHOLD DAVIS: I think some of the work on the screening tools is trying to, at the initial stages, what we call sometimes, identifying or lopping off the ends of the curve. You know, people that really don't have any -- show any impairment in these subareas of vision and cognition or physical ability at the

time of the screening, that might be enough to make that determination, if that's what you're talking about. And so glaring -- sort of the glaring, the solid, the severe-severe, the really mild to none decisions could be made to not, frankly -- that doesn't push them to the next level, and making sure that people fall within a gray area with that have the next level of access to looking more specifically at their needs.

I'm not sure if that answered the question.

MR. MANUEL: Okay.

DR. BRUCE: Could I restate that question?

MR. MANUEL: Go ahead.

DR. BRUCE: Are there some tasks that are more predictive of driving performance than others, and is that what this is all about as far as screening and assessment? I mean, it could just be yes as an answer.

DR. MAROTTOLI: Yes, I mean I think there are. There are different aspects, different domains. I think there are different ways of potentially going about that that have been actually demonstrated to be linked to either driving performance and/or less commonly to crash risks, but there certainly are. There are a range of different measures of each of the abilities that we've talked about that are linked to those. The difficulty is narrowing that down to a single measure that covers that.

MS. MOLNAR: And I would just add, in one of the previous slides, looking at the battery that came out of the

Maryland work, for example, there were six abilities that were linked with crash risk with odds ratios ranging from, I think, about 2.6 to 4.9. And a lot of those had to do with visual search. I don't know if you can bring that back up, but -- so there, at least, is some empirical evidence, you know, that's relatively strong for -- the first one. So these are the abilities that had odds ratios of about I think 2.68 to 4.9.

MS. SCHOLD DAVIS: I would say also, in looking at those in general as a rehab specialist, areas in the domain of cognition are probably looking more toward the severity as toward the stopping. You can have very severe physical impairments and be able to compensate them through equipment and vehicle modification.

MR. MANUEL: Here's my last question. We use age as a marker in medical screening all the time. I mean, I turn 50 years old and my physician insisted that I have barbaric screening. So I'm at risk for certain kinds of disease, et cetera. And yet, in this, we always hear function, not age, function, not age because there's a concern about discrimination, of age discrimination and taking away the driving privilege. How do you -- is there any reason that we can't determine age as a factor when we begin screening?

DR. KRAMER: I think one of the things that we observe, regardless of our outcome measures with respect to age, is a tremendous amount of variability. So to the extent that

variability in almost anything we measure increases as a function of age, that suggests that chronological age probably isn't the best marker. Not that we have great markers of functional age. I mean that clearly is a deficiency in the measurement of driving or anything else. But given this relationship between adult aging and variability, I'm not sure that we could set a particular chronological age at which to do some of this testing.

I think when you get to extreme ages, and we are and we will, in the United States and throughout the world, maybe that will be a more reasonable thing to do. But I think in the general category of old age, there is tremendous variability in almost anything we measure.

MR. MANUEL: Okay.

MS. MOLNAR: I would just add, if I could, that there has been some research done on looking at age-based mandatory screening in licensing agencies. Some of the work has come out of Australia. And the only study that really did find a safety benefit, as far as I know, was a study that looked at -- that found that in-person renewal among drivers age 85 and over was associated with benefit.

That being said, it's interesting. I think there's widespread consensus among people in the field that assessment should not be based on age. But at the recent licensing workshop that brought together experts from around the country, one of the recommendations that actually emerged and surprised, I think, a

lot of people was that there might be some room for age-based screening. For example, in the form of having in-person renewal, you know, required at a certain age so that people would have to come into the licensing agency and could be observed, so --

CHAIRMAN HERSMAN: Thank you. Thank you for your questions.

Dr. Garber.

DR. GARBER: Just a couple of quick questions.

Dr. Marottoli, as has been noted, a number of these individuals who may be at risk are going to come to the attention of their physicians, either they or their family members may bring this up. Perhaps, except for radiologists and pathologists, most of us have had that question asked to us at some point in time. What formal training do physicians receive either in medical school or through state requirements or through residency programs in how to assess drivers?

DR. MAROTTOLI: No formal training in general. It is very variable in terms of the extent to which they have training in geriatrics or aging issues. And many times it will be covered within the context of that, if indeed. But otherwise, it tends to be pretty sporadic in terms of where the information is. I think that's where the outreach efforts that have been undertaken in recent years by the AMA in conjunction with NHTSA and other groups to try and reach both practicing clinicians and more recently, physicians-in-training is an effort to make people aware of this

issue.

It does -- if you raise the issue with people, and I encounter this all the time when talking to house staff and to physicians. The issue comes up a lot; it's just not necessarily -- there's not any background or information that's been provided to them prior to that. So I think the field is ripe for those outreach efforts.

DR. GARBER: And there are some guides available. The physician's guide that the AMA developed in conjunction with NHTSA was mentioned as one. To what extent is that getting out to the physician community?

DR. MAROTTOLI: I think -- I mean, I think there has been an effort to do outreach with that, both on a local level and more broadly. I think that it would encourage continued effort to sort of get that information out there and also, how to access it. As more of that information becomes available online, I think that also makes it easier for people to access and to gather information on it.

So I think there is a broadening awareness of the fact that that information is there, but I think that the original update of that in 2003 and then the current one now are major steps forward from what was available before that. I know the Canadian Medical Association does a similar thing as well on a regular basis. So there's information available.

DR. GARBER: And I think one last question for me. I

think it was Dr. Dobbs who mentioned that one of the big problems really is dementia and associated sort of neurologic impairments that result in cognitive decline. As we've noted, many folks are aware when their vision starts to fail or when they become uncomfortable behind the wheel for other purposes.

To what extent is that really the major problem? To what extent is that the thing that ought to be focused on because those are the folks who will not likely -- their impairment prevents them, in fact, from identifying their own impairment?

DR. MAROTTOLI: Again, I hate to keep saying it's relative, but I think it is relative in this case. I mean, I think to some extent, awareness of deficits is common to many functional changes simply because they tend to occur very gradually and people tend not to be aware of them until it comes to their consciousness at some level. And so that's true of vision. It's true of physical ability and it's true of cognition.

And I think the major potential difference is that with physical changes or with visual changes, one can be made aware of those if those deficits are pointed out to you and, therefore, you can be more likely to learn compensatory strategies. That tends to be less commonly the case in dementia. Although, if things are pointed out to -- I mean you can effect changes in people who have dementia and drive if you point out what those deficits are to them and explain why those deficits are likely to have a negative effect on their driving. It's just a matter of sort of going

through that process. And part of it is sort of identifying what those cognitive abilities or limitations are and then having that discussion.

So it is trickier and I think it is an area of focus because of the inherent lack of awareness with that, but I don't think it's necessarily unique to cognitive impairment.

MS. SCHOLD DAVIS: If I can add on to that answer? Can I have this slide up, please?

I absolutely agree. One of the things I've been a little worried about in the last few minutes, I've been thinking, we're talking a lot about screening and it seems to be a one-way road again, the screening towards stopping driving. And the panel yesterday -- the panels yesterday talked a lot about self-awareness, self-limiting behavior and wanting people to make good choices for themselves. And screening efforts or education efforts should be for the majority, except for this subgroup of dementia that we're talking about, we're really trying to help people make -- with the exception or the different slant, I should say, with the dementia group, we want to help people to make good choices.

What we found with projects like -- I just put CarFit. It's an education program that we have been rolling out with AAA and AARP for the last five years. We find people afraid to come. They're afraid to come and learn about how to make sure their seatbelt's on right because they believe we are covertly trying to

take away their license. And so I think one of the struggles that we can have with education programs, screening programs that are truly -- our goal is to try to help people drive safer, longer, try to get information in the right hands, where people can be fearful. And rightfully so, because they're afraid if they expose themselves, they're putting one toe in that taking-away-my-license camp.

So I think it's really important that we think of screening or that we think of our interventions as, I think we are all quite universally agreed, I'm guessing, that we want people to continue to drive safer, longer. We really want access to people to share with them things that we think that would be useful to help them drive safer, longer, and really only begin the road for driving cessation for that group where that's the only just and right thing to be doing.

CHAIRMAN HERSMAN: Mr. Magladry?

MR. MAGLADRY: You've been talking today about essentially, remediation for events that occur in people's lives that reduce their capabilities of driving. One of those that you mentioned early on is FDR, and there's a fairly easy solution to that. If you can't use your feet, let's use your hands. But yesterday, we also talked about technological solutions to a number of these problems. We're not quite as far as having the car drive you completely, where you could sleep on your way to work, but there are potential solutions here today and coming in

the relatively near future that may compensate for some of the things that you've been talking about this morning. The cognition issues are pretty difficult, but there's other solutions.

And I wonder to what extent you consider in looking at screening or assessment tools, the availability of a technological solution that would take that issue off the table. And conversely, if you know the extent to which engineering companies are looking at your material to try and find the solutions to your problems?

MS. MOLNAR: I think that the technological advances really hold promise for our people that are -- for people that are challenged with various medical conditions. I think, off the top of my head, early on with dementia or cognitive loss, there's a high risk of getting lost and if we get lost, there's dire consequences. If we have a GPS, if we have a OnStar system in the vehicle where the person can be located using technology, maybe that will assist with making some of these decisions of how far we can wait for a person to be able to drive with some diminishing abilities.

Certainly, if we can employ the use of some of these technological devices earlier, as people get more used to using navigation assistance, it might be able to assist them with the fear of getting lost or of not knowing the directions. That's different than the cognitive confusion of getting lost, but just simply navigating.

I think there really is some promise for some of these technological aids for us and I would bet -- I know that I've had some conversations with vehicle manufacturers and I would think that there is some interest in figuring out what some of these needs are in more of a universal design concept that what's good for one is good for all and trying to consider the needs of the aging senior and their vehicles.

DR. KRAMER: I do worry a little bit about pushing too hard and technological solutions, especially with regard to perception and cognition. And the reason I say this is that we know that there is something to the old adage use it or lose it. And often there are technological solutions proposed to offload difficult aspects of cognition or perception that may actually even accentuate decline in cognition. So this could very well be a slippery slope that I think we really need to tread cautiously and not over-engineering solutions that may lead to more rapid declines than perception and cognition. And we don't know the nature of that slope. We don't even know if it occurs, but it's certainly a possibility.

MS. SCHOLD DAVIS: I do think there is an opportunity, now that we have advances in technology that allow us to get objective driving data on people, to possibly use that technology to provide information to people about their driving. We've been involved in a couple of studies at the University of Michigan using instrumented vehicles with people with early stage dementia,

having them drive as they normally would for a couple of months, collecting their data on their trip taking, their exposure, their self-regulatory behaviors and then having them come back in and showing them, essentially, a summary of their driving and talking with them about problems they may have experienced.

So this is just some pilot work we've done and I don't know where it might go in terms of actually being useful as a way to provide feedback. But I guess I would just add that, I think rather than thinking about using technology to replace screening, I think that what we really need to move toward is much more of a systems approach, similar to what's used in many other countries. For example, in Australia, they have what's called a safe system approach and it's based on the assumption that drivers are always going to make kind of honest mistakes and therefore they need to make the roads and the vehicles as forgiving as possible.

So the hallmarks of those systems are safe roads, safe vehicles, safe speeds, strong efforts to reduce impaired driving so that it's more forgiving for the driver. But I think there are always going to be situations where drivers do lose capabilities and we can't replace the screening element.

MR. MAGLADRY: Thank you.

CHAIRMAN HERSMAN: I know we'll get a little bit into this in the next panel, but I think, in general, large organizations, society in general, we're not very good at doing individualized assessment. I think everybody likes, even though

you might be subjected to some testing that you don't want, I think everyone likes that, well, when you turn 50, these are the kinds of tests that you need yardstick. And I think that it's very difficult.

You know, we have established ages. You turn this age; this is when you go to school. It doesn't matter where your development and, you know, whether you're ready; this is when you start school. This is when you can drive. This is when you can drink. You know, this is when you start to collect Social Security. You may be ready to work for a lot longer after that, but this is when these things happen. And I think, as a society, we're just not well-equipped and it's a very colossal responsibility to try to figure out how to do individualized assessment.

And it seems like all the pieces of this are so compartmentalized. There's different parts of this that have to come together and we're not so good at bringing all of those different pieces together. And so, you know, I ask -- when we look at transportation, we see a little bit of a patchwork system too. We have a mandatory retirement age for pilots. Maybe it's misguided listening to this conversation here, but it was recently raised from age 60 to age 65. But here you have very rigorous oversight. You have two, for scheduled passenger service, two people in the cockpit who have to be qualified and who can perform the same tasks. They get medical exams on a regular basis by a

certified examiner to take a look at them.

We're not so good at kind of trying to figure out how to do some of these things in other areas because those medical exams actually allow people to be screened out early if they need to be, you know, or identify problems and make sure that they're treated. What can we do that's feasible? Because that's a very small set, comparatively, of people when you look at 30 million drivers over 65 and it's not even clear what the right age is. As we talked yesterday, what is an older driver? I'm not sure when that even starts.

What can we realistically expect society to do as far as screening and assessment? Because I think what I heard was screening is not -- kind of you're cutting off the ends of the curve. I appreciated that example. But then you have to connect to all these things. Once they get that, then they need to go get a vision test or they need to go get some sort of additional assessment. How do we make sure all those components are talking to each other?

And we haven't done a very good job of it and apparently this has been going on since the 1930s, even though we haven't, you know, really figured it out. What is it going to take to get us to the point where it actually does work? Do we need national legislation?

You know, we do have fitting stations for child seats. All 50 states have those. We made recommendations about doing

that to make sure the seats fit for kids. What do we need to do for older drivers? What is going to be kind of the catalyst that's going to bring all of these pieces together and make them function?

DR. KRAMER: I think partly, this is a scientific and partly a policy decision. I think the scientific part of it is, can we come up with screening instruments that have high sensitivity and specificity in terms of ferreting out those individuals that have problems and deciding that those that don't, actually don't have problems.

But policy makers, to some extent, are going to set those thresholds. It probably won't be the scientists. It often isn't. We can provide the information. We can provide the data. It should be valid and reliable across the population and so forth. And I am not an expert in screening, but from what I've heard and what I've read recently, we may not have those tests that we have this degree of confidence in with respect to validity and reliability, sensitivity and specificity.

So first, we need those tests and we need your help as government experts to get the funding to do the right studies. And we've heard about that. We don't have sample sizes that are sufficient to look at the gold standard, whether it's crash probability or other gold standards we've set. We don't have the studies that transpire over a sufficient number of years to do the longitudinal monitoring. We need those kinds of studies and we

need different instruments to actually predict the outcome variables we're interested in. And then I think the policy makers have to get involved and decide what cutoffs are appropriate.

And until we have both the scientific and the policy end, I think we will, as we have gone with chronological age, to set various event times for vision screening or other kinds of screening that different states do at different ages. So I think before we can get to using functional measures, we need functional measures that have the scientific credibility that we have confidence in and then we need to work with our policy makers to decide what those cutoffs should be that send people in different directions, either for remediation or perhaps for training to use public transportation.

CHAIRMAN HERSMAN: Dr. Kramer, do you have any confidence that those longitudinal studies in the scientific community could agree on a measure by 2025?

DR. KRAMER: I think if the funding is there to start the studies, the longitudinal studies. We've heard about several studies, mostly in other countries, not in our country, that are pursuing some of these issues. I think clearly, the funding has to be there.

You know, the National Institute of Health has had a number of consensus groups that have designed studies. For example, there's something called the National Institute of Health Toolbox for designing assessment instruments for different

purposes, whether it's different disease or just normal aging, nonpathological aging.

So I think it is possible to put together groups of experts in different areas, and this shouldn't be one lab, I would suggest. This should be a group of experts who comes together and picks the best instruments we have today, perhaps it adds a few additional instruments, and begins this study so we can start to collect the data that's sufficiently powered so that we can come to some conclusion as to whether we have an instrument that we would want to make policy decisions on the basis of. I think it is possible.

DR. MAROTTOLI: I think, in the meantime, we do have multiple points of entry and I think that that's a reasonable approach to take. I think one is, you know, defining for people what their own responsibilities are. So the driver has the responsibility. You know, their families should be made aware of what things they can look for. Clinicians and physicians should be aware of the things that they can look for. So it shouldn't all be on one group, be it the licensing agency, be it the clinical group, be it individuals or patients.

But I think that, you know, sort of having everyone be aware of potential things that they can look for and then moving forward. And then, potentially setting the thresholds at a very high level so it's clear that the most impaired individuals at any given condition or impairment, we focus on that and then sort of

determine whether that threshold or bar should be moved further down and to minimize the risk of sort of falsely labeling people, making sure that people who have the most severe impairment are identified.

MS. MOLNAR: And taking a step even farther back, I think that in a lot of other countries that have systems approaches, the issues of older drivers are encompassed within a broader strategic vision. And I know recently, I've been reading about the efforts in the U.S. toward zero deaths, which involves trying to come up with the same kind of strategic vision for transportation safety as exists in a number of other countries that have been very successful in keeping their traffic fatalities and serious injuries down. And so I think that offers an opportunity to start to think about how all these pieces need to fit together, the vehicle design, the roadway structure, driver screening and assessment issues and so forth.

MS. SCHOLD DAVIS: And certainly funding is a barrier. It's a barrier at multiple levels. We can identify impairment. We can identify risk and then sort of make it optional to get evaluated. And we put the burden on even the licensing agencies if they want to know if somebody -- if they want to know more information, have an evaluation done. There are inconsistent funding approaches. Oftentimes, people have to fund their own evaluation to decide if they should lose their license or not.

It's the question, from a policy standpoint, is driving

a right or a privilege? You know, if we see somebody at risk, where does the funding become our responsibility to make sure we understand a person's abilities? When is it up to them to be making sure? It is inconsistent and it is certainly a barrier.

CHAIRMAN HERSMAN: The issue of polypharma has come up and we have very clear guidance as far as illicit drugs and alcohol use and impairment. I'm curious, from the folks who look at this on the medical side, do we have any good guidance? I mean, I think we're talking about different thresholds on where to make some cuts here. Is there any understanding about all the multiple medications and how impairing they might be? As a start, to maybe have a list of meds that might be impairing that people need to consider or that physicians need to consider and that people need to be counseled appropriately or have limitations.

DR. MAROTTOLI: So there is a fair amount of information on individual types of medications and their potential risk and effect on driving safety; less so on combinations of medications in terms of quantifying that risk, although there is an evolving literature on that. There are also some ongoing efforts to try and put that information together in a useful way that both clinicians can use, but also pharmacists as another group. And then, that individuals can access as well. So I know that there's an ongoing study now that's sort of working on trying to put that together.

MS. SCHOLD DAVIS: I would like to give the example from

the remediation side. There are medical conditions people are aging with that require a number of medications. And there are some driver rehabilitation programs that assist people with understanding the impact of those medications on their driving by taking them out driving when they are highly medicated, taking them out driving when they're low on their medication to assist with their self-awareness and ideally, helping people that must take a number of medications be able to self regulate and make wise choices because they're able to offer them that assistance.

CHAIRMAN HERSMAN: And I think one of the challenges that you all identified and perhaps we'll talk about this on the next panel, is the role that physicians think they play. And I think our concern, as we've seen in a number of investigations, physicians for commercial drivers who don't feel that they have a concurrent obligation to report, that they believe that their primary obligation is to take care of their patient, the health of their patient, and trying to understand how you impart to them the societal obligation if somebody has significant medical conditions, whether they're a school bus driver or passenger car driver.

And I -- maybe I'll close with a kind of a good news/bad news on the vision side just from some personal experience. And I think this is kind of an example to me about how separated the system is and how many different moving parts of it. And I went in to get my commercial driver's license renewed and I don't have

any physical, you know, issues that would prohibit me from getting a license. But I ended up having to go to an audiologist that was separate; to an optometrist to get the vision exam; you know, obviously the lab and screening and all of these things.

And it was clear to me that all of those individuals were not talking to each other because I ended up having my exam form signed before the vision test was even completed. I'm not a risk, for sure, but it just was clear to me that the primary person who was responsible for aggregating all of that information hadn't done what needed to be done.

And ultimately, my optometrist hadn't given me the test -- one of the tests that I needed to sign off on the form. And so I just was kind of a little bit of a guinea pig. When I went into the optometrist, I asked him about vision tests for older drivers and if he gets referrals from the DMV. And one comment that he made to me was, you know, it's really hard for him because he felt like all he's asked to do is to say can they read the chart. And he said a lot of times, they can read the chart, but they can't navigate around my office and they can't comply with, you know, directions when I'm trying to explain to them what they're supposed to be doing. He said that I don't really have a role in saying anything about that; I'm supposed to say can they read the chart.

And so I think it's just an example of how difficult it is, how difficult this issue is where you have lots of inputs.

And maybe people who have good observations, but there's not really a mechanism for them to perform that way.

The good news story on this is that my mother, and after listening to some of the presentations yesterday, my mother's one of those drivers that's self-selected. She doesn't -- she chooses not to drive at night, not to drive in bad weather. She's very comfortable having her friends pick her up, things like that. She always hands the keys to me whenever I come to visit her and -- but so she's self-selected out.

She said she doesn't see well at night. Well, guess what? She had cataract surgery not too long ago, in this last month, and she called me on the phone and she said Mrs. Magoo can see. She said I can see the leaves on the trees. I can see. Everything's great.

And you know what struck me yesterday listening to that panel is, I bet my mom isn't going to go back and say now I can drive at night and now I can drive in these other conditions. She's already pulled herself down to where she's not comfortable doing these things because of that physical decrement that she had. But now that she's gained that back, I don't know kind of what decisions that she makes coming after that.

And so, Ms. Davis, I would love to be able to see, you know, a screening program work for people, like you said, so it can go in reverse. Not only to take the people out that need to be out, but also to help people who maybe have more performance

than they know to get back in.

So you all have sure made me think. So this has been another great panel. I think trying to comprehend all of these pieces and put them together is the real challenge that we have as policy makers.

I know we have a number of other questions. We're a little bit late on our schedule. I hope that maybe you all would be available for those questions that didn't get asked to share with our researchers and our team, your thoughts on those issues.

Thank you for being here and thank you to the panelists for your questions. Okay. And we're going to have the movie again. And for those who missed it yesterday, I know you want to see it. It's going to show at 12:00 and we actually have a lunch break until 12:30 today. So we'll adjourn, come back for the last panel at 12:30.

(Whereupon, at 11:15 a.m. a lunch recess was taken.)

A F T E R N O O N S E S S I O N

(12:40 p.m.)

CHAIRMAN HERSMAN: Welcome back. Our last panel of the forum will consider state programs and practices. This panel is going to look at a variety of state Department of Motor Vehicle licensing approaches that have been enacted in by state legislatures in recent years and consider the ongoing work of the state DOTs to determine if statutory changes to the licensing of aging drivers has had a safety impact. The panel will also look at non-statutory DMV programs and other organizational programs designed to ensure that aging drivers are safe drivers, particularly in the areas of medical assessments.

Stephanie Davis and Steve Blackistone have prepared questions for this panel. Ms. Davis, will you please introduce the panelists?

MS. DAVIS: Thank you.

First, I would like to introduce Dr. Carl Soderstrom. Dr. Soderstrom was appointed chief of the Medical Advisory Board of the Maryland Motor Vehicle Administration in 2005 after serving as associate chief for three years. For 25 years prior to joining the MVA, Dr. Soderstrom was a member of the surgery traumatology faculty of the R. Adams Cowley Shock Trauma Center of the University of Maryland School of Medicine and a senior researcher at the school's National Study Center for Trauma and EMS. He is currently adjunct professor of surgery at the University of

Maryland and an associate faculty member at the Johns Hopkins University, Bloomberg School of Public Health, Department of Health and Policy Management.

Dr. Soderstrom has authored over 100 scientific publications, many of which focus on substance abuse and injury, particularly as related to driving. His current research efforts center on medical fitness to drive. Dr. Soderstrom served on and/or testified in many traffic injury prevention efforts, including the NTSB's hearing on medical oversight of the noncommercial driver. He has just completed a two-year term as president of the Association for the Advancement of Automotive Medicine. In 2009, Dr. Soderstrom was appointed by the Secretary of Transportation to serve on the Medical Review Board of the Federal Motor Carrier Safety Administration. This year, he joined the NSC's Crash Injury Research Engineering Network Team.

Dr. Soderstrom earned his medical degree from the Downstate Medical Center of the State University of New York in Brooklyn, New York. After completing his general surgery residency at the Beth Israel Medical Center in New York, he completed a year of trauma surgery fellowship at the Shock Trauma Center of the University of Maryland.

Next is Dr. Loren Staplin. Dr. Staplin is the founder and principle partner of the consulting firm TransAnalytics. He has worked as a senior research scientist with the Center for Transportation Safety at the Texas Transportation Institute, vice

president for transportation safety at the Scientex Corporation, and senior associate with Ketron, Inc. Before joining Ketron, Dr. Staplin worked for three years at Lehigh University as an assistant professor and research scientist. He has successfully led 25 federal and state research grants and contracts since the early 1980s.

Dr. Staplin was principle investigator for the National Highway Traffic Safety Administration's sponsored project, Model Driver Screening and Evaluation Program, which validated a set of functional measures as significant predictors of at-fault crash risk among older drivers. He led the development of the Federal Highway Administration's Highway Design Handbook for Older Drivers and Pedestrians and is supporting its current update. He also led development of AAA's Roadwise Review, an educational product for self-screening of safe driving abilities by seniors on their home computers.

Dr. Staplin received his doctorate in experimental psychology from Arizona State University in 1979. He currently serves as chair of the Committee on Operation, Education and Regulation at the Transportation Research Board.

Dr. Jane Stutts. Dr. Stutts recently retired from the University of North Carolina's Highway Safety Research Center, where she held the position of associate director for social and behavioral research. During her 32-year career at the research center, Dr. Stutts managed projects for a wide range of public and

private sponsors and authored over 100 journal articles and research reports. Her work focused on the behavioral aspects of traffic safety, including older drivers, distracted and drowsy driving, motorcycle safety, bicycle and pedestrian safety and novice driver education.

At the national level, Dr. Stutts served the Transportation Research Board in a variety of capacities, including committee chair, participation on several national panels and, most recently, chair of the System Users Group, which includes the Committee on Older Person's Safety and Mobility. Since her retirement, she has continued to consult in the field, including a recently completed project for the AAA Foundation for Traffic Safety to develop a database of state driver licensing practices and policies related to older and medically at-risk drivers.

Dr. Stutts received her undergraduate degree in psychology from Wake Forest University and her Ph.D. in epidemiology from the University of North Carolina at Chapel Hill.

Ms. Essie Wagner. Ms. Wagner has been working on older driver issues for 19 years. She is a program analyst working for the National Highway Traffic Safety Administration's Safety Countermeasures Division on Older Driver's Safety Programs. Ms. Wagner is responsible for the implementation of the agency's Older Driver Program activities, working with organizations, including the American Medical Association, the American

Association of Motor Vehicle Administrators, the American Society on Aging, and other organizations that have an interest in older driver safety.

She received her BA in psychology from the College of Wooster in Ohio and went on to get an MA in applied psychology, human factors from George Mason University. Before joining NHTSA in 1998, she worked for seven years with the Federal Highway Administration where she conducted and monitored extensive research on older driver issues, including the development of the Older Driver Highway Design Handbook.

I would like to begin by asking the panel, we've heard a lot of research yesterday and this morning and I would like to ask, what do we actually know about what states are doing to address the safety and mobility needs of the older driver?

DR. STUTTS: And I think I will take the first stab at that, mainly because I think one of the main reasons I was invited to participate in this panel was the recent project, the opportunity I have had to work on a project with support from the AAA Foundation and with assistance from AAMVA to develop a database and a website of state policy, programs and practices. So if the technical panel or the panels here have any questions about specific state policies or programs or what states do this or that, then I think I may have a good resource to draw from in answering those questions.

I have one slide here -- just a couple slides showing a

little bit about the database for those who may not be familiar with it. It is housed on the AAA Foundation seniordrivers.org website. There's the address there up at the top of the slide. There are two parts to the database, and I know you can't read all the type there, but the first part is what we called the LPP, license, policies and practices. And this is just sort of a nuts and bolts of current state practices regarding, particularly, older and medically at-risk drivers. And again, this is focused on driver licensing agencies and all. So just a current nuts and bolts of what are the policies and practices in place by the various states.

The second part of the database is the noteworthy initiatives and you know, in addition to just serving as a resource and compounding a lot of information that was already out there in various sources, but hadn't been pulled all together. But in addition to just doing the nuts and bolts, we wanted to go in and ask the states what are you doing that you think is really pertinent and really helpful to older drivers, what initiatives could we possibly promote to other states and all. So we pulled these into -- together into a separate section of the database called noteworthy initiatives and have about 40 initiatives there that we pull from.

Just to show you a couple slides on what it looks like. If you go into the license, policies and practices database here, this is just the first screen. It pops up the first table that

you come to is on vision requirements for licensing, but you actually have the option. There's a pull-down box here up at the top of 18 different tables of information. So we cover -- and you click on a table and then pull up that information, whichever you're most interested in at the time.

So the database covers vision standards for driving, renewal requirements for driving and this is things that are available in other databases as well, but we've tried to pull it all together. We have tables on physician reporting, reporting by family members and law enforcement. We have a table on the medical review process, both for states with a medial advisory board in place and those without a medical advisory board. Information on referrals or what are driver licensing practices regarding possibly referring to an OT for assessment or other outside referrals. Information on restricted licensing practices, any particular training that they do for their local examiners and their staff and then also, information about whether or not they have a website with information for older drivers or medically at-risk drivers and what information is available in their handbook.

So a lot of different information covered there and, again, I would stress that some of this information is available on other sources. There are very good websites out there. GHSA has a very good website. Insurance Institute does, but they tend to focus more on just the renewal requirements and maybe particular policies that are age-based or in effect for older

drivers, but we try to cover a broader spectrum of issues that driver licensing agencies are involved in.

This is just a sample of the table up close, and one nice feature of the website is that you can sort of click on any column and it sorts the column. So like I was doing to prepare for this forum, if you asked how many states do this, how many do that, it makes it very easy to see, you know, where your state is. If the DMV is interested in seeing how they stand with respect to other states, it makes it easy to see where you stand.

The other half of the database is the noteworthy initiatives. And if you click on this, I don't have the opening screen to look at, but you can search for particular noteworthy initiatives. You can search by state, what is a given state doing or you can also search by topic area. And you can pull up -- we have a total of 40 initiatives and this is just an example of one. I think this is from Iowa and this is their practice of doing tailored drive tests there.

And we have information there describing the initiative and I think, very importantly, we put contact information because we're wanting the states to be able to -- you know, if they're interested in this initiative to have someone there that they can contact and talk with and find out more about it. And we also identify the status of the evaluation of these initiatives. And I'm not going to get into any specific points now. We'll wait to see what, you know, specific questions come up, but I will say

right off the bat that there are very few of these initiatives that have been evaluated. That's it.

MS. DAVIS: Thank you.

Dr. Staplin, you have conducted several studies attempting to define functional fitness to drive in terms of at-fault crash risk. Should licensing policy and practice change to take fitness to drive into account in an aging society?

DR. STAPLIN: Thank you for the invitation to appear before this panel.

I think yes, it definitely should. I think that, first off, we need to recognize the public health mandate that licensing authorities are charged with carrying out. Our society accepts driver qualifications, broadly speaking, and I'm sure most would agree with the aphorism that we all need to see to drive. So we accept vision testing when we enter licensing and in some states, that renewal. We accept more stringent qualifications requirements for commercial drivers, even more stringent for those carrying hazardous materials.

So there's a lot that has to do with an analysis of risk that sort of dictates how much we will accept or tolerate in terms of qualifications requirements. Until now, risk analysis has pretty much been limited to a consideration of consequences, but ideally, risk analysis would also take into account the probability or the likelihood of a harmful event.

We haven't been able to do that very well up to this

point, but with the advent of the linking between functional fitness, functional measures of fitness to drive and outcomes that are perhaps somewhat disputed, but are, I think, broadly recognized as important, specifically, crashes and even more particularly, at-fault crashes. With the ability to start tying those things together, we begin to have the ability to speak to likelihood or probability in addition to just crash consequences.

I'm going to take a little bit of an exception to some of the points that were made earlier in that, I think, in fact, in this country, over the past decade or so, there has accumulated a respectable body of evidence using large population-based samples, representative samples that have been tracked over a period of years permitting prospective analyses of these relationships between function and crashes. And again, at-fault crashes in particular to the point where no researcher would ever say we have all the evidence we need, but we do have a pretty respectable body so far. And enough, in fact, to have allowed us to take some of these relationships and build them into programs that are being implemented in licensing jurisdictions, either on an ongoing or a pilot basis. I'm thinking in particular of Maryland and California. Probably, we'll talk more about those examples as we go on.

Could I just have a slide real quick, please, here?

As a quick case in point, I want to put up a schematic. Let's go back to the first -- yeah. I want to acknowledge a

colleague of mine, Jack Joyce, who was mainly responsible for this work. When he was recently -- he retired as the chief of Driver Safety Research at the Maryland MVA.

I put this up here because -- next slide please -- we talked earlier about how hard it is to pull elements together into a workable system in a licensing arena. And this is a system that was developed and was presented internally. I'm not suggesting that its implementation is pending, but a lot of feasibility analysis went into this. And there are some key aspects here that I think deserve note.

One is that, if a customer -- licensing agencies refer to drivers as customers these days -- customers go through the normal process. A few, in this case, by age, are diverted into a brief screen focused on cognitive measures. Most, the very vast majority, pass. A few are tagged for further evaluation by a medical advisory board. Over time, there is a continual process improvement to improve the ability to set cut points so that you have the sensitivity and specificity that you want and which are compatible with the agency's resource allocations. It takes time, obviously, to do this and you want to make sure that the money you're spending is targeted at that segment of the population where you're most likely to pick up those with age related functional deficits.

And finally, there has to be, at the end of all this, an outreach by the licensing agency to promote awareness, to

facilitate, to as big a degree as possible, transitions to other transportation alternatives. That's enough for that, please.

I want to stress also, that this whole issue of screening for functional fitness to drive is a very important crosscutting issue. We heard yesterday from people who were responsible for developing the next version of the highway design handbook and for people who are involved in vehicle design improvements targeted towards older persons' safety.

These human-centered design initiatives need to have some kind of benchmarks. We can't accommodate everybody by building safer highways. We can't accommodate everybody by building safer cars. We need to have, not a moving target, but an understanding of what level of capacity the design community can expect in the general driving population, a set of minimum qualifications that are going to be established and enforced through the licensing process.

Three closing points real quickly. The point was made before and I want to reiterate that screening does not equal assessment. That when you do implement a screen, it leads to, not directly to a licensing action, but in a system such as that diagram earlier, additional opportunities for observation and assessment and tracking.

Second, I would say that, you know, the perfect is the enemy of the good. That applies to a lot of things. There is no perfect screening tool. I certainly didn't mean to suggest that

we're there yet, but I think we are pretty far along the path of getting to something that is scientifically defensible and practical for an agency to implement.

And finally, I would say that the prime research opportunity is now, to develop and validate and calibrate such a tool. We have not been able to link vision, acuity at least, to crash experience because we've had vision screening criteria in place for so long that we have pretty effectively removed people with the worst vision from the population. And this restriction of range makes it impossible to have a significant relationship.

Right now, we don't do functional screening. If we want to have a program, not just by 2025, but in, let's say five to ten years, now we need to have an ambitious research agenda that, in one or more states, for at least a limited period of time, obtains this kind of screening data for a large number of people and follows them so you do have the power to do that analyses and identify the tools that are going to be the most appropriate in this regard. Thanks.

MS. DAVIS: Thank you.

Dr. Soderstrom, we heard Dr. Staplin refer to the Maryland data for older drivers. Could you describe the role of the Medical Advisory Board and how an at-risk driver would be referred to the Medical Advisory Board?

DR. SODERSTROM: Yes. First of all, it's -- can I have my slides, please? It's quite an honor to be on this panel and be

included with all of the other esteemed people that have been with all the other panels the last day and a half.

Because my deceased colleague and mentor, Dr. Rolly was unable to attend this meeting in 2003, I had the opportunity to testify before the Board and I have to say that this meeting -- that meeting, I think, was a seminal meeting in the sense that it, for the first time or one of the very first times, brought together people from many different jurisdictions in the United States. And we suddenly began to find out that we had 51 different ways of doing things. And so some really good things have come out of that initiative. And so this is a great follow up meeting to that.

Our Medical Advisory Board, we think, is the oldest in the world. It was founded in 1947, then found two after that came from Florida and Delaware. And there are many Medical Advisory Boards. About two-thirds of states have them, but they function in very different degrees throughout the United States.

My colleague noted, if you look carefully at the picture of our Medical Advisory Board, that's a picture from 1949. There are ashtrays all over the table, so they weren't as healthy as we'd like them to be in those days.

I get appointed and the other members of our board get appointed by state law by the administrator of the MVA to give an advisory opinion for cases of any licensee or applicant for license, if the administration has good cause to believe that

driving a vehicle by him or her would be contrary to public safety. So that's our job is to give advice and maybe we can discuss later, there's actually several different venues in which we can give advice.

The way that people come to us, the paths to the MVA are -- they can be court referrals. They can be requests for reexaminations from policemen who encounter a driver with a -- have a concern about their fitness to drive, the self-reported conditions at the time of application or renewal, a report from clinicians, concerned citizen letters. I will say that a letter that says I'm concerned about the driving of my ex-husband is very different from the, I'm concerning about the driving of our father who's had a couple fender benders in the last couple months and we're concerned about him. And then we also get referrals from customer service agents.

Dr. Rolly, John Everhart, I'm not sure exactly who gets credit for this, but this is basically our philosophy. It's safe mobility for life. It's about mobility for quality of life, safe mobility for life of the client and other users of the roadway. And we want people to drive as long as they are safe and consider each driver on a case-by-case basis. And we accomplished this with medical assessments, reeducation, rehabilitation and training programs.

This raises an important philosophical. This is a true letter from years ago and I took out all identifiers, a letter

from a physician that was referred to us. The above-married couple had been patients of mine for three decades and I love them. They both have very significant physical and mental impairments concerning which I can supply full details to the appropriate medical board.

The impairments are such that I feel strongly that they should not be driving. Mrs. X, after several worrisome episodes, promised me a year and a half ago that she would not drive and I understand that her family were all partners to that compact. I am now advised by their caregiver they have purchased a new car and have the intention of driving it.

The important part of this letter is please advise the appropriate medical agency. I stress that this recommendation is not based on their age or their diagnosis. So it's really all about function and it's not about any specific diagnosis that we focused our efforts on.

This is an example of someone who is extremely fit. She's my mom. She's 91 years of age. I will challenge anyone in the room to say that she has less senior moments than all of us in a week than we have in a month or she has in a month and we have in a week. And just to raise a little provocative question, in the past we used to ask physicians who filled out a report this question; in my professional opinion, this person is physically/mentally capable of safely operating a motor vehicle at this time. And the answer was yes, no and comment.

Frequently, the comment was I don't know, you tell me or please make an assessment instead of checking yes or no. So this brings us into a new era of how we should go about doing this and that is, based on your assessment of this patient, do you have any concern about his/her ability to safely operate a motor vehicle. And then the question is -- the answers are -- possible responses are yes, no and not sure. If yes or no, not sure, please explain.

So thank you for letting me make these opening comments and maybe stir a few questions up along the way.

MS. DAVIS: Thank you.

I would like to turn questioning over to Mr. Steve Blackistone.

MR. BLACKISTONE: Thank you.

And let me ask Ms. Wagner a question from -- regarding the NHTSA perspective on all of this. We've heard a lot of ideas and some specifically from the other panelists about things that can be done by the states to enhance the ability of driver licensing authorities. From NHTSA's perspective, what are the things that can be done, that states should be doing to enhance their ability to address older driver safety?

MS. WAGNER: Wonderful. Thank you so much for having me and for asking this question. Can we have my -- thanks.

NHTSA takes a sort of a comprehensive approach to addressing older driver safety, if we can manage that. The way that we go about it is we try to find the people who have a way to

identify the at-risk driver and I use this graphic here. We have the families and friends and the older drivers and the general public who have some way of seeing that something's not right that's going on.

But we also have professional organizations and professional individuals who have the ability to recognize somebody and that's driver licensing, healthcare professionals. We've heard a lot about those. Social services are very important as well; for example, your area agencies on aging, other organizations that may be involved in that. We also include, for example, the Alzheimer's Association and people who can do some educational activities, as well as law enforcement.

All of these have the ability to identify an at-risk driver, but they also have the ability to do something about that individual. And I also want to point out that all of this is using a firm research basis. We don't want people to go ahead and just say oh, you have to stop driving because you're old. And it goes alongside everything that we've been talking about over the last couple of days here.

And that brings us to, just a good example of how we've managed to address this from the national perspective at NHTSA. We developed the driver fitness medical guidelines in partnership with AAMVA, who are here today, and these are really -- these are voluntary guidelines and that is an approach that we have to use from NHTSA's level is a voluntary approach for assessing and

monitoring the potentially at-risk drivers. And that includes a lot of the folks we've been hearing about over the last couple of days; people with dementia, people with Parkinson's, epilepsy, I think, has been mentioned as well.

It covers vision, it covers cognition, it covers physical function and the way that the DMVs need to be able to interact with these individuals to assess them and monitor them over the course of the renewal cycle for that individual. But the nice thing about these particular guidelines is that, also, they help identify the ways that the DMV should be working with other types of organizations.

For example, it has educational information in there about what DMVs should be saying to physicians and other clinicians about, you know, how should you be counseling your patients about this. So we have ways to do that and we also have educational information in there about people -- you know, for people with those medical conditions that put them at increased risk. So we really do want, in this case with this example, we want the DMVs to be paying a little bit more attention to monitoring theses individuals, but also, getting more of these individuals into their system so that they're not causing an advanced risk to the public.

That same sort of model is used in other areas with education of medical providers themselves, with the physicians, pharmacists, occupational therapists and so on. So it's that kind

of approach where we do need to have multiple players engaged and making those referrals to the people to the side, if you're going back to this image. We want driver licensing to be talking with law enforcement and we want law enforcement to be making those referrals to the DMV. But we also want law enforcement to be talking to social services saying, well, if this individual is found driving at, you know, 2:00 a.m., driving erratically and they're not otherwise impaired, we want them to be taken care of appropriately. We don't want them to be, you know, thrown into the drunk tank or whatnot. So that's generally our approach to that.

Thank you so much.

MR. BLACKISTONE: Great. Thank you very much.

I have a number of other questions, but let me turn it over to Dr. Garber before I monopolize all of the time here.

DR. GARBER: I just have one quick follow-up question for the panel, which is, if I take an eight-hour drive from Boston to D.C. or at least, if I do that in the middle of the night when there's no traffic on the roads, I'm going to pass through seven states in the District of Columbia. I can add in the Commonwealth of Virginia if I go over the Potomac.

How do the different MVAs share information about their drivers? If I am found in a particular locality to not be able to drive, is there a problem with me getting a driver's license in another state? And how do the states that are next to each other,

where someone may have a physician in one state, work in another state and actually have a driver's license from a third state, how do they share information to determine whether they are consistently applying those sorts of evaluations to the folks that live in those states?

DR. SODERSTROM: I'll start by responding to that question.

You're absolutely right, Mitch, that -- well, you state a premise. What the premise is, is we don't have a good way of communicating right now at all. Because Maryland is a little state and because of a lot of people pass through our state or work in our state that live in another state, from time to time, our office ends up speaking to individuals at other jurisdictions and/or if they have an MAB. But right now, that dialogue is something that needs to be explored and we are in the process of, as a first baby step, hopefully in the near future, to get together with colleagues at least for the contiguous states around us to begin to get to know each other, get to know each other's rules and regulations and kind of get, philosophically, all on the same page about how to do things.

You're right. A perfect example would be a number of years -- well, I won't specifically give you a case, but you could have a condition called narcolepsy and if you don't have any symptoms and you're not having any episodes of cataplexy, in the State of Pennsylvania, you can be free of all those symptoms and

problems for six months and be allowed to drive, whereas, in the State of Maryland, it's one year.

Because of a dialogue we actually had with Pennsylvania, we came to a middle ground decision on that one, but right now, I don't think the dialogue is existent and it needs to take place.

DR. STAPLIN: If I could just add a quick comment? I think if and when a brief cognitive screen is to be adopted, there does definitely need to be some federal regulation with request -- with respect to methodology and criteria so that the process is standardized across jurisdictions. The time to -- the opportunity to do that is, of course, when it's first implemented. So the problem you speak of is a very important one.

You talk to people in the sun states, Florida, you know, gets a lot of people from other states coming down for the winter and the licensing officials, Department of Highway Safety and Motor Vehicles are very frustrated by the different standards for licensure in other jurisdictions, so that's a very important point.

DR. STUTTS: Now just one additional comment to add to that is that, you know, recognizing differences between states and how they treat things and all, it also implies that, you know, in order to make a decision about which is best, that we know which is best, that we've done some evaluation and we know that, you know, one state's policies or practices or requirements are better than others in terms of ensuring safety on the roadway.

And at this stage, we really don't have a lot of that evaluation information to make a decision. And so states or -- you know, for the most part, they're making their policy decisions and requirements, you know, best -- you know, based on best available evidence, but that is very weak evidence compared to, you know, what the medical community typically requires for making decisions like that. It's often based on consensus or just expert opinion or you know, at the bottom end of the scale just because they've always done things that way.

So you do have some implications there that right now, we don't have the guidelines in place to what's the best system to undertake.

MR. BLACKISTONE: Let me follow up with a -- what's, perhaps, a very practical question and that is, we recognize that virtually every state has very severe budget problems these days. Resources are going to be very limited, not just this year, but probably for some years in the foreseeable future. Given that background, where should the states put their limited resources? Where do you start? And I suspect this is going to be an even greater constraint in the coming years than it has been in the last few years, if that's possible.

MS. WAGNER: I'll try tackling that and hope the others will jump in as well.

Going into the basic guidelines here that we provided to the states last year would be, probably the best place to start.

It will help them in reducing some of the litigation that may come in, in terms of ADA compliance. So there may be some funds that could be freed up that way. However, it's really more about the -- you know, making sure that we have safe people on the road.

I would love to have Medical Advisory Boards in every state. I would like to have functioning Medical Advisory Boards in every state, but what I want them to do more than that is to adopt these guidelines and to actually make sure that they are screening and identifying the people who are at risk on their roads.

MR. BLACKISTONE: Are there other takers?

DR. STUTTS: I'll just --

MR. BLACKISTONE: Dr. Stutts?

DR. STUTTS: -- add to again, that sort of assumes that they're going to be some -- doing something about older drivers to begin with. And the only thing I would preface that by is to say, you know, particularly when I've been contacting states lately to see if they're interested in undertaking certain initiatives or to assist in evaluating certain initiatives, it's quite obvious that older drivers is not at the top of their radar screens. They're dealing with --

MR. BLACKISTONE: No, it is not.

DR. STUTTS: -- REAL ID, you know, all kind of issues. Commercial motor vehicles are getting a lot of attention. Young drivers and alcohol are always at the top of their list, so you

know, I think our very first challenge is to really bring it to their attention and get them wanting to do something. And then we can choose what.

MR. BLACKISTONE: Exactly. It is a matter of priorities.

DR. STUTTS: Um-hum.

DR. SODERSTROM: If I could chime in, I think we need to look at the practices and always reevaluate what we're doing. The Maryland Medical Advisory Board was -- has a long legacy of being founded by some various clinicians. And one of the things we looked at in the last several years was kind of how we did business and we needed to get more efficient. Well, it wasn't -- something that we looked at, we became a lot more efficient because we began to realize, since these are good clinicians who serve on the board that, to some degree, we were practicing as their clinicians.

In other words, if they had a certain condition such as, let's say diabetes, uncomplicated, insulin-requiring diabetes, we might be asking for a report every year or two years. Well, there's really no -- there's no real reason for us to do that. If you are -- have some unhealthy practices, I'll use the number 300. If your cholesterol is 300 and you're running around with a blood sugar of 300, that's your problem not being in very good health, but that's not an issue for the Medical Advisory Board to keep on -- keep tabs on you.

So we -- I think it's -- one has to improve efficiencies about what conditions are reportable. As science comes in, we have to think about, what are the conditions that really, really count. For instance, again, going with diabetes, anyone who had diabetes in the past was supposed refer themselves to the MAB, well, the higher risk is obviously in insulin-requiring diabetics, so let's take that route and drop out with the oral diabetics. Although, I understand with the new -- there are some people who are on insulin that weren't on insulin before.

But we really have to look and look at our practices and streamline those practices. And one of the things that a Medical Advisory Board can do, which we've done in Maryland, is we're very fortunate to have a driver wellness division with 12 nurses. And I said that there's ways that we can give advice. Well, if you have a well functioning medical advisory board, you don't have to have the board review every case that comes in. We can work with -- we can -- we do work with our driver wellness division to come up with algorithms of where cases can be solved and taken care of. And most importantly, it's a way to trim down the system.

In many states, I understand from the first time I was here, is once you get in the -- once you get in the hopper, you never get out. You need to be able to close cases. If I have a brain injury and I recover from that brain injury to a certain level of complete recovery or a good level with OT that I drive a

certain way, that case should be closed.

So in the midst of looking at budget constraints in the future, I think all of our states with MABs or are thinking of them really need to look at what actions they're doing and are they efficient actions that they're doing.

MR. BLACKISTONE: Thank you.

Dr. Soderstrom, if I might follow up on a comment that you made, which I think is an important one. When you said that we really should be looking for impairment and not necessarily the age or the diagnosis, but yet, I reviewed the Insurance Institute for Highway Safety's summary or analysis of state driver licensing laws and they identified 18 states that shorten the renewal time or time between renewals for older drivers. The states vary in age from when that accelerated renewal starts between 61 and 85, kind of a broad range there.

How do we discern what an appropriate age is for when we need to begin taking greater look at older drivers? The reality is, the states are going to be looking for some guidance on that and it's going to be very difficult to say just look for impairment.

DR. SODERSTROM: Dr. Blackistone, why did you do this to me?

MR. BLACKISTONE: I'm just telling you what the states' laws are now.

DR. SODERSTROM: I guess, when you look at these panels

that we have in discussions and forums, we're dealing with a very difficult issue right now and that is, what is old. In my family system, I'm 66. I just entered middle age, so --

I think we could work our way backwards and possibly say that people are 110 years of age probably need to be assessed and then start working your way backwards. But the question is, I think, where is old, what is senior, what is elderly, and I don't think we have the answer to that question right now. And I -- the panels yesterday and today make it very clear that one 85 is not equal to another 85. So I don't know where -- what the magic age is, but we have to speak to the -- to your question with science and I don't know if science has enough answers right now to tell me where. I'm not going to tell you my opinion about where I think it is, but I definitely do not think it's 65 and I definitely don't think it's 70 and I definitely don't think it's 75.

MR. BLACKISTONE: I totally understand the dilemma.

DR. SODERSTROM: Yeah.

MR. BLACKISTONE: I'm just wondering what to say when I'm confronted by state legislators who are asking me that question.

DR. SODERSTROM: Well, it was kind of alluded to before. Legislative processes and press processes are very interesting. As you probably, all of you know, last summer in Cape Cod in Massachusetts, there were six or seven crashes in driving -- older

drivers in which some really horrible outcomes happened, where people died and were seriously injured. And because of cluster, these occurred in a two-month period, there was an immediate public outcry of, we need to do something about this. And we got calls, I'm sure you got calls on this, I'm sure Jane got calls, Loren got calls.

So I don't think we should let public outcry drive the conversation. Unfortunately, it does drive the conversation to a great degree. But I think we need some science right now about what constitutes when I'm frail or fragile. And again, that's another ten minute discussion because that's going to become a new diagnose sometime in the next five years, fragility. I don't think I answered the question very well.

DR. STAPLIN: A quick follow-up, Dr. Blackistone. One thing you could say to a legislature who poses that question to you is you could show them data that would support the notion that if, for whatever reason, you would like to screening at the age of 25, you'll need to spend $10,000 to find one person who might have an issue with impairment. If you would like to spend only $75, then you can start screening at age 90. I mean, there's a definite relationship there that is, you know, demonstrable. So, you know. So think about that.

MR. BLACKISTONE: That's an interesting response. So unless others have comments, I'm -- go to the panels.

CHAIRMAN HERSMAN: Okay. We'll go to the first table

and go to FHWA.

MS. ALICANDRI: We have a couple questions here. The first one is for Dr. Soderstrom. Do you see ways to foster broader clinical engagement in older driver safety to encourage better patient assessment and reporting?

DR. SODERSTROM: That's a great question. One of the recommendations that came out of the last -- the 2003 effort was that part of the curriculum in medical schools should be that this subject be on the table. As far as I know, it still hasn't been accomplished.

When I was at the trauma center for many years, I know it was not part of my modus operandi to send you home with four rib fractures, a neck collar on, a cast on your left leg and a cast on your left arm and tell you probably not to drive. Probably didn't even think about it.

In Canada, they're doing some very nice things. In the State of Maryland right now, we're going out to all the university hospitals and their major departments and all the community hospitals and other facilities to try to get physicians to put the -- not just physicians, all clinicians to put this on their radar. We need to educate them to think that, if someone in front of you is 16, 96 or 116 is -- they just said they have a new symptom, they -- I just put them on a new medication, I just am going to do something to them, where does driving fit into that equation?

So the education piece is beginning in many places, but it's far from complete. I would dare say, in most jurisdictions, in most states, clinicians have absolutely no idea, one, whether there's a Medical Advisory Board in place. They have no idea at all whether they have any obligations or the driver has any obligation about reporting or talking to the DMV or MVA.

MS. ALICANDRI: Thanks.

Dr. Staplin, you said we're pretty far along the path to having a scientifically valid screening tool, which, to some extent, contradicts what I think we heard in the previous panel, which is, we're not really sure what the right screening techniques are, we need to do a little more work to get there. And maybe it's a half full/half empty glass kind of issue, but when do you think we're going to have that? When will I be able to say to my father, well, just go the DMV, take this one 20-minute test and see what happens?

DR. STAPLIN: Thank you.

I honestly think that we could be at that point, certainly within a decade and probably less. I think that where we are right now is that we have a solid understanding of the constructs that most significantly predict the risk of an at-fault crash.

Now the way constructs are operationalized, those are the actual tools and tools need to have certain properties, they need to be standardizable, they need to be reliable and so forth.

But I think the key constructs have been reasonably well validated at this point. I think it's always important to gather additional data and to refine our understanding of those relationships.

But I think, honestly, that certainly, within a decade, we could have something that is -- that will pass scientific muster, ultimately will, as a previous panelist pointed out, be implemented in terms of sensitivity and specificity so that, you know, where you put the cut and say who passes and who fails will be as much a political as a scientific decision.

So there are a number of those issues that have to be worked out, but I think those are outside of the realm of the issues that you are bringing up. So I don't think we are that far away, quite honestly.

MS. ALICANDRI: I guess a follow-up question for anybody that wants to try it is, Dr. Soderstrom, I think you said we need some more science about what constitutes old for screening purposes. So if Loren's telling us we could have a tool in ten years, when would or what do we need to do to get to the point to say who should be using that tool when they show up at the DMV? Should it be the 65-year-old, the 75-year-old, the 85-year-old or the 95-year-old? When will we know that?

DR. SODERSTROM: Rather than pick an age, our practice has been, for years, we do use functional capacity screening. We use it when we have drivers that are referred to us, in which there are indications of cognitive problems. It's not a matter of

that -- of how old you are, but rather, that your clinician, the police report that came in, the actions with the counter personnel at the agency pointed to, there may be a cognitive issue involved. So it's not a matter of age, about who gets screened. It's rather, an issue of if there's some manifestation of a cognitive dysfunction.

Another very important thing we have to remember when we think about older people is dementia is very different than delirium. And there are many older people, as they go along in life, they may be placed on a new medication or be put in a stressful situation or have an illness -- a stressful situation and illness that may cause them some confusion. That's not dementia. That's simply a little bit of delirium. And unfortunately, I think a lot of clinicians are fast to pull the trigger and label someone as being -- having a dementia when really, what was, they had a confusional episode or delirium episode that was a one-time phenomenon and is now gone and they are not demented.

DR. STUTTS: And I would just add, too, when you try to pick a specific age, not just to assume that that screening is a one-time event that starts at a particular age, that there are other things that DMVs do and there are other ways into the system. And one thing that pops to my mind is training your line examiners to observe for potentially at-risk drivers. That there's some states who do this very well and examiners can be

that very front line screening. And if they see something that they're not certain about, then they might be the referral to some additional screening or testing and such. So that can be a good avenue to open the door and not require it of everybody.

DR. STAPLIN: And Beth, one thing when you're talking about what age is appropriate, if screening were to be implemented, an argument for starting at an earlier rather than a later age is that, probably the most sensitive indicator is someone's departure from their own baseline. So if you had several years of data on an individual and there was an abrupt change in function, that would be a logical trigger.

MS. ALICANDRI: Thanks.

Another question from our table is for everybody, I guess. To what extent are the licensing agencies really able to limit older driver risks and extend mobilities by providing provisional or restricted licenses? Are such licenses effective? Do we really think drivers are complying with them? Are they really giving that balance of mobility and safety that we're really looking for when we do restricted licensing?

DR. STUTTS: I'll take a stab at that. Restricted licenses are something that almost all states use. They don't use it to the same extent. We did ask specific information about what types of restrictions you are able to impose on licenses and for example, almost all states do restrictions for daytime driving only, often with vision limitations and impairments and all.

They -- it's also fairly frequently to restrict to certain lower speed roadways, non-freeway driving and a fewer number may restrict to specific distances or geographic locations and all. So, there are a range of restrictions there.

Typically, the drivers who are restricted more beyond daytime driving only or beyond a restriction that might routinely be imposed because of vision impairments and all, they are often drivers that are in the medical review system in any case and so that allows the option of following up with them and examining their safety. There have been several -- a few studies that have looked specifically at restricted licensing. I know the Insurance Institute just looked at the practice in Iowa and I think they basically concluded, and I think we heard about this the other day, that when restrictions were imposed on licenses, that they did appear to be imposed to the right target audience, the drivers who had certain impairments, vision or physical impairments or cognitive.

So they seem to be targeting the people who would most likely be at risk. And then they also found that the people who had restrictions did appropriately limit their driving, so they were less exposure. They could not go that final step of showing that they actually had reduced crash risk, but other studies that have been conducted, the one by Marshall, et al, using Saskatchewan data. I think, basically, they show that the drivers with restricted licenses, while they may have a slightly higher

crash rate than drivers who don't have restricted licenses, it's still very much in the norm and it's, in fact, lower than the crash rate for many other drivers.

So they will basically conclude that it is a beneficial measure to take, that it is keeping these drivers within a -- you know, restricting them so that they are able to continue to drive with reasonable safety.

MS. ALICANDRI: Great.

DR. SODERSTROM: My colleague and friend, who I greatly esteem, Dr. Bonnie Dobbs mentioned yesterday that she was kind of opposed to individuals that have early onset dementia, being able to -- being allowed to drive, comparing it being kind of an alcohol impaired driver. The American Neurological Association this past April, put out a guide, kind of a consensus statement about where that would fit in with driving. And so they're suggesting that there are people with very early cognitive issues that can drive within certain circumstances. And for years, on a very, very case-by-case basis and with a lot of evaluation, depending on the circumstances in which we live, we allow people to have geographic driver's licenses.

Very limited daylight driving, maybe just to get to church, the doctor, visit the grandkids. But as Dr. Stutts alluded to, once they get into the system of that, we have to be very, very, very careful to follow them on a very careful, regular basis and make sure that, because they are -- they're in a

continuum that probably is going to end up with having the need to forfeit one's driving privilege, but it's very important.

So that's a -- it's an interesting thought right now that the American Neurologic Association does kind of support where we are right now with it, but again, it's consensus. It's not hard science that given certain circumstances, you can have certain limitations and drive.

DR. STAPLIN: There is an initiative, a project just begun by NHTSA to look at that specific question. So hopefully in, you know, 12 or 18 months, we'll have a more definitive answer.

MS. ALICANDRI: Thank you very much.

CHAIRMAN HERSMAN: And we'll move to the second table and if you'll, again, introduce your name and your group when you begin speaking. Thank you.

MS. SCHOLD DAVIS: Thank you.

My name is Elin Schold Davis. I'm from the American Occupational Therapy Association and I have questions with myself, AARP and the American Optometric Association. I'll try to get the angles right here. We've got cards flying here, so bear with me as I try to give you some questions.

Dr. Soderstrom, can you clarify for us, the difference between functional screening and cognitive screening at your MAB?

DR. SODERSTROM: It's the current battery of elements that we use, really kind of have both. They have some cognitive

aspects relative to executive functioning, divided attention. Some functional aspects of it is the idea of having someone walk down a ten-foot line and come back and almost everybody should be able to do that in seven seconds. There is beginning to be a body of literature that's going to tell us that those are going to be very important things in the future because they're going to point to some -- that thing that's going to get into that diagnosis eventually, called frailty.

Another screening question -- another part of the screen is have you had a fall in the last three years. That is, again, a physical function, but that has been shown by several studies, in Maryland and elsewhere, that just having had a fall in the last three years has some link to your risk of being at fault in a -- being in a crash at which you are at fault in the next -- in the near future. So it's kind of a mix of kind of physical and cognitive matters.

MS. SCHOLD DAVIS: Okay. Thank you.

My next question is, I know I talked in the earlier panel about adaptive devices and vehicle modifications. And I know that Medical Advisory Boards are inconsistent around the country. Does your Medical Advisory Board have a role in ensuring that vehicle modifications or the addition of equipment is monitored at all and is that an important recommendation for why all states should have some kind of oversight?

DR. SODERSTROM: We have a really incredible situation

in Maryland right now that, again, my colleague, Dr. Rolly started. We have a very regular dialogue of every three months, we meet with all the occupational therapists in the state and we host a meeting. It's not our meeting. It's our meeting in the sense of, it doesn't belong to the MVA. So we stay in touch with each other. We all try to stay on the same page and make sure that we're, in some kind of consistent manner or form, evaluating people.

There's -- because we also brought the adaptive equipment dealers into the equation and invited them to our meetings to make it complete, it's very unusual now that any driver couldn't go up to an adaptive equipment dealer and ask them to put something into their car. They'll say no, you really need to go the route of having been assessed by an occupational therapist to yes, do you need this. They'll -- you need to go to that individual, those professionals. They will assess whether you need this. They will teach you how to use it and recommend the right one before they will take care of that issue.

I think it was brought up earlier. One of the sad things right now though is that, one, the number of occupational driving therapists are, unfortunately, quite low for the need in this country right now and unfortunately, third-party payers rarely pay for that. So it's an expense when you have to go that route.

MS. SCHOLD DAVIS: Thank you.

This is just -- this is to the panel. From your professional perspectives, which current state programs offer the most comprehensive assessment of driving capacity and how can states do a better job of learning from each other about successful models for driving assessment?

DR. STAPLIN: I want to spare Dr. Soderstrom from having tell self identify Maryland as being a leader in this, but they really do deserve recognition in that regard. There are some innovative things going on in California as well. We're all eagerly awaiting to hear, I think, at TRB this January, on what the outcome of their three tier pilot assessment program has yielded. So I would say those two states are, right now, sort of leading the pack.

DR. SODERSTROM: If I remember from -- thank you, Loren. That was very kind of you.

If I remember correctly, I'm going to leave someone out, but an effort by TransAnalytics a number of years ago and then, by NHTSA, looked at different capabilities of different states. And another one -- and I'm going to leave out probably two more, but definitely, one of the states that was -- got pretty high rankings about doing things well was Virginia.

And this goes -- Loren's comment goes back to what Dr. Garber suggested, is we better start dialoguing with each other real fast so we can do things on a consistent basis with some science.

MS. SCHOLD DAVIS: This next question follows up, I think, on what you said. Is there any research underway that compares state policies that are evidence based with those that are not in order to determine the most effective?

DR. STUTTS: Precious little. The good news is that the Maryland activities and the California are both undergoing rigorous or Maryland had undergone rigorous evaluation, both with NHTSA and California DMV has done its own evaluations there. But other than that, there are precious few that have been evaluated.

I will mention, I mean, that's sort of, the states themselves have not taken the initiative to evaluate it. I would remind, a study that was brought up yesterday too. There was one study that looked across the board at states by Grabowski, et al., but looked at state practices to identify those that might -- you know, which state driver licensing renewal practices and driver licensing practices are related to safety. And that study found that the only renewal requirement or licensing requirement that was related to safety was having in-person renewal. And I think the other practices they were looking at were more frequent renewal or the road tests that are required in Illinois and New Hampshire and then, just vision screening, et al.

So the in-person renewal and I think, in particular, just for the older drivers, 85 and above, that was the only one that showed a significant relationship to crash safety. So it would be good to do more studies like that, to replicate it and --

but they're very difficult to do. You've got lots of -- I mean, even they pointed out that the states that have one policy, they have the other things in place too. So they're -- it's very hard to do that kind of study, do it well and be confident with the results you get.

MS. WAGNER: Right. I just want to add to that was the study that was done by the University of Alabama Birmingham team evaluating the license change in Florida, when they started requiring vision testing. And that was, more or less, a de facto, in-person renewal policy that came in and they did find that there were changes in fatality rates in Florida and compared to the neighboring states, Georgia and Alabama, that didn't have those changes in those age groups that were affected.

So I think that the in-person renewal and perhaps the way that it was done in Florida may have some good effects.

MS. SCHOLD DAVIS: Do you remember the age that that was?

MS. WAGNER: It was older than 80.

MS. SCHOLD DAVIS: The added vision test?

MS. WAGNER: It was 80 and older? I thought it was 81.

DR. STAPLIN: I think it's older than 79.

MS. WAGNER: Older than 79. And that was, as I understand it, partially a financial decision that they made of how many people that they could process and how many people can be -- you know, go through the system and be taken out of the

driving pool as well.

MS. SCHOLD DAVIS: Yes?

DR. SODERSTROM: If I could just make one comment about that study? It was -- by enforcing this rule and saying that you had to be visually tested at the age of 80, it turns out that that one little speed bump in the road, 20 percent of drivers in the State of Florida did not renew their license, which was kind of interesting. And of the 80 percent that continued to pursue getting licensed, whether it was just a test of their vision at the MVA or at the DMV or going through their visual clinician, about 98 or 97 percent of them did eventually pass the test.

So it's kind of interesting, by just putting a -- something in place, does that cause a lot of drivers to drop out of the driving pool just because they think oh, I probably won't be able to pass at that stage.

DR. STUTTS: And I would like to reinforce that, that you always have to look at the effects that you don't anticipate and really look carefully at laws you put in place.

Just one sort of general comment, when we're looking at laws that are put in place in different states and whether or not they're effective or not, and we seem to sort of focus on states that have imposed some additional qualifications or requirements for older drivers and all. That that -- you know, that really is not the only issue here. I give Florida as an example. We talk about states that require more frequent renewals for older drivers

and all and I mean, Florida is one state, for example, that there's standard renewal processes eight years and then, past a certain age, they reduce it to six years. So they do have an age-based requirement there.

But then you've got to counter that with many other states that have four or five years in-person renewal for every driver. So just the fact that a state has, you know, some age-based requirements for older drivers, realize that there are lots of states that might have that same requirement, but they have it for all drivers as their typical way of functioning. So again, that's a different level to pull out.

And I think what we've seen a lot in the states, you know, over the past decade or so, is that as their resources and all have been tightened up, what they've done, instead of passing stricter requirements on older drivers, particularly in terms of length of renewal cycles or frequency of renewal, they will extend it for the middle age group. They will leave it for the young drivers and then extend it for the middle age group and not change it for the older age group. And that's easier for them to do because they're not up against a lot of fight by people who don't want to put a new requirement specifically on older drivers, but it has the same effect, essentially.

MS. WAGNER: And if I may add onto that. I think that calls out the issue of years. And when we're talking about people who, you know, could have a stroke tomorrow, are much more likely

to have a stroke tomorrow than the younger population, we can't put all of our eggs into the licensing basket. We really do need to make sure that we have that constellation of professionals that you spoke of earlier who are engaged in looking at people who can potentially be -- you know, that had their risks reduced or be rehabilitated to a safer level of driving.

So we need to make sure that everybody's involved in this. It can't just be a licensing issue.

MS. SCHOLD DAVIS: Thank you.

Do I have time for one more quick question? I think this will just be a quick comment. Dr. Soderstrom, you made me think when you made the comment about the MAB, once you open a case, it's difficult to close one. And as we work at trying to get more programs to address driving or address driving risk, I think one of the barriers might be that once we -- we've had kind of a don't ask, don't tell policy in many different domains in our country. If we just don't bring up the topic of driving, we aren't responsible.

And I was just wondering, is there a policy suggestion or as we look at the recommendations from this panel, to really looking at the perceived risk if a professional steps up and takes on talking about risk, that they're not sort of having to own the problem and they can't close the case, if you will, or can't send it on to the next responsible party?

DR. SODERSTROM: I'm not quite sure I understand how you

posed the question. We close cases. If you have an acute issue that brought you to our attention and that issue was solved, then we close the case and you don't get any other letters about -- from the MVA for the rest of your life unless that should reoccur. I'm not --

MS. SCHOLD DAVIS: And --

DR. SODERSTROM: I think there's a nuance to your question I'm not understanding.

MS. SCHOLD DAVIS: I think there's sort of a liability concern sometimes if -- so if they're in a crash the next week and come back and say why didn't -- you know, what was your responsibility of having not flagged or been still responsible for that person?

DR. SODERSTROM: You mean for the MVA or for the -- for our jurisdiction?

MS. SCHOLD DAVIS: Well, I think the MVA is one area and I think we also see that in healthcare. I think we see that with physicians. I think we see that with medical providers, the fear that if they've brought it up, that they are somewhat liable.

DR. SODERSTROM: It works all different ways. I mean, it -- one can have litigation from all directions. I think there's a lot of clinicians out there that are very nervous that, on the one hand, you talk about keeping a doctor -- a clinician/patient relationship going. And on the other hand, you're wondering that, am I going to be liable even though the

state doesn't require physicians or other clinicians to report somebody. Am I going to be liable when the medical record eventually shows, as in cases that have been reviewed on the national level, that gee, the last time this person or the last three times they saw their clinician, clearly, someone at some point should have questioned, was there an ability to drive here.

MS. SCHOLD DAVIS: Thank you.

DR. SODERSTROM: We're not in favor by the way of clinicians having to report people to the MVA. We are very much in favor of all laws that allow for immunity for reports that come in good faith from clinicians.

MS. SCHOLD DAVIS: Thank you.

CHAIRMAN HERSMAN: Thank you.

AAA?

MR. GRABOWSKI: Hello. I'm Jurek Grabowski from AAA Foundation for Traffic Safety and I'll be representing questions from the Alliance of Automobile Manufacturers also.

Unfortunately, I think the table before us stole our thunder, but I'm going to go ahead and ask this question because it has a slightly different spin.

Reporting of potentially unfit drivers to state authorities has a multi-factorial process involving DMV, physicians, families. While all citizens are stakeholders in driver safety, some of the aforementioned groups may be afraid of various liabilities. Can you list a few of the liabilities and

are there any states that have -- or are there or should there be laws in any states similar to Good Samaritan laws for their protection?

MS. WAGNER: Well, the first one is getting written out of the will if you're a family member and that is actually a concern that many people have. And then it goes outward from there. You have the physicians who are afraid that their patients are not going to, you know, come back any more and they're not going to receive the treatment that they need to have in order to maintain basic wellness.

But there are other states out there that, you know, they provide anonymous reporting, as long as you sign it, for family members. You can't just be, you know, referring your neighbor because you don't like them. You actually -- you need to provide basic, good information. Law enforcement often don't know how to make that referral, so that's why we've been making sure there's good training out there. Social services are oftentimes more concerned about making sure that the client is taken care of, rather than -- you know, they're concerned about the well-being of the individual as opposed to, you know, the potential for them to lose their license.

So there are a lot of barriers out there, but if you have a good referral program that, you know, makes sure that there's a full investigation that goes through for each individual that is referred in, it's not that bad.

DR. STUTTS: I would just add too, you know, what Carl said too, that particularly for physicians, the -- having legislation that gives immunity from prosecution to physicians is a big thing to get them to report. It's not the only thing, but it is a very important thing. And you know, the confidentiality of reports, and that varies greatly across the states.

What we think, ideally, is for a state to have legislation in place that just -- that both, provides confidentiality and immunity from reporting. And that's just not the case in all states.

When we asked about this, you know, in terms of reports being confidential, I think we had six states that said yes, they were without exception and then there were 16 more that said well, they're confidential unless they're subpoenaed or requested by law or some others that said well, they're confidential unless the driver requests them. And I mean, it's a legal position that a DMV will say well, we -- you know, if there's a report about you, we can't prevent you from requesting it. And so it's sort of a gray issue in terms of what you can do.

Beyond the legislation that's in place in a state, I think it's very important that the state DMVs have an effort to make that legislation known to the -- you know, to the physicians, to the law enforcement, to the public, whoever because you can have that legislation and even some of the DMV people we talk with did not know, you know, what the legislation was in their state.

But you can have that.

Unless they know about it, then it really doesn't make a big difference there. And so that's where we're, you know, sort of trying to encourage some things like for reporting, make a form for reporting available, readily available from the DMV website, having that information available. And then on that form, state exactly what the legal, you know, requirements or what it is so that people can readily find this information and feel confident when they're filling out the form. And this goes for family members, law enforcement, whoever.

DR. SODERSTROM: Can I make a comment? I believe at last count, from the GAO report that was -- came out two years ago, I think there were nine states that had requirements that physicians report unfit drivers or drivers who they have concerns about to the licensing agency.

The problem with most of those states, which is well identified and I want to -- I can't wait to see Jane's report, but in the TransAnalytic study that Kathy Lococo did a few years ago, most of those -- some of those states that required reporting by physicians were so amorphous that if you had particularly a practice and you had a large number of just older people in that practice, that if you wanted to comply specifically with that law, you would almost have to hire a part-time person to be sending in because it was just very, very vague.

A state -- I think a state that has a good law that we

know a lot about is, if you're going to have a mandatory reporting law, is Delaware. Let's say I'm driving, on the way up to New York and I have a seizure and I got to Christiana Hospital. That physician who takes care of me must send a letter to the state that I'm licensed in, whether it's Missouri or Washington State, California or Maryland and say yesterday, I treated Carl Soderstrom for a seizure.

That's a pretty discrete episode that definitely requires taking someone's driving privileges away for a while to make sure that condition is controlled. But if there are going to be reporting laws mandatory, they can't be amorphous. And unfortunately, the report that Kathy Lococo put out through TransAnalytic show that four or five states, they were very, very, very vague.

MR. GRABOWSKI: I guess that will lead to another question that we have. So have or should Medical Advisory Boards from all the states have a standardized database in which reviews are entered into for researchers or for policy makers to review, just to get a better picture of what the overall population is?

DR. STAPLIN: To go back to Dr. Garber, we've got to start talking to each other first. That would be the Holy Grail, I think, eventually, is that one, we all are talking to each other, that we're all doing things in a very consistent fashion and that we have a database of input and outcomes. And then we can really be talking from science.

Jane Stutts alluded to this before, I believe, that when you look at science for the decisions we're making, as I have -- as noted, I have the privilege to be on the Medical Review Board of the Federal Motor Carrier Safety Administration and they do these very large literature reviews on various subjects. And it starts out with the classic, we entered all of these different terms. We came up with 5,224 articles on the subject and then it whittles down to, we came down to eight studies that had anything to do with this and driving. None of them had anything to do with commercial truck drivers. And of the eight studies, one was of good quality, three were of moderate quality and four were less than that.

So we just -- what you just said is -- would be the Holy Grail, eventually, for what we're doing.

DR. SODERSTROM: As long as we're going to have that, let's throw in an active codes process in those states too so the crash outcomes can be factored in.

MR. GRABOWSKI: So have states looked outside the U.S. for potential model programs that could be used by the states?

MS. WAGNER: Well, we're definitely looking at what's going on in Canada and particularly, in regard -- because Canada has certain advantages that we don't. Their driver licensing authorities are inextricably linked to their health insurance companies. So they're able to get some really good medical information and look at the crash risk of individuals who have

medical conditions. So we're really looking forward to being able to hear some of the results of those studies.

And in terms of other driver licensing opportunities, we have 51 here. That's probably enough to go by otherwise.

DR. STUTTS: And I would just add, I think the Canadian -- what the Canadians are able to do really is something we should be looking at. From a DMV's perspective, it's very difficult to get -- you know, DMVs, for example, look to European programs. They, you know, they do things a certain way in their state and they do things very differently in Europe. So a lot of what's going on there may or may not be applicable in our state. And I don't -- I think our states are best.

I think some of the programs that have been the most successful have been things like the Maryland project and the California efforts, where they see a nearby state doing something that has worked well for them. And then, you know, can we get other states to try this model. And I think that's the most successful model to try to build on.

DR. SODERSTROM: Just the way -- and I agree that our Canadian colleagues are doing a lot that we are paying attention to and we will continue to pay attention to. We also have to make it our business to pay attention to what's going on in the EU and there are a lot of good reports that are coming out of Monash University in Australia.

So part of our job is to, with this great world of

communication that we're in now, we really don't have an excuse not to know what's going on elsewhere. You just have to find that time in a 168-hour week to find out all the different models and variations that are out there.

DR. STAPLIN: I would just like to acknowledge some work that's recently been done in the EU with respect to medication labeling, explicitly with regard to its impact on driving. The French have developed a system. I'm not sure if it's going to be adopted throughout the entire system, but it's a real innovative accomplishment, I think, that we should look closely at.

MR. GRABOWSKI: All right. And for our last question, I'm going to go back to a comment that Dr. Wagner said -- mentioned about the insurance companies. What role can/should insurance companies play in the identification referral of drivers for screening/assessment and could this be tied to a continuation of coverage when claims are filed or traffic infractions are identified? And lastly, would state mandates be required to make this happen?

MS. WAGNER: I'm looking for a lifeline here.

That's a really challenging question and I don't even know where to begin to answer that. I think it would be wonderful, for example, if health insurance were to contribute to driving assessment, the in depth assessment that was discussed earlier today except I -- you know, I come up with good ideas. I don't necessarily find the ways to implement them in terms of

that.

Do you guys have any other -- any help for me?

DR. SODERSTROM: I think you gave a good answer.

MR. GRABOWSKI: Okay. That's it for our table. Thank you.

CHAIRMAN HERSMAN: Thank you.

And we'll go to the last panel and the last table, Ms. Harsha.

MS. HARSHA: Barbara Harsha with the Governors Highway Safety Association and with me is Tom Manuel from AAMVA.

First of all, I would like to thank Dr. Soderstrom for helping me have my father reviewed and evaluated by the Maryland Medical Advisory Board and helping to have a successful resolution of his driving problems. This was several years ago. And if it weren't for Carl, I think he would have continued to drive when he shouldn't have. So thanks, Dr. Soderstrom.

DR. SODERSTROM: I would need to make a quick comment that anything that happened relative to your father had nothing to do with me. Since we are colleagues, it was referred to the right person and I didn't even actually know the outcome. So thank you.

MS. HARSHA: Well, someday, I'll tell you.

I guess my first question is to Dr. Staplin. As I understand it, you did a federally-funded study with the Maryland MVA on fitness to drive and you came up with a protocol which I understand was successful. Why hasn't this protocol been adopted

by other states and what are the challenges to adoption?

DR. STAPLIN: Well, I certainly can't speak for other states. The barriers to adoption are, you know, political. They're financial. There are lots of barriers. I think that, unfortunately, what's likely to happen in this country is that the adoption of screening procedures will be driven by some media event. I think that what has been learned in Maryland provides a set of tools to sort of have on the shelf that are being continually improved because, as has been noted on this panel, Maryland is using functional capacity testing within the domain of its review of medically-referred drivers.

There is, in addition to the work that was done earlier in this decade in Maryland, the -- there are -- there is ongoing work to obtain new population-based samples. There is another study about to be launched within a few weeks that's going to add several thousand more drivers using the same set of functional screening measures, again, prospectively looking at their safety outcomes over a period of a couple of years.

So we are accumulating what will be, within a couple years from now, probably close to four or five thousand. That gives you enough to have in each of those cells in your odds ratio analysis, enough of those who had at-fault crashes and were above a criterion, a candidate cut point on one or more of your functional measures.

So as that evidence builds, I think the acceptability of

using that tool will probably grow as well, but ultimately, I am afraid what will drive the implementation of screening will be some sort of, you know, catastrophic event that gets a lot of media attention. And I should say, I really don't mean to appear as an advocate for screening so much as someone who is resigned to the fact that we are incrementally moving in that direction and when one of these events occurs that triggers a change in policy, we want to know as much as we can and have the best evidence available so we can make the right choices.

MS. HARSHA: Okay. Question for Jane Stutts. Has any state looked at the concept of graduated de-licensing and is that something that is deserving of further research?

DR. STUTTS: We did not find any evidence of that. That's something that's sort of near and dear to my heart. It was a phrase I think that Pat Waller introduced back in the 1980s. So a while back. She was the first one I know that really, you know, looked at young drivers and said well, why don't we, at the other end of the age spectrum, talk about graduated de-licensing.

In practice, some of the states are doing that and I think the initiative that comes closest to that is the offering local or tailored drive tests, and this is something that Iowa and Kansas and a couple other states, to a lesser extent, do. But particularly in Iowa, Kansas and I think, Minnesota, they offer the option of -- for drivers who are unable to pass the standard license renewal requirements. The vision testing, the, you know,

road test if it comes to that or whatever.

And Iowa is set up so that if you fail that test two times, you've got one more try and you can opt for a local drive test. And for that, the examiner goes out and you take a road test just in the area, the streets, the roadways that you most need to drive on near your home. And if you can show that you can drive safely in that environment, then they will license you with all these restrictions. So it's just a level of restrictions that you can only drive during the daytime on these routes. You know, you can't drive on eight-hour trips to Florida or whatever.

So in a, you know, real practical sense, that is sort of a graduated de-licensing. And what -- we're in the process of just really starting an evaluation of that because it was an initiative that we did not want to necessarily promote strongly to other states until we knew that it didn't have any, you know, significant, adverse safety outcomes. So we are still evaluating it and just getting started on that. But what we've been told that, in practice, it really is a stepping stone down from driving, that people cannot qualify for their full license.

Well, maybe for you know, Iowa and Kansas, I think it's both two-year renewals by the time -- at age 70 and over. They require for this and they may do it one time, they may do it two times, but eventually, they know they're going to be stopping driving. So it is, in a sense, a sort of graduated de-licensing and I think it's a good -- may be a good solution. We're looking

to, you know, really evaluate it more closely.

MS. HARSHA: Dr. Soderstrom, you said that not all states have Medical Advisory Boards and they're not all robust Medical Advisory Boards. What can be done to encourage states to adopt or implement Medical Advisory Boards and what are the barriers?

DR. SODERSTROM: Well, I think one of the things is you get what you pay for and we in Maryland, we pay our doctors a certain amount of money. It's not a heck of a lot of money. In fact, I consider the fine men and women that are on board, when they're in their busy practice, I consider that the amount of money that we pay them is really nominal and what they're doing for us is a great deal of public service. And I appreciate that, but you -- a little money can go a long way.

It's important, I think, that -- another thing is that when you have a medical advisory board, if it's presented right, it's an incentive. It's very much an honor to be on it in some states. That's -- it's -- that's worth -- that's a kudo. My brain is a little fried right now and I can't -- that light is very, very bright and I can't think of any other brilliant idea right now. If something pops into my head, I'll get back to you.

MS. HARSHA: Okay. Thank you.

DR. STUTTS: Barbara, could I -- I just want to add one thing there, that I certainly support the Medical Advisory Boards and think every state should have one. But I would note that, you

know, right now, we're about 15 states that do not have Medical Advisory Boards and it's not like they have nothing in place to deal with medical issues and driving. They often do have, you know, good procedures and policies in place.

I mean, California, Colorado, Ohio, Oregon or some of those states that do not have functioning Medical Advisory Boards, but for example, they will routinely -- the two issues that Medical Advisory Boards typically deal with are the, you know, policy issues on helping to set state policies regarding licensing and then also review of individual cases. So some of these states, for example, for policy issues, when they come up to having policy -- a policy needing to be addressed or they're reviewing their guidelines and such, they will call in specialists to help with that. They may have physicians on staff that help with that and help with the decisions and all.

So they do have other ways of dealing with that and the same thing for reviewing individual cases. Some of the states may, you know, rely heavily on the driver's own physician, but also, they may have their own physicians on staff or someone they can refer to. So I just don't want to leave the impression that the states without the Medical Advisory Boards aren't dealing with the issue at all because they -- most of them have found some way to handle it.

MS. HARSHA: Thank you. Thank you for that clarification.

Final question to Dr. Staplin. There are so many unknowns and so much more research that needs to be done on this issue. And given that, how can we convince the DMVs to make older driver safety and mobility a higher priority? What arguments can we use to convince them to pay more attention to this issue?

DR. STAPLIN: Again, I wish this was going to be a rational process. I mean the demographic argument is certainly a strong one. I think, you know, when someone drives through the front window at the licensing agency office, as we saw on YouTube a couple weeks ago, that certainly makes a strong point, but those kinds of events, of course, should not drive the argument.

I don't know. I think bringing attention to the -- not just the -- I don't want to call it a problem because, overall, older drivers are probably the safest group of operators on the road. It's -- when there are issues related to age, it's not, certainly, because of a lack of skill or a -- you know, it is sort of propensity for risk taking. These are people who have been skilled drivers and have learned tactics and strategy over a whole lifetime. So it's a -- for a select few, a loss of the abilities needed to execute those safe driving skills learned over a lifetime that's important.

And it is expensive, relatively, to identify those few people. How important is it to save X number of crashes, to save X number of injuries and fatalities? I don't know. If those injury and fatality savings in themselves aren't a sufficient

argument, then I'm afraid we ultimately are going to be left with the media deciding that this is an issue that needs to be in the forefront. And essentially having that public opinion drive the policy process at the state level.

MS. HARSHA: Not unlike other highway safety issues.

DR. STAPLIN: Indeed.

MS. HARSHA: Thank you.

CHAIRMAN HERSMAN: Thank you.

Dr. Garber.

DR. GARBER: I have just one quick question. There's a pretty good body of literature that shows that the single best predictor of having an accident is having had a previous accident. And that's for everybody, for teens, for adults, for older drivers. Unfortunately, a lot of the property damage only accidents and a lot of even the on-road incidents, we found, are not reported for medically related issues, medical conditions that may involve older drivers.

So how do the MVAs -- how do you guys get -- best get referrals from those types of incidences? Those are, in fact, some of the best predictors that we have. How do you get that information? How do you ensure that you're getting accurate information on those types of incidents?

DR. SODERSTROM: In Maryland, we get about 1,400 cases referred by the police each year that run into -- that are at a traffic scene where something has occurred in which they think

there may be a medical issue involved. Our analysis of 500 of those cases show that most of them do involve a crash.

Another way that drivers come to the attention of the Maryland Driver Wellness Division is if they have a certain number of points that accrue relative to their insurance company. So in kind of an indirect fashion, if you're involved in a number of fender benders and getting your car fixed an awful lot of times, they have a system where they'll just notify the driver wellness division that works hand in the glove with us to say we want to let you know that this person has a seemingly and inappropriate number of crashes in the -- or incidences in the last period of time.

CHAIRMAN HERSMAN: Mr. Blackistone.

MR. BLACKISTONE: Thank you.

I just wanted to follow up on a couple of points that were made during the -- earlier, during the discussion. First, which is somewhat of a follow-up on Dr. Garber's question.

I know, with respect to young drivers, there often is an effort to try and attempt whenever there is a police contact -- to identify times, whenever there is a police contact with a young driver. They get stopped for some reason or another, but not given any sort of citation. Is anything like that done with older drivers? Has there been any research on police contacts with older drivers that don't necessarily lead to a citation or a result from an accident?

DR. SODERSTROM: We published a paper on that subject last year. It turns out that when police encounter drivers at a traffic incident, we looked at whether they -- if there was a violation involved in this contact with the driver, whether they gave a ticket in addition to referring them to the MVA because of a concern of a medical condition. It turned out that if you are a younger driver, and by younger driver, I believe in this case, it was 55, more often than not, you got referred and you got a ticket. Whereas, if you were an older -- I'm sorry. It was 65. But if you were 65 years of age or older, if you had a violation associated with this incident, you got referred, but you very frequently didn't get the ticket.

And that's an important -- and we would encourage -- NHTSA has a very good training program for police. We would encourage that the police person gives that older driver the ticket for the violation that was involved with the traffic incident because this is the finest generation. These are people that are rule obeyers. Their traffic records have been fine. This is really the first time they've been in a crash and sometimes, we bring in people for interviews with a family conference or something and their advocate, their spouse, their kids say well, come on, it couldn't have been that serious an episode. The policeman didn't even give them a ticket to start with.

So we would like -- we think that police officers, if

they are going to refer drivers that have -- for whom they have a medical concern, to give them the ticket in addition to referring them. But the bias goes in the direction of not giving -- at least in our small study, of not giving the older driver the ticket they richly deserve --

MR. BLACKISTONE: Absolutely.

DR. SODERSTROM: -- plus the referral.

MR. BLACKISTONE: Absolutely. And then a final question. I -- there was a discussion earlier about imposing driver license restrictions. And I think, Dr. Stutts, you mentioned a number of the kinds of restrictions that are done. What about compliance with other classes of drivers who know driver license restrictions or suspensions are often not obeyed? What about with older drivers? Is there any indication that they tend to obey license restrictions more or are they like younger drivers?

DR. STUTTS: The Insurance Institute study that I cited earlier, looking at Iowa data and licensing restrictions did tend to find that they did comply with those restrictions that they had on their licenses. And again, I think this goes back to sort of the generation that they are. You know, they do tend to be compliant with restrictions. And while I know, we've all heard stories about taking away a license and older people may still continue to drive and all, but I don't think that that is the norm.

And again, that's something that we're going to be looking at in much more detail. Loren Staplin is going to be doing, for a study that's just gotten underway for NHTSA, looking at, you know, both the restriction -- both the safety effects and the compliance with restrictions.

MR. BLACKISTONE: What I hear you saying though, potentially, is it's something we should continue to look at because this generation may be different than the next generation.

DR. STUTTS: And it may be changing as we get up there. Yes, it may change.

MR. BLACKISTONE: We who are baby boomers weren't always quite as compliant.

DR. STUTTS: A little headstrong, but --

MR. BLACKISTONE: Thank you, Madam Chairman.

CHAIRMAN HERSMAN: I'm curious, Dr. Soderstrom, this is a little bit off topic, but because you've talked about your involvement with the FMCSA's Medical Review Board, I was just curious if you could share with us what you think a couple of the kind of strongest accomplishments of the MRB are that have translated into action or policy changes at FMCSA?

DR. SODERSTROM: I have to tell you, I'm a new member to the board, so I'm not -- I've just been involved, basically, in several meetings. The board has -- is mandated to have five members to it and three retired. And so we haven't met for quite awhile.

I'm not sure. I know they've made a lot of good recommendations as far as obstructive sleep apnea and some other issues, but I'm not sure if a lot of those recommendations have been followed through with. But they're good recommendations.

CHAIRMAN HERSMAN: Okay. Thank you very much.

Ms. Wagner, you and I had a little bit of a sidebar conversation --

MS. WAGNER: Yes.

CHAIRMAN HERSMAN: -- yesterday, after the session because I think that you have some information about some pedestrian fatalities and I just wanted to --

MS. WAGNER: Absolutely.

CHAIRMAN HERSMAN: -- give you an opportunity to share that.

MS. WAGNER: Why, thank you.

The question yesterday was related to what are the additional risks that older people have as pedestrians. And in terms of the fatalities that we see out there right now, older people represent 18 percent of the pedestrian fatalities, as opposed to the 13, 14 percent of the population that they are. So they are definitely over-represented.

Most of those fatalities are happening in urban-ish areas. That could be urban, suburban and they're much more likely to be intersection-related crashes than a younger person will have. So that means that the countermeasures that we have to use

will be much more intersection related. And that includes the engineering that needs to go into place, as well as making sure there's good enforcement to make sure that, you know, people are not running red lights, for example, as well as making sure that the individuals themselves, both the drivers and the pedestrians have good education so they know what those risks are and what is the proper behavior that's expected of them.

CHAIRMAN HERSMAN: Thank you.

Mr. Staplin referred to the concern that probably we all have and we often see this in the aftermath of a major accident, is that there's a response that sometimes comes. And sometimes, the response tends to swift. Sometimes it takes a little longer, but the quality of the response depends on how much data and information is there, really, to support the decisions that get made. And so I guess the good news is, is that we have 51 little incubators of trying to figure out what works. But I guess the bad news is that we also have 51 different incubators of trying to figure out what works.

And so I would ask, Ms. Stutts, you talked about Iowa and I think they have, certainly, a different model than has been propagated throughout the country. Can you help me understand, and I'm sure each of you has an experience in a different state that you could talk to. What has prompted a state like Iowa to take on the restrictions? That certainly had to be a difficult lift for them, not -- maybe not politically popular for a certain

group of people. What was the impetus for them to be able to do that and in other states where they've maybe made some tough decisions if the other panelists want to comment and help us understand how these changes occur?

DR. STUTTS: That's a good question. As for Iowa particularly, I do not know exactly what prompted them to do this. It is something we need to find out because, as we move to try to promote an initiative in other states, we need to know, well, how did this come about? You know, what parties needed to be involved, what pieces in place?

It could have been something as simply, you know, all states have the option of putting restrictions on licenses. So it may not have been a particularly, you know, difficult legislation or anything that they had to pass. It was more of an internal policy of encouraging to really making use of that ability that they had and thinking about it in terms of older drivers.

Another issue that's closely related to that, for example, is that almost all DMV examiners, the line examiners have the option of asking drivers to take a road test. That is something that's available to them, but states may vary greatly in terms of the extent to which the examiners take advantage of that. And I think a lot of it boils down to is just what kind of direction they get from their head of their driver licensing, what -- you know, how important that person sees older driver, how they communicated, how they train their examiners and such.

And in the case of Iowa, they have Kim Snook who just has always been, you know, right at the forefront of doing things for older drivers. So you know, in that situation particularly, it really involves a champion there in the state doing that and someone willing to take it on.

DR. STAPLIN: I want to reinforce what Jane just said about having a champion. The efforts in Maryland that have been referred to here a number of times were, in large part, driven by the activities or the involvement of the then administrator, Anne Ferro and the then head of the MAB, Dr. Robert Rolly and has since been carried on by Dr. Soderstrom.

So having people who are champions for the cause certainly makes a difference, but with respect to Iowa in particular, they were also early adopters of the federal highway -- the highway design handbook for older drivers and pedestrians. And you have to believe that, in large part, it's driven by demographics because, after Florida, Iowa and Pennsylvania, two more northern states, have the highest proportions of older persons as drivers in their states.

MS. WAGNER: And if I may add, Iowa was very concerned about the severe lack of transportation options that they were able to provide. So they recognized that they had to do something and if they could let people drive a couple more years, then they were not going to be a burden in other areas.

DR. SODERSTROM: I would also like to acknowledge that

we have been very fortunate, as brought up by Loren, that literally, for 63 years, we have had an -- we've had administrator after administrator in Maryland that sees the value of a medical advisory board. And when we think about fiscal cuts and we're always -- we feel very confident and we know right from the top, that we're considered a valuable resource to the state and that continues through the current administrator, Mr. John Kuo.

CHAIRMAN HERSMAN: Thank you all.

And my last question has to do, maybe, with a kind of -- maybe trying to encapsulate or summarize the issue. Is this challenge that we have in front of us, is it about older drivers or is it about doing a good job handling medical issues? Are they the same thing or are they different things?

DR. STAPLIN: In an aging society, certainly, you're going to have a greater prevalence of medical issues and medications that are used to treat them which are going to result in these functional issues that we're most concerned about with respect to traffic safety. I don't really see how you can tease them apart for, you know, for the foreseeable future. I mean the medical conditions certainly are a trigger, but ultimately, it is function as has been underscored here and in other panels that we care about.

And you know, it's not just medical conditions and medications, but normal aging. Normal aging causes a decline in a lot of these key abilities as well. Not to usually as severe an

extent, but I don't think you can just say age is not important in this discussion.

DR. SODERSTROM: Chairman Hersman, the 2003 event by the NTSB, they used five examples of cases to kind of set the stage for discussion and I don't believe that any of them involved older drivers. Four involved epilepsy and one involved a driver who had a hypoglycemic episode. So I think you're absolutely on target. It's about health and driving, which is the issue right now that you're leading the charge on right now.

DR. STUTTS: I would sort of add to counter that a little bit, that when you talk about getting information out to the public and helping the public understand the problem and communicating with even law enforcement and such, that it is important or helpful to focus in terms of aging drivers because that is a target audience out there. That's the one you want to get the message, you want to communicate with.

And I'm thinking a lot because, for example, a number of states and those that seem to be the most progressive are states that have really put together coalitions of interested parties to address the issue of aging drivers, medically at-risk drivers, whatever. But very important parties to bring to the table, along with the DMV, you know, bring your occupational therapist in, bring your state divisions on aging. They're the ones that have all the information on alternative transportation and other resources for people. Bring together AARP because they have all

kinds of resources there, AAA.

So you know, I don't want to just ignore the fact that -- you know, I don't want to talk about things in terms of just aging drivers, but I think it is important to know that those are the parties that we're needing to bring in and we need to communicate with. And it helps to have them at the table.

CHAIRMAN HERSMAN: Thank you all so very much. This has been a great final panel to wrap everything up for us. And I want to particularly thank all the parties for sitting through these sessions. You all, to a person, did a fantastic job staying on point, staying on time and actually asking questions and not making statements, which is always a challenge when you have an open mic. And so thank you all so much for being so professional and for representing your organizations so well. We know that all of you all are partners in this effort of education and advocacy and so we appreciate what you're doing.

So before concluding, I have a few housekeeping reminders. As I mentioned in the opening, because of our time constraints, we simply couldn't include and accommodate everyone who wanted to participate in our forum. So any individuals or organizations who wish to submit written comments may do so until November 30th, 2010. So please check the NTSB's website under the forums webpage for the particulars.

We will be posting a written transcript of the proceedings on our website and also, an archived video of the

proceedings will also be available for a short period going forward.

On behalf of my fellow board members, I see, Member Rosekind is here from the beginning to the end, I would like to thank all the panelists and the parties for their participation. Certainly, our discussions over the last two days have been excellent and they are going to help inform the Safety Board and our staff as we move forward.

My appreciation also to Shaleece Haas, who's in the back, for sharing her documentary with us. The stores of Martin and Herbert certainly personalize the issues for all of us. Thank you to the staff, some who are with me on the dais and some who are out in the audience. Deb Bruce, hiding behind the table over there, you and your team of hardworking professionals never cease to amaze me in what you can do, so thank you for making this forum possible.

The discussions that we've had over the past two days really reminded me of the aphorism, a rising tide lifts all boats. This was first coined by Sean Lemass who was an Irish politician and it was later quoted and made famous by President Kennedy. But I think this phrase so aptly describes much of what we've discussed over the last two days.

The older driver is certainly a rising tide, as people live longer and continue to drive well into their older years. Whether it's introducing inflatable seat belts to make an accident

more survivable, providing the driver with a heads-up display of exactly the information that they want to see, making roadway signs easier to read or creating new tools to assess a driver's fitness, the safety improvements that we make for some improve highway safety for us all.

We've made great strides in safety since the first driver's license was issued almost a century ago. Hopefully through the sharing of best practices and experiences and the active participation of the licensing agencies, the physicians and the communities where these older drivers live, we can reach responsible and informed decisions on how to make the roadway safe for all of us. And to do so in a way that balances individual independence, mobility needs and safety. These goals are not mutually exclusive in our society. Collectively, we have the opportunity and the obligation to address them concurrently and with some urgency. 2025 will be here soon enough.

This concludes our forum and if you all don't mind to indulge me, I have some personal things that I would like to share.

Today is not just a milestone for the Safety Board, but we also have a personal milestone. Mr. Bruce Magladry, who's the director of the Office of Highway Safety, is going to be retiring early next year. Bruce is -- this is his last official performance in the boardroom. He has served -- Bruce, before coming to the Safety Board, was a police officer. He worked for

13 in Baltimore County, Maryland and 12 of those, he was a Detective.

He came to the Safety Board in 1988 as an investigator in our Human Performance Division. He investigated accidents in all modes of transportation when he came here. He worked on Jim Danaher and Jerry Walhout, who are kind of famous here at the Safety Board. Bruce worked extensively on the Board studies of fatigue, alcohol and drugs in truck crashes. And in 1997, he joined the Office of Highway Safety as the chief of the Investigations Division. In 2001, he became the deputy director and in 2006, he began serving as the director of the office.

I have witnessed, during my six years here at the Board, Bruce's leadership on big accidents like the Big Dig, the Boston tunnel ceiling, collapse and the Minneapolis bridge collapse. Both accidents were particularly complex and they required Bruce's skills as an organizational leader, sometimes as a diplomat and as well as those detective skills that he acquired so early in his career in Baltimore.

Bruce has mentored me through the years and sometimes it was hard and sometimes it was easy. You know, when I -- Dianne -- or Beth mentioned to me that it seems like it was 15 years ago when we talked about older driver issues when I first came to the Board. It was only six years ago, but time goes by fast. But motorcycle safety and older drivers were two issues that I was very, very interested in when I came to the Safety Board.

And you know, Bruce and I have worked through these issues together and I was struck. We had a motorcycle safety forum in 2006 and Bruce had to leave from that forum directly because his first grandson, Finn was born and two weeks ago, he welcomed his third grandson. And so I know that Finn and Bruce and baby Henry are looking forward to having Grandpa Bruce and his wife, Judy, with them more often, but we will certainly miss you here. We wish you the very best and thank you for your service.

MR. MAGLADRY: Thank you.

CHAIRMAN HERSMAN: Do you want to say a few words?

MR. MAGLADRY: I'm not usually a speechless guy, but I think I am today. Thank you very much.

CHAIRMAN HERSMAN: We stand adjourned.

(Whereupon, at 2:40 p.m., the hearing in the above-entitled matter was adjourned.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: Safety, Mobility and the Aging Driver

PLACE: Washington, D.C.

DATE: November 10, 2010

was held according to the record, and that this is the original, complete, true and accurate transcript which has been compared to the recording accomplished at the hearing.

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Timothy Atkinson
Official Reporter