IN THE CIRCUIT COURT FOR CARROLL COUNTY, MARYLAND

STATE OF MARYLAND,	:	
v.	:	
CHARLES DAVID BRIGHTFUL,	:	Criminal No. K-10-040259
HARVEY ALEXANDER CARR,	:	Criminal No. K-10-040331
JENNIFER ADELINE FLANAGAN,	:	Criminal No. K-10-040167
RYAN THOMAS MAHON,	:	Criminal No. K-09-039370
CHRISTOPHER JAMES MOORE,	:	Criminal No. K-09-039569
VALERIE ANN MULLIKIN,	:	Criminal No. K-09-039636
RONALD DALE TEETER,	:	Criminal No. K-10-040300
Defendants.	:	Westminster, Maryland
	:	September 30, 2010

HEARING

WHEREUPON, proceedings in the above-entitled matter commenced.

BEFORE: THE HONORABLE MICHAEL M. GALLOWAY, Judge

APPEARANCES:

FOR THE STATE:
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I N D E X

WITNESSES:	DIRECT	CROSS	REDIRECT	RECROSS
For the Defendant:				
Dr. Neal Adams	5(bd)	43(aw)	--	--
	--	87(dd)	--	--

EXHIBITS:	FOR IDENTIFICATION	IN EVIDENCE
For the Defendant:		
18	29	41
19	36	41
For the State:		
15A	--	43

KEYNOTE: "---" Indicates inaudible in transcript.
"*" Indicates phonetically spelled.

P R O C E E D I N G S

THE COURT: Good morning, be seated please.

MR. WELLS: Good morning, Your Honor, for the record, Adam Wells spelled W-e-l-l-s on behalf of the State, along with David Daggett, spelled D-a-g-g-e-t-t. Calling the Frye-Reed case of State v Brightful, K-10-40259, State v Carr, 10-40331, State V Flannagan, K-10-40167, State v Mahon, K-09-39370, State v Moore, 09-39569, State v Mullikin, 09-39636 and State v Teeter, K-10-40300.

MR. CRUICKSHANK: Good morning, Your Honor, for the record, Alex Cruickshank, C-r-u-i-c-k-s-h-a-n-k also Office of the Public Defender on behalf of the defender, clients Your Honor, good morning.

MR. DELEONARDO: Brian DeLeonardo, D-e-L-e-o-n-a-r-d-o on behalf of Mr. Carr and Mr. Mahon.

THE COURT: Counsel, good morning. Anything preliminarily?

MR. WELLS: I don’t believe so.

MR. DELEONARDO: No.

THE COURT: All right, we are proceeding with Dr. Adams.

MR. DELEONARDO: That is correct, Your Honor.

Whereupon,

DOCTOR NEAL ADAMS

was recalled by the Defendant, having been first duly sworn,

was examined further and testified as follows:

THE WITNESS: I do.

THE CLERK: Please have a seat.

THE WITNESS: Thank you.

THE CLERK: For the record, please state your full name, spelling your first and last and give your current business address please.

THE WITNESS: It is Neal Adams, N-e-a-l, last name is A-d-a-m-s. Business address is 5823 North Mesa Street, Number 730, El Paso, Texas, 79912.

THE CLERK: Thank you.

THE WITNESS: Thank you.

DIRECT EXAMINATION

BY MR. DELEONARDO:

Q Good morning, Dr. Adams.

A Good morning, sir.

Q I am going to pick up on an area that was not covered and I would like to talk to you specifically about pupil sizes and dilations and constrictions. So I am going to ask you, can you give us sort of a summary of the physiology behind pupil dilation and constriction?

A Okay. There are -- there is different mechanisms that are involved in pupillary dilation and pupillary constriction. Pupillary constriction, what is involved is what is called a parasympathetic pathway. When light goes

into the eye, the cells in the retina sense that light, photoreceptor cells and subset of retinal ganglion cells sense the light, light goes through these retinal ganglion cells through their axons which constitute the optic nerve and into the pretectal olivary nuclei and through the right and left Edinger-Westphal nuclei and then travel back to the eye through parasympathetic fibers into the ciliary ganglion and then through short ciliary nerves into the pupil sphincter, iris sphincter muscle which can constrict the pupil.

There are two mechanisms to dilate the pupil, one mechanism is the inhibition through the part of the brain called the hypothalamus. Inhibition of the parasympathetic pathway. So in other words, the pathway that constricts the eye is inhibited which allows for dilation and then there is a second mechanism which sometimes in some books is referred to as a supercharged mechanism in which you get a direct activation of the dilation of the eye and this occurs through the sympathetic pathway and through the cilia spinal central budge and the fibers then go through what is called the supercervical ganglion and through the long ciliary nerves into the iris, and to the iris dilator muscle to dilate or enlarge the pupil.

And the reason that I am mentioning these pathways is that it is important to understand that light is not the

only thing that constricts or dilates pupils. The sympathetic pathways are fight or flight response pathway and so the eyes can be dilated or the eyes can dilate in response to fear, stress, pain, these emotions which are not light -- these emotions can dilate the eye.

Similarly in terms of constriction, a near response, we call that a myotic response accommodation can constrict the pupil. And so I believe it is very important to understand that there are other mechanisms involve that cause dilation and constriction of the pupil.

Q I assume, talking about that, you mentioned fear and anxiety, those can be -- I assume also there is medical conditions that would also cause a dilation or constriction of the pupil?

A There are. There are medical diseases. There are medications that one can take. Age can effect the size of pupils, so whenever you talk about size of pupils, age is very important because pupil size changes with age. These are the various factors.

Q Well, you have had the opportunity, have you not to review as we talked about the other day, the section that deals with eye examinations in the DRE manuals, is that correct?

A Yes, sir, I have.

Q All right. And let me ask you, as far as you see

the way it is broken down into three different kind of measurements, room, light and near total darkness and direct light?

A Yes, sir.

Q Let's start with room light. In the field of opthamology, first of all can you tell me do you typically take measurements in room light?

A We will evaluate pupils in room light but the concern that I have with the manual is what is room light? Are we right now in room light? If we open up all of the windows and it is a sunny day, is that room light. It is cloudy and raining outside, is that light intensity room light?

What room light are we talking about? And there are ways of measuring light and there are units that are assigned to measurements of light, so to say room lights we all know there is quite a bit of range in room lights. So I don't know what is referred to as room light.

Q And if I understand it, you are saying in the field of opthamology, would you calibrate light before you relied on a measurement --

A We do that. Whenever we take numeric measurements that rely on a light instrument, we will calibrate that light instrument. Whether it is an eletroretinagram, a visual --- dark adaptometry. If you are doing specific pupilometry and

taking measurements, pupil sizes for example, for a study, you will want to have calibrated that light, know what that light measurement is to be able to know what numbers you are looking at.

You know, without knowing what lights we are talking about, how can we talk about a number at the end. It is very similar to that saying, garbage in equals garbage out. If you don't know what number you are putting in, how do you know what number you are getting out?

Q And as far as we heard previously, testimony with Dr. Zuk who indicated that room light, he would consider a normal range to be 2mm to eight and a half. Do you have an opinion as to your feelings on that range?

A That range is likely appropriate. In the sense that given that there is so much variability, there is -- in the medical literature, there is no good number. Because there is no definition of what room light is. But perhaps informally speaking, we might be able to say, okay, fine, you know, that range is all right.

Q I am going to show you Defense Exhibit 11, and ask if you reviewed that and if it set out the normal ranges for the DRE program?

A Yes, sir, I have reviewed this.

Q And it indicates, if you could look at the bottom right, it indicates that they would consider a normal range

in room light to be two and a half to five?

A Yes.

Q Would that be an acceptable range in your opinion?

A In my opinion that is too narrow of a range.

Q And you say too narrow, in your experience are there a lot of people that would fall outside of those ranges?

A Yes, that is what I am referring to.

Q Now as far as -- let's talk next about near total darkness, you had an opportunity to review how that was done in the manual as well, is that correct?

A Yes. Yes, sir.

Q And before I -- since we are on the size, let me start with that. Dr. Zuk had indicated that he thought appropriate range was 3 to 4 to nine and a half to ten? Can you render an opinion as to your professional opinion as to whether or not that is an acceptable range in near total darkness?

A I think that in general that is an acceptable range. The difference is when you look at near total darkness, that is a more specified amount of light. And so there is some information in the medical literature pertaining to normative data for near total darkness. And that normative data ranges from about three to nine millimeters and most of it is suggested that the range is

between four and nine millimeters in near total darkness. So, what Dr. Zuk has presented is appropriate.

Q Now, you can see on the bottom right on the normal range as it indicates for the DRE program, five to eight and a half. Would that be acceptable in terms of capturing the normal?

A It again, is on the narrow side.

Q Okay. Now in addition to that, you saw what the officers were being asked to do to determine pupil size and essentially near total darkness, could you tell us in your opinion how difficult it is as an opthamologist, how difficult it is to obtain the correct pupil size in near total darkness?

A Well, in near total darkness, how do you see the pupil if you are in a room where all the lights are off, there is no light coming in from the windows, you are at near total darkness, how can you see the size of a pupil? And so, it is very difficult to assess accurately the pupil size in near total darkness. There are techniques that are done that can allow you to estimate the near total darkness because you are adding light.

For example, if you put your thumb up to the top of a penlight, you are decreasing the amount of light that that penlight shines but you are adding some light and so you are trying to assess the pupil then in near total darkness with a

little bit of light added. And so that effects the measurement that you are getting. Ideally to measure pupil sizes, the best ways is to use an infrared pupilometer. And you know, you don't -- with an infrared pupilometer, you don't have to rely on adding light to be able to see the iris and pupil, to be able to measure --

Q We can just step back. You see in the DRE protocol that essentially they used what they described as a card with a pupilometer with a series of circles.

A Yes, sir.

Q Is that what you would consider a pupilometer in the field of opthamology?

A No, sir. The card -- we typically refer to that as a Rosenbaum card. It is a card that has circles of different diameters and it is used to subjectively compare the diameter of the pupil with the diameter of the card. It is neither a meter because it doesn't actually measure anything, the card doesn't measure something for you. It is a subjective comparison.

So it is not either a meter nor a pupilometer. A better technique than using the card is a still camera image. Or a video recording. It is so much more accurate technique but the most accurate technique that we have is infrared pupilometry.

Q If I could stop you there, as to opthamologist and

in the past opthamologist used the Rosenbaum card and the penlight to estimate pupil size in near total darkness?

A Yes, we will use that to get -- and a rough estimation but not to quantify --

Q Okay. Is there any in your experience, how accurate how you found opthamologist to be in doing that?

A Well, the problem with doing that -- there are several problems with doing that. One as we mentioned is subjective. So you are comparing a card to the actual eye and we know that in studies it has been shown for example, there is a 2004 study that showed opthamologist or -- I shouldn't say opthamologist -- trained personnel were off by millimeter and a half over or a millimeter and a half under when they used that card, the subjective card to compare pupil sizes.

And so that is a three millimeter range that we are talking about of being off. The -- this card also is fraught with other difficulties. When you put the card in front of an eye, if that person fixates on the edge of that card in other words, if you happen to look at the edge of that card, if you as the subject happen to look at the edge of that card, as an examiner is using that card to compare the actual pupil diameter with the circles on the card, then you are going to induce what is called a near reflex or a myotic reflex that can actually constrict the pupil a bit.

It can change the pupil size from what it would

otherwise be. And actually the same process can occur with a penlight. If the subject happens to look at the tip of the penlight as the pupils are being examined, you can stimulate this myotic or near reflex and constrict the pupils. And again you know, when we are talking about these inherent problems in measuring the pupils, the penlight itself is fraught with problems and --

Q Well let me stop you there and ask, first of all, and I want to get to the penlight, I want to do that on the next one though. If I could stop you there. With this measuring by opthamologist of near total darkness, in your experience has there been any medical fallout from the fact that there was an inaccuracy when it came to eye procedures?

A Actually that is a very good point. I am going to give you a very important example. The Lasik procedure which is a refractive procedure, a laser procedure that is done on eyes to correct visual acuity, you may have heard this referred to as corrective laser surgery or laser vision surgery. It is called the Lasik procedure and it is a laser surgery that is done on the cornea, on the clear window of the eye to change the shape of the cornea so that you don't have to wear glasses anymore in a nutshell.

The problem with this procedure is that it is surgery. It changes the shape of the cornea and so you want to do this procedure on as little surface area of the cornea

as you can. And not on the whole cornea. Because it changes the shape of the cornea and it changes the thickness of the cornea. And so what people did in the past, you want to make sure that when you do this procedure, you do it to the size of the pupil in darkness. Because pupil sizes vary in darkness from person to person, you want to make sure that the area that you cover is the same area of the pupil in darkness.

Therefore, it would -- if you are off and you are covering too small of an area with this Lasik procedure, the patient may then complain of haze at night. Their vision at night won't be as clear because of haze. With this procedure, opthamologist used to use this Rosenbaum card, the same technique that the DRE uses to measure pupil sizes at near total darkness.

The problem is they were off too many times and got the pupil size wrong too many times and induced haze in people undergoing the Lasik procedure. And so it was recommended that instead of using this Rosenbaum card, this DRE technique, that infrared pupilometry be used so that you could get the pupil size correct so that you don't induce haze in these patients who are undergoing this procedure.

Q Do you know about approximately how much they were found to be off?

A Sometimes they were off by a millimeter or two

which is a substantial amount.

Q Now if we can move to directly, I assume you having reviewed the procedure, seeing that the penlight is being used to fill the eye socket for 15 seconds in direct light?

A Yes, sir.

Q That was the procedure that was outlined?

A Yes, sir I am.

Q First of all and I know you were talking about the pen. First of all, let me ask you this, when you use a penlight in any examination, for light sensitivity, is it calibrated?

A If you want to use the penlight -- if you want to use a light to come up with a number -- a numeric measurement on which you can rely then you should quantify that light that you are using so that you can rely on the number that you get out. Because otherwise -- I am sorry?

Q Is there a way to calibrate?

A There are ways to calibrate light sources. There is simple little light meters that can be used. The problem is that this penlight what is the intensity of the light? You know, I saw that the DRE manual talking about direct light from a penlight but what is the intensity of that light? You know --

Q Let me ask you this, even if there was a set intensity of light, can that change over time that we are

using it? Different battery, draining or could it change?

A Yes, the light bulb changing, it can change over time. If you don't repeatedly calibrate it. Or repeatedly test the calibration number 1. Number 2, it can also change depending on how you use the penlight. If the penlight is too close or too far, it can affect the amount of light hitting the retina and that can change the amount of dilation or constriction.

Number 1. Number 2, the angle at which the light hits the retina is very important. If you are off access by a little bit, in other words, you are not perpendicular to the center of the retina where the light sensitivity is the greatest or as to say there are more light sensing cells per square millimeter, then you are going to have a different reaction to the light then if you are right on access.

And so, you know, just slight tilting of the light can affect the result and if you are off, even if you have it exactly perpendicular but you are off by a little bit, you know, you are over to one side a little more than the other, these kinds of effects -- I am sorry, these kinds of -- these kinds of testing errors can cause substantial differences in the results that you are trying to measure.

Q Well, let me ask you this, in the field of opthamology, do you actually take measurements by direct light for 15 seconds into someone's eye like that?

A 15 seconds is a long time for a bright light to be shined in the eye to test pupils, but if that is the test procedure, then that is the test procedure. You know and we don't -- we don't typically shine a light in the eye for 15 seconds to test pupillary reactions, we are not taught to do it that way.

Q Okay. And as far as I know you talked about yesterday, the idea of rebound dilation, can you tell me how common that would be if you were shining the light in someone's eye for 15 seconds?

A The process of rebound dilation and again, it is a semantics as to what you call it, I prefer to call it pupillary escape as does much of the medical literature. Pupillary escape that is symmetric as opposed to asymmetric pupillary escape. It occurs according to the medical literature, in nearly every one. Some -- in an amount that is more detectable than in others, some that -- in some people it is very easily visible. Some people it may not be easily detectable.

But it is -- this escape happens in practically everyone and the amount of the escape varies from person to person. It varies from circumstance to circumstance. But it occurs in the earlier portion of this 15 seconds, the slope is greater in the first couple of seconds and then the slope decreases from there.

Q But in normal subjects it can incur within the 15 seconds? That long?

A It can occur during the 15 seconds, correct.

Q Okay, very well. Now in your experience in the medical literature, is there anything that you know that would equate a certain pupil size to the presence of a drug in the system?

A No, sir.

Q Is there anything that equates pupil size with an indication of drug -- like a certain pupil size?

A No, sir.

Q Okay. Now, let me ask you a general question. The pupil size that you gave us, the range as you gave us of I think was room light, two to eight and a half was acceptable, three to four to nine at least was acceptable. If the pupil size was within that and I understand that there would be other medical reasons, but if the pupil size -- based on pupil size, is there anything that would affect this person's ability to drive, in your experience?

A If it was within the range of what is normal, it should not affect the person's ability to drive --

Q Now when you go in for an eye exam, like I have gone in for an eye exam and sometimes they will dilate your eyes to do an examination, how big is the pupil getting when you get dilated like that?

A The pupil size can be 10 millimeters in diameter. And I think what you are trying to get at is that you know, when you have a pupil that is that dilated, it can cause some haze, it can cause some mild blurred vision. It can cause some what we call phobophobia or sensitivity to light. And these effects can make it somewhat difficult to drive, but typically people are able to go in, get their eyes dilated and then drive back home from a doctor's office.

It may not be comfortable, the biggest complaint is phobophobia or sensitivity to light, it may not be comfortable, but does it impair driving? No not necessarily.

Q I see even there you are even talking about really a --

A We are talking about extensively --

Q -- very dilated.

A Yes, dilation.

Q Reaction to light. If we could show you -- Defense Exhibit 5. I will show you Session 5 page 8, there is a discussion of reaction to pupil, right?

A Yes, sir. Yes, sir.

Q And ask you first of all, can drugs actually slow reaction?

A Yes, sir.

Q Now you see in the --- indicates that certain drugs will slow reaction time is that correct?

A I see where it says that.

Q Okay. Is that your understanding of the medical literature and your experience as an opthamologist?

A Certain drugs may slow down the -- a patient's pupil reaction, yes, sir.

Q But you wouldn't say will, you said may.

A I said may. Correct. And there is an important distinction.

Q Okay, why is that so important to you?

A Because at times they may not.

Q And so from a slow reaction time in the medical field, would you draw any indication that that means drug presence?

A No, sir.

Q Now they also indicate, do they not that essentially they consider a -- well first of all let me ask you this, does a slow reaction time impair vision?

A No, sir.

Q Does it impair your ability to drive?

A No, sir.

Q As far as people over the age of -- well they indicate first of all, that about a one second is what you would need to have a normal reaction time, what do you think about that estimation?

A I think that is acceptable.

Q And when someone is above or below that, do you indicate that that means a slow reaction time or is it individualized?

A It is individualized.

Q Can you explain how much of a range you may see in different people?

A We tend not to quantify the reaction time. But I think it is fair enough to use their range of one second. I don't think that is really out of what could be acceptable.

Q Does it change with the age though?

A It does change with age, yes.

Q Sort of a standard, does it change with age?

A It does change with age and so, you know, if you look at normative data, you want to look at age specific normative data.

Q So if I understand, you are saying one second may be appropriate with one age but not another age?

A That is correct.

Q And I think we have heard previously, I thought it was later in life, but at the age of 30, your reaction time and someone's reaction will change, is that the same with reaction to light?

A Yes, it is the same. Yes. It can be effective.

Q Is there -- we talked about drugs may -- can even when a person is taking a drug in a therapeutic level, will

it affect -- could it affect the reaction time?

A Absolutely can affect the reaction time, or it may affect the reaction time at therapeutic levels or at non-intoxicating or non-impairing levels, that is correct.

Q You talked previously about pupil size and you talked about the fact that sort of --- flight reaction also will affect your dilation, can it affect reaction time?

A It will affect -- it can affect reaction time but it is more likely to effect the pupil size, but it can affect the reaction time as well.

Q Very good.

A That is correct.

Q Now also if you could take the same exhibit there and if you could turn back to page 4. And I know you briefly talked about it yesterday, some of the angle of onset but I what to talk about a different topic on that. There is an equation that you will see there as blood alcohol content equals 50 minus angle of onset, are you familiar with that?

A I have seen that equation.

Q And that is referred to here essentially as the Tharp's Equation, correct?

A Yes, sir.

Q Can you tell me is that -- that is -- well tell me what your understanding of what it is intended to do in the DRE manual?

A I understand that the intention of this equation is to estimate blood alcohol content based on the angle of onset of nystagmus.

Q And of course, we talked about the problems of calculating angle of onset yesterday.

A Correct.

Q But is this a concept that is considered valid in the medical field and the opthamology field?

A No, it is not. It is not considered valid in the field of medicine nor in the field of opthamology. In my review of the medical literature, the closest thing that I could see to this and I think what this is is a very gross distortion of what I am about to say, the closest thing that I could see to this is what is called Alexander's Law which suggests that in one type of alcohol nystagmus, that the angle of onset -- that the nystagmus increases as the angle increases.

And so, this could be taken to imply that if in primary gaze, the nystagmus is so minimal that it is not visible at some angle, it will then become visible and you would have an angle of onset there. But that does not -- there is two issues with that. Number 1, it does not correlate with blood alcohol concentration and was never intended to correlate with blood alcohol concentration.

Number 1. And number 2, it is referring to a

different type of nystagmus than the nystagmus that is being tested by the DRE. Alexander's Law is used in vestibular induced nystagmus which remember from yesterday can be induced by many causes ranging from common medications to virus et cetera.

Remember the vestibular induced nystagmus often times is present in primary gaze. So in other words, when you are looking straight, that vestibular induced nystagmus is often times present in that primary gaze. The DRE suggests looking for a nystagmus that is not present in the primary gaze. So the DRE manual suggests not looking for or discarding alcohol induced vestibular nystagmus which is again the vestibular induced nystagmus is the type of nystagmus that Alexander's Law refers to.

So it is a -- at best, this Tharp's Equation is a gross distortion of what is in the medical literature. Other than that, I don't find any validity in the field of medicine or in the field of opthamology to this equation.

Q And even there you were talking about vestibular nystagmus in primary gaze, is there anything in your experience as an opthamologist in medicine that would show that that would be done or that would be an indicator of drug presence in the body?

A No.

Q Or a certain level of drug impairment?

A No.

Q Okay. As far as -- I am going to ask you a couple of alterations. Now initially we talked about lack of convergence and I think you said initially when you got into this case, it was sometime ago --

A Yes, sir.

Q -- and you had actually looked at different manuals I guess over the time you have been involved is that correct?

A That is correct.

Q Now when you initially looked at the section on lack of convergence, do you recall raising an issue immediately that you saw that you had concern over? Regarding eyewear?

A Oh, regarding the eye glasses, that is correct. And can you relate the -- what your concern -- when you read the 2007 manual, concern that you had raised?

A Oh, well if you take your eyeglasses off, that affects your ability to see clearly. If you are an individual who relies upon eyeglasses to see clearly. And so without the appropriate refraction -- without the appropriate eyeglasses, it changes your ability to fixate properly on an object. It affects -- it can affect not just convergence but also the nystagmus, being able to fixate and follow the nystagmus test.

Q Now --

A Not in all people but in some people.

Q Now in terms of the sections on this, at least as to lack of convergence, the newer 2010 manual I have reviewed, they have changed that, is that correct?

A That is correct.

Q And did they change it as to horizontal gaze testing? Do you recall?

A I believe they did change it as to horizontal gaze testing. I don't recall if they -- I would need to review the -- look at the manual again to see if they -- I believe they took that part out of the horizontal gaze testing. But I don't recall -- I have read several different manuals of these. That I don't recall which one was which.

Q Well suffice it to say your opinion is that they should be allowed to use the glasses for HGN as well?

MR. WELLS: Your Honor, objection. There is a lot of leading going on. I know we are trying to get through this but it is not cross examination.

THE COURT: Sustained.

BY MR. DELEONARDO:

Q What is your opinion as to whether eyewear should be permissible for the person as to HGN testing?

A Eyeglasses should be used during the HGN testing if the eyeglasses are required to correct a significant refractive error.

Q Okay. Now as far as lack of convergence, one other aspect. I know we had talked about how age effects and all of that. I am going to ask you a different question. Has there been any research or any experience that you have had with certain age groups that have nystagmus -- lack of convergence naturally?

A Yes. In the text book by Liam Zeib*, there is suggestion that lack of convergence is fairly common especially in the younger population subset. The teenage early 20's, those years in the medical literature. There is another study that shows lack of convergence is most common in average age of 19.9 years if I am not mistaken.

Other studies have shown that anywhere between two and I believe it is twenty percent of the population -- people in general, normal people have a lack of convergence or insufficiency in convergence. I misused the term lack versus insufficiency and I think in the DRE manual it leads us to sometimes misuse terms.

But impaired convergence is present according to some studies in as few as two percent of the normal population and in as high as 20 percent of the normal population which is a substantial amount of normal people have impaired convergence.

Q Let me show you -- if I can mark --

THE CLERK: Defendant’s number 18.

(The document referred to was marked for identification as Defendant's Exhibit 18.)

BY MR. DELEONARDO:

Q I am going to show you what is marked as Defendant's Exhibit 18. And ask if you can identify whether you have reviewed that?

A Yes, sir. This is the DRE manual from 2007.

Q Okay. So you have actually, you have reviewed both of them?

A Yes, sir, I have.

Q Now if you could, I am going to ask a different topic. You talked yesterday about the concept of hippus.

A Yes, sir, I did.

Q And in your review of the 2007, if I could turn to session 5, page 8 in the 2007 version, do you see the concept of hippus discussed?

A Yes, sir, I do.

Q And that is what you are referring to yesterday?

A Yes, sir, I was referring to that.

Q Now, when you reviewed the 2010 version. Did you see the term hippus being used in the 2010 version?

A They did not use the word hippus but they used the term hippus if I can say it that way, they discussed hippus without using the word hippus.

Q Can you explain what you mean by that?

A In other words, they used a different word for hippus, they used pupillary unrest for hippus and we know from the medical literature that they are often used interchangeably. If we look at 1970 article by Hollenhorst* refers to hippus as pupillary unrest. And at the same time in 1970, also a different researcher by the name of Yos* who tried to separate out all of these types of continuous irregular changes in the size of the pupil and he tried to say well you know, you need to distinguish fatigue waves, pupillary unrests from hippus because they are all different things.

But if you look more recently in the medical literature, hippus and pupillary unrests really are interchangeable because as a clinician, we can't distinguish pupillary unrests from fatigue waves from hippus. They are all one in the same phenomenon.

Q So it is your opinion that the concept that you discussed regarding hippus is still in the manual?

A It is.

Q Okay. As far as -- I have a couple of other things as far as driving impairment.

A Yes, sir.

Q And we talked a lot of about alcohol versus drugs yesterday.'

A Yes, sir.

Q And we talked about alcohol. Let me ask you this, as far as why you were discussing the alcohol, is there a difference between the alcohol and drugs?

A There can be.

Q The effect on the body?

A There can be, yes sir.

Q And when you -- we talk about these drug categories and the different types of drugs, I am just going to use a general term, those different types, but generally can these drugs cause these types of symptoms in a person, can they?

A Yes, they may.

Q Okay. Is there any predictability in your experience of opthamology in medicine as to when they will? I mean, a high level -- is there any like where you can know it is going to happen?

A Depending on what you are looking at, sometimes they are dosed dependant.

Q Are they -- is there -- are they dependant upon therapeutic levels versus impairment levels?

MR. WELLS: Objection. Again he is leading.

MR. DELEONARDO: Just asking a contrast question.

THE COURT: I will overrule.

BY MR. DELEONARDO:

Q Just wondering if there was a difference, you said

they were dose related. Is there a difference between dose related and therapeutic versus impairing?

A Not necessarily. There is a continuum between subintoxicating to clearly intoxicating and what is therapeutic versus what is subintoxicating versus what is intoxicating. There is a continuum in and you can't necessarily tell and some of these may occur at subintoxicating or subimpairing or subtherapeutic levels.

Q Okay. Also, now we talked -- asked -- you said and I am showing you Defendant's Exhibit 11 again at the bottom.

A Yes, sir.

Q You see there is what is considered by the DRE as normal ranges for blood pressure is that correct?

A Yes, sir. I see that.

Q In your field of opthamology what would be -- you consider the normal range for blood pressure?

A Some of the values that I see here may be considered in the pre-hypertensive range. But you know, as with any of these ranges there is considerable variability and depends on what type of situation you are talking about and what the circumstances of the subject in which you are talking about.

Q Well, what is commonly accepted, I guess as if we have to pick a range, doesn't apply to everybody but is this you described as pre-hypertensive?

A For some people they will consider this a pre-hypertensive range, yes.

Q All right. As far as -- ask you a couple of things. As far as the eyes, we talked about all of these indicators and as whether or not they are an indicator of drug presence. Let me ask you this, if you collectively put these indicators together, would they indicate to you -- hold on, let me step back. What would you consider the term impairment in the medical community? What is impairment mean in the medical community?

A Impairment would -- it depends on how -- there really is a lot of variability in defining impairment. I may define impairment as loss of mental or physical capacity to do something for example. And so, I may define impairment as a loss of mental or physical capacity but there is a wide range of what you define as impairment and what you don't. But to talk about impairment, I think it is important to have a definition as to what impairment is.

Q As far as the -- let's define it. With each piece of the topics that you talked about in this matrix, all of the eye symptoms that you discussed. In the medical world would you conclude or would you determine that there were drugs present even putting all of these signs together if they were present?

A No, sir.

Q Would you conclude from this in any way that a person was impaired by drugs?

A No, sir.

Q Would you also and I am curious, would you reach an opinion prior to receiving any laboratory work or confirmation?

A No, sir.

Q Now when you, as a medical doctor, obtain laboratory work, if you had a suspicion there were drugs there, do you only look for drugs?

A We look for other things beyond drugs. You know, as we talked about yesterday there are many causes for the findings that we see in this matrix and so, we don't just look for drugs to make a diagnosis or to make a determination. We have to look beyond just the presence or the absence of drugs on a blood screening or on a urine screening to be able to make or not make a diagnosis.

In -- you know, I think it is also very important to know that we don't treat blood tests -- we treat patients. And so you don't look just at a blood test or you don't look just at a matrix to make a diagnosis, you are treating the patient. You are not treating the findings on a matrix or the findings on a blood test.

Q Well on that point then, follow up, on that point, if you did have a confirmation that it was present in the

blood --

A Yes, sir.

Q -- would you assume that the symptoms that you have seen are from the drugs?

A They could be. Or they could not be. Depends on many variables including what level you saw. When the ingestion was done and when it wasn't. There are so many variables to consider.

Q Would you be able to rule out any medical causes at that point?

A Just on the blood test?

Q Yes.

A No, sir.

Q Now you had spoken a couple of times about looking at the -- I think you described the totality of the situation.

A Yes, sir.

Q You have had an opportunity to review what the DRE considers the situation, is that correct?

A That is correct.

Q When you refer to the totality, are you referring to everything that they are considering or are you referring to anything more?

A I am referring to what they are considering as the totality. When I do these I refer more -- when we as

physicians look for -- for example, impairment, we refer to more than the totality of the DRE. But for the purpose of our discussions, I am referring to the totality of what the DRE is looking it.

Q So you are indicating that your totality is different than theirs?

A That is correct.

Q Okay. As far as talk quickly about research.

THE CLERK: Defendant's number 19.

(The document referred to was marked for identification as Defendant's Exhibit 19.)

BY MR. DELEONARDO:

Q I am going to show you what has been marked as --

A Mr. DeLeonardo, can I mention one point about the totality --

Q Sure.

A Would I be permitted to? The issue that I think is also critical to be aware of when we talk about totality, we are looking here at a matrix that doesn't tell us relative weights of what is more important in the matrix and what is less important and what to evaluate in one manner versus a different manner.

We are looking at almost a robotic matrix and as if a digital yes or no matrix, when in real life, even if we

were to take the totality --

MR. DAGGETT: Your Honor, I am going to object, he is not responding to a question. He is quite frankly right now he is pontificating about the DRE program and that is really not up to him. He is -- I mean, we have not objected to pretty much anything he has said but now he is just going and trying to just take the DRE program in general and give his opinion -- not even his opinion. It is not an opinion about the program itself, he is just -- it is just not relevant what he is saying and plus it is not in response to a question.

THE COURT: Okay.

MR. DAGGETT: He will ask the question now because he has already started to do -- to say what he is going to say. But it is just not relevant.

THE WITNESS: I --

THE COURT: Ask a question, Mr. DeLeonardo.

MR. DELEONARDO: Thank you.

BY MR. DELEONARDO:

Q When as a doctor, when you are exercising medical judgement, can you tell His Honor what medical judgement is?

A Your Honor, what I was trying to say --

Q If you could -- explain --

A Medical judgement is using items that may be in a matrix and placing our own experience, our own understanding

of the medical literature, placing the knowledge that we have gained into that matrix, understanding the relative weights of different items in that matrix and coming out with a judgement. So that even if we were using this matrix in its totality without anything else, there is an element of judgement that we as physicians would incorporate to assist us.

And that is not present, that is -- it is a very important component of the matrix that is not present in this matrix. And that is what I was trying to get at is the -- how we as physicians interpret these. If we were forced to use only -- if we were forced to look at only this without looking at anything outside of what is in the DRE manual and frankly we wouldn't be. And frankly that would be injustice to the patient to do that.

Q If I could show you what is marked as Defendant's Exhibit 19. Have you seen that item before?

A Yes, sir I have seen this book before.

Q And can you tell us what it is?

A It is a book that was commissioned to attempt to understand forensic science evidence in its use.

Q Is that a book that is generally accepted to be reputable in the field of clinical research and science?

A It is a reputable publication correct.

Q And some of the issues that you discussed as to the

research, you said that if I recall, you have reviewed the studies, correct?

A I have reviewed studies which you have referenced and other studies.

Q And as far as the studies involving the DRE program, what is the significance of those being done in a peer review publication that you reviewed, if you can tell us?

A Well, I think the -- I think this book tells it very well. Peer review is a very important component of being able to accept a medical publication and be able to accept the findings in the medical publication. Peer review adds a level of validity to a publication that otherwise would not be there. The peer review process involves review by other experts in the area, it looks very --

MR. WELLS: Your Honor, at this point in time I am going to object. I think we know what peer reviewed is. This is duplicitous.

MR. DELEONARDO: If --- accept that I will move on and --

THE COURT: Yes, let's -- I mean, we have heard what it is.

MR. DELEONARDO: I don't really have any -- but I just -- I don't want to lead, so I am trying.

BY MR. DELEONARDO:

Q The concept of confirmation bias is something known to you in clinical research as well?

A That is correct.

Q And does this publication speak to the importance of avoiding confirmation bias in reaching decisions?

A That is correct.

Q Okay. So the principle set out here you would agree, is that right?

A Yes, sir, I do.

Q All right. Very quickly. We have heard previously that the things that are used, whether it is judging the eyes or determining nystagmus or reaction of light, those things have been accepted around for a lot of years. And I see you agree with that?

A Yes, sir.

Q Is the -- what is your opinion as to the way they are being combined to reach this opinion in the DRE program. Is that generally accepted in the --

A To use the totality of the ophthalmic findings to make a determination is not accepted in our field to make a determination. We use these to heighten our suspicion. In other words, we use these as a screening tool and not a diagnostic test.

Q Very good.

MR. DELEONARDO: Your Honor, that is all I have. I

am just going to move in the defense exhibits. I think everything except the -- everything else I am going to move to admit. Primarily the studies and the --- the only thing I am not seeking to admit, Your Honor is the -- I don't know which number it was, to be honest with you.

THE CLERK: What are you looking for?

MR. DELEONARDO: The internal investigation -- Defendant's 1 -- no I am sorry, Defendant's 2.

MR. WELLS: Additionally it was marked for identification, the Power Point of Dr. Gengo.

MR. DELEONARDO: I didn't mark that, I just gave him a courtesy copy so he wouldn't have to take all of those notes while he was looking at it. I didn't actually put that in.

MR. WELLS: Just wanted to make sure.

MR. DELEONARDO: Yes, no I didn't put that in.

(The documents marked for identification as Defendant's Exhibits 18 and 19 were received in evidence.)

THE COURT: All right, I am going to recess for lunch. We will pick up with cross at 1:30. Any rough time estimates for this afternoon?

MR. WELLS: Your Honor, I will anticipate it will

take majority of the afternoon. This is going to take some time.

THE COURT: As in --

MR. DAGGETT: Did you expect anything less, Your Honor?

THE COURT: Majority of the afternoon. Is that for you or for --

MR. DAGGETT: I would have to say that if we start at 1:30, Your Honor, I don't see -- I won't speak for Mr. Wells, but I don't see how we wouldn't be done by 3:30 at the latest with redirect and recross.

THE COURT: I don't know, I think Mr. Wells has got a different view point here.

MR. DAGGETT: That could be -- it is only another hour after that.

THE COURT: Well, I do want to conclude today hopefully no later than 4:00 or 4:30 if possible because I do have Master Tabasko's retirement thing to go to. Somehow I became the MC. I am not sure --

MR. WELLS: It is probably the drug court connection.

MR. DELEONARDO: Or probably because you haven't had to do the dockets -- I saw the list over there, it is ugly.

THE COURT: All right. We will be back at 1:30.

(Whereupon, a luncheon recess was taken.)

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

THE COURT: Be seated please.

MR. WELLS: Good afternoon, Your Honor. Recalling the Frye-Reed case, shall I recall it on the record.

THE COURT: I don't think that is necessary.

MR. WELLS: Your Honor, preliminarily the only thing I wanted to do is, move to admit Exhibit 15A which is the redacted --

MR. DELEONARDO: Yes, the redaction was fine.

MR. WELLS: Redaction of the Zen Zuk's CV.

THE COURT: All right, it will be received.

THE CLERK: Thank you.

(The document marked for identification as State's Exhibit 15A was received in evidence.)

THE CLERK: Doctor, please remember you are still under oath.

THE WITNESS: Yes, ma'am.

CROSS EXAMINATION

BY MR. WELLS:

Q Good afternoon, Doctor.

A Good afternoon, sir.

Q Doctor, I want to start out with just going over

some of your experience with regards to the performance of a DRE evaluation or the performance of field sobriety tests and your experience with regards to those.

A Yes, sir.

Q Is it correct that you have never performed a drug recognition evaluation?

A Yes, sir.

Q You have never observed one?

A Yes, sir.

Q You never went to a DRE school?

A Yes, sir.

Q You never have taken even a defense oriented DRE class, is that correct?

A Yes, sir.

Q Okay. You have never been present at a NHTSA and by NHTSA, the National Highway Traffic Safety Administration standardized field sobriety test school, is that correct?

A Yes, sir.

Q Okay. You've never observed how a police was trained in HGN?

A Yes, sir.

Q So in essence, to some totality of your understanding of how the DRE evaluation is done or how FSTs be it HGN or walk and turn or the one leg stand is simply through reading the manual which has been entered into

evidence, is that correct?

A Yes, sir.

Q Okay. Now with regards to your CV, I see on your CV that you have listed about at least five different papers that you have published.

A Yes, sir.

Q I am not going to go into depth in those, but is it fair to say that of these papers, none of these papers were on the effects of controlled dangerous substances on the human eye, is that correct?

A That is correct.

Q As a matter of fact, none of these are even on the effects of drugs in general on the human eye, is that correct?

A I believe that is correct. Some of the papers are not listed but I believe that none of them are on the effects of any drug agent on the human eye.

Q Fair enough, thank you. Now with regards to horizontal gaze nystagmus and I just want to make sure that we are all talking about and we are all clear about the same thing because there are a lot of different types of nystagmus and --

A That is correct.

Q -- when we talk about nystagmus, I just want to make sure that we are talking about the same thing. HGN or

horizontal gaze nystagmus is when you are following a stimulus on a horizontal plane and the eye bounces pendular, is that correct?

A No, sir I wouldn't define it that way.

Q How would you define it?

A Horizontal gaze nystagmus is not necessarily relating to following a pen.

Q Okay. With regards to the horizontal gaze nystagmus test, that is --- my question, when they are doing the horizontal gaze nystagmus test what the officer is looking for is the bouncing of the eye sideways as it follows the stimulus, correct?

A Yes, sir.

Q And they are not -- excuse me, when it is -- as it is looked for in the DRE manual, it is looked for the eye bouncing sideways?

A That is my understanding of the DRE manual.

Q Thank you. And it is not and it would be noted if the person was following the stimulus this way and the eye was bouncing up and down, that is something different, correct?

A That is.

Q Okay. Additionally there is another type of bouncing which I believe is called rotational nystagmus, is that correct as well?

A There are other types of nystagmus correct.

Q Okay. Now with regards to those, there is a discernible difference between the bouncing sideways and the bouncing up and down, is that correct?

A Not necessarily.

Q At certain doses of -- go ahead --

A I should say not necessarily, it depends on who is looking at it, how careful you are looking at it and the subtleties of the findings.

Q Would it be fair to say also the dose of say alcohol or drugs that is causing nystagmus or the basis of the nystagmus?

A The cause of the nystagmus can affect the nystagmus, correct.

Q It can make it more distinct, correct?

A Different types of causes affect the nystagmus.

Q So if it is a distinct side to side bouncing nystagmus that is something which is observable by a properly trained person, is that correct?

A I would not say it that way, but if we have to be as bruff with our phrasing then roughly speaking, yes.

Q Okay, because bouncing side to side is different from bouncing up and down?

A Bouncing is not the same as nystagmus. But in side to side has -- there is different kinds of side to side

bouncing and so, nystagmus is a very precise term and there is different types of side to side bouncing that is -- that are different types of nystagmus and so you know if you want to just say roughly -- we can throw it all in the same basket.

Q Now you would agree that alcohol in high enough doses will cause the horizontal gaze nystagmus that I roughly described?

A No.

Q I am sorry?

A No.

Q Alcohol will not cause horizontal gaze nystagmus?

A No to that question as well.

Q Okay, I will rephrase it. Can alcohol at certain doses cause horizontal gaze nystagmus?

A Yes.

Q Okay. And you would agree that certain other drugs at certain doses can cause horizontal gaze nystagmus as well?

A That is correct.

Q Okay. Now you would agree that some of those drugs, some of those drugs are like drugs that depress the central nervous system such as you know a benzodiazepine or something like that. That is the type of drug which would at a certain dose, cause -- may cause horizontal gaze nystagmus, is that correct?

A Would or may?

Q May?

A Yes.

Q Okay. So horizontal gaze nystagmus may be an indicator, not just -- well strike that, I won't ask that -- now there is other drugs that can do that as well, specifically dissociative anesthetics taken at certain doses may also cause horizontal gaze nystagmus, is that correct?

A Yes.

Q Such as PCP?

A Yes, sir.

Q And certain drugs like certain inhalants may cause horizontal gaze nystagmus as well, such as say gasoline?

A Yes, sir.

Q Okay. You would agree that other drugs even taken at high doses, will not cause horizontal gaze nystagmus, is that correct?

A Yes, sir.

Q Such as marijuana?

A Yes, sir.

Q You could smoke a lot of marijuana and that still would not cause in and of itself, horizontal gaze nystagmus.

A I believe that there is -- and I will have to think back, I believe there is some evidence in the medical literature that marijuana may cause or may have been reported

with horizontal gaze nystagmus, so I would have to answer your question with a no.

Q Okay. What is this medical literature that you are talking about?

A I would have to go back and review. I believe I have read somewhere --

Q You read something somewhere that marijuana may potentially cause nystagmus?

A Yes, sir.

Q Okay. With regards to stimulants, say crack cocaine. Crack cocaine in and of itself, does not cause horizontal gaze nystagmus is that correct?

A That is correct.

Q Narcotic analgesics, heroin, it and in of itself will not cause horizontal gaze nystagmus?

A Correct.

Q Okay. And hallucinogens? Hallucinogens again in and of itself do not cause horizontal gaze nystagmus?

A Correct.

Q So generally speaking going through the matrix, you basically agree with that? With regards to those --- broad question, I apologize. Approach with the State's Exhibits 5. Going through the horizontal gaze nystagmus category, you would agree generally with that?

A No, sir, I do not agree with the matrix. In a

general sense. Perhaps you may wish to ask the specific question.

Q Sure and I didn't mean to be overly broad. Fair enough. With regards to simply the first category, CNS depressants -- excuse me, HGN for alcohol and for CNS depressants it may cause horizontal gaze nystagmus, we just went through the first category?

A Correct, but the matrix is not -- what you -- take for example CNS depressants may cause horizontal gaze nystagmus. The matrix says that CNS depressants, horizontal gaze nystagmus. There is a big distinction between is and may.

Q Okay.

A And so, in that sense when I disagree with the matrix --

Q Okay, I understand that part.

A Do you see what I am saying?

Q I do.

A May cause you know, there is a lot of things that may cause a finding.

Q Now with regards to how horizontal gaze nystagmus is taught, you read through the DRE manual and are familiar generally -- I am not going to say you are expert on how it is taught, but generally you understand the HGN, horizontal gaze nystagmus is taught and performed by the DREs, correct?

A Yes, sir.

Q So you are familiar with the fact that before they do the HGN test, they have some pre-test for lack of a better term? Are you aware of that?

A Yes, sir.

Q They track for equal tracking in both eyes, is that correct?

A Yes, sir.

Q And are there neurological issues which are possibly screened by doing this?

A Could you rephrase your question please?

Q They check for equal tracking in both eyes and you would agree that that is a useful pre-screened tool, correct?

A Not necessarily and -- depends on what you say is useful. Yes, there is some utility in that.

Q Okay, I am not saying it answers every question but it answers certain questions, correct?

A It may help --

Q Sure.

A -- with certain questions but the word answer is a very strong word to use.

Q Okay. For instance it will show if a person has a problem with one eye as opposed to the other. Clearly.

A No, sir.

Q If one eye tracks and the other doesn’t, that

doesn't indicate that there is one of those eyes?

A You said with one eye as opposed to the other, so I would disagree with you. There may be a problem in both eyes but what you are seeing is only in one eye, so you can't use a test like that to say there is a problem in one eye and not the other eye.

Q But in a case, if there is a problem with the eyes?

A Well it may not be with the eyes. It may be a neurologic problem.

Q Or a neurological problem, that is fair enough as well but it indicates a problem?

A No, sir, it may not indicate a problem.

Q So if the officer has -- just checks to see if there is equal tracking and one eye tracks and the other doesn't, that doesn't indicate anything?

A I am not sure I understand the question.

Q I will rephrase the question. With regards to equal tracking in both eyes, that is something that the officer can use to make observations, correct?

A Yes, sir.

Q And of those observations, there are certain neurological issues which would be present or indicated or pointed out through the fact that there was lack of equal tracking in both of eyes?

A No, sir. I think the problem is your use of the

word indicated.

Q What is the problem with using the word indicated?

A Well, these tools may suggest --

Q Sure, suggest.

A But there is -- there is -- this is a very important issue --

Q And I understand that. Using indicated means definitive --

A Correct.

Q And if -- I don't mean to use definitive, it may -- when I mean indicated it may suggest that there is a problem.

A It may suggest that there is a problem, correct.

Q Okay. I use the word suggest, that is what I mean by indicate, I apologize.

A Okay.

Q Matter of semantics but I understand your point behind that. Now, equal pupil size is the same thing. It may suggest certain neurological issues are present before the horizontal gaze nystagmus test is started, is that correct? Such as head trauma?

A It may suggest neurological issues among other possibilities, correct.

Q And that would draw the DREs attention to that possibility?

A If it is found, number 1 and number 2 that possibility among many other possibilities --

Q Sure. Sure. And additionally the last thing -- the check before starting the horizontal gaze nystagmus test is they check for resting nystagmus? So at that point in time, the DRE will be able to observe if resting nystagmus was present, isn't that correct?

A No.

Q I am sorry?

A No.

Q They would not be able to observe it?

A Not necessarily. It depends on how the test is done.

Q Explain.

A You can artificially inhibit resting nystagmus depending on the etiology of nystagmus, you can artificially inhibit resting nystagmus --

Q How?

A -- using the techniques in the DRE manual.

Q Specifically how?

A Fixation, number 1. Number 2 --

Q Hold on sir, I don't mean to cut you off --

MR. CRUICKSHANK: Objection.

MR. WELLS: Well, I just want to go into a little bit more detail, I don't know what fixation is. I am not

saying you can't answer the --

THE WITNESS: In other words, how is a DRE trying to test for nystagmus at primary gaze? If they are using an object the individuals fixation on that object makes a press nystagmus. And so, they may artificially be suppressing a nystagmus that might otherwise be present. That is one example.

BY MR. WELLS:

Q Sure, now with regards to fixation, you would agree that the officer has the opportunity prior to doing the horizontal gaze nystagmus test, as a matter of fact, I will ask you to flip State's Exhibit over and that indicates just for the record, the basic 12 step process. Is that correct?

A Yes, sir.

Q And the horizontal gaze nystagmus test is actually under the eye test which is step 4, is that correct?

A Yes, sir.

Q Previously to that, they have you preliminary examinations stuff, is that correct?

A Yes, sir.

Q And they have questions asked of that, is that correct?

A Yes, sir.

Q And they check the pupils and eyes at that point too, don't they?

A Yes, sir.

Q And they also take the first pulse at that point?

A Yes, sir.

Q Now at that point in time, they are not sitting there with the stimulus in front of the defendant while they are looking at them the entire time, are they?

A They may be or they may not be. Is the presence of the officer a stimulus? A presence of a subject standing in front of the subject -- is that a stimulus? Is the -- you know, is the individual fixating on the officer's face for example, is that a stimulus?

There are multiple stimuli -- whether or not a pen is used, a penlight, an object et cetera, there are multiple stimuli that may suppress a primary gaze nystagmus.

Q Okay but up until that point, the officer -- unless the person is staring solely at one thing the entire time, there will be opportunities for the DRE to observe the person while they are looking around, is that correct?

A Yes, that is correct.

Q I am saying, you have an opportunity to observe whether or not resting nystagmus or I believe you call it --

A Nystagmus in primary gaze.

Q Yes.

A But you just demonstrated to us looking around and you had your eyes moving in all sorts of directions other

than primary gaze and so how would you be testing for nystagmus in primary gaze if you are telling me that the officer would be looking at the eye as it moves around? Because as I looked at your eyes, you were looking around all over the place as you were moving your eyes around to demonstrate what that meant? And so -- you know, I am having a hard time understanding exactly what you are asking me to interpret.

Q Does the DRE have the opportunity to observe primary gaze nystagmus or resting nystagmus, whatever -- however we want to call it. Prior to starting the horizontal gaze nystagmus test?

A Yes, we -- I believe we established that. But the question is, does the DRE have the opportunity to observe it without fixation and that was the point I was bringing up. I don't know if the DRE has the opportunity to observe or is taught to observe primary gaze nystagmus without fixation. And then as we had mentioned earlier --

Q Well with regards to fixation -- with regards to fixation, explain that a little bit more. Fixation is where they are just staring at one specific object, is that correct?

A That is correct.

Q Okay and with fixation, while they are fixating on something, the resting nystagmus will be inhibited, is that

what you are saying?

A In certain types of nystagmus.

Q In certain cases. And not in every case. We are not talking resting nystagmus that is always the case, also.

A That is correct.

Q Okay. So in the rare cases where that does inhibit resting nystagmus --

A It is not necessarily rare.

Q Okay. In those cases.

A Okay and I can give you an example.

Q Not asking for an example. I appreciate it, thank you. The person is already arrested. The person is in the room where the DRE is conducting the evaluation. The officer walks in. The DRE walks in. He talks to the defendant. He runs through the preliminary questions.

A Yes, sir.

Q He checks his pupils and his eyes and he takes his first pulse. Are you telling me that under that entire time there is no observation, no possible period where fixation is not occurring?

A I did not mention anything about the possibility of that -- there being time or not being time. I simply questioned whether or not the test was being done without fixation.

Q Okay. Now we will move on to the three points of

the horizontal gaze nystagmus test. You indicated that certain drugs, alcohol, certain things may cause at certain doses lack of smooth pursuit?

A Yes, sir.

Q And lack of smooth pursuit, you had when Mr. Cruickshank was talking to you, you indicated that you had a problem or a concern with the fact that the DRE matrix says two seconds per sweep, you indicated that that may be too fast?

A That is correct.

Q And that at that speed, it may under certain -- some people cause lack of smooth pursuit?

A No, sir.

Q Clarify that please.

A It is not that it may under -- for some people. It may be that for all people, the may isn't for some people, the may is that the speed may be incorrect.

Q Okay.

A Not that for some people it is correct and for others it is incorrect. The speed may be an incorrect speed. It may be too fast for a normal person --

Q Now with regards to that speed, if it was slowed down from two seconds to say about two and a half seconds?

A That is actually sped up.

Q Two and a half seconds to this side --

A Oh, I am sorry, I am sorry. I am actually thinking the angle. Let me convert that into angles, that is still maybe too fast because remember there are studies that show that at speeds as little as ten and as little as fifteen and as little twenty degrees per second, that you get jumps, you get secods* we call them jumps and so that can be identified as impaired smooth pursuits.

So in those -- we are done with normal individuals and with ideal testing conditions that we talked about fairly extensively yesterday.

Q My question is with regards to that, that is not the majority of the population is it? It is a possibility?

A No, I think when you -- when you look at normative data, normative data means the majority of the population. Usually your normative data is the vast majority of the population and we can get into a discussion on how we quantify normative data, what range we use et cetera, if you would like.

Q What about a three seconds?

A At three seconds if you assume that the average person can go out and 55 to 59 degrees laterally at 3 seconds, you are looking at just under 20 degrees per second, correct? And so as I mentioned just a few minutes ago and as we discussed yesterday, 20 degrees per second, studies have shown that as little as 10 degrees per second, as little as

15 degrees per second, 20 degrees per second, you are going to get these jumps.

Q Every time?

A No I didn't say every time, but I said you are going to get these jumps. I believe one study shows that it is slow as 10 degrees per second, you are going to get six jumps per minute. So if you are talking about three seconds, you may get a jump in that 3 seconds or you may not get a jump in that 3 seconds.

Q Okay, so it would be potentially, if it was there, one jump?

A Well, statistically --

Q Generally speaking, I am not looking for exacts.

A You could get a jump if you are going as little as six seconds because the citing 10 degrees per second at six jumps per minute, that is one jump every ten seconds and at 10 degrees per minute, you are taking about six seconds and so on average it is going to be one jump if you go -- if you do the test taking six seconds going out. And that number is going to increase as you increase the speed.

Q We will move on from lack of smooth pursuit. We will move on to the second part which is the distinct and sustained nystagmus at maximum deviation.

A Yes, sir.

Q You are familiar with how that is taught, correct?

A Yes, sir.

Q That they follow the stimulus out to maximum deviation and they hold it there, they hold the gaze to the suspect for four seconds?

A Yes.

Q And they are looking to see if it is distinct, i.e. obviously noticeable and sustained meaning it is there the entire time, it doesn't start, it doesn't stop and start and stop, it is there the entire time?

A Yes, sir.

Q Okay. Now with regards to that, there was something that you indicated may be an issue which is end point nystagmus, is that correct?

A I believe we are talking about the same thing.

Q To an extent yes. You would agree that horizontal gaze nystagmus at the distinct and sustained nystagmus at the maximum deviation may be caused also by doses, a certain high dose of alcohol or the drugs that we talked about?

A Yes. It may be.

Q May be. Again. Now, and it is caused -- they do cause that, correct?

A No, sir.

Q They may cause that?

A Yes, sir.

Q Okay. Now you indicated that a number of the

population has naturally occurring end point nystagmus?

A Yes, sir.

Q Okay. The end point nystagmus is not necessarily sustained for four seconds is it? Unless it is caused by some other factor?

A It may be.

Q It may be just natural?

A Yes, sir..

Q And what percent of the population has sustained nystagmus at maximum deviation for four seconds, just naturally?

A If you look at the studies, depends on what study you look at it. Some studies show that 50 to 60 percent of individuals have a distinct and sustained nystagmus at end gaze. I believe there is another study that showed it was --

Q For how long -- at maximum deviation, just for a second, 30 seconds, for 10 seconds?

A I don’t recall each study how long they tested. But --

Q You would agree that that is kind of an important distinction here with what we are talking about Because what the DRE is doing is they are using that to try to eliminate some of the neurological issues and to make sure that it is just not a naturally occurring end point nystagmus?

A But it does not eliminate the neurologically

occurring --

Q It is used for screening some of those categories, is that correct?

A I would not use it for screening those categories, no. The way that you are asking me screening, no I would not use it for screening in that manner.

Q So you are saying that 50 percent of the population if you did the maximum deviation for four seconds, there would be distinct and sustained -- one or two people, everyone would have them?

A There is one study that shows, it was about 50 to 60 percent, there is another study that showed it was about 19 percent. There is another study that showed it was somewhere between 5 and 15 percent roughly. And so it really depends on what study you look at it, how they did it, et cetera. What they are looking at it, number 1. Number 2, as we talked about the studies were done under ideal conditions.

And so they may be -- if you go into the way the DRE teaches that it be done, there may be distractions that can affect the numbers that were given to you --

Q Okay, now hold on, That was not part of my question we are going kind of far afield there. Okay. You are talking about environmental causes of nystagmus, we will get to that part. Distractions.

A Yes. That is different from environmental causes.

Q Well you were saying that there may be things in the background which are causing --

A That could be considered environmental yes.

Q And that is what I mean by. Thank you. Court's indulgence.

(Pause.)

BY MR. WELLS:

Q Now, with regards to the third part of the horizontal gaze nystagmus test obviously the onset of nystagmus prior to 45 degrees.

A Yes, sir.

Q And you agree that that may indicate the presence of certain drugs and or alcohol at certain doses, it may?

A I would take out the word indicate -- so --

Q It may suggest?

A May be associated --

Q It may suggest the presence of one of those drugs/

A Yes.

Q And you would also agree that with regards to alcohol, as the dosage increases, one would expect to see first of all, lack of smooth pursuit, second of all be more likely to show distinct and sustained nystagmus at maximum deviation and finally the third, that at certain high doses it would then cause onset nystagmus prior to 45 degrees, in that level of increase, does that make sense?

A No.

Q You don't agree with that?

A No. And again, it is the way that you are -- the details of what you asked, no.

Q Okay, what was wrong with the details?

A You want to say it all again?

Q At certain doses, at dose A, alcohol may cause lack of smooth pursuit. We will stick with alcohol --

A That is correct.

Q And the other drugs, same thing. At a higher dose it is more likely to cause lack of smooth pursuit and then distinct and sustained at maximum deviation?

A Not necessarily.

Q So you believe that a person could have -- caused solely by alcohol or the drug, that it would cause only sustained maximum -- excuse me, distinct and sustained nystagmus at maximum deviation but would not cause lack of smooth pursuit?

A That is not what I said.

Q Okay, that is what I am asking?

A Can you ask the question again please?

Q At one dose, all right, I think I am losing this, at a lower dose, with alcohol it may cause first lack of smooth pursuit, is that correct?

A It may cause lack of smooth pursuit, that is

correct.

Q And at a higher dose, it Would cause lack of smooth pursuit and potentially then, distinct and sustained at maximum deviation?

A Okay. I have to stop you and say no because again, you are throwing in the word would. As opposed to the word may and I am sorry, Your Honor, but this is a very important point that these agents may cause these effects not that these agents would cause these effects, very important point.

Q Okay.

A So if --

THE COURT: Why don't we do it this way, if Mr. Wells says would, just say may.

THE WITNESS: Okay. Okay. But Your Honor, that is the problem with this matrix is that --

BY MR. WELLS:

Q That is not a question, I am not asking that. Now, with regard to -- my whole point behind this is with the doses going up, it may cause first lack of smooth pursuit and then it may cause distinct and sustained and then it may cause onset prior to 45 degrees which you would not see based solely on the drug or the alcohol onset or excuse me lack of smooth pursuit or distinct and sustained at maximum deviation without first seeing lack of smooth pursuit first, is that correct?

A Not necessarily.

Q So you don't agree with that either?

A Yes, I don't agree with that.

Q Court's indulgence. All right, we will talk about what I call and maybe it was incorrectly termed, environmental causes of nystagmus. An example and maybe this is not the correct terminology for it. But coloric nystagmus.

A Okay.

Q You wouldn't call it environmental?

A It may be -- I mean --

Q Well, we will talk about coloric nystagmus, I don't want to lump that in with a category that -- coloric nystagmus is essentially my understanding is there is a different temperature on one ear or tympanic membrane or generally speaking different temperature on one side of the other, right? Hot on one and cold on the other?

A Yes.

Q Okay. Now a hypothetical which is frequently used or sometimes used is that nystagmus at the roadside when the officer is first seeing somebody is caused --- coloric nystagmus because they have the window down and cold air is coming in and they have the heat on and it is causing a problem that way? That is a hypothetical that we have for ---. Now let me ask you, how long after the changing of

the temperatures has been removed, when everything is back to normal, how long does coloric nystagmus last?

A I don't know the length of time that it lasts.

Q Okay. Is it a rather short duration or does it last for hours after the different temperatures are removed?

A Well when the temperature equilibrate --

Q Exactly that is what I mean.

A -- then coloric nystagmus implies a differential in the temperature, so if there is no differential in the temperature you shouldn't have that coloric nystagmus.

Q So it should go back fairly quickly?

A Yes, sir.

Q Okay. So back at the Barrack when the DRE has evaluated the person, coloric nystagmus would not be present, isn't that correct? Unless they are sitting there pouring cold air or cold water in one ear and hot in the other?

A I think that is a fair assumption.

Q Okay, so coloric nystagmus is not something that would be -- I mean, it is a general -- you would agree that it is a generally a controlled environment where the DRE is performing the evaluation?

A I -- coloric nystagmus in a controlled environment where the DRE is performing the evaluation --

Q The DRE -- I don't mean to cut you off, I can rephrase the question. The DRE would not see any residue of

coloric nystagmus back at the barrack when he was performing the evaluation, correct?

A I think it is fair to say that.

Q Additionally if somebody has coloric nystagmus for an extended period of time, say 30 seconds or more they generally tend to get sick, don't they? Vomiting and vertigo are things which are fairly --

A Are fairly commonly associated with coloric nystagmus, not necessarily the vomiting. You might feel nauseous.

Q Now rotational nystagmus, my understanding is that generally speaking you send somebody around for a while and then you stop, their eyes are going to give nystagmus, is that correct?

A Yes.

Q With regards to that example, and you may not agree with how I called it that, rotational is just the term that I used, it may not be a clinical term but rotational, how long after the rotation stops do the eyes equilibrium -- go back to normal?

A It should be fairly rapid.

Q Fairly rapid, so there couldn't be an issue with rotational nystagmus back when the DRE is doing its evaluations, should there be?

A Not likely.

Q Okay. Now my understanding is from Dr. Citek he indicated it was called photokinetic nystagmus. And I will try and explain it in a way that I understand it. It is caused -- it is nystagmus which is caused by distractions behind the stimulus. An example being if -- here is the stimulus and I am the person looking at it and there was a train going in the back or there were lights flashing in the background. My eyes may not be looking at the stimulus maybe distracted back as to what is going on in the background?

A We typically call that an optokinetic nystagmus.

Q Optokinetic not photokinetic. Okay.

A That is correct.

Q Okay. Optokinetic. Now, if the DRE has the person back at the barrack in a controlled environment, i.e. there is a room with a light with nothing in the background, there is a wall or nothing distracting behind, optokinetic nystagmus would not be an issue at that point either?

A If there is absolutely nothing to distract the individual. That is correct.

Q Okay. You mentioned something that is another type of nystagmus, positional nystagmus? Briefly describe to the Court what positional nystagmus is, just very general.

A The way you are holding your head right now for example, it is titled a little bit to one side. One common cause of positional nystagmus is from alcohol and that is

called positional alcohol nystagmus and it depends on how you hold your head and can then cause nystagmus.

Q Or if a person were say, laying on their side which would be exactly the same as turning your head?

A Well that is a -- yeah.

Q Okay. But if somebody had their head turned, this would be something that the DRE Would be something that the DRE would be able to observe as well, is that correct?

A It depends on the training. I mean for example, right now you have your head turned. And you know, a lot of us would consider that and it is a natural turn. So, I don't recall reading in the DRE manual specifically -- specific training to require the DRE to point out exactly how the head is positioned.

Q Okay, would it surprise you to know that they asked him to stand and face their head straight and face forward and look at the stimulus?

A No I -- I have seen that.

Q And that would remove the possibility or at least give the DRE the opportunity to observe if he was turning his head, is that correct?

A Possibly.

Q Thank you. Now you mentioned a list of other things that can cause nystagmus, flu, strep, vertigo, measles, all of these things could potentially in some people

cause nystagmus, which is something that you said yesterday?

A Yes, there are many causes of nystagmus.

Q With regards to flu, does everyone who has the flu get nystagmus?

A No. Just as everyone who is intoxicated doesn't necessarily get nystagmus.

Q Sure. With regards to the flu, what level of flu, like how sick would a person have to be before they would show nystagmus?

A It varies.

Q So you could just have a very, very slight amount of the flu and it Would show say distinct and sustained nystagmus at maximum deviation?

A Depends on what it is effecting and where the -- depends on the location of the viral -- the effects of the virus.

Q Is that common?

A It is not as common as you seem to make it out to be.

Q With regards to strep, same thing? The --

A It is not very common.

Q It is not very common is what you are saying?

A No.

Q I didn't --

A It is not very common. Being normal -- being a

normal individual is a more common cause of end gaze nystagmus than having strep as a cause of end gaze nystagmus.

Q Now with regards to measles, measles is something which is for somebody who has it is something that they are very likely going to know that they have. They are going to know that they are sick, correct?

A Which question are you asking me to answer, those are two different questions I believe.

Q Sure. With regards to measles, you indicated that that could cause nystagmus?

A There is a list of many things that were read to me that could cause nystagmus, yes it could.

Q And if the person had measles such to the extent that it caused nystagmus, that person would know that they had measles, wouldn't they?

A Not necessarily.

Q Measles --

A Not everyone knows to diagnose themselves with measles.

Q But they are fairly certain that they are sick?

A Most people would most likely be able to tell that they are sick, yes that is correct.

Q Okay. Now with regards to say epilepsy, epilepsy you indicated may cause nystagmus as well.

A Yes.

Q And not everyone knows that they have epilepsy I understand that but many people do know they have epilepsy is that correct?

A Yes.

Q And they indicated that to the DRE, they Would know that.

A If the person indicated it to the DRE --

Q The DRE would then be aware of the epilepsy, correct?

A Yes, if -- I mean, if the person mentioned it to the DRE then the DRE would know.

Q I am going to move on to vertical gaze nystagmus as opposed to vertical nystagmus. You indicated a difference which frankly I didn't know there was a difference once I indicated. Vertical gaze nystagmus, I want to make sure that I am correct on this, is when you follow the horizontal plane looking up, the eyes actually again secade, I think is the word that you are supposed to use, roughly it goes up and down along vertical plane as they are looking up? So as the person is looking up, the eyes are going like this?

A They are actually two errors in what you said.

Q Okay.

A First of all, it is not secodes*. Because that is when you are following -- it is a jump that occurs when you follow or track an object. Nystagmus is not a secode, it is

a jerking or bouncing type of motion which is different than a secode. And then the second error, it can be an up gaze or a down gaze.

Q Okay, but the jumping is going like this -- it is not going pendulous or side to side, it is going up and down, is that correct? For a vertical gaze nystagmus?

A It doesn't have to go up and down. Vertical gaze nystagmus refers to nystagmus and vertical gaze. Vertical nystagmus refers to a nystagmus that beats up or down.

Q Okay. Now I am going to draw your attention back to the matrix, with the vertical nystagmus which is on the second category, now, with CNS depressants that may occur -- may occur, in high doses for CNS depressants, that is correct? Alcohol, benzodiazepine, things along those lines?

A Yes, sir.

Q Would not necessarily, would not occur with regard solely to stimulants?

A Yes, sir.

Q Do you agree with the categories as it goes across, I don't want to beat a dead horse and go through every one if we don't have to? Hallucinogens, they don't cause it. Disassociated anesthetics may at a high dose cause it. Narcotic analgesic does not and inhalants at high doses may and --- does not, is that correct?

A Yes, your statements are correct.

Q Thank you. Court's indulgence.

(Pause.)

BY MR. WELLS:

Q Now there was some discussion with regard to the horizontal gaze nystagmus and whether or not eyeglasses are used or not used. And I don't want to say that there was an issue but that was a concern I believe that was raised by Mr. DeLeonardo earlier today?

A That is correct.

Q And if the eyeglasses are not on and -- I am paraphrasing, my understanding is your concern is if the eyeglasses are not on, then the person may not be able to focus on the stimulus and that would cause the nystagmus, is that what the concern is?

A Depending on what the refracting error, correct.

Q Okay. So if -- would it -- would you be surprised to know that the DREs asked them if they are having any problems with their eyes and can before starting the horizontal gaze nystagmus test, can you see the stimulus?

A I am aware that they ask that question.

Q And that would take care of that problem essentially?

A Not necessarily.

Q Okay. With regards to lack of convergence, again directing your attention back to the matrix, CNS depressants

you would agree, it may be present for lack of convergence, it would not be present for cause solely by CNS stimulants.

A Yes, sir.

Q Or hallucinogens?

A Yes, sir.

Q It would be for disassociated anesthetics?

A No, sir.

Q In other words, you agree with that category with it may indicate?

A I agree with if you were to state each one like you have been stating before and you --- I would agree with that, but the matrix, no.

Q With regards to pupil size, same thing with going through the matrix, if I asked it the way I have been asking previously, CNS depressants generally speaking, they would be normal, would not cause a change in pupil size solely based upon CNS depressants.

A Yes, sir.

Q Same thing with CNS stimulants, it may at doses, cause they to be dilated?

A Depends on the definition of dilated.

Q Okay, with regards to hallucinogens, same thing?

A Yes.

Q Going across the board --

A In general, the pupil size issue I think we

discussed, you really need to understand the way that the pupils are tested and you really need to understand the --

Q Sure, you disagree with the range?

A Well not just the range but the way it is being tested.

Q Okay and I will get to that in a second.

A Yes. But in general --

Q Okay, thank you. And I appreciate it. I know I am trying to speed up time and I am not trying to put words in your mouth and if there is a problem like between the may and will, let me know. Again, with regards to reaction to light, with the CNS depressant would it slow generally --

A May it slow --

Q Okay, exactly may slow with regards to CNS stimulants may slow hallucinogens, do you have a problem with anything in that category?

A I think if you were to state it with may in general, it is acceptable.

Q Okay, pulse rate. Same thing?

A Again, part of this defines what do you mean by pulse rate. The pulse rate that I have seen of 60 to 90 may be a little too narrow. So a lot of what you are talking about depends on your definitions on what is normal. Depends on what the average person -- what the normative data is --

Q Okay, you are indicating that it is a little

subjective, the way that it is done here. Is that fair?

A I am indicating that there is subjectivity.

Q Okay. With regards to body temperature?

A Again there is subjectivity but in general you can grossly estimate each box in this matrix to be a gross estimation of what may occur.

Q Okay. That is fine. Thank you.

A In one agent or in other agents or non-agents.

Q Okay. Thank you, Doctor. Now with regards to the observation of pupil sizes, let me show you what has been marked and introduced into evidence as State's Exhibit 4, do you recognize this?

A Yes, sir.

Q What is that just for the record.

A It is a card that has different diameters of circles that opthamologist may refer to as a Rosenbaum card.

Q Okay. Now with regards to that, you indicated that there are some potential problems with that, however you indicated also that opthamologist have and do use the Rosenbaum card, is that correct?

A Yes, we do use the Rosenbaum card.

Q As a matter of fact it was used for surgeries as well, isn't that correct?

A It has been used for surgeries.

Q You indicated that there was a problem with using

the Rosenbaum card because it was not accurate enough for something, I believe the example you gave was for laser surgery, is that right?

A I indicated that actually there were several factors in which using the Rosenbaum card was not appropriate. I indicated that the Rosenbaum card itself can induce errors, I indicated the Rosenbaum card itself was subjective and I indicated that it was difficult to measure pupils in near total darkness using this card and I believe the last thing that you are referring to is the use of this card in near total darkness.

Which isn't so much the problem with the card but the problem with being able to see the pupils in near total darkness.

Q Okay, which I will get into with regards to that.

A But that was the example that you brought up was more relevant to the near total darkness than to the use of the card itself.

Q Okay. With regard to the Rosenbaum card in this exhibit 4, you would agree that this is generally accepted within the realm of opthamology, this is used?

A I am sorry, this -- I would say no because the back of your Rosenbaum's card has a DRE pupil range guide on it and we don't use that DRE pupil range guide. But we do -- we do use a Rosenbaum card to estimate --

Q Sure. In your testimony, you indicated that pupil size and drug presence, you dictated that drugs do not affect pupil size, specifically on a range or raise --

A If the --

MR. CRUICKSHANK: Objection, there is a question --

THE WITNESS: If I did indicate that, sir, that must have been an error because drugs may affect pupil size. So if I did state that drugs do not affect pupil size, that is an error. And I must have misspoken. In fact, drugs at levels that are not intoxicating --

BY MR. WELLS:

Q Doctor, I apologize, but I did not ask a question.

A I am sorry.

Q That is okay. And Mr. DeLeonardo and Mr. Cruickshank will have an opportunity to let you say those things at their time.

A I am sorry, sir, I was trying to be helpful.

Q Sure, no problem. You indicate that it is your testimony, it is your opinion that the DRE evaluation is not good enough to do what it is supposed to do, is that correct? You don’t agree with the DRE program, for lack of a better term?

A Yes, roughly I think you could say it that way that I don’t agree with the DRE protocol in a way that it is being used.

Q Okay and that is your opinion?

A That is my opinion.

Q Okay and would it surprise you to know that there are other doctors who disagree with you?

A No, it would not surprise me.

Q Would it surprise you to know that there are entire medical organizations that have endorsed the DRE program?

A Could you name a medical organization that has endorsed the DRE protocol please?

Q Sure. The American Optometric Association.

A Is that a medical organization?

Q It is a medical association.

A Is it?

Q I believes so, yes.

A I don't believe optometrists practice medicine and you know, I have a lot of respect for optometrists, I work very closely with optometrists, in fact as we mentioned my wife is an optometrists, but optometry is not a field of medicine.

Q Looking for -- 17 and 18 and 19. I am showing you what has been marked and entered into evidence as State's Exhibit 19, would you please just look that document over?

A It is entitled "The Hawaiian Medical Association" and dated February 12, 1999. So a bit more than a decade ago. Would I have a moment to read the document?

Q Sure.

(Pause.)

THE COURT: I am going to take a ten minute recess. Do you have several documents to show -- maybe we can let Dr. Adams take a look at all of them during the recess after he gets a drink of water, uses the facilities and whatever. Let's make it a 15 minute recess.

THE WITNESS: Thank you, Your Honor.

(Whereupon, a brief recess was taken.)

THE COURT: Be seated please.

MR. WELLS: Your Honor if I may, I have some very limited questions.

THE COURT: All right.

BY MR. WELLS:

Q Doctor, you have had the opportunity to look at those pieces of evidence, State's 17, 18 and 19 and 21.

A Yes, sir I have. One of them is not --

Q That is my only question I asked. With regards to those pieces of paper, did the Hawaiian Medical Association endorse the DRE program?

A In 1999, yes.

Q Did the Broward County Medical Association endorse the DRE program?

A In 1994, yes.

Q Did the Dade County Medical Association endorse the

DRE program?

A Yes, sir in 1994.

Q And did the Broward County Psychiatric Society endorse the DRE program?

A It was the same letter.

Q Okay, is that a yes?

A It was the medical association I believe. No, I am sorry, when I said the Broward County Medical Society, it was not the medical society, so there was no endorsement that you showed me from the medical society from Broward County --

Q Psychiatric, I apologize.

A It was psychiatric. There are only three counties here out of thousands of counties in the U.S. --

Q That was not my question, Doctor. Now with regards to the final document, did the Connecticut Association of Optometrists and the New Jersey Society of Optometric Physicians endorse the DRE program?

A It is not a medical society.

MR. CRUICKSHANK: Objection. I am just going to object because I think we talked about this before, it actually comes from a newspaper for whatever it is worth.

MR. WELLS: I think he knows based on personal knowledge, I think that is acceptable.

THE COURT: What?

MR. WELLS: I think he ought to be testifying from

his personal knowledge not from reading a newspaper.

THE COURT: Well, I think there is some merit to that but do you disagree with anything?

THE WITNESS: I disagree with the one non-medical society endorsement. There are some things that I agree with and there are things that I disagree with with the others. So by saying that a letter exists, doesn't mean that I agree with that letter. You know, I agree with the fact that --

THE COURT: Based on what you are being shown, it appears that there have been some endorsements of the program.

THE WITNESS: Some very limited endorsements more than a decade ago.

MR. WELLS: Okay, that is all that I had with regards to that. Your Honor, I will defer to Mr. Daggett.

THE COURT: All right. Mr. Daggett?

CROSS EXAMINATION

BY MR. DAGGETT:

Q Now, Doctor, you said that when Mr. Cruickshank and Mr. DeLeonardo was asking you questions, your definition of impairment and I think you said your answer was there is a lot of variability but I think -- I believe, I hope I am not misquoting you, a loss of mental or physical capacity to do something. I think those were your words?

A Yes, I said there was variability in the way

impairment is defined. And I proposed one way to define impairment.

Q And that particular definition was the loss of a mental or physical capacity to do something?

A That is one proposed definition of impairment.

Q Sure, that is fine. That is all I ask you. And by something -- for instance, driving an automobile, would be the loss of a mental or physical capacity to drive an automobile might be one way of defining impairment or at least driving an automobile could be something, would you agree?

A Driving an automobile would be something -- I would --

Q Well, you said the loss of mental or physical capacity to do something?

A Yes, sir.

Q And I am asking could driving an automobile, be a something?

A Yes, sir it could be a type of activity.

Q And you agree, you don’t think it is appropriate for people who are impaired meaning they have a loss of mental or physical capacity to do something -- should not be driving a motor vehicle?

A So someone who does not have the ability to drive a motor vehicle should not be driving a motor vehicle, yes I

agree that someone who can't -- doesn't have the ability to drive a motor vehicle should not be driving a motor vehicle.

Q I didn't say who doesn't have the ability. I am saying the loss of mental or physical capacity to drive a motor vehicle? Not like they don't have a driver's license.

A So you are saying someone who has the loss of mental and physical capability of driving an automobile, should not be driving an automobile --

Q It is very simple --

A I agree with that.

Q Okay, well I figured you would. I mean, -- now you, how is it -- I am real curious, how is it that you first became involved in this case? How did your name get chosen?

A I don't know how my name got chosen but I received a phone call and was very interested in this --

Q Received a phone call from whom?

A From Mr. Cruickshank. I had been hit head on by a drunk driver and was interested in the process of making sure that we keep impaired drivers off of the road. I think that is very important and I think --

Q Okay. But you never asked Mr. Cruickshank how it was that your name came up? I mean, you were living in Texas were you not?

A No, sir, I was living here in Maryland.

Q Okay and you never -- of all of the opthamologist

in the State of Maryland, you didn't ask him how it was they happen to come up with your name?

A I assumed it was because I was at the Wilmer Eye Institute, Because I was chief of the Division of Visual Physiology, I assumed that it was because of my credentials that I was selected, but I get selected for many things, so I never question why I was selected versus somebody else. No.

Q Okay.

A I didn't ask him anything to that effect, no sir.

Q And you are getting paid to be here?

A Yes, sir. I am.

Q How much are you getting paid per hour?

A I am getting paid less than my typical --

Q Sir that is not what I asked, I mean, I asked you a simple question. How much are you getting paid per hour?

A Am I required to answer?

THE COURT: Yes.

THE WITNESS: $200 an hour, sir.

BY MR. DAGGETT:

Q And how many hours have you put into this case?

A I have not calculated.

Q Approximately?

A I honestly have not calculated.

Q More than 10?

A Likely.

Q I mean, you have been here for more than 10. You have been here in Court for more than 10 hours?

A Here, no, I don't believe I have.

Q Well it is 3:00 now, you were here at 10:00 this morning, that is five hours.

A That is correct.

Q And you were here yesterday from -- for approximately four or five hours.

A Yesterday was from 1:30 and I believe we finished around 4:30 so that is three hours.

Q Okay, so 8 hours. You have been here in court alone for 8 hours?

A That is correct.

Q And does your time include travel to and from court?

A No.

Q Okay. Now you said you first heard of the DRE program several years ago?

A That is correct, sir.

Q And how is it that you heard of the DRE program?

A I intensely heard of the DRE program through Mr. Cruickshank. But I believe I had some limited knowledge of the program prior to that.

Q Okay but again, I believe that is what you said, you said you first heard of it several years ago.

A That is correct.

Q So the first time you heard from Mr. Cruickshank was when, about six months ago?

A No, it was a few years ago.

Q A few years ago?

A Yes, sir.

Q Okay. And I believe you said the public defender's office presented it to you? Are you talking about Mr. Cruickshank or somebody else?

A Yes, sir.

Q Who are we talking about?

A Mr. Cruickshank, yes, sir.

Q When was the first time you read the Heishman Study?

A A few years ago.

Q Prior to or after being contacted by the public defender's office?

A After sir.

Q And the Shiner Sheckman study after?

A It was written after.

Q And the -- what about all of the other studies that were mentioned in Dr. Janofsky's report, there were studies from the LAPD, the Bigelow, the Arizona, the Minnesota, all of those -- when was the first time you read those?

A After, sir.

Q So it is safe to say that up until you were contacted by the public defender's office, you really didn't have -- maybe you will probably take issue with this, that is fine, but you didn't have a vested interest in the DRE program because you --

A I had a vested interest in what our law enforcement and public officials do to ensure that we have a safe driving environment. I think that is very important for us. And so, and I think the officers are first line of defense and I am very thankful to them. And so, I have an interest in making sure that we do the right thing to keep impaired individuals off of our roads so that we can drive safely.

Q Okay. I am glad you feel that way. So let me ask you this, in your opinion, how Would a police officer go about doing that on a drug impaired driver, how would you propose that a police officer go about doing that job?

A I don't have a proposal but what is being done I do not believe is appropriate.

Q Okay, now you are aware of course, are you not that Maryland Law does not mandate except for very specific situations, that a blood test or alcohol test be taken, are you aware of that?

A I am not aware of details of Maryland Law, no sir.

Q Okay. But in your testimony with I believe Mr. Cruickshank or maybe with Mr. DeLeonardo, you said that you

would use -- if somebody came to you, -- if somebody came to you for an evaluation, you said you would use -- you used the term element of judgement. Your element of judgement. Do you recall what you said what you were talking about and --

A Yes, I was talking about the utilization of medical judgement, yes, sir.

Q Now explain what you mean by utilization of medical judgement?

A I mean, the use of my experience, my knowledge of the medical literature, my knowledge of the peer reviewed medical literature to evaluate patients.

Q So your experience, your knowledge, and your observations?

A Yes, sir. In addition to additional studies that may be done.

Q But you would certainly agree that police officers don't have the ability to do additional studies -- have you ever been on a ride along before?

A With a police officer? No.

Q Have you ever been on -- and I believe you said you have never been involved in a DRE examination as either as a observer or actually having the DRE performed on you?

A That is correct, sir.

Q So your experience, your knowledge, your observations, do you not agree that a police officer, a

trained and educated police officer should be able to give an opinion based upon their training, knowledge and experience?

MR. DELEONARDO: Objection. My objection Your Honor is what he is talking about. If we are talking court room or is he talking just outside the courtroom, I think that is an important distinction to explain. Because one would be asking him for a legal opinion as to whether he should be able to do it in court. So my objection is, simply is to clarity because I don't believe he should be able to offer an opinion as to what should be permitted in Court.

MR. DAGGETT: Well, he said that he believes the police officer should do what they can do to do their best to keep people off the roads. Or I think he has a right to answer that question.

THE COURT: The question I think needs to be narrowed down a little bit. That is my only concern.

MR. CRUICKSHANK: I have an objection because I think what we are here today is about the opinion of the DRE officer to render an opinion. So I think it does need to be specified what opinion we are talking about.

MR. DAGGETT: Well I am talking about a DRE officer, I thought that was clear. If I was unclear, then --

THE COURT: All right, then that narrows it down some. All right, now I guess the question is, an opinion as to what?

BY MR. DAGGETT:

Q Do you believe it is appropriate -- do you not believe it is appropriate for a police officer, a DRE who has conducted a -- doing their best to keep drug impaired drivers off the road to be able to give their opinion?

A I am not sure I understand what you mean by opinion. Anyone can give an opinion. Someone off the street, you know, I could say the sky is red. But I am trying to ask what you mean by opinion because I heard discussion as to the legal opinions that may be binding. I don't profess to understand law to the extent to know what you mean by opinion.

Q You made a big point of talking about police officers and what a great job they do and how you think it is, they do a great job trying to keep the roads safe for people like you and I --

A That is correct and I agree with that.

Q -- that is fine. So you said that and now I am asking you, do you think based upon their training, knowledge and experience and everything that they go through with the DRE that they should not be allowed to come to Court and give an opinion --

MR. CRUICKSHANK: Objection.

MR. DAGGETT: -- as to what they think impairs a driver?

MR. CRUICKSHANK: And I think that what is important here is because we are talking about what kind of opinion and we have an opinion as to a lay opinion, we have an expert opinion and if the State's Attorney wants to tell the legal novice what that is --

THE COURT: The opinions that we have talked about so far, as I understand it, the DREs are asked to opine on, is one is their impairment, all right. Two, can a medical underlying medical reason for that observation under the protocol be ruled out or distinguished from an impairment caused by a substance and then third, can the DRE render an opinion as to the particular drug or class of drugs that he or she believes that the subject has ingested?

All right, so it seems to me that those are the opinions we are talking about. So maybe if we do it in that fashion --

MR. CRUICKSHANK: I would agree, Your Honor.

BY MR. DAGGETT:

Q Do you think a trained and experienced DRE should be able to come to Court and opine whether somebody is impaired?

A The way the Honorable Judge has explained it to me, I would say no sir, I disagree.

Q You disagree. Okay. And that is when I asked you earlier if you had some -- any other suggestions on how to

prove one of these cases and you didn't?

A That is correct.

Q All right. Are you aware -- are you familiar with the Theodore Anderson field evaluation of a behavior test battery for DWI, are you familiar with that study? It was a study conducted by NHTSA related to the horizontal gaze nystagmus and presence of alcohol. Did you ever do any --

A Could you remind me when that was published and what journal that was published in, please sir?

Q It was the 1983 Field Evaluation of a Behavioral Test Battery for DWI, it was a NHTSA report that was -- it was a study that was conducted or performed on over 1,500 drivers stopped for DWI. And HGN was done in comparison to the breath alcohol results, are you familiar with that?

A Was that published in the medical literature?

Q No it was not.

A Okay, I do not believe I have run across that.

Q Okay. Is it your testimony that you do not believe that horizontal gaze nystagmus can be used to help determine the presence of alcohol?

A Determine? No.

THE COURT: Is this a -- I think you might need to clean up the question here, Mr. Daggett.

MR. DAGGETT: I understand what you are saying Your Honor.

BY MR. DAGGETT:

Q Do you believe that horizontal gaze nystagmus can be a factor in determining whether somebody has been consuming alcohol?

A Determining, no.

Q Go ahead and give me the word you want to use.

A Can it suggest, yes.

Q And in fact, in conjunction, would you agree that in conjunction with all of the other standardized field sobriety tests, that has been proven to be shown to be quite accurate in predicting alcohol use --

A Proven no --

MR. CRUICKSHANK: Objection. The reason I object is Because he asked him if he had read this study on the standardized field sobriety test and he said that he wasn't familiar with it. So are we going back to the study or --

MR. DAGGETT: Well in that case, Your Honor, that is fine.

MR. CRUICKSHANK: So why don't we just be particular and --

MR. DAGGETT: I will ask -- then I will ask the Court to take judicial notice of the Schultz versus State case, foot note number 12 and where that particular study is mentioned and that is going to obviously be mentioned in closing arguments anyways.

MR. DELEONARDO: That is fine.

THE COURT: I am sorry, the case is?

MR. DAGGETT: Schultz versus State,--

THE COURT: S-h?

MR. DAGGETT: S-c-h-u-l-t-z.

THE COURT: Schultz. Versus State. And what is the cite on that?

MR. DAGGETT: 106 Maryland App and it is 145. But I was referring to footnote 12 which is on page 172.

THE COURT: Footnote 12 on page? On what?

MR. DAGGETT: Page 172 of the Maryland Appellate Reports if you have this particular --

THE COURT: 172 a long case.

MR. DAGGETT: Well, no it starts out on page --

THE COURT: 145, okay.

MR. DELEONARDO: Obviously if the Court is going to be able to read the case and I think we all know what it means as to presence as imposed to impairment. So I don't think the doctor would disagree in presence.

BY MR. DAGGETT:

Q Now Doctor, bloodshot eyes are a lot of reasons, a lot of physical reasons that things that can cause bloodshot eyes. You would agree with that?

A Yes.

Q I mean, it could be a cold, it could be a heavy

sneeze, I guess. It could be. You would agree that there are a lot of medical things that can cause bloodshot eyes?

A Yes, sir.

Q And alcohol can cause bloodshot eyes?

A Yes, sir.

Q And watery eyes, same thing would go both medical reasons and alcohol?

A There are many reasons for watery eyes, yes, sir.

Q Alcohol being one of them?

A Maybe. Yes, sir.

Q And flushed face, red flushed face? Medical reasons, rosaceae amongst other things, a lot of other reasons. Fever, alcohol. They all can cause --

A Yes, sir.

Q -- red flushed face?

A They all may cause red flushed face, yes, sir.

Q And slurred speech, obviously there is a lot of things that can cause slurred speech, be the medical or even alcohol can cause slurred speech.

A Yes, sir.

Q And unsteady gait or poor balance, that can be -- obviously that can be physical conditions, medical conditions or it could be alcohol?

A Yes, sir.

Q The inability to follow simple instructions, that

could be medical reasons or it could be alcohol?

A Yes, sir.

Q And the same thing could be said for each one of those particular things for medical conditions or also for certain classes of drugs? Would you not agree?

A Yes, there are certain classes of drugs, yes sir.

Q That can cause all of those --

A All I think is -- I am not going to say anything about all --

Q The ones that I just described, I mean, I am not saying all drugs cause all of those symptoms but I am saying that certain drugs can cause each one of those symptoms individually?

A Yes, sir.

Q For instance certain drugs can cause bloodshot eyes and certain drugs can cause obviously poor balance?

A Yes, sir.

Q And just going to go through a few more of these and again going through the matrix but lack of coordination can be medical or can be drug related?

A Yes, sir.

Q Thick slurred speech?

MR. CRUICKSHANK: Asked and answered.

MR. DAGGETT: I didn’t slurred but I didn’t say thick.

BY MR. DAGGETT:

Q Do you know what I mean by thick speech? Heavy tongue I guess.

A Yes, sir.

Q Drowsiness, alcohol can cause you -- alcohol is a depressant, that can cause you to be drowsy but there are also physical reasons that can cause all of those things as well.

A That is correct, sir.

Q And did you look at the -- I don't know if you still have it in front of me, but the -- what Mr. Wells was going over the major indicators regarding HGN, vertical nystagmus et cetera, you looked at that, did you look at the general indicators as well?

A Yes, sir.

Q Do you still have that in front of you?

A I do have that in front of me.

Q Okay, perfect. So is there -- as far as looking at the -- in general -- and they call it general indicators, but in general, would you agree that certain categories of drugs can cause pretty much most of the general indicators or they could be physical or medical problems?

MR. CRUICKSHANK: Objection to the form of the question Because it is a compound question. And I think it is important to specify because the matrix does specify --

MR. DAGGETT: I will be glad to specify but I didn't think we had to.

MR. CRUICKSHANK: Well, we do.

THE COURT: All right.

BY MR. DAGGETT:

Q You are familiar with the general indicators?

A Yes, sir I am.

Q And you see the general indicators that are there?

A Yes, sir, I do.

Q In -- is there anything, looking at those particular categories both for CNS depressants, stimulants, hallucinogens all the way across the board, do you -- would you agree that the general indicators as listed below those particular classifications of drugs may cause -- I think, not will but may cause those particular indicators?

A No, sir, the general indicators do not cause the general indicators if I understood your question correctly.

Q That is fine, you are right. They do not. But They are a -- can be a byproduct or the result of being under the influence of one of those particular narcotics?

A Each indicator may be --

Q So as far as that goes, you have no beef with the general indicators as laid out in the matrix? With the caveat that they can also be caused by medical conditions as well?

A I am not sure -- I don't know if I want to answer this question the way you have asked it. That I have no beef with the general indicators. I think I phrased my position clearly, you know there is -- I do have specific issues with this matrix and so if you are asking me whether or not I have beef with --

Q That is not a legal term, I was --

A -- but I don't understand what --

Q What I am saying is, just like the major indicators that you have talked about --

A Yes, sir.

Q -- you are in agreement that the general indicators can be just that. They can be general indicators of those particular classes of impairment under those particular classes of drugs?

A Yes, sir, they -- yes, sir general indicators may be indications of --

Q And there are also -- but there are also medical reasons that can be -- can also cause those?

A That is also correct, yes sir.

Q That is what I was trying to get to and that might have been my fault.

A That was what I thought but I really wanted to be clear on how we are saying things.

Q Just so we are all 100 percent on the same page and

I am sure that we are, but just so we are all on a 100 percent basis, when you are talking about degrees and you are talking about the two seconds or three seconds for the nystagmus, you are talking about -- if you just hold out your finger and show us the angle so that we all know that we are talking about the same thing.

A Show us the --

Q We are talking about it goes from zero to 45 degrees to 90 degrees and what is the -- that the do the HGN in with?

A Actually I think we are on different pages because first of all, the literature suggests that the average person's maximum deviation is 55 to 59 degrees, somewhere in that range. So, to go out -- to suggest that we can go out to 90 degrees is a different page that we are on for example.

Q Okay, I wasn't talking about that but I was talking about to show if this is zero, this would be 90, 45 Would be give or take right around here someplace, is what we are talking about correct?

A It would be approximately in that ballpark but is that 45 degrees, or is it 40 degrees that you put your hand up and --

Q Okay but you would agree sir, that 45 is half of 90, I mean we all agree with that?

A Yes, sir.

Q All right.

THE COURT: Anybody disagree?

MR. DELEONARDO: No, Your Honor. We will reserve that for closing.

BY MR. DAGGETT:

Q Now when you talked about the two seconds or the three seconds in which the police officers or the DREs conduct that particular exam, where are you -- from where to where are you saying that those two seconds are too short, does that make any sense?

A First of all, I didn't talk about two seconds or three seconds. My understanding of the DRE protocol was that it was two seconds not two seconds or three seconds.

Q Okay. Sir, I don't mean to be disrespectful but I think that if you know exactly what I am talking about, just please answer the question. We will be here all day. Now from -- all right, so two seconds. The DRE protocol says two seconds.

A Yes, sir.

Q From where to where using that zero to 90 that we just talked about are you saying that two seconds is supposed to. Starting from where and going to where?

A I believe it is unclear from the manual where exactly that is supposed to go. But my understanding is that that goes to the limit of lateral gaze. Which is somewhere

around 60. But whether or not it is clear in the manual that that goes to 60 or goes out to 90, I don't believe from what I recall the manual that that is clear.

Q You didn't go to DRE school?

A No, sir I did not.

Q But we are talking -- but you would agree that wherever would be it involves going one direction it is not going from over here from here to here, I mean, that is probably not good for the record. It is not going from zero to 60 and then back to zero and over to 60, all in the space of two seconds, it is per eye, you would agree with that?

A It is per eye and per direction. So in other words, you start in primary gaze and you go out to end gaze.

Q Sure. Primary gaze would equate, basically to zero. Zero degrees?

A Yes, sir.

Q And did you say that somewhere approximately 10 percent of the general population might have onset of nystagmus prior to 45 degrees?

A Yes, sir I believe that there is a study that suggests that 10 percent of the population might have onset of nystagmus before I believe the study says 30 degrees but I don't recall exactly offhand but I believe it is 30 degrees.

Q And as long as we are being sticklers for the word may, you said 10 percent may have it, not 10 percent have it,

10 percent may?

A The study showed that 10 percent had it so the conclusion then as a physician, the conclusion is that 10 percent may have it because a study showed that 10 percent had it. So in that study, 10 percent had it.

Q Okay.

A But that study was for a particular subset of normal people, I believe it was during daytime, not under any stress or fatigue or any other conditions. And so that is why we would use the word may to draw a conclusion from a definitive -- from a more definitive peer reviewed study.

Q But it goes without saying that and I think Mr. DeLeonardo asked this, but many of these particular medical or tests I guess that are conducted, the blood pressure, the pulse, basically pupil size, those have been around forever. For all intents and purpose, those have been around forever and they certainly they have been -- generally --

A I don't want to belabor the point but I will give you forever if you will mean -- if you take that to mean a 100 years, 200 years. You know depending on what you are looking at, some of these subtleties weren't discovered that long ago. But for the sake of the Court, I will let forever you know --

Q I will take 100 years, a 100 years is fine. You also talked about when Mr. DeLeonardo was asking you about

pupil size and constriction and things like that, I believe you said that therapeutic levels of certain categories of drugs can cause dilated pupils or constricted pupils that type of thing?

A That is correct.

Q But therapeutic levels of drugs would not cause someone to act impaired?

A It depends on the situation. Depends on what you define as therapeutic and depends on the individual. There are so many variables.

Q That is true but you would agree with me Would you not that -- go ahead, I am sorry.

A -- I apologize, I tried to correct myself and say that sub-impairing levels of drugs may cause pupil sizes to be outside the range of what is considered normal.

Q And you did use that sir.

A And I think using a term like that makes it clear that we are talking about sub impairing rather than impairing.

Q I think you had -- and I think you actually even talked about the -- talked about sub-impairing up through intoxicating. I believe you said the continuum -- make sure, the "continuum effects from sub-impairing -- sub-intoxicating levels to intoxicating levels" something along those lines?

A Yes, sir.

Q But the same could be said about alcohol? I mean, one drink of alcohol is certainly not going to -- in most people is not going to be intoxicating. You would agree with that?

A In general, yes, sir.

Q Sure, obviously. You might have somebody who is allergic to it or something but in general, one drink of alcohol, but it does have certain -- it does show certain effects. Like the continuum of effects I guess if you Would, even one drink of alcohol can cause certain physical manifestations whether it is the face starts to get red --

A I agree with you. We talked yesterday about how within five minutes of drinking, you can get impairment in the smooth pursuits. In one study.

Q So as far as the -- so while -- for the most part therapeutic levels of most drugs are not going to cause the type of impairment to reach the definition that we reached earlier? And I believe that was your definition was -- you remember your definition of impairment?

A I do.

Q You do?

A Yes, sir.

Q Okay if you want to --

A But what I would say sir, is we discussed a moment ago that I prefer using sub-impairing so by definition a sub-

impairing level of a drug will not cause impairment. Correct?

Q That is correct.

A Because it is sub-impairment.

Q Absolutely. By definition, that is exactly right.

A Yes, so I prefer using the term sub-impairing as opposed to therapeutic because what does therapeutic mean?

Q Well would you not agree -- well I guess maybe I am wrong, but wouldn't you think that therapeutic means the amount of drug that is necessary to address or fix the problem that is being prescribed? Isn't that what really what drugs are giving for, I mean if somebody has a pain or medical condition that they are given drugs in a therapeutic level --

A Correct, but for -- let's take on this matrix, hallucinogen. I am not aware of a therapeutic dose of hallucinogens.

Q Sure. I am not going to argue with you there. I am talking about a -- somebody who has either suffered from depression, there is a laundry list and we could go all day, we could list medical conditions in which certain classes of drugs are prescribed to and for lack of a better term, to address the issue, to fix the problem. Otherwise what is the point of giving it to him?

A I would agree with you and would say that

therapeutic levels of some drugs may cause impairment in therapeutic levels of other drugs or even the same drugs may not cause impairment. And so that is why a better term to use is sub --

Q Well, I know sub-impairment might be better but I wanted to use therapeutic because therapeutic implies to me the amount of drug that a responsible doctor would prescribe to his patient. You are not going to prescribe drugs to the, no responsible doctor, would you agree is going to prescribe drugs to a degree that is going to impair their patients so that they can't drive an automobile?

A I disagree.

Q You disagree?

A That is correct. Physicians will at times prescribe medications to an extent that will impair an individual's ability to drive a motor vehicle.

Q And then what do they tell them? They tell them don't drive, don't -- don't they say don't drive motor vehicle when they --

MR. DELEONARDO: Objection as to what other people say.

THE COURT: Well, I mean -- there are warnings certainly on various prescriptions about driving. I don't know if they say don't drive or whether they say, exercise caution in operating a motor vehicle or heavy equipment, et

cetera after taking that particular prescription.

BY MR. DAGGETT:

Q So you would agree that a responsible doctor would not prescribe drugs to the level that They are going to impair their patients and not warn them against driving?

MR. CRUICKSHANK: Objection, relevance?

MR. DAGGETT: Well, I think it is relevant --

THE COURT: I will overrule. If the witness thinks he can answer.

THE WITNESS: The way it is phrased is actually somewhat difficult to answer. I would -- obviously I disagreed with the first part of the statement. Then when you throw in the and, you have to look at the subject. Is the subject under 16 and doesn't drive and you may not mention anything or if the subject may be elderly and you know the subject doesn't drive, you may not mention anything.

So some -- and again to venture to guess what some physicians may inadvertently omit, but I think a physician who knows that an individual will drive a motor vehicle and is being prescribed a medication that will impair that individuals ability to drive the motor vehicle, I think that the physician should and has a ethical obligation to inform that patient that this medication may impair their ability to drive.

BY MR. DAGGETT:

Q You said that and I believe that these were your words in doing a -- conducting some of the tests that you do, you start out with tests -- you start out with tests similar to what the DRE performs?

A That is correct.

Q Okay, so as far as what the DRE is able to do in the field, obviously I think we would all agree that the DRE in the field cannot possibly do what you do, I mean, they be what you are if They could do it. You would agree with that?

A Yes, sir.

Q But the general premise of what you said -- your words were you would start out doing tests similar to what the DRE performs?

A Roughly similar, yes, sir.

Q All right. I am almost done, Your Honor. Are you aware that the whole -- in the protocol there is a -- quite a large section about the DREs trying to keep their -- the evaluations that they do, they try to keep the subjects free of fear or excitement or pain during their evaluations?

A Yes, sir they do try but that doesn't necessarily mean that they are able to.

MR. DAGGETT: Your Honor, I have nothing further, thank you very much.

MR. CRUICKSHANK: I have no questions.

MR. DELEONARDO: I am sure, pleasing to your ear, I

have no questions.

THE COURT: More importantly I am sure Dr. Adams is.

MR. DELEONARDO: I am sure too.

THE COURT: So no more questions for Dr. Adams?

MR. DELEONARDO: No, I think we are done.

THE COURT: Well, Doctor, thank you very much.

THE WITNESS: Yes, sir, Your Honor.

THE COURT: And now when are you headed back to El Paso?

THE WITNESS: Not soon, Your Honor.

THE COURT: Not soon. Well good luck in your new endeavors and we appreciate our time and is this the last expert that we will have testify?

MR. WELLS: The last medical expert.

MR. DELEONARDO: The last medical expert.

THE COURT: Not the last medical expert.

MR. WELLS: No, it is the last medical expert. I think the rest are the DREs.

THE COURT: Well there has been some question about what people are charging. As someone who presides over the cases involving doctors testifying in auto accident cases, medical malpractice cases, et cetera, et cetera, et cetera. I can tell you that all of the experts who have testified in these cases are charging bargain basement rates. Because I

see many doctors in that situation charging upwards of $750 an hour. And they are also unlike Dr. Adams, they are also charging for travel time, portal to portal. So all of the experts including whether State's or Defense experts have been way below the standard that I usually see.

Now, I don't know whether you can renegotiate or not based on that, but --

THE WITNESS: I negotiated the rate with them years ago and it is well below my typical rate and well below our collection rate but very happy to do this and very happy to try to help put together something that can be valuable for our society.

THE COURT: You said you were in an accident where you were hit by a drunk driver, how long ago was that?

THE WITNESS: That was I want to say in 2002, 2001. A 15 year old at a spring party and it was in our neighborhood and just came straight towards us and we were coming back home, my wife and I from a date night without the kids and just came straight you know -- I saw him coming, I managed to put the car in reverse to try to get out of the way but you know -- and so I recognize the importance of getting this right.

Of catching the right people, not catching the wrong people and really catching the right people. Making sure that we get people who are impaired off the street.

THE COURT: You and your wife all right?

THE WITNESS: We were fine. Yes, sir.

THE COURT: Good. Good. And this was someone who was under the influence of alcohol?

THE WITNESS: Alcohol, yes sir.

THE COURT: You said 15?

THE WITNESS: Yes, sir.

THE COURT: Not old enough to be driving?

THE WITNESS: He was just about to turn 16, if I remember correctly and may have had a learner's permit or something to that effect.

THE COURT: Well I am glad to hear that both of you are okay. Okay, we are going to adjourn. Has anyone undertaken to begin to look for dates?

MR. CRUICKSHANK: We have not yet, Your Honor.

MR. DAGGETT: But we did talk about Your Honor, we really would like to perhaps wrap it up as soon as we can if it is -- if we can just maybe do a date here if we can find two days.

THE COURT: That may be possible, again -- talk to Carol and talk to assignment, probably start with Carol, that would --

MR. DAGGETT: We will start with Carol.

THE COURT: Doctor, you can step down and be seated and now are you going to have Mr. Cruickshank chauffeur you

back to your accomdations?

MR. CRUICKSHANK: No, Your Honor. But I did buy him lunch at Subway.

THE COURT: You what?

MR. CRUICKSHANK: I did buy him lunch at Subway, so.

THE COURT: You are all heart.

MR. CRUICKSHANK: I am.

THE WITNESS: Thank you, Your Honor.

(Witness is excused.)

(Whereupon, the hearing concluded.)

C E R T I F I C A T E

CompuScribe, hereby certifies that the attached pages represent an accurate transcript of the duplicated electronic sound recording of the proceedings on September 30, 2010 in the Circuit Court for Carroll County in the matter of:

CRIMINAL NO. K-10-040259
STATE OF MARYLAND
v.
CHARLES DAVID BRIGHTFUL

CRIMINAL NO. K-10-040331
STATE OF MARYLAND
v.
HARVEY ALEXANDER CARR

CRIMINAL NO. K-10-040167
STATE OF MARYLAND
v.
JENNIFER ADELINE FLANAGAN

CRIMINAL NO. K-09-039370
STATE OF MARYLAND
v.
RYAN THOMAS MAHON

CRIMINAL NO. K-09-039569
STATE OF MARYLAND
v.
CHRISTOPHER JAMES MOORE

CRIMINAL NO. K-09-039636
STATE OF MARYLAND
v.
VALERIE ANN MULLIKIN

CRIMINAL NO. K-10-040300
STATE OF MARYLAND
v.
RONALD DALE TEETER

By:

_____ _____
Lisa N. Contreras, Transcriber Date