

IN THE CIRCUIT COURT FOR CARROLL COUNTY, MARYLAND

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STATE OF MARYLAND,		:	
		:	
v.		:	
		:	
CHARLES DAVID BRIGHTFUL,		:	Criminal No. K-10-040259
HARVEY ALEXANDER CARR,		:	Criminal No. K-10-040331
JENNIFER ADELIN 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
		:	
- - - - -	x	:	September 29, 2010

HEARING

WHEREUPON, proceedings in the above-entitled matter commenced.

BEFORE: THE HONORABLE MICHAEL M. GALLOWAY, Judge

APPEARANCES:

FOR THE STATE:

DAVID DAGGETT, Esq.
ADAM WELLS, Esq.
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FOR THE DEFENDANTS:

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I N D E XPage

Preliminary Matters

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<u>WITNESSES:</u> <u>For the Defendant:</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>VOIR DIRE</u>
Dr. Neal Adams	25 (ac)	--	--	--	7 (ac)
	77 (bd)	--	--	--	22 (aw)
	--	--	--	--	23 (dd)
	--	--	--	--	24 (bd)

<u>EXHIBITS:</u> <u>For the Defendant:</u>	<u>FOR IDENTIFICATION</u>	<u>IN EVIDENCE</u>
16	6	--
17	26	29

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

PROCEEDINGS

MR. WELLS: Your Honor, for the record again, Adam Wells, spelled W-e-l-l-s on behalf of the State, calling the matters of State of Maryland versus Brightful, K-10-40259, State v Flannagan, K-10-40167, State v Mahon, 09-39370, State v Moore, 09-39569, State v Mullikin, 09- 39636 and State v Teeter, 10-40300.

MR. DELEONARDO: Good afternoon, Your Honor, Brian DeLeonardo, D-e-L-e-o-n-a-r-d-o on behalf of Mr. Carr and I believe, Mr. Mullikin.

MR. CRUICKSHANK: 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.

MR. DAGGETT: Additionally David Daggett, spelled D-a-g-g-e-t-t, on behalf of the State.

THE COURT: All right. Ready to proceed?

MR. CRUICKSHANK: Yes, Your Honor.

MR. DELEONARDO: We do, I just have one brief preliminary matter. I have talked to State briefly beforehand and Your Honor, I represent Mr. Harvey Carr. Your Honor had actually signed a subpoena duces tecum for Trooper Lagenfelder from M.S.P. Barrack in Bel Air. I had requested the DRE log as well as a variety of information regarding my client, the face sheet. As you have heard, the protocol sheets all of that.

Your Honor has signed that and issued that -- the clerk issued the subpoena and it was actually served on September 8th. He had two weeks to respond. I have still not received any of those documents. And I guess what I am asking for the Court at this point is I have raised the issue and I have alerted the State, I am sure they can make contact as well.

But I want to raise those because I do want to have the opportunity to review those during the course of this proceeding. Or, obviously be barred from using the evidence.

THE COURT: Mr. Wells?

MR. WELLS: Your Honor, this the first that I have heard that this has not complied with.

MR. DELEONARDO: That is true.

MR. WELLS: He just informed me right now. I really had no further or previous knowledge of this to this point. I can definitely as soon as we are done with Dr. Adams' testimony, try and raise Trooper Langenfelder and see what the issue is.

MR. DELEONARDO: That is why I wanted to raise it, I did just alert him to the fact that it hadn't been complied with. And I at least want to raise it so that you know, the Court was aware that I would be coming back if it wasn't complied with promptly and at this point we are pretty deep in the hearing.

THE COURT: All right.

MR. CRUICKSHANK: I would call Dr. Adams.

Whereupon,

DOCTOR NEAL ADAMS

was called as a witness for the Defendants, having been first duly sworn, was examined 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 business address.

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

THE CLERK: Thank you.

THE WITNESS: Thank you. Defendant's Number 16.

(The document referred to was marked for identification as Defendant's Exhibit 16.)

MR. DELEONARDO: Just for clarification, Your Honor, he is not being called in Mr. Carr's case. I just wanted to make sure that I have a right to cross examination as well.

THE COURT: You do.

VOIR DIRE

BY MR. CRUICKSHANK:

Q Good afternoon, Dr. Adams.

A Good afternoon, Mr. Cruickshank.

Q Dr. Adams?

A Yes, sir.

Q You have a current business address in Texas, correct?

A That is correct.

Q Can you explain to the Court where you are living right now?

A We are in the process of relocating. Likely to Maryland though uncertain.

Q And when you say we you mean --

A My family.

Q All right. And what is your occupation?

A I am a physician. And specifically an ophthalmologist and specifically an ophthalmic surgeon.

Q And Doctor, let me show you what has been marked as Defendant's Exhibit 16.

A Yes, sir.

Q Can you take the opportunity to look through all the pages.

A Yes, sir.

Q And Doctor, what is that document?

A This is my CV.

Q Is that CV current?

A Yes, sir it is.

Q Doctor, have you ever testified as an expert witness in the State of Maryland before?

A Yes, sir I have.

Q Do you recall when you testified and what the subject matter may have been?

A I have testified several years ago and subject matter has always been opthamology and clinical sciences surrounding opthamology.

Q Doctor, did you obtain an undergraduate degree?

A Yes, sir.

Q What school did you attend?

A Yale University.

Q What undergraduate degree did you get at Yale?

A A Bachelors in Chemistry -- a Bachelors in Science in Chemistry.

Q And in getting that degree, did you graduate with any sort of distinction?

A Yes, I did. With distinctions in the major and with Cum Laude as well.

Q Doctor, there came a time when you decided that you would go to medical school is that correct?

A That is correct.

Q And Doctor, please tell the Court where you went to Medical School?

A I went to John's Hopkins University School of Medicine.

Q And within Johns Hopkins School of Medicine, there was something called the Wilmer Eye Institute, is that correct?

A That is correct.

Q Is it fair to say that you went to the Wilmer Eye Institute?

A Following medical school, I did go to the Wilmer Eye Institute for residency training and fellowship training.

Q And that would be in the field of ophthalmology?

A That is correct.

Q Could you tell the Court something about the Wilmer Eye Institute?

A It is generally regarded as one of the higher ranking ophthalmic programs in the country and it generally receives this ranking, not so much because of its name but because of the clinical expertise of the physicians who are there and in terms of its training, because of the rigor of training and the fact that the training occurs with clinicians, scientists who are considered to be world recognized experts in their fields.

Q Did there come a time when you were ever taught by

one of those world recognized experts?

A Yes, I was taught by multiple of those experts.

Q Did there come a time when you taught neuro-optthamology by any of those experts?

A Yes. For example, neuro-optthamology we were taught by Dr. Neal Miller who has written one of the definitive texts on neuro-optthamology.

Q Step back a second and talk about medical school, did you ever take any course study in human physiology?

A Yes, we did.

Q Can you explain to His Honor, I am sure he has heard this before in other testimony but explain to His Honor what human physiology is the study about.

A It is the study of how the organ systems in the body function. How they function independently and how they function together.

Q And when you study human physiology in medical school, is it fair to say that part of the study was dissection?

A For the anatomy course work that we did, yes, sir, part of the study or for the anatomy component, a large component of that study was dissection.

Q Now part of your medical training would also be in pathophysiology, is that correct?

A That is correct.

Q Can you please explain to His Honor what the study of pathophysiology is?

A Pathophysiology is the study of when the normal function of organ systems in the body start to break down and become what we call pathologic or abnormal. And so pathophysiology is the study of abnormal function of various organ systems. And when I mean organ systems, I mean, the neurologic systems. The brain, the central nervous system, the spinal cord, the cardiovascular system, the heart. The vasculature, et cetera.

And there are multiple organ systems that I am referring to.

Q And the study of both human physiology and pathophysiology, would it age you in any kind of scientific research, that basis of knowledge?

A It is essential to understand the human body in order to understand the clinical research, it only makes sense that -- it is a tremendous aide in clinical research.

Q Pharmacology, did you have the opportunity in medical school to study pharmacology?

A Yes, that is correct.

Q Would you explain the degree to which you studied pharmacology at Johns Hopkins University?

A I would say it is a fairly extensive program in pharmacology in which we study pharmacology,

pharmacokinetics, pharmacodynamics, the whole -- a range of sub sets of pharmacology.

Q Let's turn our attention to your first year residency at the Wilmer Eye Institute. In a nutshell, can you give His Honor an understanding of what it is to be a first year resident at Wilmer?

A When one starts a residency program, in general one has completed medical training, so at that point one is a physician an M.D., has received his or her degree. Often times is licensed or is about to be licensed to practice medicine and then receives subspecialty training in a particular field. In this case, in ophthalmology.

So, in medical school we received broad training and fairly in depth training in the various components of human function and human disease. In ophthalmology residency, we received training specific to ophthalmology. Not to say that there are other areas that may cross into ophthalmology and we do receive some training in other areas that cross into ophthalmology but our focus is in ophthalmology at that point.

Q Can you give the Court an idea of what it means to have a rotation in medical school?

A So ophthalmology can be divided into -- in medical school or residency?

Q Residency.

A Ophthalmology can be divided into various subsets. And a rotation in ophthalmology would provide in-depth training in that particular subset of ophthalmology. For example, a neuro-ophthalmology rotation would provide subspecialty training in neuro-ophthalmology and the disorders that we consider neuro ophthalmic disorders. Such as nystagmus for example.

And so we have subsets of ophthalmology and we are trained in those subsets in what is called a rotation.

Q When we speak of a rotation, are there patients involved in the rotation? Do you examine patients?

A Yes. The rotations are patient based and are clinical based. There is a large didactic component to those rotations in which we are taught by the experts in the field and we also engage in performing examinations. We learn how to perform the detailed examinations for each subspecialty and we are taught as we learn how to perform them. And at some point in that rotation, we gain independence in performing those examinations.

And so it switches to more of a supervisory role for the -- the mentor/teacher then becomes -- engages more in a supervisory role as our level of knowledge and independence progresses through the rotation.

Q When you were at the Wilmer Eye Institute, did it have an emergency room devoted to eyes?

A Yes, sir, it did.

Q Can you explain that to His Honor?

A At Johns Hopkins, there are actually three emergency rooms. There is an adult emergency room, there is a pediatric emergency room and there is a separate ophthalmic emergency room. Because Johns Hopkins is and the Wilmer Eye Institute specifically is Maryland's Eye Trauma Center, the volume of ophthalmic emergencies that we would see was tremendously high and so they had a dedicated emergency room just for ophthalmic diseases.

And one of the training components in the residency program was to staff the emergency room, to run the emergency room and as one progresses through residency, to oversee the more junior residents in running the emergency room.

Q Now, as you go from a first year resident to a second year resident, what other responsibilities do you take on? What further education do you get ---?

A The education becomes more in depth and there is a transition where it becomes more surgical as the years progress and there is also transition in which the resident is also responsible for teaching some of the junior residents as the resident progresses through his or her residency.

Q When you got to your second year at Wilmer, did there come a time when you started surgery?

A Yes, we typically started surgery at the end of

first year.

Q Did there come a time when you started to instruct others?

A Yes. And that varied depending on the type of instruction.

Q Now, speaking of the instruction at Wilmer, is it fair to say that when you were being instructed by an instructor at Wilmer in your clinical rotation, was there a one to one correspondence -- was there like an apprenticeship program?

A I think that is actually a very good description of what it is like -- it is -- it is very much like an apprenticeship program. Sometimes there is one resident assigned to one expert in the subspecialty. Often times it is that way. Sometimes there are multiple residents assigned to that one expert but usually it is more of a one on one basis.

Sometimes there is a medical student and a resident and the expert. And so, the resident is then expected to engage in some training of the medical student during that process. But typically it is a very hands on, very integrated one on one type of learning experience.

Q Is it fair to say that that is part of the rigorous approach to education that you received at Wilmer?

A It is fair to say and I would go on to say that one

of the advantages in my training is that the program at Wilmer in ophthalmology and for that matter the medical school training at Hopkins is very rigorous. They expect us to really know and understand the details -- the professors are tough on us. To be honest with you and that is a very good thing.

You know they demand that we learn and understand what we are being taught.

Q So we get to the third year residency at Wilmer, what are you being taught, what are you focusing on at that time?

MR. DAGGETT: Can we just proceed? I mean, this is -- we are going through line by line or year by year. I don't think that has anything to do with qualifications. I mean, if he wants to qualify the doctor, just qualify the doctor.

MR. CRUICKSHANK: I think it is fundamentally important because we are in the Frye-Reed hearing and I will certainly try to speed it up if necessary but one of the criteria here is who is the relevant in the scientific community --

MR. DAGGETT: I understand that but we haven't done this for any other one of the other six experts that testified, so --

MR. CRUICKSHANK: Well, I think it is fundamentally

important for Your Honor to understand the qualifications of my expert.

THE COURT: Well, I mean always there is the option to stipulate that somebody is an expert, however, the parties tendering calling expert doesn't have to accept the stipulation. They are free to go through the qualifications but if we could move it along.

MR. CRUICKSHANK: Yes, Your Honor.

BY MR. CRUICKSHANK:

Q Let's turn our attention to your medical degree. You received a medical degree?

A Yes, sir.

Q Okay and in order to receive a medical degree, what do you have to do besides go to medical school or residency at Wilmer Eye Institute?

A So there is medical school and there is -- a distinction. A medical degree and a medical license. I think to get your medical degree, you have to go through medical school and pass the examinations. Then you get your medical degree, then you have to undergo board examinations to get specific qualifications that enable you to apply for a license to practice medicine in a specific state and further on that, furthermore on top of that, there is what is called a specialty board and the case of ophthalmology is called the American Board of Ophthalmology.

And it is a specific examination which involves a written component and an oral component that provides an additional level of qualification to the medical provider.

Q You have a medical license?

A Yes, sir.

Q Where are you licensed to practice?

A Currently I am licensed in the State of Maryland, the District of Columbia and the State of Texas.

Q Is it fair to say that your medical license allows you to prescribe medication?

A That is correct.

Q And you are also board certified by the American Board of Ophthalmology is that correct?

A That is correct. I should mention one thing, the medical license in it -- with a DEA certification and with a State controlled substance registration allows me to prescribe medications.

Q Let's touch on teaching at Johns Hopkins.

A Yes, sir.

Q Came an opportunity for you to teach at Johns Hopkins School of Ophthalmology, is that correct?

A That is correct.

Q Can you explain that to the Court?

A Following -- I should back up for just one moment and I will make this very brief, following my residency

training I did a fellowship in a subspeciality of ophthalmology, retinal disease and then I was asked to join the faculty at the Wilmer Eye Institute and I believe that is what you are referring to because -- upon joining the faculty, there is an expectation that I engaged in teaching, in patient care and in research. And --

Q So -- go ahead, I am sorry.

A -- that is okay. I was fortunate enough when I joined -- when I was asked to join, they bestowed upon me one of the greatest honors for a junior faculty member which was called the Mominary Scholar which involved more of a -- more implied teaching and research as part of my obligations.

Q You moved on to be an assistant professor, is that correct?

A Correct. Within three months I was promoted to assistant professor.

Q And then from 2005 to 2008 you held three positions at Wilmer simultaneously, is that correct?

A That is correct.

Q What were those positions?

A I was a Division Chief of the Division of Visual Physiology which was one of 12 divisions within the Department. I was Director of the Retinal Dystrophy Center and the --

Q Were you still the assistant professor of

ophthamology?

A Yes and still the assistant professor of ophthamology, that is correct.

Q Now during this whole period of time, is it fair to say that you made time to go to advanced training at the National Eye Institute?

A I did during this time period.

Q Now there came a time when you decided that you were going to leave the Wilmer Eye Institute and you went to Texas, is that right?

A I was recruited to Texas to help found and create an ophthamology department at their new school of medicine.

Q All right. And what was your position in Texas?

A I was a Chair of the Department of Ophthamology.

Q To relate this to clinical research, is there anything in particular that happened in Texas with regard to clinical research?

A Well, for example with clinical research, I was responsible for overseeing my department's clinical research for bringing in clinical research to the Department. It was a brand new school of medicine and my department was the first department to bring in an NIH RO1 grant, a specific investigator initiated research grant.

And so our department was the first department to bring in that grant to the new school of medicine. But these

types of activities had started when I was at Wilmer. When I was at Wilmer, I was very much involved in clinical research and --

Q Give the Court some examples from your resume if you could?

A Well, in terms of clinical research, some of it is in the resume and some of it is not. I was involved in multiple clinical trials with pharmaceutical companies, with non-pharmaceutical projects. I was in a -- I was principle investigator of a NIH grant and a key investigator in another NIH grant -- I am sorry, key personnel in another NIH grant. So I think it is fair to say that I have been involved in multiple types of clinical and basic science research.

Q And to understand clinical research and scientific research, you need to understand research design, is that correct?

A That is correct.

Q Just to touch on a couple of other issues, have you written any books?

A I have.

Q And that is in your resume?

A That is.

MR. CRUICKSHANK: I would offer Dr. Adams as an expert in ophthalmology, clinical research and the field of medicine.

THE COURT: In what?

MR. CRUICKSHANK: I would offer him as an expert in ophthalmology, clinical research and the field of medicine.

THE COURT: Cross?

MR. WELLS: Your Honor, briefly with regards to the voir dire.

VOIR DIRE

BY MR. WELLS:

Q With regards to -- I am sorry, good afternoon, Doctor.

A Good afternoon, sir.

Q With regards to Wilmer Eye Institute, you indicated that there was an eye trauma center in the Wilmer Eye Institute, is that correct? Basically an eye ER, is that right?

A That is correct.

Q Okay. And that was basically used for trauma patients or patients with trauma to their eyes, correct?

A No, sir.

Q Okay.

A It was for all ophthalmic emergencies, trauma and non-trauma.

Q Give me an example of a non-trauma eye emergency if you would?

A Sudden onset blindness in one eye from a vascular

disorder.

Q Okay.

MR. DAGGETT: I do, I have two questions.

VOIR DIRE

BY MR. DAGGETT:

Q You said you went to Yale undergrad?

A Yes, sir, I did.

Q You couldn't get in Maryland?

A I did not apply to Maryland. I was from Tennessee and Yale University selected me for a special program, they selected 10 students for that special program and so that is why I decided to go to Yale as opposed to another University.

THE COURT: Whereabouts in Tennessee?

THE WITNESS: Right outside of Nashville.

THE COURT: Okay. Nashville is a great town.

THE WITNESS: It is beautiful.

MR. WELLS: We have no objection to tendering of his --

THE COURT: I thought Mr. Daggett had two questions.

MR. DAGGETT: I did. The first one was did he go to Yale and the second one was he couldn't get into Maryland.

MR. DELEONARDO: A very brief question.

VOIR DIRE

BY MR. DELEONARDO:

Q Other than the ophthalmology emergency room that you did at Hopkins, did you participate in any other emergency rooms that dealt with a variety of disorders?

A When I was in Texas for example.

Q Just briefly describe what that was?

A Our department oversaw the ophthalmic emergencies at the local county hospital.

Q Did you have the opportunity to see patients with all types of disorders?

A Yes, sir.

Q Where you involved in diagnosing patients whether it was eye issues from medical conditions or other conditions?

A Yes, sir.

Q And I assume you get called in by physicians?

A Yes, sir.

Q Okay. That is all I have.

MR. DELEONARDO: No objection.

THE COURT: The school of medicine in Texas, what school of medicine is that?

THE WITNESS: Texas Tech University Health Sciences and --

THE COURT: Texas Tech?

THE WITNESS: Yes. And they have actually now two schools of medicine. The new school of medicine is a Paul

Foster School of Medicine.

THE COURT: But you are not in Lubbock?

THE WITNESS: No, sir. The original school of medicine, the second -- or I should say the first school of medicine belonging to Texas Tech University is in Lubbock. The new school of medicine was founded in El Paso and its first students began in 2009.

THE COURT: All right, I will accept Dr. Adams as an expert in ophthalmology, clinical research and the field of medicine.

MR. CRUICKSHANK: Thank you, Your Honor.

DIRECT EXAMINATION

BY MR. CRUICKSHANK:

Q Doctor, let me show you what has been marked as Defendant's Exhibit 8. If I can give you the opportunity to look through that document. If you can just tell His Honor and the Court what that document is? Have you ever seen that document before? Fair to say there is more than one page?

A Yes. I am on page 11. I just want to make sure that this is the document that I have seen. Yes, sir, I have seen this document. This is Dr. Jeffrey Janofsky's report. Dated September 3, 2010.

Q You had the opportunity to read this report?

A I have.

Q Have you had an opportunity to look at -- let me

rephrase that, read through all of the scientific literature that that report is based on?

A Yes, sir, I have.

Q Based on the scientific literature and Dr. Janofsky's report, it is fair to say that Dr. Janofsky comes to conclusions in his report, is that accurate?

A He does come to conclusions, that is accurate.

Q As an expert in ophthalmology, clinical research and medicine, do you have an opinion as to Dr. Janofsky's conclusions in his report?

A Yes, I do. I concur with Dr. Janofsky's conclusions.

THE CLERK: Defendant's Number 17.

(The document referred to was marked for identification as Defendant's Exhibit 17.)

BY MR. CRUICKSHANK:

Q Doctor, I want to show you what has been marked as Defendant's Exhibit 17. Can you just take a look at that one page document?

A Yes, sir.

Q Doctor, do you recognize that document?

A I do.

Q Are you familiar with the medical terms on that document?

A I am.

Q Is that document entitled "Nystagmus and Related Ocular Isolations"?

A Yes, sir it is.

Q Doctor, is this generally -- is this document generally accepted in the field of ophthalmology to make a specific diagnosis of Nystagmus?

A Yes it is. This document is from a well recognized and well regarded, four volume text book in ophthalmology entitled, Principles and Practices of Ophthalmology by Albert and Jacobiak and it is generally regarded as one of the pieces of literature to which we refer to as a basis for understanding ophthalmology.

Q And Doctor, can you explain to the Court how you actually reach a diagnosis of nystagmus in the field of ophthalmology?

A Well, I think this text book and this passage explains it very clearly and simply perhaps better than I could. It says very clearly for a specific diagnosis to be made in a patient with nystagmus, the examiner should consider the following questions.

And then there are 11 questions that are listed. Number 1, is there a nystagmus or --- instability present in the primary position of gaze? If so, is it voluntary or involuntary? Number 2, what is the way form of a nystagmus,

is it pendular or jerk? Number 3 what is the frequency of the nystagmus? Number 4, what is the direction and trajectory of the quick phase of a nystagmus? Is it a horizontal, vertical, torsional or elliptical? Number 5, what is the effect of a center gaze on nystagmus? Is it gaze evoked? Number 6, is a nystagmus conjugate or disconjugate? If it is disconjugate, is it disassociated meaning mainly or only in one eye? Or it is disjunctive? Equal and opposite in the two eyes.

Number 7, is the nystagmus induced or influenced by maneuver such as head tilting, changes in head posture, convergence, covering of one eye, removal of visual fixation with Frenzell* glasses? Closing of both eyes or hyperventilation. Number 8, is the nystagmus periodic? Number 9, is the nystagmus associated with any Ocular or gaze palsy?

Number 10, is the nystagmus associated with any other involuntary movements for example, involuntary movements of the head, eyelids, pallet or ear drum? And finally number 11, is the nystagmus symptomatic and in particular, is it causing oscillopsia? And so I think in Albert and Jacobiak, it is very clear for a specific diagnosis to be made in a patient, with nystagmus, the examiner should consider the following questions.

Q Now let me just -- a couple of follow up questions.

A Yes, sir.

Q The examiner who is examining, is that person a lay person or a doctor?

A Well in this text book it doesn't specify whether it is a lay person or a doctor. But it implies it is a doctor or someone who has this specific expertise in training.

MR. CRUICKSHANK: I will offer this as Defendant's Exhibit 17.

THE COURT: 17.

MR. WELLS: No objection, Your Honor.

THE COURT: All right, Defendant's Exhibit 17 is admitted.

(The document marked for identification as Defendant's Exhibit 17 was received in evidence.)

BY MR. CRUICKSHANK:

Q Doctor, I want to turn your attention to the Drug Recognition Expert program.

A Yes, sir.

Q When is the first time you ever heard about the Drug Recognition Expert program?

A I am not sure exactly when, but it was several years ago.

Q Who may have offered you any information about the Drug Recognition Expert Program?

A I know your office in particular offered me some information but I do not recall if anyone else has offered me, offered information at the time or earlier.

Q Okay. And is it fair to say that you have had an opportunity to look at the 2010 edition to the Drug Recognition Expert program manual?

A Yes, sir I have.

Q Let the record reflect that I am going to show the Doctor what has been marked as Defense Exhibit 5, 2010 DRE student manual. Doctor, if you would just take the opportunity, I know there is any number of pages in that. If you would look through the first few pages, perhaps the index. Have you had -- is it fair to say that you have had an opportunity to read through this document?

A Yes, it is. This is the document that I have seen and I am not going to flip through every single page to make sure it is. But the document that I have seen is -- looks very much identical to this document.

Q Now, you have had a chance to review specifically the section in the DRE manual that talks about eye examinations, is that correct?

A Yes, sir, I have.

Q Are you familiar with the -- that would be section

5.

A Yes, sir.

Q Get you to section 5. Take your time. All right, so we are on section 5 and that says, "Eye Evaluations, Nystagmus Conversions, Pupil Sizes and Reaction to Light." Is that a fair statement?

A That is.

Q You have had an opportunity to look at this section of the manual?

A Yes, sir.

Q And is it fair to say that there is a test within the manual called the Horizontal Gaze Nystagmus test?

A That is correct.

Q Is it fair to say that that test has a number of components?

A That is correct.

Q Is it fair to say that you familiarized yourself with the components of the test?

A Yes, sir, I have.

Q Is it fair to say that you have read the manual and familiarized yourself with how the drug recognition protocol teaches the horizontal gaze nystagmus test?

A Yes, sir, I have.

Q Is one of the components of the horizontal gaze nystagmus test called smooth pursuit?

A That is one component, correct.

Q And Doctor, in the field of ophthalmology, can you generally explain to His Honor what smooth pursuit or the lack thereof is your area of expertise.

A Smooth pursuit is the ability of an eye when it fixates on an object to track that object smoothly as it moves across the field. In other words, if an object is moving across the field, one has to fixate on that object and track it smoothly as it is moving.

There is a limit to the rate at which we can track objects. And when we hit that limit, then the eye cannot track the object smoothly -- the object is going faster than what the eye can track smoothly and the eye must then jump to refixate. And that is typically a saccade* but colloquially we can call it a defect in a smooth pursuit or a jump in the smooth pursuit.

So in other words, if you -- the smooth pursuit describes the ability to track an object smoothly and when that tracking mechanism fails, we call that a saccade*. Smooth pursuits are a product of a part of the brain -- part of the mid brain it is called, that is called the nuclear integrator and the nucleus prepositus hypoglossi in which it integrates the --

Q Could you spell that if you could?

A --

Q Strike that.

THE COURT: Can you spell it?

MR. CRUICKSHANK: No, of course not.

THE WITNESS: Yes. N-u-c-l-e-u-s

P-r-e-p-o-s-s-i-t-u-s h-y-p-o-g-l-o-s-s-i.

MR. CRUICKSHANK: Thank you. For the record, I believe he spelled.

THE WITNESS: Did I spell it correctly?

BY MR. CRUICKSHANK:

Q I think you have. That is as far as I will go with that.

THE COURT: Now, the first words is nucleus?

THE WITNESS: Yes.

THE COURT: You are sure it is not neuculus?

THE WITNESS: It is nucleus, Your Honor.

MR. DELEONARDO: There is a transcriber thanking you.

THE WITNESS: And it is the nuclear integrator. It integrates the stimuli, the information that is coming in gets integrated and a signal basically goes out of it that allows -- that moves the eyes smoothly. You have to remember that there is a lot of -- there is a lot of push and pull going on in the eyes.

So it is not just simply just sending out a command to smoothly move something. You have in the eye socket,

there is a lot of tissue around the eye. There is six eye muscles, there are eyelid muscles. There are ligaments, there is other soft tissue and there is a lot of elastic forces that actually tend to keep the eyes fairly straight.

And so, you have to overcome these forces and overcome them at the rate at which you are fixating on the moving object. And so it is fairly complex process. But in a nutshell, I think that is probably the best way that I can explain what smooth pursuit is.

BY MR. CRUICKSHANK:

Q And so what is lack of smooth pursuit?

A The lack of smooth pursuit is when one cannot follow that object smoothly and you jump. So in other words, you are following an object as it moves across, that object is moving too quickly, your eye is going to have to jump. Catch up to that object and we call that a secode*, but we can call it a jump or a defect for simplicity sake.

Q Can you name some of -- do you know some of the reasons for lack or better word would be impaired smooth pursuit?

A Disorders that effect the nuclear integrator can cause impaired smooth pursuit.

Q For example?

A Strokes, tumors, brain injury or trauma, multiple sclerosis, there is a wide range of things including drugs.

Q And is it fair to say that psychiatric disorders may even cause a lack of smooth pursuit?

A Yes. Psychiatric disorders, aging, as we all age our smooth pursuits become impaired relative to when we were younger and fatigue. Sleepiness can cause impaired smooth pursuits.

Q Do you know based on your knowledge and training and experience in your fields of expertise, what percentage of the sober population may have lack of smooth pursuit?

A It depends on how you test smooth pursuit.

Q Tell His Honor.

A In other words, if you take your finger and you move it out so quickly that your eyes can't follow, you are going to have lack of smooth pursuit. And so you need to test smooth pursuit at the speed at which -- at the maximum speed at which a normal individual can follow a moving object.

In the medical literature there is actually some controversy if you will as to what exactly that speed might be. Generally speaking, there is a body of literature that suggests that speed might be around 30 to 40 degrees per second. In other words, if an object moves 30 to 40 degrees around a circle, per second, that is generally accepted as the maximum limit of human -- of the normal human ability to follow that object smoothly.

However, some studies suggest that that number might be higher and other studies suggest that that number might be slower. If you take for example, an average normal person and you look in the medical literature at 30 degrees per second, some studies suggest that the average person is going to have a few secodes* or a few jumps at a rate of 30 per second.

Other studies have shown that even at a rate of 20 per second, you are going to have a few jumps. I believe there is one study that showed that even at a rate of 15 degrees per second, you are going to have a few jumps. But it is less. The faster you go, the more jumps you are going to get at a rate of 40 degrees per second, you are going to get quite a few jumps.

Q And with that in mind, let's turn our attention to the speed at which smooth pursuit is done in the HGN test in the DRE manual that you look through. You had the opportunity to read -- review the manual, is that correct?

A Correct.

Q Specifically on the speed at which smooth pursuit or lack thereof is tested in the HGN test, is that correct?

A Yes, that is correct.

Q Explain to His Honor what the speed is that they test smooth pursuit at?

A The speed that is recommended for testing in the

DRE manual is 2 seconds for the full sweep. In other words if the full sweep in the average human being is anywhere between 55 to 59 degrees. So in other words, Your Honor, if you were to look all the way off to the side, the most your eye can turn is approximately 55 to 59 degrees from the midline.

And so the DRE manual teaches that you go around this arch to that 55 or 59 degrees on average in 2 seconds.

Q So let me ask you -- go ahead.

A So -- so, that is approximately 28 degrees per second, let's say 30 degrees per second -- just under 30 degrees per second. If you look at the studies, there are normal individuals who are going to get secodes* or jumps or defects in their smooth pursuit at that rate. And so, in my opinion, the rate is not appropriately for what is attempted for the attempted use for the test.

Q Let me ask you this question, so are you saying that it is -- is it generally accepted within the field of ophthalmology to test for smooth pursuit at the speed employed by the HGN test that you find in the DRE manual?

A No, it is not at that speed.

Q Thank you. Go ahead.

A The other thing I would like to say is, even if we were to assume that 2 seconds is the correct speed, it is very difficult for an individual to do this exactly 2 seconds

and not 1.8 seconds because you know, we are right at -- and based on the medical literature, we are likely over the maximum speed but let's assume we are right at the maximum speed. If you are off by any little bit, you are going to induce some secodes*. Some jumps.

So I think even if we were to assume we were at the correct speed, the way it is described here I think is very difficult for me as an ophthalmologist to be able to in exactly 2 seconds and not 1.8 seconds, or not 2.2 seconds to perform this test in the manner in which it is described without inducing errors in the test. Errors in the test taking technique.

Q Let's turn our attention to something called ideal conditions. Can you explain to His Honor what ideal conditions within this test mean?

A Well, when you look at these studies that tell us that the average maximum smooth pursuit is 30 degrees per second or that you get impairment in smooth pursuits and as little as 15 degrees per second or in 20 degrees per second, as in other studies, you have to keep in mind, Your Honor that these studies typically were performed in ideal conditions.

In other words, when we are testing smooth pursuits, for the purposes of a publication in the medical literature, we are testing it with a stimulus -- an object

that is easily visible. A background that is blank. Or doesn't have any distractions in it. We are testing subjects who are normal who don't have any psychiatric disease, don't have low doses of medications that they might be taking or drugs that they might be taking. That don't have any other medical problems.

And we --

Q Let me ask you a follow up question. From your reading of the manual, does the DRE test for smooth pursuit under the ideal conditions you have discussed with His Honor, with the Court, do they use ideal conditions to test?

A No. They don't and the ideal conditions -- and their condition is vary differently from these studies. The third thing that I should mention and we talk about ideal conditions is the issue of stress and fear and fatigue and these types of issues that come up when someone is tested under the DRE conditions and these types of bodily conditions, stress, fear, pain, fatigue can affect the testing results.

Q Let's move on to an issue. Can you explain to the Court what visual attention is and how it is important to understand when talking about smooth pursuit?

A Well, you have to -- the first component as I described of smooth pursuit is the ability to fixate on the object. So you have to be able to find the object, pay

attention to it and fixate on it. And pay attention to it as it moves. And not be distracted by anything that might be around that object. Of course in a lot of the medical literature when they study the rate of smooth pursuit -- of normal smooth pursuit this is done with no distractions with blank backgrounds but in the real world, if you are testing on the roadside, for example, or if you are testing in a detention facility for example, there may be distractions around you and attention plays a tremendous role in fixating on that object.

And attention of -- comes from signals in the parietal lobe of the brain and so, there are various -- in other words, what I am trying to say is there are various mechanisms that are involved in the process of smooth pursuits.

Q In your reading of the manual, does the DRE manual take into consideration the issue of visual attention as it may effect the smooth pursuit part of the HGN test?

A No, it does not, sir.

Q What is the effect of alcohol on smooth pursuits?

A Alcohol is known to decreases smooth pursuits. And what I should say is alcohol at varying doses is known to decrease the ability to perform smooth pursuits without impairment. Some studies suggest that a level of 0.05 blood alcohol concentration can impair smooth pursuits.

In other studies show that it was as low as 0.02 and in fact in one place in the medical literature, it is suggested that smooth pursuits can be impaired within 5 minutes of initiation of the consumption of alcohol with a blood alcohol concentration as low as 0.015. And so when you asked, sir, about alcohol impairment of smooth pursuits, we need to be clear about what level of alcohol we are talking about.

Are we talking about a level of alcohol that is fairly minimal or are we talking about a level of alcohol which causes what we typically refer to as alcohol intoxication.

Q When we turn our attention to smooth pursuit that may be caused by alcohol as you have discussed and smooth pursuit that may be caused by say, medical conditions as you have discussed, is it possible to a medical degree of certainty to say, what is causing the lack of smooth pursuit?

A To a degree of medical certainty, if all you are testing is smooth pursuit, then no, you can't determine whether the smooth pursuit defect is caused by alcohol or by fatigue or by normal age process or if it is normal for that individual or if it is caused by a brain tumor or -- any of these causes, you can't distinguish without further clinical tests and further diagnostic tests.

I mean, to simply say that you can do a smooth

pursuit tests, find that it is broken down and say that it is caused by a high concentration of alcohol goes against what we know in the medical literature and goes against our training as physicians and opthamologist.

Q Is it possible for the drug recognition expert, as that person is trained in the manual to differentiate based on their training between a CNS depressant that is causing lack of smooth pursuit and the other symptoms that you just discussed --

MR. DAGGETT: Objection. Certainly hasn't laid the foundation to give that opinion. He is not even close to laying the foundation to give that opinion.

MR. CRUICKSHANK: Okay. Okay. I think I am.

THE COURT: Repeat the question.

BY MR. CRUICKSHANK:

Q Sure. Is it possible -- you have read the DRE manual.

A Yes, sir.

Q You -- in the manual, you have seen the protocol as to how a DRE conducts the HGN test.

A Yes, sir.

Q Within the HGN test is the lack of smooth pursuit test is that correct?

A Yes, sir that is correct.

Q And you have come to understand how they conduct

the lack of smooth pursuit as part of the HGN test?

A Yes, sir, I have.

Q Based on your knowledge, training and experiences as an ophthalmologist and a review of how the DRE expert conducts the HGN test and the lack of smooth pursuit test contained in it, is it possible for a DRE to differentiate causes of lack of smooth pursuit?

A No, sir it is not possible.

MR. DAGGETT: My objection is, he has certainly made the question a lot more on this particular point, made it a lot clearer. Regardless my objection is, I don't think -- I just don't think by asking him -- the question that he asked is not what the DRE does. So of course, the answer to the DRE -- nobody has ever said that the DRE looks at lack of smooth pursuit and says ah ha, presence of -- that has to be drugs. That is just not what it does.

Neither does -- just like alcohol isn't the only or the HGN isn't the only test that is done to test for alcohol. So the way the question is phrased and the opinion he is giving is if I get it correctly is it is impossible for an HGN person to look at the -- or for a DRE to look at the HGN and say, ah ha this is drugs versus something else.

He doesn't do that. He has to go through the entire protocol, he asks a series of questions.

MR. CRUICKSHANK: We are focusing on a test within

a test. And the question is particularized to the test within a test. Lack of smooth pursuit.

THE COURT: So the question as I understand it that you are posing to Dr. Adams is based upon his review of the manual and the training that the DRE receives is it possible for him to distinguish the cause of the lack of smooth pursuit as between alcohol, drugs, stroke, tumors, MS, brain tumors or brain trauma, psychiatric disorders, aging and fatigue among others I assume. Is that the question?

MR. CRUICKSHANK: Yes.

THE COURT: All right, I am going to overrule.

MR. CRUICKSHANK: You can answer the question.

THE WITNESS: No, sir -- no, Your Honor, it is not possible to distinguish between the various possibilities.

BY MR. CRUICKSHANK:

Q For you as an ophthalmologist, is it possible?

A With that piece of information by itself, no sir it is not possible as an ophthalmologist and as a physician, it is not possible.

Q Is it fair to say that there is a level of difficulty in judging smooth pursuit in the field of ophthalmology?

A Yes, sir. It requires a certain amount of expertise in performing the test and performing it properly as we talked about and a rate at which it is performed has

implications as to the results that one would achieve.

Q I want to draw your attention to smooth pursuit -- first let me ask you this, Doctor are you familiar with the term visual acuity?

A Yes, sir, I am.

Q Explain to His Honor if you can what visual acuity is?

A Visual acuity, Your Honor, in the general sense is the ability of an individual to see an object at distance or at near and refers to the sharpness of the object that can be seen. It is typically referred to as in numerical terms with an numerator and a denominator for example, 20/20 vision which refers to the ability of an individual to see an object at 20 feet that the average person can see at 20 feet. So we typically refer to 20/20 visual acuity as normal.

And in this case, we take a letter E that is composed of 5 one minute -- I am sorry, one minute arcs of degree which at 20 feet is about a third -- the letter E is about a third of an inch high. It is actually about 0.34 inches high. And so that letter E that is about 0.34 inches high, the average person can see that at 20 feet and so if you are 20/20 that means that you can also recognize that that is the letter E at 20 feet.

Now, when the denominator changes to 20/40 for example, that means that the average person can see the

object at 40 feet but you have to stand closer -- you have to stand at 20 feet to be able to see that object. And so your acuity, your ability to see detail is decreased compared to the average.

And so visual acuity is described as that ability to perceive objects in detail at specific distances.

Q Is there any effect of lack of smooth pursuit on visual acuity?

A No, there is not.

Q I would like to turn your attention to N Gaze Nystagmus, are you familiar with the term N Gaze Nystagmus?

A Yes, I am.

Q Is it fair to say that N Gaze Nystagmus is a component of the HGN test as it has been set forth in the DRE manual?

A Yes, sir, it is.

Q Have you familiarized yourself with how the DRE test for N Gaze Nystagmus within the HGN test, within the DRE manual?

MR. WELLS: Your Honor, we will stipulate the fact that he has read the DRE manual and is familiar with how HGN test is --

MR. CRUICKSHANK: Thank you, I appreciate it.

MR. WELLS: -- administered.

BY MR. CRUICKSHANK:

Q How do you test for HGN as a doctor? Excuse me, how do you test for N Gaze Nystagmus as a doctor?

A Well, the way that it is tested is actually similar to the way that the DRE tested is, you look at object at far end gaze and you look for a nystagmus. So in general that is the way it is tested. However, to appropriately test it, again, you need to make sure that the -- there is not any distraction that -- the same attention mechanisms that we talked earlier come into play. The stimulus has to be appropriate, the background has to be appropriate.

And not contain any distractions and to test it in different conditions you have to understand that your test results might be affected by those conditions.

Q Now, can you explain to the Court what physiologic nystagmus is? The term physiologic nystagmus?

A Physiologic end gaze nystagmus is a nystagmus that occurs in the normal physiology of the human body. In other words, it is normal on nystagmus --

Q Now is it fair to say that your reading of the DRE manual that they hold -- if I am saying this wrong, correct me, that they hold at end gaze nystagmus for four seconds, is that correct?

A In the manual, yes, sir.

Q Is there any issue with that length of time -- let

me finish my question.

A I am sorry.

Q Is there any issue with that length of time in the field of ophthalmology?

A The issue is that some nystagmus appears before four seconds, some nystagmus appears after four seconds. Some nystagmus appears after 30 seconds. Some nystagmus continues throughout this time period. For example, there is a fatigue induced nystagmus and when I say fatigued, there is two different types of fatigue. There is one type of fatigue in which you as a person are fatigued, that the subject is fatigued or tired and there is another type of fatigue in which the control mechanisms are being fatigued.

In other words, if you hold your eyes out at end gaze for a prolonged period of time, you may fatigue the control mechanisms and so, you can actually have fatigue induced nystagmus. Both fatigue induced as a tired person and fatigue induced by fatigue of the controlled mechanisms. And the fatigue induced, when it is fatigue of a control mechanisms can actually appear after four seconds.

Q If you were to hold end gaze nystagmus for a minimum of four seconds, what would be the effect of that?

A You can actually induce nystagmus in certain individuals by holding the gaze for more than four seconds.

Q Based on your knowledge, training and experience,

is there a percentage of the population, sober population that exhibit end gaze nystagmus, indistinguishable from alcohol gaze nystagmus?

MR. WELLS: Objection, form of the question.

THE COURT: I will sustain.

BY MR. CRUICKSHANK:

Q Based on your knowledge, training and experience as an ophthalmologist, are you aware of any research on naturally occurring end gaze nystagmus?

A Yes, sir.

Q Are you aware of any research that can articulate a difference between natural end gaze nystagmus and that induced by any substance?

A There is research that suggests that end gaze nystagmus that is naturally occurring can be indistinguishable from end gaze nystagmus that is caused by toxic agents and when we refer to toxic agents, alcohol may be one of those agents.

And so, some of the studies suggest that in as high as -- that in as high as 50 to 60 percent of the population, you can get end gaze nystagmus that occurs naturally. Other studies have shown that this number is closer to -- I want to say around 20 percent, around 19 percent. There is another study I believe that shows it is anywhere between 10 and 15 percent and maybe off slightly with those numbers.

But roughly speaking there is a substantial proportion of normal non-intoxicated individuals who have physiologically occurring end gaze nystagmus that in these individuals may be indistinguishable from toxic causes of end gaze nystagmus.

Q Turn your attention to the third part of the HGN test. Angle of onset, are you familiar with that term?

A Yes, sir, I am.

Q And can you generally describe what the HGN tests says about angle of onset, if you know?

A The DRE tests suggests that the DRE should look for nystagmus who's onset is less than 45 degrees from midline.

Q I will give you my pen.

A Yes, sir, thank you.

Q Now earlier in this hearing, we heard Dr. Citek testify that it was his opinion as an optometrist that a trained DRE could determine the angle of onset to within one degree. As an expert in ophthalmology, do you concur with Dr. Citek's opinion?

A I do not and actually I would like to give you your pen -- I would like to give you your pen back and I would like to tell you why. And just simply, Your Honor, you can do this with us. Take your hand, hold it up straight and try to move it 43 degrees to the right. Am I at 43 degrees? I don't know. Is it 37, is it 45? I don't believe that I, as

an individual could distinguish between 43 degrees and 42 degrees much less distinguish between 43 degrees and 37 degrees.

I mean, I think in my opinion, it is difficult to find a physician is able to make that precise of a determination without any specific tools to help quantify that measurement.

Q How about within five degrees?

A It is very difficult.

Q Are you saying it is very difficult for an ophthalmologist?

A Yes, sir.

Q How about for somebody that doesn't have the background in medicine and three years of residency that you do?

MR. DAGGETT: Objection. All it really takes is, it takes a general working knowledge of measurements.

MR. CRUICKSHANK: Objection to testifying about --

MR. DAGGETT: It is mathematics. It has nothing to do with -- I mean, I could tell you what 45 degrees is -- my son --

MR. CRUICKSHANK: What is the objection?

MR. DAGGETT: -- who is in sixth grade --

MR. CRUICKSHANK: What is the objection?

MR. DAGGETT: It is not relevant and it has nothing

to do with what the DRE testifies to or what the DRE is looking for. My sixth grade son could tell you what a 45 degree angle is.

THE COURT: Well, that is -- I would not doubt that. But I guess the question is, I mean, I think we all know what 45 degrees looks like with a protractor okay. But the question is, can one while performing the horizontal gaze nystagmus test, can one determine realistically whether it is a lay person or a doctor when you are moving a stimulus around an arc, is it 43, 45, 42, 49?

MR. DAGGETT: That I don't have a problem with, the way you phrased it. The way Mr. Cruickshank was talking about, he is basically saying you had to go through -- without going through four years of medical school et cetera, can you do it? And I don't think it has anything to do with that.

BY MR. CRUICKSHANK:

Q Let me ask another question, in order to precisely measure the angle of onset to within one degree, as an ophthalmologist, what would you have to do?

A As an ophthalmologist, I would have to have some device that enables me to measure it within one degree.

MR. WELLS: Your Honor, at this time I am going to object to the form -- not the form, this line of questioning, the DRE protocol doesn't require to one degree.

MR. CRUICKSHANK: I am not done yet, I am going to ask a follow up question. Go ahead.

THE COURT: All right, overruled.

BY MR. CRUICKSHANK:

Q As an ophthalmologist, to determine the angle of onset to within five degrees, what would you need to do?

A I believe it is very difficult as an ophthalmologist to determine an angle of onset within five degrees to ideally do that and to do that with diagnostic intention, I think one should have some sort of device, whether that be for example, a tangent screen or a screen on a wall in which the patient is sitting a specific distance away from that will enable you to tell what angle it is.

You know, as ophthalmologist, we utilize these types of tools to assist us in determining angles.

Q I would like to turn your attention to the scoring of the HGN test.

A Yes, sir.

Q In reading the manual, did you familiarize yourself at all with the scoring of the HGN test?

A Yes, sir, I did.

Q Is it fair to say that each eye is individually scored?

A Yes, sir.

Q In your field of ophthalmology, is there a term

called -- I am going to mispronounce this, ready?

Unilaterally --

A The issue is --

Q Just answer my question -- is that pronounced unilaterally correct?

A Yes.

Q Okay, is there a term in ophthalmology called unilaterally?

A What I believe you are referring to is, unilaterality.

Q Thank you very much, proceed.

A The concern I have when I read the DRE manual is that each eye is tested separately. As physicians when we see unilateral disease in a bilateral organ system, we become concerned to a different degree than if we see it in both sides of that system.

And what I am trying to get at, if you see a smooth pursuit palsy in one eye but not the other or horizontal end gaze nystagmus in one eye but not the other. You have to become -- you have to have a heightened awareness that this is more likely than not related to a unilateral disease in the brain. A brain tumor, a stroke. Some sort of unilateral disease.

So if you have one eye that has horizontal gaze nystagmus and smooth pursuit ---, but not the other eye, you

better be damn well sure and I am sorry Your Honor if I am using that --

THE COURT: I never heard that before.

THE WITNESS: -- that you are not sending the patient home who has a brain tumor. You know these are things that we are taught as physicians to pay particular attention to because you could be saving someone's life or giving them a death sentence by missing something.

A toxic or metabolic or a global process typically won't cause unilateral disease. And so when I read about the scoring and how the scoring can be increased based on unilaterality, that was particularly concerning to me because it is much less likely that a global toxic process is causing unilateral disease.

BY MR. CRUICKSHANK:

Q Let me turn your attention to one of the studies that you read that was incorporated in Dr. Janofsky's study, Shiner and Sheckman, you had an opportunity to read that, is that correct?

A Yes, sir.

Q On this topic of scoring the HGN test, is it fair to say that they looked at this issue?

A Yes, sir.

Q And what is it -- what is notable in your expertise as an optometrist that they found?

A I am sorry, in my expertise --

Q As an ophthalmologist.

A Yes, sir.

Q Thank you.

A I am trying to refresh my memory -- they had two studies that came out in 2005. And I am trying to refresh my memory as to which one of those two --

Q Let me help you -- let the record reflect that I am showing the witness what is marked as Defendant's Exhibit 4, do you recognize that document?

A Yes, sir.

Q Is that what you were looking for?

A Yes, sir.

Q If you could refresh your recollection using that document on the topic we are discussing?

A Okay.

THE COURT: I am going to take a 15 minute recess. Give Dr. Adams a chance to look at that document and also to take a break. And then we will pick up.

MR. CRUICKSHANK: Thank you, Your Honor.

(Whereupon, a brief recess was taken.)

THE COURT: Be seated please. Mr. Cruickshank?

BY MR. CRUICKSHANK:

Q Dr. Adams.

A Yes, sir.

Q During the break, were you able to refresh your recollection of the Shiner Sheckman article?

A Yes, sir I was. And --

Q Let me just pose a question then, does that article talk about HGN scoring at all?

A Yes, sir.

Q What does it say about HGN scoring that is important?

A Well, the important in my opinion, the important issue that it talks about is an issue that I brought up initially in regards to interpreting tests for nystagmus to appropriately interpret test -- the test needs to be performed correctly and there are many detailed aspects of that test that need to be understood. And we went through a series of 11 questions that were presented by Albert and Jacobiak that need to be understood in interpreting nystagmus.

And so for example, Shiner and Sheckman state that the DECP guidelines indicate that nystagmus is characteristic of only one depressant -- of only depressants but not other categories but yet and I am paraphrasing, and yet officers at times noted nystagmus and concluded the impairment was due to one of the other categories and that these conclusions were often inconsistent with the DECP in the --

Q What conclusions can you draw from your field of

expertise?

A The conclusion that I draw is that you really need two things to interpret nystagmus. You need a properly performed test and you need to understand nystagmus and be able to ask these other 11 questions to be able to determine where that nystagmus came from.

Q I just want to touch on some other issues. What is resting nystagmus? Is there a term called resting nystagmus?

A I believe you mean, nystagmus in primary gaze?

Q That is what I mean, I am sorry.

A Okay.

Q When you look at as an ophthalmologist, nystagmus in primary gaze, does that in itself allow you to rule out any causes, any medical causes?

A Not necessarily by itself. It is one of the 11 questions that we typically are taught -- that we are taught to ask. But there are some causes of nystagmus that -- that can manifest themselves with primary gaze nystagmus and some that do not. For example, alcohol can cause nystagmus in primary gaze and alcohol can not cause nystagmus in primary gaze.

In fact there are some people like to say two different types of nystagmus that can be caused by alcohol, some people like to say that there are three different types of nystagmus that can be caused by alcohol. And those types

of nystagmus are very different. Alcohol can cause an end gaze nystagmus from an injury -- a toxic injury to the nuclear integrator that we talked about earlier. It can also cause a peripheral vestibular nystagmus which can manifest itself with nystagmus and primary gaze. And alcohol can also cause what is referred to as positional alcohol nystagmus in which the position of a head effects nystagmus.

So to say that a primary gaze nystagmus -- to say that a nystagmus was present in primary gaze is always not caused by toxic or is always caused by toxic agents or this, you can't say that. And in alcohol, it is a very good example of how it can cause nystagmus that occurs in primary gaze and it can cause nystagmus that does not occur in primary gaze.

Q We talked about -- is end gaze nystagmus a visual impairment?

A It is a not a visual impairment and the reason I would say that -- the easiest way that -- take alcohol as an example. We know alcohol does not cause any change in your visual acuity. So therefore, subset of alcohol intoxicification, end gaze nystagmus caused by alcohol intoxicification doesn't effect visual acuity.

That is one reason why we know end gaze nystagmus doesn't cause impairment of visual acuity. The second reason we know end gaze nystagmus doesn't cause impairment of visual

acuity is that in medical literature tells us that end gaze nystagmus doesn't impair visual acuity. There is no data that I have been able to find in the medical literature that suggests that end gaze nystagmus impairs visual acuity.

And thirdly -- thirdly if you don't mind --

Q Oh, I don't mind.

A Thirdly, nystagmus typically in the medical literature, if nystagmus beats at greater than 5 degree per second, then you have nystagmus that is symptomatic, that can impair vision. And at that point, in an acquired nystagmus if it beats at that rate, typically it is going to cause what we call oscillopsia or your world is going to be -- everything you see is going to be jumping.

And so, when we are talking about nystagmus that doesn't necessarily beat at that rate, it doesn't -- it is fair to say that nystagmus -- end gaze nystagmus does not impair visual acuity. And then, I don't know if you want me to talk about --

Q Let me pose a question. Let me pose a question. What else would you like to say on the issue of visual acuity?

A Well, I was going to talk about nystagmus and when we talk about visual acuity, also talk about driving.

Q I know, I was going to get to that. So let me ask you what the relationship is between driving and visual

acuity?

A Relationship between --

Q Driving a car and visual acuity. Let me rephrase it --

A Yes, please rephrase if you don't mind.

Q Does alcohol impair visual acuity?

A The medical literature suggests that alcohol does not impair visual acuity.

Q Again in your opinion as an ophthalmologist, does alcohol impair smooth pursuit?

A Yes, alcohol may impair smooth pursuits. And often does impair smooth pursuits.

Q We have talked about -- I just want to touch on -- the Court's indulgence --

(Pause.)

BY MR. CRUICKSHANK:

Q Doctor, we have submitted an exhibit on diagnosing nystagmus. From your reading of the DRE manual, do they ask any of those questions?

A No, sir.

Q Do they ask any of those questions relating to -- well let me first ask you this. In your opinion as an ophthalmologist, is the DRE pursuant to their manual, diagnosing HGN?

A No, sir. I am not sure I understand the question.

Q Let me ask --

A I should take my answer back because I am not sure I understand the question. HGN is not necessarily a diagnosis.

Q What is the diagnosis?

A A diagnosis is a termination of a disease entity that is considered to be present in an individual.

Q Court's indulgence.

(Pause.)

BY MR. CRUICKSHANK:

Q I just want to touch on some of the other causes of HGN contained in the literature and I will read through these causes, I don't want to hit all of them but let me read through some of them. And tell me yes or no, does it or does not cause HGN? Okay? Influenza?

A Can.

Q Streptococcus?

A Can.

Q Vertigo?

A Can.

Q Measles?

A Can.

Q Syphilis?

A Can.

Q Muscular Dystrophy?

A Can.

Q Epilepsy?

A Can.

Q Eye strain?

A Yes.

Q Glaucoma?

A Can.

Q Aspirin?

A Can.

Q Heredity?

A Can.

Q Drugs?

A Yes.

Q Excessive amounts of caffeine?

A Yes, can.

Q That --

A And some of them that you mentioned, take caffeine or Aspirin, you know very common agents, can cause a vestibular nystagmus that is very similar to the one caused by alcohol. And it can even be more difficult to distinguish these types of nystagmus. Sometimes in the dark. I mean -- when the stimuli conditions -- touching back to the same things when the stimuli and the backgrounds are different, it might be difficult to distinguish some of these types of nystagmus.

Also, some times when you fixate on an object, it can change the manifestations of that nystagmus.

Q Let me ask you this, in your opinion, may a DRE trained in a way that the manual is set forth and you reviewed, conclude that HGN is even present?

A They may conclude that HGN is present. It -- might be easier for them to conclude that nystagmus is present because there are -- as I mentioned there are many different types of nystagmus and it is difficult for a physician to distinguish some of these different types of nystagmus. And so --

Q Let me follow up with some questions.

A Okay.

Q Is it generally accepted within the field of ophthalmology that the presence of HGN is done within the HGN test that we are talking about in the DRE angle, mean that someone is impaired by CNS depressant?

A No.

Q Does it mean that a person is impaired and cannot operate a vehicle safely?

MR. WELLS: Objection.

THE COURT: I will sustain.

BY MR. CRUICKSHANK:

Q Doctor, I want to touch on -- have you ever heard the term vertical gaze nystagmus?

A Yes, sir.

Q In the field of ophthalmology, is there any information how nicotine may cause vertical gaze nystagmus?

A Actually Nicotine -- we should pause and say that Nicotine typically would cause a vertical nystagmus. As we talked about there is different types of nystagmus and --

Q Let's stop right there then. So we get an understanding of the nystagmus. If you can -- if you need to and if you had the opportunity to review what the DRE manual says is something called vertigo gaze nystagmus?

A Yes.

Q Is that which is in the DRE manual different from what is in your field of expertise and can you explain?

A Can you rephrase the question?

Q Sure. You have reviewed the DRE manual on the topic that they refer to as vertical gaze nystagmus?

A Yes.

Q What is that that they are referring to, if you know?

A Their intention is to refer to vertical gaze nystagmus. But the issue is that vertical types of nystagmus -- it is very difficult for or I shouldn't say -- let me back track and say that often times a physician will have difficulty distinguishing vertical nystagmus from vertical gaze nystagmus. And might confuse the types of

nystagmus.

Q Explain to the Court what the differences are.

A Vertical nystagmus is a nystagmus that beats up or down. Vertical gaze nystagmus is a nystagmus that can beat up or down but only when you look up and down. Doesn't necessarily have to occur when you don't look up or down. And so you can have a horizontal gaze with a vertical nystagmus that is not vertical gaze nystagmus. And so, you brought up nicotine. Nicotine induces a vertical nystagmus that can easily be confused with a vertical gaze nystagmus but is not a vertical gaze nystagmus, it is a vertical nystagmus.

And so, in my opinion, you really need someone who has had a lot of experience and expertise in nystagmus, in Ophthalmology to understand the different types of nystagmus and to be able to identify the type of nystagmus that is present. Let alone to interpret what that type of nystagmus means.

And we often find -- even Ophthalmologist making errors in identifying the type of nystagmus -- you know, there is a subset of Ophthalmologist and a subset of physicians in general. There are some neurologists who have had additional experience and expertise who are more qualified to be able to make these interpretations and identifications of nystagmus.

Q In your opinion, could the properly trained drug recognition expert conclude that vertical gaze nystagmus is present?

A Possibly. But from my reading of the DRE manual, I would say no.

Q Do you consider vertical gaze nystagmus to be a scientific test?

A As a -- as the way it is described in the DRE, it is a test that is used to or it is a method that is used to validate to either prove or disprove a hypothesis of the presence of a drug agent or the impairment by a drug agent. So as such, its use is a scientific test but if you ask me if it is an appropriate scientific test that is a different question.

Q That is the next question. Is it an appropriate scientific test to mean that somebody is impaired by a drug?

A No, sir. It is not.

Q Let's move on to convergence. You had an opportunity to read the manual and how the manual talks about something called convergence. Is that fair to say?

A Yes, sir.

Q Okay. Now in the field of ophthalmology, first of all, is the convergence that is described in the DRE manual convergence in the field of ophthalmology, are they the same thing? Why or why not?

A In general they are.

Q Okay. Now, in the field of opthamology, is there something called exphoria and esophoria?

A Yes, sir, there is.

Q Please explain to the Court what those terms mean and why they are important.

A In exophoria is when the eyes are turned outward from each other as they fixate on an object. And esophoria is when the eyes are turned inward as they fixate on an object. In other words, turn inward more than what is appropriate as you fixate on an object. And these two terms are appropriate because there are many diseases that can cause esophoria and exophoria and there are drug intoxications that can also cause esophoria and exophoria.

Q Is there a difference between convergence as it is taught in the DRE manual and the two terms you just stated?

A Yes, there is.

Q What is the importance of the difference when you are speaking about the presence of a drug? Let me ask you, the test that is used by the DRE, the convergence test, in your opinion as an opthamologist, can that test determine the presence of a drug?

A No.

Q Thank you. I want to turn our attention to the field -- Doctor, when you were at Johns Hopkins, did you work

with optometrists?

A Yes, I did.

Q Is there anybody in your life who may be an optometrist?

A My wife is an optometrist.

Q Do you have anything against optometrist?

A No, I don't.

Q Okay.

THE COURT: We can go off the record.

BY MR. CRUICKSHANK:

Q Doctor --

A In fact, as an ophthalmologist we work very closely with optometrist. When I was at Hopkins, I worked very closely in my division with optometrist and when I was at Texas Tech as chair of the department we had an optometrist who worked under us and I was responsible for his clinical work and teaching him et cetera.

And so we enjoyed very good and close relationship with optometrists in general.

Q And Doctor, you have had the opportunity to look at the DRE manual on questions they asked the subject about medical problems they may have, is that correct?

A Yes.

Q Is one of the questions, are you sick or injured?

A Yes.

Q They may ask and if I -- if you need to refresh your recollection, we will look. Are you taking insulin, is that one of the questions perhaps?

A I believe so. I believe they ask about diabetes.

Q It is fair to say that you looked at all of those questions and is that a fair statement?

A Yes.

Q Okay. Now, you as a medical doctor, if you want to rule in -- strike that, if you want to rule out a medical cause, what procedure do you have to go through?

A Well, you have to start out with some tests that might be similar to what the DRE performed and then you move on to additional clinical tests and then -- I should back track, you start out with very detailed history including history of the present illness, past medical history, review of symptoms, medications and then you move on to some testing that might be similar to what the DRE does. But then there is additional testing that needs to be performed.

And you need to move on to very detailed eye examinations for example. There are certain disorders that are visible in the eye, disorders of the eye that are visible in the eye that affect some of the findings that we have been discussing that can cause nystagmus or can cause impaired convergence.

And so we look very carefully at the eyes. We need

to do an examination of the subject -- physical examination of the subject as warranted. And additional laboratory tests might be needed, whether you talked about blood tests, urine tests, radiologic examinations, et cetera.

And so, to come to a conclusion as to the diagnosis, there are a variety of things that need to be done that we do as medical providers that we are responsible for doing.

Q Did you have an opportunity to look at what the DRE refers to as hippus?

THE COURT: As what?

MR. CRUICKSHANK: Hippus.

BY MR. CRUICKSHANK:

Q If I am pronouncing it correctly?

A You are sir.

Q Can you explain to the Court --

THE COURT: What is it -- say it again?

MR. CRUICKSHANK: I said hippus.

THE COURT: Spell it?

MR. CRUICKSHANK: It is h-i-p-p-u-s.

THE COURT: Thank you.

BY MR. CRUICKSHANK:

Q What does that word mean?

A Hippus means several different things depending on when you look in the medical literature. It was initially

described, I believe in 1888, by Dr. Nory to mean some physiologic unrest in the pupil. Just some movement in the pupil and later on, was -- it -- and I think it was initially described as being present in pathology. But then later on, was described as being a more normal variant, a more normal undulation of the pupil.

In other words, it is an in and out constriction dilation of the pupil. If you look at it historically, let me try to refresh my mind for a second.

Q Let me just ask you a follow up question that might help. When you speak of hippus, is it fair to say -- does hippus -- do normal people have hippus?

THE COURT: Normal in what respect?

MR. CRUICKSHANK: Good follow up question.

THE WITNESS: I am sorry, Your Honor.

THE COURT: He said do normal people have hippus? And my question is normal in what respect?

THE WITNESS: Yes, sir. Actually both questions are very relevant. Normal people do have hippus and normal people who may be in abnormal states, such as fatigue can have hippus. And in fact, some people -- some of the medical literature suggests that almost everyone can have hippus. That is almost universally present.

But sometimes it is more noticeable than at other times. The --

BY MR. CRUICKSHANK:

Q Okay, let me ask you this. When you look at hippus, when you test hippus, does that tell you anything?

A No. How do you test --

Q Please explain.

A Well, that is what -- there isn't a specific test for hippus. In other words, we don't go around performing specific tests that will show us whether or not some one has had hippus. There are tests that can induce hippus and can artificially induce hippus and I will give you a very good example of that.

If you shine a light in the pupil, it is going to constrict. And if you take the light away, it is going to dilate. If you shine the light right at the edge of the pupil, it is going to constrict such that the light -- the edge of the light is no longer in the pupil and so the pupil will then dilate and then the light will be right within that edge and the pupil will constrict.

And then if you keep the light in the same place, there is no light shining in the pupil, it is going to dilate again and it will hit the light and that is called -- typically called pupil cycling or pupil cycling time. There is various terms for it. But it is an artificially induced hippus. But you can look for hippus but to test for hippus, there is no specific test.

The best to look for hippus is through very precise measurements of the pupil and very precise studies of the pupil to look for hippus.

Q Okay. Now I want to turn our attention to rebound dilation. Do you know what that means, rebound dilation?

A I know what it means but at the same time, I would like to say that I don't know exactly what it means because if you look in the literature, there is various terms that have been used and rebounding dilation as I believe it is being used here, in the DRE manual, is probably more appropriately referred to as pupillary escape.

Q What does that mean?

A In the term pupillary escape means that after you constrict a pupil, it will dilate naturally shortly thereafter and this was noted, I believe in 1969 by Lowenfeld and Lowenstein. It is a phenomenon that involves the light hitting the retina, stimulating neurons, you get an initial intense burst of activity of these neurons and then that burst starts to wear off and you get a little bit of dilation.

And some people think that and there is several mechanisms that have been proposed including that those -- that burst of neurons wears off. Some people suggest that there might be some inhibitory mechanisms that start to take place. Some people suggest that there might be photo

bleaching. Various mechanisms have been proposed but the effect is, when you shine light into a pupil, you are going to get a constriction. So if you draw a graph where the Y axis is the size of a pupil and the x axis is time, as light hits that pupil, it is going to constrict, so size is going to get smaller and then it is going to dilate a bit and then that slope of a dilation is going to level off so that the dilation becomes slower.

You are going to get an initial faster redilation and then that dilation is going to be slower. So relative to the initial pupil, you are constricted but there is this escape that some people refer to as a rebound but others refer to as a pupillary escape. And what Lowenfeld and Lowenstein stated is that there is actually a balance between the escape and the capture.

The capture is where you end up with that pupil size. As it constricts where that final capture is, where that final resting state is.

Q Now let me ask you a question. Does it have anything to do with the presence of a drug?

A It could. But the problem is, almost everyone is going to have pupillary escape to some extent. People with larger pupils are going to have probably more pupillary escape than those with smaller pupils. As you age, you get more pupillary escape. It varies with fatigue.

There is -- there is many variations that occur with normal depending on what you define as normal and with disease. And so --

Q Would it be hard for you as an ophthalmologist, to determine if the presence was caused by a drug or some other cause?

A Just with that test by itself, you can't determine what the cause is. We as Ophthalmologist go through quite a bit of training to understand pupillary escape. Because some of the pupillary escape that we look for as ophthalmologist is pupillary escape that differs between one eye and the other.

And that pupillary escape sometimes -- that pupillary escape when it is different in one eye versus the other is referred to as an afferent pupillary defect which has different disease implications. And so we as ophthalmologist spent quite a bit of time trying to understand pupillary escape and what it means, when do we diagnose a pupil that is escaping as being pathologic and when is it normal.

And it is not an easy process. It is not easy to make these determinations. As physicians.

Q Court's indulgence.

(Pause.)

MR. CRUICKSHANK: I will defer to Mr. DeLeonardo on the rest of direct.

DIRECT EXAMINATION

BY MR. DELEONARDO:

Q Dr. Adams, if I could touch on a couple of things that was covered. You indicated at least as to -- I am going to step you back and talk about nystagmus, horizontal gaze prior to 45 degrees.

A Okay.

Q In your experience and education in ophthalmology and I guess seeing all the patients you have, one of the things we didn't touch on is how common is it for someone to have onset prior to 45 degrees, if you know?

A You could have onset prior to 45 degrees if you look in the medical literature, it suggests that some onset can begin as early as 25 degrees in some normal patients with no drug utilization at all. Some studies have shown that 10 or more percent of patients will have an onset of nystagmus before 45 degrees. It is just normal.

Q That is without any medical disease I assume?

A That is correct. That is without -- that is under, we go back to the same thing we mentioned before. That is under perfect conditions. That is with a well regulated or well calibrated stimulus, a background that is blank, that is where these studies were done.

So if you throw in a background that can be distracting, then the numbers are going to change and likely

go up, possibly dramatically increase. But, you know, I don't know those numbers because there aren't good studies to show the percentage of normal individuals who have nystagmus on a roadside test.

Q Are there any studies that talk about how common nystagmus or horizontal gaze prior to 45 degrees can be in people with medical conditions? Is there any literature on that?

A There is literature on that and it can -- I don't recall off hand those numbers but certainly --

Q What about fatigue?

A Fatigue is a very good example that you know, a very high percentage of subjects can have nystagmus with early onset if they are fatigued.

Q When you say early onset, what do you mean by that?

A I mean, onset before 45 degrees. I am using the DRE terminology.

Q So -- and you said that fatigue can be one of those factors as well?

A That is correct. Fatigue and you throw in stress and fear and you know, the numbers start to increase at that point.

Q Now we talked about different causes of and I will say horizontal gaze nystagmus and I am kind of lumping all three of those components together, it is just to simplify.

We talked about a lot of medical reasons and I know that you mentioned as well just I guess situational reasons that could have induced. Let me ask you, is it also true that drugs can cause horizontal gaze nystagmus in ---?

A That is correct. And drugs in therapeutic doses can cause horizontal gaze nystagmus. Drugs that are not intoxicating -- we mentioned caffeine, we mentioned aspirin if you want to call that a drug. I don't know if you know, technically it is a drug.

You know, when we are taught in pharmacology but whether you want to call aspirin a drug or not, nicotine, as we talked about causes a different type of nystagmus, but there are many drugs that can cause nystagmus and there are many -- I should say there are drugs that we typically look at as intoxicating agents that are referred to in the DRE that can cause nystagmus at therapeutic for sub intoxicating levels.

Q Okay. And also and just to retouch on this, we had previously heard from Dr. Citek from the State, that the way the examination is being done in this protocol, the way that it is done would actually eliminate a lot of those congenital causes or other reasons for the production of horizontal gaze nystagmus and I am curious if I can get your opinion as to that?

A No, sir I don't believe that the way it is taught

can sufficiently distinguish the cause or etiology of nystagmus. Or sufficiently determine for that matter, the type of nystagmus.

Q And as far as the scoring, you were asked about how it was scored and let's assume for the sake of argument that it scored equally in both eyes. Okay. How common would it be if you can tell me in your experience -- how common would it be for someone to have let's say four of six clues? On HGN?

A It could be fairly common. There is a study, I want to say it is about 2003 or 2004 that showed that nearly three quarters of normal individuals with no drug use at all scored four or more. And that the average score of those normal subjects using the DREs testing methodology was 3.8 I believe, somewhere in the high 3's.

And the reason this is, is we talked about it, the way that the technique is taught to be performed is not the most appropriate way to teach it. We talked in the very beginning about the speed and how if you go too fast, two seconds per cycle, you may actually be inducing some nystagmus, I am sorry, inducing some smooth pursuit abnormalities --

Q If I could just stop you there. So you were saying that some of the research that you know of in the field actually supports that?

A Supports the fact that --

Q The commonality and finding it --

A Yes, of the test taken as a whole, taken in its totality.

Q And if I could go back and you raised it right there, you talk about this idea of going out at 2 seconds.

A Yes.

Q And I just want to make sure that I understand, you said that that was pushing the maximum limit, I think was the term you had said.

A Correct.

Q If you could just explain to us, what do you say then -- are you saying that there is a maximum limit for all people under normal conditions or for some people?

A For the average person that it may be above the limit for the average person. Depends on what study you look at. But taken on a whole, most of the studies suggest that that speed is too fast for most normal individuals.

Q I know you also indicated about diabetes being discussed. And we heard previously most people kind of know they have diabetes when they come in. In your experience -- do you treat people with diabetes?

A I do.

Q And they relate to a lot of eye issues?

A Yes, it does.

Q How often do you find that people know they have diabetes before getting diagnosed?

A Sometimes they do, sometimes they don't. There are many people who will come in and have no idea that they have diabetes. And we make the diagnosis that they have diabetes and they have likely had diabetes for many years in some people and some people might just be for a few years, but they have had that diagnosis.

Q What about things like high blood pressure, abnormally low blood pressure?

A It is harder to tell if you have high blood pressure or low blood pressure.

Q Why is that?

A Because the symptoms, you are not as -- there aren't easily manifested symptoms, high blood pressure for example. In these disorders, diabetes, high blood pressure, you know, various vascular disorders, atherosclerosis, can affect this -- the results of an HGN test. In fact, just being non-diabetic and having a low blood sugar, let's say you had lunch and you know, you missed dinner and now it is way past dinner time and your blood sugar levels are low and you are not diabetic, that can -- is known in the medical literature to affect components of the HGN tests.

So there -- there is so many variables that can affect this HGN test.

Q And I think one of the things you had mentioned is that one of the things you are trained to do in the medical community, in the ophthalmological community, when you are doing these type of tests on the eyes, that you are actually are looking for not only the HGN for a lack of a better term, but you are also looking for disease of the eyes, is that correct?

A That is correct.

Q What are some of the -- and I don't mean to get real technical, I am just asking generally, what are some of the general diseases that you would look at as an ophthalmologist? When you are looking at the eyes?

A Well, it is really not a fair question because there are many diseases that we have to look for. I mean we have to look for clarity of the media, clarity of the cornea, the lens, the ---. You know the eye is actually an organ that is composed of many different types of tissues.

And so we have to look at all of these tissues to see you know, is the cornea clear or not. Is the fluid in the eye normal or is there inflammation? What is the iris like? Is the lens in the eye normal? What is the retina, the status of the retina? I mean, I am really doing injustice to this --

Q That is fine. Absolutely.

A -- to what we do because you know, I am trying to

summarize it all into one sentence and you know, we take years to study this. And this -- to throw it all into one sentence I mean it is not a fair question.

Q And I just suffice to say there are just countless things that you look for?

A Absolutely. Absolutely.

Q And those things can affect the results that we discussed with -- they can --

MR. DAGGETT: Objection. Leading. Well, actually the last three or four questions were all leading, but --

THE COURT: Sustained.

MR. DELEONARDO: Technically I would be entitled to cross examination. But I --

THE COURT: I don't think I would go that far.

MR. DELEONARDO: I tried to not be -- I was just trying to move it along. That is why.

BY MR. DELEONARDO:

Q As an ophthalmologist do you know or recognize disease that may be there in the eyes that even people that, let's say an optometrist may not be trained to look for?

A That is correct.

Q Lack of convergence, you were asked about that. I have a couple of questions about lack of convergence.

A Yes, sir.

Q You see in the manual the way it was described, two

inches from the bridge of the nose.

A Yes, sir.

Q First of all, I am going to ask you is that the generally accepted way in the field of ophthalmology that you would conduct that test?

A It is relatively appropriate. You know, in general it is an appropriate way to conduct the test.

Q Well, I guess more specifically I am asking what about going to two inches from the bridge of the nose?

A I think the issue is more the interpretation of the test and the interpretation of the results rather than the actual test taking ability. Going to 2 inches from the bridge of the nose, if you define that as impaired convergence, I think you know, looking around the room, I think if we all put our finger up two inches from our nose and try to focus on the tip of our finger, we will probably see two fingers rather one.

We may not see it very clearly. And if we define that as impaired convergence, I think it is likely that most if not all of us have impaired convergence.

Q If I could just step back to explain that, when we talk about the term lack of convergence from the person's side that is being tested, when you have the finger coming to the nose, you mentioned double vision, is that what happens at lack of convergence?

MR. WELLS: Objection again to the form of the question. I know I want to move things along as well, but this isn't cross examination.

BY MR. DELEONARDO:

Q Can you explain what the person who is being tested experiences when they experience lack of convergence?

A Double vision is a good way of describing what a subject may experience. Other people might describe it as maybe some blurriness, other people might describe it -- describe a headache associated with it. But double vision is a good way of describing what people might-- what a typical otherwise normal individual might describe.

Q So if I understand then, at two inches, how common would it be that the person would actually experience -- if you know in general?

A I think for many individuals it is fairly common at 2 inches. I don't have any specific numbers for you. But as one grows older, it is going to be more common. As one is fatigued, it is going to be more common. If there is certain disorders that might -- certain disorders that might get -- might make it more common.

Q As far as what is appropriate, you said 2 inches may be too close, what would be more appropriate?

A I don't know if I am going to venture to say a number because we will do that test and we will bring in the

instrument at 2 inches but it is really determined more by the totality of what is occurring rather than --

Q So you won't draw any conclusions from that convergence?

A No.

Q And as far as -- is it a driving impairment in your experience? The inability to converge?

A Not that I am aware of, no.

Q For it to be a driving impairment, what would it have to -- what would you have to --- or can it never --- lack of --- just curious?

A Depends on when the onset of lack of convergence is. If you have lack of convergence that is sufficiently far away, and is causing double vision at distance, then that could impair driving. But typically what we are looking for there is an exophoria or an esophoria as we were talking about earlier.

Q Okay. On rebound dilation, just to touch on that very quick, you said it was relatively common for everyone?

A It depends on what you look at but some people suggest that practically everyone has some degree of rebound dilation. Whether it be a small amount or a large amount.

Q In the field of ophthalmology is it generally accepted that that is the indicator of drug impairment?

A No, sir.

Q Now, one of the things I wanted to touch on too is, you had the opportunity to look at pupil sizes is that correct?

A Yes.

Q And if I could step you in --

MR. DELEONARDO: Or I don't know if the Court wants to move to another area now but just for the Court's benefit, I mean, I can move in to the area of pupil examinations, so I don't know if the Court wants to break now or wants me to move into another subject area? I know we are due back tomorrow morning.

MR. WELLS: Your Honor, with regards to that, we had initially been anticipating getting to one of our experts after completion of Dr. Adams, Bill Morrison and he is apparently scheduled to testify in Court at 1:30 I believe in Rockville. So I don't think we are going to start with Bill Morrison tomorrow. So I think probably tomorrow, the only thing we are going to be able to do is be able to finish with Dr. Adams.

MR. DELEONARDO: So if that is the case, I figured that we had talked earlier that I am going to be moving into another subject area, so I didn't know if the Court wanted to break now or wanted to go longer?

THE COURT: Well, how much longer do we need with Dr. Adams do you think?

MR. DELEONARDO: I would still have a little bit of time to cover because we haven't done the pupil examinations. So --

THE COURT: Because what?

MR. DELEONARDO: Because I haven't done the pupil examinations and I know they are going to have cross. So I figured that we probably could wrap it up in the morning. If that is --

THE COURT: I think you are an optimist.

MR. DELEONARDO: I try to be, Your Honor, I keep hoping that this will end before Christmas.

MR. DAGGETT: But he is not an ophthalmologist, I will say.

THE COURT: That is the real surprise he is going to spring. He is -- all right, let's adjourn for the day. I don't have a whole lot I don't think left tomorrow. One thing and I think that is probably pretty brief. So why don't we plan on starting at 10:00.

MR. DELEONARDO: I will just let Your Honor know, I do have one plea hearing tomorrow.

THE COURT: At where?

MR. DELEONARDO: I assume it is in front of Judge Hughes. I know it is in front of Judge Hughes, I assume courtroom four. So I will -- if you could put in a good word for me.

THE COURT: What time?

MR. DELEONARDO: -- maybe I can get in at --

THE COURT: It is way too late for that. You burned your bridges with Judge Hughes.

MR. DELEONARDO: Oh well, hey I am sure he is inheriting a lot of your work, I assume.

THE COURT: Well, I mean, I guess you --

MR. DELEONARDO: I will be right over, I will be across the hall. And I assume it will be a relatively quick matter.

THE COURT: All right, we will figure on 10. If it is a little later that is not a big deal.

MR. WELLS: And Your Honor, briefly, I know everyone is looking to get out of here, for scheduling purposes, I think that we should probably do -- the remaining after Dr. Adams is finished, the remaining witnesses that we are going to have is two local DREs within state -- is what I mean, they are not local around here. Scheduling we are probably looking at to be on the safe side, since we weren't clearly initially maybe looking at a block of three days.

I don't think we will take that long, but to be on the safe side --

THE COURT: Three days?

MR. WELLS: I expect and I anticipate that Mr. Morrison will be taking probably a full day to get through,

then after that is Sergeant Tower. I don't know how long that is going to take to get through. I don't believe that will take a full day, we then have rebuttal witnesses and then we have close.

THE COURT: Well close is coming in writing.

MR. WELLS: Okay, so there is going to be no oral closing?

THE COURT: Right.

MR. DELEONARDO: If I could just be heard? As far as the --- rebuttal witness we have been informed of I guess is Officer Morrison --

MR. DAGGETT: Officer Woodward. Woodward.

MR. DELEONARDO: I am sorry, I meant Woodward. Actually he is still in your case. I am sorry. I meant Woodward. And as far as the DREs perhaps tomorrow after we get done, I sort of mentioned to Adam, I think there is some -- needs to be some discussion about what they are entitled to testify to in a Frye hearing because I think there is an issue as to in the fact that we are subjecting the program and the training and that to a Frye hearing, what their expertise they are allowed to and entitled to in a Frye hearing. In other words, it is limited. We are subjecting to that.

So I don't know what they are intending us to use them for, I only know that they said they were trying to get

them as experts in DRE program and protocol and HGN but I mean, maybe that will depending on our argument and proffer, that will cut that down. Because I don't know exactly what else they are going to be testifying to beyond areas that they are entitled to in a Frye hearing.

MR. WELLS: And I believe, Your Honor, we can handle that when we call Officer Woodward, if there is an issue, we can proffer generally what the testimony is going to be to.

MR. DELEONARDO: I was saying even actually as to the two DREs that are listed. I think -- I guess my position would be if they are testifying as to what the program is and how it is taught and how it is administered, I think that is all fair. I am not arguing that. I don't think we need to, but I think that is all fair.

If it is -- if the program is reliable, valid, it is accepted it works great, that is a whole different line of stuff that is inappropriate for a Frye hearing. So I guess that is why I wanted to parse that out in advance and not by surprise. The case --

THE COURT: Are you saying that they are not competent to testify as to whether --

MR. DELEONARDO: Correct.

THE COURT: -- it is scientifically -- whether it is accepted within the scientific community?

MR. DELEONARDO: Correct. And I will -- there is actually case law.

THE COURT: Generally, now I don't know -- I don't know -- I mean that line could perhaps blur a little bit.

MR. DELEONARDO: That is what I am concerned is that, there is this mixture in the DRE program and actually I will just tell you -- I mean --

MR. WELLS: Your Honor, I apologize -- I don't think you need to, we are not going to put him on there to testify that this is generally accepted within the scientific community. Our rebuttal is not going to be doing that.

THE COURT: Well, in terms of scheduling, I think about all we can say is we are going to finish with Dr. Adams tomorrow and I am sitting in civil for the month of October. So I don't know whether there might be some days in there when we could -- assuming and again, I don't know what the schedule of the various witnesses is, but you know we might be able to -- I don't know if we have a three day block of time.

You know, we might have to do a day here or a day there. And I guess again, I would talk to -- we are talking about October, civil assignment and Ms. Zimmel. Always talk to her because she is the person who has the best handle on what my schedule is going to be.

MR. DAGGETT: He can leave, I mean, he doesn't have

to be here for this.

MR. DELEONARDO: Yes. You are good for the day.

MR. WELLS: Yes, we appreciate --

MR. DELEONARDO: So I guess if that is acceptable then, we will just figure it out I guess tomorrow or something. I guess we will put our heads together tomorrow perhaps and find out when the officer might be available.

THE COURT: All right. Now, Dr. Adams, you are moving back to Maryland?

THE WITNESS: I hope so. We are working on trying to figure out where is the best place for me to set up a program that I have waited years to put together, so. Trying to figure out --

THE COURT: Now is this research or?

THE WITNESS: It is going to be a clinical practice with a research component to it.

THE COURT: You could come to Carroll County.

THE WITNESS: It isn't a bad option to be honest with you but it is partly depending on population and resources and there is so many factors that come into play as to how most appropriately to put together this program.

THE COURT: And when is -- what is the time table for the move?

THE WITNESS: I am fairly flexible to be honest with you. I am looking at sometime probably in the beginning

of 2011 to initiate the start of the program. It only takes a while to put things together.

THE COURT: All right. Where do they have you staying here?

THE WITNESS: I am staying on my own in Hunt Valley.

THE COURT: In Hunt Valley?

THE WITNESS: Yes.

THE COURT: You made your own arrangements?

THE WITNESS: We made our own arrangements and we are covering it independently.

THE COURT: You were smart.

THE WITNESS: Independent of these guys.

THE COURT: Very smart. All right.

MR. DAGGETT: 10:00 tomorrow?

THE COURT: 10:00 tomorrow.

THE WITNESS: Well, we have lived here so long that my wife has certain preferences and you know, she has friends that --

THE COURT: Those preferences have to be given due weight.

THE WITNESS: Absolutely. Thank you, Your Honor.

(Witness is excused.)

THE COURT: Have a good evening everybody.

(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 29, 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