UNITED STATES
COURT OF FEDERAL CLAIMS

IN RE: CLAIMS FOR VACCINE INJURIES RESULTING IN AUTISM SPECTRUM DISORDER, OR A SIMILAR NEURODEVELOPMENTAL DISORDER,	)	
FRED AND MYLINDA KING, PARENTS OF JORDAN KING, A MINOR, Petitioners,	)	
v.	)	Docket No.: 03-584V
SECRETARY OF HEALTH AND HUMAN SERVICES, Respondent.	)	
GEORGE AND VICTORIA MEAD, PARENTS OF WILLIAM P. MEAN, A MINOR, Petitioners,	)	
v.	)	Docket No.: 03-215V
SECRETARY OF HEALTH AND HUMAN SERVICES, Respondent.	)	

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IN THE UNITED STATES COURT OF FEDERAL CLAIMS
OFFICE OF SPECIAL MASTERS

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SECRETARY OF HEALTH AND HUMAN SERVICES,	)	
Respondent.	)	

Courtroom 402
National Courts Building
717 Madison Place NW
Washington, D.C.

Thursday,
May 15, 2008

The parties met, pursuant to adjournment, at 9:00 a.m.

BEFORE: HONORABLE GEORGE L. HASTINGS, JR.
HONORABLE PATRICIA E. CAMPBELL-SMITH
HONORABLE DENISE VOWELL
Special Masters

APPEARANCES:

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C O N T E N T S

P R O C E E D I N G S

(9:00 a.m.)

SPECIAL MASTER HASTINGS: Good morning, folks. Please be seated.

For those at home, this is Special Master Hastings who will be presiding over the proceedings today. As I noted earlier, we are the three Special Masters, we will be taking turns at presiding over the proceedings over the general causation testimony.

Let me start by noting that, as you see, Special Master Vowell is not with us at this time. She will join us later this morning. She is attending a funeral this morning, but she will be here later this morning, or will certainly be here by the time we start the testimony of Dr. Mumper.

Another matter that I would like to take up is to basically repeat some comments that I made on Monday morning, and these are addressed to the family members of Jordan King and William Mead.

Of course, Monday morning, when we started the proceedings, I made certain comments based on behalf of all three of the Special Masters to the family members. At that point, of course, William Mead's mother was here and some members of her support group, but Mrs. King was not here yet, Mr. George Mead

and some of the other folks that have arrived since Monday morning weren't here. So I think I will repeat those comments for their benefit, and basically they are this.

First, we simply want to welcome you folks and thank you very much for coming all the way from the Portland area, most of you, to be here with us. We greatly appreciate it.

Second, we wanted to say that while we haven't had the opportunity to meet Jordan or William, we certainly have met a number of other autistic children, and we have read very, very carefully the records of Jordan's case and William's case, and even from the cold medical records we can get a sense, and as we did from George Mead's very poignant testimony yesterday, of what it's like to be raising an autistic child, and the difficulties the families have come through, and we wanted to extend our sympathy to the family members, but also to go beyond that, and say that it's also obvious from those records that, as it was from Mr. Mead's testimony yesterday, what an admirable job these families have done along with so many other families of autistic children in working hard to overcome those difficulties, to make the best of the situation, to work with those children and to

bring them along at the best way possible.

That certainly comes through very clear in the records of these two children, and we certainly state our admiration for the way the families have coped with this situation.

And lastly is that, of course, we want to thank you folks for not only being here but for allowing your sons' cases to be included as test cases in the Omnibus Autism Proceeding. These are very, very difficult issues that we have to wrestle with, and we need to do that in the context of individual cases, and we greatly appreciate your allowing your cases to be included here as test cases.

So I just want to again thank all of you folks very much for being here and being a part of this proceeding.

Also, in regard to that same note, I will just again explain for the benefit of both people listening at home and people here emphasize that what we are doing here the difference between general causation and specific causation, and relating to what Special Masters we have here; that again we have individual cases is what the program is designed to, the Vaccine Act is designed to resolve. We have to decide individual cases, is Jordan King's symptoms

caused by vaccines, are William Mead's symptoms caused by vaccines, and each of the other children involved. We have to resolve individual cases.

But because after discussion with counsel for both sides, all agreed that some kind of proceedings rather than hear all these many expert witnesses 5,000 different times, it makes better sense to group the witnesses, take them at one time, and get as much out of it as we can from those witnesses, the expert witnesses, and then apply it to individual cases.

So this is a combination proceeding. When we're taking the general causation testimony, such as Dr. Deth, Dr. Aposhian, all the witnesses we have heard so far this week, all the expert witnesses for both sides, all three of us will be analyzing that testimony and applying it to individual cases.

Then when it comes to resolving individual cases, however, there will be one Special Master for one case, and as I noted on Monday, the Jordan King case is assigned to me. The William Mead case is assigned to Special Master Campbell-Smith, and a third case dropped out at the last minute that was assigned to Special Master Vowell, but a third case is being selected, and she will apply the general causation

testimony taken during this hearing, she will apply that to a third case.

So I emphasize that while you will see different Special Masters presiding during the general causation testimony, but when it comes to the individual cases, you noted yesterday that during the testimony of George Mead about his son William, Special Master Campbell-Smith, who is the Special Master assigned to that case, she presided over that, just as when Mrs. King testifies this morning, I will preside over that since her son's case is assigned to me, and so I wanted to just emphasize for everyone's benefit that we're taking both general causation testimony and testimony that applies to individual cases, and that's why today during Dr. Mumper's testimony, even if she talks specifically about the two different cases, we may switch in the middle of her testimony as to actually who is presiding just to emphasize the fact that each of us, when it comes to deciding individual cases, each of us is deciding the case that's assigned to him or her.

So with that, that's all the preliminaries that I have for t his morning. Anything from either counsel that we can do on the record before we do Mrs. King's testimony?

MR. POWERS: Not from Petitioners, Special Master, except that speaking on behalf our clients we appreciate the comments you made earlier today and on Monday.

SPECIAL MASTER HASTINGS: Thank you.

MR. MATANOSKI: Nothing from the government.

SPECIAL MASTER HASTINGS: All right. Do you want to call Ms. King at this point?

MR. POWERS: Yes, Special Master. Petitioners are ready to call MyLinda King.

SPECIAL MASTER HASTINGS: Please take the stand, Ms. King. Please have a seat, ma'am, and if you could raise your right hand for me, please.

Whereupon,

MYLINDA KING

having been duly sworn, was called as a witness and was examined and testified as follows:

SPECIAL MASTER HASTINGS: Thank you, Ms. King, and let me again say thank you for being here and I know that this kind of testimony will not be an easy thing. You take your time and get a drink. If you need a delay, let us know, but we hope to get through this with as little emotional pain to you as possible, but we do thank you for being here and being with us.

Mr. Powers, go ahead.

MR. POWERS: Thank you.

DIRECT EXAMINATION

BY MR. POWERS:

Q Good morning, Mrs. King.

A Good morning.

Q As you know, we need to make a nice clean record, so I would like you to spell your name so that the court reporter can get it onto the record.

A It's M-Y, capital L-I-N-D-A, all one word, last name king, K-I-N-G.

Q Ms. King, where do you live?

A In Portland, Oregon.

Q Who do you live with?

A My husband and my two children, Jordan and Maya.

Q And what's your husband's name?

A Frederick.

Q Does he go by Fred?

A He does.

Q So anywhere where we see Fred King in the medical records or in the charts, that's referring to your husband?

A Yes, it is.

Q Is Maya younger or older than Jordan?

A Maya is 15 months younger that Jordan.
Q What do you do for a living?
A I'm primarily a stay-at-home mom, and I also teach music in the public schools, and a little bit privately.
Q What sort of music do you teach?
A I happen to fall into African style marimba. My husband and I met playing in an African marimba band, and that's how I got to learn that music, so that's what I teach in the Portland public schools, African marimba.
Q What sort of work does your husband Fred do?
A He is an auditor for Metro, Metro Regional Services, which is a government agency in Portland.
Q Now, we're going to focus obviously on Jordan's life, and unfortunately a lot of his medical history, but before even delving into the strictly medical issues, I would like you to describe for the Special Masters Jordan's birth and very early childhood, and if you can confine it to really the first couple of months of life, from when he was born to the first couple of months of progress, if you could explain that history to the Special Masters here.
A Well, Jordan was born full term. I think he

was one or two days ahead of the due date. Born healthy. We felt very lucky, happy to have such a wonderful little boy.

Q And let me just interrupt you. In terms of his birth, you said he was healthy. Were there any difficulties or complications with the labor or birth from either his end or your end?

A He was born with the assist of a vacuum, I forget what they call it, but I had a little trouble at the last stage, and they helped me with a vacuum suction, and I think he scored 8 on an Apgar. I had a low-grade fever. They gave me some antibiotics. Nobody seemed concerned about it. They said that was a common thing, and actually, it was a long birth. I think it was 22 hours, but it seemed to go pretty well.

Q And then in terms of your pregnancy leading up to that, is it a pregnancy you would describe as uneventful?

A Yes. I got a little queazy in the third month and it passed very quickly. I don't remember having huge problems with swelling and all these pregnancy complaints. I was still very active. I think I got sick around the fourth month of pregnancy. It might have been food poisoning. I was vomiting for

a couple of days, and it just got better. Other than that all of my visits to the doctor, you know, everything was going fine. She never gave me any comments to lead me otherwise.

We had one or maybe two ultrasounds done. Everything looked fine.

Q And during your pregnancy, do you smoke cigarettes or drink alcohol?

A Oh, no, no. I bought pre-natal vitamins, the expensive kind, and I've never smoked, and I definitely avoided all those things that pregnant mothers are supposed to avoid.

Q Do you have any dental amalgams, or more specifically, at the time that you were carrying Jordan to term did you have any dental amalgams?

A I've only got one or two.

Q So sorry I interrupted you and went back in time. Now I want to go back forward to where you were describing after Jordan was born. If you could pick up your description again for the Special Masters his general health and well being after he was born.

A For the first two months?

Q First couple of months, let's say, yes.

A Okay. Pretty uneventful. We were noticing how alert he was, seemed to have eye contact very

early on. We took him to Florida, which is where I'm from and almost all of my family is there, we took him for Christmas so he would have been about three months old, and everybody was just giving me all sorts of compliments about what an alert, sparkley little guy he was.

I remember that while we were in Florida he was raising his head up and everybody was saying, oh, that's really great, he's a strong boy, and he actually did rollover once in Florida on my father's bed because he lifted his head and just sort of rolled all the way over, and everybody told me, oh, how great that was. Just nothing to really speak of other than just a happy, little boy.

Q In those first couple of months, you had a well-baby visit, and he received immunizations at that point as best as you would recollect, correct?

A I think a two-month visit he got whatever round of shots were back then the norm.

Q All right. And then obviously both the Respondent's lawyers and the Court here have the medical records, but it's your recollection that he received a full round of recommended pediatric vaccines?

A Yes.

Q He received them on schedule?
A Yes.
Q Was there ever a time that he went into the doctor's office for immunizations where any doctor said skip a shot or don't get a shot at this point?
A I don't believe so.
Q Now, moving ahead after the first couple of months, go ahead, let's just describe Jordan's progress.
A Well, he seemed to be physically very strong. We noticed that he could pull himself up before he could crawl. I think he crawled at around seven months, but before that he did a lot of creeping, which I now understand they call scooting, was able to get around quite well with this scooting.
One thing that really stands out is how much he laughed. He just had a great belly laugh and seemed to really enjoy physical humor and silliness and smiled reciprocally, babbled. We had -- I think we had this parrot that when you turn it on it repeats back to you whatever you say, only three times in a row and at a slightly higher pitch, and he seemed to think that that was quite a lot of fun to have conversations with in his little baby babbling way.
He was very imitative, and we noticed pretty

early on that he liked to draw with a Magna Doodle, which is a children's toy that is kind of like an Etch-A-Sketch, only with a pen, and he started to spend a lot of time drawing. He liked to look at books, and one of our really fun things that we would do is I would lay sitting up in a bed and putting him in my lap, and he would hold the book and I would read it to him, and then I would say, turn the page, and he would actually -- it was a board book, and he would turn the page, and the I would read, and that was one thing that I remember doing with him a lot.

Q And do you recall about how old he was when he was turning pages of books?

A It was pretty early. I would say somewhere six-seven months he was able to do that.

Q You also described the Magna Doodle and it has a pen.

A Right.

Q The Etch-A-Sketch, having children myself, you could tell the difference in the toys, the Etch-A-Sketch has the knobs.

A Knobs, right.

A And the Magna Doodle has a magnetic pen.

A Right.

Q Did he sort of grab it with his fist or did

he hold it like a pen? How did he work that?

A Well, very early on he just grabbed it in his fist, and he very early on learned how much fun he could have, but he quickly evolved to the proper grip. We would sort of correct him, and what we did is we had an easel, and we attached the Magna Doodle to the easel so that he could be standing up, and then he would hold the pen with the proper grip and do a lot of drawing. This would be, you know, between six months, up to -- well, until the regression he was spending a lot of time drawing really nice, little figures. It looked like little people and playing with shapes, and just doing the typical little exploring with the drawing.

We got him toys like a tool bench with all these little plastic hammers and screwdrivers, and we also got him a toy kitchen, which was quite large and had a little stove and a refrigerator, and he seemed to really like to play with those two things with his little drill and his hammer, and it had little screws that you knock into holes and things like that.

Q Let me ask you about that. You're saying when he played with them, he actually used the tools like you would use tools.

A Right. My husband works with tools a lot

and he builds marimbas, and so Jordan would watch Fred doing those kinds of things with his tools, and actually Jordan sometimes would even help Fred with the marimbas when it was time to put the cotter pins in the hole. Fred would even let him sort of play with the real hammer, and he definitely was very imitative of anything that we showed him how to do.

Another thing Jordan liked to do was to dance to music, which is something that is just now slowly emerging back, but we have these ridiculously funny videos of him doing silly dances to music and sort of cooing along with the music, and taking great delight in that.

Q And this was all in that roughly six-month period, six months and moving forward?

A Yes. Yes.

Q I know I've interrupted a couple of times to clarify issues, but if you could go ahead, start talking again about his progress from six months up to say that first year of birthday, and what you can recall now about his development.

A Well, I remember that we took him to San Diego. My husband had a business trip and we went to San Diego, and I remember taking him to the San Diego Zoo, and how much fun we had doing that.

He got to meet his uncle, and we were at his uncle's apartment and I remember him being very playful and happy then. For some reason trips stand out in my mind more.

When he was eight months old, we went to New York to visit Fred's relatives, and Fred has quite a large family, and so there were lots of relatives and we took more video then than we would normally because it was a special trip, and I see how much Jordan enjoyed just reveling in the attention of his cousins, particularly the younger ones; just falling into peoples' laps and snuggling and just enjoying people so much.

Then when he was, I think, a year old, I took him by myself to Florida, and again the same thing, meeting -- you know, all of my relatives are there, and meeting all the family, and playing with his cousins, wrestling on the floor with them, being silly, just really enjoying the attention of people and everybody remarking what a sparkley, little guy he was.

Q At these family functions, were there cousins around who were roughly his age and older?

A He was at that time the youngest cousin, and the age of the next cousin older than him I think was

about eight years old, so those were the cousins that he played with. They just adored him, took him everywhere.

Q So you've got us up to about eight months. Let's, if you can, move things forward a little bit in time if you could.

A Well, he started walking around nine and a half months, and once he was able to just take those first few bobbley steps and fall down the progress went very fast, and by 10 months I would say he was walking very well, and by 11 months he was going up and down our stairs, although I wasn't crazy about that, but he could do it.

So now he's up on his feet and getting into all sorts of mischief. I think his first words didn't come until he was about a year old, and of course it was "mama" that was the first word. The other word that he really liked was "hot" because we would be in the kitchen and he would be watching me cook, and one day I lifted up a pot, a lid of a pot and a bunch of steam came out, and I looked at him and I went "hot", so whenever he said that word, he always said it "hot" because he thought that was how you were supposed to say that word.

"Daddy" came later. I don't remember

exactly when, but it was always "daddy", like that. he loved to say "shoes" because for him when he would want to go outside, which was really all the time, he was very much an outside boy, he would go and get his shoes, and then come up to you and say "shoes", and that just meant take me outside. He could say "bubbles" because he loved to be blown bubbles.

And then he liked this one TV show called Blue's Clues a lot, and he started saying "maibox" for "mailbox" because that's a character on the show, and Tickety was the clock, and he would always say "tickety" like that, it was very cute.

So we were happy with his progress in the physical sense and in the language area.

Q And let me ask, aside from specific words that he had, was he able at this point, a year of age, was he able to communicate his wants to you even if the didn't have a specific word that he could articulate? Could he communicate his needs and his wants?

A Oh, yes. I never remembered that being a problem.

Q And how would he do that? Can you remember specific things that if he wanted something how he might go about communicating that to you?

A Well, if he wanted me to go outside, he would bring me his shoes or my keys. Once we caught him trying to put the keys in the door knob and let himself out. He would point. He would bring you, if there was something that he couldn't open, he would bring it to you to open it. Yeah, he just got everything that he wanted.

Q Now, moving forward from that first year, again describe some of the specific progress that you can remember particularly in these areas that you've been describing, his behaviors, his interaction with other people, and his communication.

A He started going to play parks very early on, and doing a lot of play with other children. He eventually got a playmate in the area that lived just two doors down. They had the same birthday, and we did a lot of outings with them. I just remember really it was just unremarkable. Everything seemed perfect and fine. By that time I'm pregnant with my second child.

Q The playmate that he developed at that point, in thinking back, was he developmentally at about the same place she was? In other words, if you were comparing him to his peers, how did he seem to be developmentally at that point?

A Just very little difference. He was a little bit more physically along, I think, but they were pretty comparable, I would say.

Q Okay. So go ahead then, continue into his second year of life going to about, it sounds like, the fourteenth or fifteenth month.

A Okay. Well, at his fifteenth month his sister was born, and I remember when he was shown his sister for the first time his father said, give her a kiss, and he reached down a gave her a little kiss, and she was brought home the next day, and he was very curious about her, but mostly just ignored her unless she made a squawk or something because, you know, she was just another -- well, just lying in the bassinet mainly. I don't remember him being as bothered by her as he became later. These were just happy times, you know.

We got a double stroller and we would take them everywhere in this little double stroller, doing lots of outings. Nothing really at that point was causing any concern for me as far as how he's doing.

Q Now, there is a medical record indicating that when he was about 15 months old there was an emergency room visit involving a fever. Do you recall that?

A I do.

Q Can you describe to the Special Masters what the circumstances were that led you all to take Jordan to the doctor?

A Well, he had a fever and the fever had lasted a few days, and we had called an advice nurse and they said to try to keep him hydrated and give him Children's Tylenol and rotate Children's Tylenol and Children's Advil, and I believe he was also vomiting, and at some point after a few days he wasn't wetting his diapers anymore, and I think that's what prompted us to take him to the emergency room because he didn't seem that interested in drinking.

So we took him to the emergency room, and they just basically said keep doing what you're doing and they sent us him, and within a couple of days he just recovered.

Q So he was never sent to the hospital or admitted to the hospital following this ER visit?

A No. I think we went in the middle of the night, and they just sent us home after they checked him out. We later found out that they were going to prescribe something for his vomiting but we didn't even know that we were supposed to get it, and we went home without it.

Q And in your recollection all of those symptoms resolved within a couple of days?

A Yeah, he was fine after that.

Q There was no additional medical care following from that emergency room visit that you recall?

A No.

Q Now, that was at about 15 months. How did he progress after 15 months?

A Everything seemed fine for the next few months. You know, by now his sister is becoming more of a presence, and one thing he liked to do that we weren't crazy about is share his pacifier with her, take it out of his mouth and stick it in hers. So you know, it was by then springtime and we're back out, being outside, playing with his little buddy up the street. Nothing really concerning.

Q Obviously something concerning and ultimately very concerning happened, that's why we're here. How did that start to dawn on you that something was of concern? What was it and when did it happen?

A Well, retrospectively we realized that the toe walking was probably the first sign.

Q And when did that begin?

A About 18-19 months.

Now, when we saw that, we thought it was cute. We thought it was another one of his little dances, and it wasn't all the time that he toe walked. Sometimes he would be flat footed, and sometimes he would be on his toes. That gradually became his main mode of walking around. So I would have to say that was the first sign.

He started getting diarrhea that never stopped, you know, and I know that sometimes it was explosive diarrhea because one time I had him on the floor and I was changing his diaper and I didn't have my wipes, and I just went around the corner to get them and when I came back it was about an 8-foot trail on the linoleum floor of you know what, and I thought, wow, that doesn't look right.

So the diarrhea was definitely, I would say, another early sign.

Q Was this at about the same 18-month time frame?

A Yes.

Q Okay. Around this time were there any other things that you either noticed then or even looking backwards now that you would identify as things that are concerning?

A I would say hand flapping started to become a concern because it started very gradually. He would go down a slide and just get a little bit of a physical rush, and then he would walk away doing this.

Q And so that the court reporter can catch that, and I'm not doing this, I'm not making light, but you were flapping your hands?

A Yes.

Q And that's what Jordan would do when he came down the slide?

A After he would come down and stand up, he would do this, sort of -- we thought it was a form of expressing excitement, and like the toe walking, that started to become more and more obvious. He would hand flap for reasons that we couldn't see. He would just walk around on his toes flapping his hands, so that was another odd thing that we just kind of -- you know, we weren't really that informed about autism so we weren't even thinking autism when we saw that. We just thought that was one of his little quarks.

Q So it takes the retrospective perception for you to sort of recognize around 18-19 months this is going on.

A Right. It was definitely retrospective. We had to go back and look at those videos. When he got

the diagnosis, what we did is we looked at all the symptoms of autism and it was very disheartening to see that list of all those things that your child had done.

Q And the first thing that anything on that list emerged, as best you can recollect, was this 18-to-19-month range?

A Yeah, I would say in the spring of that year.

Q Okay. So go ahead. Any other, around the same period of time any other emerging signals that something might not be right?

A Well, his eyes started to look very sad. I was concerned about that. I noticed that -- we took a lot of photographs and, you know, they say the eyes are the window of the soul, and every picture I took of him he either looked sad or confused, and I was concerned about that because before that he had had just this bright, just go-get-them look on his face.

And we actually had some relatives visit around that time, my aunt and uncle, and I remember my aunt, she's a therapist of some kind, and she said, oh, he's just sad. He's mourning the loss of having your full-time attention because by now his baby sister is getting to be more vocal and getting around

the house more, those sort of things, and she just said, oh, you know, just make sure you spend a lot of special time with Jordan because he's just missing having all of your attention, and they had a very brief visit, just for a couple of days. They were in town for a convention, and they left.

So again, you know, it was probably an early sign but it just got explained away.

I think that by that summer I definitely was feeling like there was something wrong with Jordan. I thought it might be emotional. He would sit in his sandbox. Normally before that he would go in his sandbox and dig and do all the shovel and pail things. And I remember getting out my video camera and starting to video tape him, and I put it down because he was just sitting there, just very forlornly, not even looking at me with sand in his hands, just letting it dribble out of his hands over and over, and it was just a very sad picture to me.

He then around the same time started humming a lot, and that became incessant. I mean, I'm talking humming for almost every waking minute, this humming, and then what crept in is this sort of donkey bray sound, and then I noticed he wasn't saying some of the words that he would say, and just all of those things

became more and more problematic for us.

Q And this is in the summer of -- it would have been 1999.

A 1999.

Q So he is 18, 19, 20 months old. Is that the correct timeframe?

A Yes. Yes. I would say, you know, late spring, into summer all of his skills were starting to disappear. I also noticed that his hand hold on his Magna Doodle pen had gone back to the baby grip. I don't know what it's called.

Q He lost the pencil grip?

A He lost his pencil grip. Occasionally I could correct him and he would hold it that way for awhile, but it seemed like his preferred way to pick up and start on his own was the baby grip, and I could still correct it, you know, but it bothered me that it wasn't his choice to hold the pen that way.

The humming and the donkey sounds were definitely a very concerning thing because it seemed to replace his words.

Q I was just going to ask you that. It sounds as if these new sounds are emerging and words are disappearing.

A Yes, and for a long time, maybe a few weeks,

I hadn't heard any words at all, and I was really just, you know. I wouldn't say starting to panic but wondering, you know, why is he so sad that he's not even talking to me anymore. And I remember putting him on the changing table, and in his room we had a wallpaper border with the letters of the alphabet with some animal or object for each letter, and one of his favorite things to do is I would point to the C and the D because they were right there by the changing table, and I would say, "Jordan, what does the kitty say?" And he would say, "Meeow", and then I would point to the D, "What does the doggy say?" And he would go "ruff-ruff", like that.

And he had stopped doing that and all of his words, and after a couple of weeks of hearing nothing coming out of him word-wise, I pointed to the kitty, and in a very just quiet tone he just went "meeow", just like that, and I just thought, oh, good, he's okay. He's going to be okay, but that wasn't actually the case. I think that was almost his last gasp as far as words if you count "meeow" as a word.

Q How was he with playing with toys at that point, because you had mentioned very specific toy play that he was doing between six months and 12 months?

A Well, his toolbench, that was one of his favorite places to play, he started taking the hammer or the screwdriver and holding it in front of his eyes, and just turning it over, like he just wanted to study it from all perspectives, and he would do that with the little red hammer and the little yellow screwdriver, just sort of studying it.

On the Magna Doodle what I noticed is that he would draw the same thing over and over and over. He would draw it. He would erase it. He would draw it. He would erase it. And I thought that was kind of weird. He would draw a circle, he would draw a line down the circle, and then he would cross the line three times, and then he would erase it. And I don't know what that was that he was drawing. I think I might have shown him that once, and that was his drawing mantra for a long time.

Q Coming out of this 18-19-20-month period we're noticing all of these concerns and problems you've identified, what happened after that?

A Well, at some point I really thought there was something wrong with him. The humming was literally driving us crazy because it never stopped. Sometimes it would turn into this sort of growling sound.

My husband's sister came and visited us that summer with her two twin daughters, and she actually has eight children, and she said to us, what's wrong with your kid, and that was just more, you know, outside advice I was getting that maybe there was something wrong with him, and I respected her advice because she had had eight children. You know, why doesn't he look at you, that sort of thing. You know, he just stopped looking at us. He got these sort of stares.

He would be in his highchair like this just staring, and I would walk in front of him and he wouldn't even blink. It was as if he just looked through you, and he didn't want to be held on my lap anymore. We would pick him up to put him on our laps, and he would straighten his body so he could just not be set down. He didn't want to be touched. He basically withdrew, and when my husband's sister came and visited and said, you know, what's wrong with your kid, I thought, okay, it's not just me.

Q What happened after that?

A I think around the time of his second birthday I called our doctor and made an appointment because I just thought there was something wrong with him, and that's really where it all unraveled for us

because she asked me a series of questions. She did notice he wasn't talking. She did notice that he wasn't having eye contact. She did notice the humming. He hummed all through the visit, and she said he's possibly autistic.

Q What did she recommend that you do, if anything, about that possibility?

A She said that the best hope for you is behavioral intervention. She wasn't sure that he was autistic. I remember her saying to me, well, this is a big diagnosis, so let's just wait and see. We will refer you to, you know, a specialist, but I think she was just saying don't panic, you know, don't fall apart. He's possibly autistic, and we will do the proper testing, and that visit was really the beginning of it for us.

Q This was around two years old?

A I think it was in October of '99, so he had just turned two, after having a birthday party where he did not enjoy the pinata or the company, basically stayed by himself for his whole birthday party, and didn't have any fun at all, didn't participate in any of the games with the other kids.

Q So after this discussion with your pediatrician, what did you do in terms of getting

care, attention, evaluation, anything like that following on?

A I think that she told us that we needed to go to the neurodevelopmental center for children and get looked at by a Dr. Buddin, and this is all kind of a blur for me at this point, but I just remember having to wait for appointments and being very anxious. I guess there is all kinds of waiting lists for these kinds of things.

A And again let me interrupt for just a second. I've mentioned this to Mr. Mead yesterday. The specifics of doctor visits and medical visits, the Special Masters do have those records. The Respondent has those records. So what we're looking for here, even if things are a blur as you describe it, just your best personal recollection.

A I remember sort of this waiting period in the last few months of '99. We might have taken him to an audiologist. I don't remember. What I do remember is that by January of 2000, we are seeing people all the time, going here, going there. Of course, we got on the Internet. We're trying to figure out what autism even is. The first thing that they like to do is to rule out deafness, and we were pretty sure that he wasn't deaf but we went ahead and did the tests.

We knew he wasn't deaf because by that time he couldn't stand the sound of noises, his sister's cries. We couldn't take him to restaurants or anywhere like where there was a lot of chaotic type noise. He would cover his ears, so we knew he wasn't deaf, but we ruled that out.

At some point he got a diagnosis from a few different places, one was, I think, at the Providence Neurological Center for Children. My husband took him to Legacy Emmanuel Hospital, got another official diagnosis, and then we were told, well, you're eligible for services now through the Portland Public Schools early intervention program.

They came and did their own three-day visit to do their own diagnosis to see what services he was eligible for, so we had all these people looking at him and telling us he was autistic.

Q And universally these different evaluations all came to the same conclusion essentially that he did have autism?

A Yes.

Q After getting that diagnosis, were you given any directions in terms of care or treatment or therapy for Jordan to address the autism diagnosis?

A Through our pediatrician, we were told that

the best hope was through behavioral intervention, and that's why she had mentioned the early intervention program. We got that set up just as quickly as we could.

The first thing they did was put him in a toddler group which means taking your kid who can't stand being around other people and putting them in a portable classroom with dozens of other kids with the similar idea about wanting to be alone, and trying to force them to play with each other, and walking on balance beams, doing things like that.

He failed toddler group, so they put him in, I think it was called a classroom where he got more one-on-one help. These were the behavioral things that we did, and it was through the school system, having speech therapists, and OT, those kinds of things.

Q And this was all starting in early 2000?

A I think so, yes.

Q At that point he would have been almost two and a half years old, getting close to that end?

A Getting close to that.

I had a lot of friends that were healthcare people so I was asking them a lot of questions, and one of my friends is a naturopathic doctor. So I

think I took Jordan to her in January of that year because along with all these regressing behavioral things he had diarrhea for a year, and that diarrhea seemed to come on, and projective vomiting too, he would just throw up and then just walk on and keep doing what he was doing as if nothing had happened, no fever, just projectile vomiting. It was not uncommon to just be walking around the house and find it somewhere that he had thrown up and you didn't even know.

So I took Jordan to Dr. Jeanne to help him not just with the autism, but with the diarrhea and the vomiting, and she told us the first thing you need to do is to get him off of gluten and dairy, and so we did it that day. I mean, I went home and cleaned out the kitchen, put all of our food in a special place, and I went all over town trying to find gluten-and-casein-free food, and Jordan did not like that at all, and that was a tough diet change for him.

He got very sick in January as well, so there were visits for his vomiting and diarrhea, and Pamela Jeanne, Dr. Jeanne did a workup on him, checking his, oh, intestinal flora or lack thereof, and dysbiosis, checking for dysbiosis, and checking for yeast, and trying to find out why he was having

this chronic diarrhea.

We were also simultaneously still taking him to our pediatrician, Dr. Roberts, and I mentioned that we were putting Jordan on this diet, and she said, well, that's going to be too stressful for you. You don't need more stress right now. It's not a good thing to do. She was not supportive of it at all.

But by February, we were getting eye contact back, so at that point the only thing we had done was get him off of gluten and dairy.

Q And doing some of the occupational therapy, speech therapy?

A Well, that I don't even think had started yet.

Q Okay. That's what I wanted to get the sequence right. You started the diet first.

A The diet was in January.

Q Okay. And then added OT, occupational therapy.

A Well, the first thing he did, no, was to go to this toddler group.

Q Toddler group. It sounds like that didn't last particularly long.

A We forced our way through it. I felt like he was miserable the whole time.

Q Okay.

A And they tried to give intelligence tests and he couldn't even take them, and I didn't see the point of trying to give a child an intelligence test at that point.

Q Okay. So you start with the diet. Then there are some therapeutic interventions around behavior. What other things were you doing at about that time, again sort of moving forward in time chronologically?

A Well, I think in February, we had started -- we had heard about John Green, Dr. Green, through other parents of autistic children. We had been online. We pretty much begged our way into his office. He was by invitation only, and another doctor, another DAN doctor sort of put in a good word for us, and we started seeing John Green, and any tests that Pamela Jeanne would do, we would have them sent to Dr. Green.

At some point we transferred over completely to Dr. Green as Jordan's doctor, and Dr. Green was also very much interested in the chronic diarrhea and did similar tests. He also did a heavy metals test. He said, I want to do a heavy metals test on this child, and I thought, oh, no, it's lead. And we got

those results back, and he said, I want to do this test again, only now I want to do a provoked test, which means that you give your child, I believe he was given chemet, a provoking agent.

And we ran the same test again, and the test results were mailed simultaneously to the doctor and to us. And when we got those results back, we saw that he was in the 96th percentile for mercury, and that just -- you know, even just visually on the page seeing that line go all the way over to the far right of the page is very upsetting to me, and I thought, oh, no, we're being exposed to something toxic, and that's what happened to Jordan.

We went in and talked to Dr. Green about it. He explained to us chelation and what that involved, and that was a therapy that we started, I think, in March, around then, I'm not really good on the dates, but --

Q And again, those will be in the medical records so right now just your best recollection.

You mentioned a minute ago that when you saw the mercury results you were concerned that there was some toxic exposure was the term that you used. So you were concerned when you saw those results that there might be a toxic exposure that Jordan had

encountered?

A Oh, yes. Yes.

Q What did you do in response to that concern?

A Well, Dr. Green told us to chelate, so we did that. We did things that, you know, were helpful to Jordan's body, that would help his body to just naturally chelate. We had some nutritional supplements, some things to deal with his dysbiosis.

At some point, even though we had learned about the thimerosal in the vaccines as being the -- you know, a known exposure to mercury, at some point I just wanted to rule out that he wasn't getting it from somewhere else, and we ran a test on me because I thought what if I had passed that to Jordan. So we ran a test on me and that came up with nothing significant.

Then we decided to do a vapor test on the house, so we researched some labs and found one just outside of Portland, and did this vapor test, and that came back with, you know, no detectable limits, so we ruled that out.

We started researching. The people who owned the house before us, we thought, you know, what if they were doing something here that they weren't supposed to be doing like a meth lab or, you know,

anything that would leave toxins on the house. We talked to the neighbors. Nothing seemed to pan out there.

We did lead swipes to check our house for lead.

Q Is this an older house?

A It is an older house. Before the sold it to us they painted everything, and left the cans of paint down in the basement so we were down there looking to see what kind of paint they had used.

We checked for a toxic mold, I think it's called stachybotrys. We had been reading some articles in our newspaper about homes that had mold so bad that children were having developmental delays, so we found a lab that would do a test for that mold, and we checked our window sills and places like that, and that came back negative.

We even checked Jordan for giardia, because I had read where even things like that can cause developmental delays. I think we had him checked for tuberculosis. I don't know why. I think because we had a homeless population that liked to gather across the street from our house, and I would hear a lot of coughing over there, and you know, we checked him for diabetes. Yeah, we just wanted to rule out anything

that we could.

Q So it sounds as if ultimately you ruled out a whole list of things that you felt might be contributing to any toxic exposure.

Q Right. Just anything. We just sat down and racked our brains, what have we done or what have we been around that could have caused his demise.

Q The work that you're doing at this point to identify possible sources of an exposure, he is undergoing care with Dr. Green at the same time, is that correct?

A Yes.

Q What sort of things was Jordan doing with Dr. Green, and what's your understanding of what the goal of Dr. Green's care was at that early point?

A Dr. Green's goal was to get the mercury out of his body, and to get a handle on his dysbiosis.

Q You have used that term. What's your understanding, again not as a medical expert but just as it's been explained to you by your doctors, and as you use the word, what do you mean by guy dysbiosis?

A It means when you have all of the wrong kind of bacteria and none of the right kind of bacteria in your digestive system, in your colon, small intestine, you know. It means a yeast overgrowth. It means that

undigested fats and proteins were passing through him. There was a test that would check for -- literally for undigested protein, undigested fats. Everything was just going through Jordan.

Q Was the idea that by focusing on the dysbiosis that these gastrointestinal symptoms, the diarrhea, projectile vomiting, I'm assuming this was all focused on dealing with those symptoms?

A Yes.

Q Okay.

A And in fact, we did get a handle on that. In February, I remember after being just a few weeks on a gluten-and-casein-free diet, Jordan had a formed stool for the first time, you know, in at least a year, and that was very nice to see.

So working with Dr. Green through that year his digestion problems did improve, and you know, the projectile vomiting went away. That was nice. The diarrhea definitely subsided to the point where we could even think about trying to potty train him. It's really had to potty train a child with explosive diarrhea.

Another treatment that John Green had us do was glutathione, B12 shots, and B12 shots are something that we continue to this day. I don't know

why, but if I give Jordan a B12 shot every three days, he is just much better off. And if I forget, it's bad news. And when we started the B12 shots, shortly thereafter Jordan finally was toilet trained, and has remained that way to this day. He is completely toilet trained.

Q Now, you had mentioned all of these things going on in that first year of care with Dr. Green. This was 2001. So from January '01 towards the end of '01, this is the course of care that you were pursuing?

A Yes.

Q You've mentioned that by doing this specifically he got some of his eye contact came back?

A Yes.

Q His GI, his gastrointestinal problems resolved?

A Yes, and some words came back too.

Q Yes, I was going to ask. Was there any other improvements that you saw in that first year of care with Dr. Green using the therapies you've described?

A He was starting to bring back a couple of his words, "more", "mama", that gave us a lot of hope. One thing that they were doing in his early

intervention was teaching him sign language, doing this for more, doing this for eat, things like that, and he was picking that up very quickly, and I think in a way that helped his communication.

One day I was in the kitchen just reading the paper and he was eating, and I heard the word "more" come from him, and he wanted more, and I just remember my heart just leaping in my chest because he spoke to me unprompted. He could sometimes repeat back something if you said it to him. You know, he would say "more" if you said "more" after we changed his diet, but the fact that he had said it intentionally because he wanted more food was very encouraging.

So you know, with the GI stuff improving, the eye contact coming back, the humming starting to subside, although that did take awhile, and the fact that he was starting to say words, you know, "M" words were the easiest thing for him to say. That was very encouraging and that's why we've stuck to the diet, stuck to just being extremely healthy with the foods that he eats, and staying with John Green for so long because he definitely helped us get Jordan back.

Q Yes, and that brings us to the question I wanted to ask about how Jordan is doing today, and I

would like you to be as specific with the Special Masters as you can be because, again, they have the records of these last seven years, and we're not going to walk through those, but if you could just summarize how he is now in as much detail as you can.

A Well, Jordan is now 10. He doesn't walk on his toes. He only flaps his hands if something excited him. He is still definitely -- well, he's very affectionate, and he's very loving, and he gives kisses, and his receptive language is very high. We can say, "Jordan, let's go outside, go get your shoes." He gets his shoes.

"Jordan, it's time for the bus." He goes to the front door, gets his backpack, gets on the bus. "Jordan, don't do that," he stops. It's in a way it's a little bit frustrating that his receptive language is so high, and yet the words he can say we're still working on that.

He's in the meantime learned to communicate with sign language, and we also got him a communication board which is a device that has panels, there are eight panels on it, and you can interchange them up to 12 times, and there will be pictures or words of things like juice or outside or, you know, a video, and he can press a button and it will say what

he wants. So it's a way for him to talk to us, and he uses that very well.

So we know that there is a lot going on in his brain, and we try to treat him as normally as possible even though he can't talk to us very well, but he communicates through those means.

He dresses himself. He can do a pretty complicated routine of things like, "Jordan, it's time to take a bath." He goes in the bathroom, takes off his clothes, gets in the tub, rubs himself with a soapy washcloth, gets out, dries himself off, dries between his toes, goes upstairs with his dirty clothes, puts them in the laundry chute, goes to his room, gets his pajamas, puts them on. I mean, that's a huge thing for us.

In the morning, he has a school routine of getting ready for the bus. He has a toothbrushing routine where he brushes, flosses, rinses, goes to the toilet, and then goes to bed. He does all of those things on his own.

Q What does he do for play?

A For play, he very much likes to go outside and swing on his swing, climb on his Jungle Jim. My husband rigged a trapeze in a walnut tree that the rope is very long. We have a huge back yard area. We

have a double deep lot. So he swings on this trapeze with amazing dexterity. We think he's going to join the circus some day. Loves doing that.

Loves taking walks, going to the park, and likes watching Blue's Clues, and loves playing with his trains. He is a train boy. We've got trains all over the house, pushes them around on the track. We have some that are electric and some that you have to push around, and he loves watching Thomas the Tank Engine on television.

Q Now, when he plays with toys like the trains, is this the kind of play where he's using them as one would -- does he stare at them and --

A He doesn't do that anymore. He likes to hook them all up together, and pull them around the track. We have some that are battery-operated, and he likes to rearrange where the tunnels are. He loves to make bridges for the trains for some reason, just rearranging the track to different configurations, and either pushing them around or watching the automatic ones go around the train track.

He also loves Hot Wheel cars, and Hot Wheel track, setting it up. You know, we have about 50 feet of it that we can make it run the whole length of the house and do loopty-loops, so he loves playing with

cars and trains, you know. It was very encouraging for us because those are supposed to be typical little boy things that he likes to do.

He doesn't really just take a car or a train and sort of study it with an intense focus or just spin the wheels. He plays with them appropriately.

He also likes to play again with is sister that they call "chase and chin-je", and that's a word my daughter came up with. My daughter is interested in marshal arts, and because Jordan likes to press his chin into things, and have a lot of pressure there, she calls it "chin-je", and they chase each other. She can look at him with these eyes like you better get ready, I'm going to chase you, and he takes off and they run around and they chase each other, and then when she finally catches him, he chins her. I don't know why that's so much fun for them, but I think my daughter is great grateful to have anything from him.

Q And so she can initiate this game just by looking at his face, and he looks at her face?

A Yes, and so can I.

Q Would he even look at peoples' faces when he was three years old?

A When he was three?

Q Or when you would think as the worst, did he make eye contact and have that social back and forth?

A No, that was a big problem for us is that he wouldn't look at us. He would look through us. He would look around us. I would sort of position myself to force him to look at me, and he would do anything but look at my face.

Q And he seeks out that sort of contact now, is that fair?

A He actually can read faces really well now. That's another big progress that we've made. For instance, I'll give you an example. If he is sneaking something that he's not supposed to have, and I peak around the corner and I look at him, he looks at me, and he just sort of freezes. And if I go like this, like it's okay, he will do it. But if I go like that.

Q Make the mad face?

A I make the mad face. He sort of, you know, is embarrassed or chuckles, and then moves away from the object. And I actually try to do that with him as much as possible because one thing that I read about autism is that they can't read peoples' faces, and I know now that for Jordan that's not true. He can definitely read your face, read your emotions, and he can read your tone of voice.

One thing that we have to do in our house is when we speak to each other we have to make sure the tones don't come out as being harsh or scolding, and if you talk in a pleasant voice, a happy voice, he reacts to that. But if I'm scolding my daughter, for instance, you know, "Mia, stop doing that", Jordan goes, "uhhh", like he's in trouble or something. He can definitely read people's emotions, and that's a big progress for us because for awhile my daughter could hurt herself and fall and cry, and everybody would be upset, and he would just laugh. But now he has this sort of reciprocal emotion. You know, it's a nice human thing to have.

Q And I don't know if you can answer this or not, but if you think of Jordan and how he was at the point where you believe he was at his worst in terms of his symptoms, and where he is now, what's the single biggest area that you think he's improved in? And again, not medically, but what's the most significant to you as a parent? And if there is not just one, if there are more, that's fine too.

A For me as a parent, the biggest thing is that he shows love. He shows affection. He cares about what I think. When I'm gone and I come home, he's happy to see me. He doesn't just walk around as

if I hadn't even entered the room. He cares about what I think of him. If he's done something bad, he is now showing signs of being ashamed or being sorry. He does things like when I tuck him at night he in his sign language says, "I love you", and when he touches me, he touches me here and he draws his finger down like this, and he stops at my heart, and he tells me he loves me, and I know he knows what it means. That for me is the biggest thing.

If he ends up never talking, that's okay. I know that he is a human being.

MR. POWERS: Nothing further.

SPECIAL MASTER HASTINGS: Thank you very much, Mrs. King.

Respondent, do you have any questions?

MS. ESPOSITO: Yes.

SPECIAL MASTER HASTINGS: Please, go ahead, Ms. Esposito.

CROSS-EXAMINATION

BY MS. ESPOSITO:

Q Good morning, Mrs. King.

A Good morning.

Q My name is Katherine Esposito. I represent the government. I would like to echo the sentiments of the Special Master this morning, and my colleagues

earlier this week. We have certainly seen countless hours of video from your family, and we recognize the journey that you have been on with Jordan's care in the last decade. It's very clear to all of us that you love him very much and we like to acknowledge that.

I would like to go back to when you first had concerns about Jordan's development and his behavior. When was the first time that you thought that there was something that was abnormal about Jordan's development?

A Well, like I said, when we saw him toe walking and flapping, we thought those were just cute mannerisms.

Q When did that emerge?

A Around 18-19 months.

Q And that was the very first thing that --

A Well, retrospectively, yes.

Q Okay. And there were other people in your family who shared those concerns?

A Nobody lives in Portland that's related to us, so I would have to say no.

Q And the first time that you shared your concerns about Jordan's development with Dr. Roberts, his pediatrician, that was at the two-year visit?

A Yes.

Q From what you can recall, when did Jordan first start speaking? When exactly did he say "mama", his first word?

A He had a lot of babble that every once in awhile would accidently come out as maybe a word, but I would have to say he was close to his first birthday before he had a "mama" or a "bye".

Q And the records show that he had about five words at the beginning?

A What do you mean by beginning?

Q When he first started speaking. I think some of the words were "ball", "juice", "shoes".

A Shoes, yeah.

Q Can you recall any other words aside from that that he spoke?

A Well, he did have the word "hat" because he liked the word "hat". He said "mailbox", "daddy" came later. I really don't have an exact chronology of when each word came to him. I can just remember the words that I remember him speaking, "bye", "ball", "Tickaee" for the character on Blue's Clues, "hot".

Q I would like to direct your attention to when Jordan was seen by Dr. Green. You first found out about Dr. Green from the Internet, is that right?

A From other -- yes, from other parents who had seen him. There was a -- I forget what they called it, some sort of chat room that we were told that he was the best guy in town.

Q The records describe Jordan as having some unusual abilities with music, drawing, his sense of direction, problem-solving, and Dr. Green has termed that as possible savant, he used that term in the records.

Can you go through some of those, some of Jordan's unusual abilities such as the sense of direction? Can you describe that?

A Well, that is something that Jordan had more remarkably after his regression, being able to -- if we went somewhere in a big building that you had to go up to a certain floor and get off a hallway and turn a certain way, and then go in a certain door. If we went there once, if we were to return to that place, I would just follow Jordan because he knew the way to get to that place.

Q What about his musical abilities? He would look at you when you sang, is that correct?

A Oh, he loved singing. He loved to hear singing. He liked music, so does my daughter. We have a piano, a marimba, a base, kazoos, an electronic

keyboard. We have all sorts of musical instruments just lying around the house that he liked to explore and play. Bang on, actually.

Q What about his problem-solving skills? There is a note in the record, it's about Jordan being able to obtain an item that he wanted on a high shelf.

A Well, he would push a chair over and then crawl up in the chair to get to something that was too high for him to reach.

Q Was that something he did often?

A Once he was physically able to, yes.

Q And you mentioned his drawing with a Magna Doodle. Did he also write his name at one point?

A He did, and that was -- that was after his regression that he stunned us because I had written J on the -- well, before that I had always tried to -- we were sad because he no longer was interested in drawing at all.

Q At what point was he no longer interested in the drawing?

A I would say by the end of '99, early 2000. He just wasn't playing with his Magna Doodle anymore, and that was one of his favorite toys. And something that I would do, I would draw his name for him. I would try to get him to watch me just draw his name

very carefully, Jordan, and then I would erase it, and maybe I would do it again, and he would usually walk away, and one day we were in the kitchen preparing food and I had written just the J on the Magna Doodle, and walked away, and at some point my husband looked down and saw J-O-R-A-N. He forgot the D.

And he said, "Did you do that?" And I said, "No." And we actually took a picture of that because it was very remarkable to us that he had done that. But again, I believe that was done after he was autistic.

Q Was Jordan sick as a child?

A Not particularly. He had occasional episodes with a cold. He did have that one visit to the emergency room for his fever and vomiting, but I don't really recall him being a sick child, just the normal occasional diaper rash. I think he had an episode with what they thought was croup that resolved itself quickly. So I felt like he was just, you know, having the normal childhood illnesses.

Q There was a note in the records that Dr. Green thought Jordan had a chronic measles infection of the gut. Was that your thought at the time as well?

A No, it wasn't my thought. I think Dr. Green

might have suspected that because of this chronic diarrhea and bowel inflammation and everything related to his digestive problem. I didn't even recall if we did any testing for that or not.

Q When did you come to think that Jordan's autism was caused by thimerosal-containing vaccines?

A When we ran for tests on him, and the mercury level was in the 96th percentile, and we couldn't find a source of mercury from any other source, around our house, through me. That's when I really decided that that's where the problem came from.

Q We're going to put on the screen a list of medications and supplements that Jordan was on. I'm going to ask you a couple of questions about them. This is Jordan King Exhibit 7 at page 17 and 18.

Let's look at No. 7 on the list, enzyme aid. Do you know what that was for?

A That is for -- it's a digestive enzyme that helps breakdown casein and gluten, and the reason we took that is because Dr. Green said that even when you're trying very hard to be on a gluten-and-casein-free diet that those ingredients are so pervasive in things that you would least expect, and sometimes facilities that process wheat also will process your

rice cereal, and there might -- you know, you basically just can't be positively 100 percent sure that you're completely eliminating gluten and casein, and that was just sort of a backup for that in case he accidently got some gluten or dairy.

Q What about No. 28, the entrocap, do you know what that was for?

A I think that was to kill off the bad bacteria that he was not supposed to have in his system.

Q And in addition to the medications listed on this exhibit, Jordan was also on intravenous immunoglobulin therapy, is that correct, the IVIG therapy?

A I think we tried that.

Q Who recommended that you do that?

A Dr. Green.

Q And did Dr. Green administer that treatment?

A Yes.

Q He did? And that was a couple of times?

A One or two. I don't remember.

Q And you mention that he was chelated as well, correct?

A He's still chelating.

Q He is chelating. Okay.

Jordan was also on Eskimo oil at one point.
A Yes.
Q What is that for? Do you know?
A That's a fish oil.
Q Okay. And Jordan was also on valtrex?
A Yes.
Q Is that correct?
A Yes.
Q Do you know what that's for?
A That was an antiviral.
Q And he has also been on secretin?
A Yes.
Q And what is that for? Do you know?
A That's something that your pancreas make that help with digestion, and just around the time that Jordan got his diagnosis, and we started seeing specialists and Dr. Green there was a lot of information out there about secretin helping some children because in a young autistic boy who was brought in for some digestive tests was given secretin just as kind of a -- to help with the test. It wasn't meant to help with his behavior. And the boy started talking and improving, and for that child it ended up being a really good thing.
So there was a lot of information that

perhaps secretin would help children, and we did try it, and it did seem to improve his eye contact and his digestive problems, and we actually took part in a secretin study at OHSU where a child was given six doses of secretin or a placebo, and then you were supposed to report on your findings.

Unfortunately, Jordan got the placebo, and after the study was over they wouldn't tell us for a long time whether he had gotten the secretin or the placebo, and we didn't want to continue with secretin until we knew whether it was going to really help him because that's a hard thing to do because it was intravenous.

Q There was also a mention in the records about possibly trying Jordan on actose. Do you know if Jordan ever took that?

A I don't recall that he took that. I don't even remember what that was for.

Q Do you keep track of when Jordan would go on and off a supplement?

A Oh, yeah. We had a chart that we would pin inside the cabinet door where the supplements were because it was -- you know, it was fairly complicated. Some things were supposed to be given on a empty stomach and some were supposed to be given with food.

Some where supposed to be done just at nighttime before he went to bed, so we had charts that would help us manage that.

Q Does Jordan eat any fish?

A Does he now?

Q Yes.

A He does. He eats -- oh, what's it called -- he likes halibut, I think, but we do limit the fish, but he will eat it.

Q So he eats it today?

A Yes.

MS. ESPOSITO: Thank you. I have nothing further.

SPECIAL MASTER HASTINGS: Any redirect, Mr. Powers?

MR. POWERS: No redirect, Special Masters.

SPECIAL MASTER HASTINGS: Most of the questions that I had for you, Ms. King, have been answered. I'm going to ask you one question. I think I know the answer to this, but just to make a record of it.

At one point you mentioned that someone was a DAN doctor. Can you tell us what that means?

THE WITNESS: Defeat Autism Now.

SPECIAL MASTER HASTINGS: That's an

organization?

THE WITNESS: Yes.

SPECIAL MASTER HASTINGS: And they have doctors who are members of that organization?

THE WITNESS: Right. As I understand it, in order to be a DAN doctor you have to go through a lot of training and have a certain protocol for dealing with autism through dietary intervention and dealing with the sort of the physical issues as well as the mental issues.

SPECIAL MASTER HASTINGS: All right. Well, that's all that I had. Anything further?

MR. POWERS: Nothing to follow up, Special Master.

SPECIAL MASTER HASTINGS: All right. Well, Ms. King, thank you very much for your testimony.

THE WITNESS: Thank you.

SPECIAL MASTER HASTINGS: That was certainly moving testimony and it's certainly obvious that Jordan is very much loved and well taken care of by his family, so we thank you again for being with us today.

THE WITNESS: Thank you.

SPECIAL MASTER HASTINGS: You're excused at this point.

(Witness excused.)

SPECIAL MASTER HASTINGS: Counsel, why don't we take our mid-morning break.

MR. POWERS: I think that would be appropriate.

SPECIAL MASTER HASTINGS: I've got 10:28. We will reconvene about 10:45.

MR. POWERS: I was hoping you weren't going to say 10:43.

(Laughter.)

(Whereupon, a short recess was taken.)

SPECIAL MASTER HASTINGS: We're going to go back on the record here, and I see we have Dr. Mumper in the witness chair.

Dr. Mumper, if you could raise your right hand for me.

Whereupon,

ELIZABETH MUMPER

having been duly sworn, was called as a witness and was examined and testified as follows:

SPECIAL MASTER HASTINGS: Please go ahead, Mr. Powers, and Dr. Mumper, it will be easier for us to see you if you can move as far as you can to the right. Be careful because there is a drop off there. We don't want to lose you, but as far as you can go

the right would be great.

Go ahead, Mr. Powers.

MR. POWERS: Thank you, Special Masters.

DIRECT EXAMINATION

BY MR. POWERS:

Q Good morning, Dr. Mumper.

A Good morning.

Q Dr. Mumper, could you say and spell your name for the record here or the transcript?

A Yes. It's Elizabeth Mumper, M-U-M-P-E-R.

Q And that would be Doctor?

A Yes.

Q And an M.D. doctor, correct?

A Yes. I do have an M.D.

Q Okay. Well, that's a very natural jumping off place to begin our discussion. You're a medical doctor, and I would like to begin with your explaining to the Special Masters your educational and professional background, basically the skills and the training that you bring that informs your opinion in these cases.

A Okay. I went to Bridgewater College because my father was a professor there, and I didn't have to pay tuition, and majored in general science, and graduated magna cum laude.

Then I went to the Medical College of Virginia in Richmond to get my M.D. degree. From there I went to the University of Massachusetts because my husband had gotten a fellowship at the Brigham in Boston, and did an internship there.

I went to the University of Virginia as a second year pediatric resident, and was invited to stay on for a fourth year as chief resident there. The chief residency was a junior teaching position where the attendings at UVA. You would do rounds on one day, and then I would run rounds with the residents on the alternate days, and enjoyed that very much.

After my residency, I was invited to join a group practice in Lynchburg, Virginia, and I practiced there for five years doing general pediatrics, and then after that I had the opportunity to teach in a residency program that was affiliated with the University of Virginia but was located where I was practicing, in Lynchburg. It was a family practice residency program, and there I was director of pediatric education. So it was my job to develop a teaching curriculum for doctors who were ultimately going to be family physicians and general practitioners.

I did that job for about 11 years, and during that time was when I first became concerned about what I perceived as a change in children's health. When I was very early in my career, it did not seem that the incidence of chronic disease presenting to the general pediatrician was as high as it seemed to become somewhere in the mid-nineties is when I recognized it.

So in about 1996, I started working on a project and actually applied to the local community hospital for some grant money because I perceived that there was an increase in children with ADHD and autism and asthma and allergies, and thought that somebody ought to look into it, and in our community there was a very real need for somebody to take care of those children because the parents would report that they had difficulty finding services.

So in developed that grant, and we were awarded actually $27,000 to work on a way to provide services for these children.

In the meantime, the leadership of the residency changed, and my perception was that the acting director was more supportive of that program than the incoming director who understandably had the highest priority to train family practice residents.

So I had this sort of strong calling that I should continue to look into this. So I left the residency as a teacher, and went to establish a practice that I called Advocates for Children.

I would like to mention by way of establishing my qualifications at the residency that I was given the honor by the residents as being Teacher of the Year one of the years I was there, and that typically when I taught the residents, they on their in-service exams either scored best in pediatrics or second best in pediatrics among the many subjects that they had. It was six to eight different subjects like internal medicine, surgery, et cetera.

So I started my practice in a small basement office, and started seeing all these kids that had developmental problems, and I do need to clarify that I am a general pediatrician. I am not a behavioral and developmental pediatrician, and do not want anyone to misunderstand that. So my approach to these children has always been very much in the realm of trying to look for and find any potential medical problems that they have.

Q And let me interrupt you, Dr. Mumper, just to put a couple of dates on this. When was it that you opened the practice that you've called Advocates

for Children?

A That was in 2000.

Q And up to that point how many years had you been a doctor?

A Since 1980, so is that 20 years?

Q Twenty years. That's relatively easy math for me, at least. So 20 years as an M.D., and during that entire time was your medical focus on pediatrics?

A Yes, that's true.

Q And so then the year 2000 is when you went entirely into private practice as a general practice pediatrician?

A Right.

Q Okay.

A So, I, in the process of this experience, met some colleagues, notably Mary Megson, who practices developmental pediatrics in Richmond, and she invited me to come and look at her practice, and when I did, I began to understand some of her perspectives about how to take care of these children.

Q Excuse me. When you say "these children", what children are you talking about?

A I'm talking about children with autism and related disorders, so autism spectrum disorders as well as ADD/ADHD.

So one thing led to another. I became friends with Mary. She invited me to come to a Defeat Autism Now Conference, and I did that, and was blown away by the people that I met there. One of the first people I got to know was Sid Baker, who was former director of the Gesell Institute at Yale, and has this wealth of knowledge gained over many, many years of practice that I regard as wisdom.

I met these research scientists that I have come to be able to ask questions on a one-on-one basis, and they help me understand the more technical aspects of their research papers which often are in areas that I don't have any fellowship training in. And within a couple of years I was actually invited to become the medical director of that organization, and I believe that was sometime around 2004, but I actually am not positive about that date.

Part of my responsibilities at ARI now, ARI is the Autism Research Institute, which is the parent organization of the Defeat Autism Now, a collection of people. Our model is that we are comprised of parents, clinicians, and researchers, and this is a very unusual model for moving science forward.

But we have found that the parents have been an extraordinary reliable source of information about

things that needed to be pursued scientifically. And so in our meetings we have parent representatives, and in our think tanks we have parents there who help us with clinical correlations and help inform the research agenda, and that's been very gratifying.

And we typically hold two major conferences a year, one in the spring and one in the fall, and we hold two big think tanks a year. There have been one or two occasions where we held three a year. And then I typically teach a couple of what we have called Mini-Defeat Autism Now Conferences where we go to a particular area of need, where there is a parent group that's asked us to come in and talk about medical problems of children with autism. And typically two or three times a year over the course of several years we will do those mini-DAN conferences, and the curriculum there is ultimately my responsibility.

So we do have doctors' training or actually a clinician seminar, I should be more specific, and this is intended to help clinicians who are interested in this population of children to learn about these medical problems. It needs to be expanded and one of my goals is to continue to expand upon and improve on that because in the past we've typically offered it as a one-day training session after the three days of the

actual Defeat Autism Now Conference.

So we wanted to try to have a model where clinicians could actually get mentoring as opposed to just primarily a lecture model, although we do try to make it interactive with lab interpretation, et cetera. So this past fall, in September, I bought a building and renovated it, and named it after Dr. Bernie Rimland, who was the founder of the Autism Research Institute, and Dr. Rimland, the Court may not know, was the one who debunked the myth that refrigerator mothers caused autism. That was a prevalent theory actually for quite a number of years, and he questioned that orthodoxy back in the mid-sixties.

So we have always had an intellectual slant where we ask questions and look for answers, and he was a very good role model for showing us how to do that.

So the Rimland Center, in addition to standing for Bernie Rimland, stands for research initiatives mentoring, linking autism networks and discoveries because our model is a very collaborative model, one where scientists talk to clinicians, and clinicians talk to the parents, and we all learn from one another, and I wanted the name of my center to

reflect that kind of a philosophy in terms of trying to bring care to these children.

So, we have clinicians who come from around the country and overseas to spend time with the center and observe us taking these very careful histories of children with autism and related disorders, and by doing that we hope that they can develop what we believe is the biggest skill set that we bring here, which is this very finely honed skill where we listen to the parents and take these very careful histories, and that is not at all anything out of the mainstream because when I was a pediatrician training at the University of Virginia, which is a very conservative medical school, Dr. Birdsong was one of the founders of that department, and every year at the conference that we had in his honor they would always say listen to the mama and look at the baby. So that is the essence of my medical education there, and that is what I believe that we at Defeat Autism Now have been able to bring to the table as we face what we believe to be something that's happened to a generation of children.

Q Dr. Mumper, I want to ask you, in your role as a clinician and particularly in your role as the medical director of DAN and your work at the Rimland

Center, do you regularly read or review the peer-reviewed literature?

A I do. That has to be part of my job. I try to read as much as I can. I maintain long bibliographies. I will say that reading it and trying to understand the essence of it is easier for me than being able to recall details.

And Tom, while I am here, for the record I would like to make one comment about the use of the word "DAN". There is another organization called DAN, which is the Divers Alert Network, and I am actually a former scuba diver, and I used to go to their meetings, and we have DAN with an exclamation point, but they will sue us if we say that we are DAN because they think that they, you know, had that name first, which I think they did.

So we are trying very hard to always say Defeat Autism Now. So for the people that are listening and especially if any of them are the divers, you know, I'm trying very hard to say Defeat Autism Now with a question mark, and not to imply that we are representing the Divers Alert Network.

Q And I will certainly do the same thing when I describe the name of the organization.

So in your roles in different organizations,

do you regularly review the peer-reviewed literature and is that something that is shared with other clinicians within the network?

A Yes. We maintain a list. We have a woman who actually has Asperger's Syndrome who has hyperlexia, and she reads all day, and she maintains a very extensive bibliography for us, and we have posted relatively recently, I think, on the Autism Research Institute website her latest update of those articles.

So when I am trying to decide about the curriculum for the doctors' training, obviously, you know, there are thousands of medical articles printed every year, we have to sift through those and try to decide about the ones that we think are most informative to carry out what we're trying to do, so I do end up reading a lot of them.

I would say more important to me though is the networking opportunities I've had because over the past few years, like when Autism Speaks was having a gut-consensus meeting at Harvard, I was invited to go to that, and represent the clinicians and the children, and be in the room with other developmental pediatricians and the gastroneurologists from Harvard and elsewhere, and those types of meetings are very helpful to me.

I was invited to present at the National Institute of Environmental Health Sciences back in August of 2005, when they were looking into potential environmental aspects of autism. So at that meeting I actually got to meet some of the scientists whose papers we had been reading, and Dr. Burbacher, for example, was at that meeting, so I got to see him actually present his work, and then had the opportunity to talk to him about it.

I had already met Dr. James and Dr. Deth at that point, and Boyd Haley was at that meeting, and so a number of scientists who I have come to respect greatly. I love the fact that I had the opportunity to ask them about their work.

Q Do you attend other conferences and even international conferences, IMFAR, or organizations like that devoted to the study of autism?

A You know, I have actually never been to IMFAR yet. I would be there today if not for this meeting because we have a research project that we would have liked to have presented there.

But most of the meetings that I attend are somehow related to Autism Now. I have been invited to present twice at neurootoxicology meetings, but it was about autism from a clinical perspective, bringing

that into the neurotoxicologic realm.

I do get invited to speak a lot overseas. In the last -- I can't remember the timing exactly, but a couple of years I've been invited to be the main presenter at the Mind Foundation in Sydney, Australia. I've been to Japan. I've been to Italy several times. I was invited to do a whole day training for clinicians in Poland, for example, and I have had other opportunities that I've had to turn down just because of the travel schedule to go to South Africa, for example, for the World Autism Organization.

The other thing I valued is getting to know some of the people at NIH, and for example, when Sue Swedo was getting ready to do a chelation study for NIH she actually called me as medical director for ARI to try to tap into some of the information that some of the Defeat Autism Now doctors might have about how to design a safe study, because NIH was very interested in looking at that, but obviously they wanted to make sure that they did it in a way that was good for the kids.

And so recently I just got back from -- Martha Herbert, who is a pediatric neurologist at Harvard had asked me to go to a New Paradigms in Autism meeting, which was a think tank that was held

at Commonweal in California. So once again there is this model of having this interaction between the research scientists and the clinicians, and how we are trying to both inform one another's work.

Q In terms of informing of work that you are doing as a clinician, and not just as a personal clinician with a private practice, but in your role in ARI and Autism Now, what do you see the role -- you described earlier as sort of the parent input. You described a couple of times parent input.

Can you be more specific about how that fits into the model of the collaborative project that you're describing?

A Yes. First of all, we emphasize in our clinician trainings that you have to listen to the parents. In pediatrics, typically about 95 percent of your diagnosis is going to come from the history that you get. So, we teach the value of respecting the parents' observations.

Secondly, we typically have parents on all kinds of our organization strategies. For example, we have a DAN executive council that makes decisions about what topics and what speakers should be invited to our conferences, and we have several parents on that council.

We try to keep it actually kind of a balance between M.D. physicians, research clinicians, or research scientists I should say, and parents, so it's kind of a triangulation so that everyone has that kind of input.

We also work very closely with parent advocacy organizations, especially the ones that work on teaching either coping strategies or medical strategies to parents, like for example there is a group called Talk about Curing Autism, and they have a network of mothers who have been through various types of treatment of their children who had medical problems and noticed improvements in their autism symptoms. So they now, even though they are very busy with their own children, have reached out to teach other mothers how to do that. So, we have a very healthy respect for the intelligence of our parents.

They come into my office with huge notebooks organized. They have tracked their children's symptoms so carefully. This is something I have not seen in other aspects of pediatrics. You know, even for example in diabetes, which is a chronic illness, you know, many times you ask them to bring their blood sugar records back, and you know, you get the story that, you know, they forgot it, or you will see it all

written in in the same pen, you know. It just doesn't approach -- not that there aren't very many mothers and fathers of diabetic children who do keep good records. What I'm saying as a generalization. This set of parents is extraordinary. They tend to be very intelligent. They tend to be extraordinarily dedicated to their children's well being.

Q Now, you've mentioned the recordkeeping the parents do. Does that sort of recordkeeping that they show up with when they come in your door, does that recordkeeping continue typically during their course of care and treatment with either yourself or other practitioners in your network?

A We find that they typically get three-ring binders, and put the lab work in, and add the doctors' notes. In our practice, we make it a standard practice to at the end of every visit I give them my written note with my recommendations, and it includes all the history that I took so that if I misunderstood them or we got, you know, Uncle George having the heart attack instead of Uncle Steve, you know, they can always come back and change those kinds of details.

We feel that the devil is in the details here; that if you don't take a very thorough and

careful history, you're going to miss some of the clues that might as a synergistic way of looking at the case, as a way of looking at systems coming together. If you don't take a careful history, you might miss some of those things.

Q And then moving forth from history, let's say a parent came into you and you're treating that child. During the course of that child's treatment from you, do the parents keep records of that ongoing, not just when they come in?

A Yes. Yes.

Q But ongoing.

A Yes, that's what I am saying. We give them every note that we generate from our office, and they put it in the notebook and then, you know, we go back the next time and are able to refer back to that.

Q And are the parents keeping track of results generally of the care and treatment that are being provided by you and other doctors that you work with?

A Yes. We have a practice of making copies of the lab results that we get so that the parent gets the CBC results, the chemistry screen results, the still testing, the biopsy reports from endoscopy, you know, usually the pictures from endoscopy in my community because the gastroneurologist is very good

about giving the glossy pictures as well as the biopsy results.

So it is a model that is very much collaborative. It's not an authoritarian model where, you know, the person comes in and tells the doctor their story, and then the doctor tells them what to do, and then they leave and either do it or don't do it. You know, we encourage people to tell us did we recommend something that you weren't able to follow through with, you know. Was your child not able to take this medicine because of the bad taste? So it's very much a give and take kind of a model.

Q Is there any rough estimate as to how many children nationwide, for example, are treating with clinicians who are associated with Defeat Autism Now? I mean, hundreds or thousands?

A You know, I really don't know how to estimate that, Tom. I'm so sorry. There are more children that would like to have care than can get care, I will tell you that, because most Defeat Autism Now practitioners have waiting lists of six months to a year and a half. So we are not meeting the need, but we don't have a good tracking system for how many people a doctor or a nurse practitioner sees after they go to one of our conferences.

Q How many children are you seeing right now in your clinic?

A You know, I don't even know that answer. I know that I have over 2,000 medical records, and I estimate that between four and five hundred of those are autism cases. I do know that in the last -- we did a review of our last year of autism cases for this, and we identified 156 or 158, I can't remember exactly, in that one-year period that I had ongoing management of.

Q So it sounds like even though autism is clearly a focus of your professional and personal interest, it's at some level a minority of patients within your clinic, within your practice?

A Right. It's the majority of my time because, you know, we allocate these one-and-two-hour visits to them. So if you look at my schedule, there is big chunks where the kids have autism spectrum disorders, but if you look at the overall numbers, I still see a lot of general pediatric patients, more so than the autism patients.

Q Now, we talked a little bit about some of the clinical aspects of the Defeat Autism Now collective, so to speak, and the parent involvement. I would like to ask you a little bit about the

research.

Does Defeat Autism Now or ARI conduct original research with the idea of publication or do they support it financially for other people? Explain that to the Special Master the research scientist end of things.

A Right. The sort of motto of Autism Research Institute for research is that we want research that makes a difference. So we tend to fund clinically-oriented or bench science that is likely to inform a treatment option. So we have historically not invested in classic genetics research. We invested in research for kids with medical problems, gastroenteritis or kids that have methylation abnormalities, or children that have oxidative stress.

So, we don't have a huge budget. I'm not positive about the numbers because I don't sit on that board, but I think we only have about $500,000 a year in the budget, so it's relatively a small amount of money to do research.

So the NIH level of research that's multi-million, you know, we are not going to get there. But as an example we were one of the ones who initially funded Jill James' early work, and she went --

Q Excuse me. We, the ARI?

A The ARI, and she initially looked at some very important metabolic markers in the methionine pathway of methylation and transsulfuration. Then she took it a step farther with our funding and looked at some genetic polymorphisms, so called SNPs, single nucleotide polymorphisms, and because she is such a careful scientist and writes things well and doesn't overstate them, she now has gotten a $5 million NIH grant, and she is going to be able to do many, many more children so that we will be able to show a lot more significance.

So I tend to think of a lot of our research is kind of seed, to get some momentum going in a promising area, and then I think, as we work on our collaborations with NIH and the American Academy of Pediatrics, the hope is that as they get to know us that we will be able to utilize that mechanism for funding too.

Q Now, Dr. Mumper, I want to focus on a couple of issues that have been raised, at least early on here in Dr. Rust's report. Have you reviewed his expert report?

A I have.

Q And not in a case-specific, but more talking in general --

A Okay.

Q -- about your approach to these particular cases. Do you recall having looked at his report when it came out?

A Yes. Yes.

Q One of just the general issues in that report is that you personally as a clinician and other clinicians in the collaborative effort that Defeat Autism Now represents, that you all are doing work without the benefit of controlled clinical trials; that is, whether it's the full-blown placebo, double-blind crossover study or just more straightforward case controlled clinical trials, and that's a concrete criticism that's been leveled against you and your practice network.

How would you respond to that again just in general?

A First of all, I would say that I trained at the University of Virginia, and so they taught me many things I know about how to practice medicine, and did choose me to be chief resident there.

Secondly, I try not to take what Dr. Rust says personally, and think that he is addressing this from his perspective as a neurologist in an academic institution.

There is no alternative biochemistry. You know, it's ironic that I now look at biochemistry charts to try to figure out how to help my kids. That is not something a typical pediatrician would do, but I think it reflects some intellectual curiosity, and one of the reasons that I'm interested in that is that Bill Wilson who is this wonderful metabolic geneticist at UVA was one of my mentors, and, frankly, I didn't particularly like biochemistry early on, but Bill made it understandable. I traveled with him to do genetics clinics down in Southwest Virginia, so I would have two and three hours in the car with him, and to have relationships with those kinds of people where you can ask them questions is very valuable.

I still consider myself a mainstream pediatrician. It has been personally somewhat -- I guess the word would probably be hurt that UVA is not as interested in my work as I would hope they would be, and I think that some of that is a result of miscommunications or misunderstandings in which -- for example, methyl B12 is probably a very good example.

If all you knew about me was that I was a pediatrician who used to be smart but was now giving kids with autism MB12 shots, you know, you might be tempted to say, you know, oh, you know, we have no

evidence that those supplements help, and one reason you might say that is because you don't read the nutritional biochemistry literature.

And so Jill James' article that showed very clearly that if you do that, you do improve markers, was published in the American Journal of Nutritional Biochemistry in December 2004.

So my pediatric colleagues would not be expected to read that. Dr. Rust would not be expected to read that. If he called me and asked me about it, you know, I would be happy to refer him to that.

Another thing I would like to say is that I do refer patients to Dr. Rust. He is a neurologist. He is a network for a lot of my patients, and so I respect his opinions about how to treat seizures and, you know, difficult neurological problems, and seizure medications, you know, areas far beyond my expertise.

I will tell you that my patients tell me that when they go to the university the history is typically taken by a resident, and that is consistent with what I would expect, and then the attending comes into the room to work more on the disposition.

So I would like to make the argument that my area of expertise in this arena is my ability to listen to the parents and take a really good history,

and I think that both the quantitative and qualitative aspects of history taking probably differ between my clinic model and Dr. Rust's busy neurology clinic where he is an attending working with residents.

Q And you mentioned the specific example of the B12 and addressing what you perceive is a biomedical need. You are able to cite specifically to scientific literature in support of that.

How would you respond to the criticism, not even from Dr. Rust in particular, but criticisms out there? To be honest, the criticisms are out there beyond Dr. Rust's report. How would you respond to the criticism that there are therapies that you recommend and in fact use in your clinical practice that might not find specific support in a peer-reviewed published scientific journal article? How do you respond to that?

A I would acknowledge it forthright up front. The fact is we look at individuality of the patient as our clinical approach, and one of our concerns is that in children with autism they are a very heterogeneous population. That means that there may be many different things that may have led kids down this pathway that ultimately lead to these behavioral symptoms that we call autism.

So if anyone does a study where they put a bunch of kids that have methylation problems, and maybe two kids that have the GI kind of pancreatic insufficiency that would benefit from secretin, and then they put a bunch of classic autism kids who maybe had chromosomal abnormalities, and then they put in a few others where it's totally unknown any kind of potential causes for those kids, and try to test and intervention in a classic placebo-controlled, double-blind fashion.

That is going to be doomed to failure, and we keep saying this, we keep saying that we need biomarkers. We keep saying that we need subtypes.

So we would like to advocate, and I've talked to the American Academy of Pediatrics about this, we were invited to talk to the president, the executive director, the upcoming president, the head of mental health for the AAP, and we were saying we would like to look at other research models like there is something called multiple baseline single subject designs, and this has been used a lot in autism from a behavioral standpoint.

The idea is you do a lot of measurements on a single child, and then you do an intervention, and then you pick your outcome measures and you figure out

if it made a difference or not. Did they get better? Did they get worse? Did it make no change?

That, I think, would inform the science because we would be looking at the individual child and trying to design interventions that fit their biochemistry, or their pattern of illness, or their, you know, MRI markers, or their incidence of seizures, you know, whatever it is that makes that kid's type of autism a little bit different from the kid down the street. That's what we need to pay attention to.

Q And as you do more of that work, I'm assuming something but tell me if it's right, that as you do that sort of work you're getting results back and those results inform that project and the direction of any future projects, is that fair to say?

A Right. So one of the hopes would be if we can identify some biomarkers and do some of the initial studies on single subjects, then we can help the Sue Swedos of the world pick out a subtype.

For example, right now NIH is doing a study trying to look specifically at regressive autism. So what can we bring to that if we have any biomarkers or pathology that we have found seems to be associated with that.

You know, we are very good at generating

hypotheses because we have the clinical cases, and the parents tell us their stories. We can't be expected with a $500,000 budget per year and all of us seeing patients, you know, four or five days a week to be able to do clinical research of the caliber that needs to be in order to ultimately answer these questions.

So I think we play a very vital role in sorting out the questions, helping to identify the subgroups, and then giving our information freely to the people that can do the bigger studies the more traditional ways.

Q And in doing this clinical work, again without having clinical trials and case control studies to track, what do you do and what does the network of collaborators that you work with do to monitor the efficacy as well as the safety of the therapies that you're not just recommending but using on the children that you treat? How do you monitor that?

A A couple of ways come to mind. One of the things we've been doing for many years is asking parents to report to our website. So with the up front knowledge that this is a motivated subset of people and that there may be inherent parental bias and all of the limitations of that data, nonetheless

we've got data from over 25,000 parents now over many years, and you can certainly use that data to see certain trends emerge.

Some of the trends that have emerged as that parents tell us their kids are medically sick, and that's something that traditionally has been denied by the medical establishment, when parents numerous times have come to my office and reported that they told the doctor that their kid had abdominal pain, or explosive diarrhea, and they were pat on the shoulder and sent away and say, oh, that's just because your child is autistic.

Now tell me what it is about a behavioral symptom, you know, that would cause that, and that would doom a parent to just accept that that's the way that's going to be.

Another thing the parents have told us is that one of the most effective interventions for them is melatonin. Melatonin is used to help kids sleep, and initially we thought maybe that was the reason that they liked it, but it turns out upon further examination melatonin is actually a superb antioxidant. So that information that they gave us doesn't tell us which way it was working, but it helps us think about the mechanisms.

Then one of the things that pulled me very reluctantly, frankly, into the area of chelation was that that was the thing that parents identified on our list as the number one thing that helped their kids. I didn't want to chelate kids for mercury, you know. I was trained in a conservative medical school, and I didn't want to be branded as some kind of maverick fringe doctor in Lynchburg, Virginia, which is also very conservative.

But at some point when you see a cohesive story that seems to make sense to you, you know, you have to, I think, follow the science and try to help your patient. You know, we have always believed that our biggest obligation is to the parent, and the child that we are trying to take care of.

So that's one way, long-winded answer, about how we use parents to help.

Q This is an important opportunity so as long as the answers are the Special Masters need to hear it and it needs to be in the record.

A Okay.

Q I don't want to cut you off, but don't apologize for the length of the answer. This is your opportunity.

A So the second thing we do, and this is one

of the roles that I probably like the most about being medical director at ARI, is to organize the think tanks, and we try to have a culture at our think tanks where everyone is respected and we use it as the brainstorming model. So we want people to be able to present their data and talk about problems, side effects, things that aren't working well as well as things that are working well.

We actually find that we learn a lot more sometimes about the things that we tried that didn't work because sometimes if you start teasing that out you can try to figure out what the mechanism was.

So we share information. We read each other's papers before they are published. We have been able to through the think tank to get tied into some university programs for autism like, for example, the autism treatment network is a consortium of about six different university places that are doing autism research, and they invited us to come to their initial planning meeting, and Margaret Bauman gave us the opportunity to have input into the types of issues they were going to initially study, and we really wanted to study gut and metabolic, and the third thing they picked was sleep, which is also important, but we had really advocated for the first two.

So, it's that kind of interaction that is, I think, moving science forward even though we're not doing double-blind, placebo-controlled clinical trials.

Q And even though not every intervention that you are recommending can point to a specific piece of peer-reviewed scientific literature in support.

A That may well be true. I will say a lot of what we do initially with kids is to try to ensure basic nutrition, and this has always amazed me because we are all taught to take a diet history, and the first couple of years I did that with my autism patients I'll tell you what the history was. It was chicken nuggets, french fries, macaroni and cheese, something crunchy, and then probably something sweet, and we got that over and over again.

Yet when I would send a patient to the Kluge Center at UVA with that kind of diet history, and I had suggested a multiple vitamin and some Omega 3 essential fatty acids, you know, somehow I thought that was very reasonable because, you know, basic nutrition would teach us that five food is not enough to give the kids what they need.

But I don't have, you know, a footnote for every supplement that we try to use to correct these

very basic deficiencies. I'm sure they are out there in the nutrition literature, but anyway, that's just an example of it.

Q No, I appreciate that.

Now, I appreciate the general background you have been able to provide both to your experience and to your practice, and the methods you bring to your practice. I'm going to start focusing not yet on the specifics of either one of the boys' cases here, but start talking about the central issues in each of those cases.

A Okay.

Q Obviously, for both Jordan King and William Mead a very big issue is regressive autism, and the belief that the parents have expressed that both of these boys developed normally and regressed, and I want you to comment on the regressive autism issue. It's discussed in your report, but maybe start off by describing what you believe regressive autism is.

A When I look at a child's history, I look for very clear and very specific milestones, and we typically get the pediatricians' records so that we can go through and know that at the time of a particular well-baby visit two weeks, two months, fourth months, six months, nine months, 12 months.

The pediatrician is taught to ask questions, and at each monthly visit there are certain milestones you expect to see, and if you start seeing a pattern emerge where a child is delayed in speech, for example, or delayed in a motor skill, then you have to track that more carefully.

So what I look for in the general pediatric's records -- different doctors do it differently, but some have checklists where they ask the question and check off, you know, yes or no. I have an electronic record where I can get more specific about milestones if it looks like there is a problem and ask more questions. But it's crucial to know that that was contemporaneously documented.

I actually believe the parents, that they remember a lot of those, and they often have baby books where they recorded it, or they've got video, but there have been some reports in the literature that, especially as the kids get older, the developmental milestones fade, and I would be the first to admit that I don't remember them on my kids who are now 17 and 19, but we clearly document that normality initially.

Then I look for a story about a clear regression. Kids are meant to gain words and then

gain more words. It may be that they gain them in a smooth fashion. It may be that it's more of a step stone mechanism, but it is not normal for them to have words and then lose the words that they previously had. So to me that is a huge red flag.

Similarly, typically kids go through some sequenced step from being able to lay flat, roll over, sit up, pull up, cruise, and walk. It's not really normal to learn to walk, and then only be able to crawl again. So, those are the kinds of things, the loss of skills implies to me regression.

Now, when I take these histories, I typically get a couple of different patterns, and I went back and looked at my last year's worth of data in the wake of Dr. Rust's report, and in my population clear regression is in 50.6 percent of the kids.

Now, let me say that I clearly think that's a referral bias because the people that come to my clinic have heard that if you have a child who seemed normal and then regressed maybe this person can help you. So I want to be very clear on that point that I'm not saying that that's the percentage of overall kids who regress because I see a funnel of those kids and they come to me.

But about 35 percent of my patients have no

regression. Only about 2 percent plateaued, and then about 14.2 percent were delayed from early infancy. So, I do see these kids who are the more -- that would fit more with the classic autism. But frankly, I consider my expertise to be more in the realm of helping the kids who did have regressive autism because typically I can treat those medical problems and see that some of their autistic symptoms might improve.

The kids that have chromosome abnormalities or syndromes are probably better served by our genetics folks in the classic autism centers, and you know, we have excellent genetics department at UVA, and so I would defer to their expertise for those kids.

Q As a clinician who sees both cases of regressive autism and cases of classical autism, as you've described, do you see a striking difference between the presentation that those patients have?

A I do. Classic autism, I'm more likely to find problems very early on. In classic autism, I will frequently get the story that the mom with babe in arms, you know, very early on in the first few weeks felt like the child didn't look at her, you know, even within the first few weeks.

A normal infant should find the most fascinating thing in the world to be his mother's eyes, and so they typically will look at the mother and that emerges in the first few weeks.

So you will get these stories from these heartbroken mothers who said, you know, my baby never really looked at me. They always looked vacant. Or we'll hear, yeah, the doctor was worried, you know, he mentioned at the four-month checkup that my baby wasn't rolling over, and you know, it didn't happen until like five and a half months, and then at the six-month checkup he said he wasn't sitting yet, and that didn't happen until he was nine months old.

So my clinical experiences that I'm more likely to get more of an early encephalopathic picture where something was contributing to this developmental delay. So that to me is a very clearly different story from the most frequent story that I hear.

Q Okay. So in zeroing in on the issues that are subject to your report, and ultimately your opinion, we discussed briefly autistic regression. I then want to move on and talk about another of the central issues here which is that thimerosal-containing vaccines might be related to the appearance of autistic symptoms, and specifically autistic

regression.

A Okay.

Q Can you describe what it was initially and when it was initially that you came to the belief that thimerosal-containing vaccines might even possibly be associated with some of these disorders?

A I remember it very clearly because it was when I read Richard Deth's work about thimerosal's effect on cells, or on enzymes, I'm sorry. In his early work, he was looking at methionine synthase, and methionine synthase is this very crucial enzyme in the methylation pathway, and if that does not function well you are not able to make normal neurotransmitters. Those would be things like serotonin which keeps you from getting depressed, or melatonin which ought to help you sleep, or dopamine which is the thing that kids with ADHD need help with and the medications like Ritalin and Aderol are trying to fast-forward that biochemistry for them.

When you don't methylate, you also can't make normal cellular membranes. This was really scary to me because in terms of getting a cell to do its job you need to take some kind of messenger, whether it's a hormone or a drug or a neurotransmitter, and somehow navigate a way to get it across that cell membrane,

and sometimes it's by an active process, sometimes it's by a facilitated process, sometimes it by ion diffusion. There are lots of different ways that can happen.

But you have to have these nice, fatty bi-layer cells in order to have that happen. So if you can't methylate, it's going to have a negative impact on that, and Dr. Deth talked very eloquently about how not having these fluid membranes can interfere with all kinds of neurologic function.

The other thing that really scared me was that if you can't methylate that means you are losing the ability to regulate your genes, to turn your genes off or no, to tell yourselves you better start making that protein or you better quit taking that protein, and this is one of the scariest things for me because it raises this realm of epigenetic effects where some environmental exposure can actually change the way that our cells are functioning on this very fundamental level related to gene expression.

So, one of the things that he showed was that in his cell model, which we frequently will use a test tube or cell plate model to look at mechanism, that thimerosal would have an adverse effect on this enzyme, and in his studies essentially totally wiped

it out; that it was very consistent with, to me, a lot of the things I was seeing as a clinician.

And some of his earlier work also related to something called methylene tetrahydrofolate reductase, which I hadn't thought about since I was in medical school, but as we looked at these kids and looked at downstream effects from this methylation abnormality it seemed to be a really big deal to me.

Then another thing I hadn't thought about since medical school was glutathione, and one of the things that the methylation pathway that Dr. Deth talked about is meant to do is to get you to a point where you can make glutathione, and glutathione does so many things. It is the major intercellular antioxidant, so it's the thing you need to have in order to provide a good redox status in your cells, as Dr. Deth talked about, and Jill James' work has shown that, you know, thimerosal is one of the things that has an adverse impact on that.

Another thing that you need glutathione for is to regenerate your gut epithelium, and one of the first things I noticed about these kids was the almost universal in my clinic, 92 percent of my kids have significant gut symptoms according to the parents compared to only about 20 percent of my regular

patients, and glutathione is involved in that.

Another thing it's really involved in is immune regulation of T-cells, which has a lot of implications for fighting infections, for taking care of your response to allergies. It's very important for mitochondrial function, and mitochondria are very important because of their energy-producing capabilities. The other thing that it does is it's like the gateway to this huge detoxification pathway.

So, that cycle, to me, seemed to be something that if you interfered with it, it would have a lot of bad downstream consequence. And so when I first learned about that, I developed this interest in trying to follow that further because both Jill James and Dick Deth seemed to be such careful scientists and I trusted the way that they explained it and it made sense given my clinical experience.

Q And to be clear in terms of the expertise you bring here, you described some immune system issues related to methylation. You're not an immunologist, and you have not published or done original research in immunology.

A No. Not at all. So when I am talking about what I understand about things like, you know, methylation or immunology or neurology, you know, I

get input from my colleagues there, but I do in no way want to represent myself as having any kind of specialized training, fellowship training in any of those specialty areas. But general pediatricians need to know these things because it impacts their patients.

Q And from the contents of your expert report you've explicitly rely, in fact, on the testimony or the reports of Dr. Aposhian, the toxicologist, and Dr. Deth, correct?

A That is absolutely correct.

Q So in terms of toxicological mechanisms, methylation mechanisms, and whatever model of causation arises from there, you're relying on those folks, correct?

A That is absolutely correct.

Q Okay. Now, you wrote and filed your report in this case back in November, correct?

A Yes.

Q As you know, Dr. Marcel Kinsbourne, in early April this year, filed a report on general causation. That came after your report.

A Right.

Q In the time between Dr. Marcel Kinsbourne's report being filed and being here today have you had a

chance to read and review his report?

A Yes, I did.

Q Have you had an opportunity to read and review some of the underlying literature in his report?

A yes.

Q Did you have an opportunity to attend his testimony and listen to him live?

A Yes, I did.

Q Based on all of that, would it be your testimony today that your expert opinion in these cases is informed by Dr. Kinsbourne's work and the underlying science that he cites to?

A Yes. I think it expands upon our work and integrates some of the issues regarding neuroinflammation, the Vargas work, the Pardo paper, some of the neuropathology in a very integrated way. So I do feel that it is consistent with my synthesis of these cases.

Q Now we're going to talk specifically about other things that you might have relied on to form your opinions in both of these cases, and in each case you do offer an individual expert opinion supporting the proposition that thimerosal-containing vaccines substantially cause the autistic symptoms, correct?

A Substantially contribute to, I think --

Q I think that was the language.

A -- is what I said.

A Yes.

Q And let me ask you this way. Before getting to that statement, I want you to describe as thoroughly as you can, without repeating the general qualifications and skills, what specifically you were relying on in order to evaluate these claims and reach the opinions that you did.

A Well, it was my understanding that my expertise in pediatrics was being recognized, and so I basically tried to look at the cases with clinical judgment, and go through the histories as if I were taking them and generate hypotheses about what might be potentially contributing to the picture that I saw.

Then I looked at various aspects of their histories and tried to provide some but not exhaustive footnotes about some of the literature that had tied together -- the published literature that had tied together the clinical presentations with the published science.

Q And we're talking what you reviewed. You're referring specifically, just so that it's clear on the record, you received the full sets of medical records

of both Jordan King and William Mead, the same set of records that Respondent and the Special Masters have seen and reviewed?

A Right. That's correct.

Q So you read and reviewed and analyzed those --

A Right.

Q -- to generate your reports?

A Yes.

Q You just mentioned that you checked citations to the scientific literature. You did that?

A And I also -- I was sent a number of video disks last Thursday that I reviewed. The way that I decided to do that was to -- I actually wrote this report last fall late, and hadn't looked at the dates of the children's birthdays since then.

So when I looked at the videos, I deliberately didn't look at their birth dates because I wanted to view them in a way to see if I could notice anything different without the prior prejudice that it was going to happen on a certain date because that was what was in the medical records.

So, I looked at the videos and noticed some signs of normal development and then things that seemed to be abnormal, and only later when Mr. Mead

testified went back and put the dates in.

Q Now, upon that review of the records, did it change your opinion at all that both of these boys in fact exhibited the symptoms of regressive autism? Did it change your opinion?

A No. I think that the videos reflect that they are the subset, as yet to be defined in terms of percentage, that had clearly normal development, and then fell apart with a clear regression.

Q If you had seen something in the video records that indicated to you as a clinician that they were not truly regressive cases, is that something that you would bring to the attention of the Court and perhaps change your opinion?

A Yes, I would feel that I would have the responsibility to do that.

Q So your review of the video compared to the medical records, you find them consistent?

A And I also find them consistent with the testimony of the parents.

Q So you were able to hear the full testimony of Ms. King and Mr. Mead?

A That's correct.

Q Anything else that you read or reviewed or considered in forming your opinions in these cases?

A I went back and looked at some of my clinical experiences, some analogous cases when I was looking at how that might inform my opinion. I don't recall other things.

Q Okay. Now, in your report you do offer an opinion.

MR. POWERS: I should just alert the Special Masters we're now going to move more into the case-specific discussion, and we will be leading off with William Mead's case, so that's where we are going to begin the individualized review here, and we will need to give Dr. Mumper just a moment to pull the proper materials in front of her.

THE WITNESS: Yes.

(Pause.)

THE WITNESS: Okay, I think I have them.

BY MR. POWERS:

Q Now, in William Mead's case before we walk through the specifics, can you tell the Court what your medical opinion is as a clinician relying on the information that you've already described? What is your opinion as to the potential cause of William Mead's regressive autism?

A I want to look at what I actually said because I think the language is very important here.

The way that I wrote it was, "In my best medical judgment based on my understanding of the medical literature, some of which is cited, and by my clinical experience, William is a child whose neurodevelopmental problems were exacerbated by mercury exposure in vaccines."

Q Now, you have since reviewed Dr. Kinsbourne's expert report. Would you agree that thimerosal-containing vaccines, as he has stated it, belong on the list of possible environmental causes of regressive autism in instances where other known causes have been ruled out?

A That's correct.

Q In William Mead's case, can you describe what other causes you ruled out in evaluating the presentation of his symptoms, again before we talk through the symptoms specifically?

A Okay. I think it was mentioned actually by one of the parents that one of the things you first want to do is to make sure that they can hear, because you can't expect a child to continue to develop language if they can't hear. So very appropriately a hearing screen was done, and that was recorded.

It's also very important to look for metabolic problems of the kind that, for example, in

classic genetics high lactates and pyruvates are frequently looked at to give evidence for things like mitochondrial dysfunction or disorders of carbohydrate metabolism. So that was done in him and that was normal.

By physical exam early on, you typically are able to rule out genetic dysmorphic syndromes, things like Crater Willy, Creata Shat, Cornelia Delang, Angelun Syndrome, William Syndrome. You know, this is a baby who was a Pottery Barn model. He was clearly very, very cute and not dysmorphic in any way. So you rule out the genetic component of it.

We would look for environmental toxins not just thimerosal-containing vaccines, but things that might have even been present before birth. You would look for whether the mother got terbutaline, which has been associated, whether the mother got dilantin, which is valproic acid, well known to be associated with autism. You would look at whether she had rubella during her pregnancy. There is some evidence that other viral illnesses during pregnancy can be associated with autism. So you look at the whole clinical picture, and try to consistently either make one thing less likely or one thing more likely as you do your workup.

So there is a very broad differential diagnosis, you know. Selective mutism is one of the things that you would think about when a child all of a sudden doesn't talk. Both of these kids were pretty early for childhood schizophrenia, but that should be on the differential diagnosis list.

If they were kids that had bad Apgars, meaning birth trauma, or had lots of prematurity, you could argue that there might be some type of brain damage from birth that would make them ultimately develop autism, but none of those things seems to be in the picture for William.

So as you go through the sort of classic differential diagnosis, as he went from being a normal kid to being a child with autistic features, and then even more narrowly part of the subset that clearly seemed normal first and then regressed as opposed to the more classic kid, you keep narrowing down your list of things that could be possible, and then you get to a point where you are generating hypotheses and then looking for them to be confirmed by lab data.

Q And is that the process that you were engaged in with your review of William's records?

A Yes.

Q And also the review of the videos that were

provided?

A That's correct.

Q So in looking at the medical records if you're going to diagnose a regression in autism the first requirement really is a period of normal development, is that correct?

A That is correct.

Q Can you describe what you saw in terms of his early development?

A Well, we have, I think, records which the Special Masters have of all his well-baby visits, and so to cut to the chase, throughout the first year of life normal milestones were recorded, and there were not any red flags raised about abnormal development.

When the child went to the University of Oregon actually, the medical specialists there actually acknowledged that William didn't appear to have classic autism, but was clearly developmentally normal initially and then regressed, and so that's a very learned developmentalist who is making the observation that this is not the classic kind of autism.

Q As you reviewed William's well-baby records from his visits to the pediatrician, do you recall specifically the first time that the pediatrician

noted something that you would then assign to the differential diagnosis of autism? Do you recall that?

A I believe it was at the two-year checkup if I'm not mistaking it with the other child.

Q Yes. Because the records are extensive and we don't want it to be a memory quiz, we're going to put that up on the screen, and this will be Petitioner's Exhibit 1. Let me make sure I'm reading this correctly. Okay, Exhibit 1, page 22.

Dr. Mumper, that exhibit is now up on the screen in front of you. If you would look at that for a moment, could you describe for the Special Masters and for the record what it is that you see there?

A Yeah, this is a very typical pediatric template for well-baby visits. It provides an opportunity for the nurses to write down any concerns that the parents have. There are routine areas that we question that have relevance on the ongoing health of the child, like how well they are sleeping, what their diet is like, and whether or not they are in day care and therefore being exposed to a lot of infections, the toileting situation, any concerning behaviors.

Then we typically ask about development and we try to do that in several different quadrants. We

look at motor development both from a fine motor standpoint which involves things like whether the child can use a spoon or manipulate objects, to gross motor skills like running or climbing stairs to interpersonal skills and self-help skills like being able to dress himself, and looking at language.

So here we see under the language milestone -- actually, Scott, is it possible to blow that up a little bit for me?

Q And again for the record so it's clear in the transcript, what we're going to zoom in on is the left-hand side of the record. Almost exactly halfway down there is a category called "Development", and it's highlighted on the screen.

A Yes. So at that point typically -- in terms of language development you typically expect a child around 15 months of age to have somewhere in the neighborhood of eight to 15 words, and then one of the landmarks we look for is that a child should put two words together by 18 months.

There is obviously a wide range of normal, and many normal children don't put two words together until 20 months of age or even later, and as long as other issues are okay you might feel reassured to watch that child.

But she makes a note here that he's not combining two words, and then more importantly down in the lower right-hand quadrant she says --

Q Excuse me. And this is in a section called "Plan"?

A "Plan", yes. She says, "no words", and no words is only normal really in the first year of life. So here we've got a child who is essentially a year behind at this point. Not pointing or knowing body parts, typically kids are able to point at one year, and typically they start knowing body parts somewhere around 15 to 18 months. You know, show me your nose, show me your belly button.

So I take this documentation as very clear evidence that this is a child that has a very significant language delay, and taking that into context with what the record also showed about his earlier language development, that is in my mind a clear language regression.

Q And pulling that record down right now, what is it that you do recall from the earlier medical records about his language development?

A Again, I'm going to get the two children mixed up because I've heard both stories very close together. My memory is that the milestones were

normal. From looking at the video, I recall one time when he actually said "Hi, daddy" as he walked toward the camcorder. That was a normal expected milestone.

And his one-year language milestones were in the normal range, but right now I'm not remembering the exact words that he had.

I want to make the point that in children speech and language isn't just words. We look at speech and language all through the first year. Cooing should start in the three-to-four-to-five-month range. Then we look for babbling, these consonant sounds, and then we look for jargoning, which is the sort of talking in a foreign language stuff. And so it's not just a matter of looking at the words at one year versus the words at two years. It's looking at the fact that the cooing and the razzing and the babbling and the jargoning preceded that in the normal way.

Q In your general review of the medical records up to this point, up to his two-year visit, were there any indications of any developmental delays, deficiencies, or developmental problems of any sort noted in the contemporaneous medical records?

A I did not see any documentation of any kind of developmental problems. He did have some other problems that were more medical problems.

Q And what were those medical problems? And it actually will be a two-part question because I'll ask you to describe medical problems but also why you find them significant, and ask you only to refer to issues that you do find significant to your medical opinion here.

A Okay. The first thing that caught my eye was the fact that around three months of age he developed reactive airway disease. Reactive airway disease is a kind of code word we use for a child that wheezes because when a child first wheezes it could be from bronchiolitis, it could be from early onset asthma, it could be from some environmental component like cigarette smoke in the family. So we hesitate to diagnose asthma unless the child has wheezed at least three times, and part of that is because it has some long-term impact on their health record and ability to get insurance and all of that.

But that tells me that he is a child who is exhibiting either just a normal course of bronchiolitis or potentially is going to declare himself over time as a child who is going to go on to develop asthma.

The second thing I noticed was that around five months of age he started develop many ear and

respiratory infections, and this is a very consistent history that we get when we're talking to the parents of autistic children, and it's actually been documented in the formal publications, that there is a higher incidence of otitis media in children with autism, although I don't recall the exact reference.

So, when we see that kind of story, I start thinking that it's a kid who is sick, and the reason that that's important to me is because of what I've learned from my research colleagues about the impact of oxidative stress. When kids are having wheezing and therefore intermittently being hypoxic or having respiratory distress, they are by definition undergoing one of the situations that leads to oxidative stress.

When a child is sick and febrile and not eating or drinking well, they tend to get acidotic and that acidotic cellular biochemistry tends to make them under oxidative stress. So in our list of things that can cause oxidative stress are things like infections, or trauma, or dehydration, or toxins, or things like radiation that, you know, a child typically would not be having.

So when I think about the way this child was living his infancy and going in for his well-baby

checks, I am concerned that he at least intermittently was undergoing oxidative stress at the time of some of his immunizations.

Q So that's what I was going to ask how this informs your opinion because you're certainly not arguing, I don't think, that the oxidative stress that's induced by reactive airway disease and things like that was a cause per se of his regression into autism.

A No, no, no. All of this is building a fuller clinical picture. I am concerned about chronic yeast infections. It's certainly true that in the first year or so of life that many babies have yeast diaper rashes and oral thrush. What I see in my practice is that sometimes instead of clearing these typically in the first six to 12 months we have patients who get recurrences over a number of years, and it may well be true that a small percentage of people are going to do that, but it raises a question to me why.

You know, is there something about this child that as his immune system is being modulated over time he is not developing that ability, and the research on that I would need to leave to the immunologists, but having spoken with them, it is one

of the things that is a small piece of the puzzle for me.

Q What other pieces of the puzzle can you identify from your review of his medical records?

A In terms of his?

Q In terms of his overall health that would contribute to your expert opinion that thimerosal-containing vaccines were a substantial contributive cause of his regression?

A Well, I think his father described it well the other day when he talked about the fact that William was a very sick child, and that's one of the things that we have been very adamant about getting out to the medical community. Many of these children are very sick, and they need to be treated for their medical problems and not to have them dismissed as just part of the autism.

Q Now, during the course of his first year of life, again from your review of the records, did William get pediatric vaccines?

A Yes, he did.

Q Did he get what you would call the full schedule of vaccines?

A Yes, he did. In the third page of my report, I walked through what he got and when.

Q Okay. And actually, if we could go ahead and just turn to the medical record itself. This would be Exhibit 1, page 3, and when it goes up on the screen like that with the bar codes, it looks quite intimidating, but we're going to zero in and look at some discrete areas.

If we could look up at the very upper left hand where there is highlighting on the screen. Actually, again for the transcript, Dr. Mumper, Exhibit 1, page 3, is in front of you. Can you look at it and describe what you're seeing there?

A Yes. This is entitled William P. Mead's Immunization Record Form.

Q Okay. Now, if you look at that, running down in a column going down the left, there is DTaP 1, 2, 3, and 4. Do you see that?

A Yes. And that stands for diphtheria tetanus and acellular pertussis, a very classic childhood vaccine, typically initially given at two, four and six months of age.

Q Based on your review of his medical records and seeing that there are dates next to the DTaPs, does it look like William Mead in fact received those shots as per the schedule?

A Yes.

Q If you look a little further down, there is a 4-12-2000 date for DTaP 4. Do you see that?

A Yes, and let's do a little mental math and figure out how old he was at that point. He was nearly two.

Q Just a couple of weeks short of his second year birthday.

A Right.

And so you have some latitude on the fourth DPT. Many pediatricians would give it around 18 months of age, but if a child was having a lot of illnesses one might choose to defer them to a later time. So that fourth DPT was a little bit later than would traditionally be given, but certainly within the realm of reasonableness.

Q Okay.

SPECIAL MASTER CAMPBELL-SMITH: Excuse me, Mr. Powers. I do have a follow-up question with that, Dr. Mumper.

You have described William as a very sick child, and you have just made reference to a child who was having a lot of illnesses. What, in your experience, do you characterize as a very sick child or a child who is having a lot of illnesses?

THE WITNESS: Yes, that's a fair question.

In my practice, I really don't like to see a child have more than three ear infections in the first couple of years of life. I think that over time compared to when I first went into pediatrics we've developed this sort of tolerance for more illness with less curiosity about working it up, and that what has happened is that, you know, the child comes in with an ear infections, gets antibiotics, then sent off.

Not that I'm going to suspect classic immune deficiency, that's not at all what I'm saying, but why should a healthy baby get three to six to eight ear infections in the first 18 months of life. So the sickness that I refer to is more from the chronicity and the repetitive nature.

Now having said that, it is certainly true that most babies will get six to eight to 10 colds the first year, and hopefully be able to handle most of them well with perhaps one or two of them resulting in an ear infection. Certainly very common for kids to get lots of viral illnesses.

But once he got to the point where he was no longer gaining weight and he was being perceived by the parents as chronically ill, I think we have to trust that input.

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

THE WITNESS: Does that make sense?

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

BY MR. POWERS:

Q Now I want to draw your attention to the right-hand column of that chart and there is a highlighted area about a third of the way down on the right-hand column. That's blown up there now.

If you look down the left, there is Hib 1, 2 3, 4.

A Right.

Q What's your understanding of what that represents?

A That's hemophilus influenza B, and that typically is given at two, four, and six months, typically with the booster around 15 months.

Q And looking at this medical record here, does it appear that William Mead in fact got the Hib on schedule, two, four and six months?

A That's correct.

Q And the fourth one he got, it looks like the same day as that DTP just before is second --

A Right, a little before his second birthday.

Q Okay. And before I move on to the next set of shots, do you have an idea of the mercury content of the thimerosal added to these particular

immunizations, these Hibs?

A Right. The hepatitis B vaccine, which is typically given most places on the first day of birth, has 12.5 micrograms of ethyl mercury.

Q And we haven't gotten to the hep B, but just to go --

A Oh, okay.

Q But we will so go ahead and complete it, but I just wanted to make sure we're not confusing the record. So hepatitis B, not Hib.

A Right.

Q Hepatitis B has?

A 12.5. Hib has 25 micrograms, so does the DTaP.

Q And then let's go ahead and move down if we could in the highlighted areas. We're moving just beneath that on the right-hand column at another highlighted area. What shots do you see there?

A That is the hepatitis B vaccine, the initial one given in the hospital at birth, and then the second one given at two months of age, and then the third one given -- we typically try to do it somewhere in the four-to-six-month range later, so that is entirely consistent with the recommended practices.

Q And so if one were to add up the mercury

content of those various vaccines, it would be fair to say that there are eight of those shots had 25 micrograms, correct?

A Eight, yes.

Q So that would be 200 micrograms.

A And then the hepatitis B vaccines at 12.5 micrograms each is another 25 micrograms.

Q So that would be 237.5 micrograms just before the age of two?

A Did we do that math right, Tom? Two hundred plus 25 is 225.

Q Oh, I'm sorry.

A I think. Yes.

SPECIAL MASTER CAMPBELL-SMITH: I can do that math if you represented to me what the content is.

THE WITNESS: Yes. It's 187.5 by seven months of age, and then at 23 months he did another 50 micrograms, so I think that actually is the 137.

SPECIAL MASTER CAMPBELL-SMITH: What time are you trying to get to? By two years?

MR. POWERS: Yes, by two years.

THE WITNESS: Right. Yes.

SPECIAL MASTER CAMPBELL-SMITH: Okay.

MR. POWERS: So 237.5 micrograms would be

the total?

THE WITNESS: Okay. Great.

BY MR. POWERS:

Q Now I want to draw your attention, it's on the DTaP just above what had been highlighted before. There is actually a DTP 5 there. Do you see that noted?

A I do.

Q So it appears that William Mead received a fifth DTP shot.

A The thing that's puzzling is that there wasn't a date there that I see, which I would have thought would have been recorded right next to that.

Q There is not a date there. Do you recall the medical record that we showed from his visit on 5-15-00? This was Exhibit 122, page 22?

A Right. Let me look again. Okay.

Q Do you recall Mr. Mead testifying that he went in, or excuse me, that William went in, after he got those shots in April that he went back in May and received what he believed was another immunization?

A Actually, I did hear that yesterday or whatever day it was.

Q As long ago as it seems, I think it was yesterday. Seeing the DTP 5 there, would it be your

understanding that, and based on Mr. Mead's testimony, seeing a DTP 5 shot there with a date that looks like it might have been covered up with a sticker, and hearing his testimony, would you think it reasonable to conclude that in fact a DTP shot was given on May 15, 2000?

A As I've said, I typically trust the parents' history. I was looking to see if I saw where the doctor ordered another shot because typically they will write that in under plan or check off something. So one other way to confirm that might be to see if there was a bill for it, which I have not done.

Q Okay. So if that shot was in fact administered, there would be an additional 25 micrograms of mercury a couple of weeks after he got the fourth DTP?

A That's correct. It would seem to be like five or six weeks later, and I would like to say that that interval in itself would not be an unusual interval. When we're doing catch-up immunizations, you're advised to wait for four to six weeks, and that would be -- even though we typically wouldn't give a fifth DTP then, that interval between shots would typically be a reasonable interval. Does that make sense?

Q That roughly one month interval is medically reasonable?

A Exactly. Right.

Q But it would introduce into William Mead's body another 25 micrograms of mercury?

A That's correct.

Q Now, you described the well-baby presentation, so to speak, in terms of development up until this May 15, 2000, visit. In addition to your review of the records on his well-baby development in terms of the regressive autism, what do you see in the medical record indicating the appearance of autism itself?

A It would seem that the first evidence would be related to the fact that the physician documented loss of words. Then they went on to get evaluations where more specific information was gotten that looked at developmental assessments, and looked for things like eye contact and stereotypic behaviors and stimming behaviors.

Q Okay. Do you recall a series of evaluations and diagnoses from November 2000 to January 2001 that William Mead went through?

A I recall that I read those, yes.

Q What's your recollection of what those

multiple diagnoses and evaluations with William Mead concluded?

A That they concluded that he did have an autism spectrum disorder.

Q In your review of the medical records, in your review of everything that you've relied on here, do you have a medical opinion as to whether William Mead suffered an autistic regression?

A Yes, I think he meets the clinical picture well documented for an autistic regression.

Q Do you hold that opinion to a reasonable degree of medical certainty?

A Yes, I do.

Q Now I want to draw your attention, moving away from William's records for just a moment, to an expert report that Dr. Rust submitted specifically addressing William's case.

A Okay.

Q And I honestly can't recall the exhibit -- Respondent's Exhibit KK.

A I have it.

Q Okay. And on page 1 of that exhibit -- actually, I have to keep catching myself. If you take a look at your computer screen, Dr. Mumper, what do you see there? Can you just briefly describe what's

on there?

A I see University of Virginia letterhead, Department of Neurology, and a report submitted to the U.S. Department of Justice from Robert Rust, M.D.

Q Okay. I want to draw your attention to the second full paragraph, and the first couple of full sentences, so it begins, "W.M." and W.M. is the abbreviation for William Mead here.

A Right.

Q If we could highlight beginning with that second full paragraph to the end of the sentence that has Exhibit 3 at 34. You notice that there is a comment about William Head's head circumference there. Can you describe to the Special Masters what that comment from Dr. Rust is?

A First, I'd like to say that measuring head circumferences is an important part of all well-baby care. We do that routinely. It's typically measured in the hospital and its subsequent well-baby checkups.

He says that William was born on May 5, '98. "During his first four months of life the records document an enlarged head circumference from the 50th to the 95th percentile."

Q And so what that means is that when he was born his head circumference was in the 50th

percentile?

A He's saying that during the first four months of life the records document an enlarged head circumference going from the 50th to the 95th percentile.

Q And does he cite a particular medical record in support of that proposition?

A W.M. Exhibit 3 at 34.

Q Okay. Could we pull Exhibit 3, page 34, and put that up on the screen?

Dr. Mumper, what do you see on the screen?

A This is a growth chart from Providence St. Vincent Medical Center, and it shows that at gestational age of 39 weeks --

Q Excuse me. And that's when William was born, his gestational age was 39 weeks?

A Right, and that's considered essentially to be a term delivery.

Q Understood.

A That the head circumference was 30 -- Scott, can you help me? Is that 36 sonometers?

Q Yes, if we could zero in on sort of the bottom half of the chart that includes -- right there. Thank you.

A That the head circumference, which was

measured in the nursery, placed him above the mean, close to -- about a standard deviation away from normal, so making him somewhere near the 80th percentile for his head circumference.

Q So not the 50th percentile but almost a full standard deviation above that?

A Right, which the point here I think is that this head circumference was consistent with his other measurements. He was a big baby, well proportioned with height, weight, and head circumference being in the same range.

Q And let's pull back if we could and look at that full page because there is some of that information here. There are another set of curves that you see above the head circumference, is that correct?

A Right, and that's length, and he was actually very tall for age, greater than the 95th percentile.

Q So his head size was somewhere in the eighties and his overall size was at the top of the chart?

A Right.

Q Do you see anything on this record to indicate that his head circumference when he was born

was at the 50th percentile?

A No, I don't.

Q Let's look back to that first page of Dr. Rust's report, please. The sentence beginning after the one that's highlighted is where I would like to pick up again. This is in the second full paragraph, and if we could remove the current highlight and begin a highlight with the words "This pattern of", and all the way to the end. Thanks.

So, Dr. Mumper, if you could take a moment to read that, again it's in the record, we don't want to read it aloud.

A Right.

Q Just take a moment to look at that and I'll have some questions.

A Okay.

Q What is it that you understand Dr. Rust is saying the significance of this report at 50 to 95th percentile is?

A I understand him to be making the case that William is a child who exhibited an early pattern of increasing head circumference such as has been described in classic Kanner autism, and this is a very reproducible kind of finding where children in the early part of their infancy start developing

accelerated brain growth, which is what leads to the head growth, and that typically needs to be worked up. I agree with him completely on that point.

If you did indeed have a child whose head circumference was changing, you would look for things like evidence of fetal distress and evidence of hydrocephalus, and abnormalities on an MRI, or the more rare conditions he mentions like Alexander's Disease, Tay-Sachs, Canavan, which I must admit I can't remember what that one is, and Rett's Syndrome.

He goes on to say that William has none of those. So he seems to be using a pattern of brain growth in order to advance the hypothesis that William was autistic from birth; that he was following a classic pattern as has been well described in the literature; and that this is a pattern that's been associated with autism for a long time.

My problem with that is that I would interpret the same growth chart as showing a head that was very consistent with the rest of the child's body, and not making a case for this classic increasing acceleration of head growth.

Q Well, particularly since from the evidence that he cites in there, there is no evidence that he started off at 50 percent?

A That's the way that I interpret the date. That's correct.

Q And would it be your experience as a clinician and a pediatrician that if you saw this presentation in a child, you would likely make a note of it in your medical records of 50 to 95 percent in their first four months of life?

A Yes. We typically look very carefully at anything that crosses more than one percentile. Increasing head -- I'm sorry -- one standard deviation, the correction. We look very carefully at anything that crosses one standard deviation.

So whether it's head circumference going up or weight going down or height going down, once you cross a standard deviation, that is a trigger for most pediatricians to either institute a workup or at least think about differential diagnoses about what might be causing that.

Q Do you see any evidence whatsoever in any of William Mead's medical records where his treating doctors discuss this issue, or as you describe, even note this issue?

A No, I do not see anywhere where his pediatrician noted changing increasing head circumferences that needed to be worked up.

Q Okay, thank you. You can pull that down.

So, Dr. Mumper, we've discussed and you're made clear for the record your opinion that William in fact did experience an autistic regression. So now I want to move on and talk about what you see as evidence that thimerosal contained in his vaccines that were given to him might have been a contributing cause of the regression that he experienced.

Now, you've already described the fact that he did receive a series of thimerosal-containing vaccines per the schedule, and we've discussed the dose, correct?

A That's correct.

Q You had also mentioned his medical condition at the time he was receiving those shots. I would like for you, if you could, to explain to the Special Masters in what way, if any, would you ascribe any relationship between his overall medical condition during the time that he got his shots and the emergence of regressive autism.

Is there anything about his medical condition that you've discussed that might lead to the appearance of the regressive symptoms given the shot schedule?

A My concern is that a child who is already

under oxidative stress due to illness or other factors when presented with thimerosal-containing vaccines will be depleted of the highly evolved mechanism that nature has provided us with in order to try to handle those kinds of burdens. And so in my practice we do not immunize kids when they are sick.

At the time that William was immunized, this was perfectly consistent with American Academy of Pediatrics' policy, and we were actually encouraged to vaccinate children when they were sick because we didn't want to get behind, and we were told to take every opportunity. So having an ear infection or being on antibiotics was not a contraindication to giving vaccines.

But my concern is that a child who is already sick and gets vaccines is going to be depleted in glutathione, which is the end result of oxidative stress, and therefore be robbed by the primary mechanism by which they would be expected to handle that thimerosal load.

SPECIAL MASTER CAMPBELL-SMITH: Pardon me, Mr. Powers.

Dr. Mumper, I have heard testimony regarding what is regarded as a sick child, and most pediatricians that I have heard testify to this would

say they don't immunize sick children, and they characterize that a sick child that has fever above a certain amount.

How are you charactering that will you will not immunize a sick child?

THE WITNESS: Yes, I actually don't immunize children if they have upper respiratory infections.

SPECIAL MASTER CAMPBELL-SMITH: Active or recovering?

THE WITNESS: Active. I don't immunize them if they have fever. I don't immunize them when they are on antibiotics. I don't immunize them when they have diarrhea.

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

BY MR. POWERS:

Q So, Dr. Mumper, I want to now talk about some of the lab results. You discuss them in your report. You reviewed them and ascribe particular value or significance to some of those reports in William Mead's case.

Do you recall from the medical records that William Mead, when he started treating with Dr. John Green in January of 2001, had a heavy metals test administered?

A Yes, I do.

Q I think you have some of the materials in front of you there. I'm going to have Exhibit 5, page 5, put up on the screen, and I'll give you a moment. I know you have an awful lot of paperwork there but if you could move to that particular chart and sort of look up at me when you're ready.

(Pause.)

A Okay, I have it.

Q Okay. Now let's look on the screen there and refer to it. Can you describe for the Special Masters what it is that is displayed on the screen there that is page 5 of the fifth exhibit?

A Yes. This is a red blood cell elements test on William Mead at the age of two that was collected on January 8, 2001.

Q And what is your understanding of how this test was conducted?

A This is a blood test in which the child contributes a sample of blood that is sent to the lab, and then analyzed for essential elements, which are the ones at the top above the dark line that says "Potentially toxic elements".

Q In fact, it actually say "Nutrient elements" at the top.

A Exactly.

Q Okay.

A So it is looking at various nutrients that are very important for all of us, things like calcium, which is important for bones; magnesium, which is important for neurologic function; zinc, which has a role in over 300 different body processes; iron, which helps us build our blood, et cetera, et cetera.

Q Okay. And what do you see in the next headed table underneath? This is the one called "Potentially toxic elements".

A This is looking at elements like antimony, arsenic, cadmium, lead and mercury to try to identify the presence of these toxic elements.

Q Now, is this a blood test that involves a provacation agent or chelation, the use of a chelator?

A This is typically not done that way. This is typically just a blood test. It's not like a urine-provoked test.

Q Okay. Now, if you look at the top, the nutrient elements, is there anything of significance there that informs your opinion?

A The most significant value to me is the zinc which is around the 1.5th percentile. What that would mean is that the amount of zinc in his blood compared to the reference ranges was lower than about 98 to 99

percent of people.

Q Why is that, if it is, is that significant to informing an opinion that thimerosal-containing vaccines contributed to his injuries?

A Well, this is very indirect evidence because zinc can certainly be low due to not taking it initially or having poor absorption. But one of the functions that zinc does in the body is that four molecules of zinc complex with metallothionein to help escort heavy metals -- mercury in particular -- out of the body through some complex pathways that I would leave to the toxicologists.

But in looking at autism patients in my clinic, one of the so-called soft signs we use as a trigger to potentially evaluate the child further for heavy metal toxicity is if they have low zinc levels, and zinc is one of the things that we typically will supplement when it's low because of its very many crucial functions, only one of which is to help with mercury excretion.

Q Now looking down at the potentially toxic elements category, is there anything of significance there that you would want to point out?

A The mercury value is 0.022 micrograms per gram with the reference range being less than 0.01,

and that puts him above the 99th percentile in terms of the amount of mercury that was documented to be present in his blood.

Q Why is that significant to your opinion?

A Because mercury is a known neurotoxin and its presence in the blood in the absence of other explanations makes me concerned that this reflect his potential inability to handle thimerosal-containing vaccines.

Q We're now going to turn to another record. This would be Exhibit 5, page 9, and that exhibit is now up on the screen. If you could explain what that is.

A This is a laboratory looking at immunoglobulins. It was received on the 11th of January in '01. It is looking at IgG, which is the immunoglobulin that tends to persist over time; IgA, which is in our secretions like our nose and gut; and IgM, which is the immunoglobulin that is meant to respond early on to infection.

Q So what fluid is being measured here?

A This typically would be blood.

Q So this is a blood test looking to find these particular components?

A Right.

Q Is there anything of significance that you would want to identify in this lab result?

A The thing that I note is that in the normal range of 800 to 1,700, William showed that he had 686 micrograms -- I'm sorry. I'm having trouble reading the unit.

Q Is that DL, deciliters?

A Yes. Showing that he's below the lower range of normal. This does not, to me, mean that he has a severe combined immunodeficiency disease or any sort of classic, you know, put the baby in a bubble kind of immunodeficiency, but it is clearly below the normal range.

Also significantly is that his IgA was below normal at 69 micrograms per deciliter, with normal being 100 to 490. The reason that I find that particularly significant is that IgA deficiency tends to be the most common immunodeficiency that we have and it's somewhere in the range of one in 600 to one in 700 people.

But when we've looked at autistic children, we've seen that many of them are in the lowest quartile for IgA or have a frank IgA deficiency. So this can impact on his ability to fight respiratory infections, viruses that might potentially otherwise

trigger off asthma, or ear infections.

Q Let's turn to Exhibit 5, page 24, and just so the Special Masters know, we have a fair number of these to work through so I'll try to do it as efficiently as we can and use this method to get it done in a prompt way.

So Exhibit 5, page 24, is up on the screen. Could you explain what you see there, what the document is?

A This is looking at a Metametrix Laboratory assessment on the child that was looking at his nutrient status, and the thing of importance here was that it identified him as being in need of antioxidants, lipoic acid and co-enzyme Q10 were some of the specific recommendations that were made.

Q I need to stop you just again for the record. There are shaded blocks that have data, and the third shaded block down has a heading called "Antioxidants". Is that what you're referring to?

A Right.

Q Okay.

A And this is the state of labs available to Dr. Green at the time. I think it's important for us to acknowledge that the labs he had available to him in 2001, which was like four years before the Vargas

paper and many years before some of the recent advances about oxidative stress and methylation biochemistry, I'm merely in pointing this out as supporting evidence that he was under oxidative stress.

Q And is there anything else on this page, anything about the amino acids that are significant?

A Well, there are a couple of amino acids that are flagged as needing supplementation. One of them is tryptophan, which is one of the precursors that helps us create melatonin and be able to sleep.

Q Does that have any particular significance to your opinion here?

A In that many children with autism have abnormalities in tryptophan pathways, yes.

Q Next is Exhibit 5, page 3.

A And this --

Q Just wait.

A Okay.

Q Okay. It's up on the screen. Could you describe what that is?

A Yes. This is what's called a provoked urine meaning that the child was given a challenged dose presumably of some kind of chelator, although I'm just now noticing that it doesn't actually mention what

that is.

The data that they got showed that mercury came out at 21 micrograms per gram of creatinine when the reference range would have been between zero and three. That basically is a many-fold excretion in response to a chelation challenge, and the interpretation would be that that was reflecting mobilization of a body burden of mercury.

Q And just a quick question because it may come up in looking at some of these other results. Why is this expressed as a ratio of the compound of interest to creatinine?

A One of the challenging things of interpreting lab data in children with autism is that many of them have abnormal creatinines or abnormal concentration of their urine, and we therefore need to use a correction factor to allow for whether it was a dilute specimen or a very concentrated specimen in order to get a valid measurement of things like mercury. So the correction factor is built in by the lab in order to account for that.

Q So it's sort of a control to control for dilution that one would expect?

A That's a good way to explain it, yes.

Q Okay. Exhibit 5, page 20, is the next thing

we're going to take a look at. It's up on the screen now, Doctor. Could you describe what you see there?

A Yes. This is an essential amino acids done in the plasma, which is a blood test, and it is showing me that he has low levels of a number of amino acids -- isoleucine, leucine, licine, tryptophan and valine. And ordinarily we use amino acids to build our body, and to synthesize proteins.

One of the supporting findings that would suggest the possibility to consider a methylation defect is that methionine is at the low end of normal although not, frankly, low. That's the essential amino acid in the methylation pathway.

The other finding that I found interesting is that he had a relatively low level of glutamine, 362, with normal being 500 to 1,050. Glutamine is one of the things that has a role in maintaining normal intestinal integrity, and so is a potential avenue to do supplementation in kids that are showing GI symptoms or chronic diarrhea or inflammatory bowel symptoms.

Q Would it be fair to say that this is evidence in support of the notion that he's undergoing oxidative stresses described by Dr. Deth?

A I think it would be considered supporting

but not conclusive evidence.

Q Let's go to Exhibit 5, page 19. That's in front of the screen. Could you describe what you see there?

A This is a fatty acid test on plasma, and is looking at various measurements of omega 3 and omega 6 fatty acids and other acid metabolism. It shows a pattern of a number of low essential fatty acids. Essential fatty acids have crucial roles in fighting inflammation. They have crucial roles in cell signaling, the type of cell signaling I was referring to before when I spoke of neurotransmitters or drugs going to the membrane of the cell, and then being transported inside to inform the cellular chemistry what to do.

We, anecdotally, have found supplementation with omega 3s to be a value in children with autism. There have been some publications that support that, and I tend not to order this because it always comes back low, so I tend to save the family money here, and typically do the supplementation because there are really no contraindications to supplementing with omega 3 fatty acids, for example.

Q And again in particular the reason to do that would be to enhance the body's ability to fight

inflammation?

A Yes, that's correct.

Q So is there any significance to this particular information to your ultimate opinion that thimerosal-containing vaccines might have contributed to his regressive autism?

A Well, my concern is that in this generation of children that tend to have very low essential fatty acids, that they are again not utilizing one of their inherent natural mechanisms to treat inflammation, and since our underlying concern about these children has to do with a chronic ongoing neuroinflammation we feel that they deserve every benefit to have any inflammatory interventions.

Q We're going to go to Exhibit 5, page 34. What is that document, Dr. Mumper?

A This again is a red blood cell element analysis. It's a different format from the one we looked at before. It is showing that comparing to percentiles that this child, William, at the age of three is exhibiting low levels of chromium, cooper, magnesium, manganese, molybdenum, selenium and zinc. This is one of the things that we use to safely monitor children when they are undergoing chelation so that we can replenish their essential elements, and we

particularly find it useful to look at the selenium and the zinc and try to supplement those two essential elements in order to potentiate their own ability to get rid of heavy metal toxicity.

Q Is this a provoked or chelated test as far as you know?

A No. This is really a different situation in which it's just a blood test.

Q And down at the bottom there is a toxic elements area. Mercury is listed. There is a dark bar there indicating that mercury was in the low limit. Is that a fair reading of that?

A That's correct.

Q In an unprovoked test at this point, is that what you would expect to see?

A Actually this would tell me more about potential sources of ongoing exposure because when you do a provoked test the only way I'm used to interpreting that is to look at in the urine, and see if you mobilize a body burden in the urine.

Q So Exhibit 15, page 97, and I do want to make a note. The records do speak for themselves, but what we were looking at here were a series of records between January and June of 2001.

We are now looking at a new record on the

screen, and there is a -- basically a year ahead. Can you describe what you see there, just what that record is?

A This is a urine toxic metals that was obtained in July of 2002.

Q So this is about one year after the last result that we looked at in the records that preceded?

A Right.

Q Okay. Can you describe what this test is designed to show?

A This test is designed to show the presence of toxic metals as listed in the urine.

Q And as a urine test, would this be a chelated or a provoked test?

A I do not see a provoking agent listed on the lab form.

Q In fact, there is a space that says, "Provoking agent" in the bottom of the middle where it says, "Specimen data"?

A That's correct.

Q And it's left blank?

A That's correct.

Q So you then look at the results in the middle. Are there any results there that are significant?

A One of the things that we see is that there is some lead that we are always concerned about because of the potential synergistic toxicities of lead with other agents, and also the fact that we know that lead itself is a neurotoxin. So it is showing that it is still within the reference range. It's showing that at this particular time there is no mercury showing being excreted, none detectible.

Q Is that an expected or unexpected finding at this point in an unprovoked test?

A That would be expected.

Q Now we're going to go to Exhibit 15, page 105.

A And this is a blood test on William that is an ISAC panel which I have actually not ordered before but some of my colleagues use as looking for evidence of hypercoagulability and abnormalities in clotting of the blood.

Q What is the significance, if any, of this result to your opinion that TCVs contributed to William's injuries?

A I can't say that it is a strong correlation. It's just another example of an aspect of his body biochemistry that was out of whack and suggests that we continue to look for underlying mechanisms. I

don't mean to imply that this is in any way a diagnostic of thimerosal toxicity.

MR. POWERS: Now, I have a couple of pages that unfortunately I don't have marked. I'm going to need to take a minute, Special Master, to make sure I get the proper ones.

And while we do that, if I might just a schedule note. I believe that we will be able to wrap up with William's specific review here in time for the afternoon lunch break. Certainly not six or seven minutes, but I think in a reasonable time. We are pretty close to the end, and I might propose that we take that break when Dr. Mumper is finished with William's records, and then when we return resume with Jordan King if the Special Masters --

SPECIAL MASTER CAMPBELL-SMITH: You anticipated my question. Thank you.

MR. POWERS: We'll do some housekeeping, we while we do some housekeeping. Thank you.

BY MR. POWERS:

Q Okay, Dr. Mumper, we're going to bring your attention back to the records. We are on Exhibit 15, and this is page 87.

A Okay.

Q Hold on. I see you are ready to speak but

let's get it up there on the screen.

Okay, go ahead. What do you see there?

A To me, this is a toxic element clearance profile, and it is on a urine specimen, and it is reported with the creatinine correction factor we discussed before, and it is showing that the value for mercury was 15.76 micrograms per gram of creatinine where the expected reference range would be less than 2.31.

Q What significance is this test result to your ultimate opinion on causation of William's case?

A This shows me that he is excreting in his urine a very high level of mercury.

Q And was this a provoked or chelated test? And if you can't tell from that, perhaps we should switch to Exhibit 15, page 88.

A Yeah, it says, "Information regarding pre or post-provocation was not provided." I would hazard a speculation that it was a provoked specimen.

Q And by the comment that information regarding pre or post was not provided, it means that the only sample that we see here is the post-provocation result, correct?

You have to say your full answer.

A Oh. Correct.

Q Okay.

A Well, actually, Tom, let me clarify that. The provocation comment is just that the information regarding pre or post was not provided. So I don't know that we can assume from that that it was post-provocation.

Q Okay. Is there anything else that would lead you to the conclusion that this is a post-provocation result?

A The fact that the mercury value was so high. You would not expect that to -- in a child where my synthesis of the case is that he for whatever reason did not seem to do a good enough job of excreting his mercury, I would not expect him on a non-provoked specimen to be able to mobilize that much mercury.

Q And then when we have looked at non-provoked specimens, there have been some low to zero values.

A Exactly.

Q Let's move to Exhibit 15, page 106.

A This is from Vitamin Diagnostics Laboratory. The director of that laboratory comes to our DAN think tanks. This is a specimen on William Mead in which he's looking at different nutrients in different compartments, looking at elements in whole blood, and finding a low zinc level; looking at elements in

serum, and finding a high zinc level; and looking at the intracellular concentration, and finding a low zinc level.

So our concern in these kids is frequently their ability to utilize substances on an intracellular level, and we have the caveat that measuring analytes in the serum or the plasma in traditional ways might not be reflective of their actual difficulties on a cellular level.

Q And what's the significance of the results here, if any, to your ultimate opinion in William's case?

A Again, that I would use this as guidance to supplement zinc since it's important in 300 or so different reactions, many of those the types that Dr. Deth was talking about the other day, and the fact that zinc is used in heavy metal toxicity by the body as an adaptive mechanism to escort it out of the body.

Q Okay, Now let's look at Exhibit 15, page 42. What is this a record of?

A This is from Massachusetts General Hospital on William Mead at the age of four, and it is a blood test looking at typical types of blood chemistries.

Q Now, let me interrupt you. Do you recall in the medical records and in Mr. Mead's testimony

William flying to Massachusetts General Hospital? Do you recall that testimony?

A Yes. Yes. And he was to see Dr. Buie who works very closely with us. He is a pediatric gastroenterologist who has done a lot of research and also endoscopies on a large population of children with autism.

Q Would it be your understanding that this record and other records from Partners Healthcare System at Mass. General were generated during that visit by William?

A That's correct.

Q Okay. So let's go ahead then as you were about to do and describe what you see on this page.

A The first thing that caught my attention was the fact that his plasma carbon dioxide was low. You will see that the measurement is 22, when the normal would have been 24 to 30 milimoles per liter.

This is a very frequently used analyte to help us decide about a child's level of illness. We use it to assess them for dehydration. We use it to assess for when their level of toxicity indirectly, and when it is low that implies that they are experiencing metabolic acidosis which is a potentially chronic stressor on the cell.

Q Any other information on here that you find significant?

A The other thing that I think is significant is that his total protein was 5.5, with the normal range being 6 to 8 grams per deciliter, and his albumin was 2.8, with the normal range being 3.1 to 4.3 grams per deciliter.

That implies potentially that he has had some chronic protein malabsorption over time, or potentially that he might have significant liver pathology. The reason that I think it is more likely to be related to poor protein absorption is that if you look at his liver analyte, which include total bilirubin, alkaline phosopthase, and SGPT and SGOT, they are all well within the normal range.

Q And what is the significance of these findings to your ultimate opinion, if any? How do they inform your opinion in this case?

A It tells me that even though at this time, which is 2003, this child had been getting a heroic effort targeted towards supplementing him nutritionally, that he was still evidencing protein malabsorption, and it would be consistent with the father's perception that he was like a malnourished child.

Q Let's look at Exhibit 15, page 51. That page is on the screen now. If you could explain what that is.

A This also was done at Massachusetts General Hospital. It's a chemistry report as a result of looking at pancreatic enzymes. This is an area in which Dr. Buie and his colleague have done a fair amount of work and it was -- actually, this is another case of ARI-sponsored research. We were the ones that funded their initial studies that demonstrated low levels of disaccharidases and isomaltose in children with autism.

This shows that when he initially did the first value, that he showed that -- and this was pre-injection of secretin -- that he essentially had no trypsin, amylase, lipase and his chymotrypsin was in the normal range.

The reason that this is very important is that his trypsin should have been 55.4 and it was 1. His amylase was zero and his lipase was very low. So it tells me that he does not have normally functioning digestive enzymes that would be expected to help him digest things like protein and carbohydrates and fats.

Q How is this test performed? How was this --

A This was actually done during endoscopy.

Q Okay.

A The child is sedated and Dr. Buie would have put a tube down his esophagus, through the stomach, and then they also come up from below if they are doing a colonoscopy, and he would have looked at the area around the pancreas and measured the digestive enzymes in a technique that I'm not any more familiar with than that.

Q Okay.

A Although I've seen it done.

Q Now the next page to look at would be Exhibit 15, page 52.

A So this similarly was done at Massachusetts General Hospital by Dr. Buie during an endoscopy, and showed that after he injected secretin, which is injected in order to provoke, if you will, the pancreas to put out digestive enzymes, that William had a very robust response, and his trypsin went from virtually non-detectible to 153.8 micrograms per milliliter per minute. His amylase went up to 97.6, which is well above the 32 that he was hoping for, and that his lipase went to 236 micrograms per milliliter per minute, normal was to go above the 146.

So this is a great example of a situation in which for a specific child an intervention like

secretin might be very valuable. You may recall that when the sort of big study was done that we were concerned had not good selection criteria for the patients that went into the study, such that there was a very heterogenous population. The results of that study showed that a few kids got dramatic results, most kids didn't get much of a result, and then a few kids didn't seem to be any better. But when they averaged the findings, it came out as a negative study.

What we would like to work toward is studies in which we recognize that there may be subsets of kids who have these clearly demonstrable problems that we need to address from a medical standpoint.

And so on the basis of this test on this child, I would argue that it was a very rational and moral imperative type of decision that John Green then address his digestive problems.

SPECIAL MASTER VOWELL: May I interrupt here for just a moment.

Dr. Mumper, looking at the exhibit that's on your screen, the trypsin levels, the measurement appears to be different. We have an MM/ML/MIN on the reference range portion, and we have a UM/ML/MIN on the actual results. Are those equivalent?

THE WITNESS: No. That's a very good point. The trypsin result at the bottom is nanomolars per milliliter per minute, and the finding at the top is micromoles per mill per minute. So would it be fair to have us do that math and make a judgment about that after?

I do acknowledge that it seems that they are different measurements, so I may have misinterpreted that.

SPECIAL MASTER VOWELL: Dr. Mumper, I would also reference the previous sample which has the same apparent disconnect between the actual results and the reference range measurement levels. I will defer to my colleagues on whether we need you to do the math.

SPECIAL MASTER CAMPBELL-SMITH: If you would like to do that, to do a comparison and to make a comment on that, Dr. Mumper, we can certainly entertain that. That could be one of the lunchtime activities.

THE WITNESS: Okay.

MR. POWERS: And then back on page 51, there are a few computations to do because some of those readings were zero, so with the zero value I'm assuming, Special Master --

THE WITNESS: Yes, it only applies to the

trypsin.

SPECIAL MASTER VOWELL: It only applies to the trypsin, apparently.

THE WITNESS: Right. Okay. I think for now I will let the testimony about amylase and lipase going from lower than reference range to higher than reference range after secretin stand.

BY MR. POWERS:

Q Now we're looking at Exhibit 15, page 122.

A Right.

Q And we're about to look at it on the screen. There you go. What do you see there?

A This also was done at Mass. General Hospital. This is a plasma amino acids. It's a complete panel quantitative.

Typically the way that amino acids are used, and organic acids, is to look for patterns diagnostic of metabolic disorders, typically in-born errors of metabolism. And the interpretation from the lab was that a number of amino acids were low, but the pattern is not diagnostic, and I agree with that assessment in terms of this not showing any particular in-born error of metabolism.

The way that we would typically use some of these values that are particularly low, like perhaps

the asparginine, the free cysteine, and to a lesser extent because it's not particular low, the glutamine, is to raise the issue in the context of our interpretation of the child's oxidative stress and intercellular biochemistry as indirect inferential evidence of difficulty with converting one of those substraits to another due to factors that aren't identified by looking at this specimen.

Q And how might this inform your overall opinion that TCVs contributed to William's injuries?

A In a way that given the science available back then is consistent with but not in any way diagnostic of.

Q Of?

A Of thimerosal damage.

Q Let's look at Exhibit 15, page 123.

A Yes, I think that's just the second page of the previous report, Tom, with no informative findings.

Q So there is nothing on this page that's of significance to your opinion?

A No.

Q Okay. And we have another couple that do not have exhibit numbers. Indulge a minute or two just to get those stamped.

(Pause.)

Okay, we're going to go to Exhibit 15, page 120.

A I think we'll be able to move through these fairly quickly because these are urine toxic metals at various points in time, showing that with a provoking agent, which is DMPS, which is a chelating agent that Dr. Green used probably because of its relative specificity for being helpful in mercury toxicity, that William demonstrated an elevated mercury excretion after DMPS.

Q And what date was this test administered, the one that you see on the screen there?

A February 10, 2003.

Q What do you see on this page that is of significance to your opinion?

A That the mercury is in the elevated range and that it was a post-provocation specimen with DMPS.

Q Let's go to Exhibit 15, page 118. What's the date on this document and what is this document?

A This is the same urine toxic metals, date received 12-6-04, although date collected is absent. This is showing that with DMPS as a post-provocative urine that there is the presence of elevated lead and mercury within the reference range.

Q Now, I notice that if one compares the last two exhibits, in the first one, if we could put page 120 back up, and maybe even side by side, if we look at the mercury levels on page 120 and the levels on 118, if we could zero in on the mercury and lead across both. Scott, if you can do that. So look at them from one to the other, is it fair to say that the amounts of each metal coming out at these different tests are different metal to metal, but also the ratios of lead to mercury are different?

Can you describe how that might be?

A Well, over the course of time when children mobilize mercury or lead or any other toxic elements there is not, at least as best we can detect, a clear linear progression of how they are going to excrete the metal, and we are very curious about this because we are the first to admit that sometimes they seem to be excreting a huge amount of mercury when we can't really explain what intervention mobilized that. Other times we're using a very targeted intervention like DMPS and they don't seem to be mobilizing it.

The one pattern that we have seen and documented in our think tanks is that, in general, we have to mobilize lead in addition to mobilizing mercury in order to get good mercury excretions. So

some of us, even though the parents, because of all the publicity are very interested in going after the mercury, we are very concerned also about the lead, and typically will use the traditional chelator for lead toxicity, which is DMSA, at least to some extent in trying to mobilize these toxic metal burdens.

Q Okay. And I ask that question because we have another couple of tests like this as you implied a moment ago.

SPECIAL MASTER CAMPBELL-SMITH: Mr. Powers, let me interrupt just one second.

On Exhibit 15 at page 120, Dr. Mumper, it says at the bottom of the document under "specimen data," the date collected 2-10-2003, and the date completed and received appears to be a year later.

THE WITNESS: Yeah, I think that has to be a typo. So you raise a good point. Was this really done in 2003 or 2004? So we can't be sure of the date.

SPECIAL MASTER CAMPBELL-SMITH: Would that make a difference?

THE WITNESS: Not really because the point of showing these serially is to show that there is variable excretion, and not a standard pattern. So whether it's 2003-2004, assuming that at both times

the child was continuing to be treated, it would not really make a difference.

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

MR. POWERS: And Special Master, at the top of the page it indicates at least that his age is five years old if that's any guidance for his calendar.

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

THE WITNESS: So that would potentially make it a 2004 specimen, right?

MR. POWERS: Excuse me. 2003.

SPECIAL MASTER CAMPBELL-SMITH: Yes, 2003. He was born in '98.

MR. POWERS: That's correct, Special Master, 1998 of May, May 1998, and moving forward it's 2003. It's more likely that this is a 2003 specimen as a five-year-old.

THE WITNESS: But Tom, wouldn't he turn five in --

SPECIAL MASTER CAMPBELL-SMITH: May.

THE WITNESS: -- 2004. In May. So he is really --

SPECIAL MASTER CAMPBELL-SMITH: May 15 -- May 10th. Was it May 15th? Okay. May 15th of 2003.

MR. POWERS: Correct.

SPECIAL MASTER CAMPBELL-SMITH: Okay.

BY MR. POWERS:

Q So now we're looking at Exhibit 15, page 116. Similar document to what you discussed before, that's correct?

A Correct. Post-provocation with DMPS showing excretion of both lead and mercury.

Q And then Exhibit 15, page 114?

A Showing elevated excretion of lead and mercury within the reference range there.

Q And finally, Exhibit 15 at page 112.

A Very elevated lead, or at least at the cusp between elevated and very elevated, and very little mercury being excreted, well, within the reference range, and that is a provoked specimen with DMPS.

Q So, Dr. Mumper, that concludes the review of the tests that you had identified in support of your opinion. In summary, can you describe to the Special Masters what this collection of lab results and your interpretation of those results informs your opinion on causation in William Mead's case?

A The lab results that were available back then the most compelling evidence I would say was the demonstration that with chelating agents William was able to mobilize and excrete large amounts of mercury in his urine.

The other data I presented with regards to his nutrient status, his zinc status, his amino acids, I would regard as evidence that is consistent with the idea that he was under nutritional deficiencies and oxidative stress, and that is consistent with but not diagnostic of anything related to mercury per se.

I would say that the pre and post-provocation with secretin demonstrate, at least for two enzymes, the amylase and the lipase, that he had very poor pancreatic enzyme function.

Q So this evidence that you believe supports the proposition that William Mead more likely than not suffered thimerosal-containing vaccine injuries resulting in regressive autism?

A Contributing to regressive autism, yes.

MR. POWERS: No further questions.

SPECIAL MASTER CAMPBELL-SMITH: Thank you. I have on my laptop here, it's now 1:25, and my thought is that we would take a lunch break for an hour and come back and then we will turn to Jordan King's questioning, reserving any rights to follow up with questions, Dr. Mumper, specific to William Mead following Respondent's cross-examination.

MR. POWERS: Thank you.

SPECIAL MASTER CAMPBELL-SMITH: Thank you.

MR. POWERS: Back at 2:30, Special Master?

SPECIAL MASTER CAMPBELL-SMITH: That sounds good. We are in recess.

MR. POWERS: Thank you.

(Whereupon, at 1:20 p.m., the hearing in the above-entitled matter was recessed, to resume at 2:30 p.m. this same day, Thursday, May 15, 2008.)

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

(1:30 p.m.)

SPECIAL MASTER HASTINGS: All right, we're ready to resume our afternoon activities here, and I see Dr. Mumper is back in the witness chair.

Mr. Powers, are you ready to go ahead?

MR. POWERS: Yes, I am, Special Master.

SPECIAL MASTER HASTINGS: Please go ahead.

Whereupon,

ELIZABETH MUMPER

having been previously duly sworn, was recalled as a witness herein and was examined and testified further as follows:

DIRECT EXAMINATION (Resumes)

BY MR. POWERS:

Q Good afternoon again, Dr. Mumper.

A Good afternoon.

MR. POWERS: And before I have some questions for you, at the request of the Special Masters we did some higher math, and this is in reference to an exhibit that was discussed in Dr. Mumper's earlier testimony triggered by a question from Special Master Vowell pointing out a reference range, difference in measurements that were being used from one part of a record to another.

And specifically, we're looking at Exhibit 15, page 51, and Exhibit 15, page 52. And the question was that the trypsin reference range looked as it's printed is expressed in nanomolers per milliter per minute, and every other value of interest is in micromolers.

And doing the math, the 55.4 nanomoler reference range for trypsin, in fact, it's 554 micromoler, and that would be the same, since it's the reference range on both of those pages of the exhibit, that is, page 51 and 52, so that's the raw number.

It means then, of course, that the trypsin reading above is even more dramatically low, and this is purely a guess, but given that discrepancy and how everything else in reference range and in the measured substance of issue is in micromolers, the suspicion is that there is a typo, but interesting math nonetheless, and it does give us a dramatically different number, but even if it's a typo, it doesn't affect the result.

SPECIAL MASTER VOWELL: So you don't have the math excuse for becoming a lawyer.

(Laughter.)

MR. POWERS: You know, I do. It's Mr. Williams that did the math. He's our go-to guy.

BY MR. POWERS:

Q So having cleared up the Mass. General Hospital typographic error or math conversion, I do want to get back to now talking about the important issues in the case here, and the case we are speaking about now is the case of Jordan King.

A Yes.

Q We spent a good deal of time earlier this morning, Dr. Mumper, going through your skills, your experience, your background, your qualifications. One of the benefits of the omnibus in general, and in particular here today is that in Jordan King's case we do not have to repeat that testimony. That record made earlier followed by William Mead's case-specific discussion is all part of the record in Jordan King's case, so we are not going to revisit those issues.

A Perfect.

Q I do want to focus though specifically on his case file and your report there, and I do want to ask you some foundational questions.

First, Dr. Mumper, what did you rely on in preparing your expert report in arriving at your opinion last fall, fall of 2007?

A I received the complete medical records which I reviewed. I looked at relevant medical

literature; looked at my clinical experience as I would analyze his case; and then last Thursday I had the opportunity to view a series of video tapes on CD.

Q And also back in preparing the November report, did you rely on the expert reports of any other experts on the Petitioner's side of this case?

A I had the epidemiology report, the toxicology report by Dr. Deth. I did not have Dr. Kinsbourne's report at that time.

Q Since you've generated your report and opinion in November and you're appearing here today, what additional materials, if any, have you reviewed and relied on in arriving at your testimony today?

A Re-reviewing the records as well as being able to correlate it with hearing the parents' story firsthand.

Q And video review?

A And video review, yeah.

Q And as was the case with William Mead's instance, did you review Dr. Kinsbourne's report?

A Yes.

Q And review some of the underlying science cited in his report?

A Right, and some of that crosses with some that I cited with regards to the Vargas papers, and so

again feel that his opinion, which I highly value, only adds more meat to my original opinion.

Q And in Jordan King's case, have you arrived at an opinion on case-specific causation in his specific case as you did in William Mead's? Have you arrived at an opinion?

A Yes.

Q Is that an opinion that you hold to a reasonable degree of medical certainty?

A Yes.

Q Could you tell the Special Masters what that opinion is?

A In my best medical judgment based on clinical experience and understanding of the medical literature, Jordan is a child whose neurodevelopmental problems were exacerbated by mercury exposure in vaccines.

Q That was the opinion that you expressed back in November, and is that the opinion that you hold today?

A It is.

Q Okay. So let's go ahead and bring our attention to the facts of Jordan King's medical history and really the facts of his life.

A significant portion of your expert opinion

is based on the conclusion that Jordan King has in fact suffered regressive autism, is that correct?

A That's correct.

Q Can you describe for the Special Masters what evidence you're relying on to reach the conclusion that he in fact suffered regressive autism?

A I thought that his mother articulated extremely well both the course of his first year of life giving a great deal of specificity about normal language and motor milestones, and then was able to corroborate with timing the issue of him losing certain skills, and developing certain mannerisms that seem to have emerged sometime around the 18th month or so, somewhere between 18 to 20 months, maybe give or take a little bit.

In my mind, she is a very reliable historian. We were able to look at her testimony in light of what was recorded in his well-baby checkups. During the first year of life, he was recorded as having met normal milestones, and it appeared his pediatrician was doing a conscientious job to assess those. I did note that he did not seem to have an 18-month checkup, which would have potentially been a valuable time to get further information. So by the time of his two-year checkup, they were recording

concerns about development, especially with regard to his loss of language.

Q So perhaps phrasing it a different way, you saw nothing in his medical chart or his medical records up to that two-year visit indicating he had any symptoms or signs of autism?

A That's correct.

Q When was the first mention in the medical records made of what you would identify as a potential sign or symptom of autism?

A At the two-year checkup when he was noted to have lost his words.

Q And that would be -- let's go ahead and put up on the screen the exhibit. This would be, again in Jordan King's case, Exhibit 2, page 23. And Dr. Mumper, there is a document up on the screen in front of you there.

A Yes.

Q Could you take a look and identify that document, and direct our attention to the areas that you believe are of significance?

A This is a two-year checkup done on a pediatric template, and the area I would like to highlight is about a third of the way down the left column and it says, "Development". And you will see

that expected at this age would be two-to-three-word sentences as the sort of minimal developmental milestone to be achieved, and some children have longer sentences.

The pediatrician appears to have crossed through that and put an arrow that says "doesn't talk at all, grunts, hums, on and on and lots of noise." I think she is referring to the grunting, the humming and the incessant nature of his humming as described by his mother. She also notes that he did use single words before the sister was born, and then she records none for about nine months, and I think that that should be viewed with probably plus or minus about two months. So clearly very abnormal for a two-year-old.

Q But again nothing before here, and even looking backwards from here at most would be nine months before even this doctor retrospectively would have identified a problem?

A That's correct.

Q Why is that significant as a period between 15 and 18 months of normal developed followed by a note like this? What's significant about your assessment?

A The clinical picture is just very, very classic for this picture of regressive autism where

the child appears to be developing normally by all observers for a period of at least a year, and then the typical clinical picture is a clear regression in the second year of life, between the first and second birthdays typically.

SPECIAL MASTER HASTINGS: Before you leave this document, just for the record, Dr. Mumper, in the note that you just went over where it says, "did use simple words" and then there is the letter "A" as I'm reading that with a line over it.

THE WITNESS: Yes.

SPECIAL MASTER HASTINGS: That's for the latin word "ante"?

THE WITNESS: Yes, meaning before.

SPECIAL MASTER HASTINGS: All right. Go ahead.

THE WITNESS: I think that was the end of my comment.

BY MR. POWERS:

Q All right, we can go ahead and take that document down.

Now, you just described how you haven't seen anything in the medical notes indicating there was a problem before then. I would like to draw your attention to Dr. Rust's report. This is Respondent's

Exhibit II, and we're going to be looking -- the exhibit number page is page 9, and the internal page in the report, Dr. Mumper, is page 8, but on the exhibit it should be page 9 of 21, and do you see that page on the screen?

A Yes.

Q It was there for a second. That's the one. At the very top it says, "Jordan King, here and after J.K."

A Right.

Q If we could highlight the first paragraph there, and we'll get it blown up here. And we're pausing for just a moment as we get the computer image.

A I think I can actually read it, Scott, without blowing it up if that's more helpful.

MR. POWERS: And Special Masters, I assume you all can read that. Oh, it's really blown up now.

BY MR. POWERS:

Q If you notice in this paragraph, there is a sentence that begins, "Although Dr. Mumper's report," and then it goes on. Can you read that sentence?

A Yes. "Although Dr. Mumper's report states that the onset of regression was at 15 to 20 months, J.K. Exhibit 13 at 2, J.K.'s father reported in his

son's child development, child psychiatry initial evaluation that he stopped talking at about one year of age," and that's Exhibit 7 at 8.

Q And so let's go ahead and take a look at Jordan King's Exhibit No. 7, page 8. Would it be understanding, Dr. Mumper, that Dr. Rust is attributing somewhere in the record that the father says he lost his words at 12 months of age.

A That is my impression of what Dr. Rust meant.

Q So now you have in front of you on the screen Exhibit 7, page 8, and I'll ask that the top half of the page be highlighted and blown up.

Now, this document, Dr. Mumper, what is your understanding of what this document is?

A This is part of an in-take form that the parents were filling out in order to undergo some comprehensive assessments about getting a diagnostic in-take evaluation on their child and potentially being evaluated for services.

Q Was this a form that was filled out at around two years of age or slightly after that?

A That's right. It was around two years of age.

Q And this is the page that Dr. Rust

referenced?

A Yes.

Q If you look at the highlighted section now, in the bottom right quadrant there is a section called "Language". Do you see that?

A Right.

Q And there is a line that says, "Use single words".

A Right.

Q You see that?

A Yes.

Q Now, this is the parent being asked if the child uses single words.

A Right.

Q What does it say there?

A It says, "Around one year, then stopped." And the way that I would interpret that would be to mean that around one year Jordan was using single words, then sometime between one year and the time that the parents filled out this form he stopped doing so.

Q And it does not say that he lost his words at one year, does it?

A Not at all, and in fact I thought his mother gave a really excellent language history when she

testified here yesterday, and she did a great job of laying out a number of words at a year, and if anything, one would say that he had slightly precocious language by history.

Q So would you agree or disagree with Dr. Rust's characterization of that single chart note?

A I definitely disagree with his assessment.

Q Do you recall anything else in Dr. Rust's expert report in Jordan's case that provides evidence that there was a lack of regression?

Anything in Dr. Rust's report saying that Jordan in fact was nonregressive that cites to the medical records?

A Let me just review so I'm sure to be accurate.

No, I do not find anything else that would argue with our contention that he had regressive autism.

Q Thank you. Okay, you set that expert report aside then for a minute.

In your review of Jordan King's medical records, you've already described up until the second year visit there was a lack of any concern about developmental problems. How would you describe Jordan's general state, his overall health as

reflected in those records up to age two?

A You know, he was actually pretty healthy. He had a little bit of a rocky start in that the birth was prolonged which demonstrated by the record that the mother had a 20-hour labor and prolonged rupture of membranes which is recognized as a potential risk for infection, so standard of care is to treat in those situations, treat the mother with IV antibiotics. But he had normal well-baby exams at two, four and six months.

The mother did have an infection, took some antibiotics while nursing him. He did have an illness around four months of age with lethargy and vomiting, but that would clearly not be out of the range of normal for a child to have some intermittent illnesses, presumably viral, and so I would say that he actually appeared to be a healthy baby.

Q Now, there was an episode where he had a fever and an emergency room visit.

A That is correct.

Q In your review of the medical records, and your clinical experience, was there anything in that record that would indicate anything that would be causally related to the appearance of autistic regression later in his life?

A The record basically reflected a child with a fever going for an appropriate workup, and no concerning etiologies were found. So the child was left to resolve the illness with basically minimal medical intervention.

Q So based on everything that you have just talked about, have you reached a conclusion about whether Jordan King suffered from regressive autism?

A Yes, it's my clear belief based on my clinical experience that he has a clear case of regressive autism.

Q I want to move on and talk about etiology, and I want to talk about the causation picture.

A Okay.

Q Having concluded that this is a boy who experienced an autistic regression, what did you do in Jordan's case to identify a potential cause of his regression? What was the evaluation that you did similar, I presume, to the one you did in William Mead's case?

A Right. So similarly, I generated a differential diagnosis of potential causes of autism and then went through the records to find out if with reasonable medical certainty other causes had been ruled out, and I actually found a very nice summary by

one of the geneticists who evaluated him, looking at a laundry list of the evaluations he has had, and essentially laid out a nice differential diagnosis and that geneticist concluded that those things had all been normal.

Q Let's go ahead and look at Exhibit 7, page 16, and that's on the screen in front of you. Is that what you were referring to in your earlier testimony, the genetic workup?

A Yes, that is. It's a clinical and biochemical genetics consultation report from Legacy Health System by Dr. George Anadiotis.

Q And what is the date? If you looked at the top right-hand corner, what's the date of this evaluation?

A 8-25-02. Is that correct? I'm sorry, 8-23-01.

Q Okay. And is it that report you're relying on as ruling out known other causes of autism in Jordan?

A Well, it's this report that I thought reflected a nice summary for our purposes. I actually went through the record myself to verify, but on the next page, or perhaps the third page he lists in one place the laboratory assessments that were done, so I

thought that would be helpful.

Q Yes, and if you would turn to your paper copy and let us know the exhibit number and the page number of your paper copy, and we'll go ahead and put that on the screen. Would this be Exhibit 7, page 17?

A Exhibit 7, page 18. So, Scott, if you could zoom in on the lab work area.

This essentially lists a lot of things that had been done in the workup to that point, and the genetics doctor concluded that they had all been unremarkable. In doing that, there are appropriate workups to look for classic autism, classic genetic autism, and it's a good summary.

Q In looking through the rest of the medical records, would you agree with the summary? In other words, there is nothing that would contradict the summary there?

A Well, in terms of the traditional labs, yes. He and I would have a different opinion about the potential contribution for some of the so-called functional tests that we feel forced to rely on to evaluate the way the child cells are functioning as opposed to the actual anatomy.

Q Okay. Is there anything you wanted to comment on on that particular exhibit?

A On the next page there is a very nice physical exam that I wanted to point out to the Special Masters because this is clearly an exam that is intended to make sure that the child did not exhibit any form of genetic recognized syndromes. You can tell that first in the HEENT exam in which they go to great lengths to describe the distance between the eyes and the way that the eyes are situated, and that the ears are well formed, and that the child doesn't have abnormal clefting of the palate, and essentially it's saying that the child does not have any sign of dysmorphic faces that would make you think about a genetics cause.

Then he also, in the chest exam, measures the nipple distance, which is another way that the geneticists look for some genetic syndromes, and then also they look at hands to look for subtle abnormalities on the hands, which again Jordan did not exhibit.

Q Anything else of significance there?

A I think that's what I wanted to point out.

Q Okay. Do you recall testimony from Mrs. King that they did sort of a toxicological examination of the house where they live?

A Yes, and that was actually very helpful

because I wanted to clarify for the Special Masters that at the time I wrote this report I had not had the advantage of talking to the mother. So one of my concerns was that there was the possibility that Jordan may have suffered from some synergistic toxicities in that at the time he was exposed to thimerosal-containing vaccines there may have been other environmental exposures that would be worthy to take into account.

After talking to Mrs. King yesterday, she described in detail how she essentially turned every stone, getting some very sophisticated analyses on her house, and finding that there was no clearly identifiable other source of mercury in particular.

One of the reasons that I was concerned about this is that one of the devices we use to try to narrow our differential diagnosis is to look at environmental information, and you can actually use the Internet to find by ZIP code relative loads of environmental toxicants, and the Pacific Northwest is one of the areas that we worry about because they get a fair amount of pollution from China. So I was worried that perhaps he had environmental causes.

Mrs. King actually did a very good job of looking at her house, and it seems that we do not have

other reasons to explain the mercury. I think she mentioned yesterday she only has one amalgam.

Q Now, from your review of the medical records, did Jordan King get the full course of recommended pediatric vaccines?

A That's correct.

MR. POWERS: And I actually have -- actually help summarize those shots. It would be a new trial exhibit, but we do have copies here and we can put it upon the screen to chronologically rather than scattered across the page put all the shots together.

Dr. Mumper, if you look at that, we're going to need to mark this as a trial exhibit. Would it be 5 or 6?

SPECIAL MASTER HASTINGS: Let's mark it as Trial Exhibit 5, although now I just realized we're doing two different trials here unlike last year. But why don't we simplify things, and just mark it as Petitioner's Trial Exhibit 5. We may not file it into the Mead case, but for now let's mark it as Trial Exhibit 5 so we have no confusion.

MR. POWERS: Thank you, Special Master.

BY MR. POWERS:

Q So what you see on the screen there, Dr. Mumper, does that look like an accurate representation

of the shot schedule that Jordan King received?

A You know, I have to clarify to say that one of the things that is missing here would be the routine IPVs that did not contain thimerosal, so I would have to say that this reflects thimerosal-containing vaccines.

Q Thank you for clarifying.

So this is his thimerosal-containing vaccine summary?

A Right.

Q Thank you.

So you consider that in your analysis of causation in Jordan King's case, correct?

A That's correct.

Q Okay. Now, based on these and then some lab results that we're going to talk about, did you form an opinion to a reasonable degree of medical certainty about what you believe was a substantial contributing cause to Jordan's regressive autism?

A Yes.

Q What is that opinion?

A I did form the opinion that I thought that thimerosal-containing vaccines contributed to his neurodevelopmental problems and the development of autism.

Q I do want to focus now on some of the lab work as we did with William's case.

A Okay.

Q I'm going to ask you to take a look at Exhibit 1, page 36. Now that's on the monitor there in front of you.

A Okay.

Q Can you identify that document?

A Yes, that's a fecal metals.

Q What is a fecal metals test?

A Fecal means stool or feces, and that's essentially measuring in the stool different types of potentially toxic metals.

Q And what on this chart or this lab result is of significance to you?

A I see that the bottom that we've just blown away from that it was a provoked specimen, so I just want to mention that. The chemet was a detoxifying agent, and we expect that when kids are being chelated they are going to excrete mercury and other metals either in their stool or their urine or some combination of the two.

So this is reflecting to me that he had a very large excretion, greater than 95th percentile, to the chemet.

Q And this is particularly referring to mercury which is up on the top line of this test result?

A That's correct. He also showed a relatively high elevation of arsenic. We do see arsenic in some of our kids. There is actually arsenic in a lot of grocery store chickens, and so when we see this pattern we recommend that they use organic chickens instead.

Q What's the significance of this lab result to your opinion that thimerosal-containing vaccines contributed to Jordan's injuries?

A I would say that it is provocative evidence but nothing that's definitive just on the basis of the stool, but it certainly confirms that there was mercury mobilized and excreted in the stool.

Q Let's look at Exhibit 1, page 45?

Oh, I'm sorry. Could we go back, before we move on go to back to page 36 of Exhibit 1? What date was this test administered?

A 5-2-2000 something, 2000.

Q Okay. So now we can move on to Exhibit 1, page 45. That document is in front of the screen right now. Can you identify that document?

A It's a Doctor's Data lab. It's a urine in

which elements are measured and the results are normed per gram of creatinine, and in this case it once again is showing a very elevated reading on mercury, about twice the upper range of normal.

Q And if you look at this lab result, can you tell whether this was a chelation-provoked urine test?

A Yes, it says post-provocative challenge, but it does not provide the agent.

Q Okay. And this was a test that was done when? Can you see? Particularly, when was the specimen collected?

A May 5, 2000.

Q What's the significance of this test, if any, to your ultimate opinion that TCVs contributed to Jordan's injuries?

A Because I have looked at other potential sources of mercury and not identified them, and because he is excreting significant mercury, I put thimerosal-containing vaccines on the list for the differential diagnosis of what could have contributed to his autism.

Q Let's look at Exhibit 1, page 35. Can you go ahead and identify that document?

A Yeah. This is another urine toxic elements, again showing a relative elevation of mercury. This

time also showing some elevation of tin. This was also post-provocative. Tin is found in certain juice boxes and toothpastes. So when we see this we do some environmental controls to try to remove that as a source.

Q And when was this test, when was this sample collected?

A December 30, 2000.

Q What's the significance of this lab result to your ultimate opinion on causation in this case?

A Again, it is part of the mounting laboratory evidence that he had a significant mercury load that he was mobilizing.

Q Let's look at Exhibit 1, page 33. Please describe that document and identify it.

A This is a lab that I've never used, Meridian Valley, it's a microdigestive panel, and they are looking microscopically, meaning that they are examining the stool under the microscope, and they have established norms for certain amounts of fats and starches and undigested meat fibers that would be seen in the stool.

Scott, if you could blow up the microscopic exam with the values for me.

It is certainly true that normal kids will

have some of these things, and in fact when we see undigested meat fibers come back or vegetable fibers, we try to figure out if the child is maybe missing something as simple as just chewing his food inadequately.

But in this case the lab, at least by their norms, was suggesting that there was some increase in fats and starch, and I would, not knowing the real merits of this particular laboratory, say that this has to be considered soft evidence of potential fat absorption problems or carbohydrate absorption problems, but nothing that is very definitive in isolation.

Q And drawing that conclusion from the lab, what significance, if any, does it have to your ultimate opinion on causation in this case?

A It reenforces the parents' story that there was chronic diarrhea. It doesn't for me provide direct evidence about causation.

Q Now we're going to move on to Petitioner's Exhibit No. 1, page 31. Can you identify that document, please?

A This is a document in which they are looking at immunoglobulins, and --

Q And let me interrupt for just a second.

What tissue would be tested in this?

A This would be a blood test.

Q And when was this administered or when was the --

A It looks like it was received on February 21, '01.

Q And now please go ahead and describe what you see in here that is of interest to you.

A This is looking at immunoglobulin G, which is low at 666 with normal value being 800 to 1,700, and IgA being low at 81, normal values being 100 to, I think, 450 for males.

Again I am not intending this to show any kind of particular immunologic definable syndrome or immunological deficiency in the classic sense, but I'm using it to show that this is a child who had relatively low secretory IgA, at least as measured by this lab.

Q And what is the significance, if any, of that particular result to your ultimate opinion on causation?

A We're concerned about immune dysregulation as related to thimerosal-containing vaccines, and so it becomes another piece of soft evidence that's consistent with the hypothesis and the conclusions.

Q Let's move on to Petitioner's Exhibit 1, page 23. Can you identify that, please?

A This is a red blood cell element analysis similar to the ones that we looked at this morning from Metametrix Lab. It is looking at essential elements in the red blood cells and showing a pattern where things like copper and chromium and magnesium and manganese and selenium and zinc are low. Again the low zinc and selenium are commonly seen in kids with autism.

We use this as an ongoing monitoring for safety of chelation therapy because we want to make sure that the child's essential elements don't drop low as we're trying to use chelation to get the bad stuff out. We sometimes also get calcium or zinc and other essential elements out.

Q Now, with the issue of mercury exposure being front and center here, is there anything in particular about the selenium and zinc levels that are of interest to you?

A Again, we use those as soft indicators to add to our evidence that the child may be depleting those sources, but it could also be due to lack of intake. It doesn't seem as likely in these patients since they were being aggressively supplemented, but

that certainly would be a possibility.

Q Now, related to mercury, why would selenium and zinc be of concern in particular?

A Because for excreting mercury by metallothionein mechanisms, you would need four molecules of zinc for every time you escort the mercury out of the body, and selenium has a role in detoxifying methyl mercury also. Methyl mercury, particularly, not necessarily exclusively ethyl mercury.

Q Now, if you look under toxic elements, there is a reading there for mercury. This is in the -- sort of the page, it's in the middle of the page, but it's the second highlighted category. There you go.

A Yes.

Q Anything significant about the mercury level there which looking at the top of the page would fall in the band of low level?

A Yes. The only thing that this would really tell me is that in the time period in which this blood was drawn, since blood, you know, turns over about every 120 days, there do not seem to be any significantly high ongoing sources of mercury at this time.

Q How does that conclusion support the

ultimate opinion that you're rendering on causation here?

A Well, since at the time of this study he was three, it helps me try to zero in on potential sources of mercury, and knowing that he got his thimerosal-containing vaccines at an earlier time.

Q Let's look into Petitioner's Exhibit 1, page 22. Can you identify that document?

A This is a Metametrix Laboratory nutritional recommendation based on their laboratory assessment, and I use it as just evidence that, at least by the way they determined their labs, it seems to be a child who needs amino acid supplementation, some antioxidants and some B vitamins. Those are all well described in children with autism as potential deficiencies.

Q Why might this kind of report be relevant to your opinion on general causation here involving TCVs?

A Because we remain concerned about children who don't have adequate glutathione, adequate antioxidant protection, being able to handle thimerosal.

Q And is that related to Dr. Deth's description of the role of oxidative stress in regressive autism?

A That's correct.

Q Let's look at Exhibit 1, page 58. What is this lab result?

A This is a chemistry profile, and a complete blood count. These are very classically, probably the most popular lab tests to order in children.

Q And if we could go ahead and zero in on the table.

A Yes.

Q There. Thank you. That's great.

A So what we see here is that the child shows a low creatine of 0.3 micrograms per deciliter, I believe. This is very common in children with autism. There are a number of potential reasons for that. Some children once they regress into autism will have relatively lower muscle mass. Some do not. It may be related to other biochemical pathways, but it's one of the very most consistent findings we see in clinical practice, and when we've looked at large series it has a P value like seven zeros in terms of how common this finding is.

The bicarb is low at 19. Typically, a bicarb should be in the 23 to 30 range. I mentioned earlier that low bicarbs can signify metabolic acidosis or ongoing illness or potentially loss of

bicarbonate through the stool with chronic diarrhea. All those things I would consider to be evidence that the child at least at the time of this test was under oxidative stress, and add credence to the idea that ongoing chronic diarrhea could be depleting him of bicarb and adding to a chronic metabolic acidosis, which would be an environment that would perpetuate oxidative stress.

Q Anything else of interest to you on this particular lab result?

A Just a few things. The other value that's high is a ALT, which is one of the liver enzymes, but it's only marginally high, and the others are normal so I don't really think that's probably of clinical significance. The alkaline phosphatase is a little bit high. That's an enzyme that can relate to either the liver or the bone, and since Jordan at this time was presumably growing, since it's not a hugely high elevation I would probably not work that up further, and the phosphorous is a little bit high but again in isolation I would not probably work that up. His calcium is normal.

We do try to look at the calciums very carefully in the children that are on casein-free diets.

Q And can you explain the significance of what you just described overall with this record, if there is any, in forming your opinion on causation in this case?

A Again, taking in context with other information, it suggests a child that has chronic low-level metabolic acidosis by the bicarb, has the typical findings of low creatinine, and the main concern I have is how much of an ongoing state of stress is he in since he had such a problem initially with chronic diarrhea. Or is he getting other sources of stress to show that low bicarb?

Q Okay. Let's go to Exhibit 1, page 55. What is that document?

A This is another urine toxic metals, and this one looks like it was done in February of '03, and again it's showing as a provoked urine, that the mercury is way off the chart, and the tin is way off the chart.

Q Now, what's the significance of this result for you?

A This is a very dramatic provoked urine because the mercury is essentially seven times the normal value, so it's suggesting that the child has a significant body burden.

Q What does this high tin result suggest to you?

A Environmental exposures probably. Again, I would be thinking about things like toothpaste or juice boxes or there are a few other things that don't come to mind at the moment that are printed out on the back of the laboratory report.

Q Is there anything else that you can think of from your clinical experience that might explain in particular such a high level of tin?

A Not typically, no.

Q Okay. What, if anything, does this result do to inform your opinion on causation here?

A Again, in a child who seems to be continuing to excrete a mercury burden in the absence of other sources of mercury, it makes me wonder about implicating thimerosal-containing vaccines.

Q And I have one more record but this is one that -- this is a record that I need to check the exhibit number on, so if I could have just a brief moment.

(Pause.)

MR. POWERS: This is one we may need to use the camera for. We can't find the image in our computer.

(Pause.)

MR. POWERS: Apparently this is something that somehow did not get stamped with an exhibit number, so we're not going discuss it. It's not significant enough to make a motion to introduce it to the record now.

BY MR. POWERS:

Q So, Dr. Mumper, those are the extent of the lab results that we were going to be discussing today. We've gone through them one at a time, but can you summarize for the Special Masters what you believe the results that you've just discussed have to say about your opinion on causation here? Why is all of this information relevant?

A I would put this story together as showing ongoing excretion of a mercury burden in a child where we don't have an alternative explanation, and thereby potentially implicating thimerosal-containing vaccines. It is a child who is basically pretty healthy until the development of the chronic diarrhea, but there are some lab values that suggest he may intermittently have mild metabolic acidosis or some problems with fat malabsorption, and that that should be taken as evidence consistent with the idea that thimerosal was a contributor to the development of his

autism.

Q Now, I have some general questions that I want to ask you about the use of these kind of lab results generally. A number of the labs in both Jordan's and William's cases involve provoked challenges that draw mercury out. You recall going through an extensive number of those?

A Yes.

Q Where in the body do you believe this mercury that is being excreted in a provoked test, where is that mercury coming from?

A To the best of our knowledge in looking at the literature at ARI, we believe it's being mobilized from fat and kidney.

Q Is there any contention that underlies your report, that this is mercury that is being drawn out of the brain itself?

A No. We really don't have evidence to make that claim.

Q And you certainly wouldn't be making that claim anywhere in your report or in your specific analyses of these labs; that is, that the mercury coming out here represents mercury coming out of the brain?

A No, I would not want to leave that

impression at all. We believe that not to be the case.

Q So the obvious question then is, if the mercury that's coming out here isn't coming out of the brain, and the brain is where the mechanism of injury is occurring, why are these tests relevant to your opinion?

A Yeah. Again, I rely heavily on our understanding of methylation biochemistry and oxidative stress, and also relying heavily on our contention that if you treat medical problems in children with autism their autism gets better. So whereas we would all love to have an agent that mobilized mercury from the brain in a very safe way, to my knowledge we do not have that.

So, we are trying to do as much as we can for the children by treating their medical problems and by trying to treat their inflammation in the rest of their body, potentially neuroinflammation as is being currently looked at at NIH, and thereby allow them to mobilize their normal protective mechanisms to the best they can in order to excrete their mercury burden. That is the concept.

Q So would you expect a child who got a course of mercury-containing vaccines, who is not autistic,

would you expect to see the same sort of lab results in terms of mercury coming out a couple of years after the shots?

A Well, I wouldn't expect to see it, but I'm not aware that that study has actually been done, so I can't really say for sure.

Q But you wouldn't expect to see it, correct?

A I wouldn't expect to see it because in the normal child, the neurodevelopmentally normal child, I would expect that that child would have mobilized his or her resources at the time of the injection and handled the vaccines well as the vast, vast majority of children apparently did.

So, no, I would not expect to see them still excreting it later unless they were getting it from another source.

Q I addressed the issue briefly before, but I want to raise it again. In looking at these lab results collectively now that we've seen them from two different children, there is this characteristic that the mercury levels over time for each of the child based on these tests seem to be going up and down, or maybe I shouldn't say mercury levels, the test results.

A Right. Or retain variable excretion.

Q Why might that be? Now that we've had two different boys to look at, you see the same pattern from test to test.

A Yeah, I wish I knew because this is the kind of thing that drives me crazy on a day-to-day basis. As I think I mentioned earlier, sometimes doing something like really working hard on methylation biochemistry. My favorite way of chelating is actually to use the body's own mechanisms. So I try to utilize a lot of methylcobalamin, folinic acid, glutathione, which are all pushing the body's natural methylation sulfation cycles, and sometimes when you do that you can get huge excretions of mercury, potentially other toxins, even more so than if you were to use a chelating agent.

Sometimes if one picks DMPS, thinking it's more specific for mercury, you don't get as much mercury out as you got with DSMA. So we will be the very first people to admit that this is a very inexact science at this point; that we have felt compelled to look into it because of the science that has been brought to our attention, but we are very eager for places like NIH to study it, and we are very eager to have more guidelines about how to do it in the best possible way, and potentially alternative ways of

pushing the body's natural pathways.

MR. POWERS: Doctor, I have no further questions for you right now.

THE WITNESS: Thank you.

SPECIAL MASTER HASTINGS: Thank you, Mr. Powers.

Mr. Matanoski, do you folks want to begin your cross of Dr. Mumper at this point?

MR. MATANOSKI: Your Honor, in light of the fact that we probably would go beyond the end of today to finish it, if it's okay with the Court, we would rather just begin it tomorrow.

SPECIAL MASTER HASTINGS: How long total are you thinking?

MR. MATANOSKI: Three and a half to four hours.

SPECIAL MASTER HASTINGS: Fine.

MR. POWERS: If we could weigh in, even if we could get a couple of hours done now and not necessarily work all the way to the end but of there is some natural breaking point to make some progress in cross now to see what we can get done since we are all here and it's 3:30.

MR. MATANOSKI: We have an entire day tomorrow to do cross, redirect and re-cross, and our

preference would be to start tomorrow rather than break today after going through part of this. It may make more sense to go through it all.

Just a moment, I will consult.

SPECIAL MASTER HASTINGS: Mr. Power, do you anticipate you will be doing any rebuttal tomorrow? Obviously, you haven't heard the cross yet, but do you have any idea?

MR. MATANOSKI: if I may, we could -- I just spoke with co-counsel, and he said he could get through some of it today, and we can probably find a natural breaking point. However, could we just have a brief break before we go, 10 minutes or something like that?

SPECIAL MASTER HASTINGS: Okay, let's take a 10-minute recess, and we'll come back.

MR. MATANOSKI: Thank you, Your Honor.

(Whereupon, a short recess was taken.)

SPECIAL MASTER HASTINGS: We're going to go ahead then and have you start your cross-examination of Dr. Mumper.

MR. MATANOSKI: Actually, Your Honor. Mr. Powers came up to me just after you left and said that there was a matter that MyLinda King would like to further talk about that she didn't have a chance to,

it didn't come up this morning, and I said that's fine if she wants to go back and --

SPECIAL MASTER HASTINGS: Very good.

MR. POWERS: Yes, this would be to bring her back on a very, very brief --

SPECIAL MASTER HASTINGS: That's time.

MR. POWERS: -- some issues raised in testimony earlier.

SPECIAL MASTER HASTINGS: Definitely. Ms. King, would you please take the stand again.

MR. POWERS: And for the technology, if we could switch the computer back to the Petitioner's devise, that would be great. Are we on that, Scott?

SPECIAL MASTER HASTINGS: Please be seated, Ms. King. You are still under oath from before, so, Mr. Powers, please go ahead.

Whereupon,

MYLINDA KING

having been previously duly sworn, was recalled as a witness herein and was examined and testified further as follows:

MR. POWERS: Thank you very much.

Welcome back, Ms. King. Get situated there.

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REDIRECT EXAMINATION

BY MR. POWERS:

Q You were in the courtroom earlier this morning when you heard testimony regarding Dr. Rust's expert report in this matter?

A Yes, I was.

Q And you saw reference to and this, what we are looking at on the screen here is Respondent's Exhibit II. That's the front page. We would be looking at Exhibit II, page 9 of that document if we could get that on the screen. And if we could highlight that first paragraph, please.

So in looking at this page and recalling the testimony this morning, do you see reference there to Dr. Rust's representation that Jordan King's father reported in his son's child development evaluation that Jordan stopped talking at about one year of age. Do you see that?

A In that highlighted paragraph?

MR. POWERS: No, Scott, that's the wrong page.

SPECIAL MASTER HASTINGS: It's the previous page.

MR. POWERS: The previous page.

MR. POWERS: Yes, suddenly you do have an

M.D., believe it or not. There you go.

BY MR. POWERS:

Q Do you see it? It says --

A Yes. Okay. Yes, it says, "Jordan's father reported."

Q Okay. And so that's Dr. Rust saying that Jordan's father reported that something very specific in the child's records, correct?

A Yes.

Q And you recall that testimony?

A Yes.

Q Let's go ahead and look at the record that's referred to. This would be Petitioner's Exhibit 7 at page 8. And if you look at that page, there is a highlighted portion there.

A Yes.

Q Is that your husband Fred King's writing?

A No, none of that is Fred's handwriting. It's mine.

Q So you're the one that wrote, "around one year, then stopped." Is that right?

A Yes.

Q And since you're the person who wrote that, can you explain to the Special Masters what you meant by that?

A Well, I tend to be really succinct when I answer questions verbally or in writing, and what I meant or what I thought I was being asked if he was talking by the time he was one year old, and he was. And then I put a comma in and said "then stopped", because the whole reason -- the whole point of the visit was that he wasn't talking anymore. What I did not mean is that he started and stopped talking at one year of age.

Q And if we could then look at the same exhibit, Exhibit 7, page 9. Could you look down at the bottom?

A Yes. It says MyLinda King.

Q And you need to speak up. Do you see a space there where it says, "Name of person completing this questionnaire"?

A Yes, I see that now.

Q And whose name is there as having completed the questionnaire?

A MyLinda King.

MR. POWERS: Thank you very much. Nothing further.

THE WITNESS: Okay.

SPECIAL MASTER HASTINGS: All right.

(Witness excused.)

SPECIAL MASTER HASTINGS: Before we start with the cross here, just a housekeeping issue that arises from the confusion with Dr. Rust's exhibit. A number of the exhibits, like the one we just had on the screen of Dr. Rust's, the pagination that comes out of our case management system sometimes gives you a different page number than at's the bottom of the screen. We just had that confusion with page 9 according to the ECF, but at the bottom of the page of the expert it's listed page 8.

In the post-trial briefing for both sides, if you can remember this, let's use the pagination of the original report at the bottom, just so we're not always a page or two off, and I'm trying to look at the wrong page, and I'm trying to figure out what you're citing in your briefs. If we all do it that way, it will probably be easier.

But go ahead then, Mr. Johnson.

MR. JOHNSON: Thank you, Special Master.

CROSS-EXAMINATION

BY MR. JOHNSON:

Q Good afternoon, Dr. Mumper. My name is Vo Johnson, and I represent the United States.

I'm going to start by asking you a couple of questions from the CV that you submitted in this case.

A Okay.

Q And specifically, I want to look at the section that lists your publications.

A Okay.

Q And am I correct that you only list two journal articles published in the last 10 years?

A That is correct.

Q Okay. And you were listed as an author on both of those articles?

A That is correct.

Q The first article that's listed appears to involve hyperbaric oxygen therapy, and I was wondering if you would just describe that study.

A Hyperbaric oxygen therapy, as we are investigating it for use in autism, is mild hyperbarics. The study in question used 1.3 atmospheres of pressure, and that is roughly equivalent to 9 to 11 feet underwater in terms of the pressure. The oxygen used was somewhere between 24 and 27 percent. We had an oxygen concentrator, but no actual oxygen masks or hoods.

The reason that this came up is that people were using home hyperbaric chambers and we wanted to do a safety study, and so we essentially got Jill James, who was the one that done the methylation

biochemistry studies, to do markers for us because since the first rule of medicine is first do no harm, we wanted to make sure that the parents who were purchasing these chambers weren't in some way making the very core of what we were trying to treat worse. So we wanted to make sure it didn't have a negative impact on methylation biochemistry or glutathione levels.

So it was essentially an open label pilot study to look at the safety with regards to the methylation biochemistry. We also had some measures that were reported both by the parents and the clinicians about potential effects, but it was mainly a safety study.

Q And just for the record, can you describe how hyperbaric oxygen therapy works? What do you do when you administer that therapy?

A In the study in question, there are soft chambers that deflate, and the child and the parent get into the chamber, and they get zipped up, and then slowly over a period of about 10 minutes the pressure is turned on such that it gets to 1.3 atmospheres. The child stays there for an hour, and then over 10 minutes or so the pressure is dialed down again.

The reason that it's so much of interest in

autism is that pre- and post-spec spans are suggesting that by doing this you increase profusion to the brain, sometimes quite dramatically, and the concern with our patients is that if they are not adequately profusing their brain or presenting their brain cells with the proper nutrients, that they may continue to have autistic symptoms that we might be able to deal with in a safe and effective way.

So the chambers that we used were approved for home use by the FDA, and we did it with that underlying mechanism of treating brain profusion, and anecdotally, we feel that it's very good for inflammation. We don't have a lot of inflammatory markers yet. One of the markers in the study was a child that had a C-reactive protein of 69, which is very, very high. Depending on the lab, it should be less than two to five, and his came down to normal with his course of hyperbarics.

So that provides some fertile ground for further study. We have since completed a placebo controlled double-blind trial in which the physician nor the parent knew which child was getting hyperbarics versus sham, and we did measures afterwards, and we were able to show that the children who had the real hyperbaric treatment were more likely

to be in the improved or much improved category, and that the kids that did not get it were more likely to be in the worse or most worse category. The P value on that was .000 either 7 or 4, I'm not positive. That study is being written up and has not been published yet.

Q All right. So just to be clear, the article that's listed on your CV was the original pilot study that you did?

A That's correct.

Q And the subjects in that study were who?

A Patients recruited from my clinic and Dr. Rossignol's clinic.

Q Okay. And there were no controls in that study, is that correct?

A That's correct. It was a pilot study with no controls. Absolutely.

Q And the subsequent study that you did that was the placebo double-blinded trial, that has not been published yet?

A That is correct.

Q Okay, so that obviously has not been peer reviewed either?

A That's correct.

Q The second article that you've listed on

your CV is a paper that deals with material RH negativity?

A That's correct.

Q And it appears that it was -- well, let me ask you. What was your participation in that study?

A In that study, I collected patients from my clinic. I have a huge population of neurodevelopmentally normal kids in my general peds. practice, and then I have a lot of children with ADD, ADHD and autism.

My anecdotal impression from taking histories for several years was that kids with autism tended to have more RH negativity in their moms than in the background population. I wanted to test that hypothesis because there is a lot of potential recall bias when we go back and look at our patients because we tend to either remember the good ones or the bad ones in terms of -- not in terms of value judgments, but in terms of outcomes.

And when we looked at my clinic, even though the background population in Lynchburg has a -- the moms are RH negative about 12 percent of the time, if you looked at my kids that were neurodevelopmentally disabled that number was 28 percent of the mothers were RH negative.

The reason that that was potentially important is that there is various types of Rhogam preparations, there are several -- Baro is one, Rhogam is one, there is a third one that I can't recall the name of -- have differing levels of thimerosal. The thimerosal was taken out in 2003.

So I looked at my population and then independently Dr. Mark Geier was looking at his population of patients. He actually had a much greater number of -- he had a huge number of moms that he had RH negativity status on, so he could determine the background for his population, and he -- in his patients, I think it was something like 26.4 or 26.8 percent of the mothers of the neurodevelopmentally disabled kids were RH negative compared to the background rate around 10 or 11 in his mothers of the neurodevelopmentally normal children.

Then we did a further analysis and looked, after 2003, when Rhogam no longer had thimerosal, and in my population of kids that were born at a time when they would have gotten the thimerosal-free Rhogam, or Baro, the number of them who had RH negative moms went to the background rate of around 13 percent.

So it was just a way of using my clinical experience to try to inform the science about

something that I could do, you know, essentially with no funding. It was just a matter of going through our records and having the staff pull out this information, contact the families.

Q Now, you mentioned Mark Geier. Was he also involved with this study?

A He was the one who had the other set of kids, and he and his son David were the ones that did the writing of the paper essentially.

Q Okay, so the Geiers were also authors on this paper with you?

A That's correct.

Q Now if we could look at the next page of your CV, you list a number of research projects that I assume are ongoing in your clinic, is that correct?

A That is correct.

Q Okay. Have you completed any of the research projects that are listed on this page?

A The first study, the code has been broken, and the paper is in the process of being written. The second study, the paper has been written and is in press, in peer review right now. The third study actually got wrapped into the second study, so in that we ended up using -- instead of two separate studies we did one study so that's the one that's in press.

The evaluation of hyperbaric oxygen therapy is the one that I told you we've completed and we're in the process of writing. The evaluation of reliability of multiple labs utilizing split samples, the samples have been obtained, and received back, and are currently with the statistician who is analyzing the inter-sample reliability. And in the porphyrins, we are still collecting normal controls.

One of the experiences we have is that we get very eager parent participation from the autism community. It's more difficult to get the control patients to offer bodily fluids.

Q The paper that you said is in press, in which journal is that going to be published?

A You know, I don't know. Dr. Vojdani is the first author on that one, so I have not seen him since the day in conference, and I don't know.

Q Okay. And the project regarding the evaluation of the reliability of the multiple labs, which labs were you evaluating?

A I won't be able to remember them all. The Autism Research Institute funded a study, and the labs that I can recall that we looked at are Metametrix, Genova, Vitamin Diagnostics, Immuno Labs, Great Plains, and I believe that there are two more. It was

a two-site study. There are two more, I think, that was at the other site that I can't recall.

Q Why did you select those labs?

A Because a lot of our clinicians utilize those labs. They tend to look at functional measures. We get a lot of criticism from mainstream that the values aren't reliable, so we wanted to send split samples that were sent in under two fake names from the same -- one fake name and another name from the same patient drawn at the same time under the same circumstances.

Q Did those labs know they were involved in the study?

A No, they did not.

Q They may know now.

A Thank you.

Q Sorry.

A Now you understand why we have trouble doing research.

Q Do you have any preliminary results from that study?

A I will tell you that I have looked at the split samples, and the one that sticks out in my memory, I was one of the subjects, one of the control subjects, I was actually very, very pleased at the

split sample reliability of Metametrix Labs. I know the director there, Dr. Lord, and he has written some very good books, and when we sent analytes, the typical pattern was that the numbers were usually not off by more than one-tenth of the measure, and that in a specimen where 25 or 30 things were analyzed the vast majority of them looked quite good.

But I'm not a statistician, so I can't just say I eyeballed it and it looked good to me. So we sent it off to the statistician and that's where it is. So I would really prefer to reserve final judgment on that until the numbers are in.

Q Did you order a full battery of tests or were there specific tests that you were asking be done on the samples that were submitted?

A We looked at tests that our doctors frequently order, and then we tried to send those tests to the labs so that we get an idea of how much we could either rely or not rely on the labs that we're doing.

Q And when you say the tests that the doctors frequently order, can you give us examples of this?

A Yes, I can give some examples. Plasma amino acids; urine organic acids; food allergy testing. I think the one that went to Vitamin Diagnostics might

have been either a nutrient panel or a central fatty acid panel, I can't recall for sure. I think that my colleagues sent porphyrins to Metametrix, urinary porphyrins, and that's all I can really recall in terms of going on the record for.

Q The urinary porphyrins testing, is that the same testing that is being done by the Nataf Lab?

A It is the same type of test, but it is being done in a different place.

Q Okay. I would assume you don't consider yourself a research scientist, is that correct?

A That's correct. I consider myself a clinician.

Q So would it be fair to say that most of your opinions regarding autism in relation to thimerosal-containing vaccines relies on the research of others?

A That would be correct.

Q Okay. I would like to ask you then about some of the literature and articles that you've cited as support for your opinions in this case.

A Okay.

Q And the first one I wanted to ask you about is the Stern article that is Petitioner's Master List No. 131. And you cite this article in your report for the proposition that one out of six children born

today is predicted to have blood mercury levels high enough to impair a neurological function.

And I looked through the Stern article and I was unable to find that conclusion. Can you tell me where you found it?

A Can you blow up the abstract for me, please?

Q We can actually hand you a copy of the full article if that would be helpful.

A Okay.

(Pause.)

I do not see the one in six statistic there.

Q And this paper deals with methyl mercury, correct?

A That is correct.

Q And it actually dealt with a method for estimating mercury concentration in core blood based on a pregnant woman's intake of methyl mercury primarily through fish consumption, correct?

A That's correct.

Q And this article did not discuss the neurological outcomes of the children after they were born, did it?

A That's correct.

Q So this paper does not specifically say that one out of six children born today is predicted to

have a blood mercury level high enough to impair neurological function, is that right?

A I believe that when the paper has been quoted by the agencies, they talk about one in six children being at risk, but you're correct. It does not specify the way that you mention.

Q Thank you. Now let's look at the Rowland article, which is Petitioner's Master List 187, and in both of your reports in this case you state that, "It is documented in the medical literature that antibiotics potentiate the toxicity of mercury."

Is the Rowland article the literature that you were referring to?

A The Rowland article, as I recall, deals with methyl mercury, and the antibiotics since they play a role in demethylating methyl mercury and helping the body excrete it is relevant in terms of methyl mercury. There is other information from a guy named Mark Lowe or Mark Lovell that I've learned of through Dr. Boyd Haley who did work on antibiotics and thimerosal directly.

The issue here is not that we are arguing that thimerosal has to be acting in isolation. One of the things that we at DAN are continually trying to take into account is that our kids don't live in a

test tube and that there are other potential sources. And so when we are taking a careful and complete environmental history, we do include potential sources for methyl mercury also. One of the children that I was asked to review did have fish sources.

Q Why do you take into consideration sources of methyl mercury as well?

A Because I think that I can't be in good conscious entertaining the idea that thimerosal in vaccines is going to be a cause of I don't do a conscientious job of making sure that other sources couldn't be contributing to the mercury load.

Q So it's your opinion that other sources of mercury, including sources of methyl mercury, could also contribute to autism?

A To the problem, to synergistic toxicities that would impact on thimerosal. I do not have a case for arguing methyl mercury direct causation nor would I want to make that case.

Q Okay. What do you mean by the phrase "potentiate mercury toxicity"?

A That when there are other agents that would adversely impact the body's mechanisms for dealing with a thimerosal or an ethyl mercury load, the decrease in glutathione would make it unavailable to

get rid of the mercury, and so the other agents would potentiate the toxicity.

Q You just used the term "the body's ability to deal with the mercury". What do you mean by "dealing with"?

A Excrete.

Q So here what we're really talking about is the body's inability to excrete the mercury, is that correct, when you say "potentiate mercury toxicity"?

A That's correct.

Q Is that a term that appears in the Rowland article?

A I don't know.

THE WITNESS: Does the Court want me to take the time to read it or can we do a search?

SPECIAL MASTER HASTINGS: Well, she just answered the question. She didn't know.

BY MR. JOHNSON:

Q Right. If you don't know, that's fine.

A Okay.

Q And you mentioned research that's being done either by a Mark Lowe or Mark Lovell that apparently was mentioned to you by Dr. Haley. Do you know if the term "potentiate mercury toxicity" is a term that Mr. Lowe or Mr. Lovell is using?

A His graph showed quantitative differences in cell death with thimerosal in various states -- when it was together with aluminum, when it was together with antibiotics, and when it was together with testosterone. So he had a very scientific quantifiable way of presenting his data.

Q My question actually was whether he is using the term "potentiate mercury toxicity".

A I have no idea.

Q So when you say that antibiotics -- it's documented in the medical literature that antibiotics potentiate the toxicity of mercury, that's your interpretation of the literature?

A That's correct.

Q And you're not a toxicologist, is that correct?

A That is absolutely correct.

Q What antibiotics did William Mead receive during his first year of life?

A I do not have them listed but I'm sure that they are in his checkup, so hang on.

He received pediazole, amoxicillin, septra, amoxicillin, amoxicillin, amoxicillin, and augmentin.

Q Did his receipt of those antibiotics coincide with his immunizations?

Let me ask you first, is that something that you've looked at before right now?

A It is something that I had looked at but not in terms of the actual date, also in terms of looking at the effects of antibiotics on gut flora around the time of the immunizations. So most antibiotics are given over a period of about 10 days. So I did a calculation.

(Pause.)

The immunizations that I would be most concerned about prior to -- I'm sorry. The antibiotics that I would be most concerned about in conjunction with immunizations would be the pediazole, which came in October after antibiotics were given in September; the case in December where antibiotics were given --

SPECIAL MASTER CAMPBELL-SMITH: Excuse me.

THE WITNESS: I'm sorry.

SPECIAL MASTER CAMPBELL-SMITH: Dr. Mumper, could you add a year?

THE WITNESS: Oh, sorry.

SPECIAL MASTER CAMPBELL-SMITH: Dates.

THE WITNESS: 9-17-98 would be the immunization, and 10-98 would be the pediazole; 12-3-98 would be the immunization and 12-98 would be the

septra; and April 12, 2000, would be the immunization following along with augmentin in February.

Augmentin, which is a combination of amoxicillin and clavulkanic acid, and which has been the main side effect, and it happens very frequently, is that kids get bad diarrhea from that. That is one of the antibiotics that the anecdotal collective experience of people in Defeat Autism Now regard as one of the ones that we're most concerned about, and no, we don't know the mechanism of that or why. It's purely pulled clinical observations.

BY MR. JOHNSON:

Q So the first two that I believe you mentioned, the immunization actually occurred before the course of antibiotics, is that correct?

A That is correct.

Q So is it your opinion and testimony today that antibiotics administered weeks after an immunization can potentiate the mercury toxicity from thimerosal in the vaccine?

A No. I don't think that I can say that.

Q What antibiotics did Jordan King receive during his first year of life?

A He did not, to my knowledge, have antibiotics.

I would like to say that any of these mechanisms are not meant to be universal.

Q But you did in your report in Jordan's case include a statement that antibiotics could potentiate mercury toxicity, and I believe that you were actually referring to antibiotics that his mother took, is that correct?

A That is correct.

Q Are you aware of any study that has looked at the effects of maternal antibiotic use on the toxic effects of mercury in fetuses or infants?

A No.

Q Doctor, have you ever treated a child for mercury poisoning?

A Acute mercury poisoning, no.

Q What formal training have you received in toxicology?

A None.

Q Do you profess to have an understanding of the classic symptoms of autism?

A Yes.

Q And is it your opinion that the symptoms of autism and mercury poisoning are similar or that they share similar symptoms?

A I think that there is a fundamental

misunderstanding in that when we are talking about the effect of thimerosal-containing vaccines on autism, we in no way are talking about acute mercury toxicity. We are talking about chronic, low and potentially cumulative exposures that lead to neuroinflammation.

So, no, I would in no way be putting forth the idea that any of us are seeing acute mercury toxicity.

Q Isn't that in fact, though, how the hypothesis that thimerosal-containing vaccines cause autism began? And let me direct you to the Blaxill article which is an article that you've referenced in your report.

A Right. And my response would be that, first of all, I know all three of these people and they are very bright; and second of all, that in the title they talk about plausible hypothesis; and third, that that is the way that science moves forward, is that you put a hypothesis, you test it, you refine it, and as time goes on the science declares itself, and the issues are better resolved.

Q But you do cite this article in your report and you cite it for the statement that, "Mercury has myriad manifestations of toxicity, depending on the biochemical individuality of the victim, route of

exposure, dose effects and synergistic toxicities." Is that correct?

A Yes, and I stand behind that statement.

Q And you mention that you know all three of the individuals who wrote this article. They are affiliated with the organization called "Safe Minds." Is that right?

A That is correct.

Q And according to the article, Safe Minds stands for "Sensible Action For Ending Mercury-induced Neurological Disorders." Is that right?

A That is correct.

Q And I believe that you mentioned that this article was published in the Journal of Medical Hypotheses", is that right?

A That is correct.

Q That is not a peer-reviewed journal, is that correct?

A That is correct.

Q You mentioned that you know Martin Blaxill. Does he hold an advanced science degree?

A Not to my knowledge.

Q In fact, his degree is in business administration, is that right?

A That's correct, and he's brilliant.

Q But he's not a scientist.
A That is true.
Q And does Sally Bernard hold an advanced science degree?
A Not to my knowledge.
Q Okay. In fact, her professional background is in marketing?
A That is absolutely correct.
Q And the third author, Lyn Redwood, is a nurse practitioner, is that right?
A That's correct.
Q And her masters is in community health nursing?
A Right, but they all got the education of trying to figure out what happened to their child, and spending thousands of hours on the computer and doing research, and becoming advocates, and talking to Congress.
Q And I believe, based on your statement, all three of them have children with an ASD diagnosis, is that right?
A That is correct.
Q All right. And neither Martin Blaxill nor Sallie Bernard nor Lyn Redwood is a toxicologist, is that right?

A Absolutely correct.

Q You also cite the Burbacher study in your report?

A Yes.

Q What is the significance of this study for your opinions in this case?

A This study was another one of those "ah-ha" moments for me because at the NIEHS hearing I got to hear Tom Burbacher present the study. The issues that concerned me there were the idea, which I think is horrifying, that ethyl mercury crosses the blood-brain barrier and thereafter is converted to inorganic mercury. And they were able to demonstrate that inorganic mercury would stay in the brain for a very long half-life, probably several decades, Tom said.

Even more interestingly, they did pick their monkeys to show effects that would mimic the childhood immunization schedule but they only went the monkey equivalent of about six months, and the amount of mercury in the brain suggested a model where with repeated even very low doses you could get potentiation of the effects and you could get an accumulation of this inorganic mercury which would stay for decades, and our opinion is that that can serve as one of the triggers for this

neuroinflammatory process that we're just learning about.

And so it's an animal model that informs my judgment because we are never going to be able to do the study where we take a thousand kids and give half of them thimerosal and don't give the others thimerosal, and then do brain biopsies. I don't know how we could ever get direct evidence in human children.

So we are left with looking at models from the animal kingdom, and models in the lab to inform the mechanisms and then to put it together with the clinical presentations that we are observing.

Q You would agree that this study was not concerned with the toxic effects of mercury, is that right?

A The study was to compare IV -- I'm sorry -- IM thimerosal with PO methyl mercury, and to look at what happened in the brains and with the toxicology of the pharmacokinetics of that, right?

Q Yes, this was a pharmacokinetics study, is that right?

A Yeah.

Q Okay. And the study was designed to compare the blood and brain levels of mercury in infant

monkeys exposed orally to methyl mercury or via intramuscular injection to ethyl mercury in the form of thimerosal-containing vaccines, is that right?

A Agree.

Q Would you agree that the study found that methyl mercury through oral ingestion and ethyl mercury through intramuscular injection were both readily absorbed and distributed into the blood and brain?

A Can you give me the abstract on that?

Q Yes, we would be happy to.

A Thank you.

MR. POWERS: Excuse me. I just want to make sure. Dr. Mumper, do you have the entire paper there?

THE WITNESS: Yeah. I asked for the abstract but she gave me everything.

MR. POWERS: Thank you.

SPECIAL MASTER HASTINGS: What's the reference list on that study again?

MR. JOHNSON: Sorry, Special Master. It's Petitioner's Master List No. 26.

SPECIAL MASTER HASTINGS: Twenty-six. Thank you.

THE WITNESS: Okay. So your question as I remember it was that both methyl and ethyl got to the

brain?

BY MR. JOHNSON:

Q And to the blood.

A And to the blood. Yes.

Q Okay. Would you agree that the study showed that total mercury, meaning organic plus inorganic, was cleared from both blood and brain faster after thimerosal-containing vaccine exposure than after methyl mercury exposure?

A Yes, I did.

Q And would you agree that the levels of total mercury measured in the blood and brain were much lower after a thimerosal exposure than after a methyl mercury exposure?

A I think that pretty much comes directly from the abstract, so, yes, I agree with that.

Q All right. And would you agree that the authors concluded that methyl mercury is not a suitable reference for risk assessment from exposure to methyl mercury in the form of thimerosal-containing vaccines?

A Yes, definitely.

Q And would you agree that the study contains no conclusion about whether inorganic mercury is more or less dangerous than organic mercury?

A Probably it does not have that conclusion because it's just looking at the kinetics between the two.

Q Right, so the --

A That is correct.

Q It wasn't looking at toxic --

A Right.

Q It was a pharmacokinetics study.

A Right. Correct.

Q And you agree that the study contains no conclusions as to whether mercury from thimerosal-containing vaccines causes autism?

A That is correct.

Q All right. The next study that I want to discuss that's cited in your report is the Hornig study.

A Yes.

Q And this is Petitioner's Master List No. 15.

A Yes.

Q What is the significance of this paper to your opinions in this case?

A The Mattie Hornig study looked at a special strain of mice and gave thimerosal on doses that were meant to mimic the childhood vaccine schedule. The thing that I found extraordinary in hearing her

present this several times was the way that through animal measures of behavior that are very well worked out for people who study rats or monkeys or whatever, she was able to demonstrate that a certain strain of mice when given this thimerosal exhibited behaviors that were very dramatic and looked very autistic.

The mice started getting OCD behaviors and they would like claw through each other's skulls instead of grooming each other, and the significance of that argues to biochemical individuality being important when we are trying to decide about the potential damages of a neurotoxin in vaccines because there are different susceptibilities, different -- a given dose for one child might be handled well whereas it wouldn't for another child.

Specifically, since this was an autoimmune strain of mice, it was relevant to me because so many of my patient histories the mother has lupus or the mother has multiple sclerosis, or there is a history of celiac disease, or there is a history of rheumatoid arthritis.

So we find that our patients tend to have a tendency toward autoimmunity, and so I thought it was a provocative study on that basis.

Q You mentioned that this was in a particular

strain of mice.

A That's correct.

Q And that was a strain that was an autoimmune strain, is that what you said?

A Right. Autoimmune disease-sensitive mice.

Q The mechanism that is being proposed in this case is not an autoimmune mechanism, is it?

A That's correct. So, as I mentioned, my issue here is to try to argue for biochemical individuality and to hope to move this country toward recognizing that there may be individual variations in how children respond to immunizations such that we wouldn't -- shouldn't have, in my opinion, a one-size-fits-all vaccine schedule, but we should potentially take factors into consideration once we identify what they are.

Q When you say moving this country towards recognizing that idea, is it your opinion that the country, and I assume you're talking about the medical community in this country, does not generally recognize that idea at this time?

A I am having conversations with people at the American Academy of Pediatrics. Right now they do tend to promote a one-size-fits-all vaccine schedule, but I am hopeful that there will in the future --

future decades perhaps -- be some variability based on individual, for example, immune status, or as we develop more with knowing genomes, potentially that could feed into it.

Q I'm not sure I got a clear answer to my question. My question was, does the medical community generally recognize that idea, and I believe the answer was no.

A No.

Q Is that correct? Thank you.

Am I correct that another lab has recently attempted to replicate the results of the Hornig study?

A You know, I saw that in one of the expert reports, and I regret that I have not read the paper that allegedly refutes it.

Q Okay, and that's the Berman article, which is Respondent's Master List No. 42?

A Yeah.

Q So you have not read this paper?

A No, but if you have a copy, I would love to read it tonight.

Q We will be happy to provide it to you.

A Thanks.

Q Dr. Hornig presented her study to the 2004

IOM committee that was investigating the alleged link between autism and thimerosal-containing vaccines, is that right?

A That's correct. I was there.

Q And do you agree that the IOM concluded that the relevance of the study was difficult to assess because the clinical points looked at in the study were not shown to be comparable to autism in humans?

A Yes, I do recall they said that.

Q Okay. In other words, the IOM concluded that even if the study showed that thimerosal injured the nervous systems in these inbred mice, those results could not be extrapolated to conclude that thimerosal causes autism in humans, is that right?

A That is the substance of their opinion, yes.

Q All right. I now want to move to actually two articles that are related that you reference in your report. These are the Nataf article, which is Petitioner's Master List No. 65.

A Yes.

Q And the Woods article, which is Petitioner's Master List No. 45.

A Okay. You know, if I could have a paper copy. I'm having trouble reading the screen with my eyes.

Q Okay. And whenever you are ready, if you wouldn't mind just explaining why you referenced these articles in your report.

A The Nataf article was relevant because we look at porphyrin pathways as a way of trying to assess the effects of mercury on this very vital pathway that affects both heme synthesis and liver products, and the porphyrin pathway is one that Dr. Woods has studied for about three decades now, I think, and the Nataf Lab had developed a way of looking at that to try to give us some evidence of whether arsenic or mercury or lead or xenobiotics might be implicated in damaging that particular cycle.

And so it's been a clinical tool that many of my colleagues have used in a way to try to assess whether a child might have a mercury burden or lead burden, et cetera.

In the Nataf data that he initially did showed that in the population of French and Swiss kids, that there were big correlations between the abnormalities in the porphyrins and having particularly autism with seizures, but secondarily, autism, and that the control children had much lower levels of porphyrins.

Furthermore, they went on to treat with DMSA

and demonstrate that there was a decline in the level of porphyrins over time, suggesting some improvement in those porphyrin cycles. So that's why I included his paper since it's something that we used.

Dr. Woods' paper, looking at genetic polymorphisms, I was including to raise the issue of individuality, genetic predisposition in the way that humans might process a known toxin.

Q I think you mentioned that you use or you order these porphyrin tests in your own practice. Is that right?

A Yes, I do some.

Q And do you find them to be a reliable measure of mercury toxicity in autistic patients?

A You know, I'm split on that now, because I think that they are good at showing differential toxicities, but the thing that is worrying us now is that we have not really looked at a lot of control children, and we are starting to do that, and finding that some normal children actually have abnormal porphyrins too.

So when Dr. Nataf had this population in France and in Switzerland, it seemed that in that population of kids there was a clear difference between the controls and the kids with autism. We

somewhat accepted that in importing it to this country, but we never really proved that the same would be true for America.

So, you know, geographic variability does exist, and so now I feel like we need to study that. So I think it is a valuable test, but we try to interpret all our tests in that kind of context.

Q Would you say that your confidence in the reliability of this test is decreasing?

A My main concern is that as more data comes out about country differences, and as I've traveled more, when I first started using the Nataf Lab, I hadn't really traveled as many places, and now I have a much better appreciation for the different, not only environmental components, but also the different genetic components in different countries.

So it makes me less eager to generalize from another country's labs. So less confident over time because of the geographic variability.

Q And I think we saw in your CV that you're actually doing a research project on this issue in your own practice. Is that right?

A That's right.

Q Do you have any results from that research?

A Well, I think I mentioned that we're waiting

on controls, and the results in our autism patients show a significant proportion of them do have abnormal porphyrins.

Q But you have not been able to replicate Dr. Nataf's results?

A No, because I don't have enough controls yet.

Q And you have seen evidence that lead you to believe that Dr. Nataf's results may not be replicable in all locations, is that what you are saying?

A That would be a fair statement, yes.

Q Now, we don't have any porphyrin tests in either the William Mead or Jordan King cases, is that right?

A That's correct, and you know, John Green was using the technology that he had available to him. Back in 2001, so much of the science had not even been done, much less published.

Q Would there be any benefit in doing those tests on either William Mead or Jordan King now?

A It would be very difficult to interpret because it would be many years after the presumed exposure.

Q So it would not measure exposures from -- I guess let me ask you. How long after an exposure

would you believe that the test would no longer be helpful?

A Yeah. I don't know the answer to that question.

Q Okay. A matter of weeks?

A I don't know the answer to the question.

Q So you can't put any kind of time limit on it at all?

A I will not speculate in a proceedings of this much importance.

Q Would the test reflect any ongoing exposure that Jordan King and William Mead might have?

A Potentially. Yeah, potentially.

Q Would you agree that many substances, including metals and other chemicals, can alter urinary porphyrin excretion patterns?

A That's correct.

Q And you mentioned Dr. Woods' work and you discussed its relevance to your opinions, but you would agree that Dr. Woods does not mention autism or autistic spectrum disorders anywhere in his studies. Is that right?

A That's correct. We have a collaboration with him because of his extraordinary expertise in porphyrins. He would never pretend to be an expert in

autism.

Q Okay. So Dr. Woods makes no claim about an association between porphyrin patterns and thimerosal as the cause of autism, is that right?

A Not to my knowledge.

Q And would you agree that the Nataf study did not measure the presence of mercury in the urine, blood or any place else in the body to show an association between the presence of mercury and the porphyrin profile?

A That's correct.

Q And would you agree that most pediatricians do not perform porphyrin testing to diagnose mercury poisoning?

A That would be correct.

Q And would you agree that porphyrin testing is not used by most pediatricians as part of the workup of autism?

A That is correct.

Q And would you agree that porphyrin testing does not tell you the amount of mercury a child was exposed to?

A That's correct.

Q And porphyrin testing does not tell you the amount of mercury that is in the brain of a child. Is

that right?

A That is correct.

Q In fact, porphyrin tests would only reflect the presence of mercury in the body generally, right?

A The body generally meaning that most of it's going to be sequestered in fatty tissue.

Q Okay. So porphyrin testings do not provide any evidence that there is mercury in the brain. Is that right?

A Oh, that's correct.

Q And would you agree that there are no porphyrin tests that were accepted as diagnostic tests for mercury in the brain?

A I wouldn't know if that were true or not.

Q But to your knowledge you don't know of any such tests?

A That's correct.

Q And would you agree that neither the Woods nor the Nataf studies dealt specifically with thimerosal from vaccines?

A Yes, I would agree with that, and in fact, we make the point when we teach the use of porphyrins that it does not tell you where the mercury came from or where the lead came from.

MR. JOHNSON: Special Masters, I'm about to

get into my next topic, so this may be a logical breaking point for the day.

SPECIAL MASTER HASTINGS: That seems reasonable. Why don't we break at this time then. We will end our session for today, and we will start again at 9 a.m. with Dr. Mumper still on the witness stand.

We stand adjourned. Thank you, all.

(Whereupon, at 4:40 p.m., the hearing in the above-entitled matter was recessed, to reconvene at 9:00 a.m., Friday, May 16, 2008.)

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REPORTER'S CERTIFICATE

DOCKET NO.: 03-584V, 03-215V

CASE TITLE: In Re: Claims for Vaccine Injuries

HEARING DATE: May 15, 2008

LOCATION: Washington, D.C.

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Court of Federal Claims.

Date: May 15, 2008

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