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<p>IN THE COURT OF COMMON PLEAS OF CUYAHOGA COUNN. OHIO ----- KEVIN KISS, a minor, by and through his next friend and natural mother, Anne Kiss, et al, Plaintiffs, vs. Case No. ANDREAS MARCOTTY, MD, et al, 402393 Defendants. ----- DEPOSITION OF MARK LUCIANO, M.D., Ph.D. Friday, January 19, 2001 ----- Deposition of MARK LUCIANO, M.D., Ph.D., a witness herein, called by the Plaintiffs for examination under the statute, taken before me, Karen M. Patterson, a Registered Merit Reporter and Notary Public in and for the State of Ohio, pursuant to notice and stipulations of counsel, at the offices of Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio, on the day and date set forth above, at 3:00 o'clock p.m. -----</p>	<p>MARK LUCIANO, MD, Ph.D., of lawful age, called for examination, as provided by the Ohio Rules of Civil Procedure, being by me first duly sworn, as hereinafter certified, deposed and said as follows: EXAMINATION OF MARK LUCIANO, MD, Ph.D. BY MS. TOSTI: Q. Doctor, would you please state your full name for us A. Mark Gregory Luciano. Q. And what is your home address? A. It is 6268 North Appiecross Road, Highland Heights, Ohio, 44143. Q. Is that a single-family home? A. Yes. Q. And is your current business address here at the main campus of Cleveland Clinic? A. Yes, it is. Q. Was that also true in 1997 and 1998? A. Yes. Q. At the time that you rendered care to Kevin Kiss, was your employer Cleveland Clinic Foundation? A. Yes, it was. Q. And at that period of time, did you</p>
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<p>APPEARANCES: On behalf of the Plaintiffs: Becker & Mishkind Co., L.P.A., by JEANNE M. TOSTI, ESQ. MICHAEL BECKER, ESQ. Suite 660 Skylight Office Tower 1660 West Second Street Cleveland, Ohio 44113 (16) 241-2600 On behalf of the Defendant Andreas Marcotty, M.D.: Mazanec, Raskin & Ryder Co, LPA, by D. CHERYL ATWELL, ESQ. 100 Franklin's Row 34305 Solon Road Cleveland Ohio 44139 (440) 268-7906 On behalf of the Defendant Cleveland Clinic Foundation: Roetzel & Andress, by ANNA CARULAS, ESQ. INGRID KINKOPF-ZAJAC, ESQ. 1375 East Ninth Street One Cleveland Center, Tenth Floor Cleveland Ohio 44114 (216) 613-0150 On behalf of the Defendant Signature Eve Associates: Ulmer & Beme LLP, by BRIAN N. RAMM, ESQ. 900 Bond Court Building 1300 East Ninth Street Cleveland, Ohio 44114 (216) 621-8400 -----</p>	<p>render professional services for any other entity besides Cleveland Clinic Foundation? A. No. Q. Do you currently render services for anyone besides Cleveland Clinic? A. No. Q. Have you ever had your deposition taken before? A. Once, Q. And I'm going to ask you as to why your deposition was taken; in other words, was it as a Defendant, fact witness? MS. CARULAS: Objection. Note a continuing line, but go ahead. A. It was as a Defendant, and the case was dismissed. Q. Can you tell me what the allegation of negligence was in that case. A. The allegation was a complication of foot drop. Q. And what did they allege was done improperly? A. I can't specifically say, because it was dropped. Q. When was that case filed?</p>

<p style="text-align: right;">5</p> <p>1 A. It was dismissed several months ago, 2 so I guess it was filed the year before. 3 Q. Do you know what the Plaintiffs name 4 was in that case? 5 A. Yes. Cimino, with a C. 6 Q. Was that filed in Cuyahoga County 7 here? 8 A. I believe so. 9 Q. Now, doctor, I want to review some of 10 the instructions for a deposition. I'm sure 11 counsel has had a chance to talk with you. This 12 is a question-and-answer session; it's under 13 oath. It's important that you understand my 14 questions. If you don't understand them, let me 15 know, I'll be happy to rephrase the question or 16 to repeat it. Otherwise, I'm going to assume 17 that you understood my question, you're able to 18 answer it. 19 It's important that you give all of 20 your answers verbally because our court reporter 21 can't take down head nods or hand motions. If at 22 at any point in time you'd like to refer to the 23 medical records, please feel free to do so. 24 During the course of this deposition, defense 25 counsel may choose to enter an objection. You're</p>	<p style="text-align: right;">7</p> <p>1 A. No. 2 Q. Have you ever been licensed in any 3 other states? 4 A. Yes, my state of residency, 5 Pennsylvania, where I was a resident, and also 6 Boston. 7 Q. Has your license ever been suspended, 8 revoked or called into question? 9 A. No. 10 Q. And, doctor, you are board certified; 11 is that correct? 12 A. Yes, I am. 13 Q. In how many areas of medicine are you 14 board certified? 15 A. I'm board certified in neurosurgery, 16 general neurosurgery, and board certified in 17 pediatric neurosurgery. 18 Q. Now, doctor, counsel has provided us 19 with a copy of your curriculum vitae. I'm going 20 to ask the court reporter if she can mark this, 21 please, as Plaintiffs' Exhibit 1. 22 ----- 23 (Thereupon, PLAINTIFFS' Deposition 24 Exhibit 1 was mark'd for purposes 25 of identification.)</p>
<p style="text-align: right;">6</p> <p>1 still required to answer my question unless 2 counsel instructs you not to do so. 3 Do you understand those directions? 4 A. Yes. 5 Q. Have you ever acted as an expert in a 6 medical/legal proceeding? 7 A. Yes. 8 Q. How many times? 9 A. Once. I should qualify, I'm not sure 10 if I was considered an expert. I testified in a 11 case at trial. That was here at the Cleveland 12 Clinic, so I was not an expert. This was a case 13 here at the Cleveland Clinic. 14 Q. Let me rephrase my question then. 15 Have you ever testified or acted as an expert in 16 a medical negligence case? 17 A. No. 18 Q. Have you ever given testimony in any 19 case involving issues dealing with vision loss 20 from papilledema? 21 A. No. 22 Q. Now, doctor, you are currently 23 licensed in the State of Ohio; is that correct? 24 A. Yes. 25 Q. Are you licensed in any other states?</p>	<p style="text-align: right;">8</p> <p>1 ----- 2 Q. I would ask you, if you would, for the 3 record, just identify this document for us. 4 A. Yes. This is my CV. 5 Q. Are there any corrections or additions 6 that you would like to make to it? Is it current 7 and up to date? 8 A. It appears to be current up to 9 December 12th, as of my secretary's revision as 10 of that date. 11 Q. Doctor, I note that there are a number 12 of publications that are included on your 13 curriculum vitae. Do any of these publications 14 deal with the subject matter of increased 15 intracranial pressure or papilledema? 16 A. Many publications have to do with 17 hydrocephalus and increased intracranial 18 pressure. None specifically on the topic of 19 papilledema. 20 Q. Are there any in particular that you 21 would consider to be the one or two articles on 22 this curriculum vitae that deal more with that 23 subject matter than another? 24 A. Any paper involving hydrocephalus, 25 either clinical or the laboratory, would</p>

<p style="text-align: right;">9</p> <p>1 obviously be more involved with this case, yes. 2 Q. Do any of the articles, abstracts, on 3 this curriculum vitae, deal with the subject 4 matter of complications following fenestration 5 procedures? 6 A. There are discussions of failure of 7 hydrocephalus treatment; there's a paper about 8 that, but not specifically of arachnoid cyst 9 fenestration. 10 Q. Could you on this curriculum vitae 11 indicate which particular article you're 12 referring to? You said that there is one that 13 deals with that. Tell us what the number of the 14 article is, and I'm going to ask you to circle it 15 on that vitae. 16 A. 56. That was an abstract. 17 Q. I'm asking in regard to the -- 18 A. 56. 19 Q. Anything in any of the other articles 20 that you have listed that you believe relates to 21 that particular subject? 22 A. No. 23 Q. Have you ever taught or given formal 24 presentation on the subject of papilledema? 25 A. No.</p>	<p style="text-align: right;">11</p> <p>1 A. No. 2 Q. Only what was contained in the actual 3 Cleveland Clinic records you have seen? 4 A. Yes. 5 Q. Since this case was filed, have you 6 discussed this case with any physicians? 7 A. No. 8 Q. And other than with counsel, have you 9 discussed it with anyone else? 10 A. No. 11 Q. Now, aside from whatever notes you may 12 have made in the Cleveland Clinic record, do you 13 have any personal notes or personal file on this 14 case? 15 A. No, I do not. 16 Q. Have you ever generated any such 17 notes? 18 A. Generated notes? 19 Q. Aside from what's in the records. 20 A. No. The standard Cleveland Clinic 21 record system. 22 Q. Now, doctor, is there a textbook in 23 your field of practice that you consider to be 24 the best or the most reliable? 25 A. No. There's a variety of textbooks</p>
<p style="text-align: right;">10</p> <p>1 Q. How about on the fenestration of 2 arachnoid cysts? 3 A. No. 4 Q. Tell me what you have reviewed in 5 preparation for this deposition. 6 A. The Cleveland Clinic medical record. 7 Q. Now, there, I believe, was care that 8 was provided both in outpatient as well as the 9 acute care hospital. Did you review both the 10 outpatient and acute care records? 11 A. As present in this review, yes, I 12 believe the outpatient records were there as 13 well. 14 Q. Have you reviewed any records other 15 than Cleveland Clinic records? I understand 16 Kevin Kiss had received some care outside of 17 Cleveland Clinic from Signature Eye Associates. 18 Did you review any of those records? 19 A. There is a -- as it is in here in 20 terms of the medical record -- letter received, 21 but I've not reviewed outside medical records, 22 no. 23 Q. He was seen by a counseling group 24 called Benedetto. Did you review any of those 25 records?</p>	<p style="text-align: right;">12</p> <p>1 and journals. 2 Q. Is there any that you refer to from 3 time to time in your practice, more so one than 4 another? 5 A. I would say that my references now are 6 mostly -- or my readings are mostly in the 7 journals. 8 Q. As you sit here today, is there any 9 publication that you believe has particular 10 relevance to the issues in this case? 11 MS. CARULAS: Note my objection. If 12 you can answer that. 13 A. Just the general neurosurgery 14 journals. There's no particular journal on 15 papilledema or arachnoid cysts. 16 Q. Have you participated in any research 17 dealing with the subject matter of papilledema? 18 A. No. 19 Q. Any dealing with fenestration of 20 arachnoid cysts? 21 A. I'm sorry, any research involving it? 22 Q. Yes. Research. 23 A. Any research. I have one publication 24 talking about fenestration with an endoscope of 25 various loculations of fluid in hydrocephalus</p>

<p style="text-align: right;">13</p> <p>1 published in Neurosurgery, and I'm not sure if 2 that's considered research, but it was a 3 publication. 4 Q. Well, was it conducted under a 5 protocol where there were people that were -- 6 A. No. No. 7 Q. -- brought into the research? 8 A. Not protocol research, no. 9 Q. Is your practice of neurosurgery 10 limited to pediatrics? 11 A. No. It's not limited to pediatrics. 12 Q. Would you describe for me then what 13 your practice is, just in general terms. 14 A. Roughly speaking, it is probably 60 to 15 70 percent pediatrics. The adults that I treat 16 often have disorders that are congenital; in 17 other words, they arise from birth, but the 18 patients themselves may now be older, and these 19 include hydrocephalus. So many of my patients 20 that are older also are hydrocephalus. 21 Q. How often do you see patients with 22 arachnoid <u>cysts</u>, just in general? 23 A. I would say, and this is obviously an 24 estimate, something like ten per year, ten to 15 25 per year. Maybe just ten.</p>	<p style="text-align: right;">15</p> <p>1 Q. In regard to the type of arachnoid 2 cyst that Kevin Kiss had, what type of signs and 3 symptoms would be most frequently seen with that 4 type of cyst? 5 A. Headaches, visual problems, hemorrhage 6 into the cyst, seizures, hemiparesis are 7 possibilities. 8 Q. And aside from the couple 9 complications that you just mentioned with the 10 signs and symptoms, are there any other 11 complications that are associated with arachnoid 12 cysts similar to what Kevin Kiss had? 13 A. Those would be the primary ones. 14 Q. How is an arachnoid cyst diagnosed? 15 A. I would say diagnosis, definitive 16 diagnosis, would entail imaging, either CT or 17 MRI. 18 Q. And how is it treated? 19 A. There are a variety of treatments. 20 Observation is a possibility, medication, 21 fenestration or drainage through a tube or shunt 22 system. 23 Q. When fenestration is done, are there 24 any complications associated with the 25 fenestration procedure?</p>
<p style="text-align: right;">14</p> <p>1 Q. Would those be <u>both</u> children or 2 pediatrics as well as adults or just in the 3 pediatric population? 4 A. It would include both; however, 5 primarily pediatric. 6 Q. And how often do you perform 7 fenestration procedures for arachnoid cysts? 8 A. I would estimate something on the 9 order of five to ten per year. 10 Q. Tell us what an arachnoid cyst is. 11 A. Arachnoid refers to a membrane around 12 the brain, which can be enclosed as a congenital 13 anomaly, and fluid collection buildup inside of 14 it. And this can act as a mass, something like a 15 water balloon, and press on the brain. 16 Q. And what is the incidence of arachnoid 17 cyst in the pediatric population? 18 A. It is not -- it is not a frequent 19 diagnosis. I don't know the exact incidence, 20 though. 21 Q. What would be the signs and symptoms 22 of an arachnoid cyst? 23 A. This would depend on location. It 24 acts as a mass pressing on the brain, and, 25 therefore, it depends entirely on where it is.</p>	<p style="text-align: right;">16</p> <p>1 A. There can be complications with any 2 procedure, yes. 3 Q. Well, in regard to that particular 4 procedure, what are the complications that are 5 known? 6 A. Any neurosurgical procedure, there 7 could be hemorrhage, infection. There can be 8 irritation of the cortex where the cyst is 9 compressing. These things can result in things 10 like epilepsy. There can be injury or stretch to 11 the cranial nerves. 12 Q. Would you agree that, in a patient who 13 has undergone fenestration of an arachnoid cyst, 14 it's important to watch the patient for increased 15 intracranial pressure? 16 A. After any neurosurgical procedure, we 17 watch our patients for neurological problems, 18 including pressure, yes. 19 Q. What is papilledema? 20 A. It is swelling of the optic nerve as 21 seen through the eye. 22 Q. What causes papilledema? 23 A. There can be several causes. It could 24 be pressure generally in the head, it could be 25 pressure localized around a nerve root. It can</p>

<p style="text-align: right;">17</p> <p>1 be also an abnormality of the optic disk itself 2 called pseudopapilledema. 3 Q. And can increased intracranial 4 pressure cause papilledema? 5 A. Yes. 6 Q. Now, is disk edema and papilledema the 7 same thing? 8 A. Yes, I believe so, generally. I'm not 9 an ophthalmologist, but I think so, yes. 10 Q. Are there any complications associated 11 with papilledema? 12 A. There can be, but not necessarily. 13 There can be. 14 Q. What are some of those complications 15 that can be associated with papilledema? 16 A. With papilledema, chronic or severe 17 papilledema, there can be loss of visual acuity 18 and visual fields. 19 Q. Now, if there is a finding of 20 papilledema, is that cause for concern? 21 MS. CARULAS: Note my objection. You 22 can answer. 23 A. Any abnormality is, I think, a sign 24 for concern. And we look for multiple signs of 25 intracranial pressure, including neurological</p>	<p style="text-align: right;">19</p> <p>1 associated with papilledema, what type of vision 2 loss would most often be seen? 3 MS. CARULAS: Note my objection. 4 A. Again, I'm not an ophthalmologist. My 5 understanding is the primary ones can include 6 acuity and visual field. 7 Q. And could you just define for us what 8 you mean by acuity and what you mean by visual 9 field. 10 A. Visual field is the broadness of the 11 vision. And acuity is, I guess, focus or clarity 12 of vision. 13 Q. What is optic atrophy? 14 A. Any atrophy is a thinning of an area. 15 Cortical atrophy, any atrophy, is considered a 16 thinning of that structure. Optic atrophy would 17 refer to a thinning of the optic nerve. 18 Q. And if there is optic atrophy, what 19 would be observable in the patient? What would 20 you see on an examination? 21 A. Not necessarily anything neurological. 22 Q. Would there be changes in visual 23 acuity or visual fields if there is optic 24 atrophy? 25 A. I'm not certain of the answer to that,</p>
<p style="text-align: right;">18</p> <p>1 exam and other physical signs as well, and put 2 them together into the picture. 3 Q. If in one of your patients you observe 4 papilledema, are there any additional tests that 5 would be indicated for the patient? 6 MS. CARULAS: Note my objection to the 7 broad nature of the question. 8 A. That does depend very much on the 9 situation. We see patients with a great deal of 10 increased intracranial pressure and papilledema 11 that we follow just with ophthalmological 12 studies. It depends on the nature of the 13 situation. 14 Q. What type of ophthalmologic studies 15 would you follow the patient with? 16 MS. CARULAS: Just note my objection. 17 Go ahead. 18 A. Ophthalmological exam, including 19 dilatation, where the ophthalmologist looks at 20 the back of the retina. 21 Q. So you would be referring to a 22 funduscopic exam of the retina? 23 A. Yes. Usually with a dilatation of the 24 pupil. 25 Q. Now, if there is a vision loss that is</p>	<p style="text-align: right;">20</p> <p>1 because I'm not certain that atrophy can occur 2 without any visual loss. Certainly with severe 3 atrophy, you would suspect that there would be a 4 neurological impairment. 5 Q. Can papilledema lead to optic atrophy 6 in some cases? 7 A. I believe so. 8 Q. And is papilledema diagnosed through 9 funduscopic exam, dilatation of the eye and 10 examination with an ophthalmoscope? 11 A. Yes. This is the way it is diagnosed. 12 Q. Any other diagnostic studies that 13 would allow you to diagnose papilledema aside 14 from doing a funduscopic exam with an 15 ophthalmoscope? 16 A. No. I don't believe so, although, 17 again, I'm not an ophthalmologist. I believe 18 that's the primary way that an ophthalmologist 19 diagnoses it. 20 Q. Doctor, do you know what sequential 21 visual fields are? 22 A. Sequential visual fields? 23 Q. Yes. 24 A. I'm not certain I know exactly how 25 that test is performed.</p>

<p style="text-align: right;">21</p> <p>1 Q. Would you agree that, if a patient is 2 found to have papilledema, that the patient 3 should be followed closely for signs of optic 4 atrophy?</p> <p>5 MS. CARULAS: Note my objection. Go 6 ahead. It's awfully broad, but if you can answer 7 it.</p> <p>8 A. I think that the person should be 9 followed for neurological deficits. Optic nerve 10 atrophy, I believe, would be a late sequel of 11 injury, and not necessarily the thing that you 12 follow. What we primarily follow is vision.</p> <p>13 Q. Now, doctor, after fenestration of an 14 arachnoid cyst, is papilledema one of the 15 complications that you would watch a patient 16 for?</p> <p>17 A. No. I don't believe that I would 18 necessarily consider it a complication.</p> <p>19 Q. Well, would it be one of the 20 conditions that you would watch a patient for?</p> <p>21 A. It can be, yes.</p> <p>22 Q. And if you saw papilledema in a 23 patient who had undergone fenestration of an 24 arachnoid cyst, would that be one indication that 25 there may be increased intracranial pressure?</p>	<p style="text-align: right;">23</p> <p>1 awards.</p> <p>2 Q. What's the routine exam that you do?</p> <p>3 A. It would be a basic neurological, 4 motor, sensory, often reflexes, and some of this 5 varies depending on how the patient is doing; 6 gait, if that's appropriate, especially if 7 there's a problem with gait either before or 8 concern about gait afterwards. Cranial nerves, 9 we observe for asymmetries. We discuss with the 10 family if there's been any problems, for example, 11 with swallowing or speech is a way of 12 investigating cranial nerves as well.</p> <p>13 We do a basic test, a vision, 14 depending on the age of the child, how compliant 15 they are, how they look. We assess eye movements 16 and assess or evaluate their vision grossly. We 17 don't do formal visual fields postoperatively 18 routinely.</p> <p>19 Q. So, doctor, would it be fair to say 20 then you don't have any specific evaluation that 21 would tell you whether the patient has 22 papilledema after surgery? And correct me if I 23 am wrong, but that's what I'm hearing, is that 24 there's no specific test that would tell you.</p> <p>25 A. We don't routinely do funduscopy</p>
<p style="text-align: right;">22</p> <p>1 A. Yes. I think it's fair to say that. 2 It's one of a set of symptoms you would be 3 looking for for increased intracranial pressure, 4 yes.</p> <p>5 Q. Do you routinely evaluate a patient 6 after fenestration for papilledema?</p> <p>7 A. We -- may I stop for a second? 8 (Recess had.) 9 (Record read.)</p> <p>10 A. I don't routinely do funduscopy exams 11 postoperatively on these patients.</p> <p>12 Q. Go ahead.</p> <p>13 A. Or other patients with hydrocephalus.</p> <p>14 Q. Do you routinely ask for a consult 15 from an ophthalmologist to come in and do that 16 type of evaluation on a patient after 17 fenestration procedures were done?</p> <p>18 A. No, I don't have a routine for 19 involving ophthalmology after such a procedure.</p> <p>20 Q. So when you do a fenestration 21 procedure, does anybody look for papilledema in 22 the patient after surgery?</p> <p>23 A. We inquire as to their vision and do a 24 visual test and exam, but we do not routinely 25 order or perform funduscopy exams directly</p>	<p style="text-align: right;">24</p> <p>1 exams afterwards. If there is concern about 2 visual loss or issues, of course, it's considered 3 and a referral may be made as well.</p> <p>4 Q. You don't routinely do visual fields 5 on every patient after you do this type of 6 surgery?</p> <p>7 A. Not formal referral for visual fields 8 like sequential exams or other formal studies, 9 but gross evaluation of peripheral vision is 10 usually made, yes.</p> <p>11 Q. Well, what do you do for gross 12 evaluation of peripheral vision? You said that 13 you do some extraocular movement evaluation. 14 What do you do for peripheral?</p> <p>15 A. A lot of our evaluation, especially in 16 a child where cooperation is an issue, formal 17 testing, depending on the age, is difficult. We 18 observe the child, we see how they move their 19 eyes, we look and assess orientation to sounds, 20 we see how they move, we see if they respond to 21 stimuli at the periphery.</p> <p>22 If there's a concern, we may do more 23 formal testing with finger counts and so forth. 24 Depending, again, on the cooperation of the 25 child, we may ask them to look at something or we</p>

<p style="text-align: right;">25</p> <p>1 may observe them reading something, which gives 2 us an idea, but we don't do, as I said, a formal 3 visual field. 4 Q. Now, do you have an independent 5 recollection of Kevin Kiss, as you sit here 6 today? 7 A. I believe -- I mean, I believe I have 8 an image of him as a child. 9 Q. You have had an opportunity to review 10 the medical records? 11 A. Yes. Yes, 12 Q. Based on either your recollection or 13 your review of the medical records, when is the 14 first time that Kevin came into your care? And 15 please refer to the records, if you care to. 16 A. I would refer to the records for 17 that. And by the medical records, my note 18 indicates November 2 1st, 1997. 19 Q. Why were you seeing him on November 20 21st of 97? 21 A. Again, this is according to the record 22 here, swelling in the right eye, some ptosis -- 23 that is drooping -- of the right eye. There was 24 concern, I believe it says here, of -- the copy 25 is not clear, but I think it's sinusitis. I saw</p>	<p style="text-align: right;">27</p> <p>1 of that evaluation aside from what's in the 2 Cleveland Clinic records apparently? 3 A. There's no indication of other 4 documents. 5 Q. Was there anyone in attendance with 6 Kevin when you saw him? 7 A. I don't have direct recollection of 8 that. 9 Q. Now, doctor, the handwritten note that 10 is the 2 1st of November, is that in your 11 handwriting? 12 A. Yes, it is. 13 Q. Would you just read that for us. It's 14 a little bit hard to decipher. 15 A. Consult from Dr. Levy. 7-year-old 16 with history of fever last week. Positive 17 swelling right eye <i>two</i> days ago. Observed right 18 ptosis. CT sinuses for sinusitis and CT of head, 19 and then arrow, or showing cyst. Cranial nerves 20 intact, right ptosis. 21 Physical exam: Normal strength. And 22 I can't read that. I believe I would say normal 23 strength and reflexes, although I can't read that 24 there. And then normal sensation. CT, left, MF 25 cyst -- that would be middle fossa cyst -- with</p>
<p style="text-align: right;">26</p> <p>1 him primarily because the CT scan performed at an 2 outside institution apparently showed a cystic 3 mass. 4 Q. Was he referred to you by another 5 physician? 6 A. On the top, it says consults from 7 doctor, I believe it says Levy, although I can't 8 be sure of that. 9 Q. Do you know who Dr. Levy is in this 10 case? 11 A. Offhand, I don't know. I believe he's 12 a pediatrician, but offhand, I can't be certain. 13 Q. Were you provided with any information 14 about Kevin aside from what appears in that 15 written note? 16 A. Based on this note, I would have been 17 provided with the CT scan. 18 Q. The actual film? 19 A. I believe so. There's no direct 20 evidence of that in the chart, although I usually 21 make note, if I don't see the film, I say by 22 report. So I believe that I had access to the 23 film, although I don't have direct recollection. 24 Q. Are there any indications that you had 25 any additional records or documents at the time</p>	<p style="text-align: right;">28</p> <p>1 extension to other side. 2 Q. Now, aside from what appears in this 3 handwritten record, when you saw Kevin, did you 4 take any additional history from him or his 5 family that you recall? 6 A. I have no recollection of doing that. 7 Q. And you performed a physical 8 examination on Kevin at this visit; is that 9 correct? 10 A. It is my common practice to do a brief 11 exam, and I have it written here, so I would 12 believe so. I have no direct recollection. 13 Q. Aside from the physical findings that 14 you have described in your handwritten note, do 15 you recall any other physical findings from that 16 physical examination? 17 A. No, I don't. 18 Q. Now, at the time that you saw him on 19 the 2 1st, did you assess his vision in any way? 20 A. I have no direct recall of that, but I 21 say in my note, cranial nerves intact, and that 22 would include vision. 23 Q. And what type of testing would you 24 have done in order to write that type of note in 25 Kevin's case?</p>

<p style="text-align: right;">29</p> <p>1 A. It would likely be either a formal -- 2 ask him to look at something or observing him 3 reading or looking at something. It would be 4 looking at his eye movements, if they were 5 conjugate, and it would likely be at least brief 6 evaluation of his peripheral fields, if he was 7 seeing things from the side. 8 Q. So on the 21st when you saw him, at 9 least from the exam that you performed, you 10 didn't note any type of loss of vision or 11 problems with his visual acuity; would that be 12 fair? 13 A. That would be fair to say. 14 Q. Now, aside from the CT scan that you 15 mentioned, do you have any other diagnostic 16 results that you know of that day? 17 A. None are documented here, and I don't 18 have any recall of any. 19 Q. Now, I believe there's a clinical note 20 that indicates, on the following page, at least 21 in my notes, that there was a magnetic resonance 22 imaging done on the 21st. 23 A. No. That is under the plan section, 24 so that would be what I would plan for the 25 future. It's not done.</p>	<p style="text-align: right;">31</p> <p>1 impressions were from that visit? 2 A. I don't have direct recollection of 3 the parents and who was there, but I routinely 4 discuss in detail my impressions with the 5 family. I have listed here my impression of a 6 middle fossa cyst, arachnoid cyst, and, yes, I 7 would have discussed that with the family. 8 Q. Now, doctor, there, I believe, is 9 another clinical note that's dated December 16th 10 of 1997. Is that a clinical note that you wrote 11 also? 12 A. December, I believe, 16th, 1997 13 there's a note of -- risks and indications for 14 cyst fenestrations. 15 Q. On that date, did you have a 16 discussion with Kevin's parents regarding your 17 impressions? 18 A. I don't recall the date in which I had 19 this conversation, but the note is written on 20 that date, yes. 21 Q. Would you just read to us what you 22 have written on that date? 23 A. Risks and indications for a cyst 24 fenestration with open endoscopic techniques were 25 discussed with mother and father and accepted.</p>
<p style="text-align: right;">30</p> <p>1 Q. Is that a test that you ordered? 2 A. I have it in the plan here, so I would 3 assume that I ordered it, yes. 4 Q. Why did you order that particular test 5 for him? 6 A. An MRI gives more detailed anatomy of 7 cerebral structures and cysts. 8 Q. When did you receive the report of 9 that particular test that you ordered? 10 A. From the medical records, I have this 11 in front of me, it is dated November 21st of 12 1997, and there's a stamp in the medical records 13 saying November 21st, 1997. So this was done the 14 same day. 15 Q. Do you know whether or not you had the 16 report of that MRI at the time that Kevin was 17 still there for the visit? 18 A. No, I don't, directly. However, since 19 I put it in the plan for MRI, I don't believe I 20 did. I most likely would have commented on it. 21 It appears that we planned it, scheduled it, and 22 did it the same day, but I did not see it at the 23 time of visiting him. 24 Q. Following your visit with Kevin, did 25 you discuss with his parents what your</p>	<p style="text-align: right;">32</p> <p>1 Q. Did you at that point in time make any 2 recommendations to Kevin's parents regarding 3 whether they should have surgery, not have 4 surgery? 5 A. Yes. At the time of writing this 6 note, I would have -- discussing the risks and 7 indications, my recommendation would be a 8 fenestration of the cyst. 9 Q. What did you tell Kevin's parents 10 about the surgery? 11 A. I don't have direct recollection of 12 it. However, I tell them the general risks of 13 surgery, I talk about the specific location of 14 the mass, in this case, a cyst, and things that 15 can be effected based on that location. 16 Q. And based on the type of cyst that 17 Kevin had and the location of it, what is it 18 likely that you told the parents in regard to the 19 risks? 20 A. This is an area on the left side which 21 can affect motor strength on the right side 22 should there be a complication. The medial 23 aspect of the cyst is an area which touches on 24 major blood vessels which, if ruptured, could 25 cause a major hemorrhage and a stroke, and also a</p>

<p style="text-align: right;">33</p> <p>1 variety of cranial nerves which can be affected. 2 I often would mention, since this is 3 in the middle fossa where the temporal lobe is, 4 the possibility of seizures. 5 Q. Now, did you discuss that this was a 6 first surgical option for Kevin? 7 A. I routinely do for cyst fenestrations. 8 Q. What is meant when you say it's a 9 first surgical option? 10 A. The cyst can be treated by opening, 11 fenestrating them, and this has the advantage of 12 not placing any implanted tube for continued 13 drainage. However, it is possible that 14 fenestration either closes or the fluid is not 15 well absorbed, in which case subsequent 16 procedures may be needed. 17 Q. In regard to additional procedures, 18 would one of those be implantation of a shunt? 19 A. Yes. 20 Q. Are there other additional surgical 21 options besides implantation of a shunt? 22 A. Yes. An attempted refenestration is 23 possible as well. 24 Q. Did you tell them that there was a 25 possibility, with the fenestration, that</p>	<p style="text-align: right;">35</p> <p>1 schedule at the time of that procedure, or visit, 2 or the family can call in and we can arrange a 3 date. 4 Q. Would Kevin have been at risk for 5 complications if the surgery was delayed? 6 A. I'm not certain. It's possible. This 7 is a congenital cyst which has been there for a 8 long period of time. We don't know a great deal 9 about the natural history. We know that they can 10 become symptomatic, but they don't always. It's 11 not something that I would have him come in 12 emergently for, but it is something that we would 13 schedule sometime in the future. So not as an 14 urgent matter, I guess, is your question. 15 Q. At the time you saw Kevin, he was 16 symptomatic; correct? 17 A. Let me look back at my notes. I 18 believe he was status post head trauma. And I 19 think from the question of the sinusitis, there 20 may have been some headache. There was the right 21 ptosis. I'm not sure if the symptoms listed here 22 refer to an injury or if they refer to the 23 arachnoid cyst. 24 I don't think he was acutely 25 deteriorating neurologically at the time of</p>
<p style="text-align: right;">34</p> <p>1 intracranial fluid pressure may still build up 2 and that may cause some problems for Kevin? 3 A. Yes, I routinely say that, yes. 4 Q. Now, I believe that there's another 5 note stamped with the date of December 16th, 6 1997. Is that a date that you saw Kevin? 7 A. I'm not sure what note you're 8 referring to. 9 Q. On the 16th. 10 MS. CARULAS: I think he just went 11 through the note from Dr. Cunningham on the 12 16th. 13 A. There's a note from a pediatrician. 14 Q. When you spoke to Kevin's parents 15 regarding the fenestration procedure, did you 16 make the decision as to when this surgery should 17 take place, as to whether it was something that 18 needed to be done right away or whether it was 19 something that could be done as an option at a 20 later time? 21 A. I don't recall if we scheduled it that 22 day or not. To be -- I'm sorry, it's listed 23 here -- to be scheduled December 97, so we 24 actually did put a day at that time. I don't 25 directly remember that, but in this case, we may</p>	<p style="text-align: right;">36</p> <p>1 seeing him with this visit. And I did not 2 consider, or would not, based on this, consider 3 his symptoms emergent. Certainly something I 4 would not schedule a year in advance, but not an 5 emergency. 6 Q. I think it's on a preoperative 7 admission sheet, and I think you mentioned it in 8 one of the notes that we were looking at, there 9 was a mention of sinusitis on the preadmission 10 sheet as a secondary diagnosis. Was the 11 sinusitis of any concern in regard to the surgery 12 that you were contemplating? 13 A. An active systemic infection, which, 14 for example, compromises breathing or might 15 increase the risk of infection can be a concern. 16 If there's evidence of a systemic active 17 infection, that would be a consideration, yes. 18 But a sinusitis, per se, or a finding of possible 19 chronic sinusitis on the CT scan, would not 20 necessarily -- 21 Q. In his case, was this something of 22 concern that needed to be addressed prior to 23 surgery? 24 A. I have no evidence of that, based on 25 the medical record. I would suspect, if I was</p>

<p style="text-align: right;">37</p> <p>1 concerned that he had symptoms related to active 2 sinus infection or sinus problems, I would have 3 made note of that. I noticed that he is on some 4 antibiotic, and I'm not sure if that was for this 5 or not, but certainly an active infection is a 6 concern, and it might, in some instances, delay 7 surgery until the antibiotics can take effect. 8 Q. If you need to answer your page, 9 doctor, go ahead. 10 A. This one is okay. 11 Q. Doctor, you performed surgery on 12 Kevin, I believe, on December 17th of 98; is that 13 correct? 14 A. Yes. 15 Q. Did you personally perform the surgery 16 on Kevin? 17 A. I don't have a specific recollection 18 of this operation. However, my routine is to 19 scrub in on the operation and perform it along 20 with assistance from a resident. 21 Q. And in this particular instance, do 22 you have a resident assisting you? 23 A. Yes. 24 Q. Did the residents ever, when you were 25 doing a fenestration procedure, do the actual</p>	<p style="text-align: right;">39</p> <p>1 Q. Neurosurgery? 2 A. Yes. 3 Q. Now, what was the actual surgery that 4 you performed on Kevin that day? 5 A. It was a left temporal craniotomy with 6 a fenestration of the arachnoid cyst using an 7 intraoperative microscope. 8 Q. And the microscopic dissection, is 9 that just referring to the use of the microscope 10 in the surgery? 11 A. Yes. 12 Q. When you did the surgery, what were 13 your findings? Were they what you anticipated 14 when you went into surgery? 15 A. Yes. I've reviewed this operative 16 note, and based on imaging preoperatively, this 17 sounds like exactly what would be expected. 18 Q. Did you encounter anything that you 19 considered to be a problem during surgery? 20 A. No, no problems that were not routine 21 for neurosurgery. 22 Q. Did Kevin have any complications 23 during the surgery? 24 A. I don't believe so. 25 Q. Now, I believe in your operative</p>
<p style="text-align: right;">38</p> <p>1 procedure with you in attendance? 2 A. I would say that they assist and do 3 portions of it. Rarely would they do the entire 4 procedure. 5 Q. Now, do you know in this instance 6 whether the resident did portions of the 7 procedure, whether you did the whole procedure? 8 A. No, I cannot tell from this record. 9 Q. Now, I believe that on the operative 10 report there's a Dr. Evans that's listed there. 11 A. Yes. 12 Q. Do you recall what year resident Dr. 13 Evans was? 14 A. I know Dr. Evans. He is a resident in 15 our program. 16 Q. And at the time that Kevin's surgery 17 was performed, do you know what year resident 18 doctor -- 19 A. I'm sorry, I didn't hear the 20 question. No, I don't. This is 97. He would 21 have been a junior resident because it's three 22 years ago. So he would have been, I believe, 23 either a second or third-year resident. 24 Q. What type of residency? 25 A. Neurosurgery.</p>	<p style="text-align: right;">40</p> <p>1 report, maybe about three lines from the bottom, 2 it indicates that there was a small amount of 3 venous bleeding in the medial posterior region -- 4 A. Yes. 5 Q. -- which stopped with placement of gel 6 foam. What was the cause of that bleeding? 7 A. Any venous bleeding would be caused 8 from a vein and is quite routine for neurosurgery 9 and for this sort of cyst fenestration. 10 Q. And at the close of surgery, were you 11 satisfied with the surgical results that you 12 attained in Kevin's case? 13 A. Based on this medical record, I 14 describe the fenestration without complication. 15 It seems like I was satisfied. If there was 16 either a problem with fenestration or that the 17 fenestrations were particularly small or 18 difficult, I would likely have made note of it in 19 my memory and in the record. It appears that it 20 was a satisfactory fenestration. 21 Q. At the time that you completed the 22 surgery, what did you anticipate would be the 23 outcome for Kevin? 24 MS. CARULAS: Note my objection, but 25 go ahead.</p>

<p style="text-align: right;">41</p> <p>1 A. Whenever we do a fenestration of an 2 arachnoid cyst, I explain to the family that 3 there may be a general surgery and that further 4 draining may be required, either refenestration 5 or a shunting. My feeling at the end of this 6 operation, based on his medical record of seeing 7 the fenestration went well, would be hopeful that 8 no other surgery would be required. But 9 certainly, even when things go well, that is not 10 a certainty.</p> <p>11 Q. Now, postoperatively, while he was in 12 the hospital, was he at risk for increased 13 intracranial pressure after he had his 14 fenestration procedure?</p> <p>15 MS. CARULAS: I don't understand that 16 necessarily. If you do, you can answer it.</p> <p>17 A. You're asking me directly after the 18 operation or the next day a neurosurgical patient 19 is at risk for increased intracranial pressure?</p> <p>20 Q. I'm asking you if Kevin was at risk 21 for increased intracranial pressure after the 22 fenestration procedure that you did.</p> <p>23 A. You originally said in the hospital.</p> <p>24 Q. While he was in the hospital, yes, 25 after surgery.</p>	<p style="text-align: right;">43</p> <p>1 observed in other ways, and papilledema takes a 2 longer time to develop than in the acute phase.</p> <p>3 So a funduscopy exam would not be my 4 primary way to follow a child postoperatively for 5 increased intracranial pressure and is not 6 routinely done for that reason.</p> <p>7 Q. Doctor, in what percentage of the 8 cases is a single surgical procedure successful 9 in controlling the problems associated with an 10 arachnoid cyst?</p> <p>11 MS. CARULAS: Note my objection. If 12 you have the statistics.</p> <p>13 A. I don't have the statistic in hand, 14 and I know that a variety of percentages have 15 been talked about both in oral presentation and 16 in publication.</p> <p>17 Q. Well, in general.</p> <p>18 A. In general, my estimate is something 19 in the order of 40 percent success to 60, 70 20 percent success. Some have claimed perhaps 21 higher and some lower. There have been advocates 22 of fenestration that may claim higher. But the 23 estimate I often give my families is somewhere 24 between 40 and 60 percent chance that that will 25 be the single procedure.</p>
<p style="text-align: right;">42</p> <p>1 A. After surgery, we routinely have 2 patients stay in the ICU, and he would be at risk 3 for increased intracranial pressure, yes, just as 4 any other neurosurgical patient.</p> <p>5 Q. After the type of surgery that you 6 performed, what would be the signs or symptoms of 7 increased intracranial pressure that you would 8 watch for?</p> <p>9 A. We watch for development of and 10 progression of neurological deficits, 11 hemiparesis, cranial nerve deficits. Also, 12 general level of activity, and there are 13 nonspecific things, such as appetite and so 14 forth, in the longer term. In the immediate 15 post-op period, of course, that can be assessed.</p> <p>16 Q. During his hospital stay for the 17 surgery that you did on December 17th of 98, did 18 Kevin have any examination of the interior of his 19 eye to evaluate for papilledema?</p> <p>20 A. I don't have any direct recollection. 21 I haven't examined the chart for those details. 22 However, I can say that probably a funduscopy 23 exam in the immediate postoperative period would 24 not routinely be done, because in the acute 25 phase, increased cranial pressure would be</p>	<p style="text-align: right;">44</p> <p>1 Q. And at the time that Kevin was in the 2 hospital and getting ready for discharge, did you 3 have an opinion as to whether he was likely going 4 to need another procedure or not?</p> <p>5 A. I don't recall directly. However, he 6 left the hospital in a timely manner, and I have 7 no recollection of any neurological problems or 8 suspicions. He had a normal recovery, as best as 9 I could tell from the record.</p> <p>10 Q. And during the course of his hospital 11 stay, did you continue to follow him on a regular 12 basis?</p> <p>13 A. I see all my patients regularly, 14 usually once or twice a day.</p> <p>15 Q. Did he have any complications that 16 you're aware of during that hospital stay when he 17 was there for the fenestration procedure?</p> <p>18 A. Not in my direct recollection. I 19 could view the postoperative notes. I need the 20 inpatient postop. Doing well postop on 12-17. 21 Plan monitor for postop complications. December 22 18th, stable. We are DC'ing, for example, the 23 Foley, increasing his diet. He was cooperative, 24 verbalizing appropriately. He had full eye 25 movemenu. This is on December 18th. That's the</p>

<p style="text-align: right;">45</p> <p>1 operative summary.</p> <p>2 Yes. In the days -- day of and the</p> <p>3 day immediately following, I see that he is</p> <p>4 recovering well. The discharge summary states</p> <p>5 postoperatively the patient did very well and the</p> <p>6 hospital course was without complications.</p> <p>7 Q. And did you actually evaluate him on</p> <p>8 the day of discharge? Did you see him the day</p> <p>9 that he was to go home?</p> <p>10 A. I don't recall if I saw him on the</p> <p>11 day. As I said, my routine is to see the</p> <p>12 patients at least once a day, sometimes twice a</p> <p>13 day. It's possible that I saw the patient the</p> <p>14 night before or the day before and they were</p> <p>15 discharged the next morning.</p> <p>16 Q. Do you have any notes there that would</p> <p>17 be on his day of discharge, which I believe was</p> <p>18 the 20th, December 20th?</p> <p>19 A. The neurosurgery note on December 20th</p> <p>20 says stable, go home. Sutures out possibly</p> <p>21 Tuesday. It says no complaints, patient doing</p> <p>22 well. Intact neurologically, wound healthy.</p> <p>23 Q. Now, doctor, in the nursing assessment</p> <p>24 on the 20th, which was his day of discharge, do</p> <p>25 you have a set of nursing assessment notes</p>	<p style="text-align: right;">47</p> <p>1 secondary to the surgery itself. These can be</p> <p>2 mild, transient, and can be understood in terms</p> <p>3 of the pathology and the surgery. It is not</p> <p>4 necessarily a concern unless it is progressive.</p> <p>5 Q. But Kevin was going home that day, so</p> <p>6 would that be something that would be assessed</p> <p>7 then after discharge on this patient on</p> <p>8 followup?</p> <p>9 A. We assess strength routinely in the</p> <p>10 postop clinic and, yes, we would, of course,</p> <p>11 assess how they were doing afterwards.</p> <p>12 Q. Is that a finding that the nurses</p> <p>13 should have reported to the neurosurgeon, though?</p> <p>14 MS. CARULAS: Note my objection.</p> <p>15 A. If this is a new and progressive</p> <p>16 finding, I would imagine so.</p> <p>17 Q. Well, in any --</p> <p>18 A. I don't know that it wasn't reported</p> <p>19 either to the resident or to me.</p> <p>20 Q. Well, in any of your previous notes,</p> <p>21 did you make any notation of any weakness on the</p> <p>22 right side for Kevin?</p> <p>23 A. It appears that the neurosurgery notes</p> <p>24 show full strength and intact. If there is a</p> <p>25 mild weakness, that might be expected from this</p>
<p style="text-align: right;">46</p> <p>1 there --</p> <p>2 A. I'll find it.</p> <p>3 Q. -- that you can look at? Looking</p> <p>4 through this, the assessment sheet that has the</p> <p>5 boxes on it from the 20th --</p> <p>6 A. That's the 20th.</p> <p>7 Q. -- it says assessment at the top, and</p> <p>8 it has a number of boxes down the left side of</p> <p>9 the page that say functional, neuromuscular,</p> <p>10 neurological, cardiorespiratory. Under the</p> <p>11 nursing assessment under the neuromuscular</p> <p>12 section, I believe this nurse, who appears to be</p> <p>13 Julia Murphy, has indicated on the day shift for</p> <p>14 the 7:00 to 3:00 shift that Kevin has mild</p> <p>15 right-sided weakness. Was that a finding that</p> <p>16 was reported to you prior to his discharge?</p> <p>17 A. I have no recollection of it.</p> <p>18 Q. Would that be something that would be</p> <p>19 of concern at the time of discharge for this</p> <p>20 particular patient?</p> <p>21 MS. CARULAS: Note my objection. Go</p> <p>22 ahead.</p> <p>23 A. There can be, because of the mass</p> <p>24 effect on the left side, as I mentioned earlier,</p> <p>25 weakness on the right side secondary to the mass,</p>	<p style="text-align: right;">48</p> <p>1 sort of surgery, or if there is something that is</p> <p>2 questionable, it might not have been noted, but</p> <p>3 it is something that we do look for.</p> <p>4 Q. In regard to instructions that were</p> <p>5 given to Kevin or his family at the time of</p> <p>6 discharge, what was the plan at that point for</p> <p>7 him?</p> <p>8 A. Postcraniotomy, we routinely have our</p> <p>9 patients come back anywhere from four to ten</p> <p>10 days; usually more like seven days for suture</p> <p>11 removal. Then we have a followup scheduled</p> <p>12 between usually six to eight weeks, something</p> <p>13 thereabouts, for a followup visit.</p> <p>14 Q. Do the patients come back to Cleveland</p> <p>15 Clinic for that suture removal?</p> <p>16 A. They can, and they often do, but not</p> <p>17 necessarily.</p> <p>18 Q. So it's something that could be</p> <p>19 referred out to --</p> <p>20 A. Yes.</p> <p>21 Q. Could a family practice physician --</p> <p>22 A. Yes.</p> <p>23 Q. -- take care of that? In this case,</p> <p>24 was Kevin supposed to come back and see you for</p> <p>25 at least the six-week followup?</p>

<p style="text-align: right;">49</p> <p>1 A. Yes.</p> <p>2 Q. And your feeling at the time of</p> <p>3 Kevin's discharge, did you feel that he was in</p> <p>4 stable condition without complications?</p> <p>5 A. I felt that he had done very well.</p> <p>6 Again, I'm basing this on the notes and the fact</p> <p>7 that he had good strength and no signs of a</p> <p>8 problem.</p> <p>9 Q. And no signs of increased intracranial</p> <p>10 pressure at the time of discharge; correct?</p> <p>11 A. None were noted.</p> <p>12 Q. Now, you didn't see Kevin for suture</p> <p>13 removal then after his discharge, did you?</p> <p>14 A. Based on the medical records, I see</p> <p>15 there's a note from my nurse clinician of suture</p> <p>16 removal. I don't recall seeing him at that</p> <p>17 visit. I might have, If I see a patient come to</p> <p>18 my clinic and Jenny is removing the sutures, I</p> <p>19 will stop in and check, but I don't specifically</p> <p>20 recall in this instance.</p> <p>21 Q. Is that something that the nurses take</p> <p>22 care of?</p> <p>23 A. Very frequently, yes.</p> <p>24 Q. Does the nurse then do some type of</p> <p>25 neurological examination if they are the ones</p>	<p style="text-align: right;">51</p> <p>1 A. I don't recall. I have here a note</p> <p>2 that is also signed by my nurse clinician, so I</p> <p>3 assume from this note that she was there. It's</p> <p>4 her routine to see them as well.</p> <p>5 Q. Normally when you see a patient, the</p> <p>6 nurse clinicians see the patient first and then</p> <p>7 report to you background information, assessment,</p> <p>8 that type of thing?</p> <p>9 A. Frequently.</p> <p>10 Q. Do you usually go in and confirm the</p> <p>11 nurse's findings when you visit with the</p> <p>12 patient?</p> <p>13 A. Yes.</p> <p>14 Q. What is the nurse clinician's name</p> <p>15 that wrote the note that appears above yours on</p> <p>16 January 22nd, 98?</p> <p>17 A. Jennifer Ahl, A-H-L.</p> <p>18 Q. Now, there is a notation that a CT was</p> <p>19 done. When you saw Kevin on the 22nd, were you</p> <p>20 aware of the findings on that CT?</p> <p>21 A. I see the notation that the CT was</p> <p>22 done. I'm trying to see if there's any</p> <p>23 indication I saw it at that visit. There's a CT</p> <p>24 report from January 22nd, yes.</p> <p>25 Q. Do you know whether you would have had</p>
<p style="text-align: right;">50</p> <p>1 that are removing the sutures when they see the</p> <p>2 patient?</p> <p>3 A. Certainly if there is a concern, they</p> <p>4 may. However, we also allow the stitches to be</p> <p>5 removed by outside physicians, and they don't</p> <p>6 necessarily do the routine -- or any routine</p> <p>7 exam. So I would suspect that, certainly if</p> <p>8 there's any concern, they would do something. On</p> <p>9 the other hand, it isn't a required routine.</p> <p>10 Q. When is the next time that you saw</p> <p>11 Kevin then?</p> <p>12 A. My postop visit is -- this is January</p> <p>13 22nd, 1998.</p> <p>14 Q. Now, your discharge instructions that</p> <p>15 I believe are in the chart indicated that he</p> <p>16 would be seen in followup in six weeks. Is there</p> <p>17 a reason why you were seeing him on January 22nd,</p> <p>18 which was only about four weeks or so after</p> <p>19 discharge?</p> <p>20 A. No. We offer really a range, as I</p> <p>21 mentioned before. It's for the convenience of</p> <p>22 the patient and the family.</p> <p>23 Q. Do you recall if anyone else was</p> <p>24 present at the time that you saw him on the</p> <p>25 22nd?</p>	<p style="text-align: right;">52</p> <p>1 that CT at the time that you were seeing Kevin?</p> <p>2 A. Usually we try and do the CTs first,</p> <p>3 so I would suspect so, but I don't know.</p> <p>4 Q. Did you do a physical examination of</p> <p>5 Kevin, your own physical examination of Kevin,</p> <p>6 when you saw him that day?</p> <p>7 A. I believe I would have verified the</p> <p>8 essential aspects of my nurse's exam.</p> <p>9 Q. Did you find any deviations from</p> <p>10 normal that you considered to be significant that</p> <p>11 day?</p> <p>12 A. Excuse me. The note states that</p> <p>13 there's some headaches that had started two weeks</p> <p>14 ago that have been variable in time and</p> <p>15 intensity, and at times closes left eye.</p> <p>16 This would have been verified by</p> <p>17 history and not by physical. The wound,</p> <p>18 certainly if there was a problem with the wound,</p> <p>19 I would have made note of that and remembered</p> <p>20 that at that time.</p> <p>21 And there was a note here that he had</p> <p>22 no upper extremity weakness. That's the no arm</p> <p>23 drift. And the eyes showed a full eye movement.</p> <p>24 He was well coordinated and good balance. It</p> <p>25 looks from this note that he was doing adequately</p>

<p style="text-align: right;">53</p> <p>1 considering craniotomy.</p> <p>2 Q. Do you need to answer your page,</p> <p>3 doctor?</p> <p>4 A. No, that's all right.</p> <p>5 Q. Doctor, at the time of his discharge</p> <p>6 from the hospital, he didn't have any headaches,</p> <p>7 did he?</p> <p>8 A. Based on the summary, he was doing</p> <p>9 very well. Most patients who leave have some</p> <p>10 soreness, they may have some mild headaches.</p> <p>11 Q. You didn't document anything about him</p> <p>12 having headaches, though, at the time of his</p> <p>13 discharge, though, did you?</p> <p>14 A. No. And I necessarily would not have,</p> <p>15 even if they were present.</p> <p>16 Q. And your nurse wrote that, I believe,</p> <p>17 in her note that he did well initially without</p> <p>18 complaints of headache, and then the headache</p> <p>19 started two weeks ago. So this was a new symptom</p> <p>20 for Kevin; right?</p> <p>21 A. A patient can leave with headaches,</p> <p>22 and it might not be documented. So I can't say</p> <p>23 whether it is new or not. However, it does say</p> <p>24 that there were headaches that started two weeks</p> <p>25 ago, and based on her history here, it appears</p>	<p style="text-align: right;">55</p> <p>1 eye movement, there can be some transient double</p> <p>2 vision. We can't say for sure if he didn't have</p> <p>3 any double vision that was not detected at an</p> <p>4 earlier time.</p> <p>5 It says here, when questioned, he</p> <p>6 states he has had double vision at times. At</p> <p>7 times patient closes left eye with headache, and</p> <p>8 when questioned, then says he has double vision.</p> <p>9 From this, I can't be certain that</p> <p>10 he's never had some episodes of double vision</p> <p>11 before.</p> <p>12 Q. Well, did you ever document that he</p> <p>13 was having double vision when he was in the</p> <p>14 hospital?</p> <p>15 A. I would have to look at the record.</p> <p>16 Not to my recollection, though, no.</p> <p>17 Q. And your nurse didn't describe, when</p> <p>18 she took out sutures, you said, that he was</p> <p>19 having double vision or headaches at that time?</p> <p>20 She would have informed you of that?</p> <p>21 A. I don't have a recollection. But I</p> <p>22 would suspect, if there was a concerning</p> <p>23 neurological problem, she would have told me.</p> <p>24 Q. Now, doctor, these headaches that he</p> <p>25 was describing, how long did they last?</p>
<p style="text-align: right;">54</p> <p>1 that he had headaches that increased. I don't</p> <p>2 know if he had no headaches when he left, I guess</p> <p>3 is what I'm trying to say.</p> <p>4 Q. Well, your note at the bottom of the</p> <p>5 page says that you verified the above</p> <p>6 information; correct?</p> <p>7 A. Yes.</p> <p>8 Q. And your nurse has written that he did</p> <p>9 well initially without complaints of headache;</p> <p>10 correct?</p> <p>11 A. So it sounds like he had some</p> <p>12 headaches that started two weeks before.</p> <p>13 Q. The headaches were a new symptom that</p> <p>14 he developed since the time of his discharge;</p> <p>15 correct?</p> <p>16 A. At least in terms of severity, that's</p> <p>17 possible, yes. I can't imagine that he had had</p> <p>18 no headaches at the time of discharge.</p> <p>19 Q. He also described having double</p> <p>20 vision. That was a new symptom for him;</p> <p>21 correct?</p> <p>22 A. I can't say whether it's a new</p> <p>23 symptom. It says, when questioned, he states he</p> <p>24 is having double vision. Certainly after an</p> <p>25 operation which can involve nerves controlling</p>	<p style="text-align: right;">56</p> <p>1 A. I don't know directly. It says here</p> <p>2 variable time and intensity. So I don't know the</p> <p>3 intensity at that time.</p> <p>4 Q. Were you able --</p> <p>5 A. I'm sorry. I'm done.</p> <p>6 Q. Were you able to determine what the</p> <p>7 cause of his headaches were?</p> <p>8 A. I don't have the exact cause of his</p> <p>9 headaches, except the fact that he is</p> <p>10 postcraniotomy.</p> <p>11 Q. Now, in regard to the double vision,</p> <p>12 did you do any other evaluation to determine if</p> <p>13 there was any other vision problems going on?</p> <p>14 A. There's a note here, extraocular</p> <p>15 muscles. To do that, we test vision and</p> <p>16 following fingers and so forth as best as can be</p> <p>17 done at this age and look for conjugate gaze and</p> <p>18 full eye movement, and no deficits in eye</p> <p>19 movements were seen.</p> <p>20 Q. The note here states he is having</p> <p>21 double vision. Did he have double vision at the</p> <p>22 time that you saw him on the 22nd?</p> <p>23 A. I don't know that.</p> <p>24 Q. It also states that he had a headache</p> <p>25 starting two weeks ago, variable time and</p>

<p style="text-align: right;">57</p> <p>1 intensity. Did he have any headache at the time 2 you saw him? 3 A. At the time of the visit, I don't know 4 that. The impression I get from this is that 5 these problems were intermittent, so he would not 6 necessarily have had them at the time of his 7 visit. 8 Q. Were you able to determine the cause 9 of the double vision when you saw him on January 10 22nd, 98? 11 A. No. The cause of the transient double 12 vision was not -- is not certain. 13 Q. When Kevin reported these headaches as 14 well as the double vision, did it raise any level 15 of concern for increased intracranial pressure? 16 A. It -- headaches as well as any cranial 17 nerve symptoms would raise concern for postop 18 craniotomy issues such as swelling, and increased 19 intracranial pressure is one possibility, yes. 20 Q. What was within your differential 21 diagnosis when you saw him on January 22nd of 22 98? 23 A. My impression was that he had done 24 very well after the operation, was very active, 25 and my experience is that sometimes variably in</p>	<p style="text-align: right;">59</p> <p>1 vision? 2 A. I don't see any -- anything listed 3 here, although routinely we would follow the 4 patient in terms of the family and the patient's 5 complaint, their symptoms. I would counsel the 6 family about progression of symptoms and 7 observation of the child. 8 So I would say clinically we follow 9 these children. We don't just order images, but 10 we would follow how they're doing, and I would 11 make clear that if there's any sign of any 12 increasing problem or progression, that we should 13 know. 14 Q. Do you have a specific recollection of 15 doing that in this case? 16 A. Not a specific recollection, no. 17 Q. Why did you want the MRI in one to two 18 months? 19 A. Well, we routinely get an MRI. 20 Q. And what is that likely to show when 21 you do the MRI? What would that tell you? 22 A. It certainly will show anything like 23 strokes or hemorrhages. It will show the 24 existence or nonexistence of fluid collections. 25 Q. In the Cleveland Clinic outpatient</p>
<p style="text-align: right;">58</p> <p>1 the postop period, as children become more 2 active, headaches may evolve because of the 3 increased activity. We don't necessarily see a 4 linear improvement in a patient, whether child or 5 adult. Based on their activity, there can be 6 recurrences of symptoms or headaches, and the 7 course, as we explain to all our patients and 8 families, is not a straight line up, but they can 9 have increased headaches which are self-limiting 10 and disappear again. So we experience things for 11 not only things like cysts but other craniotomies 12 as well. 13 Q. Did you have any plans to do any 14 foilowups regarding the symptoms of headaches or 15 double vision that was being reported to you? 16 A. The medical record shows we were 17 planning an MRI film in one to two months. 18 Q. Anything else? 19 A. Well, we have the note that a CT scan 20 was done, but I don't know if I saw it at that 21 time. I likely did, though. 22 Q. But aside from the CT scan and the MRI 23 that was going to be done in a month or two, was 24 there anything else that you planned to follow up 25 on for his complaints of headaches or double</p>	<p style="text-align: right;">60</p> <p>1 records, there is a report of a telephone contact 2 by Kevin's mother that has your name listed as 3 the physician, and it's dated January 26th of 98, 4 and if you could turn to that. 5 A. Yes, I see it. 6 Q. And I believe in that telephone 7 message it says that Kevin was complaining of 8 severe neck pain, that he was very irritable, he 9 had some stiffness of his neck. 10 Were you notified of that, or did you 11 receive this message from whoever takes down the 12 telephone calls? 13 A. I don't have specific recollection of 14 this. The routine is, for any concerning 15 problem, that my nurse clinician would review 16 them with me, although I don't recall this direct 17 phone call. 18 Q. In this instance, is that a message 19 that was taken by your nurse clinician? 20 A. That's her signature at the bottom. 21 Q. And would she routinely transmit that 22 information to you? 23 A. I would say that she transmits any 24 message that she is concerned about, yes. 25 Q. And in regard to this, do you have any</p>

<p style="text-align: right;">61</p> <p>1 recollection of your response after you received 2 this particular note? 3 A. No, I have no direct recollection. 4 Q. Would these signs and symptoms be 5 concerning in Kevin's case? 6 MS. CARULAS: Objection. Go ahead. 7 A. Any increase in headaches are 8 potentially concerning, any neurological deficit 9 is particularly concerning. We have patients 10 postoperatively, as I mentioned before, that with 11 increasing activity can develop headaches. The 12 coverings of the brain are what have the pain 13 sensors on them, and with greater movement and 14 activity, certainly headaches can evolve. We've 15 had patients that, with greater movement, develop 16 spasms in their neck, and this is mentioned here, 17 of neck pain with some Valium. 18 It appears that the impression of the 19 nurse clinician is there was some spasm or pain 20 or tightness in the neck that might be treated 21 with a muscle relaxant. So the approach here was 22 a symptomatic one. There's no notation of any 23 neurological issues. 24 Q. Doctor, in Kevin's case, the 25 complaints of neck pain, stiffness and</p>	<p style="text-align: right;">63</p> <p>1 But I will say that whenever we are 2 concerned, we recommend that families, or 3 patients, come in to see us or go to the 4 emergency room. So we make it clear that a 5 physician should be seen if there's any 6 progressive problems or things don't resolve to 7 the treatment that was offered. 8 Q. Well, doctor, we're talking about 9 Kevin, who was your patient. 10 A. Yes. 11 Q. And your nurse who took this phone 12 message. And in regard to Kevin Kiss, with those 13 signs and symptoms being reported to you, would 14 you want to see Kevin with those signs and 15 symptoms? 16 A. The tone of this note is that her 17 impression was that these were muscle spasms and 18 headaches similar to those maybe seen after a 19 craniotomy, and that symptomatic relief would be 20 appropriate. If I had heard any concern of a 21 progressive neurological problem, I certainly 22 would have considered a visit either to the 23 emergency room or to us. 24 Q. And you have no knowledge of any 25 directions given to Mrs. Kiss to take Kevin to an</p>
<p style="text-align: right;">62</p> <p>1 irritability, are those signs and symptoms 2 sometimes seen as a result of increased 3 intracranial pressure? 4 MS. CARULAS: Objection. Go ahead. 5 A. It can be seen with that or the 6 possibilities I mentioned, yes. 7 Q. And in Kevin's case, should those 8 symptoms have raised a concern for increased 9 intracranial pressure? 10 MS. CARULAS: Note an objection. Go 11 ahead. 12 A. I think I've already answered. I'm 13 not sure how else I could answer it better. 14 Q. In Kevin's case, did those signs and 15 symptoms warrant physician followup? 16 MS. CARULAS: Objection. Go ahead. 17 Q. Should Kevin have been seen by a 18 physician as a result of those complaints? 19 A. I didn't take this phone call 20 directly, so I can't comment on that. We do have 21 patients that come in, or who call in after an 22 operation, that have headaches or have neck 23 spasms and pain. We do offer symptomatic 24 treatment, if that's our impression, without an 25 immediate visit to us.</p>	<p style="text-align: right;">64</p> <p>1 emergency room or to bring Kevin into the -- 2 A. I don't have any recollection -- 3 Q. -- into the hospital? 4 A. -- of being informed of this phone 5 call directly. I can only talk about our 6 routine, which is to tell patients, if there's 7 any problem when they're at home, if there is a 8 progression of a problem or things do not 9 resolve, based on conversation and suggestions, 10 to come see us or go to the emergency room, and 11 that is something we do routinely. 12 Q. You don't have an opinion as to 13 whether Mrs. Kiss should have been directed to 14 take Kevin to the emergency room or to come in 15 based on that note? 16 A. If the symptoms were self-limiting and 17 solved by Ibuprofen, then there certainly would 18 have been no need to do that. I would suspect 19 that if they were not responsive to these 20 medications, or if there's any progression, that 21 they would have come in, because -- well, I would 22 hope they would, because we would instruct them 23 to do so at this phone conversation. 24 Q. I believe at the end of that note, 25 doesn't it say that there will be telephone</p>

<p style="text-align: right;">65</p> <p>1 followup or something?</p> <p>2 A. In the note it says a slight</p> <p>3 improvement with heat and massage. So there was</p> <p>4 some feeling that he was improving. I see no</p> <p>5 note of a followup in this particular note. I'm</p> <p>6 sorry. Will call with update. Yes. So they</p> <p>7 said that -- let's see. So he prescribed the</p> <p>8 medications, and they said we will get a call or</p> <p>9 a phone update, and said that there was a slight</p> <p>10 improvement.</p> <p>11 Q. Would your nurse be responsible for</p> <p>12 following up with the patient to find out how the</p> <p>13 patient was doing after giving those types of</p> <p>14 instructions that you just looked at?</p> <p>15 MS. CARULAS: Objection.</p> <p>16 A. We inform the patients to give us a</p> <p>17 call, certainly, if any symptoms persist or</p> <p>18 worsen. We do not routinely make phone calls</p> <p>19 out. But we do ask them to call us.</p> <p>20 Q. Now, doctor, if those symptoms were</p> <p>21 due to increased intracranial pressure rather</p> <p>22 than muscle spasm, would you expect the family to</p> <p>23 be able to discern that there was a problem and</p> <p>24 call you back?</p> <p>25 A. I would suspect that the treatments</p>	<p style="text-align: right;">67</p> <p>1 Q. Do you have a copy of that letter,</p> <p>2 doctor?</p> <p>3 A. I believe it's in here.</p> <p>4 MS. CARULAS: Do you want him to get</p> <p>5 it?</p> <p>6 MS. TOSTI: Yes.</p> <p>7 A. Yes, I have a copy here.</p> <p>8 Q. Now, according to Dr. Marcotty's</p> <p>9 letter, the last paragraph, about halfway through</p> <p>10 this -- well, in the last paragraph, it says, in</p> <p>11 light of the fact that his headaches seem to be</p> <p>12 worsening, as well as swelling over the left</p> <p>13 parietal region, coupled with esotropia and the</p> <p>14 presence of disk edema, it was, of course,</p> <p>15 discussed that this may represent an increasing</p> <p>16 amount of intracranial pressure. And I have</p> <p>17 discussed this with Dr. Luciano, who will be</p> <p>18 evaluating the child on February 10th.</p> <p>19 Now, do you recall that conversation</p> <p>20 with Dr. Marcotty?</p> <p>21 A. No, I don't recall that conversation.</p> <p>22 Q. Do you recall anyone telling you,</p> <p>23 prior to the visit on February 10th, 98 that</p> <p>24 Kevin had bilateral disk edema and that it may</p> <p>25 represent increasing amounts of intracranial</p>
<p style="text-align: right;">66</p> <p>1 would not be effective and there might be other</p> <p>2 neurological progressions. If his headaches</p> <p>3 resolved spontaneously, were self-limiting, or</p> <p>4 responded to this medication, then I would expect</p> <p>5 them to be able to discern that as opposed to</p> <p>6 worsening headaches and other problems.</p> <p>7 Q. You next saw Kevin, I believe, in</p> <p>8 February; is that correct, on February 10th?</p> <p>9 A. I'll check the notation. Yes. I have</p> <p>10 a note here from February 10th.</p> <p>11 Q. Why is it that you saw him on that</p> <p>12 date?</p> <p>13 A. Again, I don't have an exact</p> <p>14 recollection, but I see the notation here that</p> <p>15 his headaches had persisted.</p> <p>16 Q. And, also, doesn't it say complaints</p> <p>17 of double vision?</p> <p>18 A. Yes, complaint of double vision.</p> <p>19 Q. And prior to this particular visit on</p> <p>20 February 10th, were you contacted by Dr. Andreas</p> <p>21 Marcotty regarding his evaluation of Kevin on</p> <p>22 February 9th?</p> <p>23 A. I don't recall the direct contact.</p> <p>24 However, I believe in this medical record there</p> <p>25 was a letter from him in February.</p>	<p style="text-align: right;">68</p> <p>1 pressure?</p> <p>2 A. I don't recall anybody telling me</p> <p>3 prior to it. I see a notation in the medical</p> <p>4 record of that day, but I don't recall this</p> <p>5 conversation.</p> <p>6 Q. When Kevin came in on the 10th, did</p> <p>7 you evaluate him for increased intracranial</p> <p>8 pressure?</p> <p>9 A. I have a notation here of a CT scan</p> <p>10 which shows -- it says cyst may be a little</p> <p>11 decreased. So I believe we did a CT scan which</p> <p>12 was to evaluate for increasing pressure in the</p> <p>13 brain and compression of brain structures.</p> <p>14 Q. And you have indicated in your note, I</p> <p>15 believe, rule out papilledema; correct?</p> <p>16 A. Yes.</p> <p>17 Q. What was the basis for your decision</p> <p>18 to rule out papilledema?</p> <p>19 A. I would assume, from seeing this, that</p> <p>20 it would be that I had some knowledge, either</p> <p>21 from the patient that day or from a phone call</p> <p>22 from Dr. Marcotty, although I have no</p> <p>23 recollection of that, that he had some swelling,</p> <p>24 maybe that the patient's family or the patient</p> <p>25 himself told me they saw some swelling. I don't</p>

<p style="text-align: right;">69</p> <p>1 recall the source of that concern. 2 Q. Well, doctor, is papilledema something 3 that a patient can describe to you? 4 A. No. The family can, after they see 5 the ophthalmologist, though. 6 Q. So this would have come from a 7 physician, maybe through the family; correct? 8 A. Yes. That's what I'm saying, yes. 9 Q. Now, when you saw Kevin on February 10 10th of 98, did Kevin complain that his vision 11 problems were worsening since the last time that 12 you saw him? 13 A. I don't see any notation, and I don't 14 recall directly him complaining of increased 15 problems with double vision. I don't recall any 16 discussion of progression, no. 17 Q. Now, Dr. Marcotty describes in his 18 letter to you that Kevin had been experiencing 19 blurry vision which seems to be worsening after 20 his recent brain surgery. And you have no 21 recollection as to whether that was a piece of 22 information that you had either through the 23 family or through Dr. Marcotty at the time that 24 you saw him on the 10th? 25 A. No, I don't know what the source is.</p>	<p style="text-align: right;">71</p> <p>1 day, It looks like one was done on that day, 2 yes. 3 Q. Was that an order that you made, 4 though, for the CAT scan? 5 A. I would believe so. The CT scan 6 usually I would order, yes. 7 Q. Why did you order a CT scan for Kevin 8 on that day? 9 A. Because of persistent headaches. 10 Q. Did you have the results of that CT 11 scan at the time that you were seeing him on the 12 10th? 13 A. Yes. By the note, it says CT without 14 change, just maybe a little bit decreased. 15 Q. Now, doctor, you had indicated rule 16 out papilledema at this visit, What was your 17 plan in regard to the papilledema? 18 A. I would evaluate his neurological 19 status and his vision. I did not plan at that 20 time or did not perform a pupil dilatation or 21 funduscopic exam. Usually in these children I 22 would, if I felt that there was a progressive 23 problem or a neurological deficit, consider an 24 ophthalmological exam. 25 Q. Were you able to rule out papilledema</p>
<p style="text-align: right;">70</p> <p>1 I assume that I would have heard it from either 2 of them; perhaps both of them. I don't have a 3 specific recollection of the conversation with 4 Dr. Marcotty. 5 Q. Did Kevin have increased swelling over 6 his left parietal surgical incision at the time 7 that you saw him on the 10th? 8 A. I don't make note of it, although a 9 certain amount of swelling may be acceptable 10 postcraniotomy, and I might not have made note of 11 it. 12 Q. Did Kevin or his mother tell you that 13 he was complaining about increasingly frequent 14 headaches? 15 A. I have a note here that headaches 16 persist. So I do know that they're at least 17 intermittent headaches that were described 18 earlier of variable intensity and time. I have 19 it that they have persisted. I don't have any 20 indication here that they have increased. 21 Q. Did you order a CAT scan for Kevin on 22 this date? I'm looking up above. 23 A. Yes. 24 Q. I see a CAT scan. 25 A. I'm not sure if I ordered it on that</p>	<p style="text-align: right;">72</p> <p>1 on February 10th when you saw him? 2 A. I don't recall. I don't see from the 3 note that I ruled out papilledema, and I could 4 not have, because I didn't do -- there was no 5 direct exam. However, the CT scan showed no 6 progression in fluid collection and showed, if 7 anything, I felt slightly less fluid. So my 8 concerns about mass effect on the brain and 9 pressure, I think, were eased. I was satisfied 10 that there was no progressive pressure on the 11 brain based on the CT scan. 12 Q. Is it your opinion that the CT scan 13 results ruled out papilledema when you saw Kevin 14 on February 10th? 15 A. They certainly eased my judgment or 16 concern about it, because increased pressure 17 would be caused by increased fluid accumulation. 18 When we see fluid either stable or obviously 19 decreasing, there's little concern about 20 increasing pressure, obviously. 21 Q. So was it your opinion then that he 22 did not have papilledema when you saw him on the 23 10th? 24 A. It was my opinion that he did not have 25 progressive increase in pressure.</p>

<p style="text-align: right;">73</p> <p>1 Q. Doctor, you mentioned that there was 2 a -- would you read us what you wrote under the 3 impressions in your note of February 10th. 4 A. Sure. Possible, I'm not certain -- it 5 may be consistent with possible symptoms, 6 consistent with -- I'm not sure of that exact 7 word, but I made the statement about possibility 8 of communicating hydrocephalus. 9 Q. Now, possible communicating 10 hydrocephalus, wouldn't that be an indication 11 that you were starting to develop some pressure 12 inside the brain? 13 A. Yes. 14 Q. I'm just trying to determine what your 15 terminology means here. 16 A. Hydrocephalus is a buildup of fluid in 17 the brain. What I believe I'm saying there is 18 that there is a -- there is a possibility that 19 fluid may not be absorbed properly at this time. 20 Q. So this was a change from what you saw 21 at the time of discharge from the hospital with 22 Kevin; correct? 23 A. At the time of discharge, we did not 24 get a CT scan, so I don't know about the amount 25 of fluid in the spaces, but, certainly, with</p>	<p style="text-align: right;">75</p> <p>1 occasion, fairly routinely, with some 2 papilledema, and we often treat them, as says 3 here in the plan, with Diamox. So I had the 4 concern about communicating hydrocephalus, and we 5 do follow many patients with this sort of problem 6 and we treat them with Diamox. 7 So here, based on the possibilities of 8 communicating hydrocephalus, even though there 9 was no increased mass effect or increase in the 10 amount of fluid, I started to plan Diamox, which 11 is aimed to both treat it and help determine if 12 that is the case. 13 Q. Is there a reason why you would not 14 have referred him to an ophthalmologist at this 15 point to determine whether or not papilledema was 16 or wasn't present? 17 A. I believe it was his general 18 neurological status, how he was doing, the fact 19 that there was no more accumulation of fluid on 20 the CT scan, and the fact that I had a trial of 21 Diamox that I was going to try. 22 Q. Doctor, when a patient of yours has 23 papilledema, is that an indication to refer a 24 patient to ophthalmology for evaluation of the 25 papilledema?</p>
<p style="text-align: right;">74</p> <p>1 persistence of headaches and seeing some fluid as 2 described here, I entertained the possibility, 3 yes. 4 Q. So at the time that you saw him on the 5 10th, you were thinking about increased 6 intracranial pressure; correct? 7 A. Communicating hydrocephalus, yes. 8 Q. And you had written to rule out 9 papilledema for Kevin; correct? 10 A. Yes. It's written there, yes. 11 Q. So how can you then come to the 12 conclusion that he doesn't have papilledema if 13 you believed on the 10th that he did have a 14 communicating hydrocephalus? 15 A. I did not necessarily come to the 16 conclusion he did not have papilledema. I came 17 to the conclusion that I felt he was doing 18 neurologically well, that he was stable, and that 19 there was no increasing mass effect in his head. 20 It is indeed possible that he has some 21 papilledema. With any increased pressure in the 22 brain, it's possible to have papilledema, as we 23 discussed earlier, but that in and of itself is 24 not going to cause a neurological deficit. 25 We have patients that we follow on</p>	<p style="text-align: right;">76</p> <p>1 MS. CARULAS: You're talking in 2 general or -- 3 MS. TOSTI: In general. 4 Q. When a patient has papilledema, if you 5 were to discover that, is that a patient that you 6 would refer to ophthalmology for evaluation? 7 A. Not necessarily, no. 8 Q. Is that something that you would treat 9 yourself? 10 A. We treat patients with papilledema -- 11 it depends, really, on if we know the cause of 12 the intracranial pressure increase. Certainly, 13 if a patient has a mass, a tumor, a bleed, has 14 papilledema, we don't routinely send them to the 15 ophthalmologist. We just treat the problem. 16 Q. In Kevin's case? 17 A. In Kevin's case, if we think we know 18 the source of the intracranial pressure, we 19 attempt to treat it, which is what I have done 20 here. 21 Q. What would be the indications that 22 would have caused you to refer him to 23 ophthalmology? 24 MS. CARULAS: Note my objection to 25 speculation as to what other situations would --</p>

<p style="text-align: right;">77</p> <p>1 A. I would guess some uncertainty about 2 the condition of his vision, or if there was a 3 question about papilledema. 4 Q. Doctor, when you put a patient on 5 Diamox, how do you determine whether or not it's 6 effective in reducing papilledema? 7 A. Usually it's -- we determine its 8 effectiveness based on the clinical symptoms. 9 Diamox can reduce CSF production by about 50 10 percent. It can decrease pressure and relieve 11 symptoms, whatever those symptoms may be, and so 12 we do it symptomatically. The papilledema does 13 not necessarily disappear. It can persist. 14 Papilledema is part of -- can be part 15 of following intracranial pressure, but is 16 neither the first sign to come, neither the last 17 to go, so we often will go by headache, we'll go 18 by the imaging and their symptoms. 19 Q. Well, doctor, continuing papilledema 20 with or without increased intracranial pressure, 21 in your opinion, does that require management by 22 an ophthalmologist? 23 A. Well -- 24 MS. CARULAS: Note my objection. 25 A. It's a difficult question, because</p>	<p style="text-align: right;">79</p> <p>1 Q. After you saw Kevin on the 10th and 2 you put him on the Diamox, what was your plan of 3 care for him? 4 A. Diamox is a medical treatment which 5 can reduce CSF production and decrease 6 intracranial pressure, if that was the problem. 7 And our plan was to follow his symptoms and see 8 if he had improved on the Diamox. 9 Q. What did you write at the bottom of 10 the page in regard to followup? 11 A. Follow up by phone. 12 Q. What does that mean, follow up by 13 phone? 14 A. It would mean that we would discuss 15 with the family about symptoms of headaches or 16 any other neurological issues, as we had done 17 probably in previous conversations, and ask them 18 to call if there are any problems. 19 Q. So it would be the family that would 20 be required to contact you or your nurse? 21 A. For symptoms such as headaches or 22 anything like that, I would entrust the family 23 watching their child to know if the child is 24 doing better or is doing worse, yes. 25 Q. Did you have any plans on seeing him</p>
<p style="text-align: right;">78</p> <p>1 continuing papilledema is usually followed by an 2 ophthalmologist, but, I mean -- by that I mean 3 would be detected by one because they do routine 4 funduscopic exams. Would you repeat the 5 question? 6 (Record read.) 7 A. I would say that we often have 8 patients that are followed routinely with 9 papilledema by ophthalmologists because they can 10 assess more clearly, with the dilatation, the 11 extent of papilledema. 12 Q. Aren't there complications associated 13 with continuing papilledema, whether there's 14 increased intracranial pressure or not? 15 MS. CARULAS: Note my objection. Go 16 ahead. 17 A. Yes. I would defer to an 18 ophthalmologist for that, because I believe it's 19 certainly possible that, with mild papilledema as 20 we have seen in many patients, there may be no 21 change in acuity or visual fields, and we follow 22 patients with some papilledema who don't have 23 neurological symptoms. But I would have to defer 24 to an ophthalmologist to explain the exact 25 severity and chronicity.</p>	<p style="text-align: right;">80</p> <p>1 after you saw him on February 10th? 2 A. Yes. We had plans for a postop -- 3 another visit, and then also an MRI study at that 4 time for, obviously, imaging of the postoperative 5 collection. 6 Q. Did you have any plans on Kevin seeing 7 an ophthalmologist after you saw him on February 8 10th, 98? 9 A. Yes, that there was plan to follow up 10 with an ophthalmologist, with Dr. Marcotty. 11 Q. Did you tell Kevin's parents that they 12 were to go see the ophthalmologist? 13 A. I don't have any direct recall of 14 specifically telling him to go, but I do have a 15 note in the chart that he was to see and get 16 followup with Dr. Marcotty. 17 Q. You're referring to a letter from Dr. 18 Marcotty dated February 11th of 98; correct? 19 A. Yes. 20 Q. The point that you're speaking about 21 is that he says he would like the opportunity of 22 reevaluating him in approximately six weeks; 23 correct? 24 A. Yes. 25 Q. Do you know whether Dr. Marcotty ever</p>

<p style="text-align: right;">81</p> <p>1 told the family to come back in six weeks?</p> <p>2 A. I don't know when his followup</p> <p>3 appointment was, no.</p> <p>4 Q. You never told them specifically you</p> <p>5 should make an appointment with the</p> <p>6 ophthalmologist in six weeks?</p> <p>7 A. I don't know if I have said that or</p> <p>8 not.</p> <p>9 Q. And this is dated February 11th, which</p> <p>10 is the day after you said you saw Kevin. So you</p> <p>11 would not have had Dr. Marcotty's letter at the</p> <p>12 time that you saw Kevin; correct?</p> <p>13 A. I don't know when I received this</p> <p>14 letter.</p> <p>15 Q. Now, Dr. Marcotty indicates in here,</p> <p>16 in his letter, that he found that Kevin had</p> <p>17 bilateral disk edema. Do you know if Kevin</p> <p>18 received any followup through Cleveland Clinic</p> <p>19 for the bilateral disk edema?</p> <p>20 A. Yes, I believe so. Well, we have a --</p> <p>21 yes. He did receive a followup.</p> <p>22 Q. When was that?</p> <p>23 A. This note is dated April 14th.</p> <p>24 Q. You saw him prior to that, though;</p> <p>25 correct, on April the 7th of 98?</p>	<p style="text-align: right;">83</p> <p>1 7th of 98; correct?</p> <p>2 A. Based on this note, yes.</p> <p>3 Q. Between February 10th of 98 and April</p> <p>4 7th of 98, did he receive any followup for</p> <p>5 papilledema?</p> <p>6 A. No. Followup was planned in terms of</p> <p>7 the imaging studies at an earlier date, but --</p> <p>8 and, of course, the opportunity for the family to</p> <p>9 get in touch with us, but we had no scheduled</p> <p>10 clinic visit except this one.</p> <p>11 Q. When he came in on April 7th of 98,</p> <p>12 was that a regularly scheduled visit for</p> <p>13 followup?</p> <p>14 A. This one was rescheduled because he</p> <p>15 did not successfully complete this one earlier.</p> <p>16 Q. So he had his MRI?</p> <p>17 A. It was rescheduled because this one</p> <p>18 did not proceed.</p> <p>19 Q. Then he came in to see you?</p> <p>20 A. Yes.</p> <p>21 Q. Now, what were the findings on the MRI</p> <p>22 when you evaluated him on April 7th of 98?</p> <p>23 A. I make notation that the CSF</p> <p>24 collection -- CSF cyst collections remain. Now</p> <p>25 there's fluid seen on extra-axial. That means</p>
<p style="text-align: right;">82</p> <p>1 A. Yes.</p> <p>2 Q. And between March 10th of 98 when you</p> <p>3 saw him and April 7th of 98, to your knowledge,</p> <p>4 was Kevin ever seen for followup to check for</p> <p>5 increased intracranial pressure or papilledema</p> <p>6 between that time, between February and April</p> <p>7 7th?</p> <p>8 A. I have no knowledge of that.</p> <p>9 Q. Now, when Kevin came in on April 7th</p> <p>10 of 98, why was he coming in?</p> <p>11 MS. CARULAS: Just for the record,</p> <p>12 there was the MRI. There's a --</p> <p>13 A. There's an MRI that was scheduled at</p> <p>14 an earlier date.</p> <p>15 MS. CARULAS: Just so it's clear in</p> <p>16 the record.</p> <p>17 A. April 7th, which apparently was not on</p> <p>18 March 24th -- yes, there was a -- is that</p> <p>19 Luciano? There was a visit listed here from</p> <p>20 March 24th and an MRI scheduled on that date</p> <p>21 earlier, which apparently was not performed.</p> <p>22 Q. But you did not see him when he came</p> <p>23 in for that test; is that correct?</p> <p>24 A. I don't believe so.</p> <p>25 Q. So the next time you saw him was April</p>	<p style="text-align: right;">84</p> <p>1 over the hemispheres.</p> <p>2 Q. So he had increased hydrocephalus when</p> <p>3 you saw him; is that a correct statement?</p> <p>4 A. No. Hydrocephalus can often refer to</p> <p>5 CSF in the ventricles. May I read? The changes</p> <p>6 of decompression of large suprasellar and left</p> <p>7 middle cranial fossa arachnoid cyst. There are</p> <p>8 now bilateral new CSF signal subdural fluid</p> <p>9 collections over both hemispheres without</p> <p>10 evidence for herniation.</p> <p>11 I believe on the earlier CT scan that</p> <p>12 there was some fluid collection seen, small, and</p> <p>13 this is a different formal study, and certainly</p> <p>14 when you go from CT scan to MRI, the volume of</p> <p>15 the fluid can be estimated differently. We often</p> <p>16 see fluid collections slightly more on MRI than</p> <p>17 CT scan. However, certainly there's a bilateral</p> <p>18 fluid collection on the outside of the skull.</p> <p>19 I don't see any evidence of fluid</p> <p>20 collections inside the brain such as in the</p> <p>21 ventricles. There has been an interval decrease</p> <p>22 in the size of the lateral ventricle, and this is</p> <p>23 due to decreased compression at the foramen of</p> <p>24 Monro.</p> <p>25 The fluid is made inside the brain.</p>

<p style="text-align: right;">85</p> <p>1 So there's no sign of increased fluid, but 2 certainly there was extra-axial fluid, yes. 3 Q. When you saw him on the 7th of April, 4 did you have a heightened concern that he was 5 developing increased intracranial pressure? 6 A. I would say that, based on the fluid 7 collections still being there and him having 8 persistent headaches, that I felt that that was a 9 possibility, that the fluid was not being 10 absorbed well, yes. 11 Q. Now, his mother reported to you that 12 he was complaining of severe headaches and 13 diplopia at this visit; correct? 14 A. That's what's noted. Continues to 15 have complaint of severe headaches and diplopia. 16 Q. The mother reported he had a decreased 17 energy level, that he didn't want to go outside 18 to play. 19 A. Yes. 20 Q. He had increased irritability and 21 frequent outbursts and panic attacks. Did any of 22 these symptoms raise a heightened concern that 23 they may be related to increased intracranial 24 pressure? 25 A. My impression is that if there's a</p>	<p style="text-align: right;">87</p> <p>1 at this visit. 2 Q. Those symptoms that we just described 3 could be related to increased intracranial 4 pressure -- 5 MS. CARULAS: Show an objection. 6 A. Usually -- 7 Q. -- in some instances? 8 A. Frequent outbursts and panic attacks 9 are not associated with increase in intracranial 10 pressure. 11 Q. How about the severe headaches, 12 diplopia, the decreased energy level, the 13 irritability? 14 A. Certainly headaches and diplopia are 15 or can be -- decreased energy level could be a 16 variety of reasons, but, of course, intracranial 17 pressure is a possibility, yes. 18 Q. When you saw him on the 7th, did you 19 do any type of examination to check for 20 papilledema? 21 A. I have a note here of neurologically 22 intact, and I looked at the site and saw some 23 swelling in the temporal region. And I don't 24 have note of a funduscopy exam, so, no, I did 25 not do one.</p>
<p style="text-align: right;">86</p> <p>1 persistent cyst after fenestration and failure of 2 absorption, I would say that that was my 3 concern. I also note here, plan to recommend 4 cyst perineural shunting. It was my concern that 5 the fluid was not being absorbed and may require 6 shunting. We always hesitate about shunting 7 because shunting is a life-long burden and 8 another surgery and has its own complications. 9 However, it seemed at this writing I felt that 10 the fluid was not going away on its own and may 11 require cyst perineural shunting. 12 I also make a note on the second part 13 here that I will get a peds neurology opinion. 14 And I think that this -- I don't routinely get 15 pediatric neurology opinions, but I felt in this 16 case, because there was some, I believe, 17 behavioral issues listed above, frequent 18 outbursts, panic attacks and so forth, I was 19 concerned that some of these issues may be more 20 functional/behavioral; I was not certain, so I 21 wanted an opinion on is this truly due to 22 increased pressure, these other symptoms, or may 23 they be behavioral. 24 So I see here will get peds neurology 25 opinion. And I would assume that was scheduled</p>	<p style="text-align: right;">88</p> <p>1 Q. Did you do any visual field testing? 2 A. I don't recall specifically. 3 Q. Did you do any type of testing that 4 would indicate whether or not there was loss of 5 any visual fields? 6 A. I don't recall specifically. I say 7 that he appears intact, so that would routinely 8 be at least a gross exam or evaluation, if he's 9 seeing and seeing peripherally, but I don't 10 recall specifically doing visual fields. I do 11 recommend that he also get a followup with a 12 pediatric neurologist as well. 13 Q. At the time that you saw him there at 14 that point, you had no reason to believe that he 15 had vision loss, though; is that correct? 16 A. I would say that is correct, yes. 17 Q. Now, he did then go see a peds 18 neurologist by the name of Dr. Cohen; is that 19 correct? 20 A. Yes. 21 Q. After the evaluation of the pediatric 22 neurologist, did the pediatric neurologist then 23 tell you what his findings were? 24 MS. CARULAS: You're talking now did 25 they discuss or --</p>

<p>a9</p> <p>1 MS, TOSTI: Yes. 2 MS, CARULAS: If you remember. 3 A, I don't recall that discussion, no. 4 Q. Did Dr. Bruce Cohen inform you at any 5 point that Kevin had bilateral papillary edema? 6 A. I don't recall. I see his note here 7 on that date, but I don't recall the direct 8 conversation. I've been telling you that. 9 Q. You have no recollection of -- 10 MS, CARULAS: You have answered the 11 question. 12 Q. You have no recollection of Dr. Cohen 13 stating that Kevin should be referred for 14 ophthalmology consult in order to evaluate his 15 visual fields? 16 A. No, I don't have any recollection of 17 that recommendation. 18 Q. Do you know if Kevin ever had an 19 ophthalmology consult soon after Dr. Cohen saw 20 him? 21 A. I know that from the -- based on the 22 letter from Dr. Marcotty, I know that he had 23 planned to follow up. I don't know of Dr. Cohen 24 recommending any ophthalmological followup. Let 25 me see. It says eye consult in his note.</p>	<p>91</p> <p>1 putting a shunt in this child and the possible 2 complications of shunting. 3 After consulting Dr. Cohen, who is 4 knowledgeable not only with matters of pressure 5 but also behavioral issues, he agreed that this 6 is likely a secondary pressure. He notes on the 7 14th, April 14th, in the note at his clinic visit 8 that the cranial nerves were intact, including 9 two, and he had normal visual fields. 10 Even though at that time we had no 11 evidence that he had any visual problems, I felt 12 that his symptoms of persistent headache and the 13 fact that he still had some fluid on the 14 hemispheres of the brain warranted us making that 15 step, the second surgery, and because of that, we 16 did the surgery, I believe, the next day, very 17 soon thereafter. 18 Q. So the date of his next surgery in 19 which you put the shunt in, that was, I believe, 20 on April 15th of 98; is that correct? 21 A. Yes. That would be right after seeing 22 Dr. Cohen, after I got his agreement. 23 Q. And did he have any complications 24 during that surgery? 25 A. The surgery -- may I see the operative</p>
<p>90</p> <p>1 Q. Do you know whether Kevin ever got an 2 eye consult? 3 A. I'm not sure of the timing, but I do 4 recall an exam by a Cleveland Clinic 5 neuro-ophthalmologist, yes. I would have to look 6 at the date. 7 Q. I would like you to tell me where you 8 saw that examination. 9 A. It's in the eye section here. It does 10 say. There is a note dated July 22nd, 1998. 11 Q. Dr. Cohen suggested that Kevin have a 12 consult with ophthalmology in April, but that 13 wasn't done until July 22nd, as far as you can 14 see from the records; is that correct? 15 MS, CARULAS: Note an objection. 16 Obviously, you're just having him look through 17 the record. I think Dr. Cohen or Kosmorsky could 18 answer you. 19 MS, TOSTI: Well, if there was any 20 other consult done between April or July, he can 21 tell me. 22 A. I don't know of any. 23 Q. Now, doctor, Kevin underwent a second 24 surgery then; is that correct, in April of 98? 25 A. My concern was another surgery and</p>	<p>92</p> <p>1 notes? The surgery, to my recollection -- I 2 don't have direct recollection -- but there was 3 no complications noted. And it appears to be an 4 uneventful cyst perineural shunting. 5 Q. You didn't run into unanticipated 6 problems during the surgery; correct? 7 A. Not to my knowledge, based on the 8 medical record, I don't believe. 9 Q. Do you know whether Kevin had any 10 evidence of bilateral papilledema after his 11 surgery? 12 A. I don't have direct knowledge of that, 13 but papilledema can persist even beyond a 14 shunting. I do know that his other symptoms of 15 headaches, for example, decreased dramatically 16 within the day and days after surgery, and I 17 noted in postop notes, and I think also Dr. 18 Cohen, that said that he was 80 percent, then a 19 hundred percent better with respect to his 20 symptoms after the shunting. But I -- 21 Q. Go ahead and finish. 22 A. But I don't have direct knowledge that 23 the papilledema had dissipated. As I said, that 24 can stay, that can be residual, and that can be a 25 time lag, so that's not primarily what we follow</p>

<p style="text-align: right;">93</p> <p>1 immediately.</p> <p>2 Q. To your knowledge, did he have any</p> <p>3 evaluation for papilledema while he was in the</p> <p>4 hospital for his shunting procedure?</p> <p>5 A. For his shunting procedure?</p> <p>6 Q. Yes, when he was in the hospital</p> <p>7 during the period of time that his shunt</p> <p>8 procedure was done.</p> <p>9 A. No, and we would not routinely do</p> <p>10 that.</p> <p>11 Q. And was he receiving any treatment</p> <p>12 that would be effective for papilledema while he</p> <p>13 was in the hospital during that shunting</p> <p>14 procedure?</p> <p>15 A. Yes. Yes, he was.</p> <p>16 Q. What was he receiving?</p> <p>17 A. He was shunted.</p> <p>18 Q. And aside from that, was he receiving</p> <p>19 any other medications or anything?</p> <p>20 A. No other medication was felt to be</p> <p>21 required, because the main source of pressure may</p> <p>22 be the fluid, so, obviously, shunting of fluid</p> <p>23 would do more than any other treatment.</p> <p>24 Q. Do you have any knowledge of any</p> <p>25 visual field testing that was done on him while</p>	<p style="text-align: right;">95</p> <p>1 improved and the pressure is resolved, headaches</p> <p>2 resolved and so forth, the visual symptoms,</p> <p>3 papilledema and so forth, can resolve over a long</p> <p>4 period of time, so I would consider, of course, a</p> <p>5 followup with the ophthalmologist over a longer</p> <p>6 period of time. We may arrange it at a later</p> <p>7 date.</p> <p>8 Q. Well, in this case, did you make any</p> <p>9 arrangements for ophthalmology followup?</p> <p>10 A. In this case, at the discharge, I did</p> <p>11 not, but apparently Dr. Kosmorsky -- I'm not sure</p> <p>12 when that was arranged, but Dr. Kosmorsky's</p> <p>13 followup was arranged, yes.</p> <p>14 Q. Are you referring to that followup</p> <p>15 that occurred in July when he saw him?</p> <p>16 A. Let me go back to it. Yes. So we did</p> <p>17 have a followup with ophthalmology with our own</p> <p>18 ophthalmologist, yes.</p> <p>19 Q. Do you feel that it was appropriate</p> <p>20 for him to go from his discharge in April all the</p> <p>21 way to July before he had ophthalmology</p> <p>22 followup?</p> <p>23 A. Yes, based on his dramatic symptomatic</p> <p>24 improvement, yes, I do.</p> <p>25 Q. Now, you saw Kevin, I believe, in</p>
<p style="text-align: right;">94</p> <p>1 he was in the hospital?</p> <p>2 A. No. As a matter of fact, we would</p> <p>3 probably not do it acutely, since there can be</p> <p>4 changes that stabilize over time. His symptoms</p> <p>5 of increased intracranial pressure had</p> <p>6 dissipated, and that would be satisfactory in</p> <p>7 terms of followup at that acute stage.</p> <p>8 Q. So what was your plan of care for him</p> <p>9 at the time of his discharge?</p> <p>10 A. He had undergone the shunt procedure</p> <p>11 without complication. He was doing well</p> <p>12 postoperatively, and he was discharged in</p> <p>13 essentially a routine fashion for a person with a</p> <p>14 shunt. It would involve suture removal, followup</p> <p>15 clinic visit, and I assume also followup with Dr.</p> <p>16 Cohen as well.</p> <p>17 Q. Did you plan any type of ophthalmology</p> <p>18 followup for him after discharge from the</p> <p>19 shunting procedure?</p> <p>20 A. I'll have to look to see if it was</p> <p>21 specifically requested in the discharge. I would</p> <p>22 feel that we could probably do that over a longer</p> <p>23 period of time, because, as I said, these changes</p> <p>24 and these resolutions can take a longer time to</p> <p>25 occur. If he symptomatically and greatly</p>	<p style="text-align: right;">96</p> <p>1 June; is that correct -- or let me ask you, there</p> <p>2 is a clinic note, I think, from June 4th of 98.</p> <p>3 Did you see him on that date? I'm not sure</p> <p>4 whether that's yours or not.</p> <p>5 A. June 4th, this is my handwriting and</p> <p>6 my signature, so, yes, I saw him on that date.</p> <p>7 Q. Could you just read us what you have</p> <p>8 written on that note?</p> <p>9 A. Status post CPS. That's cyst</p> <p>10 perineural shunt. Decreased pressure. I'm not</p> <p>11 sure what that word is; perhaps feeling. Face</p> <p>12 decreased with edema. Occasional -- I'm sorry, I</p> <p>13 can't read that word at this time. Normal</p> <p>14 strength and sensation. Follow up six months</p> <p>15 with CT scan.</p> <p>16 Q. Now, I believe shortly after that</p> <p>17 visit, Kevin was seen by Dr. Cohen, the peds</p> <p>18 neurologist. Did Dr. Cohen discuss his findings</p> <p>19 with you after he saw Kevin?</p> <p>20 A. Not to my knowledge. I don't have any</p> <p>21 direct recollection of the conversation. I feel</p> <p>22 bad I keep saying that. But this was 97. This</p> <p>23 is pediatric neurology. Followup is dated June</p> <p>24 9th. Yes, so Dr. Cohen also saw him</p> <p>25 postoperatively, and writes he was 90 percent</p>

<p style="text-align: right;">97</p> <p>1 better in four days, and two weeks he's a hundred 2 percent better. He's at full activity now. He's 3 getting straight A's in school. 4 Q. Dr. Cohen also indicates under the 5 assessment plan, Dr. Marcotty for eyes, I 6 believe. 7 A. Yes, I see that. 8 Q. When did you learn that Kevin had 9 vision loss? 10 A. I don't recall the specific date. I 11 believe it was very soon after his exam, because 12 I believe that there was a phone call. I did not 13 receive it directly, perhaps my nurse did, and I 14 heard that he had visual loss, and I believe I 15 saw him shortly thereafter in our clinic for us 16 to discuss it. 17 Q. Who informed you that there was vision 18 loss? What was the source of the information? 19 A. I don't recall. I know there was a 20 phone call in, but I don't recall the source. 21 Q. Were you ever contacted by Dr. 22 Marcotty and told that he had found vision loss? 23 A. As I said, I don't recall directly 24 speaking with him. 25 Q. But at any point in time, did Dr.</p>	<p style="text-align: right;">99</p> <p>1 Q. The ophthalmologist that you're 2 referring to here, is that Dr. Kosmorsky? 3 A. I don't know for certain. I would 4 believe so, based on the fact that he saw him on 5 that day. 6 Q. Did you speak to Dr. Kosmorsky about 7 this vision loss that Kevin had? 8 A. I have no direct recollection of doing 9 that. 10 Q. Do you have an opinion as to when 11 Kevin developed his vision loss? 12 A. Based on this record, I see that just 13 before our cyst perineural shunting, while he had 14 headaches, he appeared to have intact vision on 15 the pediatric neurology exam. It lists 16 separately cranial nerve two intact, and also 17 separately visual fields intact. 18 Based on that, the day before the 19 surgery, I would -- I believe, and, of course, 20 without certainty, that he had no progressive 21 visual loss and no visual loss at that time. I 22 would feel it's likely that it may have occurred 23 at some time afterwards. 24 Q. After the perineural shunting 25 procedure?</p>
<p style="text-align: right;">98</p> <p>1 Marcotty call you to talk to you about Kevin's 2 vision loss? 3 A. As I said, I don't recall him calling 4 at any time. 5 Q. Now, I think there's another note 6 that's dated July 22nd of 98 that has a stamp 7 with your name on it. 8 A. Yes, July 22nd, 98. 9 Q. Is that a note you wrote? 10 A. There's an ophthalmology note from Dr. 11 Kosmorsky. We already talked about that visit. 12 Then there's my note on the same day. Yes, 13 that's my handwriting. 14 Q. Would you read what that note says? 15 A. Patient without headaches, incision 16 well healed. Okay. No -- I can't read that. No 17 neuro -- 18 Q. Complaints? 19 A. Complaints. He had no neuro 20 complaints. However, I made note by history of 21 the visual loss noted by the ophthalmologist. So 22 he was apparently doing well and had no 23 complaints himself. However, I wanted to make 24 note that the ophthalmologist noted the visual 25 loss.</p>	<p style="text-align: right;">100</p> <p>1 A. Yes. 2 Q. Or the shunting procedure? 3 A. Yes. That would be my guess. 4 Q. Do you have an opinion as to whether 5 Kevin should have received ophthalmology followup 6 at the Cleveland Clinic after his first surgery 7 and after his second surgery? 8 MS. CARULAS: Note my objection. Go 9 ahead. 10 A. I'm not sure I understand the 11 question. He did receive -- he did receive 12 ophthalmological -- 13 Q. Did he receive ophthalmology followup 14 after his first surgery at the Cleveland Clinic? 15 A. Directly after? Do I have an opinion 16 at the time or just after the operation he should 17 have received ophthalmologic followup? 18 MS. CARULAS: At the Clinic versus -- 19 Q. Let me rephrase my question. 20 I don't believe that Kevin received 21 any ophthalmology followup at the Cleveland 22 Clinic between his first surgery and his second 23 surgery, and now if I'm wrong about that, let me 24 know. 25 A. I see. He did not receive any.</p>

<p style="text-align: right;">101</p> <p>1 Q. Do you believe that he should have 2 received ophthalmology followup at the Cleveland 3 Clinic between his first surgery and his second 4 surgery? 5 A. No, I don't believe so. 6 Q. After his second surgery at the 7 Cleveland Clinic, do you have an opinion as to 8 whether he should have received ophthalmology 9 followup postoperatively? 10 A. In the long term, perhaps, but not in 11 the short term for evaluation or for immediate 12 treatment based on his resolution of his 13 symptoms. I did not have a concern that he had 14 persistent increased intracranial pressure. He 15 was doing extremely well and getting A's in 16 school, and I did not feel that he had any 17 persistent pressure problems that would warrant a 18 special ophthalmological exam. 19 In addition, as I said, papilledema 20 can persist afterwards, and I even think in Dr. 21 Kosmorsky's note, it mentioned that there's some 22 persistent papilledema. It is not the most 23 sensitive exam. What we usually do is wait a 24 period to allow stablization, patient recovery, 25 for an ophthalmologic evaluation. There is</p>	<p style="text-align: right;">103</p> <p>1 neurological condition, is something that has to 2 be specifically monitored. If a patient is doing 3 very well and if his symptoms of intracranial 4 pressure have dissipated, there is no necessary 5 urgency to -- I felt, in my judgment -- to 6 specifically ask about the residual papilledema. 7 So I think a long-term followup with 8 ophthalmology is appropriate, but not critical, 9 to decision making after an uneventful and 10 successful cyst perineural shunting. 11 Q. Is it your opinion then that a chronic 12 papilledema that doesn't have increased 13 intracranial pressure associated with it does not 14 require treatment? 15 A. I'm not an ophthalmologist, but if 16 there is no neurological deficits that are 17 progressive, then I believe that it is not 18 necessarily required treatment in itself for 19 several reasons. One is, as I said, residual 20 papilledema can be present even after the 21 intracranial pressure goes down and the danger 22 has passed. 23 Q. Would you defer to an ophthalmologist 24 as to whether or not chronic papilledema without 25 increased intracranial pressure should be</p>
<p style="text-align: right;">102</p> <p>1 nothing acute -- I think an ophthalmological exam 2 after an excellent recovery from a cyst 3 perineural shunt, there is nothing acute that 4 would have been done based on that exam. 5 Q. Do you have an opinion as to what 6 caused Kevin's optic atrophy and vision loss? 7 A. I know that both of those occur with 8 some injury to the optic nerve, that injury can 9 be stretch or movement, it can be vascular, and 10 it can be pressure. I feel that it likely, as we 11 discussed earlier, came after the shunting 12 procedure, although I don't know exactly when. 13 I do know that shifts can occur with 14 shunting because of fluid drainage either in the 15 short term or in the long term, and these can 16 stretch nerves and cause this sort of problem. 17 So I don't know what caused the 18 atrophy or the visual loss. Certainly 19 papilledema, chronic papilledema, can cause 20 atrophy. But so can other forms of injury. 21 Q. Whose responsibility do you believe it 22 was to monitor Kevin's papilledema? 23 A. We monitored his intracranial pressure 24 and his symptoms. I'm not sure that papilledema, 25 aside from the patient's condition, the</p>	<p style="text-align: right;">104</p> <p>1 treated? 2 A. How would that be treated? There is 3 no treatment for papilledema, per se, without 4 treatment of intracranial pressure. I have 5 treated the intracranial pressure, so there is 6 nothing that an ophthalmologist does besides try 7 and reduce intracranial pressure, which I had 8 done by the procedure. 9 So, no, I don't feel that the 10 papilledema needs specifically to be treated by 11 an ophthalmologist after successful cyst 12 perineural shunting. 13 Q. Did you ever have any conversations 14 with Mr. and Mrs. Kiss regarding Kevin's vision 15 loss? 16 A. I have noted a visit on I think it's 17 June or July 22nd. 18 MS. CARULAS: Yes. 19 A. That was after their discovery of the 20 visual loss, And at that time, I had a 21 discussion, I'm certain. 22 Q. What did you tell them in regard to 23 the vision loss? 24 A. I don't recall the exact 25 conversation. However, I would not have known</p>

<p style="text-align: right;">105</p> <p>1 and would not have told them of what specifically 2 caused the visual problem. I remember personally 3 being surprised he had a unilateral visual loss, 4 although this can be seen after any shunting 5 procedure where there are shifts in the brain and 6 drainage either -- you know, in the long term. 7 Q. Again, you don't have an opinion as to 8 what caused his loss in this case, do you? 9 MS. CARULAS: Note my objection. I 10 think this has been asked and answered. 11 Q. Doctor, I think you told me two 12 things: Shift in the brain or possibly increased 13 intracranial pressure. So I'm asking you, of 14 those two, what do you think caused his vision 15 loss? 16 MS. CARULAS: Objection. I think it's 17 been asked and answered. Go ahead. 18 Q. I would ask that you answer it again, 19 because I obviously missed your answer. 20 A. I understand. I feel that I treated 21 his increased intracranial pressure, and I feel 22 that we did the treatment before there was any 23 visual loss. So I think it's less likely that it 24 was due to increased intracranial pressure. 25 Q. So that I'm clear, it's your opinion</p>	<p style="text-align: right;">107</p> <p>1 else that rendered care to Kevin? 2 A. No. No, I don't. 3 Q. Do you blame Kevin's parents or Kevin 4 for the visual loss that he suffered? 5 MS. CARULAS: Note my objection. 6 A. We see visual loss -- by we, I mean 7 neurosurgeons -- with hydrocephalus and with its 8 treatment and with shifts in the brain, and it's 9 nobody's fault. So, no, I don't seek to blame 10 the parents. 11 MS. TOSTI: I want to just confer with 12 counsel for one minute, and then I'm pretty close 13 to done. 14 (Discussion off the record.) 15 (Recess had.) 16 Q. Doctor, you mentioned, and I believe 17 on your curriculum vitae, that you have a number 18 of publications that relate to hydrocephalus. 19 Have you ever lectured or given formal 20 presentations on the subject matter of 21 hydrocephalus? 22 A. Yes. 23 Q. Do you have any outlines, written 24 materials, or have any of your lectures been 25 reduced to a videotape or a recording on the</p>
<p style="text-align: right;">106</p> <p>1 then that there was some type of shift in the 2 structures of the brain as a result of the 3 shunting procedure that caused his vision loss? 4 A. I think that's a more likely 5 possibility, yes. 6 Q. Did you note any vision loss after you 7 did the procedure when he was in the hospital? 8 A. I don't believe any was noted. As a 9 matter of fact, it was a surprise to his family 10 and apparently to the child and the family at the 11 ophthalmological exam. So none was noted by us 12 or by the patient or the family. 13 Q. Wouldn't you expect to start to see 14 some vision loss in the hospital if it was in 15 fact due to a shift in the structures after a 16 shunting procedure? 17 A. I can't say what I would expect. It 18 depends on how much shift there would be. I 19 can't say that I would expect to see some. It 20 can happen in the long term, certainly. 21 Q. Do you have any criticism of anyone 22 that rendered care to Kevin Kiss, such as Dr. 23 Marcotty? 24 A. I don't have any criticism. 25 Q. Do you have any criticism of anyone</p>	<p style="text-align: right;">108</p> <p>1 subject matter of hydrocephalus? 2 A. I have a videotape from a lay public 3 lecture that was given, yes. 4 Q. Is that something that we would be 5 able to get a copy of? 6 MS. CARULAS: Objection. 7 A. I would assume it's possible, yes. 8 Q. What's the title on the videotape? 9 A. I don't know the title, but it's the 10 hydrocephalus conference, May 19th of 2000. 11 Q. Who was the presentation originally 12 made to? 13 A. The lay public. It was here in 14 Cleveland. 15 Q. What is that tape used for? 16 A. It will hopefully be edited and 17 distributed out to those in the lay public who 18 are willing. 19 Q. Aside from that particular videotape, 20 do you have any other materials, outlines or 21 other things that I've mentioned that relate to 22 presentations that you have made or will be 23 making on the subject matter of hydrocephalus? 24 MS. CARULAS: Same objection. Go 25 ahead.</p>

<p style="text-align: right;">109</p> <p>1 A. I've given a number of lectures, and I 2 have a lot of -- I have papers on hydrocephalus 3 from the journals, copies that are available in 4 the general journals. I have, of course, 5 two-by-two slides on hydrocephalus. I don't have 6 a prepared, you know, canned talk, so to speak, 7 but I have a large number of slides showing 8 hydrocephalus and treatment. 9 Q. And do the slides discuss the 10 treatment of hydrocephalus also? 11 A. Some may. I'm certain -- of course, 12 some do. They discuss shunting and so forth. 13 Q. And aside from the videotape that you 14 prepared for a lay presentation, how many slides 15 are we talking about? 16 A. 400, 500, something of that order, but 17 not all those are germane. These are on 18 hydrocephalus. I've never given a talk 19 specifically on arachnoid cysts or treatment of 20 arachnoid <u>cysts</u>, but on hydrocephalus generally, 21 yes. 22 Q. Aside from those two things, the 23 videotape and the slides, do you have printed 24 outlines, materials, anything else that's in a 25 written form?</p>	<p style="text-align: right;">111</p> <p>1 hydrocephalus family support group, and it would 2 be very much like the group for the May 19th 3 meeting that would attend that. And there is a 4 family support network for hydrocephalus 5 nationally, and that would be the Ohio portion. 6 Q. Do you have any type of administrative 7 function for this organization? 8 A. Administrative function? I guess I 9 would be considered their advisor, but I have no 10 formal administrative function. 11 Q. Do you do presentations for them 12 periodically? 13 A. As I mentioned, May 19th, and I gave 14 another one about a month or two after. 15 Q. So the videotape that we were talking 16 about, was that prepared for presentation by this 17 hydrocephalus foundation? 18 A. Yes. It was -- the meeting went 19 beyond. Anybody was welcome, not just that 20 group. However, yes, it did involve the family 21 support group, yes. 22 Q. Are there other local physicians 23 involved with this organization? 24 A. Not neurosurgeons. Certainly the 25 other -- like pediatric neurologists and so forth</p>
<p style="text-align: right;">110</p> <p>1 A. I have publications. 2 Q. Well, we've seen your curriculum 3 vitae, but aside from the curriculum vitae, 4 something that you would hand out at a 5 presentation that you were making. 6 A. I have had handouts on occasional 7 presentations, certainly. I don't have my hands 8 on them right now. But, yes, there have been 9 some with outlines for the presentation. 10 MS. TOSTI: We would make a request 11 for any written materials that he has that deal 12 with presentations that he's made on the subject 13 matter of hydrocephalus. 14 MS. CARULAS: Just put it in writing 15 and then -- I need everything in writing. If 16 he's able to find it easily, we'll deal with it 17 from there. 18 Q. Now, doctor, you belong to two 19 organizations here. One is Hydrocephalus 20 Foundation of Ohio, and another one is the 21 Hydrocephalus Research Foundation Advisory 22 Board. What type of an organization is 23 Hydrocephalus Foundation of Ohio? 24 A. That is a, I believe, a regional group 25 of -- it's essentially a family support, or</p>	<p style="text-align: right;">112</p> <p>1 who treat these patients can be involved. But I 2 am the main -- in terms of hydrocephalus and 3 neurosurgery, yes. 4 Q. So chiefly the individuals that would 5 belong to the hydrocephalus foundation are lay 6 individuals? 7 A. Yes. 8 Q. What about the Hydrocephalus Research 9 Foundation Advisory Board? 10 A. That no longer exists, but that was a 11 research group that was centered on research and 12 hydrocephalus as a national group, but it no 13 longer exists. 14 Q. What was the function of that group? 15 A. To discuss hydrocephalus research 16 findings and future research. 17 Q. Did they publish any type of 18 newsletter, paper, anything, in regard to their 19 opinions, consensus opinions? 20 A. This was several years ago. There 21 might have -- I don't recall if there's a 22 specific flyer. I know there were letters and 23 conversations. I don't think there were any 24 specific newsletters. 25 Q. Were they actually conducting</p>

<p style="text-align: right;">113</p> <p>1 research?</p> <p>2 A. No. No. It's a professional</p> <p>3 discussion group is what it is.</p> <p>4 Q. It was just to trade information back</p> <p>5 and forth?</p> <p>6 A. Yes.</p> <p>7 Q. And they're no longer in existence; is</p> <p>8 that correct?</p> <p>9 A. That's correct.</p> <p>10 Q. Now, doctor, we talked a little bit</p> <p>11 about increased intracranial pressure, and that</p> <p>12 at some point there would be a decision to</p> <p>13 intercede surgically for a patient, and we talked</p> <p>14 about some of the symptoms of increased</p> <p>15 intracranial pressure.</p> <p>16 Do you have to have multiple symptoms</p> <p>17 present in order to move forward to surgical</p> <p>18 intervention for a patient?</p> <p>19 MS. CARULAS: Objection. Go ahead.</p> <p>20 A. I don't think it's a matter of how</p> <p>21 many or the multiplicity, but it's a matter of</p> <p>22 what and the progression.</p> <p>23 Q. Well, if you have one symptom, would</p> <p>24 that be sufficient to move forward?</p> <p>25 A. Again, I don't think it's a matter of</p>	<p style="text-align: right;">115</p> <p>1 of a certain amount of headaches that require</p> <p>2 surgery. It's a matter of judgment based on how</p> <p>3 the patient is functioning, how they're doing,</p> <p>4 and not a matter of a certain amount of</p> <p>5 headaches. Sometimes headache can be tolerated</p> <p>6 if the patient doesn't want to have the risk of</p> <p>7 surgery.</p> <p>8 Q. If you have a progression, though, of</p> <p>9 symptoms, where you have got intermittent</p> <p>10 headache and then it's becoming more severe,</p> <p>11 would that be an indication to proceed to surgery</p> <p>12 for a patient, where there's a change, patients</p> <p>13 reporting a change?</p> <p>14 MS. CARULAS: Note my objection.</p> <p>15 We've been over this, but go ahead.</p> <p>16 A. It is not necessarily an indication</p> <p>17 for surgery. It may be an indication for an</p> <p>18 imaging study, for a medication, for followup,</p> <p>19 but not necessarily an indication for surgery,</p> <p>20 no.</p> <p>21 Q. Now, doctor, you were talking about</p> <p>22 the shunting procedures, and we were talking</p> <p>23 about some of the problems that occur after</p> <p>24 shunting procedures and postfenestrations. Do</p> <p>25 you keep statistics on the surgical procedures</p>
<p style="text-align: right;">114</p> <p>1 number one, two or three. If someone has</p> <p>2 progressive arm weakness, that's a matter of</p> <p>3 moving forward. If someone has some headaches or</p> <p>4 neck spasms or things like this, it may not be</p> <p>5 necessary or necessitate going forward.</p> <p>6 I'm not sure I understand the</p> <p>7 question. But I don't believe it's a matter of</p> <p>8 adding one, two or three. It's a matter of what</p> <p>9 is the progression, what are the symptoms.</p> <p>10 Q. Now, I understand the neurological</p> <p>11 symptoms that you're talking about, if there's</p> <p>12 weakness or paralysis or something in an arm, but</p> <p>13 what about some of the other symptoms such as the</p> <p>14 continuing severe headaches or vision disruption</p> <p>15 or those types of things; that's not sufficient</p> <p>16 to cause you to move forward to a surgical</p> <p>17 solution to the problem?</p> <p>18 A. The surgery and placement of a shunt</p> <p>19 is another procedure and has its own risks.</p> <p>20 Often, we will tolerate headaches and see if they</p> <p>21 dissipate over a matter of days, weeks or even</p> <p>22 months, because surgery has its own risks.</p> <p>23 Shunts can get infected, there are problems with</p> <p>24 shunting.</p> <p>25 So I wouldn't say there's any criteria</p>	<p style="text-align: right;">116</p> <p>1 that you perform as to what complications</p> <p>2 patients suffer after them?</p> <p>3 A. No, I don't have a formal percentage</p> <p>4 or record of the statistics.</p> <p>5 Q. There is no documentation of your</p> <p>6 specific surgeries here at Cleveland Clinic as to</p> <p>7 what the outcomes are for patients as far as</p> <p>8 complications?</p> <p>9 A. There is certainly a listing of my</p> <p>10 surgeries. There's certainly a listing of the</p> <p>11 operations, but there's no formal listing. We</p> <p>12 have our M&M conference, of course, and we have</p> <p>13 accountability within our department, but there's</p> <p>14 no formal outcome statistic for this surgery.</p> <p>15 Q. When you say M&M conference, morbidity</p> <p>16 and mortality conference?</p> <p>17 A. Yes, our internal surgery conference.</p> <p>18 So there is accountability in that sense.</p> <p>19 Q. There's no document that says these</p> <p>20 are your surgeries, these are the outcomes, these</p> <p>21 are the complication rates?</p> <p>22 A. No, not to my knowledge.</p> <p>23 Q. Infection, bleeding, et cetera?</p> <p>24 A. Not to my knowledge, no.</p> <p>25 Q. In regard to the fenestration</p>

<p style="text-align: right;">117</p> <p>1 procedure that was done on Kevin Kiss, we spoke 2 about a resident that was in the surgical suite 3 with you. Now, if the resident actually did the 4 fenestration procedure with you in attendance, 5 would that be included in the resident's 6 records? Is there a record kept of that? 7 MS. CARULAS: Objection. 8 A. I can't speak to the records. We 9 encourage the residents to keep track of the 10 cases they participate in, yes. To the degree of 11 how much they participate, I don't know if they 12 keep that in the records, but, yes, of course, 13 the residents are to keep track of the surgeries 14 that they have participated in, yes. 15 Q. In some instances, do residents 16 actually do the fenestration procedures when 17 you're in attendance? 18 A. Yes. Our surgeries are often assisted 19 by our residents. Portions of them may be done, 20 and those portions may include the actual 21 fenestration of the membrane, certainly, and that 22 would be under direct observation and guidance. 23 Q. In Kevin Kiss's case, you can't say 24 whether you did the actual fenestration or 25 whether the resident did it?</p>	<p style="text-align: right;">119</p> <p>1 A. It has varied a bit over the years, 2 but it is one year of general surgery, and then 3 it is followed by five to six years of 4 neurosurgery. 5 Q. Does it have any affiliation with 6 anyone else, such as University Hospital? 7 A. No. 8 Q. It's strictly Cleveland Clinic 9 residency? 10 A. Yes. 11 Q. Any connection with Ohio State 12 University? 13 A. The Cleveland Clinic had some 14 affiliation with Ohio State University. However, 15 the residency program is the Cleveland Clinic's 16 own residency program. Our residents do not go 17 down to Ohio State; we do not have neurosurgery 18 residents from Ohio State come to us because Ohio 19 State has its own neurosurgery residency 20 program. So there's no affiliation or connection 21 at the neurosurgery resident level. 22 Q. In regard to the actual fenestration 23 procedure, when the fenestration was done, was 24 there a connection made to the ventricle? Did 25 the fenestration go to the ventricle?</p>
<p style="text-align: right;">118</p> <p>1 A. I can't say, because I don't have 2 direct recollection. However, it is my practice 3 and routine to be in attendance and to be there 4 and to directly guide, and especially in a 5 microscope dissection procedure with a resident 6 who is not a chief resident, then it is my 7 routine to be there to guide, and I would not 8 have them do it alone, no. 9 Q. But you don't know in this case 10 whether he did it or you did it; is that 11 correct? 12 A. I don't have specific recollection, 13 but, again, based on what we see, I see that he 14 was a junior level resident, it was a microscope 15 case, and I don't believe that I would have let 16 him do certainly the whole case. He may have 17 done, under my guidance, some of the fenestration 18 of membranes, but based on the operative note, 19 there was no untoward effect during that 20 procedure whatsoever. 21 Q. Now, the neurosurgical residency that 22 this particular individual was in, is that a 23 Cleveland Clinic residency program? 24 A. Yes, it is. 25 Q. How many years is it?</p>	<p style="text-align: right;">120</p> <p>1 A. No, I don't believe so. It is in the 2 temporal horn, potential linkage to the 3 ventricle. However, there is no effort made to 4 fenestrate into the ventricle. The fenestration 5 is of the membrane itself and not into the brain 6 or ventricle. 7 Q. Why not? Is it inappropriate to do 8 that? 9 A. CSF cysts are a matter of loculated 10 fluid, and we can often fenestrate whenever we 11 need to get more CSF flow between brain 12 compartments. There may be situations in which a 13 ventricle is trapped or enlarged, and you would 14 want to communicate a ventricle to the outside, 15 so I can't say that that is not done. However, 16 it is not routinely done for arachnoid cysts 17 outside the brain. 18 Q. And in Kevin Kiss's case, can you tell 19 me why it was not done? 20 A. Because it was not deemed 21 appropriate. 22 Q. When the cyst was fenestrated, how was 23 it done? Was a piece of the cyst wall taken out 24 or was it punctured, or what was the procedure 25 for fenestrating the cyst?</p>

<p style="text-align: right;">121</p> <p>1 A. Fenestrating means we open it up 2 usually with some dissection microscissors, and 3 we will often try and take the piece or just make 4 a large incision in the area. It isn't always 5 the case that a membrane is taken. The reason 6 for that is much of the membrane that makes up 7 this cyst -- people always ask why not remove the 8 cyst. Much of that membrane is adherent to 9 structures of the brain, temporal lobe and other 10 areas. So our goal is not to take out membrane, 11 but rather make holes. 12 Q. And what did you do in Kevin Kiss's 13 case? 14 A. I'll have to look at his record. The 15 lateral part of the cyst as well as the inferior 16 part was opened and resected, so this implies by 17 this that we actually were able to take out small 18 pieces. But that doesn't mean the whole portion, 19 of course. 20 Q. Now, doctor, we talked about the 21 letter that Dr. Marcotty sent that was dated, I 22 believe, February 11th of 98, and it indicated in 23 his letter that we looked at that he had a 24 conversation with you. 25 Doctor, do you have any reason to deny</p>	<p style="text-align: right;">123</p> <p>1 A. I don't have any specific recollection 2 of doing that. I know that I would have, you 3 know, offered my concerns and say that I would be 4 more -- I obviously am alerted to this 5 situation. I don't recall saying that I would 6 change any practices, per se. 7 Q. Now, we talked a little bit about an 8 evaluation, I believe, done by Dr. Cohen sometime 9 prior to the second surgical procedure. And I 10 think you mentioned something about visual fields 11 being done in April at the time that that second 12 surgical procedure was done. 13 A. I think you're referring to the April 14 14th pediatric neurology visit one day before the 15 surgery. 16 Q. Right. Do you know what type of 17 visual field testing was done? 18 A. I have no direct -- I was not at the 19 visit, obviously. I just have the medical 20 record. So I just have the words visual field 21 test. 22 Q. You did not have any conversation with 23 Dr. Cohen where he described to you what he did 24 or how he did it? 25 A. I can't say I didn't have the</p>
<p style="text-align: right;">122</p> <p>1 that Dr. Marcotty had a conversation with you? 2 A. No. No. I just say I don't have a 3 recollection of it. I think it is certainly 4 possible. 5 Q. Did you ever have a conversation with 6 Kevin Kiss's mother in which you told her that 7 you were going to change your practices to watch 8 more carefully for intracranial pressure as a 9 result of what happened to Kevin? 10 A. On the June 22nd visit, I certainly 11 expressed my concern about the visual loss and, 12 in a sense, my surprise. Although we know that 13 it is a potential complication of shunting, 14 hydrocephalus shunting, it is not very frequent, 15 and, in fact, I have not seen it otherwise, 16 especially a unilateral loss after a shunting. 17 So I did express the fact that my concerns and 18 alertness would certainly be heightened after 19 that. But I think that would be true with any 20 physician who sees a problem after an operation. 21 Q. Do you deny telling her that you were 22 going to change your practices in order to watch 23 more carefully for increased intracranial 24 pressure after fenestration procedures? 25 MS. CARULAS: Note my objection.</p>	<p style="text-align: right;">124</p> <p>1 conversation. I don't recall a conversation 2 directly. 3 Q. Now, doctor, I believe that you told 4 me that it wasn't uncommon to have a patient 5 followed by an ophthalmologist for papilledema 6 after they've had a fenestration procedure; is 7 that correct? That's not uncommon to have an 8 ophthalmologist follow them? 9 A. I would say that we follow our 10 patients for increased intracranial pressure and 11 fluid collections. An ophthalmologist can 12 certainly follow in the long term for resolution 13 of visual problems, sure, if they exist. 14 Q. I thought that you told me that it 15 wasn't uncommon to have an ophthalmologist follow 16 a patient for papillary edema. 17 MS. CARULAS: I'm going to object, 18 because I -- 19 Q. Did you tell me that? 20 MS. CARULAS: Well, wait a minute. 21 It's been a long time, and I'm nodding off. 22 MS. TOSTI: Let the doctor answer. 23 MS. CARULAS: Let me make my statement 24 here. When you say did you tell me that or not, 25 that's not an appropriate question. The record</p>

<p style="text-align: right;">125</p> <p>1 will reflect what the record reflects. 2 MS. TOSTI: My understanding is you 3 told me that. 4 MS. CARULAS: Let me get it on the 5 record so it's clear. 6 MS. TOSTI: You have an objection, 7 state it. 8 MS. CARULAS: That was my point. I'm 9 trying to. You keep interrupting me. Will you 10 let me say it, I'll be done, and we can go on. 11 My statement is that asking someone, 12 did you say that or not, in a deposition is not 13 an appropriate question when you're into this 14 three hours. 15 MS. TOSTI: I'll rephrase my 16 question. 17 MS. CARULAS: The record will reflect 18 what the record reflects. If it's been asked and 19 answered, it's been asked and answered. 20 Q. Doctor, you previously told me that it 21 was not uncommon to have a patient followed by an 22 ophthalmologist for papilledema after a 23 fenestration procedure. Why, in this case, did 24 you not have Kevin Kiss followed by an 25 ophthalmologist in order to evaluate his</p>	<p style="text-align: right;">127</p> <p>1 You're talking now postfenestration with what -- 2 A. Under what situations? I'm not sure 3 about the question. 4 Q. In the situation that you were just 5 referring to, you said in some instances it would 6 be appropriate. I'm asking you when it would be 7 appropriate. 8 A. After the cyst perineural shunting, if 9 he was having specific complaints of visual 10 problems immediately after the operation and in 11 the longer term, then ophthalmologic consultation 12 certainly would be appropriate. 13 Q. Do you find that in small children 14 they are able to report symptoms of vision 15 problems spontaneously without having a thorough 16 examination? 17 A. Certainly severe visual loss is 18 noticed by either the patient or family, but 19 accurate loss, certainly in a child less than 20 five, would not be determined. His age was 21 seven? Seven. Significant losses are usually 22 detected, although, of course, it was a surprise 23 because he was doing so well. It was a surprise 24 to apparently the family and to him and certainly 25 to me that he had the visual loss on the right</p>
<p style="text-align: right;">126</p> <p>1 papilledema? 2 MS. CARULAS: Note an objection. Go 3 ahead. 4 A. I'm not sure that I stated that a 5 patient should be followed for papilledema. 6 Rather, a patient should be followed for 7 increased intracranial pressure and symptoms. 8 Papilledema can be one sign of that, although it 9 is not locked to increased ICP, nor is it locked 10 in time to that. 11 If a patient is neurologically stable 12 and doing well -- for example, we discussed 13 ophthalmologic exam and the need for it after 14 cyst perineural shunting. With the resolution of 15 symptoms and doing a hundred percent after two 16 weeks, the followup by a neuro-ophthalmologist 17 for papilledema is not needed in the short term. 18 Ophthalmologic followup can certainly be 19 appropriate, but not on the basis of making acute 20 decisions about increased intracranial pressure 21 in this case. 22 Q. What would be the indications for 23 ophthalmologic followup? Why would you want to 24 do that? In what instances? 25 MS. CARULAS: Note my objection.</p>	<p style="text-align: right;">128</p> <p>1 side. Based on that, obviously, that visual loss 2 was not noticed at all. 3 Q. Now, doctor, you previously told me 4 some possibilities as to what the cause of 5 Kevin's vision loss was, and my question to you 6 is: Do you have an opinion to a reasonable 7 degree of medical certainty or probability as to 8 what caused his vision loss? 9 A. I think I answered that. 10 Q. Well, not that question. I believe 11 you answered possibly this or possibly that. My 12 question to you is whether you have an opinion to 13 a reasonable degree of medical probability or 14 certainty as to what caused his vision loss. 15 MS. CARULAS: Object. He did testify 16 as to his opinion to what was likely. 17 Q. I'll ask you to answer it again, 18 doctor. 19 A. I can answer it again. 20 MS. CARULAS: Note my objection. Go 21 ahead. 22 A. I feel that there are multiple 23 causes. However, since the pressure was treated 24 by the cyst perineural shunt, that it is not 25 likely a cause, and since the vision was intact</p>

<p>129</p> <p>1 just before, I feel that it must be some other 2 aspect of the shunting. 3 I would feel that perhaps some element 4 of shifting of the brain, which is noted after 5 any shunting of a cyst, or the ventricles for 6 that matter, could have caused some stretch 7 injury more on that side causing the visual 8 impairment. That would be my best guess. 9 Q. And that type of vision loss that 10 occurred from a shifting of the brain, in what 11 time span would you expect to see the vision loss 12 occurring? 13 A. Yes, I think I've answered this as 14 well. I think it's quite variable. I can't 15 answer. There was no time course that I could 16 give you. It could be long. It could be more 17 acute. 18 Q. When you say long, how long are we 19 talking about? 20 A. It could be days, weeks. 21 Q. Doctor, would you defer to a 22 neuro-ophthalmologist as to the cause of Kevin 23 Kiss's vision loss? 24 MS. CARULAS: Objection. 25 A. I don't know if I would defer to</p>	<p>131</p> <p>AFFIDAVIT</p> <p>1 I have read the foregoing transcript from 2 page 1 through 130 and note the following 3 corrections: 4 PAGE LINE REQUESTED CHANGE 5 6 7 8 9 10 11 12 13 14 15 16 17 18 MARK LUCIANO, M.D., Ph.D. 19 20 Subscribed and sworn to before me this 21 _____ day of _____, 2000. 22 23 24 _____ 25 Notary Public My commission expires _____</p>
<p>130</p> <p>1 anybody for definitive knowledge of why he lost 2 vision in that eye. 3 MR. BECKER: Could you repeat that? 4 A. Yes, I don't know that I would defer 5 to any one individual for definitive knowledge 6 about why he lost his vision. 7 MS. TOSTI: I don't have any further 8 questions, I don't know if the other counsel 9 do. 10 MR. RAMM: I have no questions. 11 MS. ATWELL: No questions. 12 MS. CARULAS: He'll read it, too. 13 (Deposition concluded at 5:55 o'clock p.m.) 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>132</p> <p>CERTIFICATE</p> <p>1 State of Ohio,) 2) SS: 3 County of Cuyahoga:) 4 5 I, Karen M. Patterson, a Notary Public 6 within and for the State of Ohio, duly 7 commissioned and qualified, do hereby certify 8 that the within named MARK D. LUCIANO, M.D., 9 Ph.D. was by me first duly sworn to testify to 10 the truth, the whole truth and nothing but the 11 truth in the cause aforesaid; that the testimony 12 as above set forth was by me reduced to 13 stenotypy, afterwards transcribed, and that the 14 foregoing is a true and correct transcription of 15 the testimony. 16 I do further certify that this deposition 17 was taken at the time and place specified and was 18 completed without adjournment; that I am not a 19 relative or attorney for either party or 20 otherwise interested in the event of this action. 21 IN WITNESS WHEREOF, I have hereunto set my 22 hand and affixed my seal of office at Cleveland, 23 Ohio, on this 26th day of January 2000. 24 25 Karen M. Patterson Karen M. Patterson, Notary Public Within and for the State of Ohio My commission expires October 7, 2004.</p>

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CURRICULUM VITAE

Mark Luciano, M.D., Ph.D.,
6268 North Applecross
Highland Heights, Ohio **44143**
(440) 646-8762
E-Mail Lucianrn@ccf.org

DECEMBER 12,2000

Appointments:

Associate Staff, Head Section of Pediatric/Neurosurgery	1993 - 1998
Joint Appointment in the Division of Pediatrics	1994 -
Joint Appointment in the Department of Neurosciences/ Research Institute	1996 -
Full Staff, Head, Section of Pediatric & Congenital Neuro/ surgery, Cleveland Clinic Foundation, Cleveland, Ohio	1998 -

Birth: Torrington, Connecticut
September 24, 1957

Spouse: Gina Luciano, R.N., B.S.N.

Children:	Mark James Luciano	1990
	Nicholas Jacob Luciano	1993
	Cadence Alexandra Luciano	1995
	Dana Marie Luciano	1997

EDUCATION:

UNDERGRADUATE: University of Rochester, Neuroscience, B.A. 1979

GRADUATE: Tulane University, Department Anatomy, Lab of
Molecular Neuroendocrinology, Ph.D. 1985.

MEDICAL SCHOOL: University of Chicago, M.D. 1985

INTERNSHIP: Loyola University of Chicago, General Surgery, 1986

RESEARCH
FELLOWSHIP: Surgical Neurology Branch, NINDS, NIH, Bethesda,
1988-1990.

RESIDENCY: University of Pennsylvania, Philadelphia, Neurosurgery,
1986-1992.



CLINICAL FELLOWSHIP: Harvard Medical School, Boston Children's Hospital,
Pediatric Neurosurgery 1992-1993.

COMMUNITY SERVICE

Medical Advisory Board-Achievement Center for Children, 1994

AWARDS

Rochester Plan Research Fellowship, 1977
Phi Beta Kappa, 1979
Magna Cum Laude, 1979
Tulane University Graduate Scholarship, 1981-1982
Distinguish Alumni Award, Torrington High School, Torrington, Conn. 1999

SOCIETY MEMBERSHIPS

Undergraduate Neuroscience Society, U. of Rochester, Co-founder, 1978-1979
Phi Delta Epsilon, Alpha iota chapter, medical fraternity, 1979-1981
Congress of Neurological Surgeons, 1986
AANS-Active 1998
Ohio State Medical Society 1993
North East Ohio Neurosurgical Society 1993
Hydrocephalus Foundation of Ohio 1995
AANS Pediatric Section 1996
Hydrocephalus Research Foundation Advisory Board 1995-97
Cleveland Medical Society 1993 - 96
Society for Neuro-Oncology 2000
American Society of Pediatric Neurosurgery 2000 Submitted

MEDICAL LICENSE/CERTIFICATION

Ohio #35-06-5678, 1993
Gamma Knife Certification - December 18, 1997
Bureau for Children with Medical Handicaps 1998
Gamma Knife Certification - December 18, 1997
American Board of Neurosurgery, Certification 1998
American Board of Pediatric Neurosurgery, Certification 2000

PEER REVIEW EDITING

Journal of Pediatric Neurosurgery
Childs Nervous System
Journal of Neuroimmunology

RESEARCH EXPERIENCE

UNDERGRADUATE RESEARCH:

1977: Electrophysiology lab of Dr. Jerome Schwartzbaum; stereotaxic electrical stimulation of rabbit hypothalamic areas.

1978: Neuroanatomy lab of Dr. John Sladek; Golgi staining and catecholamine fluorescence in hypothalamic magno-cellular nuclei.

SUMMER EMPLOYMENT NIH RESEARCH:

1978: Academic research for the National Institute of Drug Abuse; presentations and written reviews in areas of neuroscience

MEDICAL SCHOOL RESEARCH:

1980-1981: Neuropeptide lab of Dr. Abba Kastin: interaction between MSH-inhibiting factor and mu and delta opiate receptors.

GRADUATE SCHOOL RESEARCH:

1984: Biological Psychiatry lab of Dr. D.L. Murphy, (NIH Bethesda) clinical studies on the behavioral and hormonal effects of m-CPP, a serotonin agonist.
1981-1983- Molecular Endocrinology and Diabetes Lab of Akira Arimura MD, Ph.D.: alterations in GI somatostatin content and release with long term high-calorie and high-sucrose diets; participant in isolation and characterization of ovine-growth hormone-releasing hormone.

FELLOWSHIP:

1988-1990: Surgical Neurology Branch, NINDS (NIH, Bethesda): basic research in neuroendocrine and CNS

transplantation; clinical studies in Cushing's disease.

RESEARCH FUNDING

HYDROCEPHALUS

Johnson & Johnson (Codman) Research Division; Development of Animal Models for Improved Assessment and Treatment of Hydrocephalus; 7/1195-6131197.
\$300,000 total costs; 2 years.

RPC #4938 ; (Cleveland Clinic); Cerebrospinal Fluid Alterations in Animal Models of Communicating and Non-communicating Hydrocephalus; 2/1/95-1/31/97. \$24,669; 2 years

RPC # 4621 Clinical Evaluation of the Codman-Medos Programmable Shunt Valve; 4/2/98. Codman Funded. \$34,000.00.

RPC #5517 Physiological assessment of neural function in a model of canine acquired obstructive hydrocephalus. 4/96-4/98. Johnson & Johnson Professional, Inc.
\$50,000 (1998)

RPC #6180 The Role of Nitric Oxide Synthase and Endothelin-1 in the Pathophysiology of Hydrocephalus July 1998 - July 1999 Approved (Hold) \$21,000

RPC #6110 Treatment of Canine Obstructive Hydrocephalus with Neuroendoscopic Third Ventriculosotomy. Minimally Invasive Surgery Center \$46,064.00.

Johnson & Johnson, Professional, Inc. Submitted 1998. Functional Changes with Small CSF Drainage Modulation \$20,000. 1999

I.H. Page Grant. Advances in the Diagnosis of Normal Pressure Hydrocephalus through Neuropsychological Testing. September 1998 \$25,000

RPC #6154 "The Effect of Varying Degrees of Hydrocephalus on the Cerebrovascular Tree in a Canine Model of Obstructive Hydrocephalus" accepted May, 1998 \$24,752.30

Education Grant: Pediatric Neurosurgery Fellowship \$40,000/yr x 3 years, 1967

The Pathophysiology of Shunt Colonization: Effect of \$90,000: Effect of Antibiotic Impregnated Systems. Johnson & Johnson Professional, Inc. 1999 \$90,000.

March of Dimes - Midwest Hydrocephalus Conference 5/19/2000 \$3,000

Mark G. Luciano, M.D., Ph.D.
Curriculum Vitae
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National Institute of Standards and Technology: A Microsensor for Continuous Telemetric Pressure Monitoring \$80,000 Accepted 2000

Johnson & Johnson, Professional, Inc. Oxygen Saturation in Externally Drained Hydrocephalus - Correlation with Pressure and Clinical Outcome \$ Submitted 2000

NIH RO1 Cerebral Blood Flow Response to Chronic Hydrocephalus. Submitted June, 2000 \$1,450,000. Ranked not funded, re-submission February 2001

Johnson & Johnson, Professional, Inc. Evaluation of NPH Screening and Treatment Protocol June, 2000 \$185,000 pending

Dana Research Grant. Blood Flow Imaging in Treated Hydrocephalus \$100,000 x 2 years pending

MOVEMENT DISORDERS

RPC# 5319 Spasticity of cerebral origin - a treatment protocol, Intrathecal Baclofen in the treatment of spasticity in children, Medtronic.

RPC# 4794, \$20,446; Objective quantification of spasticity before and after selective dorsal rhizotomy, 1995-1997.

RPC# 4963 Randomized, double-blinded, placebo-controlled, dose escalation trial of intracerebroventricular administration of recombinant-methionyl human glial cell line-derived neurotrophic factor (r-metHuGDNF) for the treatment of patients with Amyotrophic Lateral Sclerosis. Amgen protocol number#960203.

TUMORS

Childrens Oncology Group study protocols.

BIBLIOGRAPHY

1. Recant L, Voyles NR, **Luciano MG**, Pert C: Naltrexone reduces weight gain, alters "Beta-endorphin", and reduces insulin output from pancreatic islets of genetically obese mice. *Peptides*, 1:309-314, 1980.
2. **Luciano MG**, Zadina J, Kastin AJ, Coy D: Mu and Delta opiate receptors in rat brain are affected by GTP but not by MIF-1. *Brain Research Bulletin*, 7:677-682, 1981.

3. Turkelson CM, Arimura A, Culler MD, Fishback JB, Groot K, Kandra M, **Luciano MG**, Thomas CR., Change D., Chang JK., Shimizu M.: In vivo and in vitro release of ACTH by Synthetic CRF. *Peptides*, 2:425-429, 1981.
4. Arimura A., Culler MD., Turkelson CM., **Luciano MG**, Thomas CR., Obara N., Groot K., Rivier J., and Vale W.: In Vitro pituitary activity of 40 residue human pancreatic hormone releasing factor. *Peptides*, 4:107-110, 1983.
5. **Luciano MG**: The effect of chronic high-sucrose diets on gastrointestinal somatostatin-dissertation, Tulane University, Dept. Anatomy, University Microfilms Inc. Ann Arbor, Michigan, 1985.
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7. **Luciano MG**, Black P: Aqueductal Stenosis, in Feldman E. *Current Diagnosis in Neurology*, Philadelphia, Mosby-Year Book, 279-281, 1994.
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36. Fukuhara T., **Luciano MG**, Kowalski, RJ: Endoscopic Third Ventriculostomy: Management of Failure. Submitted Neurosurgery 2000

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ABSTRACTS/POSTER

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23. Wong CYO, **Luciano MG**, Tsao J, Chen EQ, MacIntyre WJ, Saha GB, Raja S, Brunken RC, Khandekar S, Cook, SA, Hahn JF, Go RT: Regional and global flow and metabolism mismatches in hydrocephalus and effects of shunting. The Society of Nuclear Medicine 44th Annual Meeting, San Antonio, Texas, June, 1997,
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32. Ayzman I, Ahl JJ, Wood A, **Luciano MG**: Glial Fibrillary Acidic Protein Concentration Variability in the Course of Hydrocephalus Treatment. Pediatric Annual meeting, December, 1997.
33. Chovan P, Steiner CP, Johnson MJ, **Luciano MG**, Ayzman I, Wood AS, Tkach JA, Hahn JF, McAllister II JP: Volumetric Study of the Ventricular System in a Canine Model of Obstructive Hydrocephalus. 27th. Annual Meeting of the Society of Neuroscience, New Orleans, 1997.
34. Chovan P, Steiner CP, Johnson MJ, **Luciano MG**, Ayzman I, Wood AS, Tkach JA, Hahn JF, McAllister II, JP: Volumetric Study of the Ventricular System in a Canine Model of Obstructive Hydrocephalus. The 15th. Annual Neuro-trauma Symposium, New Orleans, 1997
36. McAllister II JP, Kriebel RM, Mangano FT, **Luciano MG**: Microglial Response to Progressive Hydrocephalus in a Model of Inherited Aqueductal Stenosis. Pediatric AANS Annual Meeting, New Orleans, 1997.
37. Chovan P, Steiner CP, McAllister II, JP, Johnson MJ, **Luciano MG**, Ayzman I, Wood AS, Tkach JA, Hahn JF: Volumetric Study of the Ventricular System in a Canine Model of Obstructive Hydrocephalus. Pediatric AANS Annual Meeting, New Orleans, 1997.
38. **Luciano MG**: Assessment of CSF Fibrillary Acidic Protein Concentration in Hydrocephalus. American Society of Pediatric Neurosurgeons, Lana'i, Hawaii. Jan., 1998.

- 39 Ayzman, I, Ahl JJ, Wood A, Skarupa DJ, **Luciano MG**: Assessment of CSF Glial Fibrillary Acidic Protein Concentration in Hydrocephalus. AANS Annual Meeting, Philadelphia, April 1998.
40. Kakaji YL, Willis B, Rice T, **Luciano, MG**. CSF Leak through Avulsed Root Neuroscience Research Day. Cleveland Clinic Foundation. May 1998
- 41 Wong CYO, **Luciano MG**, Tsao J, MacIntyre WJ, Raja S, Chen EQ, Go RT Predictive Values of Cerebral Perfusion SPECT (CP) and Cerebral Metabolism PET (CM) in Pre-Operative Assessment of Shunting in Hydrocephalus. The Society of Nuclear Medicine 45th. Annual Meeting, Metro Toronto Convention Center, Toronto. June, 1998
42. Chovan P, McAllister II JP, Steiner CP, Johnson MJ, **Luciano MG**, Ayzman I, Wood AS, Tkach JA, Hahn JF. Differential Ventricular Expansion in Hydrocephalus. 42nd. Annual Meeting of the Society for Research into Hydrocephalus & Spina Bifida. Genova, Italy. June, 1998.
- 43 Skarupa DJ, Hoegler JJ, Johnson MJ, Ayzman I, Wood AS, Booth BS, **Luciano MG** Cerebral Compression in a Canine Model of Obstructive Hydrocephalus. Learner Research Institute Retreat. Cleveland Clinic Foundation Salt Fork, Cambridge, Ohio September, 1998
44. Fukuhara T, Najm IM, Levin K, **Luciano MG**: Does the Amount of Rootlet Sectioning in Selective Dorsal Rhizotomy Correlate to the Improvement of Spasticity at that Level. AANS/CNS Section on Pediatric Neurological Surgery Indianapolis, Indiana December, 1998
45. **Luciano MG**: Cerebral Compression in a Canine Model of Obstructive Hydrocephalus. Nevis, Virgin Islands January, 1999.
46. Fukuhara T, Ahl J, **Luciano MG**: Factors Predicting Failure of Third Ventriculostomy in Hydrocephalic Patients. AANS Annual Meeting. New Orleans, April 1999.
- 47 **Luciano MG**, Ahl J: Use of the Medos Variable Pressure Valve in the Treatment of Hydrocephalus. AANS Annual Meeting, New Orleans, April, 1999.
48. Nair D, Najm I. **Luciano MG**: Changes in Latencies of Motor Evoked Potentials after Selective Dorsal Rhizotomy. AAN Toronto, April 1999
49. Nair D, Najm I. **Luciano MG**: Changes in Latencies of Motor Evoked Potentials after Selective Dorsal Rhizotomy. AANS San Francisco 4/8-13, 2000

50. Skarupa D., Johnson MJ, Azyman I, Wood A, Booth A, **Luciano MG**: Cerebrovascular Compression in Adult Chronic Hydrocephalus. The Society for Research into Hydrocephalus and Spina Bifida. 43rd. Annual Scientific Mtg. Sheffield, England June 23-26th, 1999.
51. Fukuhara T, **Luciano MG**: Endoscopic Third Ventriculostomy: A Risk Factor Analysis. Congress/NS Surgeons Mtg. Boston, Mass. Oct. 30 - Nov. 4, 1999
52. Fukuhara T, Brant C, **Luciano MG**: Pneumatic Cranial Molding Helmet after Craniectomy with Barrel Staving for Sagittal Craniosynostosis. AANS Section of Pediatrics, Atlanta, Georgia Dec. 1 - 4, 1999.
53. Fukuhara T, **Luciano MG**: Cine Phase-contrast CSF Flow MRI after Third Ventriculostomy: Correlation with Endoscopic Exploration. AANS Section of Pediatrics, Atlanta, Georgia Dec. 1-4, 1999
54. Skarupa DJ, Booth AM, Johnson MJ, Ayzman I, Wood AS, Hoegler JJ. **Luciano MG**: Cerebrovascular Adaption and Volume Shift in Chronic Hydrocephalus. Hydrocephalus - Beyond 2000 Mtg. Sydney, Australia, March 7 - 10, 2000
55. Nair DR, Najm IM, Levin K, **Luciano MG**: A Decrease in Motor Evoked Potential Latencies after Selective Dorsal Rhizotomy. AANS San Francisco, CA April 8-13, 2000
56. **Luciano MG**, Fukuhara T: Endoscopic Third Ventriculostomy: Management of Failure. Congress of Neurological Surgeons San Antonio, Tx. Sept. 23 - 28, 2000
57. **Luciano MG**, Fukuhara T: Clinical Features of Late-onset Idiopathic Aqueductal Stenosis. Congress of Neurological Surgeons. San Antonio, Tx. Sept. 23-28, 2000
58. **Luciano MG**, Elbabaa S: Dural Closure in Pediatric Chiari Decompression: CSF Complications with Varied Closure Methods. AANS/CNS Section of Pediatric Neurological Surgery. San Francisco Dec. 6-9, 2000
59. **Luciano MG**, Elbabaa S: Simutaneous Orthopaedic and Neurosurgical Treatment of Cerebral Palsy. AANS/CNS Section of Pediatric Neurological Surgery San Francisco Dec. 6-9, 2000

INVITED LECTURES

1. **Luciano MG:** Pituitary transplantation into the CNS: Grafting with hormones in mind. The Meachum Neurosurgical Society, Williamsburg, VA, 1990.
2. **Luciano MG:** Aneurysms: A cerebral timebomb. Neuro Update, Neuro Trauma Intensive Care, University of Pennsylvania, September 27, 1990.
3. **Luciano MG:** The MRI in the detection of pituitary adenomas, Henry Ford Hospital, Detroit, Michigan, 1993.
4. **Luciano MG:** Pituitary transplantation, Georgetown University Medical Center, Neurosurgery Grand Rounds, Washington D.C., 1993.
5. **Luciano MG:** Epilepsy Surgery, Epilepsy and Related Disorders in Children, CME, Cleveland Clinic Foundation, Cleveland, Ohio, November 3, 1993.
6. **Luciano MG:** Hydrocephalus, Advances in Pediatric Surgical subspeciality care, Cleveland Clinic Foundation, Cleveland, Ohio, December 1, 1993.
7. **Luciano MG:** Selective dorsal rhizotomy: indications for rehabilitation, Health Hill Hospital, Cleveland, Ohio, April 1994.
8. **Luciano M:** Controversies in selective dorsal rhizotomy, Pediatric Grand Rounds, Cleveland Clinic Foundation, Cleveland, Ohio, April, 1994.
9. **Luciano MG:** Hydrocephalus: old methods, new techniques, Pediatric Grand Rounds, Fairview General Hospital, Cleveland, Ohio, June, 1994.
10. **Luciano MG:** Rhizotomy, what's afoot. Grand Rounds, Mt. Sinai Podiatric Group, Mt. Sinai Hospital, Cleveland, Ohio, September, 1994.
11. **Luciano MG:** Head & Neck injury. Health & Disease in School. Cleveland Clinic Foundation, Cleveland, Ohio, October/ November 1994.
12. **Luciano MG:** Minor Head & Neck Trauma. Practical Office Pediatric Neurology. Cleveland Clinic Foundation, Cleveland, Ohio, November 2, 1994.
13. **Luciano MG:** Pediatric Neurosurgery, New treatments for hydrocephalus Clinical Neurology Course, Cleveland, Ohio, February, 1995.

14. Luciano MG: Hydrocephalus. Neurologic Emergency Series, Cleveland, Ohio, August 18, 1995.
15. Luciano MG: Hydrocephalus Foundation of Ohio meeting-New treatments and management options for the care of individuals affected by Hydrocephalus, August 19, 1995.
16. Luciano MG: Neuroscience Grand Rounds. Hydrocephalus-from pathophysiology to new treatments. Cleveland Clinic Foundation, February 14, 1996.
17. Luciano MG: Grand Rounds. Craniofacial surgery. Fairview General Hospital, February 16, 1996.
18. Luciano MG, Ahl J: Variable pressure valve adjustment profiles in selected cases. 2nd *erne* Forum Codman B Medos® Forum in Neuchatel Switzerland, March. 1996.
19. Luciano MG: Treatment of spasticity, Physical Therapy Grand Rounds. Akron Childrens Hospital, June 11, 1996.
20. Luciano MG: Hydrocephalus: electricity, water and the latest currents. Epilepsy Grand Rounds. Cleveland Clinic Foundation, June 20, 1996.
21. Luciano MG: New technologies in the treatment of hydrocephalus. Anesthesia Grand Rounds. Cleveland Clinic Foundation, June 27, 1996.
22. Luciano MG: Spasticity Clinic: Organization and patient management. NEO Physical Therapy Meeting, October 31, 1996.
23. Luciano MG, Ahl J: Variable pressure valve adjustment profiles in selected cases. 3rd *erne* Forum Codman B Medos® Forum in Neuchatel Switzerland, March, 1997.
24. Luciano MG: Management of Pediatric Hydrocephalus. Breakfast seminar at AANS meeting, Denver, Colorado, April, 1997.
25. Luciano MG: New treatments in spasticity, Grand Rounds, Pediatric Neurology, The Cleveland Clinic Foundation, Cleveland, Ohio, May 23, 1997.
26. Luciano MG: Future of Hydrocephalus. Johnson & Johnson Professional, Inc. Roundtable, Boston, MA, June 17, 1997.

27. **Luciano MG:** Neuroendoscopy faculty at Neurocare Symposium. Kansas City, Kansas, August 23, 1997.
28. **Luciano MG:** Frontiers in Pediatric Neurosurgery. Hillcrest Meridia Hospital Sept. 5., 1997.
29. **Luciano MG:** Endoscopic Treatment of Hydrocephalus. Congress of Neurological Surgeons, Neurocare Symposium. Denver. Colorado. Oct. 1997.
30. **Luciano MG:** Health Talk: Living with Cerebral Palsy. Bunts Auditorium, The Cleveland Clinic Foundation May 21, 1998
31. **Luciano MG:** Evaluation & Management of Spasticity in Children. Course Bunts Auditorium, The Cleveland Clinic Foundation May 22, 1998
32. **Luciano MG:** The Clinical use of Variable Pressure Valve. Moderator and teacher for Johnson & Johnson, Inc. Ethicon Endoscopy Training Facility. Cincinatti, Ohio August 27 & 28, 1998
33. **Luciano MG:** Spasticity: Evaluation & Treatment. Grand Rounds , Neuro-Surgery. September 9, 1998.
34. **Luciano MG:** Pediatric Hydrocephalus: Shunting Nightmares. Luncheon Seminar. Congress of Neurological Surgeons. Seattle, Washington Oct. 5, 1998
35. **Luciano MG:** The Clinical use of Variable Pressure Valve. Moderator and Teacher for Johnson & Johnson, Inc. Ethicon Endoscopy Training Facility. Cincinatti, Ohio October 22 & 23, 1998
36. **Luciano MG:** Animal & Clinical Studies in Adult-Onset Chronic Hydrocephalus The Center For Devices & Radiological Health of the FDA. National Naval Medical Center, Bethesda, Maryland January 8, 1999.
37. **Luciano MG:** Cerebrovascular Compression in a Canine Model of Obstructive Hydrocephalus. The American Society of Pediatric Neurosurgeons. Nevis, Caribbean January 24-30, 1999
38. **Luciano MG:** The Clinical Use of Variable Pressure Valve. Moderator and teacher for Johnson & Johnson, Inc. Ethicon Endoscopy Training Facility. Cincinatti, Ohio February 8-9, 1999.

39. **Luciano MG:** Surgical Management of Pediatric CNS Tumor. Cleveland Clinic Foundation Neuro-Oncology Symposium: Current Concepts 1999. Naples Florida February 14-18, 1999.
40. **Luciano MG:** Normal Pressure Hydrocephalus. Cleveland Clinic Foundation Neurology Grand Rounds July 28, 1999
41. **Luciano MG:** Pediatric CNS Tumors. Current Management of Neurological Disorders Cleveland Clinic Foundation. Mariott Hotel, Cleveland, Ohio August 13, 1999
42. **Luciano MG:** Combination Craniotomy and Orthosis for Craniosynostosis Management. New Horizons in Pediatric and Adolescent Plastic Surgery, Cleveland Clinic Foundation. Radisson Hotel in Cleveland, Ohio August 26, 1999.
43. **Luciano MG:** Utilization Review: Surgical Treatment of Hydrocephalus: at what cost? Cleveland Clinic Foundation. September 17, 1999
44. **Luciano MG:** The Multidisciplinary Spasticity Clinic. Church of the Redeemer Cleveland, Ohio (Patient, families, and house staff from various patient-care facilities) October 22, 1999
45. **Luciano MG:** The Clinical Use of Variable Pressure Valve. Moderator and teacher for Johnson & Johnson, Inc. Ethicon Endoscopy Training Facility. Cincinnati, Ohio Dec. 8, 1999
46. **Luciano MG:** Surgical Management of Pediatric CNS Tumors. Neuro-Oncology Symposium: Current Concepts 2000 Naples, CCF Florida. Feb. 6-10, 2000
47. **Luciano MG:** Cerebrovascular Adaption and Volume Shift in Chronic Hydrocephalus, Hydrocephalus - Beyond 2000 Meeting. Sydney, Australia March 6-10, 2000
48. **Luciano MG:** A Decrease in Motor-Evoked Potential Latencies After Selective Dorsal Rhizotomy. AANS Annual Mtg. San Francisco, California April 9 - 13, 2000
49. **Luciano MG:** The Treatment of Hydrocephalus. Treatment without Shunts ^{3rd}. Ventriculostomy and More. Midwest Hydrocephalus Symposium, The Forum, Cleveland. Ohio
50. **Luciano MG:** Brain & CSF Oxygen Saturation in an Animal Model of Chronic

Hydrocephalus: Response to Hyperventilation. Society for Research into Hydrocephalus & Spina Bifida Emory University, Atlanta, Georgia. 6/21-24, 2000

51. Hydrocephalus Wade's Hydrocephalus Research, Orlando, Florida June 24-25, 2000
52. **Luciano MG :** The Surgical Treatment of Chiari & Syringomyelia. ASAP Radisson Hotel, Cleveland, Ohio 7/29/2000
53. **Luciano MG :** Round Table Discussion on Hydrocephalus, sponsored by Wade's Center for Hydrocephalus Research. Orlando, Florida 6/25-26, 2000
54. **Luciano MG :** NPH Diagnosis and Treatment. CNS Annual Mtg. San Antonio, Texas 9/23-28, 2000
55. **Luciano MG :** Research in Adult Hydrocephalus. Hydrocephalus Family Support Group Oct. 2000
56. **Luciano MG :** Speaker - Hydrocephalus, Codman, Johnson & Johnson Co, Las Vegas, Nevada Nov. 16-18, 2000
57. **Luciano MG :** Dural Closure in Pediatric Chiari Decompression: CSF Complications with Varied Closure Methods. AANS/CNS Section on Pediatric Neurological Surgery Annual Mtg. Coronado (San Diego), California 12/6-9, 2000
58. **Luciano MG :** Simultaneous Orthopaedic & Neurosurgical Treatment of Cerebral Palsy Spasticity. AANS/CNS Section on Pediatric Neurological Surgery Annual Mtg. Coronado (San Diego), California 12/6-9/2000

Mark Luciano, M.D.

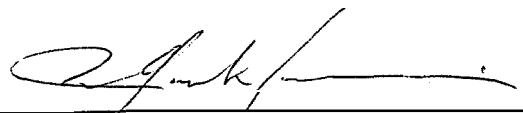
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