ORIGINAL

MICHELLE MACK, administratix of	*	THE STATE
the Estate of JENNIFER MACK,	*	OF OHIO,
Plaintiff	*	COUNTY OF CUYAHOGA
vs.	*	IN THE
UNIVERSITY HOSPITAL HEALTH	*	COURT OF
SYSTEM, INC., et al.,	*	COMMON PLEAS
Defendants	*	Case No: 322444

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Deposition of TERENCE L. SMITH, M.D. was taken on Saturday, January 31, 1997, commencing at 10:42 a.m., at The Sheraton International Hotel, 7032 Elm Road, Linthicum, Maryland, before SHERRY L. MEYER, Notary Public.

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APPEARANCES:

DONNA TAYLOR-KOLIS, Esquire
On behalf of the Plaintiff

MARC W. GROEDEL, Esquire
On behalf of the Defendants

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Reported by: SHERRY L. MEYER

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P R O C E E D I N G S

Whereupon --

TERENCE L. SMITH, M.D.,

the witness herein, being first duly sworn to testify the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

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EXAMINATION BY MS. KOLIS:

Q. Doctor Smith, obviously you and I were just introduced. But for identification purposes, my name is Donna Taylor-Kolis. I've been retained to represent the Estate of Jennifer Mack.

It is my understanding from Attorney Marc Groedel that you have been retained to be the expert witness on behalf of Dr. Samuel Irefin. Accordingly, I've been given a report.

First, what I would like to do is hand you this report because we will mark this as an exhibit. Okay. Can you identify that this is the report that you've authored in this case, minus the highlights, of course, those are my --

A. Yes.

Q. We will end up marking that Exhibit A. I'm going to use it for now. This morning I was given a copy of your curriculum vitae. Could you just examine it and identify it for the record?

A. Yes.

Q. That's in fact your c.v.?

A. Yes.

Q. Okay, that will end up being Plaintiff's Exhibit B in this matter.

Doctor, as a preliminary matter, I want to go through a little about your background training, education. Your c.v., I guess, is pretty much self-explanatory. It indicates that you obtained your medical degree from Case Western Reserve in 1983. Is that accurate?

A. Yes.

Q. Subsequent to that, you underwent one year of internship at Cleveland Met General Hospital, correct?

A. Uh-huh.

Q. Was that a rotating internship?
A. No, medicine.
Q. Straight medicine. Then it indicates that from '84 to '86 that you did a residency in anesthesia, is that an accurate statement?
A. Yes.
Q. Did you have any further training in anesthesiology after 1986?
A. No.
Q. Okay. What year did you become board certified in anesthesia?
A. I believe it was '87.
Q. Okay.
A. I'm not positive. It's '87 or '86.
Q. Okay. Did you sit one time and one time only for your boards?
A. Yes.
Q. Okay. Fair enough.
Your c.v. then goes on to relate that you are the chief of the Department of Anesthesiology at Anne Arundel Medical Center, correct?

A. Correct.
Q. You started there in 1988, correct, at that medical facility?
A. No, in 1986.
Q. Okay. Then I've -- I'm just misreading. Okay.
From '86 to '88 you were a staff anesthesiologist?
A. Yes.
Q. Then beginning in '88 you were the chair?
A. Yes.
Q. Chief of the department?
A. Yes.
Q. And you've retained that position ever since?
A. Yes, ma'am.
Q. Okay. Publications are listed on the bottom. One in 1980 and one in 1978, is that accurate?
A. Yes.
Q. Those were done during your residency, I would assume? Well, one not. I'm sorry. Let me

withdraw that. The one in 1978 you were not yet in medical school, correct?

A. I think I was just -- correct. That was not in medical school.

Q. In 1980, you published an article, I see, "Biochemical and Biophysical Research Communications" was the name of the publication, correct?

A. Yes. Well, that's the name of the journal.

Q. The journal. Excuse me.

A. Uh-huh.

Q. You've not published anything in anesthesiology?

A. Correct.

Q. Do you at present have any teaching responsibilities?

A. No.

Q. Okay. Are you on the staff of any medical school?

A. No.

Q. For any purpose, whatsoever?

A. No.
Q. Okay, fair enough.
How frequently, Doctor, do you do medicolegal work?
A. I think my frequency is two cases in the past two years.
Q. Okay. Prior to two years ago, you did not do medicolegal cases?
A. No.
Q. So two in your --
A. Two in my life.
Q. In your lifetime as a physician?
A. Correct. This is the second.
Q. Fair enough.
How did Mr. Groedel contact you, if you have a recollection?
A. Are you asking me why did he contact me or how?
Q. How is a stupid question because that implies by telephone or mail. Let me ask a better question.

Do you recall the circumstances of how it is that Mr. Groedel came to contact you to review this matter?

A. I don't know actually how he came to contact me, if you're asking me why me instead of some other witness.

Q. Okay. When do you recall being contacted?

A. I don't know exactly when, but approximately six to twelve months ago.

Q. Okay. Do you have a correspondence file that reflects your interactions with Mr. Groedel?

A. Yes.

Q. Okay. Did you bring it with you today?

A. No, I did not.

Q. To the best of your recollection, when you were initially contacted, what task were you given by Mr. Groedel?

A. As I recollect, he asked if I would review a medical record.

Q. Okay. Your report indicates that the documents which you reviewed, in coming to the

conclusions I suppose that you did, were the medical record of Jennifer Mack's emergency room visit at Bedford; is that right?

A. Yes.

Q. The medical record of Jennifer Mack, inpatient admission to University Hospital, correct?

A. Correct.

Q. And the deposition of Dr. Irefin?

A. Correct.

Q. Subsequent to the date which you wrote this report, that apparently being September 23rd, 1997, have you reviewed any additional medical records?

A. No, I have not.

Q. Have you been made aware that subsequent to Jennifer's death that it was confirmed through testing that, in fact, she had Smith-Lemli-Opitz?

A. No, I did not know that.

Q. Does knowing today that this child had Smith-Lemli-Opitz in any way affect and/or change any opinion that you might have in this case?

A. I don't know what Smith-Lemli-Opitz is.

Q. Fair enough. Okay. Have you read any additional depositions?

A. This morning I briefly read a report by your expert witness.

Q. Okay.

A. That's the --

MR. GROEDEL: No other depositions.

A. No other depositions, excuse me.

Q. Fair enough. Have you asked to see the depositions of any of the other hospital personnel who were in attendance at Bedford Hospital?

A. I have not.

Q. Do you feel that you need to read them to draw conclusions in this case?

MR. GROEDEL: Objection.

You may answer. You can answer.

A. I don't know.

Q. Okay. Fair enough answer.

Have you seen the chest film that was taken of Jennifer Mack at Bedford Hospital?

A. I have seen it.

Q. Okay. When did you review that film?
A. I did not review it. I've seen the chest film here this morning.
Q. Okay. I guess I don't want to -- when you say you've seen it, you didn't review it, what are you trying to impart to me about the film?
A. This morning I was shown the film in this hotel room and looked at it briefly. I don't consider it a review unless there's a hot light. And typically, I review it with the radiologist.
Q. Okay. You just sort of looked up in the lights, and you don't feel that that examination of the chest film would be adequate for purposes of you interpreting what is on the film?
A. No. If I were in a clinical situation I would not rely on that to make any conclusive decision-making.
Q. Okay. All right. Were you able to, in looking at this chest film this morning, determine that the tube was, in fact, in the child's esophagus?
A. No, not looking at the film.

Q. Okay. You have read the radiologist's interpretation in the Bedford E.R. records?

A. Yes.

Q. Are you and I in agreement that the radiologist's interpretation is that the film suggested strongly that the tube was in the child's esophagus?

A. Yes.

Q. Okay. Fair enough.

Doctor, did you take any notes as you prepared to write this report?

A. Yes.

Q. Okay. Did you retain those notes?

A. Yes.

Q. Okay. Are those part of your correspondence file or do you have those with you today?

A. I've taken notes in the past, as well as recently. I have some of the notes with me.

Q. Could I see your notes? As long as they are not on post-it notes. Okay, you've handed me a sheet of paper, which I guess we will mark Plaintiff's

Exhibit C. Do you know when you took these notes?

A. I took these notes in the past two days.

Q. Okay. Were those for purposes of reacquainting you with the facts of the case so that you could testify today?

A. Yes.

Q. Okay. I will probably just look at those for a second.

Prior to this particular case, it's my understanding that you've served at least once before as an expert witness, correct?

A. Yes.

Q. Can you tell me what kind of case it was?

A. It was a case in which the patient had a cardiopulmonary arrest and suffered brain damage during the arrest.

Q. Okay. And in that case you testified on behalf of the patient?

A. Yes.

Q. Can you recall what attorney you did that review on behalf of?

A. If I can ask my attorney --

MR. GROEDEL: George Abakumov.

Q. Okay. I bet you I know what case that is. You gave a deposition in that case, yes?

A. Yes.

Q. Fair enough. That was in the last couple of years, right?

A. Yes.

Q. Let's get to the important stuff. I've got all of that out of the way.

One last silly question: Doctor, have you yourself been sued for malpractice?

A. I have not.

Q. All right. In preparing this report or in anticipation of the deposition, did you conduct any independent medical research?

A. Can you be more specific in exactly what you're asking me?

Q. Oh, sure. I guess I thought that was a clear question. Maybe it's not.

In evaluating the issues that present

themselves in this matter through these sets of records, did you conduct any medical research to refresh your recollection as to what standards might be in this setting?

A. Yes.

Q. Okay. When did you initially do medical research for this case?

A. I don't recall. Sometime within the time period between being asked to review the records and today. Not recently.

Q. Okay. Did you do a medline search or did you use a textbook? Can you recall for me what you looked at?

A. I contacted the American Society of Anesthesiologists and I spoke with the ear, nose and throat surgeons.

Q. Okay. Let me ask the question this way then: Why did you contact the American Association of Anesthesiologists? In other words, what information were you looking for from them?

A. I contacted them to verify that there had

been no new standards or guidelines published of which I wasn't aware.

Q. Okay. So you were just checking to see if there were additional standards that you were unaware of? Am I restating that correctly?

A. Correct.

Q. That, I guess, implies to me that you were aware of a certain set of standards at a certain time, past which you were concerned there might be new ones, if that made any sense? When prior to being contacted for this case was the last time you looked at the standards that were set by the American Association of Anesthesiologists?

A. Sometime within months of the time that I was asked to do it. I can't tell you exactly when.

Q. Okay. So you are aware that there are printed standards that are generated by the American Association of Anesthesiologists regarding emergency intubations, is that a fair statement?

A. Actually, I wasn't aware that there were any printed guidelines or standards regarding emergency

intubations.

Q. Okay. Then you indicated that you discussed this case with ENT surgeons, I'm paraphrasing what I thought I heard you say?

A. I did. Parts of the case, yes.

Q. Can you tell me why you did that?

A. I was reviewing the operative reports from Rainbow Babies and Children's Hospital that was written by ENT surgeons, and I wanted to verify that I, in fact, was correctly interpreting their findings.

Q. So you sought some additional advice from people who are not in your field, just to clarify the material from the RBC records, is that accurate?

A. Right. From people -- records, reports from people who are not in my field, correct.

Q. Okay. Fair enough.

Is there any textbook that you consider in the area of anesthesia to be authoritative?

A. Miller's Textbook on Anesthesiologists.

Q. Okay. Do you have an opinion about clinical anesthesia which is edited by Barash, Cullen &

Stoelting?

A. I don't have an opinion about it.

Q. Okay. Fair enough. Do you consider the advanced cardiac life support guidelines as authoritative, in general, as to how to deal with emergency situations?

A. Yes.

Q. And can I determine by the fact that you contacted the American Association of Anesthesiologists that you would consider their standards for basic anesthetic monitoring to be authoritative?

A. I guess I should ask what do you mean by authoritative?

Q. To tell you the truth, I don't know. It's a term of art we use in Ohio, I suppose. In other words -- let's try to ask it, I guess in laymen's terms. What value are the basic standards for anesthetic monitoring to you in your standard practice?

A. In my practice, the value is to give me a minimum set of standards to use in determining how to run my practice.

Q. Okay. Great. Let me ask you a couple of other questions about what you do on a daily basis.

Doctor, do you intubate patients in the emergency room?

A. On a daily basis?

Q. Okay. Let me rephrase it. Is it part of your practice as the chief of anesthesiology to participate in intubations in the emergency room?

A. Yes.

Q. Okay. With what frequency have you participated in emergency room intubations in the last two years?

A. I can't give you an exact number accurately.

Q. Okay. I wouldn't ever go obviously and count them, but can you give me a ball park as to how many you feel you may have participated in, a range?

A. In the past two years? Perhaps ten.

Q. Okay.

A. Or less. And that is strictly an estimate.

Q. All right. Is Anne Arundel a pediatric hospital?

A. We do pediatric cases.

Q. Okay. But it's not like RBC, right?

A. It's not a Children's Hospital exclusively for children, correct.

Q. In the past two years, what has been your experience level in intubating pediatric patients, just ball park?

A. How many have I intubated?

Q. Uh-huh.

A. Maybe 200.

Q. Okay. Would you explain --

A. One thing -- to completely answer a previous question I forgot --

Q. Sure.

A. I also in terms of doing research, I did also contact other specialists.

Q. Okay. What kinds of other specialists did you contact?

A. I contacted staff physicians at Washington

Children's Hospital. That's why 1 thought of it.

Q. Can you tell me, when you say staff physicians, are you talking about pediatricians or anesthesiologists?

A. Pediatric anesthesiologists.

Q. Okay. Can you tell me why you elected to contact pediatric anesthesiologists in this matter?

A. Related to my previous statement that **I** contacted the American Society of Anesthesiologists, to ask if they had guidelines for emergency intubations. In particular, use of carbon dioxide monitors during those emergency intubations. I was told that, no, they have no guidelines or specific recommendations towards those. And subsequently to that, I contacted Washington Children's Hospital specifically to ask them if it's part of their standard of care.

Q. If the use of C02 monitors is part of the standard of care? Is that the question you were seeking an answer to?

A. The use of the C02 monitors for emergency off operative site intubations.

Q. That's just something that you weren't comfortable with or weren't aware of, I guess? Is that an accurate statement?

A. I felt that I knew what the standard of care was. But when I read the deposition of Dr. Irefin, I believe you or someone else in the deposition had asked him if there was a standard by the American Society of Anesthesiologists for the use of these monitors during intubations, such as the one that is at issue in this case. And I believe that there was not. And I was trying to verify whether or not I was correct in that belief.

Q. Okay. Fair enough.

Let me ask you, Doctor, even though it's completely out of sequence of where it would be in my questions, is the use of a C02 monitor an issue in this case, in your mind?

MR. GROEDEL: Objection. What do you mean by --

MS. KOLIS: Okay. Let me delete that out.

Q. You've indicated that you were making some

inquiries of other physicians to determine whether or not C02 monitors were standard for usage of off operative site intubations. I think that's the phrase you used. Let's just establish this as a baseline. What I think you mean is that obviously they are used in the operating suite?

A. Correct.

Q. Okay. So you just wanted some clarification as to what, I don't like calling doctors in the industry, but what the practice of the anesthesiologist was generally regarding using them in an emergency room situation?

A. Correct.

Q. When I asked you if you believed that the use of a C02 monitor was a question, is it clear to you --

A. Was a question?

Q. Let me try to phrase it this way. Is it clear to you first of all from reading the medical records at what point in time during this child's emergency a C02 monitor was used?

A. From reading the medical records, yes.

Q. Okay. From reading the medical records alone, what period of time do you believe that a C02 monitor was used?

A. I believe that the C02 monitor in this case was used intermittently during the case, from the time of the intubation until the transfer of the patient from Bedford to Rainbow Babies and Children's.

Q. Okay. Let me ask it this way. Now I was pretty specific in my reference in this question that I was seeking the answer based on the medical records alone.

What in the medical records supports for you that the C02 monitor was used intermittently from the time of the intubation? I'm assuming we are talking about the initial intubation through transfer. Can you point to me what in the medical records supports that contention?

A. The thing that I recall most immediately is Dr. Douglas' record, summarizing the management of the case at Bedford.

Q. Does Dr. Douglas' record which summarizes the management indicate to you that a C02 monitor was used prior to the arrest? You can look at the records obviously.

MR. GROEDEL: Does his note, you mean?

MS. KOLIS: Right, Dr. Douglas' note. That's what he said he was recalling.

Q. I'm assuming you mean his transcribed summarization?

A. Yes, I will give you the exact time.

I would note that the C02 monitor was used during the arrest. The end tidal tube was placed in the trachea, according to the C02 detector. I guess that is the line that I was thinking of. And you had specifically asked me based on the records.

Q. Right, based on the records. Solely based on the records, what conclusion can you draw as to the usage of the C02 monitor?

A. This is the only part of the record that I recall, referring to it. And this particular sentence refers specifically to the arrest. Okay.

Q. Would you agree with me that the medical documentation itself does not indicate the usage of a C02 monitor at any other time?

A. Not that I can recall.

Q. Okay. Do I gather that your inference that was used intermittently from the initial intubation until the time of transfer came from your reading of Dr. Irefin's deposition?

A. That's correct. That's what I conclude also.

Q. Okay. All right. Fair enough.

Let me ask you a question since we are at that place. If a C02 monitor was in fact in use from the time of the arrest until the time of the transfer, okay, are you with me?

A. Yes.

Q. Sure. Okay. Do you believe, based upon the series of events that occurred from the time of the arrest to the trach, that the tube was in the child's trachea?

A. I'm sorry, can you restate it?

Q. Sure. Do you have an opinion, medical opinion, as to whether from the time of the arrest through the time of the trach as to where the tube actually was? Let me ask it that way.

A. From the time of the arrest until the time of the trach, my opinion is that for part of the time, the endotracheal tube was in the trachea, and at some point it became dislodged.

Q. Okay. What do you base that opinion on?

A. I base that opinion on Dr. Irefin's statement that at the beginning of the patient's deterioration, and it wasn't quite clear to me if it was at the beginning of the arrest or just before the arrest, he did a direct laryngoscopy to confirm that the endotracheal tube was still in place. And then continued to monitor the patient during the resuscitation. And at some point, concluded that it was possible that the tube had been dislodged, and did another direct laryngoscopy during which time he concluded that the tube was out of the trachea.

Q. Okay. So that I'm clear in my mind, I

know that this is going to be a very pendentive deposition, but you are basing your belief as to the sequence of medical events based on Dr. Irefin's statement from his deposition, am I phrasing that accurately?

MR. GROEDEL: Well, alone?

MS. KOLIS: That's what I'm trying to find out.

A. In terms of the time frame, I'm basing it on that, and the other supporting statement by Dr. Douglas, which says that the carbon dioxide indicated, during the arrest, indicated that the endotracheal tube was in.

Q. If the endotracheal tube was in the trachea, from the time of the arrest up until the time of the trach, what explanation have you for the fact that Jennifer's sats didn't come back up?

MR. GROEDEL: Objection. You realize that is not what he testified to previously. His testimony was that the tube was out of the trachea during the portion of that arrest.

Q. Such a small set of medical records and so many questions. Let me rephrase it so it is a more fair question.

Can you with any certainty, based upon the medical records or Dr. Irefin's deposition, determine for what period of time the tube was in the esophagus between the arrest and the trach?

A. No, I cannot give you an exact time.

Q. Okay. If you cannot give me an exact time, have you an opinion, to the best of your ability, as a physician, based on probability as to how long the tube was in the esophagus during that time frame alone, from the arrest to the time of the trach?

A. Can you ask me that again? I'm sorry.

MS. KOLIS: Can you read that back?

(Whereupon, the requested section was read by the Reporter.)

A. My opinion is that it was relative to the duration of the resuscitation. A relatively short time period that the endotracheal tube was out of the esophagus just prior to the cricothyroidotomy.

Q. So you think for the majority of the time from the arrest to just before the trach that the tube was actually in the trachea?

A. Yes.

Q. I'm not trying to reverse it, but that's what you're saying?

A. Yes.

Q. All right. Do you have an opinion to a reasonable degree of medical probability as to if the set scenario you're giving me, that the tube was in the trachea for the majority of time, except until just before they did the trach, why didn't her sats come up during that time?

A. I don't know exactly why they didn't come up.

Q. Okay. If you don't know exactly, as a physician who's being asked to testify in this case, what is your best medical opinion as to why the sats did not come back up?

MR. GROEDEL: Objection to the form of that question, but you can answer.

A. Okay.

Q. Or do you have an opinion to a reasonable degree of medical probability as to why those sats didn't come back up?

MR. GROEDEL: That's a better question.

A. I think for me there are two possible areas that can account for her sats not coming up.

One, is if she had intrinsic pathology in her lung parenchyma. And the other possible explanation is that she had an upper airway problem that was below the vocal cords, which was interfering with ventilation, despite the fact that the endotracheal tube was in the trachea.

Q. Okay. You said those are the two possibilities, correct? I don't want to misstate it.

A. That's to me the most reasonable direction to take in explaining why her pulse oximeter didn't have higher readings prior to the cricothyroidotomy.

Q. Is there any support, whatsoever, in the medical records that you've reviewed to support that there was intrinsic pathology in the lungs that was

causing the sats to remain low?

A. The only record that I've seen, which supports the possibility that there was pathology in there, at least contributing to the low saturations. I'm not sure if it indicates that it caused it 100 percent as the results of the chest X-ray which indicate that there's bilateral opacification in her lung fields.

Q. You're discussing the chest X-ray that was done at Bedford, correct?

A. Correct.

Q. In terms of the upper airway obstruction that was below the vocal cords, what support do you have for that possibility?

A. The strongest support I think of that possibility is in the results of the tracheoscopy and laryngoscopy that were done at Rainbow Babies and Children's in which they identify subglottic narrowing.

Q. A subglottic stenosis, is that what you're discussing?

A. To be more precise, they identify a

subglottic narrowing consistent with subglottic stenosis.

Q. Doctor, would you agree with me that subglottic narrowing that approximates the medical definition of subglottic stenosis, is a finding which can be seen after extubation?

A. Yes, it can be.

Q. Okay. And I probably should have asked the whole question a little more precisely. Are you in agreement with me that based on your experience, training, knowledge and/or review of the medical literature that that subglottic narrowing and/or stenosis which is found at the time of extubation can be caused by the intubation itself?

A. I have to say can you repeat it? I'm sorry.

Q. I'm going to impose on my Court Reporter, and let her read it back.

(Whereupon, the requested section was read by the Reporter.)

A. Can I ask, do you mean specifically for

this case, or in general?

Q. We can go in general.

A. In general, the subglottic narrowing found at the time of an extubation, can be secondary to the extubation itself.

Q. And in this case, what would your answer be?

A. I don't believe that in this case the subglottic narrowing was secondary to the intubation itself.

Q. What do you believe it was secondary to or primary of, which you must have an opinion about it?

A. I don't have an opinion about exactly what the cause of the subglottic narrowing was. There are possibilities.

In particular, the patient has a history of multiple episodes of croup, and also a history of multiple congenital abnormalities, leading me to hypothesize that it's possible that she could have also had congenital subglottic narrowing. She has been intubated previously for other surgeries. And it's

also conceivable that she could have developed subglottic narrowing subsequent to those surgeries.

Q. Okay. But you're just not certain?

A. Personally, I don't feel that anyone can know for sure, especially since the patient is deceased, exactly what the cause of that was.

However, since the time interval during which she was intubated through her tracheostomy at Rainbow Babies and Children's was two days. I think it unlikely that she would develop subglottic stenosis in that time interval, secondary to the intubation that she had.

Q. Okay. All right. Let me ask you --

A. At that time.

Q. Okay. Fair enough. I didn't mean to cut you off. Let's stick with that issue, just for the moment. Is it fair to say that within two minutes of being trached that her sats went back to almost 100 percent? You can look at the records.

A. As I recall the record, I'm not sure two minutes was the exact time, but there was a short,

relatively short time interval after the cricothyroidotomy after which she responded to the resuscitation.

Q. Okay.

A. There is a disagreement about it but --

Q. Her sats came up, she lost her cyanosis?

A. Yes.

Q. Her vital signs were relatively stable. Does that comport with your review of the records?

A. Yes.

Q. Okay. Given that scenario, does that not mitigate against the fact that there would have been intrinsic pathology in the lungs that caused the saturations to be low?

A. It does not support it.

Q. Does it support that she had a subglottic narrowing which was causing the problem?

A. It could lend support to that, yes.

Q. In what way do you believe that that lends support to the fact that it would have been subglottic narrowing that would have been the cause of the low

sats?

A. If the subglottic narrowing was interfering with the ventilation or oxygenation by the endotracheal tube and the cricothyroidotomy bypassed the area which was causing that problem, it's possible that that would explain the findings.

Q. Do you have any way of knowing whether, in fact, it bypassed this area of narrowing?

A. Only the indication that the patient appeared to respond subsequent to doing the cricothyroidotomy.

Q. Okay. Let's skip to a different issue.

Do you have an opinion, Dr. Smith, to a reasonable degree of medical probability as to what period of time between the initial intubation and the arrest that the tube would have been in her esophagus?

MR. GROEDEL: Objection. I think he can answer that question now in terms of the initial intubation because -- up until the arrest, I'm sorry.

MS. KOLIS: I already did from the arrest Now from the first intubation to the time of

the arrest.

MR. GROEDEL: You're right. Go ahead.

MS. KOLIS: That's okay. We are both tired.

A. Do I know how long the patient had an esophageal intubation?

Q. Yes.

A. I have an opinion that it was a relatively short time.

Q. Relatively short time. And I don't mean to be sarcastic.

A. That's okay.

Q. Two seconds to 25 seconds to 200 seconds. Relatively short is not going to help me. I want to know if that's the best answer you can give me.

A. I would indicate or surmise that the patient had an esophageal intubation less than one minute.

Q. Why do you surmise that?

A. Because Dr. Irefin and Dr. Douglas were, as I understand it, with the patient recognized that

the patient appeared to not be ventilated and reintubated her.

Q. Let's see where you get your understanding from. First of all, you do not know what Dr. Douglas testified to, correct?

A. Correct.

Q. You have not been told what he testified to?

A. I have not.

Q. You do not know what Nurse Thomas Sharp testified to, correct?

A. Correct.

Q. All right. And you haven't been told what he testified to?

A. No, I have not.

Q. Earlier you recalled reading Dr. Douglas' dictated and transcribed summary, correct?

A. Yes.

Q. Do you have a recollection, and certainly you can refer to the record, that Dr. Douglas opines or relates, I guess is a better statement for it, that

following the initial intubation, that the patient deteriorated, did not do well over the next ten minutes, do you recall that statement?

A. No.

Q. Okay. I will let you look.

A. All right.

Q. Maybe I can find it quicker, since I probably have it highlighted.

A. Yes, I found it.

Q. Okay. Did you find it in the typed note?

A. Yes.

Q. What phrase are you reading so that at least we can be at the same starting point?

A. Under treatment, "Patient did rather poorly over the next ten minutes," is that what you're referring to?

Q. Do you know what Dr. Douglas meant when he wrote in the chart, "The patient did poorly over the next ten minutes?"

A. I don't know the specifics of what he's referring to.

Q. Okay. Is it important to you in formulating your answers to these questions to know what Dr. Douglas meant when he said "did poorly?"

A. Can you restate that?

Q. I'm not sure how else I can restate it. The simple question is, first of all, I guess you're answering you don't know what Dr. Douglas means when he puts in the record that the patient did poorly over the next ten minutes?

A. Right.

Q. I'm asking you if you need to know what he means by "did poorly" over the next ten minutes to come to definitive conclusions in this matter?

MR. GROEDEL: About whether the standard of care was met, as to what issue? It's a pretty vague question.

MS. KOLIS: You're right, it's a vague question, absolutely, Marc. We will make it nice and specific.

Q. First of all, do you need to know what Dr. Douglas meant when he said, "did poorly over the next

ten minutes," in terms of arriving at a conclusion as to how long the patient was esophageally intubated?

MR. GROEDEL: First of all, I'm not sure that that statement implies that the patient did poorly over the next ten minutes after the initial intubation. One could perhaps draw that conclusion, but I'm not sure that's correct. But go ahead.

A. Relative to answering your question, as I read this, Dr. Douglas says the ET tube became dislodged and had to be replaced. Indicating to me that that happened initially in that -- he's not specific, because then later he says ten to fifteen minute interval. And had to be displaced. Then subsequently after the -- excuse me had to be replaced. After the tube was replaced, it became difficult to get the patient's saturation up above 60. Even after the ET tube was replaced.

So at sometime during that ten to fifteen minute interval to which he referred to prior to arrest, they are having difficulty getting the patient's saturation above 60. As I understand this

chart, it indicates to me that that was primarily subsequent to the second intubation.

Q. Okay. Let me try to break this down.

Do you agree with me that to some extent that this is a difficult chart because of the lack of documentation on the chart?

A. Yes.

Q. Okay. Do you have an opinion, Doctor, to a reasonable degree of medical probability as to whether Dr. Irefin's initial intubation of the patient was successful?

A. Yes, I believe that it was successful.

Q. Okay. Is part of the basis for which you believe that it is recorded in the chart, that after that initial intubation her sats went up to about 99?

A. Yes.

Q. Okay. Do you believe that in some fashion the tube became dislodged from the trachea prior to the second intubation?

A. Yes.

Q. Do you believe at that point that the tube

was in the esophagus?

A. Prior to the second intubation?

Q. Yes.

A. Yes, I believe it was in the esophagus.

Q. How long in a child of Jennifer's size does a tube need to be in the esophagus before it will cause cardiac arrest?

MR. GROEDEL: Assuming no other problems or --

A. First of all, to be specific, the tube in her esophagus itself, as an individual isolated event, does not cause cardiac arrest. Okay. The lack of ventilation or oxygenation during that time will. Okay.

I would expect, if the patient is not being oxygenated, that she would probably have bradycardia and cardiac arrest, sometime between four and six minutes.

Q. Okay. After the, do you know, all right, do you know what it is that caused the reintubation to occur, what brought to Dr. Irefin's attention the need

for reintubation?

A. As I understand it, the patient's saturations -- in a more complete statement, all of the things that were being used to monitor the patient indicated that the patient was no longer intubated. As I understand it, in particular, the chest wall movement during ventilation, the pulse oximeter and the breath sounds, which were intermittently monitored, indicated that the tube may have become dislodged. And subsequently, he did a direct laryngoscopy, which confirmed that, and reintubated the patient.

Q. The fact that he did a direct laryngoscopy to do the second intubation is information that you gleaned from Dr. Irefin's deposition, correct?

A. I did glean that. Rut as well, I don't know of any other way that he could do the intubation.

Q. What if he simply repositioned the tube? Is there a difference in your mind as an anesthesiologist, when I say in your mind, I should probably eliminate that phrase --

A. Certainly.

Q. Is there a difference between reintubation and repositioning?

A. Yes.

Q. Define for me what repositioning is.

A. I believe that -- it depends on the context of the statement. However, in the context of -- I assume that you're pointing out, repositioning would indicate that the tip of the endotracheal tube was still through the patient's vocal cords. And that it was adjusted farther or -- not farther, but in or out of the cords, through the cords, as opposed to replacement, which would indicate that the endotracheal tube tip was actually out of the cords and lying in the patient's pharynx or esophagus, and needed to be stuck back through the cords.

Q. Okay. Based upon the way that the chart is documented, forget Dr. Irefin's depo for a second, the second intubation, was it a reintubation, meaning that the tube was out lying or was it a repositioning?

MR. GROEDEL: Objection. You may answer.

A. My interpretation from reading the chart

is that it was a reintubation.

Q. Okay. From reading Dr. Irefin's deposition, what do you believe he could see on direct laryngoscope?

A. I believe that he could see the patient's true vocal cords.

Q. Okay. If he can see the true vocal cords is that a sufficient vision for an anesthesiologist to be able to determine that he had placed the ET tube in the trachea?

A. It's sufficient vision for him to confirm that he's placed the endotracheal tube in the larynx with the assumption that it's going into the channel that leads into the trachea.

Q. In this case it would have to be an assumption only since he testified that he couldn't see past the true vocal cords, correct?

A. Yes.

Q. Okay. Fair enough. All right. Let me switch gears again. I love to switch gears. I always prepare like 100 questions and ask three of them.

After the second intubation, I think that is what we have established, that you believe based on the state of the record that it was a reintubation, do you agree with me that it was evident that her sats were not coming back up after that intubation?

A. Yes.

Q. How long does it take an anesthesiologist to know that he does not have an ET tube presumptively in the trachea?

A. I would say anywhere from instantly to one minute.

Q. And one minute would be pretty far outside, do you agree with that?

A. Yes.

Q. It was a stupid question because I use such street language.

A. What I would expect is a reasonable range to determine whether or not the patient is intubated.

Q. Do you agree with me that, and we also know there's no such thing as black and white in medicine?

A. Or in law.

Q. There's no black and white in law, I can assure you of that. As a general matter, 20 to 30 seconds is the expected range for an anesthesiologist to reach some comfort level that they have gotten that intubation, do you agree with that?

A. I would expect them to, yes.

Q. Do you want to qualify it?

A. It depends on what criterion is being used to finally arrive at the conclusion that the patient is intubated.

Q. When you say it depends on what criterion is being used, can you expound upon what you're indicating to me by that answer?

A. If the patient is easy to intubate, and by that, I mean, easy to visualize their larynx, the glottis, and the endotracheal tube is placed, then at the time of intubation, the anesthesiologist is concluding that the patient is intubated.

So basically, in that situation, the endotracheal tube is known immediately to be in the

larynx and/or trachea. And subsequently, listening to breath sounds, pulse oximeter readings, end tidal carbon dioxide monitors, are confirming that or supporting it, if in fact the patient has a difficult airway, and one cannot visualize the trachea, but is intubating in conditions that make that basically a blind placement.

Q. Do you consider what occurred in this case a blind placement?

A. No.

Q. Okay.

A. If it's a blind placement, then confirmation of breath sounds, end tidal carbon dioxide readings and pulse oximetry response are more important in concluding that the patient is, in fact, intubated. And they are important, because one is not able to visualize the intubation.

Q. Did you think that Dr. Irefin, based on his testimony, could visualize the intubation?

A. Yes.

Q. What makes you think that?

A. He states that he could in his deposition.

Q. Okay. Go ahead.

MR. GROEDEL: There's no question.

Q. You were done with your answer?

A. (Witness nodding head.).

Q. Do you have an opinion at what point in time the chest X-ray was taken of this patient?

A. Yes.

Q. When do you think the chest X-ray was taken and what is your basis for it?

A. The chest X-ray -- give me a second here.

Q. Sure.

A. Sometime within the first five minutes or so after the initial intubation.

Q. What makes you think that?

A. Because the time between the arrest and the initial intubation was only ten minutes, as I understand it, approximately. And actually, there's conflicting reports in my mind of exactly when the first intubation occurred, and within plus or minus,

five minutes. And when the arrest occurred. But in any event, sometime shortly after the initial intubation, the chest X-ray was taken.

Q. Okay. I'm asking you why you believe that.

A. I believe it primarily because there wasn't much time to begin with. And it was taken before the arrest occurred, and after the first intubation.

So I'm estimating that it was probably five minutes, plus or minus a couple of minutes. That almost covers the whole time interval. Even though the longest time interval is being speculated as to the time between initial intubation and arrest.

Q. Following the second intubation, I assume you're in agreement with me that the records show that her sats didn't improve, they continued to drop?

A. Correct.

Q. Given that scenario, isn't it more likely than not, medically, that when she was reintubated she was reintubated into the esophagus?

A. No, I don't think it's more likely.
Q. You do not?
A. No.
Q. Why would you say that, what is your basis?
A. For, I guess, two reasons.
Number one, Dr. Irefin never indicates that he had a difficult time intubating the patient. And clearly, everyone agrees that he intubated her -- I should qualify that. He had a difficult time placing a certain sized tube. But never indicated that he had a difficult time visualizing the glottis. And he did intubate her successfully with a small caliber in the endotracheal tube initially. I have no reason to believe that in the time frame that we are talking about that her airway changed significantly, to make it more difficult for him to repeat that, if the endotracheal tube came out.
And the other reason that I anticipate that he intubated her was because he was there. And I assume that he would do all of the things that he did

initially to verify the intubation the second time. In particular, visualization of the larynx, bilateral chest sounds, chest wall movement, all of those things.

Q. Doctor, we are going to talk a little bit about that answer. You indicated you're assuming he did all of those things. Do I gather you have to assume them because they are clearly not charted, that any of those things occurred after the second intubation?

A. They are not charted, that's correct.

Q. Okay.

A. They are part of his deposition, I believe.

Q. Correct. They are. But they are not charted, right?

A. Correct.

Q. Well, if he got her intubated in the trachea, why did the sats keep plummeting?

A. As I said earlier, the explanation, I don't have an explanation that I can prove, but my interpretation is that she had an upper airway problem

or atelectasis.

Q. Would the tube being in the esophagus also be an explanation equally plausible for the cause of the saturations continuing to decline just before she went bradycardic?

A. If in fact the endotracheal tube had been in the esophagus, that would account for these findings.

Q. Okay. Once again, just to beat a dead horse because I like to have records that are clear, you see no indication in the charting subsequent to the second intubation of the use of a C02 monitor, do you?

MR. GROEDEL: Wait a minute. I think he already answered that.

A. In the charting.

Q. Subsequent to the second intubation but before the arrest. I need to throw that phrase in there.

A. Right.

Q. I will object to that. But go ahead, you can answer.

A. Yes, I think that actually is basically the same question that you asked me earlier, which I think in the charting the only specific reference to the C02 monitor is by Dr. Douglas. And he, in his phraseology refers specifically to that, to the arrest.

Q. Only?

A. Indicating that it was used after the patient lost sinus rhythm and was receiving CPR.

Q. When the second intubation occurred Jennifer was given a neuromuscular block medication, correct?

A. Yes.

Q. Was it Pavulon?

A. Yes.

Q. Pavulon would prevent her from being able to spontaneously breathe, right?

A. Yes.

Q. So if she was esophageally intubated, hypothetically, at that point, and had been given Pavulon, would you agree with me that given that

scenario and then a cardiac arrest she would have been anoxic, not hypoxic at that time?

A. Can you just explain to me what you mean by the difference between hypoxia and anoxia?

Q. Sure when I finish medical school. I'm sorry, I didn't mean to be flippant.

A. I want to make sure I understand exactly what you're asking me.

Q. Do you differentiate between anoxia and hypoxia occurring? Do you have a medical differentiation for yourself, let's start with that?

A. Anoxia indicates that there's no oxygen present.

Q. Right.

A. Hypoxia indicates that there's low oxygen present.

Q. So you and I are speaking in the same language?

A. It's a trivial difference.

Q. That's what I meant. Assuming my scenario, that this child is esophageally intubated at

the second intubation, has been given Pavulon, and then has bradycardia, goes into asystole, would you say anoxic at that point, given my hypothetical series of events?

A. Yes, I would say that she would be hypoxic, consume all of her oxygen, and then be anoxic.

Q. What amount of time would it take her to be anoxic?

A. If she's not being -- if she's not receiving any ventilation?

Q. Yes, sir.

A. I would anticipate that it would be difficult to measure exactly when she becomes anoxic as opposed to being severely hypoxic. But for practical purposes, a matter of minutes.

Q. When you say a matter of minutes, two, three? I'm not pinning you like I'm going to show up with the textbook?

A. They wouldn't believe it anyway. But it would be -- in these circumstances?

Q. Yes.

A. Two minutes. That's strictly a guess, an estimate.

Q. All right. Is that not something you feel comfortable rendering an opinion in, given your specialty?

A. No. The problem is that the length of time for a patient to become anoxic, depends on how much oxygen content they have at the time you start timing.

Q. Right.

A. Okay. If they have been breathing one 100 percent oxygen or something, it can literally take five to ten minutes to exhaust that. In particular, if they have Pavulon on board, and they are not moving they don't have a big consumption rate, compared to someone who has been holding their breath for 20 minutes, not 20, but a minute or so, and then begin to time.

Q. You wouldn't believe five to ten minutes for anoxia in this case, because Jennifer clearly presented, correct, in severe respiratory distress?

A. From what starting point are you asking me?

Q. I think you probably answered it, but I always like to tie it up to make sure it's clear. In this case, it wouldn't have taken Jennifer five to ten minutes to become anoxic because --

A. From the time of what?

Q. The time of the second intubation, through the end of the code?

A. No, I would expect it to be a relatively short time.

Q. That would be because she was already hypoxic before going into the code, correct?

A. Yes.

Q. Okay, fair enough. Do you have an opinion -- first of all, do you have an opinion as to the cause of death in this child?

A. My opinion is that the death certificate is accurate. That the patient died from massive cerebral edema secondary to --

Q. Anoxia?

A. -- anoxia. I have to read that to see if it actually says anoxia. They say ischemic encephalopathy. Hypoxic-ischemic encephalopathy.

Q. Do you have a recollection that it actually said anoxia in the hospital chart? It doesn't matter, I'm just asking if you do.

A. I honestly don't recall reading anoxia anyplace.

Q. Fair enough. In discussing the difficulty that Dr. Irefin may have experienced in the second intubation, let me ask you a couple of questions about that. As a baseline fact, do you agree that Jennifer Mack had an acquired difficult airway?

A. No, I've never said that.

Q. Okay.

A. A difficult airway implying difficult to visualize the larynx or the glottis?

Q. Do you agree with me that she had laryngeal swelling at the time when she was first attempted to be intubated?

A. Can you be more specific than laryngeal

swelling?

Q. You're the anesthesiologist. I don't know if I can be more specific.

MR. GROEDEL: He already told you about the finding of the subglottic --

A. I think it's very possible she had significant subglottic edema and narrowing of her subglottic area, part of the larynx.

Q. Do you have a recollection why Dr. Irefin or what he stated as to the reason he couldn't get a size 5.2 vent in this child?

A. I would have to look to see the exact words that he stated. My recollection is, of my impression, was that there was a difficulty beyond the cords, that he could pass the tube through the cords. But not apparently farther than that.

Q. Okay. What does croup do to the area that needs to be intubated?

A. It narrows the subglottic area.

Q. Okay. Does it cause swelling in that area?

A. Yes.
Q. And that's what causes the narrowing?
A. Yes.
Q. I hate to do it this way but I guess that's what I have to do to get the answer.
A. That's okay.
Q. Instrumentation by laryngoscope, does that enhance or aggravate the swelling in any way?
A. I don't expect the laryngoscope to exacerbate the subglottic edema in croup.
Q. Does repeated attempts at laryngoscope, if that's what occurred, have any effect on the ability to intubate?
MR. GROEDEL: Objection. How many do you mean by repeated?
MS. KOLIS: Hypothetically, two to three.
A. I'm sorry, would you state that again.
Q. Sure. I'm curious if you have an opinion as an anesthesiologist whether repeated laryngoscopes in one episode of attempting to intubate and reintubate a person contribute to swelling or difficulty in that

area?

A. In which area?

Q. In the area where we are going to try to put the tube in.

A. Multiple laryngoscopies can result in edema of parts of the airway.

Q. Okay. And would any of the parts of the airway that you believe would be aggravated by affect the ability to easily place an endotracheal tube?

A. In this case?

Q. Yes.

A. I don't believe that two laryngoscopies that are not described as traumatic would significantly alter the airway visualization in this case.

Q. Do you know how many attempts Dr. Irefin made in total before the arrest to intubate?

A. As I understand it, he attempted to intubation twice and --

Q. The first time?

A. I'm not sure -- no. I'm saying that my understanding is he attempted two intubations. He did

two laryngoscopies. And during the first laryngoscopy, he had to try more than one endotracheal tube. But there was only one laryngoscopy.

Q. I probably didn't make myself clear. When I said do you know how many attempts, I meant how many times did he try to get the tube down. Not how many times he laryngoscoped?

A. No, I'm not sure how many times he tried to get the endotracheal tube in. I know of two. He did a five and a three.

Q. You don't know if it took him more than one attempt or not on the reintubation to get the tube in, or do you?

A. I don't. The indication in his deposition is that he reintubated, and he never indicates that there was difficulty in reintubating.

Q. Okay. If in this case, not even hypothetically -- there's a hypothetical part coming, but if in this case, the tube was in the trachea from the time of the arrest until just before the trach, would there have been a need for Dr. Irefin to try to

reposition the tube? Do you understand my question?

A. If the tube was in the trachea during the arrest, would there be a need for him to reposition the tube?

Q. Right.

A. And my answer would be there may be.

Q. Okay. What would that be caused by?

A. He may need to reposition the tube if he believes that the tube is not in the correct position. Not to be flippant. But, for example, if he thinks the tube is advanced and has only been one side of the chest as opposed to bilateral, in that situation, he wouldn't need to reposition the tube. If he perceived that there was a leak and the tube needed to be extended farther into the airway, he may need to reposition. If those things occur, I'm sure that there's more situations which could prompt one to want to reposition the endotracheal tube.

Q. Okay. In the medical chart itself, I assume that you read the note that Dr. Irefin wrote?

A. Yes.

Q. Do anesthesiologists have an obligation to completely and accurately document the sequence of events that occur during an emergency intubation?

A. Yes.

Q. Okay. In this instance, just as it regards the note, does that note itself reflect in a standard manner all the events which occurred?

A. No.

Q. The note that is written by Dr. Irefin, I see you're looking at it right now?

A. Uh-huh.

Q. If that note is sent with the child to another facility, does that give them any helpful information as to the sequence of events and the condition which the child is going to be transported in?

MR. GROEDEL: You mean just that note by itself?

Q. Yes, just that note by itself?

A. Give them any helpful what?

Q. Information, as to what happened to the

child?

A. Yes.

Q. What helpful information goes it give them?

A. It gives them the information that the patient had respiratory distress. For which they received some medications and had an endotracheal tube placed subsequent to which bilateral breath sounds were confirmed.

Q. Okay. And you think that would help the people at RBC know what was going on with this child?

A. It would help them, yes.

Q. Okay. I know that I do have some more questions. Let me see if I can find them. They are all going to be pretty random, I'm sure.

Based upon the presentation of this patient, at Bedford Hospital, would you agree with me that the primary therapy that Jennifer Mack needed was the establishment of an airway?

A. When you say primary therapy, you mean --

Q. The most important issue presenting?

A. Yes.
Q. Okay. Doctor, do you use a colorimetric CO2 device in the emergency room at your hospital?
A. We do not.
Q. Do you use anything? I'm sorry. Never let me take a depo on a Saturday. What do you use if you don't use that?
MR. GROEDEL: For what purpose?
Q. To confirm placement of a tube in the trachea?
A. We use bilateral breath sounds, direct visualization.
Q. Okay. You don't use any kind of monitor?
A. Pulse --
Q. In the emergency room?
A. We use pulse oximetry. As I stated earlier, I think that that supports the idea of intubation. It doesn't confirm it.
Q. Okay. Do you have an opinion as to the cause of Jennifer's cardiac arrest?
A. I think she had cardiac arrest because of

hypoxia. Hypoxemia.

Q. And what caused her hypoxemia?

A. I think that her hypoxemia was either caused by an obstructed upper airway and/or parenchymal pathology in her lungs.

Q. And that's the same parenchymal pathology that we discussed previously -- I don't want to use the word eliminate -- but would be very unlikely, given that her sats returned to almost 100, after she was trached; is that right?

A. That's correct.

Q. Do you see any evidence for pulmonary edema in this child when she was at Bedford Hospital?

A. The X-ray findings could be consistent with pulmonary edema, although they are not specific.

Q. There was nothing else that would have been consistent with pulmonary edema that was noted as a physical finding, in that chart?

A. Not that I read. I should say not that I recall.

Q. Okay. Recollect is good enough.

In intubating a patient, such as Jennifer Mack, we can use Jennifer Mack, I suppose, if we would like to, if the initial attempt is not successful, or doesn't occur, and isn't successful within 20 to 30 seconds, the standard of care then requires another attempt, I would assume, at least that's my opinion, 20 to 30 seconds after that, right, or so? I mean, I'm doing this in my mind, sequencing, of how you attempt to do multiple attempts at intubation?

A. I think the standard of care would be to -- it would depend upon the time frame in which the decision is made that the patient is not intubated.

Q. Okay. At what point should an anesthesiologist determine to do a trach, if any?

A. I think that I would expect that an anesthesiologist would determine that a trach was necessary if they had determined that it was beyond their ability to intubate or mask ventilate the patient.

Q. Would mask ventilation in Jennifer's case have been a good idea if you didn't think you had the

airway through an ET tube?

A. If the physician thought that they did not have an established airway with the endotracheal tube, I would expect them to attempt mask ventilation.

Q. This is what happens when I don't ask good questions. What I meant to ask is in a situation that Jennifer was in, severe respiratory distress, and I think that you must have written in your report, I'm maybe just remembering this wrong, "verge of respiratory failure," if you're the physician and you are having difficulty being certain that you have an airway with an ET tube, do you then just mask the child or should you do a trach? Which would you think the standard would indicate, under these circumstances?

A. Under these circumstances, I think the indication, if I felt that I was not certain that the patient was intubated, and I attempted to mask ventilate, and felt that I was successful at mask ventilating, then I would not proceed immediately to cricothyroidotomy.

Q. How come? I'm just asking --

A. If her upper airway is being managed by mask, and she is in fact having respiratory distress, she'll need some sort of longer term airway management than a mask. But if she's being maintained on a mask, the alternatives would be to attempt -- it depends why the intubation has failed.

If the intubation, for example, has failed because the patient has a difficult visualization when doing laryngoscopy, it would be conceivable for example to attempt fiberoptic intubation, which would allow one to bypass that hindrance.

However, if it's felt, for example, that it's impossible to establish an endotracheal airway because of some intrinsic laryngeal problem, some anatomic obstruction, or something preventing an endotracheal tube from being inserted, despite adequate visualization, either directly or through a fiberoptic laryngoscope, in that case one would assume, one would default to a tracheostomy.

However, cricothyroidotomies are emergency procedures and are not optimal for tracheostomies. In

fact, the preference is to put the tracheostomy in a lower area of the trachea, not so high, because there's an increased risk of long-term problems subsequent to cricothyroidotomies, relative to lower tracheostomies.

So in any event if I had the patient, established I couldn't intubate, but was managing the patient by mask, and had concluded that I couldn't intubate her through some other method of intubation, then I would expect to have an otorhinolaryngologist or some other surgeon put in a tracheostomy for long-term support.

Q. Do you have any criticisms of Dr. Douglas for the therapy which he initiated at the end?

A. No, I do not.

Q. Do you have an opinion, Doctor, as to why the two intubations failed to stay in place? Let's put it that way. It's kind of a broad question but we will see how we do with it.

A. I think there are two possibilities for both of the intubations failing.

One is, patient movement. As I understand

it, after the first intubation, the patient's muscle relaxant wore off. And also was moved for X-ray. And then the second, after the second intubation, obviously the patient arrested and was having chest compressions and was being resuscitated, and it's certainly possible to displace the tube then.

In addition to that, though, I think that it's possible that if the patient had significant subglottic narrowing, because of edema or congenital problems, or for whatever reason, if there was some problem that was interfering with the tube being advanced or interfering with the actual function of the tube while it was in the larynx, that that would contribute, could contribute, in any event, to a less stable situation, predisposing the endotracheal tube to be displaced.

Q. Any anesthesiologist should know that, correct?

A. Should know --

Q. That there may be a situation that will contribute to a less than stable situation for an ET

tube, under the scenario that you're suggesting, that there's some obstruction or some narrowing below the vocal cords?

A. I wouldn't expect someone to know in advance,

Q. Okay.

A. That they are going to have a problem. What I would expect them to do is to do what I understand, that the physicians involved here did, which was to stay with the patient until they considered her or him, if it's a man, stable. Which would involve continuous monitoring.

I think it's impossible to predict that a tube is going to come out. Obviously, if one were able to do that at the time of laryngoscopy, they would default to some other plan in terms of airway management.

Q. Let's just sort of put it this way. It's evident that Dr. Irefin could not use the size tube that was customary for a child of this age, correct?

A. Yes.

Q. He used a shorter tube, smaller in diameter, and shorter tube, correct, 3, 3.5, whichever it is?

A. It depends if the tubes were cut off, in terms of the length. Typically if they are untouched from the manufacturer the 3, 3.0 would be shorter.

Q. Would you agree with me that a shorter tube also carries with it a higher risk of becoming dislodged?

A. No, I don t understand exactly why you would assume that.

Q. Because lots of people told me that. I'm asking if you agree with that or not.

A. No, I don't agree with the statement that because of the tube being shorter that it has a high probability of dislodging. No, I don't agree with that.

Q. Does it cause any complications that you can think of?

A. Being short by itself?

Q. Uh-huh.

A. I don't think it causes any complication.

As a matter of fact, I know I'm supposed to only answer what I'm asked, if you shorten the tubes, I think they can actually provide better airway. If you have an eight millimeter tube or seven millimeter tube and you're having anesthesia and you have a short distance between your mouth and glottis, and the result of that is that you have an extra six or eight inches of endotracheal tube hanging out of your mouth, a polyvinyl chloride tube, that's susceptible to being bent. As a matter of fact, I think if you shorten it, for example if you were in that situation, that the probability of a tube being kinked would be reduced.

So I don't think that you can just implicitly say that if one shortens the tube that the risk of displacement is higher. It depends on the anatomy of the patient and how that relates to the length of the tube.

Q. All right. We got lost.

The first placement you believe became

dislodged in an either/or scenario. In other words, perhaps because she was being moved for an X-ray? And I can't remember what the other reason was, that you thought it might have become dislodged. Oh, the medicine wore off?

A. Although, the degree of movement isn't precisely described, the indication is that as the succinylcholine wore off, she began to thrash around again.

Q. That's something children do, isn't it?

A. Anyone who is in respiratory distress.

Q. So it's not limited to just kids. I think maybe it's more pronounced in children.

How do you guard against the dislodging of a tube subsequent to that medication wearing off?

A. There are only two methods or methods of approach to that problem that I think of immediately.

One, would be to make sure that the endotracheal tube is secured on the patient. The other would be to make sure that the patient can't move, either by putting them in restraints or administering

more chemical restraints, more muscle relaxants.

Q. Are you indicating that that should be done?

A. No, I'm responding to your question of how to prevent it if I'm concerned about it. In some cases it's appropriate. And in some cases it might not be.

Q. In the case of Jennifer Mack, would it have been appropriate to attempt to secure the ET tube in place, given the medical condition which she presented with?

A. Appropriate to secure the endotracheal tube in place?

Q. Yes, sir.

A. Yes, it's appropriate to secure the endotracheal tube.

Q. If there is credible testimony that the tube was not secured after initial placement, would you consider that to be a deviation from the standard of care?

MR. GROEDEL: Objection. You can answer

A. It depends on the time frame.

Q. What about the time frame would it depend on?

A. Well, if I think that the intent of the people that are there managing the case is to secure the tube, and the patient emerges from their either sedation or muscle relaxant before they get the endotracheal tube secured, if they are making a reasonable effort to do that, I don't hold them culpable for not doing that as compared to just disregarding the whole issue and ignoring the fact that it needs to be either taped or -- there are various methods of securing the endotracheal tubes.

Q. Okay. I think I've just about covered it all.

I gather that you're going to testify at trial that Dr. Irefin did everything according to standard?

A. Yes.

Q. Did you conclude in reading Dr. Irefin's deposition that he looked at the film that was taken in the emergency room before the arrest occurred?

MR. GROEDEL: Objection. You can answer.

A. I was unable to determine exactly when the chest X-ray was actually reviewed.

Q. Okay.

A. By either Dr. Irefin or Dr. Douglas. It was unclear to me.

Q. All right.

A. Other than stating that -- in Dr. Irefin's deposition, I believe he does state that the chest X-ray was seen sometime after the patient had been intubated the second time.

Q. Okay. Do you agree that vomiting in circumstances like these, not in the general population, but would you agree that in a situation like Jennifer Mack's that vomiting can be consistent with esophageal intubation?

A. Can be consistent with esophageal intubation -- you mean caused by esophageal intubation?

Q. Yes.

A. I think it's possible to predispose the patient to emesis if in fact they are ventilated through an esophageal tube.

Q. That's all I wanted to know.

A. Just to point out, I noticed in here that the patient was bagged. They say bagged. This issue of air in the stomach and esophagus I think is equally as attributable to mask ventilating someone with upper airway obstruction.

Q. Why do you say that?

A. Because it is possible if you're mask ventilating someone, in particular if they have obstruction of their upper airway, to be generating high enough pressure in the airway system, including the patient's pharynx to drive whatever gas it is that you're ventilating with into their abdomen.

Q. Is that something any anesthesiologist knows?

A. I would expect that anyone who considers it, who is an anesthesiologist, would say that that is possible, yes.

MS. KOLIS: Okay, Doctor, I don't have any further questions for you. I'm going to have today's deposition transcribed. Mr. Groedel will advise you as to whether you should read it or not, I'm sure.

MR. GROEDEL: Yes, Doctor, I would like you to read it.

Can you send me a copy and to his office and send me an uncorrected copy?

COURT REPORTER: Yes.

(Whereupon, Smith Deposition Exhibit No. 1, Report prepared by Dr. Smith, was marked for identification.)

(Whereupon, Smith Deposition Exhibit No. 2, Dr. Smith's C.V., was marked for identification.)

(Whereupon, Smith Deposition Exhibit No. 3, Dr. Smith's notes, was marked for identification.)

(Whereupon, the deposition was concluded at 12:40 p.m.)

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STATE OF MARYLAND

CITY OF BALTIMORE

I, Sherry L. Meyer, a Notary Public of the State of Maryland, City of Baltimore, do hereby certify that the within-named, TERENCE L. SMITH, M.D., personally appeared before me at the time and place herein set out, and after having been first duly sworn by me, according to law, was examined by counsel.

I further certify that the examination was recorded stenographically by me and this transcript is a true record of the proceedings.

I further certify that I am not of counsel to any of the parties, nor an employee of counsel, nor related to any of the parties, nor in any way interested in the outcome of the action.

As witness my hand and seal this 5th day of February, 1998.

Sherry L. Meyer

Commission Expires: 12/1/01

CERTIFICATE FOR READING AND SIGNING

I hereby certify that I have read and examined the within transcript and the same is a true and accurate record of the testimony given by me.

Any additions or corrections that I feel are necessary, I have listed on the separate ERRATA SHEET enclosed, indicating the page and line number of each correction.

NAME

DATE

LAWYER'S NOTES

PAGE	LINE	

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Smith DEPOSITION
EXHIBIT NUMBER A
DATE 1/30/98 REPORTER SM
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September 23, 1997

Marc W. Groedel, Esq.
Reminger & Reminger
The 113 St. Clair Building
Cleveland, Ohio 44114

Dear Mr. Groedel:

Re: Michelle Mack, Admrx., et al. v. University Hospitals Health System, Inc., et al.
File No. 3600-02-33409-97
Cuyahoga County Common Pleas Case No. 322444

In consideration of Michelle Mack, Admrx. of the estate of Jennifer Mack, et al. vs University Hospitals Health System, Inc., et al., I have reviewed the following documents:

a. Medical record of Jennifer Mack's Emergency Room visit at Bedford Medical Center on 9/14/96;

b. Medical record of Jennifer Mack's inpatient admission to University Hospitals of Cleveland between 9/14/96 and 9/17/96; and

c. Deposition of Samuel Irefin, M.D.

My conclusion is that the care rendered by Dr. Samuel Irefin was within accepted medical standards. In particular, he was called to assist in the management of the patient, Jennifer Mack, who, by both his and Dr. Douglas' assessment, was in severe respiratory distress, unresponsive to racemic epinephrine, and on the verge of respiratory failure, therefore requiring emergency intubation. The patient was appropriately ventilated by mask, sedated, and relaxed with a short-acting muscle relaxant in order to accomplish the intubation, which was complicated by the inability to place an endotracheal tube of a size appropriate for her age. This was presumably due to partial airway obstruction which was later confirmed by bronchoscopy and direct laryngoscopy at University Hospitals of Cleveland.

The intubation was accomplished with a smaller endotracheal tube and verified by appropriate, accepted techniques, including visual verification of the endotracheal tube placement by direct laryngoscopy, confirmation of bilateral breath sounds, observation of chest wall expansion, and verification of carbon dioxide in the expired breath. The patient initially responded as indicated by a rise in her arterial oxygen saturation; but, subsequently, the endotracheal tube was displaced, possibly due to movement as the effect of her muscle relaxant resolved, or due to movement during procurement of a chest x-ray. This displacement was detected by Dr. Irefin who administered a longer-acting muscle relaxant and reintubated the patient, again verified by the techniques mentioned above. Despite this, the patient became hypoxic, lapsed into asystole and required cardiopulmonary resuscitation. During resuscitation, the endotracheal tube was again displaced, and Dr. Douglas performed a cricothyroidotomy in order to secure a more stable airway. Thereafter, the patient responded to the resuscitation and was transported to University Hospitals of Cleveland for further care.

Note that throughout this unfortunate event, Dr. Irefin continued to manage and assess the patient's airway, using accepted techniques. His actions reflect a reasonable effort to manage a life-threatening airway obstruction and fall within accepted standards of care.

Sincerely,

Terence L. Smith, M.D.
Anesthesiologist

TLS:jls

CURRICULUM VITAE

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EDUCATION:

1974	Valedictorian, Culver Military Academy
1979	B.A., Magna Cum Laude, Harvard University
1983	M.D., Case Western Reserve University
1988	Board Certified

POSTGRADUATE TRAINING:

1983-84	Intern in Medicine, Cleveland Metropolitan General Hospital, Cleveland, Ohio
1984-86	Resident in Anesthesia, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania
1986-88	Anesthesiologist, Anne Arundel Medical Center, Annapolis, Maryland
1988-Present	Chief of Department of Anesthesiology and Co-Medical Director of Operating Rooms ANNE ARUNDEL MEDICAL CENTER, ANNAPOLIS, MARYLAND,

LICENSURE: MARYLAND

MEMBERSHIP IN PROFESSIONAL SOCIETIES: American Society of Anesthesiologists

BIBLIOGRAPHY:

Brossmer R, Rose U, Kasper D, Smith T, Grasmuk H, Unger F: Enzyme Synthesis of azido-deoxy derivative of N-Acetylneuraminic Acid. Biochemical and Biophysical Research Communications 96:1282-1289, 1980.

Odriozola J, Waitzkin E, Smith T, Bloch K: Sterol Requirement of Mycoplasma cipricolum. Proceedings of the National Academy of Sciences 75:4107-4109, 1978.

****

Sept 13 1996 - night into a.m. of Sept 14

Bedford Comm. Hosp. per Dr Barsoum House Officer

agitated c̄ cyanosis - Irefin

called to intubate a pt evaluated by Dr Douglass

Douglass gives IV versed

↳ size 5 blade ? page 27.

fails due to sub glottic obstruction

successful c̄ 3mm OET → SpO_2 goes up.

gave Sux for 1st intubation

emesis after one of the intubation

↳ poss during 2nd intubation

ō pulse ox prior to 1st intub. ∴ 2° to moving c̄ agitation

confirmation of 1st intub: BLBS, Pulse Ox, O_2 Capnometer

↳ 1st intubation failure detected due to ↓↓ SpO_2, lack of chest wall movement ; poss dislodged during X Ray or when sux wore off. (p. 34)

no abandonment > never left the room

pavulon after 2nd intubation

SMITH DEPOSITION
EXHIBIT NUMBER C
DATE 1/31/98 REPORTER SM
ART MILLER & ASSOCIATES

after 2nd intubation pt deteriorates
& a [illegible] direct laryngoscopy is performed

CPR is proceeding

12 to 14 minutes into event the
OET again dislodges
I refer was monitoring breath sounds & still
had the end tidal CO_2 monitor in place
(p 44 I refer [illegible] deposition)
another DL performed indicating the tube was
dislodged

RR: [illegible]

Nurses prog notes 0100 - strong pulse 90/76 - HR 90

confusion about who did trach refer to comments section
of Code Record