Dec 19

IN THE COURT OF COMMON PLEAS

CUYAHOGA COUNTY, OHIO

THOMAS WILLIAMS, JR., etc., et al.,

Plaintiffs,

-vs-

JUDGE FRIEDLAND
CASE NO. 258,274

YOEL S. ANOUCHI, M.D., et al.,

Defendants.

Deposition of RONALD BACIK, M.D., taken as if upon cross-examination before Aneta I. Fine, a Registered Professional Reporter and Notary Public within and for the State of Ohio, at the offices of Ronald Bacik, M.D., 4269 Pearl Road, Suite 311, Cleveland, Ohio, at 3:30 p.m. on Thursday,

August 4, 1994, pursuant to notice and/or stipulations of counsel, on behalf of the Plaintiffs in this cause.

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On behalf of the Plaintiffs;

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On behalf of the Defendants Yoel S. Anouchi, M.D. and Ohio Permanente Group.

RONALD BACIK, M.D., of lawful age, called by the Plaintiffs for the purpose of cross-examination, as provided by the Rules of Civil Procedure, being by me first duly sworn, as hereinafter certified, deposed and said as follows:

CROSS-EXAMINATION OF RONALD BACIK, M.D.

BY MR. ZUCKER:

Q. Please state your full name and spell your last name for the record, doctor.

A. Ronald John Bacik, B-A-C-I-K.

Q. Dr. Bacik, you are a physician practicing here in the Cleveland area, is that correct?

A, That is correct.

Q. And you became Board-certified in pulmonary disease medicine in 1978, is that correct?

A. That's correct.

Q. Okay. You've been identified by Mr. Goldwasser as an expert in this case acting on behalf of Dr. Anouchi, is that correct?

A. That's right.

Q. Okay. Originally you were contacted by Mr. Moscarino, if I'm not mistaken, to defend the residents and the hospital in this matter, is that correct?

A. That is correct.
Q. Okay. But you're here today to testify on behalf of Dr. Anouchi, is that right?
A. Right.
Q. Doctor, will you agree with me that in the care and treatment of Lillie Mae Williams the subject matter of this litigation that Dr. Anouchi, who was her attending physician and an orthopedic specialist, cannot be held to the same standard of care as a pulmonary specialist relative to the detection and treatment of pulmonary embolism and/or DVT?
MR. GOLDWASSER: Objection.
A. In so far that he is not trained in pulmonary medicine or Boarded in pulmonary medicine, I suppose not.
Q. Okay. So your answer is yes?
A. I'll agree to that.
Q. And the basis for your answer is the fact that the orthopedic specialist, in this case Dr. Anouchi, did not have the training, education or experience that one would who be Board-certified and who practices daily in pulmonary medicine, is that correct?
A. Would not have the same background, yes.

Q Background, education, training and experience?
A Exactly.
Q Okay. I would like to draw your attention to the discharge summary of the hospital chart from Miss Williams' admission to St. Luke's Hospital Doctor, about two-thirds of the way down
Dr. Anochi who dictated this report on 4-22-93 indicates that EKG and blood gas after chest pain was negative Do you agree with that statement?
A I'm not sure exactly what the EKG showed and when he means after chest pain, however, the blood gas, there's only one that was done, and the P02 on that sample was low.
Q Okay Further down, Doctor, a couple of sentences, Dr Anochi indicates that she had generalized complaints but no specific cardiopulmonary pathology, although she was monitored quite closely
Do you agree with the portion of the statement that indicates she had no specific cardiopulmonary pathology?
A Well, with regards to the pulmonary side of the

issue, she did have some atelectasis on chest x-ray.

Q. Thank you. Doctor, would you agree that the diagnosis of pulmonary embolism is a difficult diagnosis to make?

A. Yes, it is.

Q. Would you agree that the diagnosis of pulmonary embolism is a diagnosis that can be made more readily by a physician such as yourself who was Board-certified, trained, educated and experienced in the area of pulmonary disease as opposed to a doctor who doesn't have such training,

experience --

MR. GOLDWASSER: Objection. You're asking him to assume what level of training or experience another physician might have by your question. Is that what you're asking him?

Q. No. I'm asking him if a Board-certified pulmonary specialist would have an easier time diagnosing pulmonary embolism as opposed to a doctor such as Dr. Anouchi, an orthopedic surgeon who doesn't have the same education, training and experience that you have.

MR. GOLDWASSER: I'm going to object but go ahead, doctor.

A. I'm not sure that I can answer that question with any certainty. I will say that a pulmonary specialist is likely to have a higher index of suspicion which would lead him perhaps to dig deeper and investigate deeper, may find more pulmonary emboli than another physician, non-pulmonary physician would do.

Q. When you say dig deeper, doctor, what are you referring to?

A. Various types of studies that can be performed. You've already mentioned and I answered that pulmonary embolism can be a difficult diagnosis. If you carry a high index of suspicion, you may pursue studies that ordinarily would not be carried out by an average physician.

Q. Okay. Doctor, I'm going to be referring to a battery of tests in a number of questions here, and with Mr. Goldwasser's permission, can we assume for purposes of this deposition that what I'm referring to are those tests that were run on March 19th, 1991 consisting of the CBC, the EKG, the ABG, and the lung perfusion scan?

MR. GOLDWASSER: Sure.

A. Okay.

Q. Doctor, do you agree that after the battery of tests that I just referred to were run on Mrs. Williams on March 19th, 1991 and the results were obtained by Dr. Anouchi, that he should of called in a specialist or a consultant to help him in the determination of whether Mrs. Williams had, was suffering from pulmonary embolism?

A. No.

Q. As you mentioned a few minutes ago, diagnosing pulmonary embolism requires a certain level of suspicion or index of suspicion, is that correct?

A. Yes.

Q. Was Mrs. Williams in this case, in your opinion, at high risk for DVT?

A. At which time?

Q. After her total hip replacement?

A. She's on an increased risk based on the surgery that she was having done and her body weight, and the fact that she had some chronic illnesses, I think, I believe diabetes mellitus.

Q. How would that diabetes have affected her risk

category?

A. In general diabetes increases the risk of just about any procedure or operation the patient is undergoing or complications.

Q. Would you agree then that she was at high risk for acquiring DVT?

A. You have to define high for me. She is at an increased risk above --

Q. You asked me to define and in my research of the medical literature, of pulmonary embolism and DVT, there appears to be certain risk categories that patients are in, and those are the risk categories that I'm referring to, those that are in the medical literature.

MR. GOLDWASSER: Excuse me. Is that a literature with prophylaxis or not prophylaxis?

Q. With no prophylaxis at this point.

MR. GOLDWASSER: With no, okay.

Q. Pre-op or post-op.

A. Yes. She is at a high risk without prophylaxis.

Q. Doctor, will you agree with me that the overall incidence without prophylaxis of DVT for total hip replacement has been documented in the literature to be between 40 and 50 percent?

A I think that's correct
Q Okay With prophylaxis is that risk reduced?
A. Yes, it is.
Q And can you tell me in your opinion to what percent it would be reduced to?
A Oh, I don't know exactly I would say less than 10 percent
Q So are you saying that the risk is decreased by less than 10 percent or --
A No It's decreased to 10 percent
Q To 10 percent.
Doctor, do you agree that over 9% percent of pulmonary embolism is resulting from, result from DVT?
A No. I'd say it was more like 80 percent
Q Is that based on medical literature?
A Yes.
Q That you have read?
A Yes.
Q Okay. Well, would you agree t at the diagnosis of DVT y hold establish the presumptive diagnosis of PE, and consequently allow institution of therapy?
A It may or it may not
Q. Why would it not?

A. Well, if you're looking at the legs, as a source of DVT, you're trying to diagnose PE based on that, the emboli that have broken free may already be in the lungs and there's nothing in the deep veins.

Q. You're saying that the thrombus would no longer be existent?

A. Right. So you have a negative study for DVT if the patient could have pulmonary embolus.

Q. Based on what you just said, doctor, then wouldn't it be good medicine if you were in that situation that you have just described where you suspected the thrombus may not be present to go right into testing for pulmonary embolus?

A. Depends on your clinical suspicion of pulmonary embolus.

Q. All right. Relative to DVT and PE, and obviously I'm using the short versions of those, I think we all understand that I'm referring to deep venous thrombosis and pulmonary embolism, but relative to DVT and PE, do you agree that the location of the DVT is important in the pathophysiology of pulmonary embolism?

A. By that you mean exactly what? I'm not sure what you're getting at.

Q. Would you agree that proximally located venous thrombosis above the knee carry a greater risk of pulmonary embolism than distal or calf DVT?
A. Yes.
Q. Where was Lillie Mae Williams' DVT as indicated in the --
A. I think she had deep vein thrombophlebitis.
Q. Proximally?
A. Yes, it would have been proximally. It was superficial femoral, one of the two.
Q. But it was a proximal?
A. That's a proximal vein, yes.
Q. Doctor, as a pulmonary specialist you deal frequently with pulmonary embolism and deep venous thrombosis cases, is that correct?
A. Pulmonary embolism and often associate DVT, yes.
Q. 80 percent of the time, according to you, the pulmonary embolism would be a result of DVT, is that correct?
A, That's correct, but the DVT isn't always clinically obvious.
Q. Of course. And doctor, will you agree with me as a pulmonary specialist it's incumbent upon you to keep up with the medical literature relative to research and studies performed by

other doctors and institutions which include as their subject matter pulmonary medicine and specifically pulmonary embolism and deep venous thrombosis?

A. You are talking about a pulmonary specialist now.

Q. Yes.

A. Yes.

Q. Okay. Will you agree that shortness of breath is the most common symptom seen in that it is seen in over 80 percent of patients with pulmonary embolism?

A. That and probably tachycardia are equally frequent in both or around 80 percent, yes.

Q. Okay. And you'll agree, doctor, that the shortness of breath can be of variable severity and duration and it may be transient in most patients?

A. It's one of the findings of -- one of the characteristics of PE is that the symptoms and signs can be varied.

Q. Okay. Doctor, in your opinion, was Lillie Mae Williams short of breath during her hospital stay at St. Luke's Hospital from 3-16 to 3-22-93?

A. I think at times she was short of breath.
Q. It is not specifically stated in any nurses' notes, is it, that she was short of breath, is it, doctor?
A, I'm not sure.
Q. You are basing your opinion then on what?
A. At times her respiratory rate exceeds the normal limits.
Q. Okay. Which would indicate shortness of breath, correct?
A. No, not really. It indicates tachycardia, Patients can breathe rapidly without having a subjective sensation of shortness of breath or dysphagia, but by and large the two go together.
Q. Doctor, I would like to draw your attention to the preoperative examinations that Mrs. Williams underwent prior to her total hip replacement. It would be under admission history and physical, if you have a tab of that name.
A. Let me see if I can find it here, This. Okay.
Q. Doctor, you'll note from looking at the records that you have in front of you that Mrs. Williams underwent two preoperative examinations, one on 3-1-93, which you are looking at right now, is that correct?

A. Well, this is one of them.
Q. Right. I said one of which was 3-1-93.
MR. GOLDWASSER: Isn't that the one you have in front of you now?
A. You just have two parts to your question. You asked me to stipulate she had two exams, one of which is here.
Q. Right.
A. I see this one, I don't see the second one.
Q. The other which took place on the morning of her surgery on 3-16 but what I would like to address with you now is the preoperative examination that took place on 3-1-93.
A. Okay.
Q. On page three of that examination record at the top, can you tell me what her pulse was?
A. 76.
Q. And the respiration rate?
A. 16.
Q. Looking further then to the preoperative examination report of 3-16-93, on the first page, can you tell me what her pulse was?
A. I don't see it.
Q. I'm sorry, I think it's on page three of that report, doctor. I apologize. Page three of the

3-16 preoperative examination, near the top of the page?

A. I only have two pages.

MR. GOLDWASSER: I only have two pages as well. I don't have a third page. There's a second page.

A. 104.

Q. No. Let me make sure we're on the same page.

A. There's a second page that I have.

Q. Let's see. 3-16, 3-1, 3-16. This is page one.

A. Page two.

Q. Page two and page three you do not have. I would ask you to look at that and tell me what pulse rate?

MR. GOLDWASSER: I don't have a page three either.

MR. ZUCKER: You may have put yours in the nurses' --

MR. GOLDWASSER: I think there may be a nurses' record.

MR. ZUCKER: Okay.

A. I'm not sure, there's no date on this.

MR. GOLDWASSER: What's your point, Dale?

A. The record here on the second examination, if

you want to follow your train of thought, the pulse is 104.

Q. Okay. So that is on 3-16, correct?

A. Yes.

Q. And the respiration rate at that time was what?

A. 16.

Q. Okay. Now, we can assume, can't we, that the examination took place shortly before her surgical procedure, can we not?

A. I would assume so.

Q. Okay. Is it reasonable to assume that in Lillie Mae Williams or in any patient hours away from a major surgical procedure that the pulse rate may be increased a little bit?

A. Pulse rate can change with a variety of things,

Q. In that particular situation is it reasonable to expect that a person's pulse rate may be a bit increased?

A. It could be increased.

Q. Okay. Doctor, I'd like to refer you now to the progress notes portion of the medical. chart.

There are computerized portions of the progress notes beginning with the day that Mrs. Williams came into the hospital.

MR. GOLDWASSER: Are you talking

about physician progress notes or nursing notes?

MR. ZUCKER: Physician progress notes.

MR. GOLDWASSER: I don't have any that are computerized.

MR. ZUCKER: The nurses' notes.

MR. GOLDWASSER: There's a difference. You were talking about nurses.

MR, ZUCKER: It doesn't indicate here. It came attached to the progress notes. It's called the patient record. Permanent chart copy. There's no mention of nurses or doctors.

MR. GOLDWASSER: I'll represent to you it's nurses'.

Q. Do you have that, doctor?

A, I believe I do.

Q. The patient record.

A, Which date did you want to start with?

Q. I wanted to start at 3-16 at 1800 hours.

Doctor, before I do this, can I ask you to turn back to the pre-surgical physical for one minute again on **3-1**.

Can you tell me, 3-1-93 what Mrs. Williams

temperature was recorded as being?
A. 98.3.
Q. On the 16th, the morning of her surgery, can you tell me what her temperature was recorded to be?
A. 36.8.
Q. And in Centigrade, doctor, what is the normal temperature?
A. 37.
Q. Okay. Now, I would like you to turn to those nurses' patient record notes beginning with the morning of the surgery.
A. I just want to make sure we're on the same page. We are.
Q. Okay. Can you tell me what time the first recording was made there?
A. **3-16** at 7:32.
Q. Okay. And specifically, in reference to the vital signs, what time were they done down at the bottom of the page?
A. They were vital signs done at 1800 hours.
Q. And what time was that?
A. 6:00.
Q. 6:00 in the morning?
A. No. P.m.
Q. And can you tell me what her temperature was at

that time?
A. 37.
Q. Normal?
A. Yes.
Q. Pulse rate?
A. It was 100.
Q. Respirations?
A, 20.
Q. Increased?
A. That's the upper limits.
Q. The upper limits. What would you say normal respiration, the normal respiration rate is for a woman 66-years-old?
A. Generally right around 20.
Q. What would the range be of a 66-year-old woman such as Lillie Mae Williams?
A. The range is anything less than 20, up to 20. I would say though that on the average what I would expect to see without any stress, the patient is in a stable state, would be a respiratory rate between 16 and 20.
Q. Okay. Doctor, do you agree that pleuritic chest pain is something that occurs in 70 percent according to the medical literature of patients with pulmonary emboli?

A. No.
Q. What would your understanding of that be?
A. Pleuritic chest pain is secondary to pulmonary infarction. The majority of pulmonary --
Q. I am referring to pulmonary emboli.
A. All right. Pulmonary emboli -- understand, pulmonary emboli can occur without pulmonary infarction. Pulmonary infarction is the destruction of lung tissue. Pulmonary chest pain occurs with pulmonary infarction and to the best of my knowledge it would be very rare in simple pulmonary emboli.
Q. You're saying that you disagree with my statement that 70 percent of people who suffer pulmonary emboli --
A. Have pleuritic chest pain.
Q. Pleuritic chest pain?
A. Absolutely. Absolutely.
Q. Doctor, I'm not sure if I asked you this question and if you answered it, forgive me if I'm being redundant. But did you say that you did agree that respirations over 20 breaths per minute is the most common finding on physical examination occurring in almost 90 percent of patients with PE?

MR. GOLDWASSER: 9 percent?

MR. ZUCKER: 90.

MR. GOLDWASSER: 90.

A. In that general range. And whether it is the most common or whether tachycardia is the most common, I'm not certain. I suppose it depends on which study you look at.

Q. Okay.

A. But suffice it to say it is a very common manifestation.

Q. I can take it from your statement then that your belief that between 90 percent of people who suffer pulmonary emboli also have tachycardia?

A. 80 to 100 percent probably would be a better statement.

Q. Would you agree with the statement that increased respirations and increased heart rate are present in almost all cases of massive pulmonary embolism?

A. I think that's correct.

Q. Okay. Doctor, will you agree with the statement that fever, over 37.8 Centigrade, my understanding 37.8 Centigrade is what the medical literature indicates, and if you disagree, you can, but we agree that fever over

37.8 Centigrade is noted in about 50 percent of patients with pulmonary embolism, and it's usually low grade?

A. I'm not certain of that. I don't consider fever as one of the cardinal signs of PE and even if, I know it does occur, and even if you do have it I doubt whether you see it in that high a percentage of patients.

Q. Based on your knowledge of the medical literature?

A. And my experience.

Q. In what percent patients would have that in?

A. Oh, less than 50 percent.

Q. Would you agree to 40 percent as indicated in the medical literature?

A. In all probability I do not think fever would be considered a classic finding of PE.

Q. Okay.

A, That's all I'm going to say.

Q. Okay. Relative to chest x-rays and the diagnostic procedure of detecting pulmonary embolism, would you agree that because of hemodynamic flow patterns most pulmonary emboli on chest x-rays are indicated in the lower lobe of the lungs?

A. I think just because exactly what you said, there's more blood vessels in the lower lobes than there are in the upper lobes.
Q. So you will agree with what I'm saying?
A. Sure.
Q. And doctor, will you agree that abnormalities are often noted in the electrocardiogram of people suffering from pulmonary embolism and that these changes are usually nonspecific?
A. That's correct.
Q. And will you agree that nonspecific T-wave changes or ST segment changes are the most common findings occurring in approximately 40 percent of patients?
A. Well, I think the most common finding would be a tachycardia which is an abnormal EKG, second to that nonspecific ST and T changes are the most common and I will agree to the 40 percent.
Q. Okay. I'd ask you now, doctor, to look at the ABG with me, the ABG that was done on the 19th.
Doctor, the **PO2** on that ABG is 57, is that correct?
A. Correct.
Q. Okay. I'm now going to very briefly ask you to look at the progress note written on 3-19 at

3:40. It says addendum, 3:40 p.m. You've got it at the top of the page.

Doctor, the first line below the word addendum it indicates a pre-op 02 of 77. Is that correct?

A. That's what it says.

Q. Okay. That doesn't say P02, does it?

A. It just says pre-op 02.

Q. Okay. Do you see any indication in either of the two preoperative admissions, preoperative histories or physicals of an ABG being done?

A. No.

Q. Okay. So as far as you know, doctor, the only ABG that was done relative to Mrs. Williams and her total hip replacement was done on the 19th of March 1993, correct?

A. I see the only one in the chart,

Q. Would you consider a PO2 of 57 to be a significant hypoxemia?

A. Yes.

Q. Doctor, referring to the arterial PC02. Can you tell me what that number indicates?

A. Well, that combined with the elevated pH suggests that mild respiratory alkalosis.

Q. Alkalosis of the arterial pH is what, doctor?

A. 7.46.
Q. Doesn't that indicate a respiratory acidosis?
A. No, sir.
Q. In and of itself?
A. No, sir.
Q. Okay. Explain what alkalosis is, if you would?
A. It's an elevated pH.
Q. And what is the significance of that relative to the ABG?
A. Excuse me for a moment.
MR. GOLDWASSER: Did you have to make a call?
THE WITNESS: No.
A, Your question is what does the alkalosis indicate?
Q. Yes.
A. In this situation?
Q. Yes.
A. It means hyperventilation.
Q. It means shortness of breath?
A. Not necessarily. It means hyperventilation.
Q. Does the PC02 indicate to you a shortness of breath?
A. No.
Q. Does it indicate an increased respiration rate?

A. Not necessarily.
Q. It's below normal limits, isn't it, doctor, the PC02?
A. Yes, it is.
Q. And that would not indicate a shortness of breath to you?
A. Not necessarily.
Q. Nor an increased respiration?
A. That's correct.
Q. Why not?
A. Because it doesn't. You can have a lowered PC02 with a respiratory rate of 8. It depends on how deeply the patient's breathing. I can give you clinical exams of that if you want but suffice it to say you do not have to have an increased respiratory rate nor do you have to have a subjective sensation of dyspnea, shortness of breath to have a PC02 of 33.
Q. Regarding the P02 of 57 would that indicate to you a increased respiration rate?
A. No.
Q. Shortness of breath?
A. No.
Q. Doctor, the arterial 02 saturation is indicated as 86 on this ABG, is that correct?

A. Correct.
Q. That's below normal?
A. Yes, it is.
Q. Moderately, significantly below normal, what would you say?
A. If we said the P02 was significantly below, it would represent a significant hypoxemia, then we would say the 02 saturation is the same,
Q. So relative to the detection of pulmonary embolism, in and of itself, this test indicates what to you, doctor?
A. It would be consistent with a pulmonary embolism.
Q. Okay. Doctor, next I would ask you to look at the lung perfusion scan which would be in your radiology portion of your notes, I believe.

The result, doctor?

A. The impression was low probability for pulmonary embolus.
Q. Okay. And you would agree with the -- have you ever reviewed the actual scan itself, doctor?
A. Yes, I did.
Q. You did. And do you agree with the finding as reported here?
A. I do.

Q. All right. Doctor, are you familiar with the PIOPED study?
A. Yes.
Q. Did you read it?
A. Did I read it?
Q. Did you read any portion of it?
A, I read some of the article and have read much on the conclusions drawn from that study.
Q. Offshoots of the study itself?
A. Yes. If you try to read the study it's rather boring reading.
Q. Right. Would you consider the PIOPED study to be the most prevalent and the most up-to-date medical research regarding the diagnosis of pulmonary embolism, via the lung perfusion scan?
A, Yes. The purpose of the study was to evaluate the value of ventilation perfusion scanning.
Q. Okay. And correct me if I'm mistaken, but relative to a low probability finding of pulmonary embolism, on a lung perfusion scan, the PIOPED study indicates what?
A. In regard to what?
Q. In regard to the detection, in regard to using low probability for pulmonary embolism findings as diagnostic of pulmonary embolism?

A. A range of anywhere from probably single digit numbers up to perhaps 30, 40 percent of the studies representing resulting from actual pulmonary emboli.
Q. Are you referring to a low probability finding, doctor?
A. Uh-huh. Yes.
Q. All right. So if I'm interpreting what you said correctly and if I'm interpreting what I glean from the articles that I read, regarding the PIOPED study, 33 percent of people whose lung perfusion scan results indicate low probability for pulmonary embolism actually have had pulmonary embolism.

Strike that. Anywhere from zero to, did you say 30 to 40 percent?
A. Someplace in that range. About a third.
Q. So between zero and 35 percent of people, included in the study which was a large multi-center study, correct?
A. Yes, it was.
Q. Zero to 35 percent of those people with low probability for pulmonary embolism findings on their lung perfusion scans actually had pulmonary emboli, correct?

A. That is correct.
Q. And in your experience, doctor, would you agree with that study, based on your own experience?
A. And using solely the ventilation perfusion scan?
Q. Yes, sir.
A. I don't know that I've had enough patients to support or to duplicate the study, but I think that would probably be, it would be fair to assume they are correct.
Q. Okay. And do you agree that's a significant number of people?
A. At the upper end it is.
Q. Okay. Is it your understanding that there's a mean or a median to that zero to 35 percent figure?
A. No. I don't think -- one of the problems we have with this study is it's only using one aspect, the radiographic aspect, The important thing is to add in the clinical suspicion of pulmonary embolus.
Q. Very good. Doctor, do you agree that it's important that these low probability findings on lung perfusion scans not be interpreted as excluding pulmonary embolism?

A. Oh, you can't use it to exclude, totally exclude pulmonary embolism, no.
Q. How strongly would you have relied on the lung perfusion scan in Lillie Mae Williams' case, had you been her doctor?
A. Given the whole picture?
Q. Given the whole clinical picture?
A. I would rely on it heavily.
Q. Okay. Doctor, also we can, in his deposition Dr. Corn stated to me that if I had a P02 of 57 I would feel like I had a plastic bag over my head. Do you agree with that statement?

MR. GOLDWASSER: Wait a minute now. You're saying that out of context. Don't answer that question. You are not here to cross-examine on what Corn said. You're here to take a discovery deposition of what Dr. Bacik's opinions are in this case. Save it for trial. Let the jury sort out the context of your question.

Q. Doctor, what is the AA gradient?
A. AA gradient is the difference between the partial pressure of oxygen in the alveolus versus that in the arterial blood.
Q. And that would then be relevant to the arterial

blood gas, is that correct?
A. It's determined by the arterial blood gas.
Q. Can you tell me what the AA gradient was in this case looking at the ABG?
A. I would have to work it out. If I had the barometric pressure for that day. Looking at the blood gas I would tell you the AA grading was increased.
Q. And the significance of that, doctor?
A. Represents some ventilation perfusion mismatch in most cases.
Q. Okay. And the significance of that in trying to diagnose pulmonary embolism in the face of all the other facts that existed in this case at that time of any significance to you?
A. Pulmonary embolus is one of the things that could rule the P02 and increase the AA gradient in a situation such as this.
Q. Doctor, on the 19th of March, after Mrs. Williams had complained of chest pains, and the doctor had ordered, Dr. Anouchi had ordered and/or approved the tests, the battery of tests that were
ordered -- strike that.
If you were present at the time that the

results came in from the battery of tests that were run on the 19th, would pulmonary embolism have been on your list of differential diagnoses?

MR. GOLDWASSER: You're talking about after the results came back?

MR. ZUCKER: I said after the results came back.

MR. GOLDWASSER: Objection. You may answer.

A. Let me clarify this. This was the VQ scan was also included in that battery of tests?

Q. Yes. The four tests that we stipulated before that would include the battery of tests that were run that day.

A. That's the chest x-ray, the VQ scan, the arterial blood gas,

Q. And the CBC.

A. And the CBC. Having obtained that information, I would have thought that the probability of a pulmonary embolus would have been low.

Q. And your basis for that opinion, doctor?

A. The basis for the opinion is that her clinical presentation was atypical for an acute pulmonary embolus.

Q. Atypical from what standpoint?
A. The chest pain was atypical.
Q. Doctor --

MR. GOLDWASSER: Wait; Dale. You asked this physician a question.

Q. Okay. Go ahead.

MR. GOLDWASSER: You don't let him answer.

Aneta, please read back the question that he asked and let's get started and do it right.

- - - -

(Thereupon, the requested portion of the record was read by the Notary.)

- - - -

MR. GOLDWASSER: Doctor, would you answer that question, please?

Q. You are --

MR. GOLDWASSER: Let him answer the question.

A, My opinion for the low probability of --
Q. Yes. The basis for your opinion that there was low probability for pulmonary embolism.
A. Right. The chest pain was atypical, vital signs did not significantly change. The abnormalities

that were noted were either nonspecific or explained in other fashions.

Q. Okay. Doctor, referring you back to the pre-printed nurses' patient care records.

We left off on 3-16 at 1800 hours. You noted that her temperature was 37, that her pulse rate was 100 and that her respiration rate was 20, correct?

A. Correct.

Q. Okay. Referring you to page two on March 17th of these same records.

A. Here's the first time I have March 17th.

MR. GOLDWASSER: Go to the next page.

A. Okay.

MR. GOLDWASSER: There you are.

You got the vitals there. There you go.

Q. Regarding the vital signs, doctor, beginning at 2:00 a.m. on 3-17, the pulse rate was?

A. 110.

Q. And down the list at 6:00 in the morning it was 116, is that correct?

A. Correct.

Q. Those are elevated pulse rates, are they not?

A. Yes.

Q. And throughout the day at 10:00 p.m. -- well, would you read the times and the pulse rates for me?
A. That's 10:00 a.m.
Q. Right.
A. It's 114 at 6:00 p.m., 114; and at 10:00 p.m., 116.
Q. Those are elevated pulse rates, are they not?
A. Yes, they are.
Q. Those are not stable vital signs relative to the pulse rates, are they?
A. Well, they are stable because they are unchanging.
Q. They are unchanging from what?
A, All day long.
Q. Her pulse rate on the 16th, the evening of her surgery was 100, is that correct?
A. Yes.
Q. Her pulse rate the morning that she came in to the hospital and had her physical examination was?
A. 104.
Q. Correct. You are saying that they are not increasing from those two, from the --
A. I said that they are increased, that they are

stable in that they are not really changing.
Q. Her respiration rate the morning of admission was 16, is that correct?
A. We discussed it before. I believe so, it was 16.
Q. Now, on 3-17 beginning at 2 a.m. in the morning her respiration rates increased throughout the day from 18, 18, 20, 20, correct?
A. Those are all normal.
Q. Those are all normal. Okay. The temperature, doctor. Is there any change from her preoperative temperature?
A. Her temperature is mildly elevated.
Q. Okay. We go to 3-18. Page two of those records, vital signs, doctor. Do you see any, any increase in her pulse rate throughout the day, the 18th?
A. Pulse rate remains elevated, mildly elevated to the same degree it was on the day before.
Q. Mildly elevated, correct?
A. Mildly increased, yes.
Q. Her respiration rates, doctor, do they appear to be any different than the day before?
A. They are generally higher, in the mid to low 20's, except for a reading here at 10 a.m. when

it was, I believe that's a 36.
Q. So at one point during the day her respiration rate rose to 36 respirations per minute, correct?
A. That's what is marked.
Q. That's significantly high, isn't it, doctor?
A. That is.
Q. 28 is significantly high as well, isn't it?
A. Yes.
Q. 24 is high, isn't it?
A. It's borderline high, yes.
Q. Doctor, I want to refer you to the nurses' notes now, the narrative notes of the 18th. It would be the nurses' notes portion. Are you there, doctor, on the 18th?
A. What time?
Q. Well, it would indicate 3:15 P.
A. Yes.
Q. At the very bottom of the page, one, two, three, four sentences from the top, it indicates that the patient refused juice,
"Offered because of mid sternal" -- can you read that?
MR. GOLDWASSER: I could read it.
Can you read it, doctor?

A. Mid sternal.
Q. "Sharp pain"?
A. "Sharp pain."
Q. "Which comes and goes since prior to admission but she says worse today."
Correct?
MR. ZUCKER: Do you agree with that, Gary?
MR. GOLDWASSER: Yes.
Q. Okay.
MR. GOLDWASSER: Let me see your copy. Yes, that's right.
Q. Doctor, on, I'm referring you to the physical therapy notes of the 18th as well. I want to make sure if there is a time. I don't think there's a time. There's two notes. There is an a.m note and a p.m. note. I'm referring you to 3-18 p.m. physical therapy notes. Do you have those?
A. I don't have anything that looks like that.
MR. GOLDWASSER: Read from right here.
Q. Have you found that note, doctor?
A. Yes.
Q. Okay. And does that state that she has had pain

in her chest since the morning and a nurse was informed?

Is that accurate reading?

A. Yes.

Q. Okay. Doctor, stay there if you will for one moment. On the last sentence of that 3-18 p.m. occupational therapy clinical notes, it indicates that the patient's complaining of chest pain with gait, is that correct?

A. I'm not sure what that last abbreviation stands for.

I think it's clear that she's complaining of chest pain, correct?

A. (Indicating.)

Q. Also below that, doctor, does it indicate that she's making slow progress?

A. Assessment.

Q. Assessment?

A. Is what the A stands for, slow progress?

Q. On the 18th. Okay.

I'm referring you now back to the pre-printed patient records from the 19th.

And there are only three as opposed to six entries made on the day, on the 19th. Isn't that correct, doctor?

A. Yes, that's correc
Q. Does she have a temperature at all on that day?
A. It's minimally elevated, on two of the three readings.
Q. She has a low grade fever, right?
A. Yes.
Q. She has increased pulse rate, doctor?
A. Yes.
Q. Does she have increased respiration rates?
A. On two of the readings it's minimally elevated at 22.
Q. At what time was the pulse rate of 18?
A. At 6 a.m.
Q. Okay. Doctor, the 19th was the day that Mrs. Williams complained about her chest pains, correct?
A, I didn't check the dates on the --
Q. Strike that question.
A. The previous --
Q. The 19th is the first time that it is recorded by a doctor in either the progress notes or the doctor's orders that Mrs. Williams is having chest pains, is that correct?
A. I'd have to review the progress notes to state with any certainty.

Q. Okay.
A. Okay. We'll stipulate to that.
Q. Okay. And this is the date also the 19th that the doctors did order and receive the results of the battery of tests that we discussed before, correct?
A. Correct.
Q. Okay. Doctor, in reviewing the pre-surgical physical examination notes, did you see anywhere where Mrs. Williams complained about chest pain or do you see anything that indicates a history of chest pains?
A. I don't recall either, either being mentioned.
Q. Okay. You have seen in the nurses' notes, have you not, that Mrs. Williams tried to explain her chest pain by indicating it as something she had had prior to admission, is that correct?
A. That is correct.
Q. Okay. In your reviewing this record and in formulating your opinions, is it your opinion that the chest pains she suffered in the hospital were unrelated to the pulmonary embolism that we know she suffered and died from as opposed to something she had had previous to admission?

MR. GOLDWASSER: Objection. You're asking him retrospectively?

MR. ZUCKER: Yes.

MR. GOLDWASSER: Is that what you're asking him?

MR. ZUCKER: Yes, I am.

MR. GOLDWASSER: You may answer.

A. Yes.

Q. Okay. And that is based on what, doctor, the patient's explanation that she had had these pains before, correct?

A. That and the character of the pain.

Q. Does atelectasis cause pain such as Lillie Mae Williams complained about?

A. No.

Q. Does hypoxemia cause the pain that Lillie Mae Williams complained about?

A. No.

Q. Does dysphagia cause that type of pain?

A. That's quite possible.

Q. And costochondritis, can that cause that kind of pain?

A. Yes, it could.

Q. Doctor, what is your understanding of Mrs. Williams clinical signs subsequent to the 19th?

MR. GOLDWASSER: Objection. Clinical signs of what?

MR. ZUCKER: Her clinical signs and symptoms.

MR. GOLDWASSER: Of what?

MR. ZUCKER: Of anything. What were her complaints?

MR. GOLDWASSER: Her complaints?

MR. ZUCKER: Subsequent to the 19th.

MR. GOLDWASSER: Okay. That's a different question. What are her complaints I guess is the question. *Go* ahead, doctor. You may answer.

A. Well, you just told me that she didn't complain of chest pains until that time.

Q. No, I didn't tell you that.

A, Until the 19th.

Q. I told you she first complained on the 18th. We went over that.

A. It was the physician's note, the first time it was noted in the physician progress notes on the 19th.

Q. Right. Exactly. Let me restate the question. You don't have to answer.

MR. GOLDWASSER: You don't have to answer?

MR. ZUCKER: The prior question.

MR. GOLDWASSER: Jesus Christ. Go ahead. You do this in trial -- go ahead, you're doing good.

MR. ZUCKER: I'm trying to get us all out of here because in a few minutes you're going to be complaining we're going to be too long asking too many questions.

MR. GOLDWASSER: You're doing fine. You're trying your case here. This is fine.

Q. You know that a diagnosis was reached on the 19th, correct?

A. A diagnosis?

Q. Yes. That after receiving the results of the battery of tests Dr. Anouchi formulated a diagnosis, correct?

A. He formed an opinion of what he thought the whole complex was secondary to. Is that what you're saying?

Q. He did, didn't he?

A. I assume he did, yes.

Q. Well, how could you have made any opinions in

this case regarding his conduct if you don't know whether he did or not?

MR. GOLDWASSER: Now wait a minute. Stop.

MR. ZUCKER: Seriously.

MR. GOLDWASSER: Don't be serious. That's argumentative. Don't answer that question. That's so out of line.

MR. ZUCKER: Okay. I will restate the question.

MR. GOLDWASSER: Please, Dale.

MR. ZUCKER: I will restate the question.

Q. From your review of the records, did Dr. Anouchi formulate an opinion as to the cause of Mrs. Williams' low P02?

A. I don't know that that's documented in the chart as such, no.

Q. Did you see any diagnosis or differential diagnosis regarding Mrs. Williams' problems documented in this chart at any time, in any portion of the chart?

A. I'd have to look back at the progress notes to be sure there wasn't something written by the residents. If you'd like me to do that.

Q. Well, I would like to, I would like to query you on the conclusions that were drawn by these doctors after the test results were obtained on the 19th. So whatever you have to look at in order to do that.

A. Okay. On the 19th there's an entry labeled Ortho. And I'm not sure whose signature that is. However, the impression is probable costochondritis.

Q. Okay. And doctor, do you recall from your review of the record or what you're looking at now whether any conclusions or opinions were formulated as to the cause of the hypoxemia?

A. I don't recall that being documented in the chart.

It's your opinion, doctor, that the P02 of 57, the significant hypoxemia was being caused by what the radiologist reported as being possible minimal lineal atelectasis?

Yes.

Is that correct?

Yes.

What is the basis for your opinion?

It's well-known that atelectasis causes, can cause a drop in arterial oxygenation. In an

obese individual, post-operative, with limited ambulation, atelectasis both radiographically visible and what we term micro atelectasis which is collapse of small airways that are not visible on radiographs, often times drop the PO2 into the range that we see here.

Q. Into the range of 57?

A. Sure.

Q. Okay. Have you ever reviewed the x-ray, the actual x-ray?

A. Yes.

Q. Indicated? You have?

A. Yes, I have.

Q. Do you agree with the interpretation that there may have been minimal lineal atelectasis?

A. Yes, I do.

Q. Did you see any lineal atelectasis yourself?

A. Yes.

Q. Was it minimal?

A. It is.

Q. Okay. Doctor, on the 20th --

Back to the original question. The doctors had come to conclusions relative to the hypoxemia, and to the chest pain, and they treated

Mrs. Williams, is that correct?
A. I don't know that they came to conclusions regarding the hypoxemia. They did concerning the chest pain.
Q. Okay. So you don't know, you cannot glean from the medical records whether or not diagnosis was made or cause was given for the hypoxemia, correct?
A. Correct.
Q. But if you were present under all the facts as they exist, you would have attributed the hypoxemia to the atelectasis, correct?
A. Yes.
Q. And you would not have done any further studies to determine the cause of the hypoxemia, correct?
A. As far as the cause?
Q. Yes.
A. No.
Q. Okay. As far as what?
A. Well, as far as treatment I might of done some things differently.
Q. What would you have done differently?
A. I don't believe the patient was on incentive spirometry. Correct me if I'm wrong.

MR. GOLDWASSER: She was on incentive spirometry.

You are wrong.

That's one of the things we would have done.

MR. GOLDWASSER: According to the nurses she was using it, too.

I likely would have rechecked either oximetry or an arterial blood gas to see if the hypoxemia was persisting or had improved.

Why would you have done that?

Just to see. We had an abnormal level. Just to see that it returns to baseline.

Why is it important that this returns to baseline?

Well, then you know your underlying process is taken care of.

And if you don't, then you don't know whether or not your underlying process is taken care of, correct?

Well, there are other ways of determining that, clinically looking at the patient, their vital signs, general progress and such, but since you had a laboratory abnormality that was off, I would have preferred to have a laboratory documentation that it had returned back to

normal.

Q. Would you agree then that it was not in accordance with good medicine for Dr. Anouchi not to have done any follow-up testing to determine the source of the hypoxemia or to determine that the hypoxemia still existed after the 19th?

MR. GOLDWASSER: Objection.

A. Two parts to your question I think or you were changing your statement. Did he need to do anything to determine the cause of the hypoxemia. No, I don't think that was necessary. Should he have done something to determine whether hypoxemia had gone away, I would have, I think most physicians probably would have checked a repeat blood gas or at least oximetry to document that it had returned to normal.

Q. Was it good medicine for Dr. Anouchi not to have done, ordered any follow-up tests to determine if the hypoxemia still existed after the 19th and before she was discharged on the 22nd?

MR. GOLDWASSER: Doctor, I instruct you not to answer that question.

MR. ZUCKER: Why not?

MR. GOLDWASSER: Relax. I'm going to tell you, Good medicine is not the legal issue here. The legal issue is whether it's consistent with acceptable standards of practice given the presenting conditions and circumstances. I am not going to allow you to take a question like that and use it out of context at trial.

MR. ZUCKER: Out of context.

MR. GOLDWASSER: Dale, I made my judgment decision, you take it up with the court if you don't approve of it. My witness is instructed not to answer the question as you have posed it. Go on to your next question, please.

Q. Do you believe that it was in accordance with good and accepted medical practice for Dr. Anouchi not to have ordered follow-up tests to determine if Mrs. Williams was still hypoxemic between March 19th and March 22nd, the date of her discharge?

MR. GOLDWASSER: Do not answer that question unless the question is posed properly as consistent with the law.

MR. ZUCKER: Would you read the

question back to the doctor and instruct him to answer?

MR. GOLDWASSER: She doesn't have to read it back. He's not going to answer it at my instruction unless it includes based upon the presenting conditions and circumstances, and consistent with reasonable acceptable standards to practice. Unless that is the premise to your question I will not allow this witness to answer it. Otherwise I know what you will do at trail and I will not permit it.

MR. ZUCKER: Well, I don't think you'll have much choice in the matter, Mr. Goldwasser.

MR. GOLDWASSER: That could be, but --

MR. ZUCKER: All right. I'm going to add then part and parcel of what you just asked me to do, Gary.

Q. Doctor, under all the circumstances of this case as you know them to be, based on your review of this chart and anything else you may have read pertaining to this litigation, was it in accordance with good and accepted medical

standards for Dr. Anouchi not to have followed up with tests to determine if Mrs. Williams was still hypoxemic between the 19th and the 22nd, the time of her discharge?

MR. GOLDWASSER: You may answer, doctor.

A. I don't think it's a black and white issue. Because there are other ways of determining whether or not the patient had reached stability. I said myself I would prefer to have laboratory documentation, I don't know that it is outside of acceptable standards not to get a repeat blood gas. Quite honestly, I can tell you many cases that I have seen where repeat blood gases are not performed on patients who initially had a low P02. And I don't think it necessarily is with, falls out of standard of care or good medical practice. It's a personal preference. If the patient were dysthymic, if the patient were --

Q. I'm sorry, if the patient were short of breath?

A. She was dysthymic. As defined by having subjective sensation of difficulty breathing, okay. If the patient had, if they got an x-ray and had persistent x-ray abnormalities, other

things that led you to believe that the condition had not changed, then I think a blood gas would be important. If the patient clinically was improving, I think it's the physician's decision whether he gets a blood gas or not.

Q. Were any further chest x-rays done in this case?

A. I don't think so.

Q. Was the patient improving after the 19th?

A. I think she was by the tone of the progress notes.

Q. How about by the tone of the nurses' notes?

A. I'd have to look at them. I don't remember the exact entire contents.

Q. Let's hold off on that for one minute. We'll get to it.

Doctor, you have defended Dr. Anouchi's conduct in this case, have you not?

A. Yes.

Q. You have stated that it was, in fact, in accordance with the applicable standards of care, is that correct?

A. Yes.

Q. A few minutes ago you said you don't think it's a matter of black or white. Isn't that correct?

A. I'm referring to the repeated blood gas.
Q. When I asked you whether or not he met the standard you said I don't think it's a question of black or white, did you not?
A. Specifically with regard to repeating the arterial blood gases and checking on the hypoxemia if I understood your question correctly.
Q. You did, doctor, but the statement you made in your report is that you had reviewed this case and that you find no problem with the conduct of the doctor or doctors in Lillie Mae Williams' care and treatment.

Do you have any problems with the care that was rendered to Mrs. Williams during her hospital stay at St. Luke's?

A. With regards to accepted standards of care?
Q. Yes, sir.
A. No.
Q. You have no problems. You think that good medicine was practiced all the way through?

MR. GOLDWASSER: Wait a minute.

Don't change the question right away.

Don't answer that question.

Q. Your statement, your answer?

MR. GOLDWASSER: He's answered the question. *Go* to your next one, please.

Q. The answer you gave me was no, that you believe there was no derivation from the applicable standards of medical care?

MR. GOLDWASSER: That's not what he said. He said there was acceptable standards of practice here and the question posed to him on direct exam before you cross-examine him at trial will be doctor, do you have an opinion whether it was acceptable standards of practice applied here and his answer will be yes, and I will ask him the same thing.

MR. ZUCKER: At trial you are absolutely correct. At deposition the form of the question does not have to be as you so suggested in your soliloquy before.

MR. GOLDWASSER: You're wrong.

MR. ZUCKER: And if you would have ended the deposition we could have ended the deposition. **1** prefer not to do that. Let's get it over with.

Q. Doctor, what is pleuritic chest pain, in your opinion?

A It's a sharp knife-like sensation, and that occurs generally with respiration, occasionally with some extenuated movement that results from the rubbing together of the two pleural surfaces.

Q Okay. And doctor, is it your testimony that you do not see any pleuritic chest pain in this case?

A. Correct.

Q Did you see statements in the nurses' notes where Mrs. Williams complained of sharp chest pains?

A There was one reference to sharp chest pain, yes

Q Did you see a number of references in the nurses' notes and in the physical therapy notes that Mrs. Williams experienced chest pain upon movement?

A Yes.

Q Okay You consider those to be the types of chest pains that are found with pulmonary emboli?

A No.

Q What is, you consider those to be atypical chest

A. For pulmonary embolus.
Q. What is atypical chest pain for a pulmonary embolus?
A. A sharp, stabbing pleuritic pain.
Q. I'm sorry, doctor, I don't mean to be argumentative, but going through these nurses' notes, if you would. Let's take a look.
Now, on the 18th we already talked about this, she talks about mid sternal sharp pain, correct?
MR. GOLDWASSER: Where does it say that?
MR. ZUCKER: We read it before at the bottom of the page.
MR. GOLDWASSER: Wait a minute now.
A. Yes.
MR. GOLDWASSER: Dale, if you're going to go through the nurses' notes you are going to have to go through all the nurses' notes.
MR. ZUCKER: I'm going to. There aren't a lot.
MR. GOLDWASSER: Let's start. What

time are you talking about?

MR. ZUCKER: The one we read earlier at 3:15 P on 3-18.

Q. The nurse writes that the patient refused juices because of mid sternal sharp pain.

Correct, doctor?

A. Correct.

Q. Okay. Doctor, on the 18th, no time stated at the last sentence of the narrative notes on 3-18, second to the last page, Do you see where it indicates patient continues to have intermittent complaints of mild indigestion, mid sternum? Do you see that?

A. That's correct,

Q. Okay.

MR. GOLDWASSER: Don't skip the next page where it says, "No severe pain, shortness of breath or radiation of pain."

MR. ZUCKER: Do you want me to read every page of the nurses' notes?

MR. GOLDWASSER: Dale, all I'm telling you is you are going to take things out of context here, you'll take them out of context at trial.

MR. ZUCKER: It's your job to do

the page, addendum. I think the time is 2. It might say 2 P.

"Complaining of pain right ribs near sternum. Pinpoint pain. Increased with movement and inspiration and swallowing. Feels lump in lung."

Correct?

A. That's correct.

Q. Now doctor, you believe that after she was given oxygen and blood on the 19th, that her symptoms, her symptoms resolved, her complaints discontinued and her symptoms resolved. Is that

what you stated?
A. No, I didn't.
Q. Okay.
A. Stated when? During this deposition?
Q. Yes. You say she got better after the 19th. I thought you said --

MR. GOLDWASSER: He did. But let's go through with it, Dale. You got three more days.

Q. On the 20th, doctor. The first page at 5:30 a.m. there's an addendum. Now the patient is complaining of weakness, slight dizziness, generalized malaise, and she's slightly diaphoretic. Is that correct?

MR. GOLDWASSER: Are we talking about chest pain now or general malaise?

MR. ZUCKER: We're talking about what it says. The chest pain is on the next page. I'm talking about what it says there.

Q. She's got new complaints here, correct, doctor?
A. I don't know if they're new or not. They're certainly written down here as such.
Q. Okay. But you will agree with what I just read?
A. Yes.

Q. That she is complaining of weakness, slight dizziness, generalized malaise, slightly diaphoretic skin?
A. Yes.
Q. On the next page on the middle of the page, she is complaining of pain in the right epigastric area. Is that correct?
MR. GOLDWASSER: "States has history of hiatal hernia."
You want me to read the whole thing?
MR. ZUCKER: If you want to,
Q. She's complaining of chest pains, though, right?
MR. GOLDWASSER: It says it's painful to swallow. Did you read that or did you forget it?
Q. Dr. --
MR. GOLDWASSER: Wait a minute. You didn't let him finish.
A. "Pain in the epigastric area."
Epigastric is not the chest.
Q. Let's finish this. I will be done in a minute. Let's go to the 21st at 5:30 p.m. On the 21st. "Pain in mid chest with swallowing."
Almost the middle of the page, correct?

A. Correct.
Q. Little farther down, "Patient states that the pain has not really improved from yesterday."
The 20th.
A. That's correct.
Q. Okay.
MR. GOLDWASSER: Are you going to skip the next?
MR. ZUCKER: If you want me to go ahead.
MR. GOLDWASSER: Dale, I'm telling you I'm going to hold it to you.
Q. "Patient complaining of mid chest pain with swallowing liquids food."
MR. GOLDWASSER: Did you talk about how she is complaining of relief of pain or do you want to miss that line, too?
MR. ZUCKER: I'll be quiet when you do it.
A. She says at 6:30 states some relief of pain.
Q. Doctor' on the day she was being discharged, the 22nd, first page of the narrative notes, she states that the doctor is aware of her complaints of pain on inspiration. They did tests yesterday. Correct?

A. Yes.
Q. Okay. On the pre-printed patient record notes that we were talking about I ask you now to return to page, or to the 3-20 vital signs.
A. Okay.
Q. Patient's now on oxygen. Is that correct, after the tests were run and the results came back on the 19th they gave her some blood and they put her on oxygen, correct?
A. I believe that's correct.
Q. Okay. How about her temperature, normal levels?
A. If you consider 37.5 as being upper limit of normal. It's maximum temperature she has here is 37.5.
Q. Little low grade fever going on?
A. Minimally, yes.
Q. Pulse rate, would you say that that increased from her baseline?
A. They're increased from her normal.
Q. Her preadmission baseline?
A. Right. Not much different than what she's been running the last several days.
Q. She came in with a respiration rate of 16, correct?
A. On the 16th. I forget what that, I know the

preadmission on the first was. That's right. If you say it is that's what it is.

Q. Her respiration rates on the 20th are recorded five times during the day and they are all at 20, correct?

A. Correct.

Q. Do you consider that to be normal?

A. Correct.

Q. Okay. The 22nd then there are, excuse me, on the 21st, there are three vital sign recordations. Can you tell me what is happening with her temperature, doctor?

A. Same general range as before.

Q. Still running a little low grade fever?

A, Like we said before, minimally low grade if at all.

Q. That's something you would expect at this point in the hospitalization?

A. Not uncommon with a healing process and possibly with a little bit of atelectatic change in the lung.

Q. Would you have wanted to know at this point whether she still had those atelectatic changes in the lungs?

A. I'm not as concerned about getting repeat chest

x-ray as I would about getting a repeat oxygen level.

Q. How about her pulse rate, doctor?

A. Same general range.

Q. At 1800 hours I see a pulse rate of 109, correct?

A. That's correct.

Q. Her respirations which were recorded three times during that day on, according to you on two occasions would be elevated, correct?

A. Well, mildly elevated.

Q. Mildly elevated. And on the 22nd, the day she goes home, still running a little low grade fever, doctor?

A, Oh, yes. Here. I'm sorry. **No**, that would have to be considered normal. 37.2 is hard-pressed to make that into a fever.

Q. Pulse rate is now?

A, 98.

Q. At the high end of a normal sinus rhythm?

A, That's about as low as she's been in days.

Q. And her respiration rate, doctor, at 2:00 in the morning?

A. That was elevated.

Q. 28, correct?

A. That's correct.

Q. Okay. Had you as her doctor read the notes, the nurses' notes and she has vital sign recordations prior to her discharge you would have let her go home under these circumstances?

MR. GOLDWASSER: Wait a minute. You forgot about the rate of 18 or did you just overlook that, Dale?

A. I don't think she went home at 2 a.m. At 10 a.m. her vital signs are normal.

Q. I know she didn't go home at 2 a.m. Doctor, based on your knowledge of this entire case, you are the attending physician, and it comes time to discharge this lady. You have not done any repeat ABG's to determine if she is significantly hypoxemic as you testified before. Are you going to let her go home before you do that?

MR. GOLDWASSER: Objection. You may answer.

A. For completeness' sake and for my own personal interest as a pulmonologist, I would have liked to have seen either an oximetry level or an arterial blood gas. However, there is nothing here in the vital signs and what you've read or

have me read from the nurses' notes or in the physician's notes that would raise the red flag to me this woman is not able to go home.

Q. I didn't ask you whether she was able to go home, obviously she was able to go home, I'm asking you if it was in accordance with good and accepted standards of medical practice to allow her to go home?

MR. GOLDWASSER: Stop. You didn't ask him that at all. You asked him if he would allow her to go home. Now which question do you want to ask?

Q. I'm going to ask you the latter.

You consider it to be in acceptance with good and accepted, to be in accordance with good and accepted medical standards of practice to allow a patient to go home knowing everything you know about this case before doing any followup testing?

A. Correct.

Q. Okay. Do you know Dr. Anouchi?

A. No, I don't.

Q. Doctor, you indicate in your note to Mr. Moscarino on March 16, 1994 that you had reviewed the case or you had reviewed the

records from her admission to St. Luke's, 3-16 to 3-22 and that you had read the report of plaintiff's expert Edward Chester?

A. Correct.

Q. Do you have a file on this matter, doctor? Do you have your file handy?

Are those all the records that you had reviewed prior to issuing this letter to Mr. Moscarino?

A. Whatever is in the --

Q. Whatever you stated in the letter?

A. Yes.

Q. And what I have here in front of me, would that be what you have reviewed subsequent to issuing this letter?

A. Well --

MR. GOLDWASSER: What do you have in front of you that you have in your lap? I want to see it.

A. I have a letter from Dr. Corn, I believe,

Q. I will give it to you in one second, Let me look at it.

- - - -

(Thereupon, Plaintiff's Exhibit 1 was mark'd for purposes of identification.)

- - - -

Q. Doctor, what Mr. Goldwasser has just handed me and what I'm handing back to you now are the complete contents of your file in this matter?

A. This record and my personal notes.

Q. May I see those?

- - - -

(Thereupon, Plaintiff's Exhibit 2 was mark'd for purposes of identification.)

Q. I have forgotten if I asked the question what you hadn't reviewed prior to issuing the letter to Mr. Moscarino you have reviewed in addition to that everything that I have here?

A. Correct.

Q. What does that say right there, doctor?

A. "CP atypical, chest pain, not pleuritic, had occurred previous to admission."

Q. Doctor, you refer to some literature in your letter to Mr. Moscarino. You talk about large studies. Can you tell me what studies you are referring to?

A. Can I see that?

Q. Sure. This is in regard to the prophylaxis, is

that correct? Let me see. Yes.

"She received excellent DVT prophylaxis which was monitored closely and which has been shown in large studies to reduce the incidence of DVT and PE, pulmonary embolism, in orthopedic patients."

A. There is a symposia.

Q. So you were referring to the prophylaxis?

A. Yes.

Q. I'm not interested in your prophylaxis, Unless you want to go ahead with what you want to say.

MR. GOLDWASSER: If you're not interested, that's all right.

A. If you're not, I'm not.

Q. You state in your letter that the patient had no increase in respiratory rates, is that correct?

MR. GOLDWASSER: You're talking about March 19th?

A. Yes.

Q. Okay. Going over the records with me today, that statement you made in this letter **of** March 16th, 1994 regarding there being no increase in respiratory rates is not accurate, is that correct?

A. No. There's no significant increase in what her

respiratory rates were on the days prior to the 19th.

Q. Now, prior, however, relative to her respiration rates before her hospital, before her surgery, there was an increase in respiration rate, wasn't there, throughout her hospital stay?

A. Yes, but there's many reasons why that can occur.

Q. You want to tell me about them?

A. Well, you mentioned it yourself. A patient coming into the hospital to have surgery has an increased heart rate and you said that wouldn't be abnormal.

Q. And you agree?

A. And I agreed.

Q. How about after the surgery and the anxiety is gone?

MR. GOLDWASSER: Anxiety is after total hip arthroplasty.

A. Have you ever seen a patient after surgery? This patient is in pain, it hurts to move, they have difficulty ambulating and moving around mainly because their hip is relatively immobile and it hurts to move it. They will have an increased respiratory rate, an increased heart

rate on that basis alone.
Q. Doctor --
A. And consistent with the range that she was in.
Q. Doctor, do you believe after the battery of tests were run on the 19th that Dr. Anouchi had enough information to rule out DVT and/or pulmonary embolism?
A. Yes.
Q. Have you had an opportunity to read Dr. Chester's deposition?
A. No.
Q. Do you know Dr. Chester?
A. Yes, I do.
Q. Did you know him to be an instructor at Case Western Reserve University in pulmonary medicine?
A. Yes.
Q. Were you an instructor at the same time as he was?
A. I was, I was an assistant clinical professor while he was I believe an associate professor.
Q. Did you work under him then?
A. No.
Q. Okay.
A. He was, let's put it this way, when I was at

training at Metro, he was a professor at either the university or at the VA at that time. Our paths never crossed where I worked directly under Ed, no.

Q. You refer to him as Ed, Do you know him personally?

A. Oh, I have met him. I have had very little contact with him in the last several years.

Q. Professionally you've never worked with him?

A. No,

Q. Doctor, I don't know what time your secretaries leave. Do you think that we can get copies of these before they leave?

MR. ZUCKER: Off the record.

- - - -

(Thereupon, a discussion was had off the record.)

- - - -

Q. Doctor, have you ever published?

A. No.

MR. ZUCKER: Did you take that CV back, Gary?

MR. GOLDWASSER: You should have your copy. Do you want to use this?

MR. ZUCKER: This is my copy. I

put it back in the file.

a. You are no longer an assistant clinical professor at Case Western Reserve?

4. I resigned the position. Minimal contact. We're still involved with teaching but it has to do with the Cleveland Clinic's program, not the university's program.

a. You are teaching at the Clinic now?

A. No. The Clinic has residency training at St. Vincent Charity Hospital.

Q. Doctor, in your opinion, had any of the several tests to determine the existence of DVT been performed on Mrs. Williams on the 19th, what is the likelihood that one of those tests would have shown the existence of DVT?

A. I think it's likely that it would have been positive.

Q. More likely than not?

A. Most likely, yes.

Q. Would you agree that it would probably have been 100 percent likelihood?

A. No.

Q. And that's because, doctor, as you stated before, that the reason being sometimes the clots will dissolve and they'll be gone by the

time you get in there to look?
A. One of the reasons would be the clot would have broken loose and gone on to cause pulmonary emboli, therefore, there would be nothing left in the veins.
Q. Right.
A. And the second is that the studies are not 100 percent accurate. Even venograms can be wrong occasionally in diagnosis of DVT.
Q. What is the margin of error of a venogram?
A. It's small but it's still finite.
Q. What is the margin of error of impedance plethysmography?
A, Impedance plethysmography? Oh, I'd say, probably depending on where the clot is. Impedance plethysmography is most useful in evaluating the thigh veins which is where in the end result these emboli were from. I think IPG would have been positive probably in the range of 85, 95 percent in this case. Duplex studies may have been less likely to pick up thigh thromboses. Little more likely to pick up the smaller veins in the calves.
Q. What were the three tests that were available at the time?

In general duplex studies which is a combination of Doppler study and ultrasonography.

Not invasive, correct?

Non-invasive. IPG, impedance plethysmography which is again, a non-invasive study, and venograms, radio contrast study which is invasive, needles into the veins and injection of dye.

Doctor, what you know now having reviewed the autopsy and knowing more about this case since you initially reviewed it, at some point in time you'll agree that one of those three tests were more likely than not to have shown the existence of DVT, correct?

I think so.

At some point in time the chances would have been almost 100 percent that any one of those tests would have disclosed the DVT. Would you agree?

I think that it is more probable than not that one or all the tests would have been positive.

Can you tell me what point in time you believe that that could have occurred?

MR. GOLDWASSER: What could have occurred, that it would have been

positive?

Q. That they would have shown the DVT. You said that on the 19th you weren't convinced that they would have. Is that correct?

A. No. I didn't say that.

Q. Okay.

A. I said the 19th no further studies were indicated.

Q. You said it was more likely than not and then I asked you if it was 100 percent and you said no, correct?

A. (Indicating.)

Q. Okay. Now I'm asking you at what point in time you think it would have been an absolute, almost an absolute certainty that any one of those tests would have picked up the DVT?

A. Sometime prior to the major emboli. I suppose it could have been any time in the last few days of the hospitalization, it could have been as early as the second or third day post-operatively.

Q. Based on what you know now about this case after having reviewed the autopsy, do you have an opinion as to when Mrs. Williams started throwing emboli?

A. I'm still not convinced that the symptoms -- certainly the symptoms, I think as I have said over and over again were atypical for pulmonary embolus. The perfusion scan, as we have already discussed, perfusion, ventilation scan, can be misleading and is not 100 percent accurate, both in its absolute findings and in its interpretations. But I forgot the point I'm --

Q. Excuse me, doctor. Can I ask you what point are you answering?

MR. GOLDWASSER: You're not convinced that she had pulmonary emboli before she went in the hospital.

A. Exactly. I'm not convinced the first --

Q. Want to take a break?

A. That's fine. The first round of symptoms and signs and findings even including the scan represented pulmonary emboli. We do know, obviously, that the final event was due to massive pulmonary emboli, and if I'm not mistaken, I do think they reported -- did they report any?

Q. Acute and organizing.

A. Yes. So organizing usually means two to three days at least prior to, you know, the autopsy,

which would take us back to what, the 20th.
Q. 19th, the 20th.
A. 19th, the 20th.
MR. GOLDWASSER: Well, that's not true.
Q. She went home on the 22nd, and that evening, or the next evening of the 23rd, 24 hours or so later?
A. So if you back up to the 20th or, even the 21st I suppose.
Q. Organizing could be longer than two or three days?
A. Sure. It could be. It takes a minimum of two or three days.
Q. In order for the pathologist to call it organizing it would have to, in his opinion have existed for at least three days, correct?
A. I would agree with that, yes.
Q. Doctor, would it have hurt to have done one of those tests to determine the existence of a DVT?
MR. GOLDWASSER: Objection. You may answer. A non-invasive test you mean?
A. If you do a non-invasive test I don't think the risk to the patient is very great.
Q. Why not do it on Lillie Mae Williams' case?

A. 1 think you have to have, in a situation like this, we have discussed for a good hour and a half, the difficulty in making a diagnosis of PE. Obviously you can't ignore it, on the other hand, you can't suspect it in every individual. You can't be getting all these studies done in every individual. You certainly don't want to ignore it entirely. You've got to take a middle road. You've got to set up some type of strategy. Certainly Dr. Anouchi does probably what, hundreds of hips a year.

Q. No. In his life he has done a hundred according to him.

A. A lot of orthopedic surgeons do a large number of hips. They have to set up a strategy of how they're going to interpret patient's symptoms, findings and signs, kind of an algorithm if you will in their own mind of how they're going to handle it. And that should be based on reasonable --

Q. Index of suspicion?

A. Yes.

Q. Was there any medical condition that you know of that Mrs. Williams had that would have made it detrimental to do any of the testing for DVT?

A. No.
Q. Okay. Doctor, you are a pulmonary specialist?
A. Correct.
Q. So your awareness of the incidence of DVT is greater than an orthopedic surgeon?

MR. GOLDWASSER: Didn't we cover this at the beginning of the deposition, Dale, or did you forget?

MR. ZUCKER: I have questions to ask.

MR. GOLDWASSER: So you're leading up to something. I apologize. Go ahead.

A. My awareness --
Q. We established, as Mr. Goldwasser so poignantly pointed out, we established earlier in the deposition that your knowledge of DVT and pulmonary embolism is greater than that of the orthopedic specialist, correct?
A. I --

MR. GOLDWASSER: Generally speaking.

A. Generally speaking, yes.
Q. What is general about it?
A. At least a pulmonary embolus.
Q. At least a pulmonary embolus?

A. I'm not sure that I am any better at diagnosing a DVT than the orthopedic surgeon. I think what I said earlier on was my clinical suspicion of PE is probably higher than the non-'pulmonary specialist.

Q. Precisely my question. That's what I was leading up to. You reviewed the medical records; now hypothetically assume you are the physician in charge of making decisions in this case, okay? What level of suspicion would you have had for pulmonary embolism after you obtained the results of those tests on the 19th and after you had clinically examined and observed Mrs. Williams?

MR. GOLDWASSER: Objection.

A. From the information I can gain from the chart, and from review of the chest x-ray and the VQ scan, I would have a low index of suspicion for pulmonary embolus.

Q. And that would have excluded you from doing any further testing?

A. Correct.

Q. On the 20th when the oxygen didn't appear to be working, when she complained of being weak, dizzy, general malaise --

MR. GOLDWASSER: Wait a minute.

Q. -- diaphoretic --

MR. GOLDWASSER: Is that your statement or is it your question that the oxygen wasn't working?

MR. ZUCKER: It's my question,

MR. GOLDWASSER: Was the oxygen working?

Q. Was the oxygen working, doctor?

A. No.

Q. Did the oxygen in the blood work to resolve, in your opinion, to a reasonable degree of medical certainty, did the treatment given to Mrs. Williams on the 19th consisting of two units of blood, oxygen by nasal cannula cause a resolution of the complaints that she was having the day before?

A. They seem like they were different complaints in parts. The weakness, the dizziness, the diaphoresis. You have to interpret that in context of what the patient was doing at the time. Was that when she was ambulating, had she just come back from using the bathroom, or from PT. These aren't stated in the notes. It doesn't state at that time that she is short of

breath.

Q. Doctor, let me ask you this question. It's a hypothetical question. But it assumes all of the facts that took place in this case as they exist, as you believe them to exist.

On the 20th of March, had you done a repeat ABG, assuming by the way that you are the physician in charge of making decisions in this case, and that all other facts remain the same, except assume that on the 20th, you did a repeat ABG, and the blood oxygen level, the PO2 was still significantly hypoxemic, what would you have done there, in that situation?

MR. GOLDWASSER: Objection.

Q. Would you have done any further testing?

A. With or without oxygen if the patient was still hypoxic?

Q. I'm going to ask you that question both ways. I want you to answer it both ways.

MR. GOLDWASSER: Objection.

Q. Would you have done any further testing with her on oxygen or any further testing without oxygen?

MR. GOLDWASSER: All right. Just a continuing objection as to these hypothetical facts of which are not in

evidence in this case. You may answer, doctor.

A. Okay. If we took her off the oxygen and her PO2 was again low, I don't think I would have done anything specifically at that time. I would have continued her on the oxygen, increased her ambulation as tolerated, continued with the incentive spirometry and probably would have scheduled a repeat chest x-ray for the following day.

Q. Did you say you would or wouldn't of done another ABG?

A. At that point, on the second day? I probably would not have done a repeat ABG at that time.

Q. Now you are saying this is with her off the oxygen?

A. Well, I would have -- she was already placed on oxygen.

Q. Right.

A. There's no reason to take her off of it, in other words, discontinue the therapy, but what you would want to do if you're really interested in seeing if the patient had improved, was repeat the blood gas again with her off oxygen, compare apples to apples.

Q. Right.
A. So if we're going to check the oxygen --
Q. Now you've got her off the oxygen?
A. We probably would have taken her off to compare.
Q. Now you've got her off the oxygen, you do an ABG and she is still significantly hypoxemic. What is your next move?
A. It's to the same level as it was on the day before, I would continue the incentive spirometry. I assume she was increasing ambulation, doing maneuvers that I know are going to decrease atelectasis in the lungs.
Q. You wouldn't of done any tests to determine the existence of any pulmonary embolism?
A. No. I don't think it necessarily changes.
Q. Doctor, the percentages that we talked about regarding the VQ lung scans, the 35 percent low probability people having pulmonary emboli --
MR. GOLDWASSER: As high as 35 percent.
Q. As high as 35 percent.
A. Correct.
Q. Don't you agree that a patient has a right where there's a 35 percent chance that there's pulmonary embolism and there are non-invasive

studies that exist to determine whether or not they do, don't you think a patient is entitled to that kind of care?

MR. GOLDWASSER: The doctor has answered that question before and told you in the clinical setting he would do something different. You want to qualify that question? He answered it before, Dale. The exact same question.

MR. ZUCKER: I didn't ask the question yet. Maybe you answered it in response to another question.

A. The zero to 35 percent doesn't hold for any given random VQ scan that's read as low probability. It has to do with the clinical picture as well. People who have a high clinical probability, by that I mean sharp chest pains, a doubling of their respiratory rate, diaphoresis, a sudden onset of change in their clinical condition, classic findings for pulmonary embolus. Maybe a drop in the blood pressure. Those people with a low probability and a high clinical probability, are the ones that will have that 33 to 35 percent. Patients who have a low clinical probability, as I think

existed in this situation, are the ones that are more towards zero.

Q. My understanding of the literature, doctor, is that there may be as low as, the mean is 12 percent?

A. That's --

Q. The mean, okay. If I have a 12 percent chance to live and all you have to do is a little non-invasive study to do it as your patient don't you think I want you to tell me and perhaps do that test?

A. But I don't think given in this situation that you had a 12 percent chance. I think that what you had was less than 12 percent and approaching that zero level of low probability.

Q. Zero. I'm at high risk.

MR. GOLDWASSER: He said approaching that.

A. No.

Q. I'm at high risk for DVT.

A. And you are prophylaxed for DVT.

Q. 95 percent, you say 80, the literature I have read says 95 percent of all PE comes from DVT, and you're telling me that what, one percent doesn't give me the right as a patient to have

you do the proper testing to determine if I have the condition?

MR. GOLDWASSER: You want to argue the point or are you asking questions? You are arguing the point. It's wonderful for final argument, Dale. I'm duly impressed.

Q. Knowing what you know now, after having reviewed the chart and reviewed all of the testimony that you have and the autopsy, is it more likely than not after the 19th that Lillie Mae Williams' P02 remained **low,** significantly low?

A. If you assume that the pulmonary emboli that were, we see as organizing emboli occurred on or about the 19th, then probably by the 20th or 21st, the PO2 probably rose.

Q. Probably rose?

A. Yes.

Q. That would be symptomatic or a sign of pulmonary embolism? Is that what you're saying?

A, What I'm saying --

Q. Are you saying that my assumption, that since she had pulmonary embolism the hypoxemia would become worse is wrong and that in reality --

A. No.

Q. In reality actually because she had the

pulmonary embolism her blood oxygen level rose?
A. No. Let me explain this to you. If she did indeed have a pulmonary, small pulmonary emboli, and the VQ scan is showing small little defects where it did indeed represent pulmonary emboli.
Q. So low probability alone means there were emboli, correct, small emboli?
A. Low probability doesn't mean anything in regard to her. We know from the autopsy that she had organizing emboli that were out in the periphery. In retrospect, time-wise and such we assume that she had small emboli on the, in the peripheral circulation on the 19th. That in part, and I still think the atelectasis played a role in dropping her P02 as well, responsible for the drop in the P02. If she does not have any other pulmonary emboli until the big one that ultimately caused her demise, within a 24 hour, 48 hour period, the body develops a collateral circulation.
Q. I see.
A. That overcomes that hypoxemic event from the acute emboli. And I would assume that with increased ambulation and incentive spirometry that the hypoxemic effect from her atelectasis

would be diminished so her 02 may have actually increased.

Q. Doctor, are you going to testify in this case as to what, how long Lillie Mae Williams would have lived had she not had a pulmonary embolism and died?

MR. GOLDWASSER: In fairness, I haven't told the doctor what questions I'm going to ask him yet so he doesn't know what he's going to testify to in that regard.

MR. ZUCKER: So it's possible that he --

MR, GOLDWASSER: You've got to look to me for that because he doesn't know.

MR. ZUCKER: Is this doctor --

MR. GOLDWASSER: I suppose he'll be testifying to anything that I ask him.

MR. ZUCKER: Dr. Goldwasser, is this doctor going to be testifying in this case as to his opinion of how long Lillie Mae Williams was going to live.

MR. GOLDWASSER: As of now I'm going to tell that you I didn't even contemplate that question but if I decide

he will I'll let you know.

Q In that case, doctor, I'd like to ask you do you have an opinion based upon a medical probability, a reasonable degree of medical probability how long Lillie Mae Williams would have lived had she not had the pulmonary embolism and died?

A At the present time I do not

Q Okay Doctor, I'm assuming your opinions have not changed relative to this case since you authored this letter to Mr. Moscarino, am I correct?

A That's correct.

Q You have no criticism of anybody involved in the care and treatment of Lillie Mae Williams, correct?

A Correct.

Q Okay. Did you read Dr. Corn's, Dr Corn's report?

A Yes, I did.

Q Okay. I'm going to ask you to address that with me for one minute

Dr Corn indicates that he felt as though the thrombus in this case originated in the abdomen and that it was undiagnosable

MR. GOLDWASSER: Wait a minute now. You want to tell him what Dr. Corn meant by that on deposition? The same thing he said. He talked about it being proximal, the abdomen and the iliofemoral vein being in the abdominal area. That's what he said.

Q. Doctor, is what Mr. Goldwasser just said your --

MR. GOLDWASSER: Wait a minute. He just said what Dr. Corn testified to when you asked him doctor, what do you mean by the abdomen and he told you what he meant by the abdomen, that the iliofemoral vein is in the abdominal area. Iliofemoral venous tree.

Q. I'm not going to pursue any questions. If you want to respond to anything, go ahead, doctor. I'm ready for my next question.

A. Go on.

Q. How do you normally treat atelectasis, doctor?

A. Depends on the severity of the atelectasis and the condition of the patient. What you try and do is increase alveolar ventilation. You try and expand the lung. In many cases post-operatively, the atelectasis is a result of

immobility. Sometimes the result of prolonged anesthesia, as in fully uninflated. And underlying chronic lung disease plays a role in this situation often times as well. So what you're trying to do is expand the lung tissue. You can do that if the patient's able to cooperate. In this case I would expect the patient would be as there is no pain on taking a deep breath. The patient has abdominal surgery, may have difficulty taking a deep breath.

Dealing with a hip or anything in the lower extremities, that's not the case. If the patient has any degree of chronic lung disease you may want to use bronchodilators, occasionally mucolytic agents are indicated if the patient appears to have difficulty in raising secretions, supplemental oxygen as necessary, and early ambulation.

Q. Doctor, atelectasis is much more common in abdominal surgery than it is in lower extremity surgery, isn't that correct?

A. Well, for the reasons I mentioned because they tend not to take a deep breath because of the pain, probably occurs more frequently.

Q. Now, you described for me the treatment for

atelectasis. How do you know if your treatment is successful?

A. Radiograph usually is the best way to document improvement. Again, as I said with blood gases, you have an abnormality.

Q. You said an EKG. An x-ray?

A. Radiographically.

Q. A chest x-ray?

A. Right.

Q. This would be how you determine if your treatment for the atelectasis has worked or not, correct?

A. It's the best way that 1 know of. If the patient has any adventitial lung sounds, rales, bruit and such on examination, and they clear, that's another way of testing whether they have had a response to your treatment. And of course an improvement in P02 or arterial oxygenation.

Q. Doctor, you stated before that minimal lineal atelectasis is perfectly capable of causing this severe a drop in blood oxygen levels, correct?

A. Especially in an obese individual, yes.

Q. Then why wouldn't a determination of the ABG or the blood oxygen level be utilized to determine if treatment worked?

A. Well, as I said, I would have done that, but there are other ways that you can tell whether the patient has responded clinically, listening to their lungs, seeing how they respond, whether they complain of continued dysrhythmia with exertion. Their overall clinical picture.

Q. But you would never know for sure unless you do the x-ray as you indicated, correct?

A. As far as the atelectasis goes, yes, that's correct.

Q. Okay. What happens if atelectasis goes untreated, what will happen?

A. Well, two potential things could happen, I suppose. The atelectasis is usually related to secretion, plugging of the areas. This could potentially become secondarily infected and could go on to develop a pneumonia. I suppose if the atelectasis is chronic, fibrotic scarring could eventually occur and you would get a permanent loss of lung function in that small area of the lung.

Q. Likewise, doctor, what happens if severe hypoxemia goes untreated?

A. At the level that we see here, perhaps -- the only --

Q. Did you mean in this case?
A. In this case, yes, the PO2 of 57, probably the only long lasting effect might be more dysrhythmia on exertion and shortness of breath. The level is not to the point where chronic oxygen therapy is warranted.
Q. You're saying that a chronic level, PO2 level of 57 would cause shortness of breath?
A. Well, your reserve, your oxygen reserve obviously is lowered.
Q. How long does it take to become chronic?
A. It's a matter of definition. Say in this situation you'd want to see at least several weeks.
Q. But a person with a PO2 of 57 will not experience shortness of breath by virtue of that fact alone, that they have a PO2 of 57?
A. If they drop from a normal range, which is in the 80's to 90's, and they drop down to 57, they will, acutely, they will experience dysrhythmia, and --
Q. Dysrhythmia you mean?
A. Shortness of breath. If they did this over a period of time, as many chronic lung patients do, they may feel like it's their normal

breathing pattern even though they might be restricted in their activity they learn to accept it and to live with it and their respiratory rate may be 18 to 20.

(Thereupon, a discussion was had off the record.)

Q. Doctor, do you have any disagreement with the autopsy report in that Lillie Mae Williams died of that which was stated by the coroner?

A. No.

Q. Do you have any doubt that the emboli were derived from the thrombus formation in her iliofemoral tree?

A. I think that's a likely assumption.

Q. Okay. What is a classical presentation of pulmonary embolism?

A. Well, you want a constellation of signs and symptoms.

Q. A constellation?

A. Yes. Like, there's no one finding obviously or one symptom that is going to lead to a solid diagnosis of PE. What you'd want, a relatively sudden onset of shortness of breath, as we

mentioned, tachycardia and tachypnea are almost invariably present. If it is indeed a large embolus with infarction, you would want pleuritic type of chest pain. You'd perhaps want a feeling of an impending doom, people become very anxious, they are often diaphoretic, they may drop their blood pressure, hemodynamic effects.

Q. This is a classic presentation you are giving me?

MR. GOLDWASSER: Constellation.

A. You have to understand that some pulmonary emboli are silent.

Q. I asked you for the classic presentation.

A, You are talking about classical clinical symptoms that you wanted to see -- this is a high probability of pulmonary embolus. You look at this --

Q. You are including laboratory in this classic presentation or not?

A. No. This is simply the signs and symptoms, physical examination and the story.

Q. Okay.

A. Then you use that in conjunction with your laboratory studies and the most common one used

is the ventilation perfusion study to determine whether or not the patient, in your opinion, has a high intermediate or low probability of pulmonary embolus.

Q. And is there a classical presentation for DVT?

A. Again, DVT can be silent in half the cases, but if there is, if there are symptoms and signs of DVT, it will involve usually pain, swelling, redness, tenderness in the effected limb, often times with palpable cords in the popliteal area, or in the calf, a positive Homans' sign which is flexion of the foot causing pain on stretching of the veins in the posterior leg.

Q. Is atelectasis every one of the findings of PE?

A. It can be seen with PE, yes.

Q. Later stages of PE or --

A. I don't know how long you mean by later. It could be seen probably within, if it's going to be seen, probably within several hours to a day. And it could be related to a variety of things.

Q. What could?

A. The relationship of the atelectasis to the PE.

Q. To the PE. What are they?

A. If the patient is having pleuritic pain they're

not going to deep breathe. They're not going to take a deep breath and so they get atelectasis because they don't expand the lung just as they would lying in bed or with pain from surgery.

Q. Anything else?

A. Occasionally you get some congestive atelectasis which --

Q. You're talking about the, when I say anything else, I'm talking about the relationship.

A. With PE.

Q. Of atelectasis to PE.

A, Right.

Q. And you're talking about the various reasons why you could get it?

A, That you could potentially get it.

Q. One was?

A. Chest pain causing --

Q. Of your movement?

A. Of your breathing. You can get what is called congestive atelectasis and that is kind of a reactive symptom or sign that occurs secondary to the blood clot itself. Those are probably the main two, I would assume.

Q. None others in relation to PE?

A. None that I could think of right now.

MR. ZUCKER: So that you don't go objecting, Gary, there's going to be a different question at the end.

Q. If knowing all the facts exist as you do now, were on the 22nd, the day of discharge, and you do a repeat ABG, and you do a repeat chest x-ray --

A. Okay.

Q. -- you get the same results, you get minimal lineal atelectasis and you get the same ABG back, what would you have done then?

MR. GOLDWASSER: Objection. You may answer.

A, The patient was otherwise stable,

Q. Uh-huh.

A, With stable vital signs, I would likely send the patient home with their incentive spirometry and probably schedule a repeat blood gas and chest x-ray probably in a few days to a week.

Q. Okay. Have you ever testified for a plaintiff before in your career?

A. Testified.

Q. In a medical malpractice case, have you ever defended, or have you ever testified on behalf of a plaintiff before in your career?

A. I have reviewed charts for plaintiffs. Those three cases have never gone to even a deposition. One case that's active right now is proceeding to a deposition stage shortly.
Q. Who is the lawyer in that case?
A. I would have to look it up.
Q. What is the name of the plaintiff in that case?
A, Hower.
Q. Pardon me?
A. Hower. It's not a medical malpractice. It's a personal injury.
Q. No. In a medical malpractice case, have you ever testified on behalf of a plaintiff against a doctor?
A. No.
Q. Okay. Is that something that you would refuse to do?
A. No. I didn't refuse to do it in two cases.
Q. Oh, you did, so you have, I asked you if you have ever?
A. You asked me if I testified and I said I never got to that point.
Q. Right.
A. I said I reviewed cases. In one instance -- let me put it this way. There were two instances

where I felt that there was some degree of medical malpractice. In one case I was not, in my opinion, considered to be an expert in that area, it had to do with near drowning, and I researched the literature and provided names of, well, one name of an individual that is felt to be nationally known in near drowning. In the other case, and exactly, I don't remember exactly what happened there but it never went on to deposition or to court.

Q. Now, I will ask you the question again. Would you testify against a fellow physician in a medical malpractice case if you felt as though there was a derivation in the standard of care?

A. If I thought there was a clear-cut deviation from normal standards of care or any negligence involved, yes.

Q. What is the Barbara Jean White case all about or what was it all about?

MR. GOLDWASSER: Now wait a minute. And I appreciate you alerting me to what you are going to do at trial. That really strategically is to my advantage. But in all deference this is a 26 (B) (4) deposition. You are not here to

cross-examine this doctor based upon his prior testimony. Save that for trial.

MR. ZUCKER: I have to find out the cases before I can do that in trial. I want to know --

MR. GOLDWASSER: What does the Barbara Jean White case have to do with this case?

MR. ZUCKER: I want to know about cases that the doctor has testified in that are --

MR. GOLDWASSER: You just talked about one. You said the Barbara White case, you know about that case.

MR. ZUCKER: All I know is the name of the case.

Q. Was it a PE case?

A. I don't even recall to be honest with you.

Q. You don't remember that. Okay.

A. I remember the name but I just can't remember any of the details of the case,

Q. You remember the lawyer who you testified for?

A. No.

Q. Okay. Do you recall ever testifying in a pulmonary embolism case?

A. Yes.
Q. Okay. For what lawyer?
A. I don't recall.
Q. Do you know the names of the parties involved?
A. The law firms that I have done work for besides Reminger & Reminger include Jacobson Maynard, Arter & Hadden, Kitchen, Messner & Deery.
Q. Steve Albert?
A. Yes.
Q. Did you do a PE case for him?
A. Could have. I don't recall.
Q. Did you do a PE case for Craig Marvinney?
A. Could have.
Q. Do a lot of PE cases?
A. I don't go out and advertise for any cases. I get called and asked, am asked to review a record to see if there is any basis in, for malpractice or not.
Q. How many times a year do you review records, irrespective of whether you ever get involved and testify, **how** many times a year do you review records for lawyers, plaintiff or defendant?
A. It seems to run hot and cold. It could be as few as one or two a year, it could be as many as five or six a year, or seven a year. I'd say on

the average probably three to five cases a year.
Q. That you would review in total?
A. Yes.
Q. So then suffice it to say, you wouldn't testify either in deposition or in open court more than three to five times a year, correct?
A. I haven't testified in open court more than three times that I can recall in what, the 14 years I have been doing this.
Q. Okay. You read Dr. Anouchi's deposition, is that correct?
A. Yes, I did.
Q. Do you recall in reading that deposition where Dr. Anouchi states the reason he did the tests that he did was because he felt as though she was having a pulmonary embolus?

MR. GOLDWASSER: He didn't say he felt -- he felt that it was a differential diagnosis that he had to consider.

MR. ZUCKER: What he said was that he gave her oxygen in the first place because of the possibility that she might be having a pulmonary embolism.

MR. GOLDWASSER: That's all right. Possibly.

A. I think that's why he did the VQ scan, too.
Q. You recall that testimony from reading his deposition?
A. Yes. Vaguely. Yes.
Q. So he felt as though there was a possibility that she was having a pulmonary embolism, is that correct?
A. That's correct.
Q. If he felt as though she was having a pulmonary embolism --

MR. GOLDWASSER: Wait a minute.

Q. Possibly having a pulmonary embolism in your opinion, if this doctor felt as though she was possibly having a pulmonary embolism, do you think he did the proper tests?
A. Yes.
Q. Okay. Are you called in frequently, doctor, by orthopedic surgeons who are trying to determine if lower extremity surgical patients are having DVT or pulmonary embolism?
A. What do you mean by frequently?
Q. Good question. How often are you called in by orthopedic specialists in that situation, doctor?
A. Maybe a couple times a year.

Q. A couple times a year?
A. Yes.
Q. That's all?
A. That's all.
Q. Where do you practice, where is your primary hospital?
A. My primary hospital is Deaconess. I also have a secondary responsibility for Parma and share responsibility with Marymount among my other two partners.
Q. They do orthopedic surgery at Deaconess, don't they?
A. Sure do.
Q. Lower extremity surgery?
A. Sure do.
Q. They have an awful low incidence of DVT, pulmonary embolism, don't they?
A. No, not necessarily. Just that they don't necessarily use pulmonary consultation to diagnose or to treat. And there are other pulmonary specialists here, too.
Q. Doctor, you talked about the index of suspicion and we know from the literature and what we have learned from the experts that you have to have some level of suspicion in order to follow the

algorithm to get involved in these tests to determine the existence of DVT and PE, correct?

A. Correct.

Q. In each one of these situations, don't you also have to do a risk benefit analysis, taking into consideration the laboratory findings, the clinical picture, and all of your education, training, skill and experience, don't you have to do a risk benefit analysis on behalf of your patient?

A. Sure. You always do.

Q. You agree with that?

A. That's correct.

Q. In Lillie Mae Williams case, being in the high risk setting for DVT, consequently PE, having the P02 level of 57, having chest pains albeit possibly from another source, but albeit possibly from the PE, and having the chest x-ray changes, having the EKG changes, showing tachycardia increased, although you say slight in pulse rate, temperature, taking all those things into consideration, you still feel as though it was within the acceptable standards of medical care not to have done any testing for DVT or PE?

A. They did do testing for PE, they did do ventilation perfusion.
Q. Beyond what they did?
A. Yes, I do.
Q. Okay. And what would the risk have been to do any of those tests to Lillie Mae Williams?
MR. GOLDWASSER: You're talking about -- excuse me.
A. You're talking about the three tests we just discussed.
Q. Beyond the battery of tests that we discussed, what would the risk have been to Lillie Mae Williams to do any testing to determine the existence of DVT or PE?
MR. GOLDWASSER: Wait a minute. They're two separate entities. We have talked about DVT. Didn't we go through those tests?
Q. Okay. What would the risk have been to do any test to determine the existence of DVT or PE in Lillie Mae Williams case?
A. It depends on the test.
Q. Okay. And you say that there are two non-invasive tests to determine DVT, correct?
A. Correct.

Q. Non-invasive tests to determine the existence of pulmonary embolism?
A. Not truly non-invasive. The ventilation perfusion is kind of borderline because you do have to inject dye, but that's generally considered a pretty innocuous test. No, beyond that you have to go to pulmonary arteriograms which is quite invasive and carries a substantial risk of complication.
Q. What would the benefit have been to Lillie Mae Williams had you employed any one of the three tests to determine DVT or if necessary, pulmonary arteriogram to determine the existence of PE? What would the benefit have been?
A, Benefit in evaluation of the lower extremities for DVT would likely have been the discovery of deep vein thrombophlebitis which would have prompted therapy, acute, and full heparinization for DVT, treatment for DVT, which by the way is the same as the treatment for acute PE.
Q. Right.
A. The benefit of doing a pulmonary arteriogram at this point, on the 19th.
Q. I didn't state that but go ahead.
A. Well, on the 19th. Let's, I mean that's where

the issue is, seems to boil down to. May or may not of given you an answer, quite honestly, because at that time I think the emboli, if they were indeed there, were peripheral,' and it may have been difficult without selective arteriograms to pick up the small peripheral emboli.

Q. But you stated more than likely the DVT would have been disclosed, correct?

A. I think that's probably true.

Q. And therefore the same treatment used to treat PE would have been used, that they would have used to treat the DVT. So the benefits to her would have been the saving of her life more likely than not, correct?

A. Heparin therapy is not 100 percent --

Q. No. No.

A. Cure.

Q. The benefits if you would have done one of those tests?

MR. GOLDWASSER: Will you let him answer? Wait a minute, Dale.

Q. We're talking the benefit to Mrs. Williams?

MR. GOLDWASSER: Stop. Read the last question back. The doctor is going to

have an opportunity to answer whether Mr. Zucker likes it or not.

- - - -

(Thereupon, the requested portion of the record was read by the Notary.)

- - - -

Q. Do you want to finish?
A. Is not 100 percent effective in treating, preventing further pulmonary emboli in a case of DVT.
Q. In fact, doctor, had they -- are you finished?
A. Yes.
Q. In fact, had they uncovered the DVT, and they would have treated the PE, they could have treated it with the Greenfield filter, right, inserted into the vena cava?
A. That's one option.
Q. I mean if you're not certain that the heparin is going to work you put in a filter, correct?
A. No. You treat with heparin first.
Q. Okay. What is the likelihood that the heparin would not of benefited Mrs. Williams if she was throwing emboli?
A. Difficult to say, but these were obviously very large clots and the effect of the heparin, the

purpose of the heparin, in this situation is not to treat pulmonary emboli, it's to stabilize and decrease the risk of thromboses in the leg veins from breaking free and causing a pulmonary embolus.

Q. So if you see it, if you see the DVT, you are going to use a filter in the vena cava, right, if you're sure she's got it you are going to use the filter, correct?

A. No. You would still treat with heparin first.

Q. Now doctor, I will ask the question.

That is, the benefit to Mrs. Williams having one of those three tests to determine the existence of DVT would have been the saving of her life, correct?

A. In all probability, yes.

Q. And the risk would have been what again?

A. The risk to her?

Q. For the study itself? What you stated about the non-invasive and the invasive, right, only those risks?

A. The non-invasive would have been minimal risk, the invasive studies carry a small but finite risk of complications.

Q. And in your opinion, doctor, there was not

enough index of suspicion to do any of those tests to determine the existence of DVT?

A That's correct.

Q Okay. Doctor, when I asked you before if you published, you indicated you didn't. And I just want to make sure you understand, that means have you ever published in your capacity as an instructor either at Case Western Reserve or at the Clinic?

A No.

Q Okay. Have you read Dr. Chester's report, correct, but not his deposition?

A That's correct.

Q Is that right? You disagree with, you disagree with what the doctor states in his report?

MR. GOLDWASSER: Well, obviously he does. That's why he is here.

a Relative to the failure to do testing for DVT, correct?

A Yes.

Q You agree with the doctor that she was at high risk of post-operative DVT for the reasons that he states. I know that before you testified that she was at high risk?

A Yes.

Q. You agree for the same reasons that he states she was at high risk?
A. (Indicating.)
Q. Okay. Dr. Chester indicates, "Unfortunately, no further evaluation of arterial blood glasses were obtained with the patient on oxygen."
You disagree that an ABG should of been done while she was still on oxygen?
A. I think if you want to check -- the reason for repeating the study would have been to assure one's self that the oxygen level now was up to a normal range. That could have been done with an oximeter. I don't think a blood gas needed to be done.
Q. That could have been done with an oximeter?
A. Sure.
Q. It's non-invasive, however, it's not as accurate as the pulse oximeter, correct?
A. If you get a pulse oximetry reading that is --
Q. Continuously?
A. The same and without much change and there's no problem with peripheral circulation, it should be fairly accurate.
Q. So you would have been happy with pulse oximetry in this case, is that what you're saying?

A. Yes.
Q. Okay. You would have liked to have seen that be done, correct?
A. It's my habit and my routine whenever I change a patient's oxygen, whether it's putting them on oxygen or taking them off oxygen, to repeat at least oximetry, to document the level they're at when those changes are made.
Q. Doctor, you are also Board-certified in internal medicine, isn't that correct?
A. All subspecialists in medicine have to be certified in internal medicine.
Q. You have to be?
A. First.
Q. You have to be Board-certified in internal medicine before you can be Board-certified in pulmonary medicine?
A. Correct.
Q. I asked the question improperly.

Do you practice in the pulmonary aspect of medicine the majority of your time?
A. Far majority.
Q. Okay. Outside of the rotation that you had as an intern and in your medical school education, have you had any training as an orthopedic

surgeon?
A. None.
Q. Vascular specialist?
A. None.
Q. What medical literature do you subscribe to in the area of pulmonary medicine?
A. The major ones are the Journal of the American College of Chest Physicians which is called Chest. The American Review of Respiratory Diseases, which is the publication of the American Thoracic Society, also receive the New England Journal of Medicine, the Annals of Internal Medicine. Those are the main, I suppose the main journals that I subscribe to.
Q. Any others that you read regularly that you don't subscribe to?
A. No. I can't say.
Q. Doctor, this Special Reports from Chest, is this something that you relied on in forming the opinions that you stated in your letter to Mr. Moscarino?
A. No. My opinions were based on experience, and I recalled that article from Chest to simply substantiate them.
Q. You say that your opinions in this case are

based on your experience in the area --
A. Well, experience of previous readings. Obviously I don't have a large enough study to draw my own conclusions on treatment.
Q. Right.
A. And this is an area that is still in flux as far as what is the best approach. And there are differences of opinion, This article is helpful in that it tends to set up a rational approach to this somewhat difficult problem, diagnosis of PE. But similar ideas that are, as to those that are listed here, can be found in other articles, in various journals, summary articles, even throw-away journals. It's not isolated opinion.
Q. Doctor, in the discharge summary, Dr. Anouchi makes the statement that she progressed well in physical therapy. 1 will read it verbatim.

"She was begun on physical therapy with weight-bearing as tolerated immediately and progressed well in therapy."

Do you agree with that, after your reviewing the chart?
A. I can't say that I reviewed the physical therapy notes in detail to state one way or the other.

Q. Mobility and physical therapy would be an important aspect in preventing the formation of DVT in a patient such as Lillie Mae. Is that correct?
A. Mobility you said?
Q. Mobility?
A. Yes.
Q. And physical therapy which is where they get the mobility, correct, for the most part?
A. Well, yes and no. You want to get a patient up and moving around, the patient can be mobile in the room and have the same beneficial effects in preventing DVT --
Q. You have no recollection as to whether or not she was mobilized immediately or to what extent she was mobilized?
A. I think the only comment that I recall is the one we refer to where you point out that there was slow progress on the physical therapy notes.
Q. Now, when you were initially brought into this case, you were brought in by Mr. Moscarino to defend the hospital and the residents in this case, is that correct?
A. Correct.
Q. And then as you know, those people have been

dismissed from this lawsuit?
A. Yes.
Q. You were contacted by Mr. Goldwasser and asked to help Dr. Anouchi, is that correct?
A. Correct.
Q. Does this report indicate all of the opinions that you have in this case up to the present point in time?

MR. GOLDWASSER: You're going to disregard this two and a half hours of deposition?

MR. ZUCKER: I just said this present point in time. That would include the last two and a half hours of the deposition,

Q. Correct, doctor?
A. Everything that's stated in the letter and what I've testified to, the last two and a half hours represents --
Q. All of the opinions that you have in this case?
A. Correct.
Q. And if your opinion should change you will be sure to let Mr. Goldwasser know and I will ask him to supplement that in writing to me?
A. That would be fine.

Q. Doctor, if you do any further review, do any further medical research in this case and you formulate or base any opinions on that research you'll let Mr. Goldwasser know what medical literature you use to formulate those opinions so that I can --

A. I will do that.

Q. Take a look. Doctor, in the nurses' notes, 19 or 20 --

MR. GOLDWASSER: You've got a high energy level, Dale.

Q. The nurse indicates that Mrs. Williams felt like she had a lump in her lung. Do you recall that?

MR. GOLDWASSER: What's the time for that? 2:00, 3-19.

MR. ZUCKER: Thanks.

MR. GOLDWASSER: "Pain increased with movement and inspiration and swallowing. Feels lump in lung." Here, doctor.

A. Yes.

Q. That was on 3-19?

A. 3-19.

Q. Doctor, what conclusions if any do you draw from that complaint given by the patient, in the

context of everything else that's going on in this case?

A. It's difficult to draw any definite conclusions based on a nurses' note, to begin with. This could represent costochondritis, it could represent pain from her hiatal hernia which is what you feel, it feels like a lump in your chest.

Q. Five minutes. Five minute warning.

Doctor, any of the, any textbooks that you consider to be authoritative in the field of pulmonary medicine and specifically pulmonary embolism?

A. No. I don't use the term authoritative, I tell you the references that I like to use that are nationally known. Murray & Nadel publishes a textbook of medicine which I think is probably the best general text on pulmonary medicine available and there's a recent edition out. I rely on that probably as my major source of textbook knowledge concerning pulmonary medicine in topics like this where the consensus of treatment and diagnoses and value of various studies can change over a short period of time, the medical literature is probably a little more

likely to keep you up-to-date, and the journals that I have already listed are probably the most beneficial in doing so.

Q Doctor, did you render any further opinions to Mr. Goldwasser that I did not ask you about today and that are not contained in this report to Mr. Moscarino?

A, Any opinions concerning --

Q. Any other opinions concerning this case?

MR. GOLDWASSER: That's an open-ended question.

A. I don't think I have.

MR. GOLDWASSER: But I vouch to you that I can't think of any as I sit here that he hasn't discussed that which will be the subject of his direct examination at trial.

Q. Doctor, can you define for me what you believe the meaning of standard of care is?

MR. GOLDWASSER: Objection. Wait a minute. What do you mean he's going to define this. The court's going to define it.

Q. Tell me what you believe standard of care means,

if you will.

MR. GOLDWASSER: Objection. You may answer.

A. I think standard of care means what the majority of physicians would do in a given situation in your locale or territory. Now, I think that the world has become smaller and smaller with the availability of information from not only around the country but from around the world so in general it's not just the Cleveland area for the most part but it's what is being done nationwide. It's what most physicians would likely do, given the same set of circumstances and in that given case.

Q. Likewise, doctor, we lawyers refer to the term probability. What is your understanding of how we use that term in medical malpractice cases?

A. 51 percent or greater.

Q. Doctor, how much are you charging an hour for your time here today?

A. $200 an hour,

Q. And if asked to appear in court will you appear personally or --

A. Most likely, yes.

Q. And will you charge the same amount?

A. $250.

MR. ZUCKER: I thank you for your time.

THE WITNESS: Yes.

MR. GOLDWASSER: We're done.

_____
RONALD BACIK, M.D.

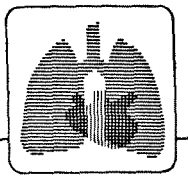
C E R T I F I C A T E

The State of Ohio,) SS:
County of Cuyahoga.)

I, Aneta I, Fine, a Notary Public within and for the State of Ohio, authorized to administer oaths and to take and certify depositions, do hereby certify that the above-named RONALD BACIK, M.D., was by me, before the giving of his deposition, first duly sworn to testify the truth, the whole truth, and nothing but the truth; that the deposition as above-set forth was reduced to writing by me by means of stenotypy, and was later transcribed into typewriting under my direction; that this is a true record of the testimony given by the witness, and was subscribed by said witness in my presence; that said deposition was taken at the aforementioned time, date and place, pursuant to notice or stipulations of counsel; that I am not a relative or employee or attorney of any of the parties, or a relative or employee of such attorney or financially interested in this action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of office, at Cleveland, Ohio, this ____ day of _____, A.D. 19 __.

_____
Aneta I. Fine, Notary Public, State of Ohio
1750 Midland Building, Cleveland, Ohio 44115
My commission expires February 27, 1996



special reports

Strategy for Diagnosis of Patients With Suspected Acute Pulmonary Embolism*

Paul D. Stein, M.D., F.C.C.P.; Russell D. Hull, M.D., F.C.C.P.; Herbert A. Saltzman, M.D.; and Graham Pineo, M.D., F.C.C.P.

Study protocol: Two separate groups of clinical investigators have provided new information and divergent approaches to the management of acute pulmonary embolism (PE). In this position paper, investigators from both groups (Prospective Investigation of Pulmonary Embolism Diagnosis [PIOPED] and Canadian study groups) have utilized the combined scientific database in order to rationalize seemingly polarized diagnostic recommendations into a single practical algorithm.

Methods: An in-depth review established the relative risks of deep venous thrombosis (DVT) and the related accuracy of diagnostic tests. In PIOPED, 640 of 887 patients at risk for PE had either an intermediate probability ventilation/perfusion (V/Q) scan or a V/Q scan probability that was discordant with the prior estimate of probability by clinical assessment. The risk of PE in these patients was 16 to 88 percent (average, 34 percent). In this group, we calculated the probability of PE assuming that tests for DVT had been performed and that 50 percent of patients with PE have detectable proximal DVT. By calculation, 108 in 640 patients of whom the diagnosis of PE was uncertain, would have shown proximal DVT. In 239 of these 640 patients, tests for DVT would have been negative and the risks of PE in these patients is calculated to be less than 10 percent.

Results: Therefore, we calculate that in 347 of 640 patients, confident recommendations for treatment or no treatment could have been given without pulmonary angiography. Accordingly, in the PIOPED study group of 887 patients, the need for pulmonary angiography would have been reduced from 640 (72 percent) to 293 patients (33 percent).

Conclusion: In conclusion, a diagnostic strategy that includes the clinical evaluation, V/Q scan, and evaluation for DVT would decrease the number of patients who require pulmonary angiography from 72 to 33 percent.

(Chest 1993; 103:1553-59)

DVT = deep venous thrombosis; PE = pulmonary embolism; PIOPED = Prospective Investigation of Pulmonary Embolism Diagnosis; V/Q = ventilatiodperfusion

Pulmonary embolism (PE) traditionally has been considered a discrete syndrome that requires its own specific methods of diagnosis, all of which have focused on the chest. The national collaborative study of the Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED)' and secondary studies based upon these data[2-11] have contributed new insight into the diagnostic validity of clinical evaluation and noninvasive and invasive diagnostic tests for PE.

Assumptions in Treatment of Deep Venous Thrombosis as an Alternative to Proving Pulmonary Embolism

It has been known for many years that 80 percent or more of patients with PE have thrombi that originate in the lower extremities.[12-15] In recent years, because of the diagnostic inaccuracy of noninvasive tests for the diagnosis of PE, Hull and associates[16-19] introduced the concept that it may be sufficient to diagnose and treat deep venous thrombosis (DVT) as an alternative to proving the presence of PE among patients in whom this diagnosis of PE is suspected. This concept is based on the observation that noninvasive diagnostic tests for DVT are accurate[18,20,21] and cost-effective.[22] The combined strategy of diagnosis and treatment of PE and/or underlying DVT assumes that DVT is present in patients with PE. The strategy further assumes that the treatment of DVT is the same as the treatment of PE. There has been considerable optimism that the combined strategy is useful.[23-25]

Finding an Optimal Approach to the Diagnosis and Treatment of Acute Pulmonary Embolism

In a number of studies, Hull and associates[16-19] focused on the diagnosis of both venous thrombosis and PE in patients with suspected PE and evaluated diagnostic strategies directed toward venous thromboembolism. The purpose of our present article is to respond to the challenge of combining the findings of investigations of the diagnosis of PE and investigations of combined diagnostic strategies (DVT and/or PE) into an optimal diagnostic approach. The seemingly polarized approaches to the diagnosis of PE may be

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drawn together to provide an improved practical diagnostic algorithm which considerably enhances noninvasive diagnostic methods and decreases the need for pulmonary angiography in patients with clinically suspected PE.

Diagnosis of Acute Pulmonary Embolism by Clinical Criteria and Simple Diagnostic Tests

The noninvasive diagnosis of acute PE is not as elusive as Robin[26] suggested, although his article called attention to the diagnostic difficulties associated with lung scanning and stimulated much needed prospective clinical evaluation of the role of V/Q lung scanning and pulmonary angiography for the diagnosis of PE. The diagnosis of PE usually is suspected on clinical grounds.[27] With respect to the clinical manifestations of PE, it is useful to think of the presenting syndromes of acute PE in terms of (1) shock or loss of consciousness, (2) pulmonary hemorrhage or infarction, and (3) unexplained dyspnea unaccompanied by pulmonary hemorrhage, infarction, or circulatory collapse.[28] These broad categories are particularly helpful in focusing on the differential diagnosis.

Investigations of patients with no prior cardiopulmonary disease showed that the most frequent clinical manifestations in patients with PE are dyspnea, tachypnea (≥20 breaths per minute), pleuritic pain, one or more of which occur in 97 percent of patients with PE.[2] Nonspecific abnormalities of the S-T segment or T wave are the most common electrocardiographic abnormalities, one or both of which occur in more than 40 percent of such patients.[2,29] The most frequent radiographic abnormalities are atelectasis or a pulmonary parenchymal abnormality, one or both of which occur in 68 percent of patients with PE in the absence of prior cardiac or pulmonary disease.[2] An elevated hemidiaphragm or a small pleural effusion also are common.[2,30] These clinical manifestations, electrocardiographic, and chest radiographic abnormalities occur with similar frequencies in patients with PE who have prior cardiopulmonary disease.3

A normal chest radiograph in a dyspneic patient is thought to be suggestive of PE,[31] but this is not specific for the diagnosis.[6] A normal PaO_2 does not exclude PE. Values of PaO_2 of 80 mm Hg or greater were present in 26 percent of patients with PE and no prior cardiopulmonary disease.*

Pulmonary embolism in the elderly has been thought to be particularly difficult to diagnose because common symptoms, such as dyspnea and hemoptysis, may be absent or because elderly patients tend to ignore new symptoms.[32-34] Recently, it has been observed, however, that the usual manifestations of PE are present in elderly patients (70 years of age or older) as well as younger patients.' Occasionally, however, among elderly patients the diagnosis is based on unexpected radiographic abnormalities.4 In this regard, PE may masquerade as atypical pneumonia.[16]

Lung Scan Results and Probability of Pulmonary Embolism

All patients referred for V/Q lung scans in the PIOPED study had some clinical manifestations suggestive of PE which triggered their referral. This also was the case for the studies reported by Hull and associates.[16-19] Patients who did not have manifestations of PE were not referred for study Subclinical (silent) PE, if it occurred, would have been missed.

Among patients referred because the first-echelon physicians suspected PE, physicians with a special interest in PE found that it was easier to exclude PE than it was to confirm the diagnosis on the basis of bedside examination, blood gas levels, chest radiograph, and an ECG.[1] When physicians were confident that PE was absent on the basis of their clinical judgment (prior .probability matching), among 228 patients they were correct in 91 percent of patients.' When the physicians were confident that PE was present, they were correct in 68 to 78 percent of patients.[1,16] This modest ability to diagnose PE on a clinical basis alone may assist the clinician in identifying patients in whom further diagnostic studies may or may not be necessary. Unfortunately, there was a large group in whom physicians were uncertain of the diagnosis. Among these patients, PE was present in 30 to 58 percent.[1,16] It is evident from these findings that additional diagnostic testing is required in patients with clinically suspected PE.

Ventilation/perfusion lung scans are the most useful noninvasive diagnostic procedure for pulmonary embolism, but V/Q scans are by no means fully diagnostic.' Among the general population of patients suspected of PE, irrespective of prior cardiac or pulmonary disease, a high probability V/Q scan using PIOPED criteria (≥2 large segmental mismatches, ≥2 large segmental matches > ventilation defect, 1 large and ≥2 moderate mismatches, or ≥4 moderate mismatches) was indicative of pulmonary embolism in 87 percent. Using other criteria (≥1 segmental mismatch) the V/Q lung scan was indicative of PE in 86 percent.[17] Among patients in whom the V/Q probability was intermediate or indeterminate interpretation, PE was present in 21 to 30 percent, causing the intermediate or indeterminate interpretation to be uninformative.[1,17]

A low-probability V/Q scan correctly excluded the diagnosis of PE in 86 percent using PIOPED criteria (nonsegmental defects, 1 moderate mismatch with normal chest roentgenogram, any perfusion defect < chest roentgenogram defect, ≤4 large or moderate matching defects (and ≤3 segments in 1 lung region ≤ventilation defect and > roentgenographic defect

or >3 small segmental defects with normal chest roentgenogram)' and in 60 to 75 percent using other criteria (≥1 subsegmental matched or mismatched lesions).[17] The group that included nearly normal and normal V/Q scan determined by PIOPED criteria excluded the diagnosis in 96 percent.' A normal V/Q lung scan entirely excluded PE.[1,35,36]

A perfusion lung scan alone, if high, low, or nearly normal probability, has the same diagnostic significance, using the PIOPED criteria as a combination V/Q lung scan.[8] More patients with perfusion scans alone, however, tended to have intermediate probability interpretations than patients who had both ventilation and perfusion lung scans.*

Categories of patients in whom the V/Q lung scan is likely to be uninformative (intermediate probability) have been identified. Intermediate probability V/Q scans occurred in 60 percent of patients with COPD,[7] 43 percent of patients with any prior cardiac or pulmonary disease,[5] 33 percent of patients with no prior cardiac or pulmonary disease? and 13 percent of patients with a normal chest radiograph.[6] Among each of these categories of patients, the diagnostic accuracy of high, low, and nearly normal V/Q scans was similar.[5-7]

CLINICAL ASSESSMENT IN COMBINATION WITH LUNG SCANS

Independent clinical assessment added to the subsequent findings of V/Q lung scans strengthened the diagnostic acumen of the clinician.' More technically speaking, Bayesian analysis combined with the V/Q scan findings, where the clinical probabilities of PE were determined by the clinician prior to viewing the lung scan, improved the ability to diagnose or exclude PE. If both the independent clinical assessment and findings by V/Q lung scans were high probability for PE, this diagnosis was correct in 96 percent of patients.[1,17] Conversely, if both the independent clinical assessment and findings by V/Q lung scanning were low probability, the diagnosis was excluded in over 90 percent of patients.[1,17] Unfortunately, these concordant diagnostic combinations were uncommon, occurring in only 28 percent of patients with clinically suspected PE.[1] Either clinical uncertainty or uncertainty regarding the V/Q lung scan findings (*ie*, intermediate V/Q scan pattern) was present in 72 percent of patients.'

PULMONARY ANGIOGRAPHY: VALIDITY AND COMPLICATIONS

Pulmonary angiography is regarded as the most definitive diagnostic test for PE. When read by a panel of experts, and subjected to reevaluation in cases of disagreement, pulmonary angiograms were falsely negative in 1 to 2 percent of patients.[9,16] It was not possible to determine if false-positive diagnoses were made because few autopsies were done.

There was insufficient visualization in 3 percent of 1,099 completed angiograms.[9] In a smaller series, 12 percent of 58 completed angiograms gave inadequate visualization.[16] Magnification oblique views in suspected areas may enhance the diagnostic value of the pulmonary angiogram.' Other techniques that might increase the diagnostic validity of angiograms in patients in whom PE is not apparent by standard techniques include digital subtraction angiography,[37,38] cineangiography,[39] balloon-occlusion cineangiography,[38,40,41] and segmental arteriography,* including wedge arteriography.[43]

Complications of pulmonary angiography among 1,111 patients suspected of PE were death in 0.5 percent, major nonfatal complications in 1 percent, and less significant or minor complications in 5 percent.[9] The risks of pulmonary angiography were greatest among the most severely ill patients, particularly those with compromised cardiopulmonary function receiving ventilatory support.[9] Pulmonary artery pressure, volume of contrast material, and presence of PE did not significantly affect the frequency of complications. Renal dysfunction, either major (requiring dialysis) or less severe, occurred in 1 percent. Patients who developed renal dysfunction following angiography were older than patients who did not (74 ± 13 vs 57 ± 17 years).[9]

DEEP VENOUS THROMBOSIS IN ACUTE PULMONARY EMBOLISM: PREVALENCE AND NONINVASIVE DIAGNOSTIC TESTS

Deep venous thrombosis in patients with PE has been documented by dissection in 80 percent or more of patients who had PE at autopsy.[12-15] Prospective studies of the diagnostic validity of noninvasive diagnostic tests for DVT suggest that the sensitivity and specificity of impedance plethysmography[16,44] and B-mode imaging[45,46] are sufficient in patients with suspected PE to be of clinical value. Impedance plethysmography in combination with leg scanning correlated well with venography.''

Impedance plethysmography was indicative of DVT in 94 percent (15 of 16) of the legs that showed positive venograms of both the proximal and distal leg veins.@ Impedance plethysmography, however, was positive in only 25 percent (7 of 28) of the legs in which venography showed DVT only in the distal leg veins.[48] Similar observations were made by Hull and associates.[16] If the venogram showed proximal or distal DVT, impedance plethysmography was positive in 75 percent (30 of 40). Among those with DVT in the proximal veins shown by venography, 86 percent (30 of 35) had a positive impedance plethysmogram. Impedance plethysmography, therefore, is more sensitive (86 to

94 percent) in the detection of proximal (thigh vein) thrombosis than distal (calf vein) thrombosis. Regarding false-positive impedance plethysmography, 3 percent (1 of 31) were not confirmed by venography[16]

Although impedance plethysmography detects DVT of the thigh in 86 to 94 percent of patients shown to have DVT by venography, noninvasive testing for DVT in patients with documented PE is positive in only 43 to 57 percent of the patients.[16,17] This may reflect the following possibilities: (1) The residual DVT may be nonobstructive or confined to the calf and remain undetected. (2) The deep venous thrombi causing the pulmonary emboli may embolize entirely from the deep veins of the thighs leaving no residual thrombosis to detect. (3) The source of the pulmonary emboli may be from sources other than the lower extremities (for example, deep pelvic veins, renal veins, subclavian veins).

The exact site of DVT is difficult to determine from most reports of autopsy studies.[13-15] Sevitt and Gallagher,[12] in an autopsy study, suggested that only 15 percent (11 of 74) of pulmonary emboli were from veins of the calves. The presence of residual thrombi in the veins of the calf in patients with PE, however, does not necessarily indicate the actual site from which the thrombi broke away Moser and LeMoine[48] showed that thrombi in the veins of the thigh are much more likely to cause symptomatic PE than thrombi in the veins of the calf. Among 21 patients with thrombosis limited to the veins of the calf, none had symptoms or lung scans indicative of PE. However, among 15 patients who had thrombosis involving thigh veins as well as calf veins, 8 (53 percent) had lung scan evidence of PE.

The incidence of DVT in unselected patients at autopsy is 27 to 60 percent.[49-57] A high percentage of hospitalized patients, particularly those who are quite ill, therefore, would be expected to have subclinical DVT. Impedance plethysmograms normalize in 95 percent of patients within 1 year of identification of DVT and treatment with anticoagulants.[58] It is unlikely, therefore, that an abnormal impedance plethysmogram would represent residual DVT in patients who in the past had an acute episode.

Serial impedance plethysmography may increase the ability to detect DVT associated with PE. Huisman and associates,[11] among patients with suspected DVT, showed an abnormal impedance plethysmogram in 85 percent (117 of 137) on the first day An additional 15 percent (20 of 137) were detected by subsequent impedance plethysmograms over 10 days.

RISKS OF PULMONARY EMBOLISM IN RELATION TO DEEP VENOUS THROMBOSIS

The risk of PE is low if the impedance plethysmogram is normal. Among patients with negative serial impedance plethysmograms who received no anticoagulants, only 0.3 percent (1 of 289) developed PE in 6 months.[11]

The assessment of risk of untreated DVT and the risk of untreated PE now become important if an algorithm is to be developed which may allow some diseased patients to be untreated. In an era before sensitive diagnostic tests for DVT, 34 to 53 percent of patients with PE had clinically identifiable DVT.[15,59] In those days of overt DVT, the risk of death of untreated, clinically apparent DVT was 37 percent.[60] The risk of fatal recurrent PE among untreated patients was between 26 and 36 percent.[61,62]

Present-day sensitive diagnostic tests have reduced the incidence of overt DVT among patients with PE. In PIOPED, only 15 percent of patients with PE had signs of DVT (F. D. Stein, unpublished data). Based on pooled data, the risk of symptomatic PE among untreated patients with deep venous thrombosis identified by radioactive fibrinogen leg scans (calf vein thrombosis ± thigh veins) is 13 percent.[63] The risk of fatal PE among untreated patients with DVT diagnosed by radioactive fibrinogen is approximately 5 percent.[63] This is comparable to the risk of death from recurrent PE among patients with untreated PE in the present era of early diagnosis by sensitive methods. The risk of fatal recurrent PE within 1 month among untreated patients with PE in PIOPED was 4 percent (1 of 24).[11] Although details are not known about these patients, presumably they had V/Q scans that were less than strongly positive, and presumably they did not have major clinical evidence of DVT.

A STRATEGY OF DIAGNOSIS BASED ON CLINICAL EVALUATION, LUNG SCANS, AND NONINVASIVE TESTS FOR DEEP VENOUS THROMBOSIS

The combined use of clinical evaluation, V/Q scans, and noninvasive studies of DVT, can be merged into the following strategy for the diagnosis of stable patients with suspected acute PE. This strategy is applicable to patients who would receive anticoagulants if PE were diagnosed. Based on the experience that approximately 50 percent of patients with PE showed DVT by noninvasive leg vein studies,[16,17] a detection rate of 50 percent for DVT in PE was assumed in all calculations.

In regard to unstable patients, who may require thrombolytic agents, this approach may not be appropriate. If the patient has compromised lung function, pulmonary angiography might be used more aggressively than in the following recommendations because the mortality associated with a recurrent PE would be greater.

NORMAL VENTILATION/PERFUSION LUNG SCAN

If the V/Q scan is normal, treatment is not indicated.

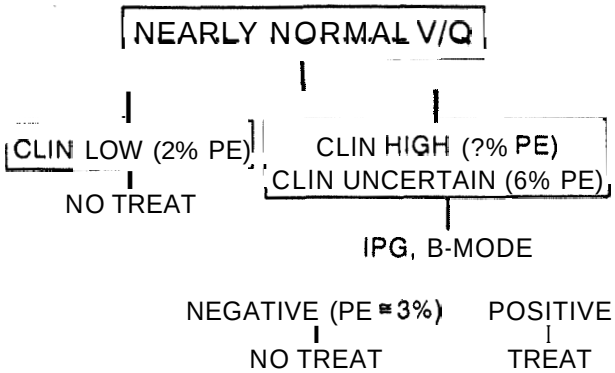

FIGURE 1. Strategy for diagnosis of patients with a nearly normal V/Q scan. Clin = clinical; IPC = impedance plethysmography; treat = treatment; B-mode = B-mode ultrasound.

Pulmonary embolism in a patient with a normal lung scan has not been documented.

NEARLY NORMAL VENTILATION/PERFUSION SCAN

If the V/Q lung scan is nearly normal and the probability of acute PE based on the clinical impression (clinical probability) is low, the chance of acute PE is only 2 percent[1] (Fig 1). No treatment is indicated. If the physician is uncertain based on his clinical assessment (clinically uncertain), 6 percent of patients with a nearly normal V/Q scan have PE. We have not encountered any patients with a nearly normal V/Q scan in whom the physician thought that there was a high clinical probability of PE. The likelihood of PE in such patients, therefore, has not been assessed. If the clinical impression is high or uncertain, impedance plethysmography or B-mode ultrasound is recommended. Approximately 50 percent of patients with PE will be detected by noninvasive leg vein studies.[16,17] If the results are negative, no treatment is indicated, the estimated risk of PE being 3 percent. If the results are positive, treatment is recommended.

LOW PROBABILITY VENTILATION/PERFUSION SCAN

If clinical assessment indicates a low probability of PE in a patient with a tow probability V/Q scan, the likelihood of PE is 4 percent' (Fig 2). We suggest that

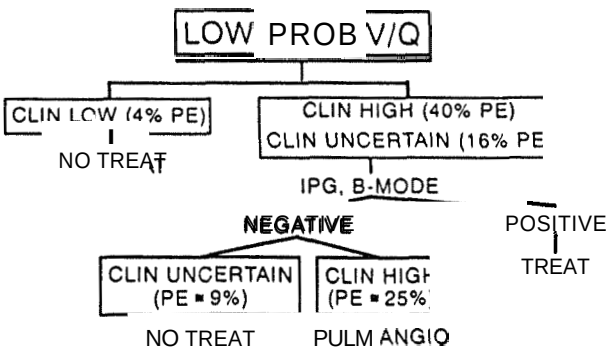

FIGURE 2. Strategy for diagnosis of patients with a low probability (prob) V/Q scan. Pulm Angio = pulmonary angiogram; Clin = clinical; IPG = impedance plethysmography; treat = treatment; B-mode = B-mode ultrasound.

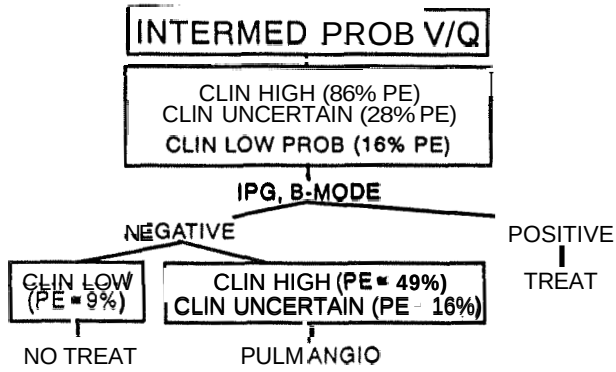

FIGURE 3. Strategy for diagnosis of patients with an intermediate probability (Intermed Prob) V/Q scan. Clin = clinical; IPG = impedance plethysmography; treat = treatment; B-mode = B-mode ultrasound; pulm angio = pulmonary angiogram.

the patient should not be treated. If the clinical probability is uncertain or high probability, evaluation of the leg veins by impedance plethysmography or B-mode ultrasound is recommended because the likelihood of PE is 16 to 40 percent. If noninvasive studies of the' leg veins are abnormal, we recommend treatment. If the results of leg vein assessment are negative, and the clinical probability was uncertain, the likelihood of PE is approximately 9 percent, and we recommend that the patient not be treated. If the results of leg vein assessment are negative, and the clinical assessment was high probability, the likelihood of PE is 25 percent. We recommend further assessment by pulmonary angiography

INTERMEDIATE PROBABILITY VENTILATION/PERFUSION SCAN

The likelihood of PE among patients with an intermediate probability V/Q scan is 16 percent if the clinical assessment is low probability, 28 percent if the clinical assessment is uncertain, and 66 percent if the clinical assessment is high probability of PE[1] (Fig 3). We recommend that all of these patients undergo noninvasive assessment of the leg veins by impedance plethysmography or B-mode ultrasound. Deep venous thrombosis will be identified in approximately half of these patients.[16,17] Those with positive findings in the leg veins should be treated. If the leg vein study is normal, and the clinical assessment is low probability, the probability of PE is reduced to 9 percent. We recommend observation with no treatment. If the clinical assessment is uncertain or high probability, the likelihood of PE, after a negative noninvasive evaluation of the leg veins, is 16 to 49 percent. We recommend further evaluation by pulmonary angiography

HIGH PROBABILITY VENTILATION/PERFUSION SCAN

If both the V/Q scan and clinical assessment indicate a high probability of PE, treatment is recommended (Fig 4). The likelihood of PE is 96 percent.' If clinical assessment is low probability or uncertain, the likeli-

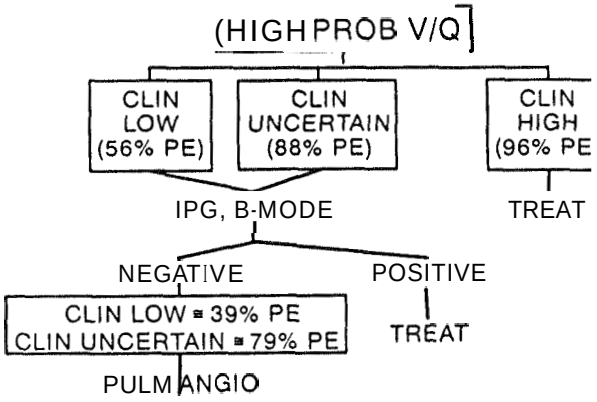

FIGURE 4. Strategy for diagnosis of patients with a high probability (prob) V/Q scan. Clin = clinical; IPG = impedance plethysmography; treat = treatment; B-mode = B-mode ultrasound; pulm angio = pulmonary angiogram.

hood of PE is 56 and 88 percent, respectively Impedance plethysmography or B-mode ultrasound will show DVT in approximately half,[16,17] and treatment is recommended. If the noninvasive assessment of the leg veins is negative, the likelihood of PE becomes 39 percent in patients with a low probability clinical assessment, and 79 percent in patients with an uncertain clinical assessment. Further evaluation by pulmonary angiography is recommended.

Based on the data from PIOPED, 72 percent (640 of 887) of patients had either an intermediate (indeterminate) probability V/Q scan or a clinical assessment which indicated a probability of PE that was discordant with the probability indicated by the V/Q scan.' The risk of PE in these patients was 16 to 88 percent (average, 34 percent). The strategy of diagnosis that we propose assumes that 50 percent of patients with PE have proximal DVT which is detectable by impedance plethysmography or B-mode ultrasound.[16,17] On the basis of this strategy, 108 patients would have been identified with proximal DVT. The risk of PE in 239 patients with negative tests for DVT would have been reduced to 10 percent or less, and the need for pulmonary angiography in these patients would have been eliminated. Among the entire group, therefore, the need for pulmonary angiography would have been eliminated in 347 patients. The strategy that we propose, therefore, would have reduced the need for pulmonary angiography in patients with suspected acute PE to 33 percent (293 of 887).

Our recommendations may frustrate physicians who do not have access to pulmonary angiography. A promising approach, which has been reported recently by Hull and associates,[64] provides a potential alternative to angiography Among 371 patients with abnormal, but not high probability *VIQ* scans and serial noninvasive tests negative for proximal DVT, only 4 (1 percent) developed symptomatic PE on follow-up, The data suggested, therefore, that even in the presence of suspected PE, with non-high probability ***VIQ*** scans, treatment may not be required in the absence of proximal DVT on 14 days of serial testing. Before becoming a standard of care, however, this approach requires confirmation by further prospective studies.

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G. MOSCARINO
ANOUCHI

DVT prophylaxis very good
adq dose hep + reg. stockings
Pt findings nonspec
tachycardia
atyp CP
O2 sat 87% on RA w RR (3/16)

ABG 3/19 7.46 / 33 / 57 / 86

CXR 3/16 - atelectasis

CP atypical not pleuritic
had occurred previous
to adm.

(3-19) V/Q low prob - concur

Cors dep - noncontributory

PLAINTIFF'S
EXHIBIT
2
8.4.94 AIF
PENGAD-Bayonne, N. J.