IN THE COURT OF COMMON PLEAS

SUMMIT COUNTY, OHIO

- - -

JAMES G. FARNER, et al.,)

Plaintiffs,)

vs.) Case No. CV96-08-3195

CUYAHOGA FALLS GENERAL)

HOSPITAL, et al.,)

Defendants.)

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Deposition of CALVIN M. KUNIN, M.D., a Witness herein, called by the Defendants for cross-examination pursuant to the Rules of Civil Procedure, taken before me, the undersigned, Michael G. Cotterman, a Notary Public in and for the State of Ohio, at the offices of Buckingham, Doolittle & Burroughs Co., L.P.A., 88 E. Broad Street, Suite 1600, Columbus, Ohio, on Tuesday, the 22nd day of April, 1997, at 4:10 o'clock p.m.

COMPUTERIZED TRANSCRIPTION BY
BISH & ASSOCIATES, INC.
812 Key Building
Akron, Ohio 44308-1318
(330) 762-0031
(800) 332-0607
FAX (330) 762-3300
E-Mail: stenos@imperium.net

ORIGINAL

APPEARANCES:

On Behalf of the Plaintiffs:

Law Offices of Mark W. Ruf

By: Mark W. Ruf, Attorney at Law
Hoyt Block, Suite 300
700 West St. Clair Avenue
Cleveland, Ohio 44113

On Behalf of the Defendant Cuyahoga Falls General Hospital:

Messrs. Buckingham, Doolittle & Burroughs Co., L.P.A.

By: David J. Hanna, Attorney at Law
10th Floor Akron Centre Plaza
Akron, Ohio 44308

On Behalf of the Defendant Dr. Hill:

Messrs. Jacobson, Maynard, Tuschman & Kalur Co., L.P.A.

By: (Via telephone)
Michael Edminister, Attorney at Law
202 Montrose West Avenue, Suite 200
Akron, Ohio 44321

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I N D E X

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CALVIN M. KUNIN, M.D.

of lawful age, a Witness herein, having been first duly sworn, as hereinafter certified, deposed and said as follows:

(Defendant's Exhibit No. 1 marked for identification.)

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CROSS-EXAMINATION

BY MR. HANNA:

Q. Okay. Would you state your full name for the record please.

A. Calvin Murray Kunin, K-U-N-I-N.

MR. HANNA: Okay. And for the record this is the deposition of Dr. Kunin, he has been identified as an expert for the Plaintiffs in the case.

This is a discovery deposition, set up by agreement of counsel. I assume we have the usual waivers and stipulations with respect to time, notice, form, that sort of thing?

MR. RUF: Yes, that's correct.

BY MR. HANNA:

Q. Okay. And, Dr. Kunin, we met a moment ago, my name is Dave Hanna, I represent Cuyahoga Falls General Hospital. The fellow on the phone is

Mike Edminister, who represents Dr. Hill and those other Defendants in this lawsuit.

I'm going to take your deposition today, which I assume this process is not new to you?

A. That's correct.

Q. And I guess we're all different so I am going to ask my questions my way. We've spent enough time with the case to hopefully be familiar with the terms of art pertinent to this, but if I ask a question that obviously doesn't make sense because I am misstating something, you tell me and I'll clarify it, okay?

A. All right.

Q. What is your -- I've got a date of birth here, and this is for Mike's benefit, of 5/3/29, with a Social Security number of 057-22-0984?

A. That's correct.

Q. What is your -- is your residence address still 2447 Coventry Road in Columbus?

A. That's correct.

Q. And your professional address?

A. The Ohio State University Hospital, Medical Center and Hospital.

Q. Okay. Now, there is an address here of

MllO Starling-Loving; is that correct?

A. That's correct, that's the building within the medical center where my office is located.

Q. Is there a specific office number or designation?

A. Yes, M110.

Q. M110, okay. Do you have any other professional office or address at this time?

A. No.

Q. Do you currently have privileges at the Ohio State University medical facility?

A. Yes, I do.

Q. Do you have privileges at any other hospitals?

A. No. Well, as you know, you may know that the Ohio State University has really two hospitals, one is the James Hospital and one is the University Hospital. And actually there is a third, which is a long-term care facility.

They are all really part of the same complex and **I** have privileges at the three combined institutions.

Q. Okay. Have they been suspended or revoked or modified at all in the last five years?

A. No.

Q. Do you still have courtesy privileges at Grant or any of those facilities?

A. No.

Q. When did that end?

A. It just ended naturally because I really never see patients there and it was just one of those things that started years ago, there was no point.

Q. Is your medical license current in the State of Ohio?

A. Yes.

Q. And are you currently licensed in any other states?

A. No, all licenses have expired in the other states.

Q. Okay. And is that the reason for their termination in other states, just expiration and non-renewal?

A. Yes, that's correct, I don't practice in those regions.

Q. I understand you hold board certification in internal medicine and microbiology?

A. That's correct.

Q. But not in infectious disease?

A. That's correct.

Q. Are you currently -- do you currently hold any administrative positions with respect to the university's hospitals, the three you described?

A. No.

Q. When did you last hold any committee positions?

A. About four or five years ago, I was chairman of the hospital infection control committee.

Q. Okay. I thought though those positions-you held ended in 1984, when you assumed your chair position, is that wrong?

A. No, I think I was brought, if you will, out of pasture, about five or six years ago to head up the infection control committee. I had been doing various things but I was asked to head up that committee. I can't give you the exact date but it seems like, you know, four or five years ago.

Q. And that was for which institution?

A. For the Ohio State University Hospital.

Q. And today you hold no committee positions with the hospital?

A. Not that I can think of.

Q. Was there any particular reason for why

you left that committee five or six years ago?

A. Not particularly. I felt that at the time that we needed a full-time hospital epidemiologist and advised that that be done. And that was essentially the transition at that point, was to a full-time hospital epidemiologist. And then there was a subsequent transition to another full-time or part-time hospital epidemiologist.

But I had other interests and I am a senior person and it seemed appropriate to pass the baton.

Q. Okay. Your -- and when I talked about administrative positions, I think I asked for about administrative positions as well as committees. Do those pre-date five or six years ago as well?

A. Yes, I had been pretty inactive in regard to hospital committees, and medical school committees for that matter, for the past four or five years.

And in part because I have this chair, as you noticed, the pomerene professorship, which permits me to do things that I really like to do, which is research, I have courses that I teach, I do a fair amount of foreign travel in terms of teaching people in Taiwan and other countries

infectious diseases.

And it was just this natural evolution of one's career that you are active in one phase, you do something else, then something else. But it's really what I would call maturation of a career, if you will, rather than any problem.

Q. Okay. And I wasn't attempting to infer that.

A. No, it's a good question and I am trying to answer it as best I can.

Q. What I wanted to clarify, it's my assumption that you have not for at least five or six years either been on committees or been responsible as department head in the field of internal medicine, microbiology or infectious disease?

A. That's correct, and the reason being that I have the pomerene chair of medicine, which permits me to do lots of things that I prefer to do.

Q. Okay. Now, when did you receive that chair, the chaired position?

(Discussion had off the record.)

BY MR. HANNA:

Q. Okay. We were speaking of your chair,

when did you receive that appointment?

A. Probably, let's see, probably about ten years ago roughly.

Q. 1985, somewhere in there?

A. Roughly like that, that's correct. I had been chairman of the department of medicine from '79 to '84, then I was given this pomerene chair, which is a five year tenured chair, it has to be renewed. And then it was renewed about three or four years ago, three years ago, and I continue in that position.

Q. Okay. Now, does that chaired position entail compensation?

A. Yeah.

Q. Okay. I assumed it would.

A. Yes.

Q. But how are you compensated under that chair?

A. Well, actually for the university, I receive a full-time university salary, which is the Ohio State University chapter. The proceeds from this chair go into the kitty of the Ohio State University and are part of that compensation, it's inclusive.

So it's not extra dollars to me, it

just replaces state dollars, I assume, that would ordinarily have been used for my position.

Q. Okay. Does the position of that chair have required duties?

A. No duties.

Q. They are as you choose to exercise the role?

A. Yes. Except that, as I mentioned, the position is reviewed every five years to be sure that you have fulfilled the expectations, which are to do good work.

Q. Now, under your current chair, what are your professional activities?

A. Well, in terms of the medical center, the most significant activity is going on right this month. I run a course, which is called therapeutics, for the senior medical students. It's an elective course but it is the most popular elective given in the senior year.

It's a full, intense month and we get the very best faculty to give their very best talk on their subject of expertise, so that we prepare these senior students for internship.

These talks are given in the morning, and of course I give mine, I arrange all these

lectures. In the afternoon we have what we call the journal club, where the students present papers from the literature and then we critique these together.

It's a very popular course, it's a very practical course and it encompasses just about everything there is, some internal medicine, some surgery, pediatrics, lots of infectious diseases obviously.

So that's what you might call the crowning course that I give. And this year we have half the class elected.

Then for the second year, I give the lectures on antibiotics, which are obviously important for the students to know if they are going to understand how to use these important drugs for infectious diseases. And I give those lectures in the course in pharmacology, given by the department of pharmacology, I give those lectures.

In addition, every week I go to the infectious disease conference and I am a very active participant in that conference.

And then currently two months a year, although it has been three or four in preceding

years, I attend on the wards of the university hospital. And the unit I prefer to attend on is the general internal medicine unit, simply because although my sub-specialty is infectious diseases I prefer general internal medicine.

Then I see my own private patients within the context of the Ohio State University program and conduct clinics, the equivalent of a couple days a week in terms of medical care.

It's very variable because it can be-seeing patients formally in the office and then just telephone calls and home visits and all the things that go into a medical practice, it's not a large practice but it's an active practice.

Q. How many patients do you have in your -- in that aspect of your practice, private practice?

A. Several hundred.

Q. Several hundred?

A. Yes.

Q. Are these employees of the hospital?

A. Some are. Some are faculty of the university, some are people from the community, it's quite variable.

Q. Okay. And to make sure that the question is clear, I'm not asking how many patients there

are of the clinic, but how many are your patients?

A. No, I said I might have a couple hundred patients. Then I will receive consultations from time to time, usually complicated problems **of** infectious diseases, although we have a separate division of infectious diseases that does the predominant amount of work in that area.

Q. And how many months a year do you attend on one of the wards at the university?

A. Currently two months, used to be three or four.

Q. When you attend on the ward, what is your function?

A. Well, as you know I am the primarily responsible physician for the care of those patients on that service. And obviously I am the person who is responsible for the teaching of the residents, the interns, the medical students and various people who pass through for educational purposes.

Q. Okay. Are you involved in any other professional activities at this time?

A. Well, I do research as well. And my research right now has been very varied, my research right now is development of some new and

unique antibiotic compound which we discovered, which we are very excited about.

I just completed and have just published the fifth edition of a book of mine on urinary tract infections. It's about 450 pages long and it's a quite comprehensive book in the field.

Then I spend roughly about a month, anywhere from two to four weeks, variably, in Taiwan where I participate in the program to train Taiwanese doctors in infectious diseases. These are fellows in infectious diseases who are getting their final training in that field. And I am very active in that group.

Then I have some research work being done in Taiwan in regards to the use of antibiotics in that country.

Q. Anything else?

A. Well, I'm sure there is but I can't think of it right this minute.

Q. Would I be correct in an observation that the urinary tract infection has been a specialty of yours for the past several years?

A. Urinary tract infections have been a specialty of mine for forty years, yes.

Q. Much of your research in this chair has been focused on that?

A. Well, yes, but it varies all the time. I mean it may be sometimes the epidemiology of urinary infections, sometimes I focus on the microorganisms themselves, sometimes it might focus on pathogenicity, might focus on the urinary catheter, hospital infection control.

But that's been a pretty important theme in my work. Also I have done a lot of work on the use of antibiotics in people who have renal failure, kidney failure. And as I mentioned to you earlier, we have these new antibiotics that we are working on, which I'm very excited about. But I think it's quite valid to say that urinary tract infection has been one of my primary focuses.

Q. Okay. Since accepting the chair that you had since the mid '80s, have you done -- am I correct that the research that has been done under that chair, as part of your duties, is that all focused on urinary tract infections?

A. No. Well, let me give you an example, some -- a lot of it is focused on, say, antibiotics. One of our -- one of the pharmaceutical companies in this community, which

is now actually combined with Upjohn, asked me to help them with a drug which is used for patients with AIDS, which is used against bacteria like tuberculosis, so we studied that drug for them.

So that I would say that urinary infections admittedly are a very important part of my work, I've done many other things.

Q. I notice that your CV, which we have marked here and we will attach it to your deposition as Deposition Exhibit 1, outlines a number of your professional services and affiliations.

Is this current, to the best of your knowledge?

A. Yes.

Q. And do you also maintain a list of all of your publications?

A. Yes, I do.

Q. Okay. And they number now about how many?

A. Almost 350. And I just felt that -- well, I asked my secretary before I came whether we had a copy of those. She only had one. We would be happy to provide for you if you want it.

Q. Okay.

A. By the way, just to complete this, one of the areas of my interest, which I've written a great deal about, is the issue of the appropriate use of antibiotics. And I have done a lot of studies of the appropriate use of antibiotics in U.S. hospitals and around the world.

And it just depends upon what you call upon me to do that particular day. I might be an antibiotic fellow one day, I might be a urinary infection the next day, epidemiology the next day, I might be a biochemist the next day, you know, it just depends upon the subject and interest at that time.

Q. What percentage of your time would you say is dedicated to the active clinical practice of medicine at this time?

A. It's very hard to state. As I mentioned to you, I have the two months, then I have the other patients I see clinically. I would estimate fifty percent. It could be a little bit more, could be a little bit less.

Q. And how about teaching?

A. Well, we have the full month of the course that I told you about, we have the lectures that I told you about, then the antibiotics, then of

course I teach during two months as an attending physician. So there is a fair amount of teaching.

Q. And that would represent what percentage of your active professional practice?

A. Oh, I would say fifteen, twenty percent. Fifteen percent I would think.

Q. With the balance being in research?

A. And the balance being research, travel, just work with Taiwan, so on.

Q. Okay. Doctor, when were you first contacted about consulting in this case?

A. I don't know the date of my first contact, of course that was telephone. I have a letter dated February 20th, 1997, so that would be around that period, shortly before then.

Q. Shortly before then?

A. Yes, before I received the letter.

Q. Did you formulate or render any opinions in this case prior to receiving that letter?

A. No.

Q. Okay. If we could, let's run through what it is that you have seen and reviewed in preparation for this case and deposition.

A. Well, very weighty material in terms of pounds. And I have a list for you if you would

like me to.

Q. Why don't you just run through it.

A. We have some medical records of John Robinson, M.D. The medical records of Gregory Hill, D.O. The medical records of Stephen Francis. The records of the Cuyahoga Falls General Hospital admissions of 2/27 to 3/6/95, 3/21 to 4/7/95. And then some prior admissions of 2/20/91, 9/19/91, 9/24 to 25/91 and 8/11/92.

Then there's several answers to interrogatories, about two or three sets of those, directed to the hospital. Then a series of depositions, including those of Marilyn Farner, James Farner, Janice Farner, Dr. Gregory Hill, Dr. James Fordyce, Dr. Jeffrey Tharp, Esther Brothers, Delores Bell, Kathleen Carter, and then more recently Linda Farris.

And then I have some colored pictures of the leg. And the material submitted as, I--.guess you call it in response to interrogatories, which is the patients who were operated on, who were operated on at that hospital who had Enterobacter cloacae isolated from their wounds. And then some of the susceptibility data, antibiotic susceptibility data from those patients.

Q. Okay. Anything else?
A. Not that I can think of.
Q. Do you know any of the people that you have listed by way of their records or depositions?
A. No, I don't know any of them.
Q. Okay. Have you spoken with any of them in connection with your review of this case?
A. No.
Q. You mentioned that you have records of – from before 1995, 1991 and 1992. Are those records material to any opinions that you have formulated in this case?
A. Not particularly.
Q. Well, not particularly is not quite no, what's the particular?
A. All those records, as I see it, are records of trauma, but they are not really relevant to the issues at hand.
Q. Okay. Have you generated any reports, any sort of written reports at this point in time?
A. No, I have not.
Q. You brought with you --
A. Well, this is not a report because I just did it today.

Q. You've got a chart that compares the sensitivities that you were provided?

A. Right.

Q. Okay. But you have not generated a written report to Mr. Ruf or anyone else?

A. No, I haven't.

Q. Have you -- and Mike Edminister wanted to know about your notes -- do you have with you the sum total of your notes on this case?

A. Yes.

Q. Okay. And those are one page yellow, half a page of notes on it that appear basically to be dates?

A. That's all they are.

Q. Okay. All right. Is there any other document or information that you have reviewed in the course of and as part of your review in this case?

A. No, sir.

Q. What specifically were you asked to do in connection with this case?

A. Well, when Mr. Ruf first called me, the question in his mind was could I state with reasonable degree of medical certainty that the Enterobacter cloacae that was isolated from his

knee following surgery was implanted at the time, was more likely than not to have been implanted at the time of the surgical procedure as opposed to having been carried on his skin or implanted sometime during the post-operative period, that's the initial surgery. That was his prime question.

And I would be happy to give you my response to that if you wish?

Q. Sure.

A. In my opinion, more likely than not, it was implanted at the time of the surgery. And I would be happy to give you the reasons if you wish?

Q. Okay. Well, did you tell him that at the time he contacted you?

A. No, I only told him that after I reviewed the material, the records.

Q. Okay. Were you asked to do anything else in connection with this case?

A. Well, then -- I can't recall, Mr. Ruf can help me, whether it was I who initiated the question of whether previous cases or he was in the process of initiating inquiry as to whether there were previous cases of this organism in patients who had been operated on in this institution.

And, Mr. Ruf, I can't recall whether it was you, I think it was you, who were initiating some of this or I said are you doing it, he said I am doing it, that kind of thing.

So it was -- it came to mind that it would be very important to know whether or not this was the only instance of this organism in this institution. And those were thoughts that were in my mind and independently done by him.

Then when I received material from him indicating that there were individuals who prior to the time of this procedure in the same institution had wound infections with that organism, then subsequent had wound infections with that organism, then I asked him if -- to ask the hospital to provide the susceptibility patterns, so we could see whether or not there was evidence that these organisms were similar to each other.

And that was provided to me several weeks ago, maybe a week or two ago.

MR. RUF: It was recently.

THE WITNESS: Yeah, within a week or two weeks, whatever it was.

BY MR. HANNA:

Q. I understand. I provided those to Mark,

he gave them to you shortly after that.

A. Yes.

Q. Were you asked to do anything else in this case?

A. That's all I can recall. I don't think, no, that was it.

There was some question as to perhaps how much permanent injury this man might have, I was asked to look at some photographs of that. But I haven't seen any information subsequent to the last visit with Dr. Francis, so I really can't speak to how he is doing at this time.

Q. Okay. And have you at this time formulated your opinions as they relate to this case?

A. Yes.

Q. And would you tell me what those are?

A. Well, my opinion is, with the usual more likely than not, that the Enterobacter cloacae was implanted at the time of the procedure.

My second opinion is that the same organism was implanted in other individuals in that institution prior to and subsequent to this surgery.

That more likely than not the

Enterobacter cloacae was an environmental contaminant, not carried on the skin of the individual or his urine or stool or other places.

And that the organisms appear from the pattern to be the same, have the same fingerprint, antibiotic fingerprint, which lends very strong support that it's an environmental contaminant in the O.R. general area.

There obviously were individuals who had -- who were in different operating rooms, so it's something general about it in the O.R. set-up of that institution.

Then I suppose I would have the opinion that the institution has an obligation to monitor post-operative wound infections, to consider Enterobacter cloacae as a very unusual organism, probably an environmental contaminant, and therefore make efforts to find the source, eradicate it, review policies and procedures of cleaning of equipment, so on, to make sure that patient's aren't exposed to this organism.

I think that's the sum of my opinions.

Q. Are you expressing the opinion in this case that either the institution or Dr. Hill were negligent in connection with the care and treatment

of this patient?

A. I have no opinion about Dr. Hill. I have no reason to believe that Dr. Hill was negligent. So Dr. Hill, as far as I can see, did his job, and so I have no reason to criticize Dr. Hill.

As far as the institution is concerned, the institution does have an obligation to insure for the protection of their patients. That's why they have a hospital infection control committee, that's why they have the epidemiologist, or as they are now called, a hospital infection control officer.

And one of the jobs is to -- post-operative wound infections are obviously very important because they can be disastrous. And one of the jobs of the hospital and their delegated people is to monitor this.

That's called surveillance, which is a commonly accepted practice, a requirement actually, depending upon the accrediting agency, and really is the standard of care that we expect of any hospital.

And so it appears that the hospital infection control committee was not alerted by anyone that these infections were occurring until

the Farner case was identified. That's what I gather from what I've read in the depositions. And so that would fall below the standard of care and therefore would be negligence.

I hope that responds to your question.

Q. Well, I'd like you to -- I think you have responded. I would like you to articulate further the specific acts of negligence on the part of the hospital institution or its personnel in connection with James Farner.

A. Well, I will repeat, I will try not to be, you know, too difficult. Mr. Farner more likely than not acquired this infection at the time of his first operation in this hospital. The organism, as I said before, is an environmental contaminant more likely than not.

There were cases in that hospital, in the operating rooms of that hospital, at least three cases within the year prior to that, maybe more but there were those three cases.

The job of the hospital, their obligation, is to monitor post-operative wound infections and when they see something unusual, unexpected, probably an environmental contaminant, to take measures to look into the matter, to find

out whether there is a common source, a common source of operative fluids, it could be instruments, it could be sterilization, so on.

That's their job. And not doing that job, which is part of their obligation to the people that come to the hospital for care, they were negligent.

That's all I have to say. I really just repeated myself, I apologize but that's all I can say.

Q. Well, first of all, Doctor, are you suggesting that the hospital's infection control people were not aware of Mr. Farner's infection and the bacteria of origin at the time it was identified?

A. Obviously it was in the records, this information was in the records. The only basis I have in that regard, and I think we would have to go to the depositions, would be the deposition of the nurse epidemiologist.

And I read that deposition and from what I gathered, and you may want to correct me because it may be fresher in your mind, it was my assessment that the nurse epidemiologist was not aware of this infection or the preceding ones or

even the subsequent ones from what I read in the document.

Now if I am wrong, please correct me.

Q. Now, if you are wrong about that, does your opinion change?

A. Well, if you can show me the records, that they identified these cases ahead of time, then took measures to look for the source of the organism within the environment of the operating room, did all that kind of stuff and yet he still developed an infection, of course, then I would say they were within the standard of care.

If they did an actual, went through the surveillance mechanisms that were necessary to culture all the equipment, the fluids, watched the motions, so on, to determine what the source would be of these infections, if they did that, why then obviously they are fulfilling the standard **of** care, which is to detect that unusual organism is -- occurring and to take measures to try their best to prevent them.

And also to alert the physicians to the fact that there are organisms which are very different than the usual post-operative wound organisms and make suggestions to the change,

perhaps of the prophylaxis prior to surgery to prevent infections.

Because this organism is resistant to the commonly used drugs for prophylaxis, in this case I remember Ancef was used and cefazolin, and this organism is resistant to cefazolin.

So if any measures were to be taken, they couldn't find the source, they could at least tell the physicians use prophylactic drugs and other procedures that would be effective against -- this particular contaminant organism. That's all part of the things you do.

Q. Let's back up because as I was following your opinion, the first opinion was that it wasn't known or recognized by the infection control people, and you say you based that upon the record as you read it.

And my question to you was, if they were aware of Mr. Farner, Mr. Farner's bacteria and the infection, would that change your opinion?

A. Well, you see, it's always -- forgive me for this, it's always a definition of what do you mean by aware.

Now aware might be that there is a record in the hospital, in the hospital laboratory,

and therefore that's awareness in a certain sense. There is awareness on the part of Dr. Hill and the consultant in infectious diseases, that's another kind of awareness.

There is an awareness by reporting the case in the black book someplace or on the computer, that's another kind of awareness.

But you can be aware but are you awake, that would really be the question. And so if you raise all those hypothetical awarenesses, I say sure, you know, within that construct, sure they are aware.

But were they awake to the fact that this was an unusual organism, were they awake to the fact that there were preceding cases, did they do anything about this or what was their action? This is almost like a theological discussion of whether you, you know, do you believe in God, then do you do good works?

Q. Well, Dr. Kunin --

A. It sounds like that a little bit but I have to dissect it out to that level. And to my knowledge, reviewing the materials, they may have been aware **of**, within the definition I gave you, but they certainly weren't awake and they certainly

weren't doing anything about it.

Q. Okay. Well, you have formulated your opinions about that there was negligence because of a failure to do several things. First is awareness, you have divided that now into two parts, awareness and awake in terms of reacting to it, okay, I'm following that.

The next step is the question, if they are aware both by record and consciously, what is it within the standard of care are you saying should have been done in response to -- well, I guess you are saying that there should have been some activity prior to Mr. Farner's surgery?

A. Well, yes, because this is an unusual organism. Enterobacter infection in wounds is unusual and usually represents an environmental contaminant.

Now, you know, we're nice guys so you can miss the first case because the first case is the first case and sometimes it's hard to wake up. But when you have the second, and then the third, and then the fourth, there comes a time when you recognize that you've got more than just a single incident.

You can always forgive, you know, the

first or second because things happen by chance. But the third, fourth, fifth, sixth, seventh, then you need to be concerned about whether this group is awake, to use that word.

And there is no point in simply recording the fact that these infections occur. The reason for having an infection control unit is to do something about it.

And to do something about it is to find the source, if you can, and correct that. And if- you can't, alert the physicians to the fact that this organism exists, so we can take proper precautions.

That's the obligation. It's very simple, this is not very, you know, high level thinking.

Q. Well, Doctor, if you have a single post-operative infection in which there is an Enterobacter isolated, what is it that you are suggesting that this institution was required to do?

A. Well, I think I just responded to that earlier.

Q. Well, let me recount that because I don't -- I don't want to ask you to just keep repeating,

because I'm not sure I'm understanding.

Your suggestion is that standard of care is that on the identification of a single post-operative wound infection with Enterobacter cloacae, that the standard of care for the infection control committee and its personnel in the hospital is to begin a process of testing the environment of the operative suite for an environmental contamination with Enterobacter?

A. Well, you know, I don't want to be combative with you but you weren't listening to me.

Q. Okay.

A. Because with all due respect, because you remember I said earlier that the first case, you remember I said, you forgive that because sometimes you don't notice that one. Even the second one I said you could forgive that one because, you know, you have to have two or three.

By the third or fourth, that's what I said earlier, you restated my position as the first when just a few minutes ago I said I am a forgiving fellow, the first, the second, the third, the fourth is when you get excited. So please, quote me correctly.

Q. Okay.

A. With all due respect.

Q. And it is simply the presence of a post-operative wound -- is there any significance to time?

A. Well, obviously the closer the episodes are together, is that what you are trying to imply? I don't know what you mean by the time?

Q. Well, what's the significance of cluster?

A. Well, there's many definitions of clusters. There's clusters in time, there's clusters in space, you know, there's clusters of the same agent, depends upon how you want to define cluster. A cluster can be defined in several different ways.

Q. Okay.

A. For example a cluster of grapes is a bunch of grapes together.

Q. I am talking about in terms of care of infectious disease?

A. And I am responding to you. A cluster can be defined several ways.

Q. Okay. My question then, my next question is, is it your testimony that there was evidence of a cluster from Enterobacter post-operative wound

infection at the hospital?

A. Clearly.

Q. Now, did you --

A. By definition.

Q. Did you assist in formulating the questions that have been put to the hospital about information that's material to your review?

MR. RUF: Objection, that's work product.

MR. HANNA: Not for him it's not.

MR. RUF: Don't answer.

THE WITNESS: Well, I have no problem with that. When I was asked by the attorney to say what do you expect, you know, hospital people to do, I am knowledgeable in that subject, that's my business.

BY MR. HANNA:

Q. I understand.

A. And so I told them, I said you ought to find out does the hospital have an infection control committee, does it have a hospital infection control officer, what is the background of the hospital infection control officer, are they knowledgeable in this area, are they part-time, are they full-time, what do they do on a day to day

basis?

These are natural questions that anyone who is trying to find out how a hospital proceeds would ask. And I'd be happy to respond to that.

Q. Did you make inquiry as to whether there were any post-operative wound infections for surgeries performed within two weeks before or two weeks after James Farner?

A. No, I didn't ask anything with any specified period of time. I simply said, and you heard him earlier, that both of us said, well, if there is one infection, are there going to be several? He spontaneously was looking into it and I myself was interested. But I didn't formulate an opinion a week, two weeks, a month, just what the dates are.

Q. Do you know how many surgeries were performed at this institution in 1995?

A. No, I don't.

Q. How about 1994?

A. I have no idea.

Q. Or '96?

A. No.

Q. Do you know how many orthopedic surgeries were performed during that time period?

A. No, I don't.

Q. Do you know how many infections there were of any kind post-operatively for orthopedic cases in that hospital in that time period?

A. No, I don't.

Q. Is there a recognized risk of infection associated with surgery in general, inclusive of orthopedic surgeries?

A. Yes, there is.

Q. And why is that?

A. Because there is a baseline frequency of surgical wound infections, usually caused by organisms in the skin that just cannot be eradicated by the topical antiseptics that we use or by antibiotics that you use prophylactically.

In other words, you usually have staphylococcal infections, staphylococcus aureus, staphylococcus epidermidis, and some other skin organisms. And you just simply can't clean the skin to the point of preventing all infections, so they occur.

Q. Would you agree with the general observation that the --

A. May I?

Q. I'm sorry.

A. I'm sorry, I thought I finished but I really hadn't finished. Because I was simply talking about incisions made of the skin, which would be orthopedic.

Obviously if you are operating on the abdomen or the pelvis, then there are organisms, in the vagina, in the gut, that can contaminate the operating site and then you can have an infection from those. I want to be complete.

Q. Okay.

A. I'm sorry to interrupt you.

Q. Would you agree generally with the observation that there is a -- given a recognized risk of infection in surgery, that is because of a recognition that regardless of the best precautions known and available to medicine, a certain incidence of infection is going to occur no matter what?

MR. RUF: Objection, does that include Enterobacter or bacteria in general?

BY MR. HANNA:

Q. Including Enterobacter.

A. Well, I would have to reserve that because Enterobacter would not be an acceptable kind of wound infection unless this was an abdominal

operation, where you might be opening the gut, you might get that organism, or it might be a urologic procedure where you have a long-term indwelling catheter.

But where you have a clean surgical procedure, such as an orthopedic surgery, where there is no break in the skin or continuity with the gut or urine or other sources, then that organism would be unexpected and unusual and more likely than not from an environmental source within the operating room facility.

It does not imply that the physician was negligent, it does not imply that at all. It implies there was an organism within that environment.

And the first instance, as **I** mentioned earlier, or the second, you can say, well, it's unexpected but not preventable because we didn't know about it. It's the third, fourth, fifth or sixth which has a specific kind of pattern that requires detective work and that detective work was **not** done.

Q. You indicated that it's **--** that you said it's more probable than not that that was the source. What are the other possible sources of

that bacteria in this case?

MR. RUF: Objection as to possibility.

THE WITNESS: I can't think of any.

BY MR. HANNA:

Q. Is Enterobacter an endogenous flora within the body?

A. Well, it exists in our gut probably very, very low count. You would have to look very hard to find it. But it is part of the bowel flora in a very, very small niche.

Q. Is it a waterborne bacteria?

A. Often waterborne.

Q. Soilborne?

A. Could be in the soil.

Q. Airborne?

A. Not particularly.

Q. Is it possible for Enterobacter to exist on the skin?

MR. RUF: Objection as to possibility.

THE WITNESS: Of course it's possible.

BY MR. HANNA:

Q. Do you know anything about James Farner's activities on the day or two prior to his surgery, as to whether or not he may have done anything that might have allowed that bacteria to be on his

skin?

A. I can't think of anything. I know he climbed the ladder, he was doing physical labor around the house, but that's all I know.

Q. Okay. But he could have engaged in activities during that time period which this bacteria could somehow have been applied to his skin?

MR. RUF: Objection as to possibility.

MR. HANNA: I understand.

THE WITNESS: Everything is possible, as you know.

BY MR. HANNA:

Q. Okay.

A. And as you know I am not relying in my judgment on just one piece of information, I am relying on several pieces of information.

Q. I understand. Now, let's go back to -- I didn't mean to derail this by the first case versus the second case versus the third case.

A. I wanted to be sure you understood.

Q. What I was trying to clarify was at whatever case you're saying it, I am gathering now that I misunderstood and what you meant was somewhere around the third or fourth case, that the

standard of care is that they engage in a search for this bacteria somewhere in the environment of this operating suite?

A. Well, **I** think the first thing that you would do, if I might respond, is you say was it the same Enterobacter that occurred in Mr. Farner that occurred in preceding individuals?

Because if you find an Enterobacter in Mr. Farner and the preceding cases which have entirely different susceptibility patterns or the-y differ in some physical manner or biochemical manner, then you can say, you know, **I** doubt whether Enterobacter cloacae number one was the same as number two and that these are unrelated episodes.

So the first thing you do is look at the organism, go to the laboratory and say let's look at the profile.

Now, if you're at an advanced institution, which is not the standard of care, such as ours or some of the large tertiary hospitals, they might even do DNA typing to see whether or not -- fingerprints, to see whether or not the organisms are identical. But that's not the standard of care.

But certainly to look at the antibiotic

pattern would be a good enough reason to alert one to a difference.

And after they did that and said, you know, case one, case two, case three, case four, have all this material and you really can't do DNA patterns because you have to save the organisms, after all, all you have is the record of susceptibility because laboratories don't save organisms for ten years, so you can't even look back unless you were specifically planning to do-that kind of work.

You can say, based on the fact that these organisms look the same, more likely than not they have been -- they have occurred from some common source. And that's where the cluster issue comes in. Common source, cluster, whichever you wish, whatever term you wish to use.

If you then see what looks like a common source, common source is usually the environment for these organisms, and then you go ahead and do everything you can to be sure that all the environmental measures are correct.

Now you can also say it's possible that there might be a carrier, some human carrier. So you look at the personnel who were present in the

various operating rooms to see whether or not there is a common individual.

We have people who pass on hepatitis, for example, surgeons who pass on hepatitis during a surgical procedure, or even AIDS. So you look for a person, or in this case an environmental contaminant.

That's all, it's not very complicated.

Q. Did you formulate an opinion in this case as to whether there was a common carrier?

A. I don't think there is a common carrier in terms of human beings, no.

Q. And what is it is your testimony as to the standard of care in terms of attempting to identify a source in this case?

A. Well, it wasn't done.

Q. Well, what should have been done?

A. Well, the nurse or whoever was delegated to be responsible for the hospital infection control should have gone into the operating room and observed the kind of procedures that are done in terms of the aseptic precautions that are taken by the unit.

To look at all fluids that are present in the operating room and to culture those fluids,

because fluids so often are the source. To check the sterilization procedures within the unit, to, you know, just for the hospital itself.

In other words, to look for a break in technique or a common environmental source such as fluids.

I would doubt that it would be the air that would be a common source for this kind of organism. It's usually water or some fluid. And the fluid sometimes is as subtle as a sterilizing-fluid. You can sterilize things in benzethonium chloride or some other kind of pseudosterilizing agent that doesn't work, that's a very common source.

You might find that there is a bottle of Procaine or local antiseptic -- I'm sorry, local -- what is the term, local anesthetic, that has been used repeatedly, you know, as opposed to being disposed of.

All those things are common. I could tell about some epidemics that I've investigated where we found a common source, but I'm sure you don't want to hear about that right now.

Q. so -- well, is it your testimony there was an epidemic?

A. Epidemic means more than an expected number of cases. The number of expected cases of Enterobacter cloacae infection in the operating room should be zero, so that's more than the expected number of cases, that's all an epidemic is.

Q. And is it your testimony that the number of cases reported here represents a cluster?

A. Yes, on the basis -- a cluster on the basis of the fact that they all have essentially-the same antibiotic susceptibility profile.

MR. HANNA: Okay. Now, have we marked a copy of this?

(Defendant's Exhibit No. 2 marked for identification.)

BY MR. HANNA:

Q. Okay. Doctor, we have marked what has been marked as Defendant's Exhibit 2, a sheet that you brought, would you tell us for the record what that is?

A. I looked at the information that was provided by the hospital in terms of the antibiotic susceptibility of Enterobacter cloacae that were isolated from Mr. Farner and eight other individuals.

And I placed it in a template where I took each of the antibiotics that were tested and just listed them on a vertical axis. I then placed in columns the name of the individual, in this case Mr. Farner, and then subject one, two, three, and number four is Mr. Farner as well, and then subject five, six, seven, eight, nine.

And the date of isolation. I did not indicate the source of the isolate, that is whether it was the ear or finger or wherever it was, just simply the organism.

Now, in going over this, it's extremely difficult as you know to read these records, and I had a lot of difficulty just in reading when the culture was taken as opposed to when it was recorded.

And so I had to edit what I did by eliminating two columns where actually it was redundant because I confused -- and many of these sheets were duplicates, where I confused a little bit of report date versus the culture dates. But that's -- they have been scratched out, these two columns have been scratched out of this as you can see.

Q. I think I have it here.

A. I think you can see on your copy, I just sort of scratched through that, okay. So that's -- they are of no significance.

I also discovered, as **I** mentioned, that individual number four was Mr. Farner. And the way I did that was to look at the serial number of the individual and I saw the serial number was the same as Mr. Farner, therefore that's his culture, okay. And number four fits in fine because number four was the fourth case.

So what we then look at is a report called S means susceptible, R means resistant, and I means intermediate, not quite sensitive, susceptible, and not quite resistant.

Now people who do susceptibility tests, and **I** do a fair amount of that in my own laboratory, recognize that the susceptibility tests can vary a bit, depending on the inoculum size, that is the number of organisms you put in the plate, and just the reading by the technical people.

So you can have a strain which is called I, intermediate, one day, and it can be reported as R or S the other days, because it's a borderline kind of organism. So when **I** looked at

I, I can throw I either way.

Also the drug ampicillin sulbactam is a peculiar combination and it's a little difficult to interpret susceptibility for that organism. Now those are the caveats, if you will.

Looking at this, we see a remarkably similar pattern among all. First of all they are all susceptible to amikacin. But that's not surprising because most organisms of the gram-negative variety would be susceptible to amikacin. So that's okay.

If we look at ampicillin sulbactam, most of them are either intermediate resistant or sensitive, and that's, as I say, is a difficult one to interpret. Ampicillin, if you notice they are all resistant to ampicillin.

Aztreonam, which is an entirely unrelated drug, all are susceptible.

Cefazolin, they are all resistant.

Cefotetan, they are all sensitive or intermediate.

Cefoxitin, they are all resistant, ceftazidime and so on, cefalothin, they are all resistant.

And then you look at all the other

drugs, ciprofloxacin, gentamicin, imipenem, all of that, they all are uniformly susceptible.

Now my interpretation is -- I have several interpretations of this. The one is that this is strong evidence that these organisms resemble each other very close. The ultimate proof would be DNA technology, which we can't obviously use. But this is strong support for the notion that these are related strains.

There is a second point that reinforces', in my opinion. And that is that if you have an Enterobacter cloacae, which is in the community, say in the hospital, say in a urinary infection or an abdominal infection or a superficial wound infection, a diabetic for example, those people get antibiotic therapy pretty intensively and fairly soon the Enterobacter take on the characteristics of the antibiotics that were used.

So that you would expect to see strains that are resistant to ticarcillin or resistant to trimethoprim or resistant to another antibiotic because of the antibiotic pressure of the institution, you see those changes.

Here all the organisms are susceptible to commonly used antibiotics, as if there were no

antibiotic pressure on them. And that suggests to me that they were in an environmental source which was not subjected, as it would be in a person, to an antibiotic pressure.

Now, those are what you might call -- what is it when you have an individual die, disappear and you can't find the body, that's -- what kind of evidence is that you use?

Q. Speculation?

MR. RUF: Objection.

THE WITNESS: No, it's not speculation. I think it's very amusing that you say that but it's not. It's called -- what is the term you use for that kind of evidence, Perry Mason kind of evidence that's real strong stuff?

You fellows no the word very well, you're not going to give it to me. What is that word?

BY MR. HANNA:

Q. Circumstantial?

A. Circumstantial evidence, thank you for helping me. Very strong circumstantial evidence, that this is a strain which has not been subjected to antibiotic pressure and it's the same strain throughout.

And it supports, it strongly supports the concept that this is an environmental source, same organism, not new organisms, not subjected to the wards where antibiotics are used, which is infecting all these individuals.

That's my speech. That's what this says to me.

Q. Okay. Do you have any other observations that are drawn from this chart?

A. I think I said it pretty well.

Q. If I am following your observations then, you do not have any criticisms of the techniques of any of the individuals that were involved in Mr. Farner's surgery?

A. I have no, no evidence one way or the other. I mean I didn't observe the surgery, I have no reason to believe that they departed from the standard of care in terms of how they proceeded with the operation.

I have no information that says they did anything other than standard surgical procedures.

Q. You mentioned before, I don't want to forget about this, the -- you were asked whether you had an opinion about whether or not he

sustained any permanent injury as a result of this. Did you formulate any opinion on that subject?

A. Only a partial opinion. And the partial opinion is based upon the photographs that I was shown and the fact that I know the hardware, I believe, is still in place.

But I really have -- I can't say any more because the last point I have is the information from the infectious disease doctor, Dr. Francis, who saw him sometime in I think August or so of '95, which was sometime ago. So I can't say any more.

Q. Do you have any criticism of the timeliness of the identification of the infection and the treatment of the infection?

A. No.

MR. RUF: You mean with respect to James Farner --

MR. HANNA: Right.

MR. RUF: -- individually?

MR. HANNA: Right.

THE WITNESS: That's what I assumed.

MR. HANNA: Right.

THE WITNESS: I assumed that the way he

was cared for, I have no criticism of the operation, of the surgeons. I have no criticism of the detection of the infection, I have no criticism of the way it was managed, nor of the infectious disease consultant, nor of the hospital in regards to the care of Mr. Farner once the infection occurred.

BY MR. HANNA:

Q. I am not clear on what you meant by a partial opinion about permanency.

A. All I --

Q. We know that he had a graft as part of the treatment of the infection. In the absence of the infection he would not have had that and that leaves a certain scar, that we know.

Other than that, are you aware of any permanent problem he has secondary to the infection itself?

A. No, I am not prepared to speak to Mr. Farner's injury without having specific information from a physician, a knowledgeable physician who saw him recently and made that assessment or my own assessment. I can't speak to that.

Q. Have you -- do you hold any sort of opinion as to whether or not Mr. Farner had any

sort of an infectious process going on prior to his surgery?

A. I have no reason to believe that he had an infectious process going on prior to the surgery, except for one point, which I think I can explain but it's a little difficult to explain.

And that is he had a fever, an elevated temperature when he came in the hospital. But that elevated temperature may have been related to the crush wound, you know, the tissue damage. We see elevated temperature in relation to tissue damage.

But that's the only point I could pick up.

I see no reason whatsoever to take that information, however, and in any way say that that was responsible for the infection of his knee. For all the other reasons I've stated, the nature of the organisms, the patterns, how these organisms are acquired in the environment and so on.

And certainly I can't think of him having, say, a blood stream infection with this, proceeding to the knee, that's inconceivable.

Q. Do you have an opinion as to the cause of the fever that he experienced on the first post-operative day?

A. As I mentioned to you, that could have been related to what you see in anyone post-operatively, it occurs.

The surgeons love to talk about that as being an inability to clear secretions, atelectasis, so on, that's all possible. **But I** have no specific opinion about it other than that.

Q. Okay. Is there any other information that you have requested or feel that you need to accurately formulate your final opinions in this-case?

A. If my final opinions are related to the nature of the source of the infection, the infection control issues, all the ones we have discussed, I believe I have sufficient information.

If **I** am asked to make an assessment of the damages done to Mr. Farner, in terms of permanent disability and so on, then I would have to have more current data.

Q. Okay. Now, I realize that you conclude that this bacteria was more than likely introduced from an environmental source during surgery because of the analysis you have done of the sensitivities of the bacterias and the existence of other cases.

A. And also, I didn't mention it to you, that since the skin was not broken at the time of the procedure, I can't see how it was introduced by some contaminant that might have occurred as you see with a comminuted fracture, you know, that's full of manure and things.

So there is no reason to believe it was implanted at the time of the accident, because it wasn't broken.

Second, once you close the skin it is extremely unusual, I'm not aware of any instances where you have a secondary infection coming through the sutures and everything else. They are almost always implanted at the time.

So those are parts of the argument that, as I said earlier, more likely than not it was implanted at the time of the procedure, not prior to the procedure, not after.

Q. Okay. But of course on that narrow subject, if the bacteria was on his skin, it could be introduced to the operative site the same way any other skin bacteria could, would it not?

MR. RUF: Objection.

THE WITNESS: If it were on the skin, I agree with you. But then we have the issue of were

these same organisms on the skin of all these other people, you know, and would they have the same pattern, and I doubt that.

So you can't take any one piece of information, you have to put it together.

BY MR. HANNA:

Q. Well, that's why I bring it back, because apparently you are distinguishing -- I want to talk to you about other mechanisms by which a bacteria could be introduced.

And I don't want you to feel you have to keep going back to the fact that, well, remember these, I think these are all the same strain because of the sensitivities. I realize that's a distinguishing point for you, okay?

A. Okay.

Q. All right. But barring that distinction to other cases, there is the possibility of introduction from the skin, the way any other skin bacteria wcuild be entered?

MR. RUF: Objection to the possibility.

THE WITNESS: But it would be unusual, because the usual organisms are skin bacteria, like staphylococcus, as I mentioned earlier, and this is

an unusual contaminant of the skin.

BY MR. HANNA:

Q. I understand.

A. Anything is possible, however, and I grant you that.

Q. Okay. Now, is the drainage from a post-operative wound an avenue for the introduction of bacteria to the wound?

A. Not particularly.

Q. No?

A. No. What it would be would be if you had a tube inserted into the wound, like a Penrose drain or a catheter, something like that into the wound, then you get it externally. But if it's closed, then draining spontaneously, no.

Q. Can it be -- are you saying it could be entered back through that drain?

A. If you have a physical drain, a mechanical drain, if you will, a physical body, a foreign body inserted into the wound, then bacteria can colonize that external body, like a catheter, and bring organisms into the wound. But if you have a closed wound and drainage occurs, you don't get it the other way.

Q. Do you know whether there was a drain

52. Do you know whether Mr. Farner had contact with the surgical wound prior to the time he went home?

A. You mean?

Q. Let me ask you this, do you know whether -- do you know whether Mr. Farner removed the bandages himself and touched his wound?

A. It's totally irrelevant. You can touch wounds, you can take off bandages, that does not cause post-operative wound infection.

Q. You can't introduce bacteria to the site by reason of that, even if a drain is in place?

A. If a drain is in place, a physical drain, that's possible. But once you close the wound, it's pretty well sealed, any surgeon will tell you that.

Q. Is there specific literature or articles that you intend to use to support your opinions in this case?

A. No.

Q. Now, you indicated that the -- that there were certain common -- more common than not

organisms that would produce a post-operative infection in an orthopedic case, and those consist of what?

A. They would consist of skin organisms such as staphylococcus aureus, staphylococcus epidermidis, sometimes diphtheroids, which are other kinds of skin bacteria. And there are a variety of other skin bacteria which are in that family.

Every once in a while there is a peculiar skin organism, but those would be the common ones.

And the support for that notion is that the prophylaxes that the orthopedic surgeons use, the antibiotics that they give prophylactically just before or right after the procedure, are antibiotics directed against those organisms, that's the cefazolin, they are directed specifically against that group of common contaminants.

It is so unusual to have a gram-negative bacteria, like Enterobacter cloacae, that it's unusual for the surgeons to use prophylaxis for those. So this sort of reinforces the notion of what is seen, what is customary.

Q. Now, the -- in the exercise of all possible standards of surgical care, sterilization, what have you, there is going to be a certain percentage of post-operative wound infection with that type of bacteria, regardless of the exercise of all good standard of care?

A. That's correct.

Q. Now --

MR. RUF: Well, objection, what type of bacteria?

MR. HANNA: The bacteria he just described.

THE WITNESS: The gram-positive bacteria, staphylococcus aureus, epidermidis, other organisms, diphtheroids, that we mentioned earlier, that's what I assumed you were asking.

BY MR. HANNA:

Q. Right. And Mr. Farner, entering this surgery, bore at the same risk of those -- of that infection as any other similarly situated patient, correct?

MR. RUF: Objection.

THE WITNESS: I think that's a fair statement.

BY MR. HANNA:

Q. Okay. Now, if Mr. Farner had developed a post-operative wound infection in his knee with one of those bacteria, take for instance staph, do you have an opinion as to how his outcome in terms of short or long-term prognosis would have been different?

A. If his infection was caused by a staph as opposed to this organism?

Q. Right.

MR. RUF: Objection.

THE WITNESS: It's very variable. Staphylococcus is often a more virulent organism, that is it produces much more of a reaction. It could, if it grew to a large enough inoculum size, get into the blood stream and be manifested by chills, it could be a very vicious organism.

But there are different strains of staphylococcus. Some are very vicious, some not so vicious. And in this regard, it could also be interesting to determine for staphylococcus whether it was a mezlocillin resistant staphylococcus or a mezlocillin susceptible staphylococcus. And if you wish, I could go into that?

BY MR. HANNA:

Q. No, my point is, Doctor, I have seen

testimony you have given in other cases discussing staph bacteria. I believe you repeated terms I heard before, being extremely virulent and very dangerous --

A. Good.

Q. -- a very dangerous bacteria.

A. So that I am consistent?

Q. That's right.

A. Wonderful.

Q. It can be difficult to treat?

A. Yes.

Q. It can quickly turn into a septicemia type of problem?

A. Definitely could, sure.

Q. Okay. By comparison, from the standpoint of treating infections caused by different bacteria, how would you compare staph to Enterobacter?

A. Would I rather have an Enterobacter than the staph infection?

Q. If you can. If you can't do that, say so.

A. Well, it's very, very well known that the staphylococcus is a primarily virulent organism and could kill you. It's also known that there is a

tremendous amount of variation, it sometimes could kill you in a day, it could kill you in a week, kill you in a month, you know, there's variation.

But certainly it's a very virulent organism and one that we don't like to have, and you wouldn't want it and I wouldn't want it.

So if I had my druthers, I would rather have an Enterobacter cloacae than a staphylococcus aureus. I hope that answers your question. It's a vicious organism.

On the other hand, when you have a foreign body in place, like an orthopedic device, then it becomes very difficult to eradicate either organism.

Q. I understand. Now, following the discussions about this, we have bacteria, bacteria is kind of everywhere, isn't that basically a fair statement?

MR. RUF: Objection.

THE WITNESS: Well, it's not on the moon, it's not on Mars.

BY MR. HANNA:

Q. I'm with you.

A. But it's in the human body certainly, and in the environment, that's correct.

Q. We have bacterias on our skin and in our mouth and places, bacteria that basically has the ability to kill us, correct?

A. That's correct.

Q. Now, why is it that one person develops an infection from those bacteria and another does not?

A. That's a wonderful question.

Q. Thank you very much.

A. You're welcome.

Well, there are a whole host of reasons. I'm not sure you want to hear them all.

Q. Well, I'd like the basic list of them.

A. Well, let's begin, then you can tell me when to stop. Let's take the bacteria in the mouth.

Ordinarily the bacteria in your mouth doesn't cause any problems, although I suppose if you eat a lot of sugar, it can metabolize the sugar and cause dental care.

If you happen to have a rheumatic heart valve or a valve that's been damaged by rheumatic fever or a valve which is congenitally abnormal or --

Q. Maybe this is going to go the other way.

Let me ask you this --

A. We can give you thirty lectures on this.

Q. Well, would you agree that any operative site will have colonies of bacteria of some form introduced in every surgery?

A. Theoretically and likely, I am sure that small numbers of bacteria get introduced all the time, that's correct.

Q. All right. But not everybody gets an infection?

A. That's correct.

Q. So what I am looking for, and we can limit it to even orthopedic surgery, a knee surgery involving a tibial plateau fracture --

A. Fine.

Q. -- why despite that phenomena does one person develop an infection and another does not?

A. Again, I don't want to shake your hand again but it's an excellent question. And it may relate to a simple factor.

First of all, I am doing my best here because I am not prepared to give you a lecture, but obviously the foreign body is critical.

Because everyone knows, it's just experience, you can go into the theories of this,

as soon as you have a foreign body in place, then the whole equation between the organism and the host changes.

And the organism is dominant when a foreign body is in place. Probably because the host cannot mount a defense, a local defense with that foreign object.

The second may be very subtle. The surgeons will tell you that for example one of the key things that surgeons know is that the longer – the operation, the greater the risk of infection.

Now that may be because more organisms are implanted or because there is more necrotic tissue because of the nature of the procedure being a long, complicated procedure, dead tissue, where our own host leukocytes, little white blood cells, it can't get in.

Or there may be a blood clot. And if bacteria are in the middle of a blood clot, then the host can't get in, it can't penetrate the blood clot. It can be a very small blood clot.

So it's probably related to what you might call the microenvironment, the number of bugs that drop dead and whether or not they are virulent or avirulent, that's going to vary.

The anatomy of the wound, how big it is, the duration of the procedure, whether or not there are clots, dead tissue from, you know, the surgeons are always burning things all the time, and under those circumstances host cells can't get in, or the foreign body. And those are a series of equations, a series of probabilities. So it's host micro, okay?

Q. Got it.

A. It's a superficial answer but I hope it satisfies you.

Q. Okay. Are there any other opinions or observations you believe you have formulated in connection with this case I have not -- that you can think of at this time that I've neglected to inquire about?

A. No.

Q. Let me ask a couple of questions surrounding just some of the technical issues here.

Do you have an assessment of the time that you've spent in reviewing this case thus far?

A. I would say, let's see, six hours -- about ten hours.

Q. Okay. And are you charging the Plaintiffs

by the hour for your work in this case?

A. Yes, I am.

Q. At what rate?

A. 250.

Q. What are your current charges to the Plaintiff in this case to appear as a witness at trial?

A. I never have a set fee for that. But it depends on where the trial is going to be. But if you ask me generally what usually occurs, it would be roughly twenty-five hundred dollars to three thousand dollars for the half day or whatever the time would take.

Really, if you had me on the stand for two days, I would charge a little bit more. So it really depends on how much pain you extract, okay. If you're real nice to me he won't get charged very much.

Q. How many cases have you reviewed as an expert witness in the past year?

A. Oh, at least a dozen. The last year, yeah, a twelve month period, yes.

Q. Okay. And how many have you averaged a year going back to around 1985?

A. Well, it's so variable, I'm going to give

you just -- I can only give you just a guess. A dozen, ten, eight, twelve, in that range. It would be more frequent in the last year, presumably because I'm getting older.

Q. Why is that?

A. I don't know.

Q. Have you advertised your services as an expert at any time?

A. At no time, never.

Q. On how many occasions -- do you know how-many depositions you have given?

A. I don't know.

Q. Can you average those on a yearly basis?

A. I would say two or three, sometimes four.

Q. How many times have you testified in trial? And I mean that by way of either live or a deposition that's intended to be read at trial?

A. At least a half a dozen times.

Q. For lack of a better way to phrase this, how far have you gone geographically to serve as an expert in a medical malpractice case?

A. Well, I've gone within the state of Ohio, Toledo, Cleveland, then I've skipped, then I've been to once to North Carolina, and then I think once or twice to Florida. And no place else --

wait a minute, once to Louisiana -- no, not even that. That's all.

Q. Have you served as an expert witness in any cases other than medical malpractice?

A. Yes.

Q. What types of cases?

A. Some product liability cases. Period.

Q. And in terms of consultation and serving as an expert witness in medical malpractice litigation, has it been exclusively for the plaintiffs?

A. No, I've reviewed this back and forth over the years, it's fifty-fifty, defense, plaintiffs.

Q. And have you maintained a record of all of the cases in which you have served as an expert witness?

A. I have all the cases, I have files in my office of all the cases. Now if you call that a record, fine.

Q. You still have that?

A. I still have those files. They get thinned out.

Q. Do you handle your own financial accounting --

A. Yes.

Q. __ in terms of your income, all that sort of thing?

A. Yes, I do.

Q. You prepare your own tax returns?

A. My wife prepares the tax returns in conjunction with an accountant, but I don't do it, no.

Q. Okay. Do you know what your percentage of income is on an annual basis as divided between -- well, I am assuming that your income is divided – between your salary position and that the work that you do is generally handled through that chaired position, that process.

Other than this work, do you have another source of income?

A. I have several other sources of income.

Q. And I don't mean investments.

A. No, I understand that. We have a practice plan at Ohio State, so I have the income from the university, from my salary, and then I have additional income from my practice, which is all contracted out according to the rules and regulations of the university.

But that's a separate entity, it's run by the department of internal medicine

exclusively. In other words, I don't have any practice outside of the practice plan of the university. So that's a source of income.

Then I receive honoraria for talks, and then I consult for pharmaceutical and equipment manufacturers from time to time. And then during travel I may receive honoraria, expenses, so forth. So those are the multiple sources.

Of course malpractice or legally related areas, and then I have another source, that is I have royalties from the book that I publish.

Q. Okay. What is the approximate percentage of your income from -- generated from serving as an expert witness, I mean your professional income as opposed to any investments?

A. I would say it's -- it's varied from ten percent, you know, in the past, it may be this year it might be higher, might even go up to fifteen to twenty percent. That is a peculiar year.

Q. And if I am following you, other than this year being a little higher, basically it's averaged about the same amount of time, number of cases, depositions, so forth, going back to when?

A. Well, I have been involved in these kind of cases since 1970, I did my first case. At first

it was two or three cases a year, and then it just accelerated. And I think that's simply because -- I'm sure it's the same in your world, that someone knows you, an attorney you have worked with before, you get called upon.

As I mentioned to you, I do no solicitation whatsoever but it just becomes more and more common that attorneys have been calling me from either side.

And very often it's an attorney that-I worked with before or had been the adversary, it's very common for an adversarial attorney to ask me to work for him or her on the other side. And I just take the cases as they come along and I try to be as honest as I can.

And as you know from your own experience, most of the time, most if not many cases, many of the cases have no merit whatsoever, one way or the other, and **I** just don't get involved with them beyond that. I give some advice, say I don't see any merit in this case, that's it.

Most of the time the cases **do** not end in deposition and most of the time they don't go to court. So it's really a matter then of lots of cases but not much action.

Q. The only other thing I would ask of you in connection with that would be a list of your publications. And given your collection of those files, the identification of the cases in which you have served as a defense expert.

A. Going back to how long?

Q. I don't know, the last five years.

A. And do you want defense expert at what level? Having reviewed a case or having given a deposition or going to court?

Q. How about a deposition, cut it off there for you.

A. All right. Let me write it down, you want five years, defense, depositions or court, right?

Q. Right.

A. And/or court. And you want the geography.

Q. What is the recognized or the accepted or whatever the term of art should be for you in infection, in the subject of infectious disease, recognized incidence of infection in orthopedic surgical cases?

MR. RUF: Objection, in general or Enterobacter?

MR. HANNA: Well, let me -- I realize

you have raised this objection before.

BY MR. HANNA:

Q. To my knowledge the -- from the standpoint of infectious disease, a person attempting to track, control, assess infectious rates, C.D.G. and otherwise, they are not tracked by the specific bacteria in terms of calculating percentage risk as it relates to individual procedures, am I correct about that?

A. I can't speak to that. It depends on what level you are talking about. There is the national nosocomial infection study, which is very, very comprehensive, but it encompasses, I don't know, seventy or eighty sentinel hospitals, and they ask everything, they want to know the bug and the drugs, the whole thing.

So I am not quite sure if you are referring to that or you're referring to surveillance in general. But that study, my goodness, they ask for lots of stuff.

Q. Well, in terms of an open, an orthopedic surgical procedure such as Mr. Farner's, there is a recognized risk of infection on a percentage basis, correct?

A. You asked two questions, you know that,

you asked two questions, one was the rate of infection in orthopedic surgery, and then you asked some other question in regard to what the national something or other, I sort of answered your question in parts. So I don't want to be tough but --

Q. No, I was responding to the objection.

A. Okay.

Q. There is a recognized rate of infection for certain types of surgical procedures?

A. That's correct.

Q. And do you know what that is for orthopedic surgeries such as Mr. Farner's?

MR. RUF: Objection.

THE WITNESS: I have a reasonable guess, which could be corrected by, you know, by the numbers. But I would expect it to be much less than one percent. This is clean surgery, so it would be less than one percent.

That's the rate I would expect. Now maybe it is a little higher but I think that's the rate.

BY MR. HANNA:

Q. Now the second part that was raised by the objection is, in terms of surveillance practices in

observance of surgeries, that percentage is not divided amongst different types of bacteria, is it?

A. Yes, it is. And I am surprised that you ask that question. It depends who you are asking. But if you look at the national nosocomial -- I cited it earlier, that study, which is a huge study and it's published in the morbidity and mortality report which comes out weekly, you can see all sorts of rates coming in by organism and studies of microepidemics by organism. I am surprised you asked that question the way you did.

Q. Well, I may not have phrased it properly. I'll let it drop at this point.

MR. HANNA: Let me look through my notes. Mike, do you have any questions for him?

MR. EDMINISTER: Only one. Do you want me to go ahead?

MR. HANNA: Go ahead.

- - -

BY MR. EDMINISTER:

Q. Doctor, I represent Dr. Hill in the case, as you know already.

And if I have been paying attention throughout, and I believe that I have, I understand

that you have thoroughly reviewed all of the records, all of the depositions that you have listed previously, and that you have no criticism of Dr. Hill's care in this case, is that accurate?

A. That's correct.

MR. EDMINISTER: Thank you. I have no further questions.

THE WITNESS: Off the record?

(Discussion had off the record.)

MR. RUF: Are we done?

MR. HANNA: Almost.

- - -

BY MR. HANNA:

Q. Two areas briefly here. Do you participate in your practice in the process of discussing risks of surgery with patients prior to surgery?

A. Yes, of course.

Q. And do you consider yourself to be basically familiar with the procedures that surgeons follow in explaining a risk, that there are risks of infection in undergoing surgery?

A. Oh, yes.

Q. Okay. Now, when risk of infection of surgery is described to a patient, would it be

standard of care for the surgeon to discuss with the patient different types of bacteria?

A. Not particularly. I can't see, I wouldn't think so. And if you look at the various disclosure forms that are issued by surgeons or hospitals, I don't think it describes the nature of the bacteria as far as I know.

Q. Would you agree with me that in the usual practice and in accordance with accepted standards of care, when a physician is preparing a patient for trial -- for surgery, and is securing their informed consent, that what he discusses is generically a risk of infection, and that is the issue and not the bacteria?

A. To the best of my knowledge, that's correct.

Q. Okay. In the instance of hospital patients that have an infection in which Enterobacter is isolated, do you know generally in what percentage of those cases the flora is considered to be endogenous?

A. Enterobacter?

Q. Yes.

A. Well, it might be, if this were a knife wound to the abdomen or a ruptured appendix, you

know, an operation of the abdomen, where the organism might be present among others, it would be unusual but it could be present.

It might be in a urologic procedure where a catheter is in place for some time, where the organism Enterobacter is a common organism.

If it were a patient in an intensive care unit, I could visualize where it might be part of the colonization, doing a procedure such as a tracheostomy, it might implant that organism.

But it would have to be sort of a gross contamination of the abdomen, the pelvis. A diabetic, that kind of thing, where you could see a urinary catheter. But in clean orthopedic surgery you don't.

Q. Well, take the intensive care situation you are describing. Do you know what the percentage of colonization is considered to be attributable to endogenous flora in that type of setting?

A. I just don't know how to respond to you in that. Because when we talk about nosocomial infection, hospital acquired infections, the organisms are usually environmental organisms, the urinary catheter, transmitted from person to

person, from wounds, so on. That's a nosocomial, would be a hospital acquired infection, that's usually the way it counted.

The way you talk about a community acquired infection would be the fellow that comes in with a stab wound or the person that ruptured their appendix, the perforated diverticulum, something of that sort, that's the way it's distinguished.

If it were a staphylococcus that was -- unusual in the community but was common in the hospital, it could be called a nosocomial staphylococcus.

And I was trying to make that point earlier, not all staphylococcus are simply normal floras of the skin, it can be implanted on the hospital environment. Hospitals are dangerous places.

Q. Well, my question was, in the **ICU** setting, Enterobacter infection in respiratory, in respiratory infections, do you know, have an opinion as to whether or not the majority of those types of infections are from endogenous flora?

A. They would be considered nosocomial and not endogenous. They become endogenous because the

patient becomes colonized with it, but it's not part of the normal flora that they obtain at the hospital. When you're talking about normal flora, you have to -- the assumption would be a person otherwise healthy, not exposed to antibiotics, and comes in the community, that would be normal flora.

People are not running around with Enterobacter cloacae in those numbers with norma flora. If you're in a hospital, where you are -- exposed to these organisms from the environment, where you receive lots of antibiotics that select out the normal flora, you get superinfected by hospital organisms, that's not normal flora.

Q. So your answer is no?

A. No, okay. I am just trying to figure out exactly, the reason I asked it the way I did is because I am trying to figure out the reasoning that went into your question.

Q. I appreciate the explanation, I just want to make sure I interpret that the answer is no?

A. You're right, no.

MR. HANNA: I have no further questions. What do you want to do with signature?

MR. RUF: Doctor, you have the right to

read this transcript or you can assume it's been taken down correctly and waive that right. What would you like to do?

THE WITNESS: Well, I prefer not to do anything, I prefer just to let it go.

MR. RUF: It's up to you.

THE WITNESS: I feel comfortable, I don't feel I have to read it. If you want me to read it, I 11 be happy to do that.

MR. RUF: I'll leave it up to you then.

THE WITNESS: Then I won't read it.

- - -

(Deposition concluded at 6:10 o'clock p.m.)

(Signature waived.)

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C E R T I F I C A T E

STATE OF OHIO,)
) SS:
SUMMIT COUNTY.)

I, Michael G. Cotterman, Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within named witness, CALVIN M. KUNIN, M.D., was by me first duly sworn to testify the truth, the whole truth and nothing but the truth in the cause aforesaid; that the testimony then given by the witness was by me reduced to Stenotypy in the presence of said witness, afterwards transcribed upon a computer; and that the foregoing is **a** true and correct transcription of the testimony so given by the witness as aforesaid.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified, and was completed without adjournment.

I do further certify that I am not a relative, counsel or attorney of either party, or otherwise interested in the event of this action.

IN WITNESS HEREOF, **I** have hereunto set my hand and affixed my seal of office at Akron, Ohio on this 25th day of April, 1997.

Michael G. Cotterman, Notary Public in and for the State of Ohio.

My Commission expires October 25, 1997.

CURRICULUM VITAE

Name: Calvin Murray Kunin, M.D, F.A.C.P.

Office Address: The Ohio State University
MllO Starling-Loving Hall
320 W. 10th Avenue
Columbus, OH 43210-1240

Home Address: 2447 Coventry Road
Columbus, OH 43221

Office Telephone: (614) 293-8976
Office FAX: (614) 293-5627

Home Telephone: (614) 488-3634

Personal: Birthdate: May 3, 1929, Burlington, Vermont
SSN: 057 22 0984

Education: 1949 A.B. - Columbia College, with honors
1953 M.D. - Cornell University Medical College

Student Fellow of the National Foundation for Infantile Paralysis
Postdoctoral Research Fellow, NIH 1958 - 1959
Career Development Award, USPHS 1966-1967

1953-1954 Intern in Medicine, The New York Hospital, N.Y.

1954-1956 **S.A.** Surgeon (R) Communicable Disease Center USPHS, Department Health, Atlanta, **GA** Education and Welfare

1956-1957 Resident in Medicine, Peter Bent Brigham Hospital Boston, MA

1957-1959 Research Fellow, Thorndike Memorial Laboratory (Preceptor - Dr. Maxwell Finland) Boston City Hospital, Harvard Medical School

Academic Positions:

1959-1963 Assistant Professor of Preventive Medicine and Internal Medicine, University of Virginia School of Medicine Charlottesville, VA

1963-1967 Associate Professor of Preventive Medicine and Internal Medicine, University of Virginia School of Medicine Charlottesville, VA

Academic Positions cont:

1967-1970	Professor/Chairman of Preventive Medicine and Internal Medicine, University of Virginia School of Medicine Charlottesville, VA
1970-1979	Professor/Associate Chairman, Department of Medicine The University of Wisconsin, Madison, WI
1970-1979	Chief, Medical Service, William S. Middleton Memorial V.A. Hospital, Madison, WI
1979-1984	Professor/Chairman, Department of Internal Medicine, The Ohio State University College of Medicine, Columbus, OH
1982-Present	Pomerene Professor of Internal Medicine, The Ohio State University College of Medicine, Columbus, OH

Military:

U.S. Public Health Service (Reserve), Active Duty 2 1/2 Years

Surgeon (R) Promotion as of April 1965, Inactive Reserve, Resigned 1980

Board Certification: and Licensure

#24977 - Massachusetts	June 13, 1957 (Inactive)
#14161 - Virginia	December 1, 1959 (Inactive)
#17242 - Wisconsin	July 15, 1970 (Inactive)
#43864 - Ohio	August 9, 1979 (Active)

Professional Memberships:

President - Infectious Diseases Society of America, 1986-1987
Councilor - Infectious Diseases Society of America, 1973-1975
Chairman, Antimicrobial Committee, Infectious Diseases Society of America, 1988-19921963 American Board of Internal Medicine
Principle Investigator, IDSA/FDA contract to prepare Guidelines for the Clinical Evaluation of New Anti-Infective Drugs (1990-1993)
Secretary-Treasurer, Association of **V.A.** Chiefs of Medicine, 1973-1979
National Advisory Committee, Physicians for Social Responsibility, 1981-1990
1963 American Board of Microbiology, Emeritus 1980
American Society for Clinical Investigation (Emeritus)
Association of American Physicians
Central Society for Clinical Research
American Association for the Advancement of Science
American Association of Immunologists
American College of Physicians
American Epidemiological Society, through 1977
American Federation for Clinical Research
American Public Health Association
American Society of Microbiology

Professional Memberships cont:

American Society of Internal Medicine (Virginia, Wisconsin, Ohio)
American Society of Nephrology
Association of Veterans Administration Chiefs of Medicine, 1970-1979
Epidemic Intelligence Service Alumni Association
Society of Epidemiologic Research

The Ohio State University

College of Medicine, Executive Committee
Dean's Committee for Veterans Administration
Infection control committee
Executive Committee of the OSU Hospitals
Pharmacy and Therapeutics Committee
Physicians for Social Responsibility (Student advisor)
Chairman, Hospital Infection Control 1988-1990
University Senate, 1989-1990

Honors/Awards:

Phi Beta Kappa
Alpha Omega Alpha
Sigma *Xi*
John and Mary Markle Scholar in Medical Sciences, 1961-1966
Fellow, American Academy of Microbiology
Fellow, American College of Physicians
Fellow, American Association for the Advancement of Science
President and Visitors Research Prize, Sigma Xi
AOA Visiting Professor, West Virginia University, 1970
George R. Minot Memorial Lecturer, AMA Meeting, San Francisco, June 19, 1972
Visiting Professor of Medicine, Makerere University Medical School Kampala, Uganda, East Africa, August, 1972
Paul Kimmelstiel Memorial Lecturer, Oklahoma City, 1974
McLaughlin Lecture, Galveston, Texas, 1974
Physicians Recognition Award AMA, 1976
Honorary Associate Fellowship in the American Academy of Pediatrics, 1977-Present
The Rockefeller Foundation Scholar-in-Residence, Bellagio Study and Conference Center, Italy, 1978
David Earle Lectureship, 1979
Distinguished Achievement in Antibiotic Review, March, 1979
Association of Military Surgeons of the United States Sustaining Membership Award, 1980
Frank E. and Mary W. Pomerene Professorship of Infectious Diseases, 1982-Present
Meiklejohn Lectureship, University of Colorado, 1985
Bowman Lecture, University of Virginia, 1985
M. Glen Koening Visiting Professor, Vanderbilt University, 1986
Franz J. Ingelfinger Visiting Professor, Boston City Hospital, 1986
John K. Lattimer Lecture, The American Academy of Pediatrics, 1988
Maxwell Finland Visiting Professor, Brockton & West Roxbury VA Medical Center, 1991

	FARNER		NO. 1	NO. 2		NO. 3	NO. 4	
	3/24/95	4/7/95	7/8/94	9/14/94	8/26/94	1/7/95	3/21/95	3/29/95
AMIKACIN	S	S	S	S	S	S	S	S
AMP/SULBACTAM	I	I	S	R	R	R	R	I
AMPICILLIN	R	R	R	R	R	R	R	R
AZTREONAM	S	S	S	S	S	S	S	S
CEFAZOLIN	R	R	R	R	R	R	R	R
CEFOTETAN	S	S	S	S	S	I	S	S
CEFOXITIN	R	R	R	R	R	R	R	R
CEFTAZIDIME	S	S	S	S	S	S	S	S
CEFTRIAXONE	S	S	S	S	S	S	S	S
CEFUROX-AXET	I	I	S	I	I	I	I	I
CEFUROX-SODIUM	I	I	S	S	S	I	I	I
CEFALOTHIN	R	R	R	R	R	R	R	R
CIPROFLOXACIN	S	S	S	S	S	S	S	S
GENTAMICIN	S	S	S	S	S	S	S	S
IMIPENEM	S	S	S	S	S	S	S	S
MEZLOCILLIN	S	S	S	S	S	S	S	S
PIPERICILLIN	S	S	S		S	S	S	S
TICAR/CLAV	S	S	S		S	S	S	S
TICARCILLIN	S	S	S		S	S	S	S
TOBRAMYCIN	S	S	S		S	S	S	S
TRIMETH/SULFA	S	S	S		S	S	S	S

	NO. 5			NO. 6	NO. 7	NO. 8	NO. 9	
	6/1/95	7/10/95	7/17/95	8/4/95	8/18/95	6/26/96	10/21/96	10/23/96
AMIKACIN	S	S	S	S	S	S	S	S
AMP/SULBACTAM	S	S	R	R	I	I	I	I
AMPICILLIN	R	R	R	R	R	R	R	R
AZTREONAM	S	S	S	S	S	S	S	S
CEFAZOLIN	R	R	R	R	R	R	R	R
CEFOTETAN	S	S	S	S	S	S		
CEFOXITIN	R	S	R	R	R	S	R	R
CEFTAZIDIME	S	S	S	S	S	R	S	S
CEFTRIAXONE	S	S	S	S	S	S		
CEFUROX-AXET	I	I	R	I	I	I	I	I
CEFUROX-SODIUM	S	S	R	S	I	S	S	I
CEFALOTHIN	R	S	R	R	R	R	R	R
CIPROFLOXACIN	S	S	S	S	S	S	S	S
GENTAMICIN	S	S	S	S	S	S	S	S
IMIPENEM	S	S	S	S	S	S	S	S
MEZLOCILLIN	S	S	S	S	S	S	S	S
PIPERICILLIN	S	S	S	S	S	S	S	S
TICAR/CLAV	S	S	S	S	S	S	S	S
TICARCILLIN	S	S	S	S	I	S	S	S
TOBRAMYCIN	S	S	S	S	S	S	S	S
TRIMETH/SULFA	S	S	S	S	S	S	S	S
CEFOPERAZONE						S	S	S
CEFOTAXIME						S	S	S

DEFENDANT'S EXHIBIT
4-22-97 2 KUHN