Witness: Greggory Russell Devore

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Day 1 of 1 for this witness

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Direct Examination by David Harris

HARRIS: Doctor Devore.

JUDGE: Doctor Devore.

CLERK: Would you raise your right hand? You do solemnly state that the evidence you will give in this matter will be the truth, the whole truth, and nothing but the truth, so help you God?

DEVORE: Yes, I do.

CLERK: Be seated. State and spell your name for the record.

DEVORE: Greggory. G-r-e-g-g-o-r-y. Russell R-u-s-s-e-l-l. Devore. D-e-v-o-r-e.

JUDGE: Go ahead, Mr. Harris.

HARRIS: Thank you.

HARRIS: Doctor, what is your occupation?

DEVORE: I'm a physician specializing in high risk obstetrics and maternal-fetal medicine.

HARRIS: Maternal-fetal medicine, can you explain?

DEVORE: In obstetrics and gynecology, which is the profession of caring for women, there are three subspecialties that require special training. And one of those is called maternal-fetal medicine. That is caring for the mother or the fetus that may to be at high risk. And that involves doing ultrasound as one of the main things that we do to evaluate the fetus.

HARRIS: In preparation for this profession did you go to medical school?

DEVORE: Yes, I did.

HARRIS: Where did you go to medical school?

DEVORE: University of Utah Medical School.

HARRIS: Is this a standard program for an M.D.?

DEVORE: Yes. Traditional four-year educational process.

HARRIS: After that what do you do?

DEVORE: After that I then did an internship at Yale University in Connecticut in internal medicine. Then I did a residency program in obstetrics and gynecology for three years at Yale

University. Then I did a fellowship in maternal-fetal medicine for two years at Yale University.

HARRIS: This fellowship, what is that?

DEVORE: That is special training that allows you to be certified as a specialist in maternal-fetal medicine. Involves additional training, research, writing papers, for example, learning new material. And then after that is completed, then you sit for the boards for where you have to be board certified. That's the eventual end of the process.

HARRIS: And that's something that you have done to allow you to be in the practice that you are in now?

DEVORE: Yes, it is.

HARRIS: Did you, as you go through this process, you go through your internship and your residency and this fellowship, do you learn about using ultrasound or sonograms?

DEVORE: Yes, you do. That's part of the educational process in obstetrics, and especially in maternal-fetal medicine.

HARRIS: In that particular specialty, what -- we have heard the terms. But what actually is ultrasound, or sonography? How does it work?

DEVORE: Ultrasound and sonography are different terms for the very same thing. Ultrasound, basically you have a machine, computerized machine. And it has a probe much like a -- maybe it's about this big. The end of the probe is placed on the skin of the patient. And for our purposes of discussion we'll talking about pregnant ladies. It's placed on the anatomy, on the pelvis, then sound waves are emitted from the machine. The sound waves go into the tissue, then they are reflected back by different parts of different kinds of tissue, fluid. For example, blood, bone, et cetera. Comes back, and that energy that's returned is -- then an image is created from that returning energy. The image is displayed on a screen. Then you can recognize different anatomical parts of the body on the ultrasound screen itself.

HARRIS: Ultrasound machine here, in maternal-fetal medicine, does it have a use?

DEVORE: Yes, it does.

HARRIS: And what's it used for?

DEVORE: It's used -- primarily used for a number of things. But primarily it's used to determine how old the fetus is when one wants to know that. It's determined -- used to determine how the fetus is growing, to see if it's growing properly. Because certain fetal conditions, certain diseases can affect the growth, make the fetus bigger or smaller. Used to look for birth defects. Used to look at -- determine how the fetuses present, or placenta is located, where the blood is flowing in the fetus. It's different. This is really like a physical examination of the fetus using soundwaves.

HARRIS: You talked about that you have a practice, a specialized practice at this point in time. What is it that you do actually in your specialized practice?

DEVORE: In my practice -- been this way for the last number of years. I work as a consultant. That is to say, obstetricians will refer patients to me. They provide the care for their patient, but they will refer the patient to me for an ultrasound evaluation, and put that into context with a particular problem maybe they may be worried about. In that practice I see about 6,000 patients a year, and I am -- the physicians refer to me, in the course of a year, encompasses about 700 physicians in the greater Los Angeles area.

HARRIS: And when these patients come to you as part of this consultation, are they referred to you -- what type of things -- what are the general types of things that you are being asked to determine?

DEVORE: Well, I'm -- majority of the fetuses, we will make measurements, for example. We'll measure the size of the head, the size of the abdomen, the size of the leg bone, called the femur bone. That's part of the routine examination. And almost every single examination, unless it's in the very first part in the pregnancy, then we, of course, look for birth defects, looking for problems of the brain, or the heart, or other things. But the measurements I just mentioned are done in every single fetus, almost every single time.

HARRIS: About how many fetuses do you think that you have performed ultrasound examinations on in your career?

DEVORE: That's a good question. I was thinking about that probably over 75,000.

HARRIS: 75,000. In your career, have you also written papers, or given any presentations in the area of use of ultrasound as it relates to maternal-fetal medicine?

DEVORE: Yes, I have.

HARRIS: Can you give us an example of some of those?

DEVORE: I have written what are called -- there is different kinds of writings. One is called peer review literature, in which you submit a paper, and it's reviewed anonymously by experts in the field. Maybe they determine whether that paper is worthy of publication, so they recommend it be published in the medical literature. I have published approximately just over a hundred peer-reviewed articles. I have also written many chapters in textbooks of medicine, probably exceeding 25 textbooks. And I have spoken literally hundreds of times at meetings, educational meetings for physicians throughout the world. I have spoken in Asia, Australia, South America, Europe, United States, Canada. So I have been everywhere except for Africa, basically.

HARRIS: And these topics that you cover, and presentations that you have given, does that relate and deal with use of ultrasounds in fetal medicine?

DEVORE: Almost every one of my talks, I'd say ninety percent of my talks have related to ultrasounds. That's been my area of expertise, the papers, most of them have some kind of ultrasound, and chapters in textbooks have all been mostly almost ultrasound related.

HARRIS: In this particular case, were you contacted by members of the District Attorney's office and representatives of the Modesto Police Department --

JUDGE: Before you have proceed, you are qualifying him as an expert?

HARRIS: Yes.

JUDGE: Do you have any questions, Mr. Geragos, as to his qualifications?

GERAGOS: No, your Honor.

JUDGE: Then, ladies and gentlemen of the jury, based on the qualifications of Doctor Devore, the Court will accept Doctor Devore as an expert in maternal-fetal medicine, qualified to give an opinion therein. Go ahead.

HARRIS: Doctor Devore, were you contacted by members of the District Attorney's Office and Modesto Police Department to ask if you could assist in looking at some medical records relating to Conner Peterson to try and determine an estimate of his age?

DEVORE: Yes, I was.

HARRIS: And did you receive those records?

DEVORE: I did.

HARRIS: Like to show you what's previously been marked as People's Number 63. Just have you take a second to look at those, see if those appear to be the same records that you were provided with.

DEVORE: Yes, they are.

HARRIS: When you were asked to look at these particular records and, again, relating them to your profession and your specialty maternal-fetal medicine, did you notice or determine if there were any ultrasound examinations that had been done on Laci Peterson and Conner Peterson?

DEVORE: Yes, there were two ultrasound examinations performed that I saw images from.

HARRIS: And did you look at those particular images and make any determinations?

DEVORE: Yes, I did.

HARRIS: Let's go through that process.

DEVORE: Okay. I'm going to begin with the very first examination done on 7-16-02. That would be termed a first trimester evaluation. And that is done -- that was done on 7-16, as I mentioned. Let me find the image here in the record. Okay, I have the record in front of me of the examination from 7-16-02.

HARRIS: When you started to go through this process of looking at these records for Modesto Police Department, did you try and make a determination of what type of ultrasound was done in this particular case with Laci Peterson?

DEVORE: Yes, I did.

HARRIS: What did you determine?

DEVORE: On this particular date the ultrasound was done to establish, for example, how many fetuses were present. And it was used to measure what's called the crown-rump length, which is the length of the fetus, to determine the age. And that measurement was done, and the crown-rump length measured 32 millimeters. And using some published equations that have been done, the age, based upon the ultrasound, was equal to ten weeks and one day.

HARRIS: Let's go back that a little bit. Might be self-explanatory. But just so there is no ambiguity, when you talk about crown-rump, that's a measurement of some kind?

DEVORE: Yes. What it is, to think of it, for example, if this is the crown of the head, top of the head the rump is the rump. You measure in the fetus, because it's fairly straight, the distance from the top of the head to the rump. And then, from that measurement, you can then determine the age of the fetus with the ultrasound measurements. It's called the crown-rump length. The distance from the top of the head to the back of the rump.

HARRIS: You said that there was standard publications that had a formula or calculation that allowed that to be determined. Does that show on that particular ultrasound the dates and the publication that you are referring to?

DEVORE: Yes. It says here, Robinson. And it has the measurement next to it, and the corresponding age next to that.

HARRIS: And is that something with this type of machine that's a pretty standard thing that's being used out in the field of obstetrics?

DEVORE: Yes, it is.

HARRIS: We have also heard that there is a determination or an attempt to determine how old a fetus is by going from the last menstrual period. Did you also look at the records for that?

DEVORE: Yes. The last menstrual period was listed in the records is 5-6-02.

HARRIS: And when you look at this, from the last menstrual period to the date, based on these factors, from the published information, based on the crown-rump, length do they correspond?

DEVORE: Yes, they are within one day of each other. And that is almost -- if they were identical, then that would be identical. But with the one day, which is a very, very superb correlation.

HARRIS: And since it's in the first trimester, does this mean anything?

DEVORE: Certainly does. What it does, the major problem with most obstetrical patients is the physician doesn't know how old the fetus is. And clinical decisions have to be made based upon that. And so, if we're lucky, a physician -- for example, Laci Peterson's physicians did the ultrasound. And sometimes physicians don't do. Many times they do. And by documenting with the measurements the age of the fetus in the first trimester, it basically stated or informed us that the fetus was as old as we thought it was based upon Laci's last menstrual period. As a reference point we can use that as gold standard to determine how old the fetus is at any given future date based upon the last menstrual period being accurate as corroborated by the measurements of the crown-rump length.

HARRIS: You said a gold standard. Is that just kind of a term for meaning that it's a good standard?

DEVORE: It's a good standard. In fact, the gold standard for determining -- well, the real gold standard would be in vitro fertilization. You put the egg and sperm together, you know exactly the date of conception. If you use some other parameters in women who are trying to become pregnant, you can get some idea. But, short of that, one that is used by physicians is the first trimester ultrasound. That's the most useful. It's the most accurate from an ultrasound perspective, as far as determining the age.

HARRIS: In your review of the medical file, did you determine if there was a second ultrasound that was performed?

DEVORE: Yes. The second ultrasound was done on 9-24-02. And that was also performed –

HARRIS: Did you look at that particular ultrasound to see if it had any information that was significant to you?

DEVORE: Yes. That ultrasound examination was performed, and it measured now parts of the fetus different than the crown-rump measurement. For example, they measured the length of the leg bone, called the femur bone. They measured the circumference around the head. That is the area around the head, like so. It's called a head circumference. They measured the circumference around the abdomen at the level of the liver. And they measured the diameter of the head. So they had four different measurements to determine the size of the of these structures.

HARRIS: Does it seem to be -- or does it seem to be -- is it a different purpose why you do the second ultrasound than you do the first ultrasound?

DEVORE: In this case, yes.

HARRIS: What would the difference be?

DEVORE: In this case, because we have determined the age of the fetus already with the crown-rump length, we know how old it is. And it's virtually identical to what is expected from her last menstrual period. These measurements now are used to determine how big the fetus is and how old it is. The reason for that is because fetuses are different sizes based upon their growth potential. For example, if we look at children that may be one year of age, we see for the same birth date, we may have different sizes. They grow at different potentials. The same thing happens in the fetus. The fetus, for example, can be -- can grow at the 90th percentile, which is growing at the upper range of normal for its age; or it can grow at the 50th percentile, where it grows average for its age; or in the lower percentiles. And so this gives us an idea of how big it was at that time -- at the time that it was done. And we can use that to determine what that potential growth would be in the future.

HARRIS: You are talking about growth percentiles. What is that?

DEVORE: Well, the way to think about it is that each individual has his own unique growth potential genetically determined. And that sometimes can be can altered by environmental things. But we know that fetuses, for example, they can be a tall fetus, medium size fetus, and short fetus. That short fetus grows primarily at lower part of the growth curve. The curve is a distribution. And percentile means, for example, say it was a tenth percentile. That means these fetuses are bigger than ten percent of the population, these are smaller than ninety percent of the fetuses. The 50th percentile would mean you are right smack in the middle. You are growing like the average of the population.

HARRIS: If I can interrupt there. To get to the bottom understanding of that. This growth curve, or this growth percentile, are there statistics or information available, standard publications that doctors use in looking at that?

DEVORE: Yes. That are called growth curves. And a growth curve will have a range. For example, bottom range, an upper range, a middle range. That's usually how they are graphed out. Then from that you can then plot the growth of a fetus, how it's growing. And so if you know, for example, the age of the fetus, like we do in this case, we have an early ultrasound, and you have a second measurement done, for example on 9-24, then you can say, okay, this fetus now for this particular measurement falls at this point on that percentile range, because there is distribution, there is a range of maybe several weeks on that distribution. As we're taking into account the taller fetus, the middle size fetuses, shorter fetuses. So you have to say where are you going to start from for your growth. From that point you can say, okay, what will be your growth in the future.

HARRIS: In terms of relating this to looking at Conner Peterson's age, having that first trimester ultrasound, having that second trimester ultrasound, does that mean something?

DEVORE: Absolutely. It's key. I think to try to understand to -- for example, the femur bone that we have at the time, that we have from the pathology specimen, to its true perspective.

HARRIS: So you looked at the medical records and, at some point in time, you were himself given the femur bone from Conner Peterson?

DEVORE: Yes, I was.

HARRIS: And did you perform some type of examination on the femur of Conner Peterson?

DEVORE: I did.

HARRIS: What type of examination did you conduct?

DEVORE: On February the 8th I went to the Coroner's Office in Contra Costa County, and I was given the femur bone. And what I did was, I placed the femur bone into a water bath. It was a tank. And I then had a portable ultrasound machine that I use in the hospitals, for example, when I to consults in the hospitals. And I put the femur in the water bath. And I then placed the ultrasound called transducer in the water. And the depth was about this deep. And I then measured the femur bone with ultrasound to see how close the ultrasound was to the actual measurement. I repeated that exam three times, obtained three different measurements.

HARRIS: Let's go back through this. You have the actual bone. Why didn't you just take the measurements from the actual bone?

DEVORE: Well, because in the literature, years ago, back in the early 80s, late 70s, people had -- when they were first using ultrasounds, tried to understand what they are measuring, actually relating what the actual length would be with the femur bone. They found there is an error of one millimeter, two millimeters, depending on the actual measurement of the bone versus the ultrasound measurement. So, knowing that, there may be a small, small error. I wanted to be sure that what I was going to use for my ultrasound calculations. I was going to go back to ultrasound data. I wanted to be sure how that correlated with the actual length of the bone. So I

put it in the water bath and measured it. And the correlation was very, very good. Then I then took the ultrasound measurements. I took three of them, and I averaged them. Then with that, I said that would be my ultrasound equivalency.

HARRIS: Let's go -- when you are taking this, how actually do you take an ultrasound measurements?

DEVORE: What you do is, think of the bone -- think of the bone sitting like in a fish tank. It was sitting there. I had a little cup underneath to the hold it up. And the ultrasound transducer sends down sound waves. Sound waves come back up. And then it's converted to an image on the screen. The screen then has calipers that you can -- that you can then take and place the caliper at one end of the femur bone, and the other end, and it tells you what the measurement is in millimeters or in centimeters, and then you then record that. And then you measure again and try to obtain on the femur bone, the best image you can, re-measure it a second time, do the same thing the third time. The machine allows you to take that image and then measure from that image.

HARRIS: Why is it that you would do this three times?

DEVORE: Well, couple of reasons. In the -- when you go back and look at references, for example, in papers that we would use to try and understand what happen, the investigators use three measurements in their research papers. Some investigators took the average. Some investigators -- some researcher took the longest length measurement. So it just depends. So I wanted to replicate that. And some people clinically do that. They will take three measurements and take the average or the longer of the femur bone. So I wanted to be as close as we could replicating what the researchers had done in writing the papers we were going to use as reference to understand what happened.

HARRIS: And you said that you got three different measurements. How much difference, if you can describe that?

DEVORE: Okay. The first measurement was 64 -- excuse me, just get me reference here. Was 64.5 millimeters. Excuse me. I'm sorry that was the average. The first measurements -- here we are -- was 64 millimeters, and 64.7 millimeters, and 65 millimeters, for an average of 64.5 millimeters.

HARRIS: Why is it that you would get -- let me back up for a second. Not being very familiar with the metric system, what are we really talking about in terms of the difference with those measurements?

DEVORE: You have to understand what a millimeter is. A millimeter is very, very tiny. So I have a difference of -- maximum difference of one millimeter. It's very, very small. That may be the quiver of the hand as you are trying to take and line these things up. So the difference between them was basically minuscule. And when we compare that to the actual length of the femur bone, the average difference was .7 millimeters. So from any perspective that's a very -- that's very precise correlation.

HARRIS: When you conducted the examination at the Coroner's Office, did you also already have Doctor Galloway -- Alison Galloway's anthropological report?

DEVORE: Let me think. Let me see when I got that. I may have. I don't remember if I had it or I didn't have it. What I try to do, because I obviously don't want to take a second here. I think what I have to take and measure. If I had it, I remember -- I think I did. And I hadn't read it for a long time. And I walked in the room. I said, I don't want to know what she measured. I don't want to have that as a reference or as trying to take -- I have to get this measurement, a certain thing. I didn't know what that was. If I had read it, I had forgotten about it. I didn't even ask to see it. So I did the measurements pretty cold. I didn't have a reference standard. I do recall

that's close to her measurements. I did not have that. It was not in my presence, and I hadn't looked at it. I didn't do that until after I finished the measurements.

HARRIS: After you are done with your measurements, did you compare your measurements to hers?

DEVORE: What I did in the reports that I sent to your office, I then went back and reconstructed a document, and then compared my measurements to her measurements. And that's when I put that together for you.

HARRIS: And are your measurements within that same kind of range that you are talking about for Doctor Galloway's?

DEVORE: Yes. Her measurement was 63.8 millimeters, or 6.38 centimeters. Centimeter is simply -- a millimeters is a hundredth of a centimeter. And so we look at the difference. It was off by .7 millimeters, which is, again, barely see it. Very, very small difference.

HARRIS: Now, the machine that you are using, this portable machine that you are talking about that gives you the ability to measure that in the same type of environment, this water environment as the femur bone would have been in originally?

DEVORE: Well, the environments are different. The femur bone is inside the fetus. The fetus is inside the uterus. The uterus is inside the mother. The difference -- the only difference is that you are going through water, and the speed of sound in water is different than the speed of sound in the body tissue. But it doesn't affect the measurements, because we are doing what's called a linear measurement. And so, for all intents and purposes, it's the next best thing. You have to duplicate the clinical environment when you don't have the patient there.

HARRIS: This replication, since it's this lineal measurement that you are talking about, does it give you accurate results?

DEVORE: Yes, it does.

HARRIS: You said that after you took your measurements, you went back and you prepared a report. I want to go back through this a little bit. As you prepared your report, did you factor in the medical records that you looked at, these previous ultrasounds?

DEVORE: Yes, I did.

HARRIS: Could you take us through the process of what you did in terms of preparing these reports?

DEVORE: Okay. The report I first reviewed is the medical record. There is several questions that I asked. For example, I asked the question, did Laci Peterson have any medical diseases. That would have affected the growth of the fetus. Remember, I said that each fetus grows at a certain rate. Its own unique rate. And when we have deviations from that, we have diseases that often will take and cause that. I wanted to see if there are -- there were any. For example, I might see gestational diabetes, which is diabetes that pregnant women acquire after 28 weeks of their pregnancy. She had a glucose screening test, which is done on almost every single pregnant patient. And that value was 84, which is very normal. So we know she didn't have a risk for gestational diabetes. Secondly, I looked at whether there was a risk, for example, for Downs Syndrome, because Downs Syndrome fetuses, babies with Downs Syndrome, their femur bones can grow at a lower rate that can become abnormal. And so the femur -- excuse me -- the test that was done on the second trimester, there is a test offered to all pregnant women in California called the Triple Marker Test. It screens for Downs Syndrome, tells you what your risk is. Her risk was one in 3,000, which was very, very low. So I looked at that, said that is not a risk factor. Also looked at the measurements that her OB made. For example, the OB, for example, when the patient goes to each visit, they have a tape measure. They measure how tall the distance from the bone of the pelvis, which is located in the lower part of the body to the top of

the uterus. And with that, there is a correlation that's not too bad, that every week of pregnancy equals a centimeter. Her last visit, for example, on December the 23rd was 33 centimeters -- 32 centimeters, very close to what they expect it to be. Didn't see any evidence of an increased blood pressure, for example. She didn't have that. And so there was basically no clinical evidence from the records that suggested that she would have that fetus that was not growing and normal in the medical record that I could tell.

HARRIS: When you look at the medical records that you just were describing for us, those factors you look at, the two ultrasounds, were you able to predict how fast or how much Conner Peterson was going to grow based on those two ultrasounds?

DEVORE: Yes. Yes. What I did was, I asked the question, if we know how old the fetus is, because once we determine the age in the first trimester, it's locked in. We don't change that age at all. I then said --

HARRIS: Let me stop you there for a second. Why is it, if you determine age in the first trimester, it's locked in, you don't change that?

DEVORE: Well, because when we use ultrasounds in the second and third trimesters, we have what's called variability. And so there is two different questions. For example -- let me back up just a second. Let's say, for example, a patient comes to the physician's office, and she is some place between 18 and 24 weeks, the best clinical guess the obstetrician can make is by measuring her tummy or feeling the uterus, okay? And you don't know really how pregnant she is, because she doesn't have -- she didn't come in the first trimester, nor did she have a crown-rump length measurement early in pregnancy. You are stuck with how pregnant are you? You need to know that. The best way you can tell -- that may have implications in the care of the patient later in pregnancy. So you do an ultrasound. The ultrasound is done, and you make various measurements. One of them would be the measurement of the femur bone. And the report comes back says, okay, the femur bone, the average age would be, say, 22 weeks, but as a plus or minus, because it could be 23 and a half weeks or 18 and a half weeks.

HARRIS: There is a range the report gives you?

DEVORE: The problem is, you don't know how old that fetus is. Also, you have to say, okay, you are probably some place here, because that fetus could have started off, been at a -- growing at a faster, a higher growth rate, or medium growth fetus. You are kind of stuck with, this is the range that you have. And in the third trimester, the lady comes in at 33 weeks, for example, and she just walks in the door, says here I am, I'm pregnant, how pregnant am I? Because you have to know that. Best you can do, you do an ultrasound you get the same kind of variation. You say, well, you are 33 weeks, but you could be 35 weeks, or 36 weeks, or 30 weeks, because the range of the distribution is greater. And the key thing is, the reason for this is not because there is something wrong with the measurements. It's each fetus grows at different rates. Unless you know how old that fetus is, you have very early information, a crown-rump length, for example, or an in vitro fertilization, for example, then you are kind of estimating the age. Once you lock it in, you know this as precisely as you can. The crown-rump length is a precision measurement. Then you say, okay, I now know how old you are. Then I can say, okay, now are you growing in the second trimester; and, from that, you say, okay, what would I expect to see if you are growing normally at any given point in time if I have a measurement of the bone? How old would you be at that time? This is what we did in this analysis.

HARRIS: To go back to the first trimester ultrasound, is there any of that range with the first trimester ultrasound?

DEVORE: The range is plus or minus three days. And, clinically, most physicians will take -- if they have a first trimester ultrasound, and it's within seven days of the last menstrual period, they will clinically lock it into the last menstrual period. Others will take and use the ultrasound,

the gold standard, and say I will use that crown-rump as my reference point.

HARRIS: Now, in this particular case, the ultrasound has that plus or minus, the first trimester, of three days, and the last menstrual period measurements to that crown-rump from the first ultrasound was within one day?

DEVORE: Within one day, that's correct.

HARRIS: You are saying -- so you take that first trimester ultrasound, second trimester ultrasounds, and you were able to predict or estimate, on any given day, a growth rate. Take us through that process.

DEVORE: Okay. Can I use a graph? Can I write on some paper? Might be easiest.

HARRIS: There is some paper behind you and some pens in the tray there.

JUDGE: Do you have a prepared graph, doctor?

DEVORE: I'm just going to draw it freehand if that's okay.

JUDGE: That's fine. This will be People's next in order then. This will be Number 275. Hand Drawn Graph

Marked as Exhibit 275 for identification.

DEVORE: Can you hear me? I'm going to speak loud. I don't have any problem.

JUDGE: Please do.

DEVORE: Okay. The concepts, if we look at growth, I'm going to start here, draw a line this way. Call this forty -- this represents forty weeks. This is going to represent the day of the last menstrual period. Call it the LMP. Two weeks after the last menstrual period. This is why people get confused all the time. Conception occurred. So conception occurs here. The age of the fetus, from the time estimate, conception occurs until birth, is 38 weeks. But obstetricians speak in terms of forty weeks from the last menstrual period. So you take the age of the actual fetus thirty-five weeks, and add two weeks to that, and you have forty weeks. And so the biggest question that always comes up clinically is, when did conception occur? And if a patient doesn't know their last menstrual period, it's uncertain, or she appears later in pregnancy, we don't know this. But when we have a first trimester ultrasound that we have in this case, we can say that's within one day of what we would expect from the last menstrual period. Plus the fact Laci Peterson had, by the records, regular periods at 28 days. Been off birth control pills for almost two years. So it really locks it in. So we now say we now know how old this fetus is. We know approximately within a couple of days when conception occurred also. So then what happens is, we look at the growth of the fetus. We have a growth like this. This is called the 50th percentile. That is where most -- where half of the population grows, along a particular line. Now what do, we mean by distribution, if we draw a line like this, we have a distribution curve. And 50th would be here, and the 5th and 95th down here. Which simply means that most of the patients fall within this range with people in the outlying areas. So what we do, we now then have this curve that goes like this. As you can see, that as pregnancy continues, the range also increases a bit. Okay? So if we look at this point in time right here, say this is twenty weeks right here for example, we would put on this curve a distribution. And so we know how old it is. Therefore, we have to ask the question, the bone length that was measured on -- I think I said 16th -- July 16th, what date did I use here? Excuse me. On July the 16th we have a bone measurement. And we use an equation that said that bone measurement was equal to the 50th percentile. That's called an equation by Jeanty, this reference in my report to you. And from that measurement, okay, that's -- you are 32 millimeters equals 20 weeks, I think, and I put down two days. And by that date the fetus was 20 weeks and one day. So it's within one day of each other. So I use this equation, said, okay, I now know where I am in the 50th percentile. Now, let's take that same equation and say, if I have a bone measurement of a certain length later in the pregnancy at the

time of the death, how old would that fetus be, and at what date would that be equivalent to? Okay? So what I did, after -- I have to refer to my notes here. I used that equation. And then if I take and look at the three measurements I made, 64 millimeters, 64.7 millimeters, and 65 millimeters, and the average of 64.5, millimeters, I said what would those measurements be equal to, assuming that Conner grew along a curve like he was supposed to. There is no pathology that was present that would cause it to change its growth. The date of death would be predicted to be the following: For 64 millimeters, December 21st; for 64.7, December 23rd; for 65, December 24th. For the average, December 23rd.

HARRIS: Go ahead and resume your seat.

DEVORE: Okay.

HARRIS: When you were doing this, you were referring to your notes up there. As part of a -- wait, let me just back up. When you are coming up with these particular dates, do the dates come up from your calculations, or do the calculations come up first to find the dates?

DEVORE: What happens, you get the age of 33 weeks and one day; or sometimes the calculation actually comes up a decimal point, like 33.4. And so you have to convert the .4 to days. So you take .4 times seven, and you can choose then the corresponding day of the week: Third day, fourth day of the week, fifth day of the week.

HARRIS: And so we go through this process, you take the measurement of this femur through the ultrasound that you were describing for us, you then calculate that with the standard references that are used to determine an age of a fetus based on the femur length, what was the determination that came up?

DEVORE: Well, what came out is what I mention, I have listed on the right-hand side corner. For the measurements that I made, using the equation that I used in my report to you, would be December 21st, December 23rd, 24th, and the average December 23rd. And that would be for my measurements from the ultrasound that I did of the bone.

HARRIS: Now, does that kind of get -- I guess trying to ask if it was done a different way in terms of weeks and days as well.

DEVORE: Yes, it was done -- for example, like 33 weeks, what I have, for example, I have the first measurements -- maybe I can write that up there so it would be easier to see, perhaps. What I'm going to do, I'm going to -- this is on the left-hand corner. The measurements, the corresponding age in weeks, and the corresponding date that the bone stopped growing if we used these calculations. So 64 is equal to 32.8 from the equation. Remember, I have to take .8 times days of the week, is equal to 32 weeks and six days, which is equal to December 21st. So I will just go through this for each of these. Excuse me. 64.7 equals 33.15, equals 33 weeks and one day, which equals, I think, December 23rd. I apologize for my handwriting. Doctor's writing. It could be better. Okay. 65 equals 33.28, which equals 33 weeks two days, which equals December 24th. And the average is 64.5, which equals 33.06, which equals 33 weeks one day, which equals December 23rd.

JUDGE: Those are the estimated dates of death, right?

DEVORE: Yes. Dates of death, yes.

HARRIS: Now, there -- as part of the process of this, you have it up there 32 weeks six days, 33 weeks two days, 33 weeks one day, did you graphically lay out there, kind of double check your work in determining what days they fell on?

DEVORE: Well, yes. When I first did the report that I sent to you, I did it by hand. I had calendars. I was writing on papers, and I was getting this report to you. When I went back and prepared for trial, I went back, and I laid it out on a spreadsheet, Day 1, Day 2, Day 3, from the dates using the calendar to reference points. And then seven days in the week, one week, two

weeks, et cetera. So I did it in a more actually precise way. I perhaps should have done it that way the first time. But I did it with the spreadsheet, and then I -- that's how I determined what the weeks were, 33 weeks and one day, what the date was equivalent to. So I did it in a spreadsheet, and I color coded that spreadsheet.

HARRIS: Now, when we talk about the 32 weeks six days, 33 weeks one day, 33 weeks two days, to go through that. When you start from that estimated date of conception, how do we calculate that first day in terms of where we end up on the calendar?

DEVORE: What we do, we use the day of the last menstrual period. Remember I said, here we have a last menstrual period. So that was on May the -- on May the 6th. So that would be Day 1. And then conception occurred two weeks later, based upon the crown-rump information that we have, that I believe that would represent the conception. So we close in as our reference point. So conception occurred here. But the days counted from the last menstrual period, all the gestational ages, 33 weeks and one day, those are called menstrual dates. They are from the last menstrual period. The actual age of the fetus is two weeks less than that, from the time it was conceived from the last menstrual period.

HARRIS: This is how you calculated, when I say menstrual age of 33 weeks and one day?

DEVORE: That's from this last menstrual period date.

HARRIS: The dates that are used by obstetricians, do they use that gestational age that you are referring to?

DEVORE: Yes. The gestational age that -- they use different terms. They will use gestational age as from the last menstrual period, menstrual age, last menstrual period. And sometimes they use conception age when they do in vitro fertilization in the office. We talked about the best term is to call it menstrual age or gestational age. But we're talking -- we know that the two weeks are taken into account here from the period to when the ovulation occurred, when conception occurred.

HARRIS: When we refer to that first trimester ultrasound, that has a plus or minus of three days?

DEVORE: Three days.

HARRIS: Plus or minus with conception?

DEVORE: Certainly there could be a -- conception can be plus or minus two days for when the sperm and the egg get together.

HARRIS: In terms of following this graph out, because there is slight -- or what would be the term that you would use in terms of the conception?

DEVORE: Well, you know, unless, I guess, you are there, you never know. What you really know is, is if you -- let me say it a different way. People have done studies, for example, tell you about a study where they have taken patients with in vitro fertilization, okay? They have said I know when you conceived. I put the egg and sperm together, and they then placed it in the patient. So they know then when it happened. They have done studies. They looked, for example, at the femur length, okay? Now from the point of conception, when they take those -- they do the in vitro fertilization, they measure the fetus, they know exactly when it happened. They look, for example, at the growth of the femur lengths. And the date that this exam was done for the second trimester, the expected age of the fetus using that type of an approach is 20 weeks. It's within 24 hours of what we said it is based upon the information that we have. So looking at in vitro patients, and then you know exactly when they conceived. You are there when it happened. The equation they produce comes up to 20 weeks. At this time we showed her exam by 24 hours. So that's why we feel confident about this being the age at the time this exam was done.

HARRIS: Then, again, with the first trimester, just to go back through this. There is a range of about plus or minus three days?

DEVORE: Yes. That's the range.

HARRIS: So those dates right there, you have the 21st, the 23rd and the 24th, with that range of plus or minus three days?

DEVORE: Yes. I think that would be fair to say, yes.

HARRIS: People have no other questions.

Cross Examination by Mark Geragos

GERAGOS: Doctor Devore, good morning.

DEVORE: Good morning.

GERAGOS: Do you have the medical records there in front of you?

DEVORE: I do.

GERAGOS: Do you have the -- specifically the ultrasound that was done on the 16th of July?

DEVORE: I do.

GERAGOS: Okay. That ultrasound --

JUDGE: That's the first one.

GERAGOS: The first ultrasound.

DEVORE: I'm sorry, July --

GERAGOS: July 16th?

DEVORE: Yes. I see it, yes.

GERAGOS: Okay. If I could, I can get you a fresh sheet of paper there.

JUDGE: Mr. Geragos, I tell you what. Why don't you give that to the clerk.

GERAGOS: I was going to do that if I could, your Honor.

JUDGE: She's already got a sticker. That's People's 275.

GERAGOS: Doctor, you have got ultrasound there?

DEVORE: Yes, I do.

GERAGOS: I know that ultrasound was done. You used a machine called a Sonosite?

DEVORE: Yes.

GERAGOS: That's not the machine that did the ultrasound on the 16th?

DEVORE: Yes.

GERAGOS: The machine that did the ultrasound on the 16th was a GE machine?

DEVORE: Yes.

GERAGOS: I'm going to, if I could, just pull in out and put it on ELMO so you can see the ultrasound. Now, the GE ultrasound, this is specifically --

JUDGE: Do you want to mark that as a defense exhibit?

GERAGOS: I do, your Honor. It's actually already marked. It's one of the pages that's --

JUDGE: That's one of the pages.

GERAGOS: Maybe what I'll do --

JUDGE: Make a note of that then. It's part of People's Number 63, just so a reviewing court will figure that out.

GERAGOS: Okay. And then it's even got the GE symbol there, correct?

DEVORE: Yes.

GERAGOS: So the GE machine R32?

DEVORE: Advantage.

GERAGOS: Do you want -- maybe we just mark the ultrasound, first ultrasound?

DEVORE: This is not your record.

GERAGOS: This is contained in the medical records. But just so when the jury looks at it later.

DEVORE: Okay.

GERAGOS: Okay. Now, your testimony was the first ultrasound comes out at ten weeks one day, correct?

DEVORE: Yes.

GERAGOS: Mr. Harris was asking you about, this is plus or are minus -- the GE machine has built into it -- it's hard to see -- but that says plus ten weeks one day, right?

DEVORE: Yes.

GERAGOS: 10W 1D stands for ten weeks one day?

DEVORE: Yes.

GERAGOS: And then plus or minus five, correct?

DEVORE: Yes.

GERAGOS: So the GE machine builds into it a five-day window. So ten weeks one day, plus or minus five, as it reads sitting here, correct?

DEVORE: Let's discuss that.

GERAGOS: I will in a second. I just want to show you. That's what the GE machine builds into it, correct? Now, can I have the second ultrasound?

DEVORE: Okay.

GERAGOS: And the second ultrasound you said was twenty weeks one day?

DEVORE: Uh-huh, yes.

GERAGOS: By the way, you measured -- there were some pictures that Mr. Harris had. I don't know if you marked them or not. Now, you have the second ultrasound in front of you?

DEVORE: Yes.

GERAGOS: And you measured the -- just mark second ultrasound on that so we have got it there, sir. Two pages, doctor?

DEVORE: Yes.

GERAGOS: Okay. Now, the second ultrasound -- you measured e 9 just one bone; is that correct?

DEVORE: One for the report, yes.

GERAGOS: For the report. And then if I understand correctly, the report reads that you had -- at least the report that I got you prepared on February 19th; is that correct?

DEVORE: That's what you have, yes.

GERAGOS: Is the one that you sent to the District Attorney's office?

DEVORE: February 19th.

JUDGE: The year?

GERAGOS: February 19th of this year?

DEVORE: 2004.

GERAGOS: You were hired this year to come up with this?

DEVORE: Can I see it?

GERAGOS: Is that the same report that you sent to them?

DEVORE: Yes.

GERAGOS: Okay. Now, on this report that was done on February 19th, what was the corresponding death date?

DEVORE: In that report I had December 25th from the average.

GERAGOS: December 25th of when?

DEVORE: Of 2002.

GERAGOS: That was the final sentence of your letter, other than the, "If you have any questions," correct?

DEVORE: Yes.

GERAGOS: And you also said in that report that the femur length measurement established the growth profile for the fetus of twenty weeks one day, correct?

DEVORE: Yes.

GERAGOS: And the femur length measurements that you are referring to would have been the second ultrasound?

DEVORE: Yes.

GERAGOS: And I have a second ultrasound here, looks like two pages; is that correct? Two pages?

DEVORE: Yes.

GERAGOS: Two pages you handed me?

DEVORE: Yes.

GERAGOS: And specifically, what is this -- what's "FL" stand for?

DEVORE: Femur length.

GERAGOS: What is the measurement there?

DEVORE: Nineteen weeks four days.

GERAGOS: Okay. Now, does that mean that on July 24th that, contrary to what your report says, it's twenty weeks one day, that the actual femur length measurement on that day was nineteen weeks four days; is that correct?

DEVORE: No. Well, let me explain what this means.

GERAGOS: Okay. I'm just asking you one question.

DEVORE: Okay.

GERAGOS: We'll go through it. I know you want to discuss this. As I understand, the way this comes out, you have got a -- you have got various measurements that are taken on the second ultrasound, correct?

DEVORE: Correct.

GERAGOS: On the first ultrasound you don't have all of those same measurements, correct?

DEVORE: Correct.

GERAGOS: On your first ultrasound, the one that we just saw, that we put up, there is no femur length measurements that I see; is that correct?

DEVORE: That's correct.

GERAGOS: Okay. And on the second ultrasound, we have a femur length -- this is the first time, that you are aware of, that a femur length is measured, correct?

DEVORE: Correct.

GERAGOS: And so the first time that the femur length is measured, we have a nineteen week four days. And what's the plus or minus at that point?

DEVORE: That's -- I can't see. Plus or minus 10. I can't see that.

JUDGE: Looks like 10.

GERAGOS: Looks to me --

DEVORE: Plus or minus? Okay, let's do this --

JUDGE: Mr. Geragos do you want to put those two together? Doctor, maybe

MR. GERAGOS: Judge -- sorry, judge, I didn't hear.

DEVORE: Plus or minus 10.

GERAGOS: The actual measurements that -- the first measurements of a femur that's done on July 24th is nineteen weeks four days, plus or minus ten days, correct?

DEVORE: Well, correct, as displayed on the screen. But not necessarily correct.

GERAGOS: I'll get to that.

JUDGE: Let him explain his answer before -- go ahead, explain your answer.

DEVORE: Thank you. What's happened is, General Electric, or the these -- either company, user obstetrician have elected to use a number of -- one of a number of different choices of equations to determine the gestational age as depicted on the screen. That gestational age of nineteen weeks and four days is from a paper published by Doctor Frank Hadlock in 1981. It's the very first –

GERAGOS: Right, Judge. I would prefer if I can do question and answer, because I understand what he's going to say. I'll lead him through --

JUDGE: But he's trying to answer your question.

GERAGOS: But --

JUDGE: If you are going to get back to it.

GERAGOS: I will.

JUDGE: Otherwise I'll get back to it.

GERAGOS: I'm going to show you, right here.

GERAGOS: You have got the femur length right here of this -- of Hadlock; is that right?

DEVORE: That's correct.

GERAGOS: Right above it. Doctor Hadlock has got a paper that's called Quantitative Obstetrical Ultrasonography, correct?

DEVORE: Can I see this?

GERAGOS: Yes. He is one of the four authors of that paper, correct?

DEVORE: What you have, this is taken from his textbook. This is not from his original paper.

GERAGOS: I'm just asking you. Is this the same Doctor Hadlock?

DEVORE: Same Doctor Hadlock.

GERAGOS: And so then you said there was a Doctor Robinson who also had a -- that you considered a study as well, correct?

DEVORE: Yes.

GERAGOS: And that would be reflected right here. What GE has for that particular measurement, which is what? What measurement is that?

DEVORE: Crown-rump length, 32 millimeters, ten weeks and one day.

GERAGOS: So when you are talking about the crown-rump, you talk about Robinson. When you are talking about femur length, at least for GE purposes, you talk about Hadlock, correct?

DEVORE: What you are saying -- what you have to say is this. For GE purposes, GE allows the user to choose whatever they want for the equation. Jeanty, for example, Hadlock has one, et cetera. So the user chooses what they want. That just happens to be the choice that that user chose.

GERAGOS: Doctor Galloway, when she did her measurements, used yet another person, correct?

DEVORE: She didn't use ultrasound data, no.

GERAGOS: She did not. But she used radiographic studies?

DEVORE: I wasn't here for her testimony.

GERAGOS: Well, did anybody give you her testimony to review?

DEVORE: No.

GERAGOS: Okay. Are you familiar with Sherwood?

DEVORE: Yes.

GERAGOS: Okay. Are you familiar with the study that Sherwood did in 2001 called Methods of Estimation and Effects of Pathology?

DEVORE: Yes, I have seen it.

GERAGOS: Now, Doctor Sherwood has, just like, if I understand correctly, Hadlock has got a study that's done, and it shows a certain length you would expect to be at certain ages, correct?

DEVORE: Several studies, not just one. He has a number of studies.

GERAGOS: He's got a textbook, he's got many papers, correct?

DEVORE: Right.

GERAGOS: And when he does that, he takes subjects, and he tries to make a determination from the subjects, what size equals what age, correct?

DEVORE: Yes. And he's assuming he knows when conception occurred. That's one of the problems with some of the studies.

GERAGOS: That's one of the things you wanted to get into. That's what you were explaining to Mr. Harris, that you are assuming a gestational age. You are assuming that there is a last menstrual period which affects the kinds of predictions you can make, correct?

DEVORE: Yes.

GERAGOS: Okay. But the fact of the matter is that, depending on whose study you use, you are going to get varying results; isn't that correct?

DEVORE: For the femur bone measurements?

GERAGOS: Yes.

DEVORE: Yes. If you use different studies, you will have variables. For example, Hadlock, using this equation that he uses right here, for example, the date of death if we used that equation is December the 22nd. If we use a second study, the date of death under that equation is December the 24th. If we use the Jeanty equation, the date of death, the average, is December the 23rd. If you look at three different equations, the one you have on the board plus the one Hadlock did in 84, the variance is December 20th to December 23rd, December 24th.

GERAGOS: If you used -- Sherwood, though, actually studied fetuses?

JUDGE: Excuse me. Unless he considered Sherwood –

GERAGOS: I'm going to ask him, based on that.

JUDGE: -- in forming his opinion, then it's not proper.

GERAGOS: You looked at Doctor Galloway's measurements, correct?

DEVORE: Yes.

GERAGOS: You saw Doctor Galloway's measurement was 63.8, correct?

DEVORE: Yes.

GERAGOS: You were given this when you were given this appendix by her?

DEVORE: Yes. I saw that, and I saw -- I read the article on Sherwood. I believe she attached an article of a study -- forensic study done --

GERAGOS: That's the one from 2001 that she quoted from the American Journal of Physical Anthropology, correct?

DEVORE: Can I see it? Do you have the article with you?

GERAGOS: I do not have it with me. This is her report. This is what she was given. What you were given?

DEVORE: You don't have the article that he refers to.

GERAGOS: I have got this.

DEVORE: Okay.

GERAGOS: And I have the appendixes what you were given, correct?

DEVORE: Yes, I was given.

GERAGOS: And based on Sherwood, Doctor Galloway indicates she actually had measurements that, if I'm not mistaken, was less than your measurements, correct?

DEVORE: By a .7 millimeter

GERAGOS: She had a right femur. Doctor Galloway had a right femur of -- what did you have it as?

DEVORE: 63.8.

GERAGOS: .8.

JUDGE: Mr. Geragos, I don't think they can see that. Do you want to use a marker.

GERAGOS: Galloway is at 63.8; is that correct?

DEVORE: Yes.

GERAGOS: And your first measurement was 64?

DEVORE: 64.

GERAGOS: Okay. And your second measurement?

DEVORE: 64.7.

GERAGOS: And your third measurement?

DEVORE: 65.

GERAGOS: Okay. Now, if we put Doctor Galloway's measurements on the Hadlock study, what would be the date of death?

DEVORE: You can't do that, because Hadlock said it was not based on bones from fetuses. This study is based on ultrasound measurements, and so that's why I did the water bath measurements to see the variables.

GERAGOS: Is the Hadlock study based on babies that have died?

DEVORE: It's based on live fetuses that he examined.

GERAGOS: So when you are comparing a bone that has been recovered from a dead baby --

DEVORE: Uh-huh.

GERAGOS: That's nothing that was ever done in Hadlock's study, correct?

DEVORE: The not in Hadlock's study. But there was studies earlier in the eighties where they had dead babies.

GERAGOS: I'm asking you if Hadlock's study -- I'm not asking if there were other studies. We'll get to that. For Hadlock's study, did Hadlock ever consider something like what Sherwood did? You remember Sherwood's paper, correct?

DEVORE: Un-hun.

GERAGOS: Is that a yes?

DEVORE: Yes. Yes.

GERAGOS: And Sherwood's paper was babies that had died, either through spontaneous abortion or otherwise, correct?

DEVORE: That's a real problem with the baby from what we're talking about, because in Sherwood's paper they died from either infection, or they had cord strangulation, or -- I mean there was pathology involved.

GERAGOS: The trouble with that is that the -- as you look at the paper -- you don't have it in front of you -- but there are reasons they listed reasons, cause of death. And some of those causes of death affect growth rates. He tries to eliminate some gross pathology?

DEVORE: But you can't. Any time you have a stillbirth, unless, you know, there is usually pathology. Small babies are very common. And so if you look at the spectrum of how they come up with an age, you can't really use that, say this was a normal baby that just up and died.

GERAGOS: Sherwood eliminated in his study all of the ones where there was a problem; isn't that correct? Isn't that -- there were 72 babies and in that study, correct?

DEVORE: Look at the paper.

GERAGOS: I have looked at the paper.

DEVORE: You will see, for example, they included the death, reasons for death. What they included in their study was fetuses that were infection -- that died from infection. And those.

GERAGOS: Just going to ask you a simple question.

DEVORE: I'm not finished.

JUDGE: Let him finish his answer.

DEVORE: And fetuses that are infected, there may be underlying problems that can affect the growth.

GERAGOS: Okay. I'm asking you specifically -- what I'm asking you specifically is, in that study that Sherwood did, Sherwood was able to determine how old the babies were; is that correct? Based on the last menstrual period.

DEVORE: Okay. They used last menstrual period. They used several things like some of the others did.

GERAGOS: And they actually had autopsies in that case -- in that study, correct?

DEVORE: Yes.

GERAGOS: And they used the pathologists who used bones; isn't that correct?

DEVORE: Yes.

GERAGOS: And, as far as you know, neither Hadlock nor Robinson used babies that had died; isn't that correct? In their studies. Is that correct?

DEVORE: Yes.

GERAGOS: And what we're using here, what the GE machine uses that you have -- you are basing your estimations on are the Hadlock and the Robinson studies; isn't that correct?

DEVORE: Yes. This is the Robinson study and Hadlock study from 81. That's correct.

GERAGOS: So when you talk about other studies do other things, that isn't contained, at least on this particular -- Doctor Yip's ultrasound; isn't that correct?

DEVORE: The choice -- the selection they made was the one that they chose from the 81 study, gave you the nineteen weeks and four days.

GERAGOS: Right. Which gives you nineteen weeks and four days. Now, if the baby was nineteen weeks and four days, on July -- September 24th --

DEVORE: Okay.

GERAGOS: Can you tell me what the -- what the 33rd week would have been in there?

DEVORE: What I can do is the following. I take Hadlock's equation that you have on that screen, the one that he used. And if you say, okay, we're going to use that equation to determine how old the fetus was from his data, and plug in 64.5, which was my average I chose, then the date of death would be December 22nd using that equation.

GERAGOS: If it's nineteen weeks four days -- let's just go forward here. On September 24th, you have used -- your formula was the 21st to the 22nd and the 24th; is that correct?

DEVORE: Right.

GERAGOS: Okay. So you said that the -- two out of three of these obviously are wrong, because we know that the baby was examined on the 23rd.

DEVORE: Was alive on the 23rd.

GERAGOS: Was.

DEVORE: In the morning of the 23rd.

GERAGOS: Is --

DEVORE: Afternoon.

GERAGOS: Afternoon of the 23rd?

DEVORE: Afternoon of the 23rd.

GERAGOS: We know that two out of three of these calculations are wrong; is that right?

DEVORE: Yes. Estimate. They would be -- those would not be the death dates.

GERAGOS: Two out of three of your estimates, as we know we can test, because the doctor saw the baby on the afternoon of the 23rd. The baby was still alive, had a fetal heartbeat, correct?

DEVORE: Yes.

GERAGOS: And it was measured, and it was healthy, and everything seemed correct?

DEVORE: Yes.

GERAGOS: Based on your theory, out of the three measurements, the 64 measurement is wrong because the baby lived for two days after that. The 64.7 is wrong, because the baby lived until the following afternoon. And the 65 is only right if, in fact, that baby died some time in the next ten hours; is that correct? Is that a fair statement?

DEVORE: Well, I think it's -- from your perspective, probably fair statement. But as I would interpret it, I think the key thing that the ultrasound is telling us, for example, is that we are looking at a timeframe when this baby most likely died. And we have focused in on a period of time of a couple days. And it's consistent with the concept of when some people think this baby died.

GERAGOS: It's consistent with. It's also consistent with the -- that the baby could have died plus or minus five days after that?

DEVORE: I don't believe so.

GERAGOS: Plus or minus three days.

DEVORE: Well, if what you have is, you have -- from the measurements, you have three-day window. And if it died three days later, or died on the 24th at 12:00 o'clock, it's not going to be that precise to the hour to tell you exactly. Gives you a timeframe of several days when the death could have occurred based upon the measurements.

GERAGOS: These two measurements are wrong; is that correct? Wrong in the sense that -- of predicting the date of death.

DEVORE: Well, no. Let me show you something. Using -- for example, if we use the equation I used to come up with those dates was Jeanty's equation I alluded to. If we use the equation that's on the GE machine in determining the date of death based upon the age of the fetus based, upon the femur length, comes -- on Hadlock, it comes out to December the 22nd. Your equation that you are using --

GERAGOS: Let's go through this for a second. 9-24, the equation you use assumed that on 9-24 the baby was twenty weeks and one day; is that correct?

DEVORE: Yes.

GERAGOS: Okay. So if I calculate right, what you are saying is that thirteen weeks from 9-24, based on your average measurements, would be the date of death; is that correct?

DEVORE: Let me help you here. The reference point that we have is the equation of nineteen weeks and four days that Hadlock used. He said you have measurements of 32 millimeters, this is equal to nineteen weeks and four days. That's what he said.

GERAGOS: Right. Here is 32 millimeters on the 24th of July -- of September, correct?

DEVORE: Now, if we have a second measurement, and we use my average of 64.5, or we use my second measurement of 64.7, or we use my third measurement of 65, we take this equation, we -- okay, these measurements, using Hadlock's equation that you have there, they tell me the date of death is what? And it comes out to be December 22nd, December 23rd, in that range.

GERAGOS: And that's assuming that, on the 24th, that the baby is twenty weeks one day under your calculation, correct?

DEVORE: Okay. Assuming, yes, using that date of what -- the date that we use of twenty weeks and one day, projecting that 33 weeks, what comes out in the equation comes out calendar days that I mentioned.

GERAGOS: Which was December 24th.

DEVORE: Right.

GERAGOS: Okay. With twenty weeks one day, that would come to December 24th, right?

DEVORE: Okay.

GERAGOS: Now, if we just used the femur length, it would come out to three plus one, four days after that, to 12-28, would it not?

DEVORE: If you believe that this -- this equation is an accurate prediction of the age of the fetus on the date the exam was done. And I would contest that and say that that is not the case.

GERAGOS: Okay. Now, you contest that and say that's not the case. But for your report, what you used specifically was the femur length, correct? You measured -- these are all femur length; is that right?

DEVORE: Un-hun.

GERAGOS: And what was the 32 millimeters on September 24th?

DEVORE: That's femur length.

GERAGOS: Now, if the femur length on the 24th is nineteen weeks and four days, and if you use that -- which is what the actual measurement was --

DEVORE: No, it's not. The measurement was 32 millimeters.

GERAGOS: 32 millimeters?

DEVORE: Interpretation of the measurements on that report was nineteen weeks and four days.

GERAGOS: Right. That was under Hadlock?

DEVORE: Hadlock's, yes. Hadlock. We call it Hadlock Number One.

GERAGOS: Okay. So under Hadlock, which is what the GE machine uses, this operator selected for this GE machine to use?

DEVORE: That's correct.

GERAGOS: It's nineteen weeks four days, correct?

DEVORE: That's correct.

GERAGOS: Okay. And under Hadlock, if you went forward thirteen more weeks, under your kind of progression of femur length, we would come to an estimated death date of 12-28; isn't that correct?

DEVORE: If you take, for example, that age of the fetus at that time, okay, and you ask yourself at the time the femur that was measured, what was the death date on that. And I have done that computation using Hadlock's formula. Comes up to December the 22nd. So you have to --

GERAGOS: I'm asking you specifically. You are saying that you -- let's do this. We go through there. You took on the your chart femur growth by day, correct?

DEVORE: That's a different analysis.

GERAGOS: Well, you did femur growth by day, didn't you?

DEVORE: Well, let me explain.

GERAGOS: Could I just ask you a question and get an answer? Did you do femur growth?

JUDGE: Let him explain his answer.

GERAGOS: I will be happy to. Let's just see if I can get an answer. Femur growth by day?

DEVORE: This is -- that's femur growth by day using a different type of an analysis.

GERAGOS: Okay.

DEVORE: We came up with -- if we look at the rates of growth of the femur on the date of the exam done on -- when it was 32 millimeters, then we come up with a date of death and a different analysis using different equations on that paper that you have before you.

GERAGOS: Whose equation is this? What study is this based on?

DEVORE: That study is a different study out of France, in which they looked at fetuses, looked at sequential measurement of fetuses repeatedly over time.

GERAGOS: Who was the author of that?

DEVORE: Group that was called DaCosta.

GERAGOS: Okay. Now, under that theory, that also didn't involve babies that had died, correct?

DEVORE: That's correct.

GERAGOS: Okay. So, once again, we're talking about live babies, right?

DEVORE: Yes.

GERAGOS: So under your first measurement of 64, the baby would have died on December 20th; is that right?

DEVORE: Yes, using that.

GERAGOS: Okay. Under your measurement, 64.7 was your second measurement of the femur?

DEVORE: No.

GERAGOS: What was your second measurement?

DEVORE: What that is, that is the expected femur length for that particular date if we look at the incremental growth.

GERAGOS: I'm looking at it right here. Looks like expected femur growth rate is the same every single day, .329?

DEVORE: At that point in time.

GERAGOS: That's what I'm asking you. Didn't you have an -- it's not a gradient of any kind, is it?

DEVORE: No.

GERAGOS: It's .329 every single day on that -- under that measurement. The baby died on December 20th, we know that's wrong, right?

DEVORE: Right.

GERAGOS: Under 64 -- December 20, your specific one was also that French study; is that correct? And 65, only if the baby died some time after it left the doctor's office, and before midnight wouldn't work. So, again, under that study, your -- these measurements, three out of three are wrong.

DEVORE: If you use the measurements as a clock, then that statement -- you would state it that way.

GERAGOS: Okay.

DEVORE: Measurements --

JUDGE: Let him finish his answer.

GERAGOS: Okay.

DEVORE: These measurements, we use -- the purpose of this is to determine a time period when death most likely occurred. And so if, for example, in some studies they use the maximum femur length measurement in averaging the three. My maximum femur length measurement was 65 millimeters. That would be equivalent to the death date of December 23rd. Depends how you want to cut up -- you want to take the average, you want to take the maximum measurement -- bone maximum measurement you can make on the ultrasounds.

GERAGOS: Is there something -- did you take into account what happens to the bone if it's been in water? Did you build in any factor for that?

DEVORE: No, I didn't build in a factor for the water.

GERAGOS: Did you talk to Doctor Galloway and ask her what her experience is with bones that have been immersed in water?

DEVORE: No.

GERAGOS: Is there any of the studies that you use that talk about -- talk about what happens if the body has been in marine environments, what that does to the bones?

DEVORE: None of the authors took patients from that environments and studied them, no.

GERAGOS: And, specifically, if Doctor Galloway's measurement was 63.8, under the studies that you are using that would mean that the baby would have died even before December 20th; is that correct?

DEVORE: Okay. Doctor Galloway, we have bone, and we have to take into consideration the effect of the ultrasound measurement on the length that you use for your computations.

GERAGOS: I'm just -- answer my question. There is an objection. It's nonresponsive.

JUDGE: But you can answer the question, then explain it, doctor.

GERAGOS: My question is very simple. If it's 63.8 -- I don't think that this is too difficult. You have got three measurements here.

DEVORE: 63.8.

GERAGOS: You are using a different database or a different study than she is using, correct?

DEVORE: Yes.

GERAGOS: Under your study, 63.8 puts the baby at 35 weeks, correct?

DEVORE: Okay.

GERAGOS: That would put the estimated date of death as when, 35?

DEVORE: 35 weeks.

GERAGOS: 35.1 weeks. I'd like to, if I could, judge, mark her appendix as the defendant's next in order.

DEVORE: It would be January the 6th.

JUDGE: Let me just -- does that complete your answer? I know you were trying to --

DEVORE: He asked the question. That's what 35.1 weeks would be. It's January 6th.

JUDGE: That's your answer.

GERAGOS: I'll get a clean copy of this. I have got --

JUDGE: Maybe we can have the bailiff Xerox it. That would be defendant's next in order.

GERAGOS: Yes.

JUDGE: D6U. Chart Marked as Exhibit D6U for identification.

GERAGOS: 35.1 weeks would take you to January 6th.

DEVORE: 35 weeks one day.

GERAGOS: One day would take you to January 6th. That's with her using the Sherwood study which involved babies that had died, correct?

DEVORE: That had pathology, that were dead kids, and they were not --

GERAGOS: Did you talk to her about this study?

DEVORE: No, I did not.

GERAGOS: Okay. Did you talk to -- have you talked to her at all?

DEVORE: I talked to her on the phone. What did, I called her one time and I asked her -- I think I asked her for her measurements, or something like that. It was a five-minute conversation.

GERAGOS: Now, the -- specifically, the femur length, you did some other calculations here as well. At least on my notes. Do you have those on yours?

DEVORE: Yes.

GERAGOS: What are these calculations? What study does this refer to?

DEVORE: That's the Jeanty study, using the Jeanty equation.

GERAGOS: Jeanty is -- I assume Jeanty is yet another doctor who has done a study just like Hadlock, just like Robinson, just like Sherwood's?

DEVORE: Yes.

GERAGOS: Are the Jeanty figures used anywhere in the GE ultrasound that you are aware of?

DEVORE: They certainly may be on the machine as the user selects the choice. But the user did not choose the Jeanty on that examination.

GERAGOS: Okay. So as far as we know, based on the ultrasound that we have, and Doctor Yip's ultrasound, Jeanty has not been used; is that correct?

DEVORE: That's correct.

GERAGOS: As far as we know, Jeanty, your calculations that you did for the jury on the other sheet, whose calculations were those? Based on whose study?

DEVORE: One that I presented before you that were Jeanty, using the Jeanty equation.

GERAGOS: Okay. If you didn't use the Jeanty equation, and you used -- there was yet another study that was used by Doctor Galloway. Were you aware of that?

DEVORE: You have to show me the study. Let me see if I have seen that.

GERAGOS: Okay.

DEVORE: Okay. Okay. I see what you listed here.

GERAGOS: Okay. I don't want to mispronounce it. Looks like Fazekas and Kosa; is that correct?

DEVORE: I guess so, yes.

GERAGOS: Okay. And under that study, the baby comes out at what age?

DEVORE: 36 –

HARRIS: Objection. Has the doctor reviewed that particular study?

JUDGE: No.

DEVORE: No, I have not.

JUDGE: He didn't use it in forming his opinion. It's inadmissible.

GERAGOS: Have you used that -- have you taken a look at that study of fetal development?

DEVORE: Not that one, no.

GERAGOS: Okay. And did you talk to Doctor Galloway as to whether or not the 36 to 38 weeks on that particular study had any application here?

DEVORE: I didn't really discuss with Doctor Galloway my findings or her findings. I tried to avoid that because of the fact that we're talking about two different approaches. And so I just had a conversation. Main interest in talking with her, see what her measurements were of the femur that she had obtained.

GERAGOS: Then the other -- now, as I understand it, the report that you first wrote that we talked about before, you have got the date of death as December 25th; is that right?

DEVORE: Right.

GERAGOS: Then your explanation is that you calculated that by hand?

DEVORE: What I had done is taken the calendar and a piece of paper, written the days, and wrote down the days, and generated that report. When I went back and did it on the computer, I did it in the block form that we have shown here.

GERAGOS: Okay. Now, after you did -- when you did that, December 25th, you also put that as plus or minus three days; is that correct?

DEVORE: Let me see my report. Only thing I see in the plus or minus three days is when I commented on the accuracy of the first trimester ultrasound.

GERAGOS: Okay. Now, specifically, the femur length, according to -- so I got it clear on the second ultrasound, that's the only femur length measurement by ultrasound that we have, correct?

DEVORE: Yes.

GERAGOS: While the baby was alive, correct?

DEVORE: Yes.

GERAGOS: That you are aware of, or that we're aware of?

DEVORE: Yes.

GERAGOS: On that date it was measured as nineteen weeks four days according to Hadlock, correct?

DEVORE: Yes. That equation.

GERAGOS: Okay. You put that as twenty weeks one day according to who?

DEVORE: To Jeanty.

GERAGOS: And Jeanty was not programmed into this machine on the date the ultrasound was done, correct?

DEVORE: That's correct.

GERAGOS: Okay. So if we use Hadlock, and it was nineteen weeks four days, then the estimated date of death would be 12-28; is that correct, if he use Hadlock, not Jeanty?

DEVORE: Take the interval of time -- well, I kind of disagree with that, because what -- we have to ask two things. The measurements of the bone that was made in that water bath, one that I made, what equivalency was that equal to.

GERAGOS: Can I ask you something about that water bath. If I understand it correctly, it was -- you are saying water bath, you had a picture, that it's an aquarium, right?

DEVORE: Yes.

GERAGOS: And you put the bone on an item, then you stick it in the to an aquarium, right?

DEVORE: Yes.

GERAGOS: Okay. Is that an accurate rendition of what you did?

DEVORE: That's a photograph of what I did, yes.

GERAGOS: And this is your Sonosite, right?

DEVORE: Yes.

GERAGOS: That's the Sonosite machine, right?

DEVORE: Yes.

GERAGOS: So you put some kind of an -- looks like a glass -- almost like a glass flower vase, or something, correct?

DEVORE: Yes.

GERAGOS: You put the bone on the glass -- on this glass, then you put it inside the aquarium, right?

DEVORE: Yes.

GERAGOS: And what you are trying to do is recreate what the ultrasound would be like in a mother, correct?

DEVORE: Well, what you have to do is, sound waves can only go through fluid. You can't put the ultrasound in the air and scan the bone. You have to have a fluid medium. Unless you have the person there, which I don't have in this case, you have to from a fluid medium, which is the water bath.

GERAGOS: Okay. So you don't have the tissue that you have in a mother. You don't have any of the other movements of the baby, or anything else. You obviously have something that's just still that you are measuring, correct?

DEVORE: Yes.

GERAGOS: And you have yours, being the machine that's different than the machine that Doctor Yip used, correct?

DEVORE: Yes.

GERAGOS: And doctor -- and you know that there is a variation in measurements based upon the operator; isn't that correct?

DEVORE: Yes. Some operators -- I mean there is variation of maybe a millimeter. If you look at studies of what people have done, about a millimeter.

GERAGOS: Okay. So what you are doing is, you are using a different machine, and you are using Jeanty's calculations?

DEVORE: Yes.

GERAGOS: At opposed to the GE machine which used Hadlock's; is that correct?

DEVORE: Yes, that's correct.

GERAGOS: Okay. And you are doing it in an aquarium to get a measurement to try to basically approximate what was going on; is that correct?

DEVORE: Exactly.

GERAGOS: If we used Hadlock -- and Hadlock you might disagree. But some people might feel that, scientifically, that was more consistent to use Hadlock, since that was the person or the study that was done, and some people might feel that using the GE machine might be more consistent; isn't that correct?

DEVORE: Let me answer that question. Hadlock, we're using Hadlock, because we have -- his first equation was published in 1981. Subsequent to that, in 1984, he did more extensive studies. And the equation that he used for the femur length at that time was -- this was the first one that he used that you have on the display. Second study, which is more extensive, the gestational age from that femur length equation is equal to twenty weeks from that 32 millimeter measurement. So that equation that he used is the second study, which is the one that we use today, currently in the up-to-date machines, places the gestational age at twenty weeks one day, different from the Jeanty equation. And so the indication you have, you have up there, I would call the first study, which was an attempt to try and focus in on the age. The second study Hadlock did in 84 uses an equation for the femur length. That comes out to be 20 weeks. So that's why I'm uncomfortable using this as the gold standard, even though that was selected by the user in determining the age.

GERAGOS: The fact of the matter remains that the person who actually did the ultrasound came back with nineteen weeks four days, correct?

DEVORE: That's what the equation told them the age was.

GERAGOS: Right.

DEVORE: And the problem with that is, of course, is that if they chose to do that, they did a first trimester study, then you have some variation. But we know that subsequent equation on in vitro fertilization based on Jeanty's equation and Hadlock's second equation all put the 32 millimeter measurements equal to twenty weeks -- twenty weeks one day. So those are more accurate than the way they were done. Puts it out where we have it.

GERAGOS: Puts you out where two out of the three measurements of death are demonstrably wrong.

DEVORE: That's your opinion.

GERAGOS: Well, that's the fact, isn't it? Two out of the three measurements step are demonstrably wrong?

DEVORE: Well, if you -- the measurements -- what they do is, they give you an approximation of when the death could have occurred. So they are within a day or two of what they think happened.

JUDGE: We're going to have to take the morning recess to switch reporters. Ladies and gentlemen, we are going to take the morning recess. We'll reconvene at 11:00 o'clock. We'll try to finish up with Doctor Devore this morning. Remember the admonition I have heretofore given you.

JUDGE: All right. Let the record show the defendant's present with counsel, the jury's in the jury box, along with the alternates. Go ahead, Mr. Geragos.

GERAGOS: Thank you, Your Honor. Now the -- do you have a plus or minus on your estimates on the date of death that we've got on as to three measurements? I should probably mark that, judge.

JUDGE: I was going to ask you. Defense next in order.

GERAGOS: Sure.

JUDGE: That will be defendant's 6 V.

GERAGOS: 6 V?

JUDGE: V like in Victor. (Defendant's 6 V was marked for identification.)

GERAGOS:

GERAGOS: We have a plus or minus on the interpretation of those measurements?

DEVORE: The plus or minus is based upon the concept that if the fetus is growing at a normal rate, then that's what that would be. The plus or minus, if you're asking for the range, that would depend upon whether the fetus was growing normally at the time of death. And from the record that I have, the time of death, the growth rate would be inappropriate.

GERAGOS: Is there a plus or minus on the interpretation of those three?

DEVORE: On the measurements that we mean?

GERAGOS: Well, no. The measurements, if I understand correct, you take measurements of the bone, right?

DEVORE: Right.

GERAGOS: Okay. Then, depending on the measurements -- you took measurements of the bone that are different from Dr. Galloway's by 27; correct?

DEVORE: That's correct.

GERAGOS: So Dr. Galloway's got a measurement, you've got three measurements, right?

DEVORE: Correct.

GERAGOS: Dr. Galloway uses -- she's got one study that she uses that says 35.1?

DEVORE: That's what she's saying.

GERAGOS: You've got Jeanty, which says thirty-three weeks, one day, correct?

DEVORE: Correct.

GERAGOS: Okay. If I plugged in Hadlock we could have yet another measurement, correct?

DEVORE: Correct.

GERAGOS: So from what I'm calling from measurement to the -- everybody knows or we can quantify what the measurement is. We know that Dr. Galloway's of 63.8. You came up with those three figures, right?

DEVORE: Correct.

GERAGOS: So out of those four measurements standing alone, they don't tell us anything unless we compare them to a study, right?

DEVORE: That's correct.

GERAGOS: Okay. So what I'm asking you is in these studies the -- as I understand correctly, the only one that deals with infants that are dead is the Sherwood study, correct?

DEVORE: Yes.

GERAGOS: Okay. And the study that you have used, which is the Jeanty study --

DEVORE: Right.

GERAGOS: -- was not used by the ultrasound operator in Dr. Yip's office, correct?

DEVORE: Yes, that's correct.

GERAGOS: Okay. There was nothing prohibiting or GE from programming in Jeanty's study, right?

DEVORE: Right.

GERAGOS: If they wanted, Jeanty could be programmed in on that ultrasound, right?

DEVORE: Yes.

GERAGOS: Okay. So what we have is four different measurements, at least four different studies that we've talked about, Sherwood, Robinson, Jeanty and Hadlock --

DEVORE: Right.

GERAGOS: -- with four different basis of interpretation; is that correct?

DEVORE: Okay.

GERAGOS: Based upon that, is there anything in the Jeanty study, and that's approximately 20 years old, the one you're relying on?

DEVORE: '81. '81, '82, in that range.

GERAGOS: Do you have that with you?

DEVORE: I have the paper, yes, I'll tell you exactly.

GERAGOS: Okay. So that's not a 1984 paper?

DEVORE: Let me tell you exactly the date. It's in my bag, I think. I think it's '84, but I have to, if you want me to show you exactly, let me go through it here.

GERAGOS: Is it right there?

DEVORE: You've been through my papers, have you?

GERAGOS: I have.

DEVORE: Yes. It's February 1984.

GERAGOS: Okay. So that 20-year old study does not take into account the things that obviously that the 2001 Sherwood study did, they were looking at different items; is that correct?

DEVORE: They're apples and orange.

GERAGOS: Okay. Now, the Sherwood study, which was used by Dr. Galloway was to estimate on the bone length, correct?

DEVORE: To estimate on the bone length, to estimate the age and the bone length.

GERAGOS: And the bone length?

DEVORE: Yes.

GERAGOS: Okay. Now the Jeanty study is what the growth pattern is, isn't that in a nutshell what they were trying to determine?

DEVORE: No, perhaps I can help clarify this. When Dr. Galloway was given a bone to measure, her job was to try to ascertain what was the age of the fetus at the time of death. And so she gave you a mean and then she gave you ranges. And the reason for the ranges was because they don't know how old that fetus was exactly and they didn't know what the growth potential for that fetus was, therefore, what they basically said was fetuses with bones of this length can fall within this range. The average age of the fetus for this measurement is, say, for example, 35 weeks or whatever she may have used as her average, then there's a distribution on that. The equations that Hadlock used and Jeanty used and others, they have the same type of a variation when they don't know how old the fetus is. So if you are presented, for example, with a bone length of 64.5 millimeters and you're asking the patient, walks in the first day, you've never seen her before, you don't know how old the fetus is, you say how old are you. You will come up with an average, and then you'll have a distribution. But in this case -- and so that's how those equations are used from a clinical perspective. You try and determine how old it is for a measurement because you don't know how old the fetus is. Now let me finish to go back to what I said earlier, we know how old the fetus is. We have a very accurate way of determining that. So, therefore, what we do, and we still use the same equation, therefore, the fetus is of a certain percentile, which we determined in the second trimester femur length, I can use my equation of approximate data age for that measurement, I can then say, hey, now, what would you be expected to be if you grew along that profile, to the 50th percentile out someplace in the distant.

GERAGOS: And what is the variation on that growth profile?

DEVORE: Well, we don't know what the variation is for that growth profile.

GERAGOS: Right. So it could be larger, it could be at a faster rate or a slower rate, right?

DEVORE: It could be, but remember I said also that we didn't have any evidence. The fetus had pathology that would alter the birth rate. Most fetuses grow at a normal rate. There are a few of them grow at an altered rate and they have reasons for that. And there was no evidence in the clinical record to suggest this that.

GERAGOS: I'm asking you is that when you're saying that they grow at a -- as a means, that is an average, is it not?

DEVORE: No, let me say it this way: When we take a fetus, we can put the fetus on a growth profile, it is 50th percentile growth profile, which the equation predicts the average. It could be at 90th percent growth profile, 10 percent growth profile. It starts out at a certain profile in the late second trimester, and then it increases accordingly.

GERAGOS: The -- on the 16th of July you were using the ten week, one day estimate and, that's crown-rump, correct?

DEVORE: Yes.

GERAGOS: And on the 24th of September you're using something other than the femur length because the femur length as interpreted on the Hadlock study that was programmed into the machine is at 19 weeks, four days, correct?

DEVORE: Let me explain how we do this. When I am faced with making a choice between making a choice between the age of the fetus, the crown-rump measurement or the Hadlock equation that is set on the screen of 19 weeks and four days, I have to determine which one am I going to use. Because I have to lock in an age sometime during the course of this pregnancy. The first trimester crown-rump length is much more accurate than the femur length in the second trimester.

GERAGOS: Could I ask you --

DEVORE: So I use the crown-rump to establish the age. That's the age. And then I don't care if it's 19.4 weeks on the femur or it's 22 weeks on the femur, I don't care about that at that time. I care about what is the age -- what is the bone length, and I have to then find an equation that will predict the growth of that bone over time.

GERAGOS: Do you have the medical records there?

DEVORE: Yes, I do.

GERAGOS: There's two dates for the date of birth, isn't there?

DEVORE: Okay. Let me see if I can find that. Is that on the overview sheet?

GERAGOS: Yes. I believe there's a February 10th date and a February 16th date.

HARRIS: There should be a packet in there that's loose with a paper clip. It should be at the top.

GERAGOS: What's that date?

DEVORE: 2/16/03.

GERAGOS: Okay. And when was that 2/16/03 date calculated?

DEVORE: When was that calculated?

GERAGOS: Yeah. Where did that come from based on the medical records.

DEVORE: It could --it most likely came from I guess the second trimester ultrasound.

GERAGOS: Which would be No. 2, which had the femur length of 19 weeks, four days, correct?

DEVORE: Yes.

GERAGOS: So when they first locked in, as you say, when the first time that they did the crown-rump length, what was the date the birth, estimated date of birth made?

DEVORE: I think it was the same as the last menstrual period.

GERAGOS: Which was February 10th, correct?

DEVORE: Uh-huh.

GERAGOS: Is that a yes?

DEVORE: Yes.

GERAGOS: So the doctor who was actually doing the ultrasounds there, Dr. Yip and Dr. --

DEVORE: Right.

GERAGOS: -- when they had this crown-rump length on the 16th they estimated the date of confinement as February 10th, correct?

DEVORE: Yes.

GERAGOS: When they did the second ultrasound they then changed that to February 16th based on the femur length, isn't that correct, and the calculations that the ultrasound did, correct?

DEVORE: Yes.

GERAGOS: So there was a six-day variation from the first ultrasound to the second ultrasound; is that correct?

DEVORE: Yes.

GERAGOS: Okay. And that's based upon the fact that that doctor, unlike you, you put more stock in the first ultrasound and the crown-rump, correct?

DEVORE: Absolutely.

GERAGOS: This doctor obviously does not put the same amount of stock in the crown-rump length; isn't that correct?

DAVID HARRIS: Objection, calls for speculation.

GERAGOS: I'm not asking for speculation. I'm asking whether --

JUDGE: You're asking for the doctor's state -- the other doctor's state of mind, isn't that speculation?

GERAGOS: No, I'm asking if the doctor put the February 16th date in there and was that based on the second ultrasound.

JUDGE: That's a different question.

DEVORE: Yes, they did, they put that in there, yes.

GERAGOS: You would not have done that?

DEVORE: Exactly.

GERAGOS: Okay. So you and Dr. Yip are on different pages in terms of that interpretation of the ultrasound; is that correct?

DEVORE: Well, I would say that I've had certainly much more experience with doing this than Dr. Yip has.

GERAGOS: Have you ever met Dr. Yip?

DEVORE: No.

GERAGOS: Do you know how many ultrasounds Dr. Yip has done?

DEVORE: I doubt she's done 75,000 of them.

GERAGOS: Do you know if Dr. Yip how many patients Dr. Yip has had?

DEVORE: Usually obstetricians see about maybe 30, 40 OB's a year. I would dare say without knowing her past or history that I probably had much more experience in doing this than she has. Without slighting her, I'm just saying that --

GERAGOS: You're not slighting her, but you're just assuming that she's inferior in terms of her skills?

DEVORE: No, I'm saying that she's had less experience most likely.

GERAGOS: But you don't know?

JUDGE: Wait, wait. Okay.

DEVORE: I would suspect that that statement is a true statement.

GERAGOS: Okay.

DEVORE: Secondly, the use of the crown-rump length dating the pregnancy has less variability than does the second trimester study. And if you have a first trimester crown-rump, you're going to use that as the reference point versus second trimester study.

GERAGOS: But she didn't --

DEVORE: She choose not to do that, that's correct.

GERAGOS: Well, so you have a different interpretation than the actual OBGYN in taking care of the baby?

DEVORE: Yes, I do.

GERAGOS: Okay. And is it a fair statement, you don't deliver babies, do you?

DEVORE: Not anymore, no.

GERAGOS: Okay. And how long has it been since you've delivered a baby?

DEVORE: Well, I'm in involved with the care of OB patients in making decisions for delivery everyday, but you don't catch the baby.

GERAGOS: Right. And you're not on hospital staff anywhere, are you?

DEVORE: Well, certainly I am. Yes, I am.

GERAGOS: And your office is in Pasadena?

DEVORE: Yes, it is.

GERAGOS: Are you're on the staff at Huntington Memorial?

DEVORE: I am.

GERAGOS: Okay. And when was the last time you were catching a baby?

DEVORE: Well, I haven't caught a baby for a number of years.

GERAGOS: How many years?

DEVORE: The last baby I caught was a lawyer's wife in 1987.

GERAGOS: Was the lawyer's wife coming out or was the lawyer's wife the one giving birth?

DEVORE: No, I don't know.

GERAGOS: And so you haven't caught a baby in going on 17 years?

DEVORE: Yes, I have not. I'm involved in the day-to-day care of patients as a consultant. I make recommendations when they should deliver, how they should deliver, why they should deliver. I do not catch the baby anymore.

GERAGOS: Okay. Now Dr. Yip made the determination that on the second ultrasound that the baby was somewhere in the neighborhood of a February 16th, what do you call it, date of confinement?

DEVORE: Okay. Yes.

GERAGOS: Now the ten-week one-day estimate was plus or minus five days; is that correct?

DEVORE: Yes.

GERAGOS: Okay. Does that mean --

DEVORE: No, no, plus or minus -- excuse me, the second ultrasound was plus or minus ten days.

GERAGOS: Ten week, one day, was plus or minus?

DEVORE: By the machine, yes, and by other estimates be plus or minus three days.

GERAGOS: Okay. But in the GE machine it's plus or minus five days?

DEVORE: Yes. And do you want to know the reason for that?

GERAGOS: Yes. If I don't you'll tell me anyway.

DEVORE: Yes. Okay, when Robertson did his original work publishing -- a paper he published he said if you make one measurement, it's plus or minus five days or if you make more than one measurement of crown-rump to an average, it's plus or minus 2.8 days. So, in other words, more measurements made the accuracy increases. In this case you will see on the image the physician took, they took more than one measurement of the crown-rump length and they came up with one measurement. So the plus or minus three days applies to this approach versus if they would have simply done just one image.

GERAGOS: If the estimated date by the femur length that -- let's see, that was on 9/24. The 32 millimeter, that would have been 2/16; is that correct?

DEVORE: Yes.

GERAGOS: From Dr. Yip?

DEVORE: Yes. Yes.

GERAGOS: What does that do if you were to adopt that interpretation by Dr. Yip, what does that do to your calculation? If you plug -- if you still plug this Jeanty formula?

DEVORE: Well, what you do is you go back to a reference point and in saying that the age of the fetus at the time of the examination was four days earlier. And so it backs up your actual age of the fetus when you then compute the age based upon the feature in your complaint that was obtained from the death.

GERAGOS: And does that make you, at that point, at 12/28 or does it make --

DEVORE: Yeah, you would add four days to the range that I gave you earlier on the screen earlier in my testimony.

GERAGOS: Right. So if we adopt Dr. Yip's and the femur length measurement that she had that would add four days and we would be at the date of birth 12/28, correct?

DEVORE: Yeah. One thing, one comment on Dr. Yip's assessment of 2/16, one thing that's interesting, when you go the medical records they have to report to the State of California a gestational age of the fetus when they draw the blood to test for down syndrome, when you look at that report that they filled out, they actually listed -- you have to be very precise of this, by the way, because it has medical-legal implications that lists the gestational age equal to the crown-rump estimate.

GERAGOS: That was on what date?

DEVORE: That what prior to the ultrasound that was done earlier.

GERAGOS: Well, right, so she didn't have the ultrasound, she didn't have the benefit of the second ultrasound, so unless she's clairvoyant, she wouldn't know that the second ultrasound has a February 16th date, correct?

DEVORE: Right.

GERAGOS: Okay. So the form you just referred to is a form that was filled out based on the crown-rump?

DEVORE: Well, what you have to do, though, if you take her theory, for example, or your theory of how she's interpreting this, if, for example, she put more credence whatsoever in the crown-rump length, she used the second trimester as her way assigning gestational age, then she would have simply put on this report on the form that she filled out to send the State, simply the last menstrual period, but they put in there the ultrasound measurement because the State asks for that and that's a very important parameter.

GERAGOS: Right.

DEVORE: So she had two choices, either fill out the report for the State, for the form, and say, look, I don't believe this crown-rump at all. It doesn't make any difference.

GERAGOS: Well, there be a motion to strike. Now that's speculation as to what was going through her mind. It's non-responsive.

JUDGE: It may be non-responsive.

GERAGOS: It is non-responsive. I'll ask the question.

JUDGE: Hold on. Let me -- let's go back. I'll sustain the objection that it's non-responsive. All right, now.

GERAGOS: Now, you are saying that she filled out a report that goes to the State, correct?

DEVORE: Right.

GERAGOS: That report was filled out after the first ultrasound, correct?

DEVORE: Correct.

GERAGOS: Before the second?

DEVORE: Right.

GERAGOS: Okay. If that's the case, she was relying on the first ultrasound, correct?

DEVORE: She should have done.

GERAGOS: Okay. And the second ultrasound --

DEVORE: Uh-huh.

GERAGOS: -- there was no subsequent report that was filed, was there?

DEVORE: Correct. But what I'm responding to is the following concept: What you're saying is that she chose to use the second ultrasound as a reference point for the due date of 2/16. And I said that the crown-rump length, giving the due date of 2/10, based upon it is equivalent to her last menstrual period, is a more accurate way to determine the due date. And so the physician philosophically felt that the crown-rump length was not helpful to them, then they would simply have used the last menstrual period.

GERAGOS: What if I told -- have you reviewed the testimony by the physician?

DEVORE: No, I have not.

GERAGOS: Okay. What if I told you that the physician did put stock in the crown-rump length and said that they wouldn't change the date of birth if it was within a seven-day window because they thought that wasn't a problem, wouldn't that explain?

DEVORE: Well, then, if that's the case then she wouldn't changed it to 2/16 because the crown-rump was within one day of her LMP, her last menstrual period.

GERAGOS: And with that particular physician felt that the femur length on the second ultrasound was the more accurate of the two?

DEVORE: That's where we differ on interpretations at this point.

GERAGOS: Where you and the treating or --

DEVORE: Yes.

GERAGOS: The attending physician would differ; is that correct?

DEVORE: Yes. Absolutely.

GERAGOS: And if the femur length and the femur length is what you measured, correct?

DEVORE: Yes.

GERAGOS: You did not measure the crown-rump length of the baby, correct?

DEVORE: Correct.

GERAGOS: So if we're comparing the femur length, which was the only time measured by an ultrasound with the femur length that you measured --

DEVORE: Right.

GERAGOS: -- on that basis, the date of estimated date of death time period would be 12/28; is that correct?

DEVORE: If you used their reference point that she choose, yes. You're using the equations, yes.

GERAGOS: If you use your femur length and measurement and their equations, 12/28 would be the date of death?

DEVORE: If you believe that that, that the age of the fetus was best determined by that femur length in the second trimester, then that would be the interpretation.

GERAGOS: Okay. Well, you believe that the femur length post-death postmortem is the best estimate, correct?

DEVORE: Wait a second. I believe -- I'll just tell what I believe. I believe the following: One, that the age of the fetus is best determined from the crown-rump length to lock in the age.

GERAGOS: I understand that at the beginning. I'm talking about at the end.

JUDGE: He's trying to answer the question.

DEVORE: I'll respond. So I believe that the date, age of the fetus is based upon the crown-rump is the most accurate and, therefore, the prediction of the death date is based upon that key piece of information. Where we differ, what you're asking me is the date, the age of the fetus has now been changed on the second ultrasound examination, therefore, locking of the age of the fetus and using the second ultrasound examination, then plays the date of birth using the equations that we usually use, all three of them, and the dates later than what I suggested when I wrote them on the board, and that's a correct statement that that interpretation will be that. So the key issue is how old was this fetus.

GERAGOS: Okay. Well, if we use Dr. Yip's interpretation of the femur length --

DEVORE: Right.

GERAGOS: -- on the second ultrasound, and we take all three of your measurements and apply that, would all three of those be potentially correct at that point if the date of death would then be after 12/23?

DEVORE: Yeah, the only thing you do, the measurements stay the same.

GERAGOS: Right.

DEVORE: It's the age of the, or the date of birth based upon the age of the fetus if you have to lock in an age.

GERAGOS: Right. So I'm saying --

DEVORE: So you would simply add four days to those dates. So it would be December 25th --

GERAGOS: 12/25, right?

DEVORE: December 21st, December 22nd --

JUDGE: I think you said 12/21, 12/23, 12/24.

DEVORE: Okay. And I would just add four days those.

GERAGOS: 12/25?

DEVORE: Hm-hmm.

GERAGOS: 12/27?

DEVORE: I don't have to -- I have to look and see.

JUDGE: The doctor said 12/23.

GERAGOS: So 12/21 on the --

JUDGE: 64 he said 12/21.

GERAGOS: Right. So that's plus four.

JUDGE: 64.7 he said the date of death would have been 12/23.

GERAGOS: So that would be 12/27.

JUDGE: And for 65 it would have been 12/24.

GERAGOS: 12/24.

JUDGE: So the average is 64.5, it would have been 12/23.

GERAGOS:

GERAGOS: So the average would have been 12/27?

DEVORE: Yes.

GERAGOS: Okay. And under that calculation, your three measurements, all three of those are potentially correct, right?

DEVORE: If you made that assumption, yes.

GERAGOS: If you made that assumption all three are potentially correct. If we made your assumption we know as a fact two out of the three are wrong; is that correct?

DEVORE: Okay.

GERAGOS: Is that your interpretation?

DEVORE: If that's your interpretation, that's your interpretation, yes.

GERAGOS: No further questions. Thank you.

Redirect Examination by David Harris

HARRIS: Dr. DeVore, let's go through this real quick. You didn't talk to Dr. Yip, is that a fair statement?

DEVORE: No, I actually called her office for the records when you first called me, and they wouldn't talk to me, they had to go through -- that's when they sent me back to your office. That's the only conversation I had. I didn't discuss the case. I just asked for the records and they wouldn't send those to me.

HARRIS: So the jury's already heard the evidence. There's been two doctors that practice. Actually, Dr. Yip is a gentleman, and the two doctors that have testified is Dr. Endraki and Dr. Tow-Der. Going through that with what both of those doctors said so I want to take you back to that hypothetical of assuming of that Dr. Yip was thinking.

DEVORE: Okay.

HARRIS: Dr. Endraki and Dr. Tow-Der both said they got whatever the measurements were?

GERAGOS: There be an objection. It's assuming -- first of all, it's assuming facts not in evidence. He didn't base his opinion on it.

JUDGE: Okay, first of all, I don't know that, but if you're referring to what was testified to in the courtroom you can give him a hypothetical question based upon that. So the objection's overruled.

HARRIS: Q. Looking at the medical records there's two dates up there where it says, I believe it's "estimated date of confinement," in lay person's terms they said it was due date?

DEVORE: Yes.

HARRIS: One was February 10th and one was February 16th. The fact that new date is written down there doesn't necessarily mean that they've actually changed the due date, does it?

DEVORE: No, it's simply a reflection of the ultrasound.

HARRIS: And so when the doctor, the doctors had explained how they took the tech and ultrasound and they used that?

GERAGOS: Objection, this is not a hypothetical.

JUDGE: You're not giving him the hypothetical.

HARRIS: Go back through this. Of the two ultrasounds, in terms of determining the age of the fetus, which is more accurate, the first or the second?

DEVORE: The first.

HARRIS: And why is that?

DEVORE: Because there is less variation in the fetal size at that point in time. Because if, as I explained earlier, when your start from conception, the size of two cells, the one cell is always the same size. As the fetus then starts to develop, then the variation size is very small. And as it starts to pass the 12th week we start seeing changes in rate of growth. And, so, the closer you go to conception with an ultrasound examination, the more accurate it is. The further away you are from conception, the less accurate it is for determining the actual age of the fetus. And if you were to take and say what's the very best way to take and do to perform obstetrics and care for the patient, everybody does what I do throughout the world, would like to have and they mandate if they can, that first trimester crown-rump length done, as this was done in this case to lock in the dates. That becomes the reference point for all the interpretations we do subsequent to that.

HARRIS: When you do a second ultrasound, as counsel asked you about this particular computer, how it does this GE machine, you put the calipers on the image and you get a measurement, does the machine calculate it for you?

DEVORE: Yeah, what happens, the program is through the companies make a program that's on the machine and they allow you and most machines to choose the equations that you like. Sometimes many OB's only know the equation differences are so whatever is on the machine they're going to use. And so then you can then select the equations to use based upon what you would like to accomplish. Some people are very thorough so for my patient population. For example, if I have had bought this machine and I had used it and I had done a crown-rump on Laci Peterson and I had done a second trimester study and I found there's an inconsistency between the age, I'd say, wait a second, maybe those equations don't fit my patient population because my understanding it's five, four, five, six days. If I have had selected to have the second equation, as I talked about a little bit before, that fits right on with the crown-rump age, I'm going to use with my patients because this pretty much matches my first trimester measurement. That's more accurate.

HARRIS: And in this particular case you found that the first trimester measurement matched the last menstrual period?

DEVORE: Within a day. Within 24 hours.

HARRIS: Do you still have the ultrasounds up here that counsel was showing you?

GERAGOS: They're back on the inside the envelope.

HARRIS: You can go ahead and take those out of the folder. If you can look at law those.

DEVORE: Yes.

HARRIS: Now just to go back through this, we were talking about the first ultrasound. This is what it looks like in the medical records?

DEVORE: Yes. Yes, it is.

HARRIS: So there's this page up here, which is somewhat of a summary or a data page?

DEVORE: Yes.

HARRIS: And then there's three other images?

DEVORE: Yes.

HARRIS: Now when we look at the data page, it's difficult to read, but do we see that there is a Hadlock and a Robinson in there?

DEVORE: Yes, and basically that's just a default equation referencing, referencing the equations that are used in that machine to compute the age.

HARRIS: And it indicates for the measurement under Robinson, right there, the actual measurement itself?

DEVORE: That's correct.

HARRIS: And then you move over to the right and that's where the machine using its formula comes out with days and weeks?

DEVORE: Yes, ten weeks, one day.

HARRIS: Now when we go to the second ultrasound there's actually two pages, so we'll start with the first page. We have the same type of data sheet and then we have other images as well?

DEVORE: Yes.

HARRIS: The second sheet we have more images?

DEVORE: Yes.

HARRIS: There's a total of four more images there?

DEVORE: Yes.

HARRIS: In looking at the second ultrasound, we also see the Hadlock and the Robinson data on there as well?

DEVORE: Yeah. What we see, for example, we have now -- the numbers are next to the Hadlock equations, the Robinson state of field is not filled in, but they have basically the measurements using Hadlock. And those are most likely different studies that Hadlock published in his early -- when he first started doing this.

HARRIS: And you were telling us that the number that you were using was twenty weeks and one day. Do we see that number right up here at the top?

DEVORE: Yeah, twenty weeks and one day is referenced, it says the last menstrual, gestational age by last menstrual period is twenty weeks and one day. And on the data sheet that you showed me from the first study, if you look at the top, it said last menstrual period equals twenty weeks and one day and the crown-rump length equals -- excuse me. Back it up. The first

ultrasound data sheet, do you have that? Can you put it up there so I can show you, put it back up on the screen. It will be easier. Do you have a pointer, like a laser pointer I can use?

JUDGE: Yes, we do. Can you let him have the laser pointer we've been using the last three months.

HARRIS: This red button right here.

DEVORE: Oh, I guess this is the famous laser pointer here.

JUDGE: If it works. If not, you can step up and use the pointer. Why don't you use that pointer.

HARRIS: Go to the low tech one.

DEVORE: If you can just center this on the screen a little bit, perhaps. And is that focused?

HARRIS: About as good as I can get it.

DEVORE: Okay. Here we have "last menstrual period." I think it says 5/6/02, and this is the estimated gestational age, ten weeks, one day. So that machine's telling you that the doctor put into the machine when the patient's last menstrual period was, when Laci's period occurred. The last menstrual period should be ten weeks and one day, okay. Then the doctor does an examination of the crown-rump length. We know they have two measurements that they did and it comes out to be, they're identically the same, 3.2 and 3.2 centimeters and 32 millimeters. So since it's the same, it says you're ten weeks and one day. So if I'm the obstetrician, I'm going to say, well, this is great. I have ten weeks and one day by the crown-rump length under the first trimester and this is exactly what it is based upon her last menstrual period. End of story. This is how old the fetus is at this point in time. You lock it in. These are identical.

HARRIS: You can go ahead and resume your seat. Counsel was showing you some of the other slides and I won't make you stand up there and go blind looking in the projector. But there is a plus or minus. And you were saying that on the GE machine that we're looking at here for the July 16th date, the machine says five days and you explained to us why it's actually three days.

DEVORE: Yes.

HARRIS: When you were looking at that second ultrasound in September it, plus or minus, had moved up to ten days?

DEVORE: Yes.

HARRIS: So, again, the machine, the programmers or whoever it is, factor in the fact that further out in the pregnancy you go, the greater that plus or minus is?

DEVORE: Yes.

HARRIS: You were being asked about some of those anthropology studies, Sherwood, as a matter of fact, and I just wanted to talk about that a little bit. You were aware, since you were provided Dr. Galloway's report, that she had indicated that those particular studies had to be a factor that was involved in terms of deviations. One standard deviation had indicated that there was a plus or minus of three weeks based on that study.

DEVORE: Yes.

HARRIS: And so --

GERAGOS: Plus or minus of two weeks.

HARRIS: Two weeks, I'm sorry.

HARRIS: Going from 33 to 38 weeks.

DEVORE: Okay.

HARRIS: So when counsel was showing you that appendix, that appendix --

DEVORE: Right here. This is it right here. The appendix that has the -- well, it's blacked out. It looks like it's three columns. And it says for the humerus, the femur, 36 and 38 weeks, 35.1 weeks by Sherwood. This is what you're talking about?

HARRIS: Yes. And her opinions and conclusions which she's already testified to are different than that particular appendix, is that what you recall from reading her report?

GERAGOS: Objection, it's an improper hypothetical.

JUDGE: It's not a hypothetical.

GERAGOS: It's not a hypothetical.

JUDGE: He's asking if it was different from what he testified to. Is that right?

HARRIS: Yes.

GERAGOS: He is not testifying as to the appendix.

JUDGE: Well, you already cross-examined the appendix. Overruled. Go ahead.

DEVORE: Well, what I understand is that she made a statement that the average age, the most probable age could be, is 35 weeks, in that range. And then the distribution of ranges it could be in, but statistically less likely because you're further out from the bell-shaped curve. That would be my interpretation of what I understood. I wasn't there for her testimony.

HARRIS: So in terms of reviewing her report, again, it's that plus or minus two weeks on that kind of mean or statistical average of 35?

DEVORE: Yes.

HARRIS: Now in terms of, you were asked about that and you made a comment that this is apples and oranges. What you're doing, is that the same as an anthropological study?

DEVORE: No, not at all.

HARRIS: And why is that?

DEVORE: Because they face the same problem if a patient walks through the door in the third trimester and says how pregnant am I. They're facing the very same problem. We don't know how old this fetus is when it conceived. You can use some indirect parameters, like history of the last menstrual period, good, you know, some idea, but you don't have anything that's scientific like you do with a crown-rump length measurement. And so they have the same problem that we have with ultrasound, unless we know the age of the fetus from the early ultrasound. So this distribution they have is not too dissimilar from the distribution I would have for a fetal length measurement if I only made it one time at the time that I made it in the water bath. I couldn't tell you how old that fetus was using that one measurement. I can't. There's a distribution just like she had and I would have the same testimony. Because I have the crown-rump length, that locks it in within one day of her period or, in this case, exactly the same as her period, then I know how old that fetus is, then all of these other distributions don't count because you have, you know how old it is. And these are designed to say what is the possible age of the fetus given a single measurement out in time. We know how old it is. We don't have to answer that anymore. We have to simply say how much did it grow and does that growth represent an age at the time of the death.

HARRIS: So if I understand this, what you're talking about is once that first part on this bell-shaped is kind of established and you're saying that's that gold standard, the fixed point that you're satisfied with the ten week, one day --

DEVORE: Yes.

HARRIS: -- from the ultrasound that matches the last menstrual period, you then determine by a second point kind of what that growth line is on that growth turf?

DEVORE: You will see what is that fetus's potential. How are you going to grow? Are you going to grow to be big, are you going to grow to be average or are you going -- excuse me, it's dry here. Are you going to grow to become small. That second measurement, fetal length done, that very first time on the second ultrasound exam, tells me where that point is, that reference point for how are you going to grow. And when I used the Jeanty equation, that equation fit more closely than the others the age of the fetus for a 32 week 32 millimeter measurement of the femur bone at that time. That's why I choose it. Because then I can then say, if that equation is within a day of what I expect it to tell me the age of the fetus, because I knew from before what it was, I can then use that equation to project that how old is the fetus when I measure the femur bone later on. That's why that was done that way and that's why that equation was chosen.

HARRIS: In terms of the -- these -- we talked about all these different names of different reports. Just so we're all clear about that, what really are those things? What are we talking about? What are these calculations?

DEVORE: What are they?

HARRIS: Yes.

DEVORE: How is that done maybe would be helpful. What happens, the -- originally back 20 years ago when these were all the studies were done, they didn't do it the right way. The way they should have done it would be to take patients and have everybody have a crown-rump length or have an artificial or had an in vitro fertilization so they knew exactly when the age of the fetus was and then take measurements over time and see how the distribution would go. And so what they did do, they took patients, okay, when was your last menstrual period. You tell me that it's regular and they take a history and they try to use some parameters that are kind of, assuming that the dates were correct, and then they went back and they then computed the growth of the fetus and came up with these equations to predict what the age would be from a measurement. So that would be the best that they had. Now subsequent to that time other studies have gone back and with the gold standard said, how should you grow for how old you are so we know when you were conceived. So we take the default for problems with the earlier studies that we use all the time, and try to hone in on that question of how old are you so I can now predict how old you will be further in the pregnancy once I know how old you are early in the pregnancy. And so these are equations that allow us mathematically to project what the age would be from a given measurement, if we know how old it is, and that's what we've been doing.

HARRIS: When you, and, again, so that we're all clear about this, when you take the measurement, so you're taking that ultrasound measurement, that is something that it doesn't matter which particular calculation you use, that's the measurement?

DEVORE: That's the measurement, exactly. That is the measurement. That's the measurement.

HARRIS: And when you apply the calculation to that measurement, it gives you, just like we see up on the screen where it says ten weeks, one day, it gives you a determination of ten weeks and one day?

DEVORE: Yes.

HARRIS: Or whatever it might be?

DEVORE: Yes.

HARRIS: And then it's your process to take and calculate that out where you're counting the days and coming up with whatever the final date might be?

DEVORE: Yes.

HARRIS: And you were showing this or holding this up a little bit earlier something that has that?

DEVORE: Yes.

HARRIS: It's kind of like a spreadsheet?

DEVORE: Yeah. What I did is I created a from a spreadsheet program and to make it more visual to explain it or understand, I have across the top the month and the day of the month. And I used May 6th, for example, as my Day One because that was the day of the last menstrual period. And I said, okay, let's count seven days, Week One, Week Two, Week Three, etcetera, so that all throughout the pregnancy the corresponding dates above that, May, June, July, August, September, etcetera. And then I could go then go through and say, okay, on a given date when I know the age of the fetus, if an ultrasound were done, how many weeks in the pregnancy was that equivalent to when that exam was performed. And I then put that on the graph. And then from that point I could then say, okay, now if that's the reference point, the next measure of the femur that I made in the water bath, that week's gestation that's equivalent to, where does that fall on the calendar. I went through that and I put that on the calendar. So these pages I have here have that plotted out in a systematic fashion.

HARRIS: So what counsel was asking you about in your initial report you put down the 25th for somewhat of an average, and you had said earlier --

GERAGOS: Objection, misstates the evidence. He didn't say it was the average.

JUDGE: December 23rd was the average, I believe.

GERAGOS: No, in his initial report he stated it has a death date of December 25th. That's what he testified to.

HARRIS: When you said in your initial report, the 25th, is that exactly what you were talking about how you were adding it up with your hands?

DEVORE: Yes, on a piece of paper. I didn't do this systematically for the trial and it was just an error that I made.

HARRIS: When you went through and you've done this by date, by week, by day, and you go with the calculations that you were comfortable with based on your experience, what are the dates that you come up with?

DEVORE: For the death date?

HARRIS: Yes.

DEVORE: The -- the average was December the 23rd, I believe. Assume go back to here.

JUDGE: I have it here.

DEVORE: The judge is helping me out here. December 23rd.

JUDGE: The jury has these written down twice.

GERAGOS: I believe it's asked and answered.

JUDGE: Well, it has been.

PAT HARRIS: 21st, 22nd and 24th.

JUDGE: 12/21 is the 64, right, doctor?

DEVORE: Excuse me, I have it in front of me.

JUDGE: This will be the last time, too, because I think the jury's heard it, I've heard it, everybody's heard it.

DEVORE: Okay. The average measurement death date is December 23rd. The maximum measurement that I have is December the 24th of 65.

HARRIS: Q. And these particular measurements go back to what the GE machine says and what you were talking about, this is with that plus or minus of a few days?

DEVORE: Yes, there's a range that it has from the measurements. It's a three-day, three-day range.

HARRIS: The People have no other questions.

Recross Examination by Mark Geragos

JUDGE: Mr. Geragos.

GERAGOS: The ten-week, plus one day for the crown-rump, which is the first ultrasound, has a plus or minus of five days, correct, on the GE machine?

DEVORE: Yes, on the GE machine.

GERAGOS: Okay. The second --

DEVORE: Yes, that's what you see is on the machine as I just explained.

GERAGOS: Plus or minus five days?

DEVORE: Yes.

GERAGOS: The second measurement, which is femur length, came back at nineteen weeks, four days, which is within that plus or minus five days, correct, it's four days?

DEVORE: Okay. Yes.

GERAGOS: Is that correct? Does that mean that the nineteen weeks, four days on femur length, which produced at least for Dr. Yip, the 2/16 change, does that mean that that's a reasonable interpretation of what the age was at that point?

DEVORE: No.

GERAGOS: And can I ask you one other question?

DEVORE: Yes.

GERAGOS: As long as you're saying that's not a reasonable interpretation, does your ten week, one day that you locked in, does that mean that she, that Laci had to conceive on May the 6th?

DEVORE: I don't -- well, I don't know when she conceived.

GERAGOS: Well, you said last menstrual, ten weeks, one day, the age of the baby was ten weeks, one day, right?

DEVORE: From the ultrasound, yes.

GERAGOS: You locked her in. That's what you said. Three times I've heard you, you locked it in.

DEVORE: Yeah.

GERAGOS: When you locked it in, what's the date of conception?

DEVORE: I have to go back and count 14 days. Do you know that?

GERAGOS: Well, I was doing it on my little handheld. It shows ten weeks, one day shows May the 6th.

DEVORE: Conception -- well, I wasn't there. I don't know.

GERAGOS: What's the date of conception? I got somebody who was there, so I'm not going to lay up on you. What's the date of conception ten weeks, one day?

DEVORE: I have to go back from that date, eight weeks.

GERAGOS: Eight weeks. And where does that put you at, May 20?

DEVORE: I can tell you. I can look at this thing.

JUDGE: Wait, wait. He's going to look it up on the calendar.

GERAGOS: Does that put you at May 20.

DEVORE: Yeah, May 20th would be two weeks after -- two weeks from there, yeah.

GERAGOS: Okay. And that's based also on an average?

DEVORE: On an average, yes.

GERAGOS: Okay. So if the conception was prior the week before or the week after, that would affect the age of the baby, correct?

DEVORE: Yeah, if you were there, yeah.

GERAGOS: Well, I wasn't there, but I know somebody who was. If the date of conception is May 13th and that would affect how old the baby; correct?

DEVORE: Yes, it would.

GERAGOS: Okay. So on your -- all of your calculations, you're assuming on all of these things that Mr. Harris has asked you that the date of conception was May the 20th, correct?

DEVORE: Yes, I've added two weeks to the date of conception, that's correct.

GERAGOS: Right. So if the date of conception was actually, and that date of conception is an average, correct?

DEVORE: Yes.

GERAGOS: You picked that out just randomly as a date that's two weeks after the last menstrual period, 14 days, plus May the 6th, right?

DEVORE: Right.

GERAGOS: Okay. So if the actual conception was prior to that or after May the 20th, how does that affect your calculation?

DEVORE: You'd have to adjust accordingly.

GERAGOS: I mean, does that mean that it could go out into January?

DEVORE: I did -- I mean, well, if that were the case you'd have -- you'd have a very abnormal fetus from these measurements from the examination to be that delayed.

GERAGOS: Well, if date of conception was not May 20th, but May 16th, would that make Dr. Yip and the second ultrasound on 12/28 the right date?

DEVORE: It would shift it four days, yes.

GERAGOS: It would shift it four days and the date of death would be the 28th of December?

DEVORE: From the calculations.

GERAGOS: Thank you. No further questions.

JUDGE: May the doctor be excused?

HARRIS: No objection.