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STATE OF WISCONSIN CIRCUIT COURT ██████████ COUNTY

BRANCH II

STATE OF WISCONSIN,)

Plaintiff,)

) JURY TRIAL

) (Partial transcript)

vs.) CASE NO. ██████████

██████████)

Defendant.)

COPY

The above-entitled matter coming on to be heard
before the Honorable ██████████ M. ██████████, Judge of the
above-named court, commencing on May 14, ██████████, in the
courthouse in the ██████████, County of ██████████ State
of Wisconsin.

TINA BJERKE, RMR
Official Court Reporter
Branch III
333 Vine Street
Courthouse
La Crosse, WI 54602
608.785.9665

A P P E A R A N C E S

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AMESIA XIONG, Assistant District Attorney, [REDACTED]
[REDACTED], WI 54601, appeared on behalf of the State
of Wisconsin.

TODD E. SCHROEDER, Attorney at Law, 300 2nd St.,
Suite 200 La Crosse, WI 54601, appeared on behalf of the
Defendant.

* * * * *

STATE'S WITNESSES

DANIEL MCMANAWAY	
Direct Examination by MR. XIONG	Page 3
Cross Examination by MR. SCHROEDER	Page 17
Redirect Examination by MR. XIONG	Page 41
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<u>EXHIBITS</u>	<u>MARKED</u>	<u>RECEIVED</u>
Exhibit 4	3	9
(LAB REPORT)		
Exhibit 5	31	
(CHANG STUDY)		

* * * * *

1 (Proceedings commenced at approximately 1:22
2 p.m.)

3 WHEREUPON,

4 DANIEL MCMANAWAY,
5 was duly sworn by the Clerk of Court and
6 testified as follows on examination:

7 THE WITNESS: Daniel McManaway, D-A-N-I-E-L
8 M-C-M-A-N-A-W-A-Y.

9 (Exhibit No. 4 was marked for identification.)

10 DIRECT EXAMINATION

11 BY MR. XIONG:

12 Q. Good afternoon.

13 A. Good afternoon.

14 Q. I'm going to ask that you state your name again and
15 spell it for the record.

16 A. Daniel McManaway, D-A-N-I-E-L M-C-M-A-N-A-W-A-Y.

17 Q. Mr. McManaway, how are you employed?

18 A. As a chemist at the state lab of hygiene.

19 Q. And that's in Madison, Wisconsin?

20 A. That's correct.

21 Q. How long have you been employed there?

22 A. Little over 12 years.

23 Q. And what type of education do you need as background to
24 hold your position?

25 A. I have a bachelor of science in clinical laboratory

1 science, and upon being hired at the lab I undertook
2 specialized training relating to testing forensic
3 specimens for the presence of alcohol and other drugs.

4 Q. That includes testing blood samples?

5 A. That's correct.

6 Q. And what are some of your duties as a chemist there?

7 A. I test specimens, blood and urine, for alcohol and
8 other drugs. I do data review. I do testimony. Those
9 are the main, main things I do.

10 Q. That includes testimony, for instance, today?

11 A. Correct.

12 Q. Are you paid any extra to attend here to give
13 testimony?

14 A. I am not.

15 Q. This is just part of your duties?

16 A. Yes.

17 Q. Would you have been working in that capacity in January
18 of last year, 2012?

19 A. Yes.

20 Q. And would you have been performing the same duties
21 around that time?

22 A. Yes.

23 Q. Can you tell us around January of 2012, as well, are
24 you required to have a permit to analyze alcohol?

25 A. Yes.

- 1 Q. And is that one issued by the State?
- 2 A. Yes, it is.
- 3 Q. Did you hold one such permit in January of 2012?
- 4 A. Yes, I did.
- 5 Q. And is the hygiene lab also required to possess such a
- 6 permit?
- 7 A. Yes.
- 8 Q. And did the hygiene lab also possess a permit to
- 9 analyze blood for alcohol in January 2012?
- 10 A. Yes.
- 11 Q. Specifically in January 2012, I'm going to show you
- 12 what was previously marked as Exhibit No. 3, do you
- 13 recognize what that document is?
- 14 A. Yes.
- 15 Q. What is that document?
- 16 A. This is a copy of a blood or urine analysis submission
- 17 form that would be included in a blood kit sent to us
- 18 for testing.
- 19 Q. And a blood kit, would that be similar to what I'm
- 20 holding in my hand here?
- 21 A. Yes.
- 22 Q. And would that document be contained within the blood
- 23 kit or outside?
- 24 A. It would be contained inside.
- 25 Q. And as part of your duties, do you receive those blood

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kits regularly?

A. We receive many blood kits that have the, that have been used -- sent back to us for testing, yes, on a daily basis.

Q. What do you look for when you receive a blood kit?

A. I first examine the outside of the shipping container looking for signs of damage or tampering. I would then proceed to open the container and examine the name on the blood tube or tubes and compare it to the name on the submission form to make sure that they match, and also inspect the seals to ensure that they are intact and show no signs of tampering. If I find nothing out of the ordinary, my standard notation is in this case two tubes labeled and sealed.

Q. And you said in this case, do you mean the sample received for Mr. [REDACTED]?

A. Yes.

Q. And how do you know that it's what you notated for this case?

A. It is written under the laboratory information specimen condition section of the form.

Q. Do you complete that section yourself?

A. Yes, I do.

Q. And do you also sign that section?

A. Yes.

1 Q. Do you recognize your signature on Exhibit No. 3?

2 A. Yes, I do.

3 Q. And how did you receive -- what was the condition of
4 the blood kit or the vials in this case?

5 A. There was nothing out of the ordinary, both tubes were
6 labeled properly and sealed properly.

7 Q. And would you have noted something, if you observed
8 some sort of seal being broken or some sort of
9 contamination?

10 A. Absolutely.

11 MR. SCHROEDER: Objection, compound question,
12 Judge.

13 THE COURT: Can you break it up?

14 BY MR. XIONG:

15 Q. Would you have noted something if you observed some
16 sort of seal being broken?

17 A. Yes.

18 Q. Would you have noted if there appeared to have been
19 some sort of contamination?

20 A. Yes.

21 Q. But that was not the case here?

22 A. No.

23 Q. Specific to this case, can you just relate -- this was
24 for Mr. ██████████, is that correct?

25 A. Yes.

- 1 Q. And do you know when you received the actual kit?
- 2 A. I myself took possession of the kit on January [REDACTED] of
- 3 2012, and I opened it at 11:07 a.m.
- 4 Q. And when did you analyze the actual blood?
- 5 A. I don't recall off the top of my head. It would be on
- 6 the laboratory report form.
- 7 Q. I'm going to show you what's been marked as Exhibit No.
- 8 4, do you recognize that document?
- 9 A. Yes, I do.
- 10 Q. And what is that document?
- 11 A. This is a copy of the laboratory report form for
- 12 subject [REDACTED]
- 13 Q. And do you recognize -- I'm sorry, who prepared that
- 14 report?
- 15 A. The information that goes into the report is typed in
- 16 by clerical staff and then my result is entered into a
- 17 computer and then transferred to the, to the report.
- 18 Q. Do you sign off on the report?
- 19 A. Once the report is printed I sign it, yes.
- 20 Q. And do you verify the accuracies of what's put onto the
- 21 report?
- 22 A. Yes, I'm looking at my run sheets as I'm signing to
- 23 ensure they have the correct result on them.
- 24 Q. And do you recognize the signature that's on Exhibit
- 25 No. 4?

1 A. Yes, I do.

2 Q. And is that your signature?

3 A. Yes, it is.

4 Q. Is that a true and accurate copy of the actual report
5 that you had signed?

6 A. Yes, it is.

7 MR. XIONG: I move Exhibit No. 4 into evidence.

8 MR. SCHROEDER: No objection.

9 THE COURT: Be received.

10 BY MR. XIONG:

11 Q. Now, I'm going to redirect your attention to the blood
12 kit specifically. Can you walk us through some of the
13 procedures you go through after you open it and after
14 you verify that the seal is still on, what do you do
15 after that?

16 A. After I have verified the information, I will affix a
17 laboratory number, in this case it would have been
18 12FX-02161. That's a sticker, we get them on pads of I
19 think there's six stickers for each number, one goes on
20 the submission form, one would go on each one of the
21 tubes. The tubes would be placed in separate racks,
22 one will be for analyze and one will be for storage in
23 case further testing is needed, and then once I have
24 checked in a number of samples I will then proceed with
25 analysis.

1 Q. Can you tell us the tube specifically, are you familiar
2 with the condition of the tubes before they're filled
3 with blood?

4 A. This is what the tubes would look like. They contain
5 in the bottom a mixture, a powdered mixture of two
6 chemicals. Sodium fluoride is used for a preservative
7 and potassium oxalate is an anticoagulant.

8 Q. Are those kits assembled at the state hygiene lab?

9 A. Yes, the individual components are purchased and then
10 assembled at the hygiene lab and sent out.

11 Q. And you stated that there's an anticoagulant and
12 preservative, what are the functions of those compounds
13 within the tubes?

14 A. The anticoagulant is in there to keep the blood liquid
15 so that we can analysis it. The sodium fluoride is to
16 stabilize the ethanol concentration to keep it from
17 degrading too quickly. However, I've read published
18 studies where they looked at the stability of the blood
19 alcohol concentration collected in the tubes both with
20 and without preservatives, and even without the
21 preservatives they found the blood alcohol
22 concentration to be stable for at least 14 days, and
23 that's just further enhanced with a preservative
24 present.

25 Q. But the standard kit that comes in the blood kits

1 that's supplied to hospitals, they do contain the
2 preservatives and the anticoagulant?

3 A. Yes.

4 Q. Is there a vacuum seal on the top of the vials?

5 A. The vials come with the vacuum inside, yes, so the
6 blood can be drawn into them.

7 Q. And what's the purpose of the vacuum seals, is it to --
8 I'm sorry. Strike that question. Is it also to
9 preserve the, the sample? What's the purpose of the
10 seal?

11 A. Do you mean the seal over the top of the tube?

12 Q. The vacuum?

13 A. The vacuum seal. The vacuum, well it has to be sealed
14 to keep the vacuum in there so that when the tube is
15 placed onto the needle the blood will be drawn into the
16 tube, and that's really its only purpose. After, after
17 that it's for --

18 Q. Is there a reason --

19 A. -- purpose though.

20 Q. In this specific case you testified that you received
21 the sample on the 24th and then tested the sample on
22 the 26th, is that correct?

23 A. Yes.

24 Q. So, roughly about eight days after the blood is
25 reported to have been collected, is that correct?

1 A. Yes.

2 Q. And what kind of degradation would happen to the amount
3 of alcohol in the blood over that span of eight days?

4 A. Again, with such a short period of time, even without a
5 preservative it would, it would remain stable. With a
6 preservative I would certainly expect, expect it to
7 remain stable, and the preservative will make it stable
8 for a longer period of time, months at least.

9 Q. And with the preservatives, would the preservative or
10 the anticoagulant would either of those cause the
11 amount of alcohol in the blood to be increased?

12 A. No.

13 Q. If -- would it cause them to decrease?

14 A. No.

15 Q. And so the purpose is to maintain the amount of alcohol
16 in the blood?

17 A. Correct. The compounds themselves will not interfere
18 with the testing.

19 Q. Typically, how long would those preservatives, how long
20 would they maintain the amount of alcohol in a blood
21 sample?

22 A. That would depend on storage conditions. We maintain
23 our storage at four degrees C, cool storage. That just
24 keeps things stable even longer. We have been
25 requested to test sample, retest samples up to a year,

1 maybe even more than a year later and found that they
2 are still stable. If they are stored at room
3 temperature, it would be certainly less than that. I'm
4 not sure how much, but not, not as long as refrigerated
5 storage.

6 Q. You certainly don't control how they're shipped to the
7 lab, as far as the kits themselves, correct?

8 A. That's correct.

9 Q. So you don't control how they're stored, for instance,
10 at the post office?

11 A. No, I don't.

12 Q. Now, if the samples are not stored at room temperature,
13 maybe in a warehouse, what effect would that have on
14 the amount of alcohol in the blood sample?

15 A. The amount of alcohol shouldn't change, again, for a
16 relatively short period of time even without
17 refrigeration.

18 Q. I'm going to direct your attention to the actual
19 testing of blood samples. You stated earlier in your
20 testimony that you separate the samples and you test
21 one sample and keep the other one separate. How do you
22 go about the testing of the actual sample, what
23 equipment do you use?

24 A. We use a method called head space gas chromatography.
25 I will open one of the tubes and remove some of the

1 blood from it and inject it along with a water mixture
2 into a sample vial. This vial is then sealed and
3 placed on the instrument. The instrument actually
4 samples the air space above the liquid. That's called
5 the head space. The sample travels through the
6 instrument through two separate columns. Each column
7 has a detector at the end of it. Both of them will
8 detect ethanol, the presence of ethanol. One of those
9 we use just for confirmation to verify what was found
10 with the other detector. The first detector will
11 generate a, a numerical value. That is the result that
12 we use.

13 Q. Are you testing the samples alone or do you test them
14 with other samples?

15 A. Before any subject samples are run, the instrument is
16 calibrated and every 10th sample throughout the run is
17 a quality control sample where we know the expected
18 result and must obtain that result within tolerance for
19 any subject samples to be valid.

20 Q. How many samples do you test at a time?

21 A. A typical full days alcohol run consists of an a.m.
22 sequence and a p.m. sequence. They're both the same.
23 That would be 45 subject samples in duplicate for 90
24 vials, plus six quality control vials, for 96 total
25 vials on each a.m. and p.m. runs.

- 1 Q. With so many vials, how do you verify the results you
2 receive is actually results of the specific sample
3 you're testing?
- 4 A. As I'm loading the samples into the sample tray, I
5 verify the lab, laboratory number on the vial and also
6 where it should be on the sample tray, that is before
7 the instrument runs. And then after the instrument
8 runs I again verify the position of the vials as I'm
9 taking them off to make sure there wasn't some sort of
10 mix up.
- 11 Q. Once you complete the testing, and that's using the
12 head space gas chromatograph, what do you do with the
13 samples?
- 14 A. The samples that were, the vials that we used for
15 sampling are disposed of and the blood tubes that the
16 samples came from are placed back into storage for
17 further testing if needed.
- 18 Q. When you receive samples, typically how much blood is
19 actually contained within these vials?
- 20 A. A full draw is about 10 milliliters, which would be
21 about three quarters full of a tube.
- 22 Q. And do you require all of the blood to test how much
23 alcohol is in the sample?
- 24 A. No, we do not.
- 25 Q. How much typically of the blood do you test?

- 1 A. We test .3 milliliters or a third of a milliliter and
2 there are about 30 milliliters in an ounce, if that
3 helps at all.
- 4 Q. Once you complete the testing and dispose of the
5 specific specimen you tested, how do you then determine
6 how much alcohol was actually in the blood sample?
- 7 A. The, the first detector that we use for a numerical
8 value -- actually, I mentioned earlier every sample is
9 tested in duplicate, two separate dilutions, two
10 separate analyses. The quantitative values for each
11 result are averaged and it is the average that is
12 recorded.
- 13 Q. And were you able to obtain a value, a reported value
14 for Mr. [REDACTED] blood?
- 15 A. Yes, I was.
- 16 Q. And what was that value?
- 17 A. 0.153 grams per 100 milliliters of blood or .153
18 percent.
- 19 Q. I'm sorry, and that's .153 grams of alcohol?
- 20 A. Yes.
- 21 Q. Or ethanol?
- 22 A. Grams of ethanol per 100 milliliters of blood.
- 23 Q. Is that your opinion to a reasonable degree of
24 scientific certainty?
- 25 A. Yes.

1 Q. Had you met Mr. [REDACTED] before today's date?

2 A. No.

3 Q. What about Officer [REDACTED], are you familiar with him?

4 A. No.

5 Q. So, you aren't at the scene of wherever this took
6 place, correct?

7 A. That's correct.

8 Q. And your sole function is just to test the blood that's
9 sent to you in the blood kits, correct?

10 A. Yes.

11 MR. XIONG: Thank you. Actually those are my
12 questions.

13 THE COURT: Mr. Schroeder.

14 MR. SCHROEDER: Thank you, Judge.

15 CROSS-EXAMINATION

16 BY MR. SCHROEDER:

17 Q. When does your shift generally start?

18 A. I generally work 6 in the morning 'til 2:30 in the
19 afternoon.

20 Q. And is there any reason for the two-day gap between
21 when you received the sample on the 24th and testing on
22 the 26th?

23 A. I don't recall a specific instance. However, it's not
24 uncommon for an analyst to have time to check in
25 samples, to get them ready for analysis, but then maybe

1 have to go to court the next day so it's delayed or be
2 sick. It's, it's not uncommon for there to be a
3 several day delay between check in and analysis.

4 Q. Now, what about taking -- when you throw it into this
5 machine it tests a little part of the sample, correct?

6 A. Yes.

7 Q. You don't put the tube in the machine, right?

8 A. No.

9 Q. You take something out of there and you put it into a
10 different tube, right?

11 A. Correct.

12 Q. Then you put something else into that tube, right?

13 A. Right.

14 Q. And then you put that into another tube or directly
15 into the machine?

16 A. Directly into the instrument.

17 Q. And when you open this up on the 24th, what did you do
18 with it?

19 A. The, the kit?

20 Q. The blood kit?

21 A. I completed the check in, affixed the laboratory number
22 to each tube, separated them in different racks, one
23 for storage, one for analysis, and then placed
24 everything back in the cooler until I was ready to test
25 it.

- 1 Q. So, for the two days it was not in the kit anymore or
2 it was in the kit?
- 3 A. It was not in the kit. Once I assigned laboratory
4 numbers to it, it was separated.
- 5 Q. You test about 100 of these a day?
- 6 A. 90 is a full days run, yes.
- 7 Q. How many of the other 90 were up for those two days?
- 8 A. None of them. All of the samples that I had checked in
9 for analysis were placed into the cooler until the day
10 of analysis.
- 11 Q. I probably didn't ask that specifically. Of the other
12 90 blood kits that were tested that day, how many of
13 the other ones were opened up on the 24th?
- 14 A. I would have to look at every submission form from that
15 date to tell you. Some -- usually I check in either
16 just the a.m. sequence or the entire 90 samples.
17 Either half or full.
- 18 Q. So either 45 or 90 of them were out for two days or
19 opened for two days?
- 20 A. Were opened for two days and put in the cooler, yes.
- 21 Q. Okay. So you received the sample in this case on
22 January 24, right?
- 23 A. That's correct.
- 24 Q. And as far as you know, it was drawn on the 18th, which
25 was six days earlier, correct?

- 1 A. Yes.
- 2 Q. You didn't see the blood taken, right?
- 3 A. I did not.
- 4 Q. You didn't oversee the procedure used to take the
5 blood?
- 6 A. No.
- 7 Q. Have you ever taken blood yourself?
- 8 A. Yes, I have.
- 9 Q. And when was that?
- 10 A. I do it periodically helping a different section in the
11 lab. I am a medical technologist, so that's part of my
12 training for my degree is to draw blood.
- 13 Q. Okay. But you didn't oversee the blood test in this
14 case?
- 15 A. I did not.
- 16 Q. And I want to talk -- you said the kit is put together
17 in the lab, right?
- 18 A. Yes.
- 19 Q. But the tube was actually manufactured somewhere else,
20 right?
- 21 A. Correct.
- 22 Q. And where was the tube manufactured?
- 23 A. I don't know where the, the factory is located, but I
24 believe it's from a company called Tri-Tech.
- 25 Q. So you order a bunch of tubes from this company?

1 A. Right.

2 Q. And do you or anybody at the lab test and see what's in
3 the tube, as far as preservative anticoagulant?

4 A. No, we rely on the quality control reports from the
5 manufacturer.

6 Q. Okay. So, nobody inspected this tube prior to it
7 leaving the lab?

8 A. Not to my knowledge.

9 Q. And you certainly didn't inspect this tube prior to
10 leaving the lab?

11 A. No.

12 Q. You have no personal knowledge who brought this tube to
13 the lab, right?

14 A. No.

15 Q. And meaning originally you also have no personal
16 knowledge as to how it got to the hospital, right?

17 A. Right.

18 Q. And then after it was taken you have no personal
19 knowledge as to how it got back to the lab after the
20 sample was taken, correct?

21 A. All I know is that it was delivered through the U.S.
22 Mail.

23 Q. Now, what's being measured is the alcohol concentration
24 in the tube on January 24, right?

25 A. Correct. It's a sample representative of the time it

1 was drawn.

2 Q. If it was a different amount, and we'll talk about how
3 that can happen, but if it was a different amount on
4 January 18, the machine is not going to let you know
5 that, right?

6 A. I'm not sure I follow your question.

7 Q. Let me break it up a little bit. If the amount of
8 alcohol that was taken out of [REDACTED]'s arm was a lot less
9 than a .153, and then by the time it got to the lab on
10 January 24 the alcohol concentration went up, and we'll
11 talk about how that can happen, but if it happened your
12 machine isn't going to say anything about that, right?

13 A. No. As far as it's concerned, ethanol is ethanol.

14 Q. All your machine can do is test what's in the tube on
15 January 24, right?

16 A. Correct.

17 Q. And you said you test in duplicate, you take two
18 samples out of the same tube, correct?

19 A. That's correct.

20 Q. So if something happened to the tube to cause the
21 alcohol to go up, testing it twice isn't going to
22 disclose that, correct?

23 A. Right.

24 Q. So your opinion today is based on the assumption that
25 the blood alcohol concentration on January 18 was the

1 same as the concentration in the tube eight days later,
2 right?

3 A. Correct.

4 Q. And it's also based on -- you also understand that at
5 the time that [REDACTED] was driving, about 40 minutes before
6 the blood draw, his alcohol concentration at that time
7 was probably different than at the time that it was in
8 the tube, right?

9 A. Yes.

10 Q. Because when people consume alcohol their blood alcohol
11 concentration goes up, right?

12 A. Yes.

13 Q. And how -- if you consume a drink, what's the longest
14 it can take to be absorbed and get into your blood
15 stream?

16 A. Depending on conditions with food in the stomach
17 involved with the drink, I would say anywhere up to 120
18 minutes.

19 Q. So it could take up to two hours?

20 A. Correct.

21 Q. Whether it's, whether it's a shot or whether it's a
22 little more than that, when you consume alcohol it
23 could take up to two hours to get into your blood
24 stream, right?

25 A. Right. I would say anywhere from 45 minutes to 120

- 1 minutes for full absorption.
- 2 Q. So, it can be as short as 45 minutes, right?
- 3 A. Yes.
- 4 Q. Now, prior to January 26, we've established you weren't
- 5 involved with the putting the tube together, right?
- 6 A. Correct.
- 7 Q. You weren't involved with the collection of the blood
- 8 in anyway, correct?
- 9 A. No.
- 10 Q. And you weren't involved with the transfer of the blood
- 11 in anyway, correct?
- 12 A. No.
- 13 Q. You have no knowledge as to the storage of the blood
- 14 from January 18 to January 24, correct?
- 15 A. Yes.
- 16 Q. And that's six days, right?
- 17 A. Yes.
- 18 Q. Now, this vacuum on the sample on the tube, vacuums can
- 19 only last for so long, right?
- 20 A. Correct.
- 21 Q. And they can expire?
- 22 A. Yes.
- 23 Q. And they can leak, right?
- 24 A. Yes.
- 25 Q. And are you aware of the expiration date on the tube

1 used in this case?

2 A. No, I'm not.

3 Q. If the tube -- if the vacuum leaked, then air would get
4 into the tube, correct?

5 A. Yes.

6 Q. And if air got into the tube, you don't know where that
7 air came from, right?

8 A. That's correct.

9 Q. Now, you talked about training. You've taken you said
10 specialized training after you were hired, correct?

11 A. Yes.

12 Q. And that was the Borkenstein school?

13 A. That was part of it, yes. Part of the training was
14 also in performing the testing.

15 Q. So a hands-on course?

16 A. Yes.

17 Q. As well as the Borkenstein school. And have you
18 studied the textbook Garriott's Medicolegal Aspects of
19 Alcohol?

20 A. I've read most of it at one time or another, yes.

21 Q. And this is the textbook that you use in your training,
22 right?

23 A. That's a newer version, yes.

24 Q. It's a newer version than the one that you used?

25 A. Right.

1 Q. Okay. Do you believe that it would still be reliable
2 as a source, as far as your training and your
3 experience and what you do?

4 A. Yes.

5 Q. Having studied this book, you understand there are
6 situations where alcohol can ferment in the vial,
7 correct?

8 A. Correct.

9 Q. And I want to talk about that. In blood is --
10 basically most blood contains glucose, right?

11 A. Yes.

12 Q. Glucose is sugar?

13 A. Yes.

14 Q. And there are many microorganisms that basically can
15 digest glucose and create alcohol, right?

16 A. Yes.

17 Q. Do you know how many off the top of your head?

18 A. I do not.

19 Q. Is it hundreds or thousands?

20 A. I do not know.

21 Q. And you've heard of the micro -- first of all let me
22 ask you this. Your lab doesn't test for microorganisms
23 in the vial when they're received, correct?

24 A. No.

25 Q. There's no analysis you do to determine whether or not

1 microorganisms got into the vial?

2 A. That's correct.

3 Q. So you're assuming no contamination when they get to
4 the lab, right?

5 A. That's correct.

6 Q. You don't check for that?

7 A. No.

8 Q. If contamination happened, you wouldn't know, right?

9 A. That's correct.

10 Q. It's something that would have happened during the
11 collection, right?

12 A. Possibly.

13 Q. Or possibly during the storage?

14 A. Sure.

15 Q. And you -- Mr. Xiong asked you if you inspect the tube
16 to see whether there's contamination. You can't see
17 contamination by inspecting the tube, correct?

18 A. Gross contamination maybe. I have seen coroner's tubes
19 where the blood has been fermented and the blood is
20 green. I can't say that I've seen any green in an
21 implied consent sample, but I do look at the sample
22 just for anything grossly out of normal.

23 Q. But if for example there was microbial contamination
24 and fermentation in the vial, it's not necessarily
25 going to turn green?

- 1 A. Not necessarily, no.
- 2 Q. It's not necessarily going to be at all observable from
3 the human eye, right?
- 4 A. Correct.
- 5 Q. I want to talk to you about *Candida albicans*. You've
6 heard of those microbes, right?
- 7 A. Yes.
- 8 Q. And they're discussed in numerous places in your
9 textbook?
- 10 A. Yes.
- 11 Q. They have been termed the most common pathogen of man,
12 correct?
- 13 A. Sure.
- 14 Q. I'm not -- you would agree with that?
- 15 A. I don't remember that specifically off the top of my
16 head, but I know it's an important pathogen, yes.
- 17 Q. And it's a very common pathogen, right?
- 18 A. Yes.
- 19 Q. It's naturally occurring within our bodies?
- 20 A. Yes.
- 21 Q. They can be present in the air?
- 22 A. Yes.
- 23 Q. They can be present on our skin?
- 24 A. Yes.
- 25 Q. They can be present on this tabletop?

- 1 A. Correct.
- 2 Q. They can be all around us, right?
- 3 A. Sure.
- 4 Q. The preservative that your lab uses is not effective at
5 preventing ethyl -- alcohol growth from Candida
6 albicans, correct?
- 7 A. There have been conflicting studies on that, some say
8 yes some say no.
- 9 Q. The studies in your textbook says no?
- 10 A. That's correct.
- 11 Q. The study in your textbook says the preservative you
12 use is not effective at preventing alcohol growth by
13 Candida albicans?
- 14 A. Correct.
- 15 Q. The anticoagulant, that's not its function, but that
16 wouldn't prevent growth from Candida albicans either,
17 correct?
- 18 A. No.
- 19 Q. Your textbook concluded sodium fluorides has been shown
20 to inhibit most microorganisms except Candida albicans,
21 right?
- 22 A. Yes.
- 23 Q. Your textbook stated at room temperature sodium
24 fluoride did not prevent production of some ethanol,
25 right.

1 A. I believe that's true in samples from deceased people,
2 yes.

3 Q. Your textbook stated at room temperature sodium
4 fluoride did not prevent the production of some
5 ethanol, right?

6 A. That particular reference, yes.

7 Q. And the same reference said if the specimens were kept
8 at refrigeration temperature, no ethanol was produced,
9 right?

10 A. Yes.

11 Q. So it's fair to say prompt refrigeration is important,
12 right?

13 A. It's, it's requested, yes.

14 Q. It's fair to say it's important, right?

15 A. Potentially important.

16 Q. Do you believe it's important?

17 A. I believe for long-term storage it is important, yes.

18 Q. But not for short-term storage?

19 A. No, I do not believe it's critical for short-term
20 storage.

21 Q. It's not vital?

22 A. Not in my opinion, no.

23 Q. Okay. The conclusions in your textbook are based on
24 the Chang and Kollman study, right?

25 A. I don't remember off the top of my head, but it's

1 possible.

2 Q. Are you familiar with the Chang and Kollman study?

3 A. Yes, I have read it.

4 Q. And you're aware that it's discussed in your textbook,
5 right?

6 A. I'm aware it's discussed there, yes.

7 Q. And you would agree with me that the publisher of the
8 Chang and Kollman study is an expert in the area of
9 this type of analysis, right?

10 A. Yes.

11 Q. And I want to talk to you about that study. If
12 possible I'd like to set this up here so that everybody
13 can see.

14 (Exhibit No. 5 was marked for identification.)

15 BY MR. SCHROEDER:

16 Q. And I'm handing you what's been marked as Exhibit 5,
17 can you explain what that is?

18 A. This is a copy of the Chang study you were mentioning.

19 Q. And what they did is they took certain tubes, correct?

20 A. Yes.

21 Q. And they put blood in the tubes, right?

22 A. Yes, they did.

23 Q. And I want to talk about -- what size tubes were in the
24 study?

25 A. 10 milliliter.

- 1 Q. 10 milliliter tubes of blood. And in the study they
2 also put a preservative in the samples, correct?
- 3 A. Correct.
- 4 Q. Some of them. And what preservative and amount of
5 preservative was that?
- 6 A. 100 milligrams of sodium fluoride.
- 7 Q. And then what type and amount of anticoagulant was in
8 the tubes?
- 9 A. 20 milligrams of potassium oxalate.
- 10 Q. And then they put *Candida albicans* into the tubes,
11 right?
- 12 A. Correct.
- 13 Q. And some of the tubes they refrigerated, right?
- 14 A. Yes.
- 15 Q. Right away?
- 16 A. Yes.
- 17 Q. And some of the tubes they didn't refrigerate, right?
- 18 A. Correct.
- 19 Q. And with the unrefrigerated tubes, did they in fact
20 grow alcohol?
- 21 A. After a certain amount of time they did, yes.
- 22 Q. What, of the tubes where they put *Candida* in and did
23 not refrigerate them and left them out for five days,
24 how much alcohol growth occurred?
- 25 A. If I'm reading the chart correctly, between .013 and

- 1 .071.
- 2 Q. How many reports are there, or how many numbers are
- 3 there?
- 4 A. There are four for that, that, that time frame.
- 5 Q. So what were the four?
- 6 A. .071, .059, .065, .013.
- 7 Q. So, after five days of non-refrigeration, Candida
- 8 albicans caused growth of alcohol in the amounts you
- 9 just mentioned, right?
- 10 A. In the tubes that were inoculated with Candida albicans
- 11 in them.
- 12 Q. In the tubes that had Candida in them, correct?
- 13 A. Right.
- 14 Q. Was there any alcohol in those tubes to begin with?
- 15 A. No.
- 16 Q. Now, I want to talk to you about [REDACTED]'s sample. What
- 17 size tube was used in his case?
- 18 A. 10 milliliter.
- 19 Q. And then we presume it had blood in it, right?
- 20 A. Correct.
- 21 Q. And then what was the type and amount of preservative?
- 22 A. Again potassium oxalate and sodium fluoride, the
- 23 amounts I do not -- 20 milligrams potassium oxalate,
- 24 100 milligrams sodium fluoride. The same amounts.
- 25 Q. Now, you didn't check [REDACTED]'s sample for glucose levels,

- 1 correct?
- 2 A. No.
- 3 Q. You didn't check ██████'s sample for Candida albicans,
4 correct?
- 5 A. No.
- 6 Q. And what you do is scientific, right?
- 7 A. Correct.
- 8 Q. You base your conclusions on things that you can see,
9 right?
- 10 A. Yes.
- 11 Q. Or can measure?
- 12 A. Yes.
- 13 Q. Or can demonstrate through experimentation?
- 14 A. Yes.
- 15 Q. And nothing about -- you didn't do any experiment on
16 that tube to determine whether or not it had Candida
17 albicans in it, correct?
- 18 A. No.
- 19 Q. You don't know that there were any in there, right?
- 20 A. Correct.
- 21 Q. And you don't know that there were not any in there,
22 correct?
- 23 A. Correct.
- 24 Q. So we'll put a question mark. And we've covered this.
25 But, for those six days it's unlikely -- or let's

1 just -- you don't know that they were refrigerated at
2 all for those six days, correct?

3 A. I do not.

4 Q. And you said best as you can tell they just came to the
5 lab from the post office, right?

6 A. That is how they were received at the lab, yes.

7 Q. And nothing about the kit would suggest refrigeration
8 involved with that transfer, correct?

9 A. Nothing with the kit indicated how it was stored, no.

10 Q. And the first thing, the first thing you do when it
11 comes to the lab is throw it in the refrigerator,
12 right?

13 A. It is stored in the cooler, yes.

14 Q. In the same study, the Chang and Kollman study, the
15 samples that were refrigerated right away were
16 completely stable, right?

17 A. Yes.

18 Q. They did not grow ethanol at all, correct?

19 A. That's correct.

20 Q. And the conclusion of the study was refrigeration is
21 important, right?

22 A. Refrigeration is important if there is *Candida albicans*
23 inoculated into the tube, yes.

24 Q. The importance of refrigeration is also mentioned in
25 your textbook, right?

- 1 A. It is mentioned in the textbook, yes.
- 2 Q. Your textbook says instructions to law enforcement
3 should also emphasize the importance of transporting
4 the blood sample to the laboratory promptly, right?
- 5 A. Yes.
- 6 Q. And you say you personally disagree with that, right?
- 7 A. I don't agree it's critical based on other studies.
- 8 Q. Based on studies in your textbook?
- 9 A. Not in that textbook, but that is not the only
10 reference that we use.
- 11 Q. Studies that you brought today?
- 12 A. I may have them, if I could take a look.
- 13 Q. Sure.
- 14 A. I guess I have two articles, one is the same the Joyce
15 Chang and another is from the Journal of Analytical
16 Toxicology June of 2006 Comparison of Blood Ethanol
17 Concentration in Samples Simultaneously Collected into
18 Expired and Unexpired Venipuncture Tubes.
- 19 Q. Does that study say that un, that refrigeration is not
20 important if there's contamination by *Candida albicans*?
- 21 A. It does not deal with inoculating *Candida albicans* into
22 the tubes.
- 23 Q. Does that report have *Candida albicans* in the sample?
- 24 A. No, they do not.
- 25 Q. So it wouldn't apply in this scenario, right?

- 1 A. To this hypothetical scenario, no.
- 2 Q. And regarding contamination, for it to be a problem, it
3 would have happened before you got involved, right?
- 4 A. Yes.
- 5 Q. For it to be a problem, it would have had to have
6 happened sometime during the collection of the blood?
- 7 A. Possibly.
- 8 Q. Or during the storage of the tube?
- 9 A. Again, sometime before we received it and put it in the
10 cooler.
- 11 Q. And your textbook says that the contamination may take
12 place before, during, or after collection, right?
- 13 A. That textbook says that, yes.
- 14 Q. And this is your textbook, right?
- 15 A. It's not my textbook. It's a textbook that we utilize,
16 but it's not the textbook that we utilize.
- 17 Q. This isn't your textbook anymore, the one that you
18 studied?
- 19 A. I'm not saying that. I'm saying it's not my textbook
20 and it's not the only reference that is used. It is
21 not the textbook. It's a textbook.
- 22 Q. This is the textbook of the Borkenstein school,
23 correct?
- 24 A. It is a textbook that is handed out, however it wasn't
25 handed out when I went through the course.

- 1 Q. But you told me before we started talking that you
2 believed this was an authority in your analysis, right?
- 3 A. I believe it is a respectable source, yes, it is not
4 the source.
- 5 Q. As far as people that are going to analyst school
6 today, they're going to the Borkenstein school, too,
7 right? The people --
- 8 A. I believe so, yes.
- 9 Q. And they're using the Garriott's Medicolegal Aspects of
10 Alcohol as a textbook?
- 11 A. As a textbook, yes.
- 12 Q. And as a textbook for an authority, right?
- 13 A. It's used for reference, yes.
- 14 Q. It's not used to say that this is what some people
15 think, it's used to say this is what we're teaching
16 you, right?
- 17 A. It's used to say this is what was found in this case.
- 18 Q. Okay. This textbook -- is Laura Liddicoat still
19 employed with your lab?
- 20 A. Yes, she is.
- 21 Q. Is she your supervisor or your boss in anyway?
- 22 A. She's my supervisor, yes.
- 23 Q. She has actually published -- she was one of the
24 writers in this textbook, right?
- 25 A. Yes.

1 Q. In what section did she --

2 MR. XIONG: Objection to relevance, Judge.

3 THE COURT: Overruled.

4 BY MR. SCHROEDER:

5 Q. What section did she write in there, what was, what was
6 the topic?

7 A. I believe it dealt with quality control.

8 Q. Quality control?

9 A. Yes.

10 Q. But you personally dis -- quality control would also
11 involve the importance of the refrigeration, right?

12 A. I don't, I don't know that I would take it that far.

13 Q. Your, the textbook says maintaining the specimens in a
14 refrigerator or freezer will prevent significant post-
15 collection generation of ethanol, right?

16 A. And again that specifically talking mostly about
17 postmortem. Postmortem is where the large risk of
18 fermentation happens.

19 Q. It also says monitoring or documenting the temperature
20 of sample storage areas is vital, right?

21 A. Yes.

22 Q. And that means it's important, right?

23 A. It's important to monitor them for long-term storage,
24 yes.

25 Q. But not for short term, as far as you're concerned?

1 A. Again, I've testified to that already, yes.

2 Q. But you said nothing in that book will say it's okay
3 not to have monitoring of storage times?

4 MR. XIONG: Judge, I'm just going to object. I
5 think if Mr. Schroeder is referring to a specific
6 section of the book that the witness should be able to
7 see that section.

8 THE COURT: Sustained.

9 BY MR. SCHROEDER:

10 Q. If you could turn to page 270 and just let me know if
11 I'm not reading this accurately. This says monitoring
12 and documenting the temperature of sample storage areas
13 is vital, right? On page 270.

14 A. You have highlighted instruction should also emphasize
15 the importance of transporting the blood samples to
16 laboratory promptly. I'm not finding what you are --

17 Q. Okay. It's on page 270, under section 9.2 on the page
18 that I referred you to, 270.

19 A. I'm sorry. Monitoring documenting the temperature of
20 sample storage area, i.e., refrigerators is vital.

21 Q. And nothing -- that doesn't say if you're going to keep
22 these for a long time, right?

23 A. No, it doesn't.

24 Q. It just says it's vital?

25 A. Yes.

1 Q. Is there, do you have any documentation as the way that
2 ██████'s sample was stored from January 18 to January 24?

3 A. No, I do not.

4 Q. Any documentation as to what temperature it was stored
5 in?

6 A. Again, no.

7 Q. And there's been no analysis done to determine whether
8 it has contamination?

9 A. That's correct.

10 MR. SCHROEDER: Thank you. Those are all the
11 questions I have right now.

12 REDIRECT EXAMINATION

13 BY MR. XIONG:

14 Q. I guess I don't understand, Mr. McManaway, if it's the
15 case that there could be these C. albicans, how could
16 any of your samples or results ever be reliable?

17 A. If it was a large scale problem, they wouldn't be.

18 Q. And you said that you did possess an alcohol permit
19 issued by the State, as well the hygiene lab?

20 A. I have one from the State and the hygiene lab does, as
21 well.

22 Q. Even with the potential for the C. albicans?

23 A. Yes.

24 Q. And I'm going to just take Mr. Schroeder's --

25 MR. SCHROEDER: And don't mark it, please, make

1 your own.

2 MR. XIONG: No, that's fine.

3 BY MR. XIONG:

4 Q. Do you still have the study that Mr. Schroeder had you
5 review from Ms. Joyce Chang in front of you?

6 A. Yes, Exhibit 5.

7 Q. And you were asked a number of questions during Mr.,
8 from Mr. Schroeder about C. albicans and their affect,
9 and their affect on the formation of alcohol, correct?

10 A. Yes.

11 Q. What, what does the study conclude, in terms of in the
12 last paragraphs of samples where C. albicans were
13 actually present?

14 A. The last paragraph states; Therefore, it appears that
15 legal questions regarding the issue of the neoformation
16 or the generation of ethyl alcohol should be rendered
17 moot if preservatives and short transport times are
18 routinely used in bringing specimens to the laboratory
19 and refrigeration is used in specimen storage.

20 Q. And prior to that you were also asked by Mr. Schroeder
21 about the actual formation of alcohol in samples that
22 were kept in room temperature after day five, do you
23 recall that, those questions?

24 A. Yes.

25 Q. And you were told that after five days that these

1 numbers here were the amount of alcohol that were
2 created by the C. albicans, correct?

3 A. Those are the numbers that I gave as, as in response to
4 that question, yes.

5 Q. And are these numbers, are these grams of alcohol
6 that's being created?

7 A. No, those again would be grams per 100 milliliters of
8 blood.

9 Q. Are they percentages?

10 A. .071 would be .071 percent.

11 Q. Okay. Of the number of grams per alcohol, correct?

12 A. It would be the same units as the my test result, grams
13 per 100 milliliters.

14 Q. Okay. And those are, and the different numbers here
15 were just from the different samples where there was
16 actually C. albicans and formation of alcohol, correct?

17 A. Correct.

18 Q. So, if we're talking hypotheticals, we're talking about
19 hypothetically in this case of Mr. [REDACTED]'s reported
20 value of .153 was affected by C. albicans and alcohol
21 was actually formed, what percentage or how much of his
22 sample would actually have been formed from C.
23 albicans?

24 A. I believe they talked about a maximum amount that would
25 be expected, and they expected it to be approximately

1 .007 percent.

2 Q. So from .153, what would that mean?

3 A. Approximately a .146.

4 Q. And, and so returning to the study, the second to last
5 paragraph, what does that state?

6 A. The study further showed that even in specimens
7 where -- even when specimens were purposely inoculated
8 with *C. albicans*, no alcohol formation took place for
9 69 hours at 37 degrees C, or body temp, if sodium
10 fluoride at 10 milligrams per milliliter of blood was
11 used as a preservative.

12 Q. And you said 37 degrees is body temperature.

13 Approximately 98.6 degrees Farenheit?

14 A. Right.

15 Q. And so samples were kept at that, even when the *Candida*
16 *albicans* purposely injected, that no alcohol formation
17 took place for 69 hours?

18 A. Correct.

19 Q. And that's when 10 milligrams of the sodium fluoride is
20 used per milliliter, correct?

21 A. Correct.

22 Q. And these test tubes or these vials typically contain
23 100 milligrams of the sodium fluoride, correct?

24 A. That's, that's for 10 mil tube, so it would be the same
25 amount per, per milliliter.

1 Q. And that's what I'm getting to is using the amounts of
2 10 milligrams of sodium fluoride per milliliter, that's
3 what this study is talking about?

4 A. Correct.

5 Q. But again we, you don't test for the C. albicans,
6 correct?

7 A. That's correct.

8 Q. And you don't know if these samples were even tested
9 for these C. albicans, is that correct?

10 A. I have no knowledge that they were, yes.

11 Q. And so this is all just hypotheticals if, if in fact
12 there were C. albicans, correct?

13 A. Yes.

14 Q. And even if a situation where, where using the numbers
15 from that study, and if there were presence of C.
16 albicans that formed alcohol, it would have brought it
17 down to .146, is that correct?

18 A. Still above .08, yes.

19 Q. But again, this is all just speculating if there had
20 been C. albicans, correct?

21 A. Correct.

22 Q. And with Mr. [REDACTED]'s blood specifically, the result
23 you reached was a .153 grams per 100 milliliters of
24 blood, correct?

25 A. Yes.

1 Q. And is that still, even with the, what you testified to
2 earlier from Mr. Schroeder's question, is that still
3 your opinion to a reasonable degree of scientific
4 certainty?

5 A. Yes, it is.

6 MR. XIONG: Thank you.

7 THE COURT: Recross.

8 MR. SCHROEDER: Yes. Let me clear a few things
9 up, Judge.

10 RECCROSS-EXAMINATION

11 BY MR. SCHROEDER:

12 Q. Starting from where you started off on redirect. The
13 conclusion of the study was the issue is no longer
14 there if there's short transfer times and then
15 refrigeration, correct?

16 A. Correct.

17 Q. So, the conclusion of the study is prompt refrigeration
18 is important, right?

19 A. Says short transport, short transport time and then
20 refrigeration, yes.

21 Q. And the actual distance would probably not have any
22 impact, correct?

23 A. Correct.

24 Q. It's really the time that it takes to get to the
25 refrigerator, right?

- 1 A. Correct. And it doesn't state what short is.
- 2 Q. But from the study, you said 69 hours is when growth
3 sky rocketed, right?
- 4 A. With inoculation, yes.
- 5 Q. And that's, what, less than five days, right?
- 6 A. Yes.
- 7 Q. Certainly less than six days, right?
- 8 A. Right. Again, if you're adding it to the tube.
- 9 Q. And you said that the point you made reference to .007
10 is the highest growth, correct?
- 11 A. I think that's what they said, yes, what the highest
12 expected was.
- 13 Q. That was not in that tube? We don't even know if there
14 were Candida albicans in that tube, correct?
- 15 A. I have to find where it was.
- 16 Q. It was on the bottom of page 108, very last part of the
17 last full paragraph.
- 18 A. Specimens that were not uninoculated and contained
19 sodium fluoride, so yes like you said.
- 20 Q. We don't even know if there were Candida albicans in
21 that vial, correct, the vial that grew .007?
- 22 A. No.
- 23 Q. Some were inoculated, meaning we put Candida albicans
24 in some of the vials and in some we didn't check
25 whether they had any Candida albicans in them or not,

1 right?

2 A. Correct.

3 Q. And the ones that had them in there, within five days
4 grew up to .071 alcohol, right?

5 A. Yes.

6 Q. And it's a function of the glucose level, as far as how
7 high the alcohol can rise, right?

8 A. Correct.

9 Q. And that's why I asked you at the beginning, you don't
10 test the glucose level of the blood that you receive at
11 the lab, right?

12 A. No.

13 Q. And would you agree with me that it's not science to
14 say -- well, let me back up. We made two assumptions,
15 correct? We have to assume, number one, that the blood
16 alcohol concentration that was taken out of ██████'s arm
17 is actually the same as when he was driving, right, in
18 order to determine his blood alcohol concentration at
19 the time of driving?

20 A. I don't believe I made that assumption.

21 Q. In order to know. In order to know, we would have to
22 assume, in order for it to be a .153?

23 A. At the time of driving.

24 Q. Right. And that's what we're focussed on. We're
25 trying to figure out if the blood alcohol concentration

1 was above a .08 at the time of driving. And you've
2 made two assumptions, you said we cannot assume that
3 the blood draw, correct me if I'm wrong, that the blood
4 draw represented his actual blood alcohol concentration
5 at the time of driving, right?

6 A. Correct.

7 Q. He likely, he could have easily still been absorbing
8 alcohol, right?

9 A. He could have been absorbing or eliminating at that
10 point, yes.

11 Q. So, he could have been higher at the time of driving
12 possibly?

13 A. Yes.

14 Q. Could have been significantly lower, right?

15 A. Possibly, yes.

16 Q. And now the hypothetical we've been talking about,
17 assuming that there's contamination of Candida
18 albicans, we don't know what the level of growth would
19 be, right?

20 A. Assuming there were Candida albicans, no.

21 Q. So, it's not scientific, correct me if I'm wrong, to
22 start saying I, I guesstimate that it would be about
23 this much growth from the Candida albicans, and I
24 guesstimate that it'd be about this much different at
25 the time of driving. That's not science, right?

1 A. No. I was merely referencing what they found in the
2 paper. I, I wouldn't do that for a real estimate, no.

3 Q. If those two things happened, the blood samples is
4 simply an invalid thing to measure, right? As far as
5 at the time of driving?

6 A. If what two things happen?

7 Q. My fault. If there was Candida albicans, that would
8 render the result invalid to determine what his BAC was
9 at the time of driving, right?

10 A. If I knew there were Candida albicans in there and it
11 produced alcohol, yes.

12 Q. And it's also invalid to determine what his BAC was at
13 the time of driving unless we know where he was on the
14 blood alcohol curve at the time of driving, right?

15 A. Correct. I'm not trying to state what his blood
16 alcohol content was at the time of driving just at the
17 time of the blood draw.

18 MR. SCHROEDER: Okay. Thank you. Those are all
19 the questions I have.

20 MR. XIONG: No follow-up.

21 THE COURT: Any questions from the jury?

22 (Counsel reviewed juror questions.)

23 THE COURT: Okay. All right. In no particular
24 order, it's just I got them stacked up here. Are there
25 any other elements that may possibly affect alcohol

1 content in the blood between the draw and being tested,
2 and in parenthesis other than that which was discussed
3 already?

4 THE WITNESS: Not really. It was mentioned that
5 there are other, I'm sorry, other organism that can
6 possibly cause fermentation. Almost all those are
7 bacteria which are inhibited definitively by sodium
8 fluoride. Candida albicans is really the only
9 possibility of not being inhibited by sodium fluoride.

10 THE COURT: In your estimate, how long do blood
11 samples go unrefrigerated in your department?

12 THE WITNESS: As soon as they arrive at the
13 laboratory, they're refrigerated. As far as being out
14 at any one given time, no more than, no more than a day
15 at a time and then they're back in the cooler. I don't
16 know if that answers the question.

17 THE COURT: Are the majority of the tubes that you
18 receive refrigerated or unrefrigerated? And I assume
19 he means when you, you receive them are they from the
20 mail, I'm guessing, but.

21 THE WITNESS: We have no knowledge how the samples
22 are stored before we get them. Most of them come
23 through the U.S. Postal Service and I'm guessing that
24 they don't refrigerate them, but I'm not going to
25 testify to that.

1 THE COURT: And that was actually the next
2 question. Do they mostly come through the U.S. Postal
3 Service? What is the average length of time between
4 sample collection and testing? Is six to eight days
5 common?

6 THE WITNESS: Six to eight days is common. We try
7 to get all reports mailed out from testing within 14
8 days so that we generally within -- six to eight days
9 sounds like a reasonable number, yes.

10 THE COURT: And this is referring to one of the
11 studies. How many tests were conducted in the study to
12 obtain the numbers, it's the numbers that were used on
13 the sheet by Mr. Schroeder .071, .059, .065 and .013
14 referenced in the study, and specifically what .071 the
15 maximum value observed in the study?

16 THE WITNESS: For the first part the full results
17 are for only four tubes that met those conditions at
18 that time frame, so I believe those are all the results
19 for, for those sets of tubes. And there was actually,
20 in tubes that were not preserved or had Candida, only
21 after 182 days there was one with .074 it looks like,
22 so not quite the highest.

23 THE COURT: Thank you. All right. Mr. Xiong.

24 MR. XIONG: No follow-up.

25 THE COURT: Mr. Schroeder.

1 FURTHER RECROSS-EXAMINATION

2 BY MR. SCHROEDER:

3 Q. And just one question. All of the tubes that had, that
4 we know had Candida in them and that were
5 unrefrigerated for at least 69 hours gained alcohol,
6 correct?

7 A. That's correct.

8 MR. SCHROEDER: Thank you. Nothing further.

9 MR. XIONG: No.

10 THE COURT: Okay. All right. Any further
11 questions from the jury? Just because this is
12 complicated. Okay. All right. Thank you. You may
13 step down.

14
15 (The proceedings concluded at approximately 2:33
16 p.m.)

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