

THE STATE OF SOUTH CAROLINA
IN THE SUPREME COURT

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Appeal from Spartanburg County

S.C. SUPREME COURT

The Honorable J. Mark Hayes, II
Circuit Court Judge

Case No. 2019-CP-42-01605

Stephanie Irene Greene, # 359489

Petitioner,

v.

State of South Carolina

Respondent.

**APPENDIX
VOLUME VII**

NELSON MULLINS RILEY &
SCARBOROUGH, LLP
John F. Kuppens
Blake T. Williams
Caroline A. Warner
1320 Main Street / 17th Floor
Post Office Box 11070 (29211-1070)
Columbia, SC 29201
(803) 799-2000

ROSS & ENDERLIN, P.A.
Susannah C. Ross
330 East Coffee St.
Greenville, SC 29601

Attorneys for Petitioner

OFFICE OF THE ATTORNEY GENERAL
Alan Wilson
Donald J. Zelenka
Danielle Dixon
1000 Assembly Street / Room 519
P.O. Box 11549 (29211)
Columbia, SC 29201

Attorneys for the Respondent

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- 1 A 1996.
- 2 Q -- of Charleston? All right. 1996. What did you
3 do after you graduated, say for the next few years
4 after you graduated?
- 5 A I was a high school math teacher for a year, I was
6 a waitress for a year. I did in-home health care.
7 I taught SAT Prep classes. I did quite a few jobs
8 over that time period.
- 9 Q So you've got a lot of areas of expertise?
- 10 A Uh-huh. I have.
- 11 Q Well -- well, let's just focus on one. When did
12 you go to medical school?
- 13 A I graduated medical school in 2004.
- 14 Q And from where?
- 15 A From MUSC.
- 16 Q MUSC. Where did you do your internship and
17 residency?
- 18 A At Miami Children's Hospital in Miami, Florida.
- 19 Q And what were your areas of specialization?
- 20 A General pediatrics.
- 21 Q And after your residency in Miami, where did you
22 go?
- 23 A I went to Dallas, Texas to the University of Texas
24 Southwestern Medical Center and Dallas Children's
25 Hospital and did my nephrology -- pediatric

- 1 nephrology fellowship.
- 2 Q Did you say "fellowship"?
- 3 A Yes.
- 4 Q All right. And why did you choose to go do your
- 5 pediatric nephrology fellowship at University of
- 6 Texas Southwestern?
- 7 A It has one of the best programs in the country.
- 8 It's one of the largest programs, and it has some
- 9 of the best research in the country.
- 10 Q All right. And this was in your -- your specialty
- 11 area and your fellowship was pediatric nephrology,
- 12 I think you said?
- 13 A Yes.
- 14 Q All right. ***Tell us what is pediatric
- 15 nephrology.
- 16 A It is an area of medicine where you specialize in
- 17 children with kidney disorders.
- 18 Q All right. Why did you choose pediatric nephrology
- 19 as your area of specialty?
- 20 A It has a lot of great diversity. I get to see
- 21 patients, inpatient and outpatient. I get to see a
- 22 lot of different ages of patients, and I get to see
- 23 a lot of different disease-types.
- 24 Q All right. Now, you said pediatric nephrology
- 25 deals with kidney disorders. What kinds of kidney

- 1 disorders? Can you give us some of the more common
2 types --
- 3 A Sure.
- 4 Q -- of disorders you work on?
- 5 A So we see children anywhere from birth all the way
6 up to young adults. We see children that are born
7 with anatomy problems with their kidneys where
8 their kidneys don't work well. We see children
9 that have acute and chronic kidney failure. We see
10 children with autoimmune disorders of their
11 kidneys. We see children with cysts on their
12 kidneys, a large variation of diseases. And we see
13 children whose kidneys don't work and on dialysis
14 and then they get transplanted, and we see those
15 patients, also.
- 16 Q All right. Are all these forms -- when you're
17 talking about forms of kidney disease?
- 18 A Yes.
- 19 Q And is there a difference between kidney disease
20 and renal disease?
- 21 A No.
- 22 Q All right. You mentioned renal failure. What is
23 renal failure?
- 24 A It is when the kidneys do not work.
- 25 Q What are some of the more common causes of renal

- 1 failure in children and in infants?
- 2 A The most common causes are acute kidney failure
- 3 from different reasons, whether it be from an
- 4 illness, some kind of sickness. The chronic forms
- 5 are more likely from the congenital anatomic
- 6 genetic causes.
- 7 Q All right. As a pediatric nephrologist, do you
- 8 have training and experience in treating renal
- 9 failure in infants?
- 10 A Yes.
- 11 Q All right. Let's get back to your fellowship, we
- 12 were talking about a minute ago. When your
- 13 fellowship out in Dallas ended, what did you do?
- 14 A I stayed on at UT Southwestern as faculty for two
- 15 years.
- 16 Q All right. And then what?
- 17 A Then I was recruited to Medical University of South
- 18 Carolina.
- 19 Q As what?
- 20 A As an assistant professor.
- 21 Q All right. In?
- 22 A Pediatric nephrology.
- 23 Q All right. What -- where are you licensed to
- 24 practice now, by the way?
- 25 A In South Carolina.

- 1 Q Are you board certified?
- 2 A I am double-boarded. I'm boarded in general
3 pediatrics, and I am boarded in pediatric
4 nephrology.
- 5 Q All right. So what -- what professorial ranks have
6 you held since you've been at MUSC?
- 7 A I started as an assistant professor. I was
8 promoted to associate professor in 2015, and then I
9 was promoted to full professor with tenure in 2019.
- 10 Q All right. Let's just kind of thumb through your
11 resumé for a minute -- your CV for a minute. Are
12 you working on any -- currently on any grants? Do
13 you have any in process?
- 14 A Yes.
- 15 Q All right. Tell us -- tell us about the two, I
16 believe, that you have in process that are listed
17 on your CV.
- 18 A Sure. The first one is a grant funded by the
19 NIDDK, which is the National Institute for
20 Digestive and -- Digestive Diseases and Kidney
21 Disorders. That is a subaward with Emory and it is
22 looking at a new approach to predict graft outcome
23 from histology in children undergoing
24 transplantation using machine learning methods.
25 And that is a close to \$270,000 project.

- 1 And then the other grant is from AHRQ, which
2 is the Agency for Healthcare Research and Quality.
3 And this grant is looking at comprehensive
4 pediatric hypertension diagnosis and management
5 goals. Trying to identify if a quality improvement
6 collaborative can reduce pediatric hypertension
7 diagnosis and management errors in a national group
8 of pediatricians. And that one is a close to
9 \$500,000 grant.
- 10 Q All right. And those are the two you have in
11 process now?
- 12 A That's the two biggest active ones, yes.
- 13 Q Okay. But you've had grants -- other grants in the
14 past; is that --
- 15 A Yes.
- 16 Q -- correct? All right. Tell us about your
17 teaching duties in MUSC, please, now that you're a
18 full professor.
- 19 A I am the program director for the pediatric
20 nephrology fellowship program. I teach a second-
21 year medical school course, and then I have
22 residents, students, and different fellows rotate
23 through with me when I see patients in clinic, or
24 on the inpatient service.
- 25 Q All right. Do you have any administrative duties

- 1 at MUSC?
- 2 A Yes.
- 3 Q What are they?
- 4 A I'm the division chief of pediatric nephrology.
5 I'm the medical director of the pediatric kidney
6 transplant program, and I'm the medical director of
7 the acute dialysis units at the main campus and at
8 Ashley River Tower campus.
- 9 Q All right. And where is the Ashley River Tower
10 campus within MUSC?
- 11 A It's on the main campus.
- 12 Q So it's Downtown Charleston?
- 13 A It -- yeah. So the two adult hospitals are broken
14 up into the main hospital and the Ashley River
15 Tower Hospital, which Ashley River Tower services
16 mostly a lot of the subspecialist adult patients.
17 And so, we have dialysis units at both facilities.
- 18 Q All right. Now, can you -- you talk about teaching
19 and administrative, what about your clinical
20 duties?
- 21 A So I see patients in the outpatient setting in the
22 clinic, and then I cover the inpatient service
23 about 12 to 14 weeks a year.
- 24 Q All right. How do you divide your time between
25 those three areas we talked about: clinical

1 duties, teaching duties, administrative duties?

2 What -- how -- what's -- how is that time

3 allocated?

4 A I'm about 50 percent clinical, probably about 25
5 percent administrative, and about 25 percent
6 teaching.

7 Q Okay. Are there other pediatric nephrologists at
8 MUSC?

9 A Four other physicians and one nurse practitioner.

10 Q All right. And since you -- I believe you just
11 said you're the chief of pediatric nephrology, do
12 they all report to you?

13 A Yes.

14 Q Okay.

15 MR. WESTBROOK: Your Honor, at this point, I
16 would move to have Dr. Katherine Twombly
17 admitted as an expert in the areas of
18 pediatric nephrology and renal failure.

19 THE COURT: Yes, sir.

20 MR. SPENCER: Your Honor, I have no objection.

21 THE COURT: All right. You may proceed as
22 requested; she'll be qualified in those two
23 areas as an expert.

24 MR. WESTBROOK: Thank you, Your Honor.

25 THE COURT: Yes, sir.

1 MR. WESTBROOK: And, at this point, let me go
2 ahead and -- and ask to have as admitted into
3 evidence her CV which we put up, which I
4 believe would be Applicant's Exhibit Number 9.

5 THE COURT: (To the State) Any objection to
6 the CV?

7 MR. SPENCER: No objection, Your Honor.

8 THE COURT: Yes, sir.

9 MR. WESTBROOK: All right.

10 THE COURT: Thank you very much.

11 (WHEREUPON, Applicant's Exhibit No. 9 was
12 marked into evidence.)

13 MR. WESTBROOK: Thank you.

14 **DIRECT EXAMINATION OF DR. TWOMBLEY**

15 BY MR. WESTBROOK:

16 Q Now, Dr. Twombley, let's start with your -- your
17 patients. What age patients -- as a pediatric
18 nephrologist, what age patients -- or what age
19 range are your patients at?

20 A I see patients from prenataally.

21 Q Uh-huh.

22 A I do consults on mothers that are pregnant with
23 children that have known kidney problems, to the
24 actual patient from birth, and I think my oldest
25 patient is in the early 40s.

- 1 Q Okay. So, roughly, what percentage of your
2 patients are infants?
- 3 A In the outpatient clinic, I would say about 20 to
4 30 percent are infants. In the hospital, it's
5 probably closer to 40 to 50 percent.
- 6 Q Forty to fifty?
- 7 A Yes.
- 8 Q All right. Let's -- this came up a little earlier.
9 What's the distinction between an infant and a
10 neonate?
- 11 A The neonate is the first month of life.
- 12 Q All right. And an infant is --
- 13 A Correct.
- 14 Q -- after the first month of life until --
- 15 A Correct.
- 16 Q All right. Until what, a year old or --
- 17 A Yes. To a year old.
- 18 Q Okay. All right. Now, let me ask you a couple
19 questions about your infant patients some. Did you
20 -- have you ever ordered under any circumstances --
21 let me back up. Let me rephrase this.
- 22 Under what circumstances would you or have you
23 ordered morphine for infant patients?
- 24 A Usually, post-operatively --
- 25 Q Uh-huh.

1 A -- to manage pain, or if an infant has a kidney
2 stone that they're passing. So anytime there's any
3 kind of pain.

4 Q I see. All right. Have you ever ordered MS Contin
5 for infants?

6 A MS Contin only comes in pills, and infants can't
7 take pills, so, no, I do not write MS Contin for
8 infants.

9 Q How often in your practice do you have occasion to
10 review toxicology or autopsy reports?

11 A Autopsy reports, about two or three times a year.
12 We look at urine and drug toxicology reports from
13 patients who are alive much more frequently.

14 Q All right. Dr. Twombly, bear with me for just a
15 moment, and I have a demonstrative that I would
16 like to ask you a question about that.

17 MR. WESTBROOK: And I ask -- want to ask our
18 friend, Mr. Buck, to put that up on the screen
19 for everybody. And, Your Honor, if I may
20 approach and hand you this, and this is a
21 demonstrative. (To the court reporter) Do
22 you want a copy of this, I have one if you
23 need it, but I we won't be offering it into
24 evidence.

25 THE COURT REPORTER: Okay. I'll keep it.

1 Thank you.

2 MR. WESTBROOK: All right. Thank you.

3 Q All right. So what do we have here on this
4 diagram, Dr. Twombley?

5 A You have a cross-sectional cut of a kidney. So
6 you're looking at the inside of a kidney.

7 Q All right. I want to -- you to help us understand
8 -- well, let me ask you this first before I --

9 A Uh-huh.

10 Q Did you oversee this creation of this
11 demonstrative?

12 A Yes.

13 Q All right. Is it -- is it going to be useful or
14 helpful in explaining your testimony?

15 A Yes.

16 Q All right. So what I would like to ask you about
17 is: Do you -- using this exhibit to illustrate
18 what you're saying, talk to us how healthy kidneys
19 are supposed to work, and how they do work when
20 they're healthy kidneys, okay?

21 A Okay.

22 Q What's the first step?

23 A The blood that is unfiltered comes in from the
24 body, so that means the blood that has all the
25 toxins and things like that come in from the body

1 in through the artery, that red vessel there, to --

2 Q All right.

3 A -- go into the kidney.

4 Q The top red vessel --

5 A Yes.

6 Q -- for those who can't see the screen; is that

7 correct?

8 A Correct.

9 Q And when you say "unfiltered blood from the body,"

10 is there any particular part of the body it comes

11 from?

12 A All of the body.

13 Q All right. All right. All right. What's the next

14 step that you want to illustrate? What does this

15 say?

16 A So the blood -- the unfiltered blood comes in and

17 the kidney's job is to clean the blood or filter

18 the blood, so it takes out all of the stuff that is

19 not needed and leaves the blood intact with all the

20 good stuff.

21 Q All right. And that's called "filtration of

22 blood," correct?

23 A Correct.

24 Q All right. What's the third step?

25 A All the stuff that was removed from the blood, the

1 toxins, is excreted into the urine, which goes to
2 the bladder that you eventually pee out.

3 Q All right. And, finally, what's -- we have a big
4 blue vessel there, what's -- what's coming out of
5 that?

6 A And then the clean filtered blood is then delivered
7 back to the body.

8 Q All right. Good. And that is the way is -- do I
9 understand that's the way a clean -- a healthy
10 kidney works or should work?

11 A Correct.

12 Q And that's in an infant, as well, I suppose, as
13 anybody, right?

14 A Correct.

15 Q All right. Now, what effect does renal failure
16 have on a baby's -- on an infant's ability to
17 excrete toxins?

18 A So that filtration of blood will not occur,
19 therefore, the toxins will not end up getting
20 excreted from the body, and there will not be
21 filtered, cleaned blood given back to the body.

22 Q And let me hand out another demonstrative
23 illustrating, I believe, what you were just talking
24 about. But tell us, if in fact, it does and what
25 those red X's represent.

- 1 A The red X's represent processes that will not
2 happen when the kidneys do not work.
- 3 Q So when renal failure occurs --
- 4 A Correct.
- 5 Q -- is that correct? All right. So no filtration
6 of blood, correct?
- 7 A Correct.
- 8 Q No toxins in urine leaving the kidney, right?
- 9 A Correct.
- 10 Q And no filtered blood back to the body, right?
- 11 A Correct.
- 12 Q Okay. Now, Dr. Twombly, do you have an opinion to
13 a reasonable degree of medical certainty as to what
14 caused the baby's death in this case?
- 15 A Yes.
- 16 Q And what is that?
- 17 A I believe this baby died of renal failure.
- 18 Q What led you to this conclusion?
- 19 A A couple of things. First, the baby had a normal
20 well-child check at two weeks of age, and then the
21 baby was fine until several days before the baby
22 passed when the baby developed an illness.
- 23 Q All right. Let's take those one at a time.
- 24 A Okay.
- 25 Q I've got here what I'm going to offer up in just a

1 moment, as Applicant's Exhibit 10. And -- and can
2 you identify this document? Why don't you start
3 off, Dr. Twombly, at the top of the page? What
4 medical office did this come from?

5 A This came from the Medical Group of the Carolinas,
6 Family Medicine, Landrum.

7 Q All right. And who is the subject, the patient
8 there?

9 A A.G.

10 Q All right. And what's L.G.'s date of birth?

11 A 9/28/2010.

12 Q And what's the date of this report, on the next
13 line?

14 A October 11th, 2010.

15 Q All right. Now, this is just -- I think what I've
16 handed out, we've made it an exhibit -- it's the
17 full report. That's correct, but here's my
18 question to you, Doctor --

19 MR. SPENCER: Your Honor, I'd like to -
20 I'd -- you know, I may have an -- I probably
21 don't have an objection. I can sort this out
22 real quickly.

23 (To Mr. Westbrook) Did this come from
24 the Rauch's file?

25 MR. WESTBROOK: It came from the solicitor's

1 file.

2 MS. MARTO: And, also, in Rauch's file.

3 MR. WESTBROOK: And in Rauch's file, so both
4 files.

5 MR. SPENCER: I'm just going to make sure.

6 MS. MARTO: I gave you those first.

7 MR. SPENCER: Right here.

8 MR. WESTBROOK: (Sotto voce.)

9 MR. SPENCER: Your Honor, this is in Rauch's
10 file -- Mr. Wise's file -- excuse me.

11 MR. WESTBROOK: Thank you.

12 THE COURT: Okay.

13 MR. SPENCER: You can proceed.

14 THE COURT: Thank you. Yes, sir.

15 **DIRECT EXAMINATION OF DR. TWOMBLEY CONTINUES**

16 BY MR. WESTBROOK:

17 Q All right. Now, Doctor, let me -- let me ask you
18 one other question just about this -- this thing.
19 I got you -- last thing I got to ask you about was
20 the date, 10/11/2010. The visit type, what is
21 that?

22 A "Well-Child Clinic."

23 Q All right. Well-Child Clinic. It says there
24 "Well-child check," right?

25 A Yes.

- 1 Q Do you see that?
- 2 A Uh-huh.
- 3 Q What is a well-child check, just generally, what
4 does that mean?
- 5 A So the American Academy of Pediatrics has very
6 defined timelines on when you should take babies to
7 the pediatrician, whether they're sick or not, just
8 to go through things like anticipatory guidance,
9 make sure babies are eating okay, make sure there's
10 no concerns from the families. And in older
11 babies, the vaccines are given during these times,
12 but the first well-child check is done at two weeks
13 of age.
- 14 Q All right. What is significant about this report
15 to your conclusion about renal failure?
- 16 A That when she was a neonate, at two weeks of age,
17 there were absolutely no concerns by the
18 pediatrician.
- 19 Q All right. Healthy?
- 20 A Healthy.
- 21 Q All right. Okay. Let's -- let me ask you about
22 something else. I think you've already referenced
23 it briefly. This is a document that was also part
24 of the solicitor's file, and I'm not sure whether
25 it was part Mr. Wise's file or not. We can find

1 out. And this has been premarked as Applicant's
2 Exhibit 10 -- excuse me -- 11.

3 And can you see that -- that on the screen,
4 Dr. Twombly?

5 A Yes.

6 Q So at the top of the page, it says, "Spartanburg
7 County Coroner Case Report," right?

8 A Yes.

9 Q So this is the coroner's report, and there's a name
10 just a little bit down there, towards the bottom of
11 the screen, at least, under, "Demographic Data,
12 A.C.G.(verbatim)," correct?

13 A Yes.

14 Q And that's L.G., right?

15 A Correct.

16 Q All right. What is significant to you about this
17 coroner's report?

18 A Yes. So in the Case Summary -- yep. Right there
19 it says --

20 Q Let me ask -- let me ask --

21 A Uh-huh.

22 Q -- my friend, Mr. Buck, over here to highlight
23 something for us, just so we don't have to look at
24 the whole -- about halfway down there's a sentence
25 -- there you go. The sentence --

1 A Uh-huh.

2 Q -- that starts, "Stephanie." Could you read that
3 into the record, please, Dr. Twombly?

4 A "Stephanie stated that infant L.G. had a cold on
5 Wednesday, November 10th and was congested, not
6 eating well, and somewhat lethargic that day."

7 Q All right. What -- and so Stephanie reported that
8 -- I'm not going to ask you to read the rest of it,
9 but just tell me, you're familiar with this, are
10 you not?

11 A Yes.

12 Q So what did the nurse tell Ms. Greene about
13 Stephanie's cold and what to do about it?

14 A The nurse said as long as she didn't have a fever,
15 she didn't need to come in.

16 Q All right. And what's the significance of this --
17 this cold and congestion or whatever it is on
18 Wednesday, November 10th? What's the significance
19 of that to your opinion?

20 A When babies get congested, they don't feed as well.
21 So babies eat by either breast milk or bottle, and
22 when they have something in their mouth and they're
23 eating, if they're congested they can't breathe
24 well and so they don't typically take in the amount
25 of formula or breast milk that they need when they

- 1 get really congested.
- 2 Q All right. I've got one more -- or another, right
- 3 now, a demonstrative that I want to ask you some
- 4 questions about.
- 5 A Sure.
- 6 Q Once, again, can you see this on the screen?
- 7 A Yes.
- 8 Q Did you oversee the creation of this?
- 9 A I did.
- 10 Q It seems like it's a chronology of events, so,
- 11 obviously, there are only four dates on there, a
- 12 simple chronology. Walk through these dates.
- 13 You've talked about them already. Just -- just
- 14 explain, again, what the significance of these
- 15 dates is.
- 16 A Baby L.G. was born on September 28th of 2010. She
- 17 had a well-child check about two weeks later, on
- 18 October 11th, 2010. And then was fine until
- 19 November 10th, 2010, when she developed an illness,
- 20 and in a few days, she passed on November 13th,
- 21 2010.
- 22 Q All right. Now, I've got one final demonstrative
- 23 that I want to ask you to testify about. And as
- 24 our friend, Mr. Buck, puts this on the screen, once
- 25 again, did you oversee the creation of this?

- 1 A I did.
- 2 Q And would it help explain your testimony?
- 3 A Yes.
- 4 Q All right. So right now, we're going to take this
- 5 in sequence. The first sequence is just a circle
- 6 there -- well, I'm sorry, that's what the screen
- 7 shows. At least it's a circle with the word
- 8 "illness," so what's the significance of that?
- 9 A The significance of that is when infants get sick,
- 10 they aren't able to eat as well. And so, any
- 11 illness in this age group, particularly, can lead
- 12 to not eating well, not taking in the appropriate
- 13 amount of formula, and that leads to dehydration.
- 14 Q Dehydration? Okay. And is dehydration -- can that
- 15 be a common cause of -- of renal failure in
- 16 infants?
- 17 A It's one of the most common causes of renal failure
- 18 in infants.
- 19 Q All right. And what can -- so dehydration can lead
- 20 to it and cause renal failure, correct?
- 21 MR. WESTBROOK: (To Mr. Buck) Can we get
- 22 the --
- 23 A Yes.
- 24 MR. WESTBROOK: -- next circle there on the
- 25 screen? Thank you.

- 1 Q And then renal failure in our demonstrative leads
2 to what -- or can lead to what?
- 3 A So when you can't clean the blood, you end up
4 accumulating or building up toxins that you can't
5 excrete.
- 6 Q All right. Do those toxins -- could those toxins
7 include morphine if there's morphine in the body?
- 8 A Yes.
- 9 Q Now, I have a question for you. If there were
10 morphine in this child's system -- in L.G.'s
11 system, would it have contributed in any way to
12 causing the renal failure?
- 13 A No. Morphine does not cause renal failure, but
14 renal failure can cause the accumulation of
15 morphine.
- 16 Q And the accumulation is just the buildup of
17 morphine or whatever --
- 18 A Correct.
- 19 Q -- in this case? All right. Or some other toxin,
20 but in this case, perhaps morphine; is that right?
- 21 A Correct.
- 22 Q All right. Now, if there were no morphine in the
23 child's system, what effect could the renal failure
24 have had on the child?
- 25 A Well, the toxins that your body needs to get rid of

1 build up. So things like potassium can build up
2 and cause your heart to stop --
3 Q So --
4 A -- and lead to death.
5 Q And lead to death?
6 A Uh-huh.
7 Q All right. And in this case, whether it was
8 morphine or something else, the baby died, correct?
9 A Correct.
10 Q And my question to you is: Absent the renal
11 failure, in your opinion, to a reasonable degree of
12 medical certainty, would this baby have died?
13 A No.
14 Q All right. My next question: In your opinion,
15 given your experience working and treating renal
16 failure, was renal failure in this case reasonably
17 foreseeable? Should it have been reasonably
18 foreseeable to the parents of this baby?
19 A No. I've never had a parent bring a child to me
20 and say, "I think my child's in renal failure."
21 Q All right. Dr. Twombly, did you read the trial --
22 some of the trial testimony?
23 A Yes.
24 Q Did you happen to read the trial testimony of the
25 Defense expert, Dr. Karch?

- 1 A Yes.
- 2 Q Was Dr. Karch a pediatric nephrologist?
- 3 A He was neither a pediatrician nor a pediatric
4 nephrologist.
- 5 Q During his trial testimony, did he offer any
6 opinions, whatsoever, about renal failure?
- 7 A No.
- 8 Q Did he ever mention the term "renal failure"?
- 9 A No.
- 10 Q At the time of trial, Dr. Twombly, you were at
11 MUSC by then, right?
- 12 A What year did the trial --
- 13 Q When did you come to MUSC?
- 14 A 2012.
- 15 Q All right. In 2012, when you came to South
16 Carolina and since then, have there been pediatric
17 nephrologists that you know of -- competent
18 pediatric nephrologists with experience treating
19 renal failure, living and working in South
20 Carolina?
- 21 A Yes.
- 22 MR. WESTBROOK: (To the witness) No further
23 questions. Thank you.
- 24 THE COURT: Be sure -- we -- the Exhibits 10
25 and 11 were admitted without -- I'm sorry --

1 11 and 12?

2 THE COURT REPORTER: It was 10 and 11.

3 THE COURT: -- 10 and 11 without objection; is
4 that correct?

5 MR. SPENCER: That would be --

6 THE COURT: That would be the --

7 MR. SPENCER: Yeah. Ten is the Landrum
8 records. No objection there.

9 THE COURT: And then the coroner --

10 MR. SPENCER: Eleven, coroner record. That
11 was -- that is in Rauch's -- excuse me -- Mr.
12 Wise's file. No objection there, Your Honor.

13 THE COURT: Thank you, sir.

14 (WHEREUPON, Well-Child Check, it is
15 marked for identification as Applicant's
16 Exhibit No. 10.)

17 (WHEREUPON, coroner's report, it is
18 marked for identification as Applicant's
19 Exhibit No. 11.)

20 **CROSS-EXAMINATION OF DR. TWOMBLEY**

21 BY MR. SPENCER:

22 Q Dr. Twombley, what is the glomerular filtration
23 rate?

24 A That is how we measure kidney function.

25 Q Okay. Is that -- what percentages of function does

- 1 a child have when they're born?
- 2 A It depends on how you measure it. If you correct
- 3 it for body surface area, then they have normal
- 4 glomerular filtration rate of around 30 percent,
- 5 which is normal for that age.
- 6 Q So it would have about 30 percent of adult
- 7 function?
- 8 A Yes.
- 9 Q Okay. As part of your analysis of this case, did
- 10 you review the autopsy records?
- 11 A Yes.
- 12 Q All right. And did you review Dr. Wren's
- 13 testimony?
- 14 A Possibly. I don't remember specifically.
- 15 Q Is that -- Dr. Wren would be the pathologist?
- 16 A I -- I think I did read that, yes.
- 17 Q Okay. Did you read Dr. Wren's testimony as to his
- 18 observations as to the kidney?
- 19 A I don't remember. I don't recall his testimony on
- 20 the kidney. I remember reading the autopsy report
- 21 on the kidney.
- 22 Q And let me give that to you. Oh, his transcript is
- 23 right next to you.
- 24 A Okay.
- 25 Q If you could open to Page 421.

1 A (Complies.) Okay.

2 Q And let me give you an opportunity to go ahead and

3 read. You can certainly read anything that you

4 want to, but Lines 8 through 18, which I believe

5 are Dr. Wren's observations on the kidneys.

6 A Sure. "Her" --

7 Q And just let me know when -- you don't have to read

8 it out loud. Just let me know when you're ready.

9 A I -- I've read this.

10 Q Okay. Great. Thank you. So he doesn't identify

11 any irregularities in the kidneys; is that correct?

12 A Correct.

13 Q And he doesn't say there's any -- identify any

14 lesions?

15 A Correct.

16 Q Any discolorations?

17 A Correct.

18 Q Any spots?

19 A Correct.

20 Q Any cysts?

21 A Correct.

22 Q Any inflammation?

23 A Correct.

24 Q Okay. And you mentioned that there was a report

25 that baby L.G. was sick on November 10th?

- 1 A Yes.
- 2 Q Okay. And so, when -- and, basically, what you're
- 3 testify to is there was a renal injury?
- 4 A There was acute renal failure --
- 5 Q Acute renal --
- 6 A -- not injury.
- 7 Q -- failure? When did the renal -- and the failure
- 8 was from dehydration?
- 9 A Correct.
- 10 Q And when would the dehydration occur?
- 11 A It would have started on the 10th.
- 12 Q On the 10th?
- 13 A Uh-huh.
- 14 Q So you're saying there was a renal failure on
- 15 November 10th and --
- 16 A I'm saying there's dehydration on the 10th.
- 17 Q Dehydration on the 10th?
- 18 A Uh-huh.
- 19 Q When would the renal failure have occurred?
- 20 A Sometime after that.
- 21 Q Okay. And what you're saying is -- and you
- 22 understand the morphine level in this case was
- 23 ***0.52 milligrams per liter?
- 24 A Yes.
- 25 Q And would you agree that's a pretty darn high

1 level?

2 A Yes.

3 Q Okay. And so when -- so are you saying all of that

4 morphine would have accumulated sometime after

5 November 10th?

6 A Correct.

7 Q So in just a few days, enough morphine could

8 accumulate to kill a child?

9 A In less than 24 hours it could.

10 Q In less than 24 hours?

11 A Absolutely.

12 Q Okay. And that's because one of the most important

13 things about morphine is whether or not you can

14 clear it, right?

15 A Correct.

16 Q And whether or not you can clear the metabolites,

17 also, right?

18 A Correct.

19 Q And, Doctor, this is consistent -- you were here

20 before -- let me rephrase that.

21 But you and I, basically, met for your

22 deposition that we did virtually; is that correct?

23 A Correct.

24 Q And you had basically said -- well, let me ask you

25 this: Do you think the child was receiving

- 1 morphine through breast milk for an extended amount
2 of time?
- 3 A I mean, that's what the records said.
- 4 Q Okay. So for multiple weeks, right?
- 5 A According to the records.
- 6 Q Right. And you don't know what the -- you don't
7 know how much morphine Ms. Greene actually took, do
8 you?
- 9 A No.
- 10 Q And you don't know how much morphine she took from
11 November 10th to November 13th, do you?
- 12 A No.
- 13 Q And you don't know -- it could have been -- and
14 were you aware from the trial that there were more
15 morphine pills missing than should have been if she
16 was taking just 90 milligrams a day?
- 17 A I didn't look at the amounts.
- 18 Q All right. You didn't look to see if it was
19 possible she was taking more than the prescribed
20 amount?
- 21 A No. I didn't do the calculations on all of that.
- 22 Q But you don't know if she could have been -- she
23 could have taken 180 milligrams of morphine a day,
24 after the 10th?
- 25 A I have no idea.

1 Q Right. And you have no -- and, of course, you
2 haven't spoken with Ms. Greene, right?

3 A No.

4 Q And nobody's told you what Ms. Greene would say?

5 A No.

6 MR. WESTBROOK: I want to object to something
7 Counsel just said a moment ago. It took me a
8 moment to gather my senses, but I think he
9 mischaracterized the evidence in one of his
10 questions. I believe that the prescription
11 that Ms. Greene had was to take as needed.

12 MR. SPENCER: I think it was as needed up to
13 30 -- 90 milligrams, actually.

14 THE COURT: Okay. Well, I will -- I'll -- I
15 will not take it as an interpretation of
16 the -- of whether applicant may have taken an
17 amount not prescribed by a doctor. I'll just
18 it as -- stated as the amount.

19 MR. SPENCER: Certainly, Your Honor. We can
20 just sort that out in future briefings.

21 THE COURT: Uh-huh.

22 **CROSS-EXAMINATION OF DR. TWOMBLEY CONTINUES**

23 BY MR. SPENCER:

24 Q Let me talk about -- you said you do prescribe
25 morphine acutely inpatient?

- 1 A Correct.
- 2 Q Okay. And do you usually prescribe it
- 3 intravenously or intramuscular?
- 4 A Either intravenously or the oral liquid.
- 5 Q Okay. And you're talking about the children in
- 6 that --
- 7 A Correct.
- 8 Q -- particular case? Okay. And when you do
- 9 prescribe it, do you have any monitors to make sure
- 10 that it's safe?
- 11 A For the morphine itself, no. But, usually,
- 12 children that are in the hospital in pain need
- 13 monitors for other reasons, so they're usually on
- 14 them.
- 15 Q Okay. Would they have, for instance a pulse ox --
- 16 A Yes.
- 17 Q -- monitor? And if something -- and what's the
- 18 dangers of morphine? What can it cause?
- 19 A If you get too much morphine, it can suppress your
- 20 -- your drive to breathe.
- 21 Q Okay. And could it ultimately lead to respiratory
- 22 depression?
- 23 A Yes.
- 24 Q Which is actually consistent with -- that's
- 25 actually what Dr. Wren concluded in this case,

- 1 right?
- 2 A I don't remember his exact conclusion. I'm sorry.
- 3 Q That's fine.
- 4 A I'd have to look at it.
- 5 Q That's fine. But the pulse ox, would that tell you
- 6 something about whether they were breathing or
- 7 respiratory depression issues?
- 8 A The pulse ox will tell you what their oxygen
- 9 saturation is. So if it drops below normal, that
- 10 machine will alarm to let you know that their
- 11 oxygen saturation is low.
- 12 Q And that actually helps protect the child from the
- 13 potential of any adverse problems with morphine?
- 14 A It can, yes.
- 15 Q And is there any other monitoring of vital signs
- 16 beyond the pulse ox machine?
- 17 A When children are in the hospital, they have their
- 18 temperature monitored, their heart rate's
- 19 monitored, and their blood pressure's monitored.
- 20 Q And would those -- any of those be useful in terms
- 21 of catching any side effects, such as respiratory
- 22 depression from morphine?
- 23 A The respiratory rate and the pulse ox are the two
- 24 that you would see first.
- 25 Q In terms of dosing, how does the dosing for a child

- 1 in your care compare to an adult on average?
- 2 A So in children, we dose medications by milligram
- 3 per kilo. So you don't give a two-month-old baby
- 4 the same dose you would give a ten-year-old child.
- 5 So it's based on their body weight.
- 6 Q Particularly, for a child under, say, two months of
- 7 age, how is a therapeutic range for a child under
- 8 two months compared to a therapeutic range for
- 9 morphine for, say, a ten-year-old?
- 10 A So we don't measure therapeutic levels of morphine
- 11 when we're giving it. We start with a low dose of
- 12 milligrams per kilo, and we titrate up the dose to
- 13 affect. So if you give a dose and the child is
- 14 still having pain, we give a bigger dose.
- 15 Q All right. And so, in that case, that's because
- 16 you're directly treating the child.
- 17 A Correct.
- 18 Q It isn't a situation where morphine's coming
- 19 through breast milk and trying to monitor that?
- 20 A Correct.
- 21 Q Now, you refer to this November 10th illness as
- 22 possibly the cause of the renal failure?
- 23 A Yes.
- 24 Q Okay. What was your understanding of the symptoms
- 25 this child was exhibiting November 10th?

- 1 A Congestion, not eating well, and somewhat
2 lethargic.
- 3 Q Okay. In terms of respiratory depression, lethargy
4 is one of the things that would be a symptom of
5 that, wouldn't it?
- 6 A Lethargic just means that the patient is not
7 responding as well as they normally do. Their
8 respiratory rate can be completely normal if
9 they're lethargic.
- 10 Q It doesn't necessarily mean -- lethargy doesn't
11 necessarily mean respiratory depression, but that
12 would be a symptom of respiratory depression,
13 wouldn't it?
- 14 A Yes.
- 15 Q In terms of losing weight, that could be an
16 indication of respiratory depression, couldn't it?
- 17 A It would have to be pretty long-standing
18 respiratory depression.
- 19 Q And so that would be a slow -- for instance, a slow
20 build of morphine could lead to a slow weight loss?
- 21 A Only if the child had CNS depression where they
22 weren't eating as well, but the respiratory
23 depression itself. Respiratory depression is an
24 acute process. It's not like --
- 25 Q Okay.

- 1 A -- you're going to be respiratory depressed for
2 months at a time, so it's more of a sedative effect
3 that causes the child not to eat and lose weight.
- 4 Q Okay. So that, in terms of losing weight, that
5 would be an indication of CNS depression, right?
- 6 A Typically, yes.
- 7 Q Okay. And you mentioned that the baby would maybe
8 not be feeding well because of congestion?
- 9 A Correct.
- 10 Q But -- I mean, in terms of a child being congestion
11 (verbatim), that -- that's something that happens
12 to a lot of neonates and infants; is that correct?
- 13 A Correct.
- 14 Q I mean, that's -- that's not an unusual occurrence
15 where a child gets sick?
- 16 A Correct. It's also one of the most common
17 presentations for children in renal failure and
18 infants.
- 19 Q Now, are you aware of any studies concerning the
20 effects of morphine on the immune system?
- 21 A No.
- 22 Q All right. Is that something -- been something
23 you've looked into to prepare for today?
- 24 A I've never even heard of morphine having an effect
25 on the immune system.

1 Q And would you agree if the baby was exposed to
2 morphine through breast milk for a period of six
3 and a half weeks, that that would be considered
4 pretty long exposure?

5 A It -- that long of a morphine exposure in and of
6 itself, it depends on why the baby was being
7 exposed to it, why the mom was taking it. We have
8 patients that take morphine longer than six weeks.
9 I have infants that take PO or IV morphine for
10 months at a time.

11 Q And you're talking -- that's -- that's not MS
12 Contin?

13 A No.

14 Q But that's --

15 A IV or oral.

16 Q But that's infants that you're treating that you
17 give morphine?

18 A Yes.

19 Q Okay. And that they're receiving morphine from you
20 for a -- longer than six weeks?

21 A Yes.

22 Q Okay. And, again, that's inpatient, right?

23 A Most of the time.

24 Q And if you have a mother that's breastfeeding, will
25 you ask about what medications they're taking if

- 1 the child's your patient?
- 2 A It depends. It depends on what I'm treating the
3 child for. I'm not an OB/GYN, so I don't always go
4 into strict medication reconciliation with the
5 families -- of what the mother is doing. But if I
6 have a child with renal failure, yes, I'm going
7 into what medications the mom is taking.
- 8 Q Because in that particular case, a child might not
9 be able to process what is coming in from the
10 mother's milk?
- 11 A Correct.
- 12 Q And in that case, that's a situation you can
13 monitor?
- 14 A Correct.
- 15 Q And if you don't know about that, that's not a
16 situation you can monitor?
- 17 A Correct.
- 18 Q Now, can a high dose of acetamine (verbatim) -- I
19 never say this word right -- acetaminophen cause
20 renal failure?
- 21 A I've never seen acetaminophen cause renal failure
22 by itself.
- 23 Q Are you familiar with any studies that makes that a
24 possibility?
- 25 A The only times I've ever read or seen it is if it

1 causes liver failure and then the liver's failure
2 causes renal failure. Acetaminophen, to my
3 knowledge, has never been shown to cause renal
4 failure.

5 Q So it could be like a two-step process where it
6 would lead to renal failure?

7 A That's the only time I've ever seen it.

8 Q All right. And you said, "by itself," what did you
9 mean by that?

10 A Outside of liver failure. Like --

11 Q Not --

12 A -- if you take just acetaminophen outside of
13 harming another organ, I've never seen high doses
14 of acetaminophen cause renal failure.

15 Q Now, in terms of acetaminophen, is that eliminated
16 through Phase I or Phase II metabolism?

17 A Oh, you would have to talk to Dr. Scialli about
18 that.

19 Q Okay. You're not aware of whether or not that's a
20 Phase II --

21 A I don't --

22 Q -- metabolism?

23 A -- remember the kinetics of acetaminophen. It's
24 metabolized in the liver; that's about all I know.

25 Q But going back, morphine is eliminated through a

1 Phase II metabolism?

2 A Correct.

3 Q So acetaminophen and -- was also a Phase II, that
4 would be the same function?

5 A If it's Phase II, it's Phase II. I don't know if
6 it's the same enzyme in Phase II. I do not know.

7 Q Thank you.

8 MR. SPENCER: Beg the Court's indulgence.

9 Q Now, in reviewing the transcript, did you see she
10 was both breastfeeding and supplementing with
11 formula?

12 A Yes.

13 Q And despite breastfeeding and supplementing with
14 formula, what you're saying is she -- is this baby
15 suffered dehydration at some point?

16 A Yes.

17 Q Do you know what point?

18 A Sometime between the 10th and the 11th.

19 Q So this baby is supposed to be being fed with
20 formula and breast milk, and, yet, is getting
21 dehydrated?

22 A Yes.

23 MR. SPENCER: Beg the Court's indulgence.

24 Q And just going through that chronology of events, I
25 see the two dates that -- the well-child check was

1 on October 11th?

2 A I think so, yes.

3 Q And this illness occurs on November 10th?

4 A Correct.

5 Q And so you don't really know what happened between

6 October 11th and November 10th?

7 A I do not.

8 Q You don't know what symptoms this baby might have

9 exhibited before November 10th?

10 A I do not.

11 Q And the basis of the symptoms this baby exhibited

12 would be based on what Ms. Greene reported to the

13 authorities at the time of death?

14 A Correct.

15 Q And what Ms. Greene reported to Landrum -- the

16 folks at that Landrum facility on November 10th?

17 A I -- I don't know that were any records from -- I

18 didn't see any records from Landrum from that --

19 Q Okay.

20 A -- 10th call.

21 Q And I think I mixing up the doctors, but, you know,

22 did you see the records -- medical records for

23 November 10th when Ms. Greene called in?

24 A No.

25 Q Okay. So you just -- you got that information from

- 1 the transcript?
- 2 A From the coroner's case summary.
- 3 Q Okay. In the coroner's case summary, did they
- 4 report that she was suffering of a fever?
- 5 A The -- 99.9, so low-grade temperature, but not a
- 6 fever.
- 7 Q Right. And was it 99.9 or just 99?
- 8 A Or 99.0, it was less than 100.4. More than 100.4
- 9 is what we consider fever.
- 10 Q Right. Okay. Did they report any other symptoms
- 11 of illness other than congestion and some lethargy?
- 12 A And not eating well.
- 13 Q And not eating well? Any other symptoms, though?
- 14 A I don't think so.
- 15 Q And in terms of how the baby was doing between
- 16 November 10th and death, do you have any indication
- 17 of how that baby was doing, other than what's said
- 18 in the coroner's report or the transcript?
- 19 A No.
- 20 Q And that would all be based on what Ms. Greene told
- 21 them; is that correct?
- 22 A Correct.
- 23 MR. SPENCER: Beg the Court's indulgence.
- 24 Q Okay. Now, you don't know -- but correct me if I'm
- 25 wrong -- have you assessed anything in terms of

- 1 whether or not the morphine could come through
2 breast milk or if it's from some other source?
- 3 A I have no way of knowing that.
- 4 Q That's outside of the opinion you're giving today?
- 5 A Correct.
- 6 Q Okay. But your opinion is there was -- that
7 this -- let me rephrase.
- 8 Let me -- let me phrase it this way: Are you
9 disputing the 0.52 milligram per liter level of
10 morphine that was reported?
- 11 A No.
- 12 Q And you actually agree this much morphine could
13 accumulate if there was renal failure?
- 14 A Yes.
- 15 Q And would you dispute whether or not that's a
16 lethal level of morphine?
- 17 A It can be a lethal dose of morphine.
- 18 Q And you can't say that -- you can't say today, to a
19 degree of medical certainty, that morphine didn't
20 lead to respiratory depression or CNS depression
21 and cause the death of this child?
- 22 A I can say with a reasonable medical certainty that
23 I think renal failure is the cause of this child's
24 death.
- 25 Q But there's this morphine level, right?

- 1 A Uh-huh.
- 2 Q It's a lethal level of morphine?
- 3 A I don't know which one killed the child. I can't
- 4 say.
- 5 Q Right. It could be renal failure or it could be
- 6 morphine?
- 7 A It could be both.
- 8 Q It could be both acting in conjunction?
- 9 A Uh-huh.
- 10 Q And renal failure is not something new, it's been
- 11 around here for -- it's something that's been an
- 12 area of medicine for a long time?
- 13 A Correct. A long time.
- 14 Q And do you know from reading the transcript whether
- 15 or not Dr. Bridges or his nurse were -- was aware
- 16 that Ms. Greene was taking morphine at the time
- 17 that she called in and reported that the baby had a
- 18 99-degree fever and was lethargic and not eating
- 19 well?
- 20 A I have no way of knowing that, because they didn't
- 21 write anything about that.
- 22 Q And -- but that would be good for a doctor to know
- 23 that she's nursing and taking morphine when these
- 24 symptoms are reported to that doctor?
- 25 A Any -- the more information, the better with any

1 medical situation.

2 MR. SPENCER: Beg the Court's indulgence.

3 Q But as I understand, your opinion is -- well,
4 basically, what the conclusion is, it could be
5 either/or, or possibly in conjunction --

6 A Correct.

7 Q -- to a reasonable medical degree of certainty?

8 A I -- I think renal failure is more likely, but
9 that's my opinion.

10 Q And -- but you agree, actually, enough morphine can
11 ultimately build up in a child, cause their death
12 coming through breast milk?

13 A Yes. If they have renal failure.

14 MR. SPENCER: (To the witness) Thank you. I
15 have further questions.

16 THE COURT: (To the Applicant) Any redirect?

17 MR. WESTBROOK: Yes, Your Honor. Just a few.

18 **REDIRECT EXAMINATION OF DR. TWOMBLEY**

19 BY MR. WESTBROOK:

20 Q All right. Dr. Twombley, let me start with Dr.
21 Wren. Mr. Spencer asked you a few questions about
22 Dr. Wren's testimony. First of all, Dr. Wren was a
23 pathologist, was he not?

24 A Yes.

25 Q Was he -- anything indicate that he had any

- 1 training or experience with renal failure -- or
2 expertise in renal failure or pediatric nephrology?
- 3 A No.
- 4 Q Did you find his observations compelling you to
5 change your opinion and rule out renal failure?
- 6 A No. He only looked at the outside of the kidneys,
7 and even with renal failure, the kidneys appear
8 normal on autopsy, so it's not unusual to have
9 normal-looking kidneys. The only time you see
10 abnormal-looking kidneys are with chronic renal
11 failure, not acute renal failure.
- 12 Q And this would have been acute renal failure,
13 right?
- 14 A This would have been acute. And there was, also,
15 no measurement of kidney function done at the time
16 of autopsy.
- 17 Q All right. So did you find Dr. Wren's opinions on
18 that persuasive or not?
- 19 A I --
- 20 Q Or did you not --
- 21 A -- quite frankly, I think they're wrong.
- 22 Q Okay.
- 23 A I mean, the kidney looked normal, but it doesn't
24 tell you anything about the function.
- 25 Q Can an autopsy -- is it possible for an autopsy to

1 determine whether renal failure occurred?
2 A Only if they check kidney function.
3 Q And in this autopsy, did the State check renal --
4 renal -- what did you say? Renal function?
5 A Correct. They did not.
6 Q All right. I believe -- did you understand Mr.
7 Spencer to ask you that -- about the unaccounted-
8 for pills? Was it fewer than ten pills unaccounted
9 for?
10 A I don't recall --
11 Q You don't recall?
12 A -- how many.
13 Q Okay.
14 A Uh-huh.
15 Q All right. Now, so there was -- let me go back
16 through your sequence.
17 MR. WESTBROOK: I'm going to ask Mr. Buck to
18 put the sequence of -- of the things on
19 that -- the demonstrative that we looked at
20 earlier, the one after this. Yeah. There you
21 go. Put the whole sequence up there.
22 Q So I'm going to ask you something about this
23 sequence. So the illness, that led to the
24 dehydration; is that correct?
25 A Correct.

- 1 Q All right. The dehydration in your demonstrative
2 up there, led to renal failure, and my question is:
3 Somewhere between dehydration, renal failure, and
4 accumulation, in that section, could the renal
5 failure or the dehydration or anything in your
6 opinion cause weight loss in the baby?
- 7 A Yes. Dehydration causes weight loss in babies.
- 8 Q All right. And the accumulation we're talking
9 about, Mr. Spencer asked you several questions, I
10 think, about 0.52 milligrams per liter of morphine
11 that was found by the autopsy; is that right?
- 12 A Correct.
- 13 Q And the accumulation to 0.52 from a nonlethal level
14 of morphine, I heard at some point in one of your
15 responses, you said something about 24 hours. What
16 -- could you explain exactly what you're talking
17 about there?
- 18 A Once your kidneys stop working --
- 19 Q Uh-huh.
- 20 A -- the morphine accumulates, and it accumulates
21 incredibly quickly. And so babies, they eat, you
22 know, anywhere from every two to four hours, so
23 they're getting doses, you know, every time they
24 breastfeed. So it could happen incredibly quickly.
- 25 Q And Mr. Spencer asked you several questions about

- 1 acetaminophen, right?
- 2 A Yes.
- 3 Q In your opinion, did the acetaminophen have any
- 4 significant contributing cause for this baby's
- 5 death?
- 6 A This baby had a normal therapeutic level of
- 7 acetaminophen, and even in patients I've seen with
- 8 liver failure, it's not until they get levels of
- 9 more than 100 to 150.
- 10 Q Mr. Spencer asked you questions about what was
- 11 going on with the baby between the Well-Child check
- 12 in October and the sickness on November 10th, I
- 13 believe, did you see any evidence in any part of
- 14 the record about symptoms or -- or that the baby
- 15 was having during that period of time?
- 16 A No.
- 17 Q All right. The symptoms that the coroner's report
- 18 mentioned, 99 degree -- or something less than 104
- 19 degrees, 99-something.
- 20 A 100.4.
- 21 Q Okay. 100.4. Did I say 104?
- 22 A Yeah.
- 23 Q 100.4. I'm sorry about that.
- 24 A That's okay.
- 25 Q The 99 degrees or the approximate temperature of

1 the baby had, the congestion, the lethargy, and the
2 not eating, is that enough, in your opinion, in
3 your experience, to result in -- or to indicate
4 dehydration leading to renal failure?

5 A Absolutely.

6 Q Absent renal failure, would there have been, in
7 your opinion, an accumulation to 0.52 milligrams
8 per liter, that lethal level?

9 A No.

10 Q So if the morphine had any role in the killing of
11 the baby, is it your opinion that that would not
12 have been at a lethal level -- at a killing level
13 absent the renal failure?

14 A Correct.

15 Q And if all this is a mistake, if, for example, that
16 0.52 were wrong -- or if it wasn't -- even if it
17 was a lethal level, it wasn't enough to -- under
18 the circumstances, kill the baby, could or would or
19 do you have an opinion about whether renal failure
20 would have killed the baby?

21 A Renal failure can absolutely kill babies.

22 Q All right. So I want to get something clear.

23 A Uh-huh.

24 Q In his cross-examination of you, he asked you two
25 or three questions about -- so it might have been

1 morphine or it might have been renal failure, and I
2 want to understand your answer about that. Would
3 the morphine have killed the baby if the renal
4 failure hadn't built it up to 0.52?

5 A No.

6 MR. WESTBROOK: (To the witness) No further
7 questions. Thank you.

8 THE COURT: Thank you, ma'am. You may step
9 down. Watch your step --

10 THE WITNESS: Thank you.

11 THE COURT: -- when you're stepping down.

12 (WHEREUPON, the witness was excused.)

13 THE COURT: Let me see the lawyers for a
14 moment.

15 (WHEREUPON, an off-the-record bench
16 conference was held. Sotto voce.)

17 THE COURT: We'll step down until in the
18 morning at 9:30.

19 (Off the record at 4:46 p.m.)

20 (Whereupon the within hearing was
21 concluded at 4:46 p.m.)

22 (*This transcript may contain quoted material.
23 Such material is reproduced as read or quoted
24 by the speaker.)

STATE OF SOUTH CAROLINA)
)
COUNTY OF SPARTANBURG)

CERTIFICATE

I, Amber Payne, Official Court Reporter for the
Seventh Judicial Circuit of the State of South
Carolina, do hereby certify that the foregoing is a
true, accurate, and complete Transcript of Record of
the proceedings had and the evidence introduced in
the trial of the captioned case, relative to appeal,
in the Court of General Sessions for Spartanburg
County, South Carolina on September the 19th, 2022.

I do further certify that I am neither of kin,
counsel, nor interest to any party herein.



Amber J. Payne, CVR

Date: 10/14/2022
Notary public for South Carolina
My commission expires August 12, 2029

1 STATE OF SOUTH CAROLINA) IN THE COURT OF
2) COMMON PLEAS
3 COUNTY OF SPARTANBURG) OF THE SEVENTH
4) JUDICIAL CIRCUIT
5 STEPHANIE IRENE GREENE,)
6)
7 Petitioner,) TRANSCRIPT OF RECORD
8) 2011-GS-42-5758
9 vs.)
10 THE STATE OF SOUTH CAROLINA,)
11)
12 Respondent.)
13)
14)
15)
16)
17)
18)
19)
20)
21)
22)
23)
24)
25)

September 20, 2022
Spartanburg, South Carolina

B E F O R E:

HONORABLE J. MARK HAYES, II, Judge.

Julie A. Cendroski,
Circuit Court Reporter III
Seventh Judicial Circuit

1 A P P E A R A N C E S

2 DON WESTBROOK, ESQUIRE
For Petitioner

3
4 BLAKE T. WILLIAMS, ESQUIRE
For Petitioner

5 JOHN F. KUPPENS, ESQUIRE
For Petitioner

6
7 DAVID SPENCER, ASSISTANT ATTORNEY GENERAL
For The Respondent

8

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(All exhibits marked on first day of PCR.)

1 STEPHANIE IRENE GREENE VS. THE STATE OF SOUTH CAORLINA

2 THE COURT: All right. After a bench
3 conference last night, I believe that what we're going
4 to do is receive the arguments that the State had wanted
5 to present at the start of the proceeding, and then
6 we'll hear -- then we'll go back to the Applicant to
7 receive anything they wish to present.

8 MR. WESTBROOK: Your Honor, just, I have a
9 question. Our client's not here yet and --

10 THE COURT: The client's not here yet.

11 MR. WESTBROOK: -- we're fine proceeding, going
12 ahead. It's whatever you want to do, but...

13 THE COURT: Let's find out. What is the status,
14 do we know?

15 MR. SPENCER: We'll check on that.

16 THE COURT: Thank you for pointing that out.

17 MR. SPENCER: I apologize, Your Honor.

18 THE COURT: Okay. I'll tell you what I'll do,
19 I'll step down. Can you check and see what the status
20 is?

21 THE BAILIFF: Yes, sir.

22 THE COURT: She's supposed to be coming from the
23 detention center. We'll come back.

24 (Court leaves bench from 9:31 a.m. - 9:33 a.m.)

25 (Applicant enters the courtroom.)

1 THE COURT: Okay. And so we will now hear from
2 the State. Yes, sir?

3 MR. SPENCER: Thank you, Your Honor. Thank you
4 for letting me be heard on this. Basically, regarding
5 the calculations that we heard testimony on yesterday,
6 my motion is to exclude or strike it, if you will, from
7 the PCR hearing. Obviously, it's going to be in the
8 record as far as any preservation issue, but I feel it's
9 not something that's proper to be admitted looking at
10 the gatekeeper function courts are supposed to
11 administer.

12 And I did hand opposing counsel yesterday,
13 Graves versus Cass Medical Systems. I have a copy of
14 that case for Your Honor, if you need it.

15 THE COURT: I have a copy of it already, thank
16 you.

17 MR. SPENCER: Thank you, Your Honor. And the
18 Graves case dealt with an issue of basically -- I would
19 typify it as a software malfunction and two experts
20 testified as to using differential diagnosis, which is
21 eliminating other causes to opine as to the danger of
22 the software effects.

23 And basically the Court, and I believe it was the
24 Supreme Court in this case, upheld the trial court's
25 determination because it -- the two experts, one in

1 particular, failed to consider alternate possibilities.
2 We have that here in certain fashion in this case, Your
3 Honor.

4 And what we have is, the handiness that they were
5 trying to elicit, was it was impossible for Dr.
6 Scialli's opining it was impossible for enough milk to
7 pass through to get to the morphine level that we see in
8 this case.

9 THE COURT: All right. Help me out. In that
10 case, though, the two experts, there were three experts,
11 the Court allowed -- said the Court erred in one, which
12 was the qualification, I believe, of the medical expert.
13 But these two software experts, the Court, I thought in
14 my reading of it, said that they started their analysis
15 from the position that they made the assumption that
16 there was an error or that there was a defect and then
17 performed their analysis.

18 What is the defect in the analysis that the
19 State contends that the doctor did in this case? What's
20 the, what's the defect that you say he did in his
21 analysis?

22 MR. SPENCER: Thank you. I think the defect in
23 the analysis is -- and I listened to that testimony
24 yesterday -- the article, one of their articles says
25 that M6G, which is the morphine metabolite, is probably

1 converted to morphine in the gut. And what we're
2 talking about, they're trying to say it's not possible
3 to have this morphine pass through breast milk to get to
4 this level, as I understand, but for renal failure.

5 And one of the numbers they're not accounting
6 for is what's the amount of M6G that can pass through
7 breast milk and was in the child and was converted to
8 morphine? And that would be part of that final morphine
9 number. And so that's the defect, or that's the missing
10 element in this analysis that makes it untrustworthy.
11 And Your Honor ---

12 THE COURT: Okay, help me out. I don't -- we --
13 the Court has received a lot of medical terminology.
14 Tell me again what this defect is in the analysis.

15 MR. SPENCER: The article said both morphine and
16 the metabolite, M6G, found through breast milk, Dr.
17 Scialli acknowledges that. When we went through scopes
18 and studies where they're showing that there's some
19 significant weight of M6G in breast milk.

20 So undoubtedly, some M6G is coming through breast
21 milk into the child and what that article -- find from
22 that article said, was the M6G is converted to morphine
23 in the child's gut. So whatever is converted from M6G
24 to morphine in the child's gut should be part of that
25 morphine number, that .52 milligrams per litre.

1 And I don't think in the calculations, that Dr.
2 Scialli presented yesterday did not take that into
3 account. And I do have by analogy, actually, the case
4 that they put into evidence as State's Exhibit 7, and
5 this is the article by Zipursky and Juurlink. And this
6 is the article that was attacking the Koren study, which
7 is the Canadian case.

8 And I was trying to put my eyes on this. I did
9 ask Dr. Scialli about it yesterday, and I don't think he
10 remembered it, but I'm looking at State's Exhibit 7 with
11 the page, it's Bate stamped Greene 575.

12 THE COURT: Five -- excuse me, 575, did you say?

13 MR. SPENCER: Right.

14 THE COURT: Okay.

15 MR. SPENCER: At the very top of the page, the
16 first full sentence it says: This obviously cannot be
17 explained by maternal genotype, and suggests that
18 conversion of codeine to morphine in the neonate -- and
19 this is obviously to the mother -- who is found to be an
20 extensive metabolizer of the genotype, rather than the
21 mother, explains the elevated morphine concentration
22 detected postmortem.

23 And what that means in that article is there's
24 codeine in that child and that indicates to these
25 authors that part of the morphine level in that case is

1 codeine that's converted to morphine, and that was part
2 of their attack, the propriety of the Koren Canadian
3 study.

4 In the present case, instead of codeine in the
5 child, we had M6G. And I think what they're saying,
6 while the State never tested for M6G, it's a bit of a
7 red herring because we don't know what was in Ms.
8 Greene's breast milk. So what they did is used some
9 studies to come up with a number of how much morphine
10 might have come from the child.

11 What they didn't do is calculate, make a
12 calculation of how much M6G came through from breast
13 milk into the child. And that's something that they
14 could have done, just as easily as they did with the
15 number on the morphine. And that's important because we
16 need to know how the M6G went into the child and figure
17 out how much of that, hence what M6G could potentially
18 be converted to morphine in that child's gut.

19 THE COURT: Let me ask you a question. I noticed
20 you asked that of the witness several times about not
21 knowing what information the defendant in the criminal
22 case had. Whose responsibility is that in a criminal
23 case to produce evidence?

24 MR. SPENCER: In the criminal case it's gonna be
25 the State.

1 THE COURT: Correct. So who, if there is a
2 significant piece of information or a piece of
3 information that is material to that case, then does
4 that responsibility or the lack of that evidence fall
5 against the State and not against the Applicant in this
6 PCR?

7 MR. SPENCER: It would in the sense of -- it
8 would in the sense of the evidence the State produces.
9 In terms of if you're going to try and admit expert
10 testimony, though, the same gatekeeper function applies
11 to the defense. And when the defense is presenting an
12 expert in the General Sessions setting, they're going to
13 have to get by the gatekeeper function.

14 And just like in the Graves case, if they don't
15 get past that gatekeeper function, you're allowed, you
16 know, you're allowed to present evidence, but it has to
17 be admissible even for a defendant, criminal defendant.
18 And so, if it doesn't pass that test, it wouldn't be
19 admitted at trial.

20 And obviously I'm going to fold this into my
21 argument as far as prejudice in *Strickland* analysis
22 because I don't think it would be admissible in a
23 General Sessions trial, but I feel it's not admissible
24 in this PCR setting either.

25 THE COURT: Okay. Well, there are different

1 questions, because I think that the underlying, the fact
2 we don't have that piece of information, the fact we
3 don't have that information as part of a PCR, that I
4 view through the lens of it was the State's
5 responsibility at the time that they conducted the
6 criminal investigation to gather the important factual
7 information upon which they would have convicted the
8 Applicant in the underlying trial, okay?

9 So, the fact that information was only in
10 existence at the time that the criminal investigation
11 was being conducted, I do not view that as something
12 that I can now look at the Applicant or look at the
13 Applicant's attorneys and say you have missed something
14 in this case as far as their presentation in this PCR.

15 I'm still trying to get my hands around your use
16 of the State's use of this case where the Supreme Court,
17 in my reading of it, seemed very clear that when they
18 said that the trial court was proper in its gatekeeping
19 function to exclude those two expert witnesses was
20 because the expert witnesses started with the assumption
21 that there was an error that had occurred in the
22 product.

23 I am seeing so far as your argument is that you
24 disagree with the testimony of the expert, and that
25 you're attacking the credibility of the expert based

1 upon a -- based upon an article that you want me to view
2 and weigh the credibility of the expert and to view his
3 testimony with less importance because you pointed out
4 that there is a difference of opinion and not -- but I'm
5 not hearing that you pointed me to a flaw of the
6 expert's analysis, just that you disagree with the
7 expert's analysis. And disagreement of the expert's
8 analysis is not a basis in my view of excluding the
9 testimony.

10 MR. SPENCER: Okay. I understand what you're
11 saying. The -- and he acknowledged yesterday that, you
12 know, that view that M6G is converted to morphine in the
13 gut. Now, he testified, well, it's got a different
14 weight, it's heavier. I think at this point we're
15 talking about chemistry and, you know, different
16 elements weigh different weights and we have what's
17 called valolecular mass. I think that's what he's
18 getting at. But I asked him to do that calculation, he
19 was unable to do that calculation. And so that is just
20 missing.

21 And it's exactly what they were complaining about
22 in the Canadian study. You're not telling us how -- you
23 know, this number is underestimating the amount of
24 codeine is getting temporary to morphine. That's part
25 of the reason this Canadian study was retracted. I

1 mean, put a retraction as an expert, is that since that
2 pointed out to you.

3 So I think that is a gatekeeper function thing,
4 whether we're gonna do it in Common Pleas or whether we
5 would do it in, of course, General Sessions. It's just
6 a, you know, they have to do the gatekeeper function
7 when you put up a defense and whatever information they
8 have is whatever information they have. If, you know,
9 the fact that there is something that wasn't tested or
10 whatever, doesn't mean they get to skip around the
11 points about not -- the calculation just can't be done
12 at this point. It wasn't done yesterday, and so that
13 doesn't mean it's admissible in General Sessions trial.

14 Now, they can do -- certainly attack the
15 evidence, you know, terms in other ways, but these
16 calculations I just don't think they're fit for
17 consumption in PCR or General Sessions. And obviously,
18 you know, even if I lose those arguments, I'm still
19 gonna say it's a serious weight issue even if it was
20 inadmissible.

21 The other thing, and I think hopefully I can get
22 -- cut to this a lot quicker, but the other number I had
23 a problem with was what was called "avowing the
24 distribution," and they took that from a study that they
25 put into evidence that's numbered. And I asked them

1 about it. And, basically, that's a median or average
2 number for a study that involved 20 children, ages zero
3 to six. Only three of them are DNA's. This is when we
4 were talking about whether there's one or two standard
5 deviations or what type of sign are those standard
6 deviations.

7 And basically what I was asking them or what they
8 couldn't provide, was the low number. Because what
9 they're trying to say is something is not possible. And
10 picking a median number is not proving it's not
11 possible, just like they're trying to prove something is
12 not possible in Graves. The low number is something
13 that I'm entitled to if we're going to reach this
14 opinion, and we need to know that number and we don't
15 have that number.

16 And so that's another thing in the -- you know,
17 the first one I'm going under the methodology under
18 John's. I don't think the methods are correct for
19 whether if you exclude M6G that's converted to morphine.
20 This argument I think goes to the question of -- well,
21 again, it's also a methodology argument, actually.

22 And I have a third argument to fold into on top
23 of that. The third argument I would have is under 702,
24 the question is, will it aid the fact finder? And I
25 think the problem is, what they identified in their

1 presentation of -- as vying of distributions is, in
2 fact, not vying of distribution but something called
3 steady state filing of distribution. And I asked -- it
4 took a few questions to get the answer from Dr. Scialli,
5 but basically what he explained is it's equilibrium.
6 It's the amount of drug coming in is equal to the amount
7 of drug coming out. And that's not even explained in
8 direct examination or in these numbers.

9 And so what I feel is that that's something
10 that's actually confusing to the fact finder, because
11 when they're putting up all those milk jugs in that
12 slide, they're not accounting -- you know, basically
13 what they're saying, what they're saying is, the child
14 couldn't consume enough milk.

15 Well, you have two things going on, though,
16 really. You have milk coming in and morphine that was
17 in that milk going out. And that's what I think is
18 lacking in that presentation. That's why I think as
19 presented yesterday, I find that is not something that
20 would lead to third prong of 702.

21 Naturally all these arguments I'm folding into
22 whether we're being sued at trial. Is it fit for
23 consumption at General Sessions, as well as whether it's
24 fit for trial today? But I think you take all of those
25 three prongs together, you really have some problems

1 with these numbers that they're putting out there in
2 this calculation. And I firmly think that passes the
3 gatekeeper function of it for a PCR hearing, much less
4 for General Sessions, much less, you know, some point
5 later we're probably talking about the weight. So
6 that's my motion, Your Honor.

7 THE COURT: Okay.

8 MR. WILLIAMS: Can I be heard briefly, to just
9 put something on the record, Your Honor?

10 THE COURT: Yes, sir.

11 MR. WILLIAMS: You made most of my argument for
12 me already, but obviously you're the finder of fact.
13 This goes to credibility. That's really what they're
14 getting at here. You're more than capable of assessing
15 that and making a determination of what weight to give
16 the calculations.

17 And regardless, the calculations were not the
18 only linchpin of Dr. Scialli's opinions. As the Court
19 noted, most medical testimony is not considered
20 scientific. It doesn't have to meet the counsel's
21 standard. It was an error of law in the Graves case to
22 exclude testimony on that basis. His opinion is about
23 his knowledge, based on his knowledge, skill,
24 experience, and professional standing on the morphine
25 transmission through breast milk issue. And in any

1 event, a lot of hay was made about this not accounting
2 for the MG-6 glucuronide, which as the Court noted, we
3 can't account for what we can't possibly get at this
4 point, and it's unfair to put that burden on us.

5 And also, Dr. Scialli did account for it on the
6 stand, both on cross and on redirect. He said if you,
7 based on his knowledge and research of the medical
8 literature, it would at most reduce his calculations by
9 around 5 percent, and at the very most 10 percent. He
10 gave those numbers on redirect.

11 Finally, the volume of distribution that was
12 pulled directly from one of the medical articles and
13 papers that he cited. I think it was the Alkamine
14 paper, I believe. But that was pulling the record from
15 both the literature and was the best evidence he could
16 find. As reasonable as he could find on that point. So
17 I think that's all reliable factors into his opinion and
18 should be considered by the Court.

19 THE COURT: What about his position on the, oh,
20 the study, they call it Toronto study?

21 MR. WILLIAMS: Well, I think that's entirely
22 distinguishable. I'm not sure I followed the State's
23 argument because that was about codeine processing in
24 the mother. And, as Dr. Scialli explained on the stand,
25 codeine is a completely different ball game than

1 anything we're talking about here today and in this
2 case.

3 THE COURT: Did -- refresh my memory. I believe
4 the doctor stated that his numbers were, and I'm not --
5 I'm probably going to mischaracterize this statement,
6 were illuminating or were demonstrative of his analysis
7 but not...

8 MR. WILLIAMS: They're an example. They're
9 illustrative of the ---

10 THE COURT: They're illustrative?

11 MR. WILLIAMS: That's correct. And that, I think
12 I may have actually said that rather than the doctor,
13 but he agreed. It was not a linchpin of his opinion
14 testimony, but I think it was a helpful calculation
15 based on the best possible data he could find. And it
16 was exceedingly generous to the State actually.

17 THE COURT: You're familiar with the Graves case
18 cited by the State?

19 MR. WILLIAMS: Yes, Your Honor.

20 THE COURT: Do you, do you recall the analysis
21 that I've referenced with the court? They were three
22 experts. One expert they said the court had erred
23 because they should have allowed him to be up to what
24 they felt were error because their analysis began with
25 the assumption that there was a defect?

1 MR. WILLIAMS: Correct.

2 THE COURT: All right. Is there -- I mean, I --
3 when I -- I don't want to say struggle with. I
4 scratched my head over the use of a products liability
5 analysis in a medical malpractice case, because I'm
6 still trying to figure out where the medical doctor was
7 flawed in his analysis from when he started. It seemed
8 like if *Graves* was going to apply to a case like this,
9 then the State has to point out that, well, he assumed
10 something that was not true and then backed it up. I'm
11 not seeing that this is the same thing as in *Graves* as
12 to what the State's trying to accomplish here.

13 MR. WILLIAMS: And *Graves* did involve a
14 differential diagnosis. That's what the court phrased
15 it. And that's not what Dr. Scialli was doing here. He
16 disproved the theory presented at trial and gave the
17 alternative cause, not just a differential diagnosis
18 starting from the assumption that a defect happened and
19 we're gonna work back and see if we can figure out what
20 might have occurred. So I agree it's not applicable,
21 Your Honor.

22 THE COURT: Okay.

23 MR. WILLIAMS: And I think the analysis satisfied
24 the additional counsel requirements anyway. I'd be
25 happy to walk through that but, you know, I wouldn't

1 think that's beneficial at this point.

2 THE COURT: Well, the State contends that counsel
3 has not met it.

4 MR. WILLIAMS: Well, I'd be glad to walk through
5 that as a fallback. Dr. Scialli, the four factors he
6 directly cited the sources for the assumptions he made
7 in his calculations. It's a type of calculation he
8 frequently performs as a research -- reproduction and
9 developmental toxicologist. He's very familiar with the
10 math. There was quality control that would ensure
11 liability. It was impeccable considering we showed the
12 absolute worst case scenario he could find.

13 Yeah, that was from the ID morphine
14 administration, which was not even applicable to the
15 situation, but we gave the benefit of the doubt, and
16 still presented that calculation. And the consistency,
17 the methods with recognized science is satisfied by the
18 fact that it was a simple math equation. He just took
19 the medical literature and the numbers that he found for
20 his research and plugged them into the perfect formula
21 and got the calculation results.

22 THE COURT: All right, thank you.

23 Any reply from the State?

24 MR. SPENCER: Briefly, Your Honor. To be clear,
25 if I wasn't clear before, the reason that article that

1 was State's Exhibit 7, is so relevant is because in my
2 view, Dr. Scialli is doing exactly what it warned us not
3 to do.

4 THE COURT: Applicant's 7?

5 MR. SPENCER: I'm sorry?

6 THE COURT: Applicant's 7 or State's 7?

7 MR. SPENCER: Did I say -- Applicant's 7, I
8 apologize.

9 THE COURT: Applicant's 7.

10 MR. SPENCER: But, yeah, Applicant's 7. And I'm
11 not talking about the codeine turning morphine in the
12 mother; I'm talking about what that sentence said, that
13 codeine turns into morphine in the child. And that
14 codeine can turn to morphine in the child shouldn't be
15 part of the number, just the same way that the M6G in
16 Alexis converts to morphine in the gut shouldn't be
17 accounted for.

18 And nobody knows how much milk is in the -- how
19 much morphine was in her breast milk or how much M6G,
20 but they created a number, and I think they needed to
21 also create the M6G number. That affects methodology.

22 I think that's the last line in the Jones test.
23 And that's a pharmo-co-kinetic calculation, so I think
24 that actually is science, as opposed to, you know,
25 medical testimony. For instance, in *Graves*, the doctor

1 who testified about SIDS that didn't identify himself as
2 a SIDS expert.

3 And I don't think I gave you a very good answer
4 on the *Graves* thing. I don't think *Graves* solely
5 depended on the fact that they may have reached a
6 conclusion off the bat. I think *Graves* is just saying
7 you have to do your methodology when you're trying to
8 say something's not possible or this is the only thing
9 that's possible, which is exactly what they're trying to
10 do with that testimony.

11 I think you have to include all the
12 possibilities, that codeine turns to morphine in the
13 Canada. The M6G is turned into morphine in the child's
14 gut in this case. When there's an article that they
15 have, you know, familiarized themselves with that says
16 morphine's converted to M6G in the gut, probably, then I
17 think you have to account for that.

18 And they haven't shown anything that says that
19 morphine is not converted to M6G in the child's gut. So
20 I do think we have an admissibility problem for them to
21 be arguing the weight problem potentially down the road.
22 But this is, I think, an admissibility issue, whichever
23 way the Court is, you know, looking at it.

24 THE COURT: Let me ask you a question. The State
25 does not intend to present an expert witness, right?

1 MR. SPENCER: No. No, Your Honor. We're relying
2 on the just position of their experts presented, versus
3 Mr. Wise's expert who testified at trial.

4 THE COURT: But my understanding is the experts
5 at this PCR is not just testifying -- that the issues
6 that they addressed in the PCR were not addressed in the
7 weeds, as they were at that trial. Here, you've gone
8 into a direction of saying, if I understand it
9 correctly, that the cause of death of the child was
10 renal failure. And then they had a discussion about the
11 morphine through their experts and how much it would
12 have taken.

13 MR. SPENCER: Certainly.

14 THE COURT: My question is, the reason I want to
15 be clear the State's not gonna call an expert, is that
16 you're asking the trier, you're asking the Court to make
17 an admissibility analysis when I have no expert that
18 supports the position that the State is putting forth on
19 the issue of admissibility as the gatekeeper; as opposed
20 to the question of credibility of the expert that's been
21 presented by the Applicant.

22 And the method that the State is using to want
23 the Court to exercise its gatekeeping function is
24 traditionally seen by the Court as simply the
25 credibility is that you take an article, a medical

1 article and you then cross-examine the expert as to
2 what's in that medical article to attack the credibility
3 of what's stated.

4 But I don't have an expert witness that is
5 actually gonna, as I do in medical malpractice cases in
6 civil court where I have competing experts, and I've
7 actually exercised the function as a gatekeeper. And
8 I've dismissed medical malpractice cases based upon my
9 belief that the science and what the expert's opinion
10 has -- is being given in a medical malpractice case is
11 not scientifically sound.

12 MR. SPENCER: Right.

13 THE COURT: And so I can't do that here because
14 I'm not being given that same level of information from
15 the State. I'm being given a medical article that is
16 used for cross-examination purposes. To point out
17 discrepancies that the State would allege is cancelling
18 the testimony of the expert.

19 MR. SPENCER: But, Your Honor, first ---

20 THE COURT: Do you see my problem? Is that
21 you're wanting me to take an article and take it as if
22 it is right on a point of medicine. And you give me
23 nothing else to go on. And you want me to use that in
24 my gatekeeping function, not in my capacity as the trier
25 or the finder of fact where I get to take that and let

1 me do an analysis of the credibility of what the
2 witnesses say.

3 MR. SPENCER: I understand what you're saying --

4 THE COURT: It's a big lift.

5 MR. SPENCER: -- and it's a fair question.

6 THE COURT: It's a big lift for me to do that
7 where I don't have an expert witness to tell me
8 otherwise.

9 MR. SPENCER: Your Honor, just to try and finish
10 that in a couple, two or three parts.

11 THE COURT: Uh-huh.

12 MR. SPENCER: The first thing is obviously in a
13 General Sessions setting, for instance, that's something
14 defense attorneys do all the time. They're gonna pass
15 the admissibility or something the State's putting up,
16 they're gonna make a record. The judge may keep it out,
17 the judge may -- if the judge let's them in, you know,
18 that's the scenario I found myself, as primarily an
19 appellate attorney, facing all the time. And it doesn't
20 really matter if the defendant put up an expert or not.
21 And in this case, obviously, they have the burden, and
22 so it's applicable in the same setting.

23 THE COURT: Except that the underlying factual
24 foundation is the responsibility of the State during a
25 criminal investigation.

1 MR. SPENCER: Certainly, Your Honor.

2 THE COURT: And so that would be a difference.
3 And also a difference because this is a civil proceeding
4 we're doing here that is taking a look at a criminal
5 matter.

6 MR. SPENCER: Right.

7 THE COURT: So the State has the ability to
8 present evidence during a civil proceeding, like a PCR,
9 contrary to what happens in a criminal case where a
10 defendant has the right under the constitution to remain
11 silent and does not have to produce a darn piece of
12 information and still be able to walk out of a courtroom
13 not convicted of a crime. That's a substantial
14 difference.

15 MR. SPENCER: I think at the end of the day,
16 though, it's the question of admissibility no matter
17 what.

18 THE COURT: Okay. So you heard where I'm having
19 the problem --

20 MR. SPENCER: No. I mean, I understand.

21 THE COURT: -- because the State is not giving me
22 what I need to make that lift to determine an
23 admissibility on it.

24 MR. SPENCER: So to an extent, it would be like
25 us having to present a witness, and I don't think that

1 would necessarily prevent the, prevent the, prevent the
2 suppression under 702 in a gatekeeper function.

3 THE COURT: I would -- maybe in some cases, but
4 not in this case, because I have been presented an
5 expert witness that the State has not really challenged
6 the areas of expertise that is imminently qualified.

7 I'm being presented an expert witness that has
8 been -- that has presented to the Court an in-depth
9 analysis on not only what his opinions are, but an in
10 depth analysis of how those opinions were reached and
11 the work that he did in order to reach those opinions
12 and the basis of his factual investigation.

13 And the only part of his factual investigation
14 that was questioned that he didn't have, I view as being
15 the responsibility of the State, because they did not do
16 an investigation at the time of criminal investigation
17 to determine how much -- you know, what was in the
18 breast milk of the accused.

19 And so, you're wanting -- and yet now the State
20 still does not want to give me an expert witness to
21 explain why this piece of information that the State's
22 relying on, which is a medical article, why that is the
23 bible and that I should exclude the testimony of the
24 expert or portions of the expert.

25 That is far different. That's the gatekeeping

1 purposes. That's far different from them saying not to
2 believe the expert because of this article. That's a
3 credibility analysis. So I'm just, I'm just, I'm just
4 saying that's the -- I'm having a problem with that
5 lifting, saying exclude it, versus weigh it.

6 MR. SPENCER: I understand.

7 THE COURT: Yeah, that's where I'm at.

8 MR. SPENCER: I understand, Your Honor.

9 THE COURT: All right. Okay. Anything else you
10 want to talk on that point?

11 MR. SPENCER: I think I've made my arguments.

12 THE COURT: Okay.

13 MR. SPENCER: And of course, obviously, it's
14 something that is going to potentially recycled into
15 different kind of arguments over the admissibility in
16 General Sessions and the weight.

17 THE COURT: Okay. All right. Thank you very
18 much.

19 Anything else from the Applicant on that issue?

20 MR. WILLIAMS: No, Your Honor.

21 THE COURT: Okay. I'm gonna -- I'm gonna deny
22 the motion for the reasons that I've articulated, but I
23 have taken them and they are -- will be absorbed by the
24 Court as a finder of fact at the appropriate time when I
25 go through your weighing of the testimony.

1 MR. SPENCER: Thank you, Your Honor.

2 THE COURT: Yes, sir, thank you.

3 Anything from the Applicant? Anything else from
4 the Applicant?

5 MR. KUPPENS: Your Honor, can we have five
6 minutes to confer with our co-counsel, Ms. Ross?

7 THE COURT: Sure. Okay. All right. We will
8 step down for a few moments. Okay. I'll step down.

9 (Recess was had from 10:11 - 10:26 a.m.)

10 THE COURT: Is the Applicant ready to proceed?

11 MR. KUPPENS: Yes, Your Honor. We would call
12 Rauch Wise to the stand.

13 THE COURT: Just come right up here and place
14 your left hand on the bible and raise your right hand
15 and I'll swear you in. (Complies.)

16 Do you solemnly swear the testimony you're about
17 to give the Court be the truth, the whole truth, and
18 nothing but the truth?

19 THE WITNESS: I do.

20 THE COURT: Thank you, sir. Watch your step up,
21 but step up and have a seat up to the chair and then
22 pull the chair up to the microphone. (Complies.)

23 MR. KUPPENS: May it please the Court, Your
24 Honor?

25 THE COURT: Yes, sir.

1 C. RAUCH WISE,
2 having been duly sworn, testified as follows:
3 DIRECT EXAMINATION
4 BY MR. KUPPENS:
5 Q. Good morning, Mr. Wise. My name is John Kuppens
6 and I represent the Applicant. You were counselor for
7 Stephanie Greene in her underlying trial and the appeal;
8 is that right?
9 A. That is correct.
10 Q. And when was that trial?
11 A. I don't know the exact date, but 2015.
12 Q. Okay. And you've reflected since then on the
13 trial and the appeal?
14 A. Most definitely.
15 Q. All right. You've reviewed the trial transcript?
16 A. I've reviewed the trial transcript, yes.
17 Q. Have you reviewed the Applicant's amended
18 application for postconviction relief?
19 A. Not in any great specific detail. Generally the
20 allegations, yes.
21 Q. All right. And have you sat in on this PCR
22 trial?
23 A. That I have.
24 Q. I want to ask you some questions about the
25 testimony of Dr. Scialli during the trial. Did you hear

1 his testimony as a reproductive and developmental
2 toxicology expert?

3 A. Yes, I did.

4 Q. And did you hear him testify that breastfeeding
5 could not be the sole cause of the amount of morphine,
6 of a lethal dose of morphine being transmitted to
7 Alexis?

8 A. Yes, I did.

9 Q. And did you hear him testify about the lack of
10 support for that premise in the scientific literature?

11 A. Yes, I did. Uh-huh.

12 Q. And I'm gonna talk a little bit more in a minute
13 about the Canadian case, but did you hear Dr. Scialli
14 testify about the Canadian case being the only
15 scientific basis referred to by the State in the trial?

16 A. Well, I not only heard it, I was aware of that
17 from the trial.

18 Q. Okay. Did you hear Dr. Scialli testify that that
19 -- the papers about that case had been, since more
20 recently, been discredited?

21 A. I heard him testify to that and I'm also aware of
22 that from conversation with Dr. Karch after the trial.
23 That was a topic of conversation.

24 Q. And did you hear Dr. Scialli testify that the
25 evidence indicates that opioid toxicity from

1 breastfeeding is exceedingly improbable?

2 A. Yes.

3 Q. And you saw Dr. Scialli through his illustrative
4 calculations explain that it would have -- Lexi would
5 have had to drink 51.5 gallons of breast milk to get the
6 amount of morphine that was measured in her blood?

7 MR. SPENCER: Your Honor, I was letting this go,
8 but we actually haven't heard any questions, just a
9 summation of -- their summation of Dr. Scialli's
10 testimony. You know, I think we need to ---

11 THE COURT: Okay. All right. I'm hearing
12 questions. So I'm gonna let him go forward. He's
13 phrasing them as questions.

14 BY MR. KUPPENS:

15 Q. Okay. Go ahead. What was your answer?

16 A. I forgot the question now.

17 Q. I just, I was asking if you listened to Dr.
18 Scialli's testimony when he did an illustrative
19 calculation showing that Alexis would have had to drink
20 51.5 gallons of breast milk to get the amount of
21 morphine that was measured?

22 A. I motioned his testimony. I also had read it in
23 his deposition prior to his testimony. So I was aware
24 of that theory from reading from his deposition also.

25 Q. And did you hear Dr. Scialli testify that there

1 was an alternative explanation for how the amount of
2 morphine built up in her blood and an alternative
3 explanation for her death?

4 A. I did.

5 Q. And did you hear him testify that in his expert
6 opinion, that alternative explanation was that Alexis
7 had renal failure?

8 A. That is correct. That is keeping with the
9 deposition and his testimony.

10 Q. And did you hear him testify that her kidneys
11 stopped properly functioning and that caused morphine to
12 build up the toxic levels in her system?

13 A. Yes, sir. And that's -- if the kidneys aren't
14 functioning, that's kind of a common sense call result.

15 Q. Okay. And did you hear Dr. Scialli explain that
16 there would not have been a so called synergistic effect
17 on Alexis from the drugs that were found in her body?

18 A. I did.

19 Q. I'm now gonna ask you some questions about the
20 testimony of Dr. Twombly. Did you listen to her
21 testimony?

22 A. I did, and also read and heard her deposition
23 before her -- before she testified.

24 Q. And you heard her say that she's an expert in
25 pediatric or she practices in the area of pediatric for

1 trial issues?

2 A. I did.

3 Q. So she explained that she's an expert on kidney
4 function in infants like Lexi, right?

5 A. Correct.

6 Q. Did you hear Dr. Twombly testify that Lexi had
7 renal failure?

8 A. I did.

9 Q. Did you hear Dr. Twombly explain that Lexi's
10 illness led to dehydration, which led to renal failure,
11 which caused the morphine to build up in her system?

12 A. I did.

13 Q. And did you hear Dr. Twombly explain that in her
14 opinion renal failure was the cause of Lexi's death?

15 A. I did.

16 Q. Did -- and I'll talk more about this in a minute,
17 too, but did you hear Dr. Twombly say that it would
18 have been possible during the autopsy to check renal
19 function?

20 A. Yes. Well, she said it. I was a little confused
21 on exactly how, and then never explained. But I did
22 hear her say that, and that the kidneys could be
23 dissected to determine whether or not it was a
24 functioning one.

25 Q. And that was something that was not done.

1 A. That was not done; that's correct.

2 Q. All right. Did you hear Dr. Twombley testify
3 that in her expert opinion, renal failure most likely
4 would have caused Lexi's death, perhaps even without
5 morphine being present?

6 A. That's correct.

7 Q. Did you hear Dr. Twombley explain that renal
8 failure can occur in infants like Lexi and that it can
9 be fatal?

10 A. Yes.

11 Q. All right. Did you hear Dr. Twombley explain
12 that the signs of renal failure can be difficult or
13 impossible for a parent to detect?

14 A. I did.

15 Q. And did you hear her testify that in this case
16 there wasn't any evidence that would have alerted
17 Stephanie Greene to the fact that Lexi was experiencing
18 renal failure?

19 A. I did.

20 Q. So now I want to talk a little bit about your
21 representation. Did you present this alternative theory
22 of renal failure as the cause of death at Stephanie
23 Greene's trial?

24 A. I did not. I was not aware of the alternative
25 theory of renal failure until I was contacted with your

1 office some months ago. And even then it was kind of
2 more general than it was in the depositions that I was
3 sent.

4 Q. Okay. At the time of the trial, did you consult
5 with an expert in reproductive developmental toxicology
6 like Dr. Scialli?

7 A. No, I did not. I just consulted with Dr. Karch.

8 Q. Did you, at the time of trial, did you consult
9 with an expert in pediatric nephrology like Dr.
10 Twombley?

11 A. No, I did not.

12 Q. Okay. Could you have consulted with these
13 experts or other experts in those disciplines for
14 possible use at the trial?

15 A. I mean, obviously it was possible. And consulted
16 with them would have opened up, I think, other avenues
17 as to what actually happened in this case.

18 Q. At the trial, could you have pointed out that the
19 State could have tested for renal failure but did not?

20 A. If I were aware that renal failure was an issue,
21 I could have. There were several things the State
22 didn't test, including the contents of the stomach,
23 which would have given some more emphasis too. And then
24 as it was mentioned today and also at the trial, they
25 didn't breakdown the M36 or M3G and the M6G that they

1 could have done also.

2 Q. Was it an error on your part not to present this
3 alternative theory of renal failure?

4 MR. SPENCER: Your Honor, I object. That's a
5 legal conclusion for the Court. And, also, we need to
6 be aware of *Strickland's* caution on hindsight
7 observations.

8 THE COURT: All right. We can be aware of
9 *Strickland's* hindsight. I'm gonna let him answer the
10 question. He was the trial lawyer in the case. If he
11 were just a normal -- I mean, if he was another lawyer,
12 I might have some reservation, but I'm gonna let him
13 testify.

14 THE WITNESS: The cause of death was the issue in
15 this case. And it takes a little bit of explanation I
16 think to fully understand the significance of it. This
17 was the second case I've had in which drug overdose was
18 the cause of death and I seriously contested at trial.
19 So I come in here with a little bit of background
20 knowledge.

21 As I generally understand it with pathologists,
22 the cause of death being a drug overdose is a diagnosis
23 in which you eliminate everything else first and that
24 you have no other cause of death. And the level of
25 drugs are at a level where previously people have been

1 found to be deceased. And then you attribute the cause
2 of death to the drugs.

3 If there's an alternative theory as to the cause
4 of death, then it's virtually impossible to list the
5 drug as the cause of death until you eliminate any cause
6 of death. So, renal failure being a cause of death
7 would have changed the dynamics of the case in that the
8 State could no longer say the cause of death was a drug
9 overdose. And unless and until they eliminate renal
10 failure as a cause of death.

11 Q. So just to go back to my original question, do
12 you think that it would have, you know, wasn't an error
13 not to present that alternative?

14 A. Yes, it was, because any time you have a cause of
15 death other than drug abuse or overdose, then the State
16 has failed in its burden of proving drugs caused the
17 death. Even Dr. Wren in his testimony conceded that
18 there's considerable overlap between the toxic amount of
19 morphine and a lethal amount of morphine. So it's not a
20 magic number at which everyone is dead. It's a pretty
21 wide range.

22 Q. So just to make sure I'm understanding your
23 testimony on this point, are you saying that in your
24 view the State had the responsibility to eliminate other
25 causes like renal failure?

1 A. There's no question about it. I mean, they had
2 the obligation. And Dr. Wren testified that if not for
3 a high level of morphine, he would have written it off
4 as a SIDS death. So, yeah, that is the basic burden of
5 the State to prove, if they contend it's a drug
6 overdose, it's the obligation of their experts to
7 disprove, to show that it's no longer a possible cause
8 of death.

9 If I can give you a simpler example? If a person
10 has a level of morphine that previously had been found
11 to cause the death of a person and they had a gunshot
12 wound, any pathologist is gonna say the gunshot wound
13 killed the person, not the morphine unless they can
14 prove that the gunshot wound occurred after the person
15 was dead.

16 Q. So if you'd been able to raise this alternative
17 theory of renal failure, it would have both highlighted
18 inadequacy in the State's proof and presented from the
19 defense perspective a viable alternative?

20 A. It -- I think it would raise a very serious
21 question as to whether or not the case even goes to the
22 jury, unless the State came in with some testimony that
23 it wasn't renal failure and have a good reason for it.

24 Q. And you could have presented that theory?

25 A. Based on what I've heard today, absolutely.

1 Q. Okay. Was there any strategy reason that caused
2 you to not present that theory?

3 A. There was not. It was simply the fact that it
4 never came up in my discussions with Dr. Karch or...

5 Q. Based on your involvement in the case and your
6 knowledge of these issues, do you think there's a
7 reasonable probability that the outcome of the trial
8 would have been different if that would have been
9 presented?

10 MR. SPENCER: Your Honor, that's, again, a legal
11 conclusion for Your Honor to decide, not something, you
12 know, Mr. Wise gets to decide.

13 THE COURT: Okay. I'm gonna let him testify. Go
14 ahead, sir.

15 THE WITNESS: Renal failure being the cause of
16 death creates two serious problems in the case. And one
17 is whether or not it even gets to the jury, unless the
18 State has some evidence to the contrary. Once a witness
19 is qualified as an expert and meets that gatekeeper
20 standard, unless the State produced something else, it's
21 hard to argue that substantial circumstantial evidence
22 can convict Stephanie Greene.

23 Secondly, it, seems to me, virtually eliminates
24 the extreme indifference aspect of homicide by child
25 abuse. With renal failure being the cause, even if you

1 had contrary testimony from the State, there's a very,
2 very good argument then that you agree that normally
3 taking morphine while breastfeeding does not cause the
4 death of a child. And the State agreed that there was
5 renal failure and a build up of morphine from that, they
6 would almost be conceding that also. So once you say
7 that breastfeeding while taking morphine is not harmful
8 to the child, it takes something extraordinary to make
9 it lethal, and that, to me, would seriously undermine
10 the extreme indifference requirement of the homicide by
11 child abuse statute.

12 Q. We talked a minute ago, and you've heard
13 testimony today about the so called Canadian case.

14 A. Yes.

15 Q. Was that a big part of the trial?

16 A. It was, it was a significant part of the trial.
17 I won't say big, because there wasn't a lot of testimony
18 about it. Although, Solicitor Barnette did make very
19 strong reference to it in his closing argument.

20 Q. Okay. And had the information that exists today
21 discrediting that case been available to you at the time
22 of trial, how might that have affected the trial?

23 A. It would have been a -- it would have been
24 extremely helpful because, first of all, this is not a
25 case that's a slam dunk for the State. And you talk

1 about some prejudicial error, this is a serious question
2 as to whether or not the State proved its case. And if
3 you look at the fact it took the South Carolina Supreme
4 Court 22 months from the first oral argument to decide
5 the case, I mean, they had problems with it. And
6 Justice Few dissented. So, what it's gonna take to
7 overturn a jury's verdict, you know, arguably isn't
8 gonna be much.

9 And I was aware of the study. I tried to
10 distinguish it, but it wasn't a study, it was just a
11 case analysis. I was -- I tried to distinguish it on
12 the basis it was codeine, it involved an alleged genetic
13 defect and, therefore, doesn't apply in this case. But
14 Solicitor Barnette did argue in the closing that it's
15 still converted to morphine and a lethal amount of
16 morphine got through the breast milk and into that
17 child.

18 I had no real rebuttal to that, because that's
19 the facts of the Canadian study. And it made it, it
20 made it easier, I think, for the jury to accept that if
21 it happened in that case, it could have happened in this
22 case. Not necessarily the genetic defect, but you can
23 get a lethal amount of morphine through breast milk.

24 Q. If you knew then what you knew [sic] now about
25 the discreditation of that Canadian study or case

1 report, do you -- would you have objected to it?

2 A. Well, I think if I knew now what I knew then, I
3 don't think Solicitor Barnette would have even mentioned
4 it, and I don't think it would have come out of the
5 mouths of any of the witnesses because they -- I mean,
6 they would have also had known it's been discredited and
7 it's not a reliable source.

8 Q. And was there any other scientific support for
9 the proposition the State advanced that a lethal dose of
10 morphine could pass through breast milk, other than that
11 Canadian case report?

12 A. Not only was there no scientific basis that no
13 expert for the State ever testified to a reasonable
14 degree of medical certainty, the morphine found in
15 Alexis came from the breast milk of Stephanie Greene.

16 Q. So, how might that have affected the outcome of
17 the trial if they hadn't been allowed to refer to that
18 Canadian case?

19 A. I think it would have made a, easily could have
20 made a difference. I mean, let's just say it's a close
21 case in the sense of there aren't a lot of facts backing
22 up the State's side, and that was probably one of the
23 most significant facts that did it.

24 Q. Do you recall during the trial when one of the
25 State's witnesses, when answering questions about

1 whether it was possible for a lethal level of morphine
2 to pass through breast milk, when that witness said, I
3 paraphrase, well, it had to get there somehow?

4 A. I believe that was Dr. Wren, yes.

5 Q. Okay. Did you object to that testimony at the
6 time?

7 A. I did not.

8 Q. Okay. In hindsight do you wish that you had?

9 A. Well, in hindsight, that's kind of a burden
10 shifting comment in the sense that I don't know how it
11 got there. You know, you explained it almost the same.
12 All I know is it's there.

13 Q. Okay. And that's something that the burden
14 shifting argument was one that you were aware of at the
15 time?

16 A. Right, yes.

17 Q. And what's the support for that argument, that
18 burden shifting argument?

19 A. Well, there's many cases that say a prosecutor
20 cannot make a burden shifting argument in their closing
21 statement, because it's improper. You know, to give an
22 extreme example, you know, and we've almost heard some
23 of this in the comments today, the defendant didn't do
24 something. That's a burden shifting argument.

25 Q. Because it's the State who had the burden --

1 A. Right.

2 Q. -- to prove what happened and how?

3 A. Right. The State has to prove the defendant did
4 the act. The State has to prove the substance caused
5 the death. The defendant doesn't have to prove
6 anything.

7 Q. All right. Now, at the trial, and you just made
8 the comment that none of the State's experts ever
9 offered an opinion to a reasonable degree of medical
10 certainty, that a lethal dose of morphine could pass
11 through breast milk. Did I understand you correctly?

12 A. That's correct.

13 Q. Okay. And was that something that was objected
14 to at the trial and if not, can you explain what
15 happened?

16 A. Well, I ---

17 MR. SPENCER: I'm sorry, could you ---

18 THE COURT: Hang on. Yes, sir?

19 MR. SPENCER: Just, could you rephrase that? I'm
20 not quite -- I thought -- I'm very confused by the
21 question. I'm sorry.

22 THE COURT: Can you restate the question?

23 BY MR. KUPPENS:

24 Q. Do you remember earlier during your testimony
25 today that you commented on the fact that none of the

1 State's expert witnesses opined to a reasonable degree
2 of medical certainty that a lethal dose of morphine
3 could have passed through breast milk?

4 A. Right. Yes.

5 Q. Okay. And can you explain -- and you said you
6 didn't object to that at the time?

7 A. Well, I didn't object, it was never asked. I
8 mean, the question was never asked.

9 Q. Can you explain that a little bit?

10 A. Well, that was a discussion prior to trial about
11 whether or not an expert could testify to that. And I
12 think we kind of left it that there was no formal motion
13 filed, but these were informal discussions before the
14 trial that if an expert was going to give such an
15 opinion there would be an objection and we'd have a
16 hearing to determine whether or not that is a proper
17 opinion for that expert.

18 So literally, particularly during the expert's
19 testimony, I was anxiously awaiting for the question to
20 begin, the doctor, through a reasonable degree of
21 medical certainty, at which time I would raise an
22 objection, and at which time we would have had a serious
23 discussion about whether or not an expert can really
24 testify to that.

25 Q. But ultimately, at some point during the trial,

1 the testimony of, well, it had to get there somewhere
2 was offered, right?

3 A. Right. Right.

4 Q. And not objected to?

5 A. Right.

6 Q. Do you recall the testimony of the State's
7 witness, Wendy Bell, at the trial?

8 A. I do.

9 Q. Okay. And do you recall that she testified that
10 Stephanie Greene withheld information from her treating
11 doctors, even though she acknowledged that was not
12 within her expertise to make that statement?

13 A. Right. Uh-huh.

14 Q. Did you object to that?

15 A. I didn't object to that. And in, you know, all
16 fairness, I think that kind of was a fact beyond dispute
17 in this case.

18 Q. And having reviewed the trial transcript, did you
19 notice that there were leading questions and questions
20 beyond the scope of cross-examination that could have
21 been objected to?

22 A. I don't know if they were beyond the scope of
23 cross-examination because they were incorrect, but they
24 were obviously, and he used the word obviously, leading
25 questions that were not objected to. And upon reviewing

1 the transcript, I frankly do not know why. I will say
2 that I do object to leading questions quite frequently,
3 so there's no strategic decision. And I think two or
4 three times during direct examination of Wendy Bell, he
5 began a question with obviously. And when you begin a
6 question with obviously, it's obviously a leading
7 question.

8 Q. There was testimony about State's witnesses,
9 about what's been called the synergistic effect of
10 medications.

11 A. Uh-huh.

12 Q. Did you object to that testimony at trial?

13 A. Did not. And, you know, I could make an argument
14 as to how that impacted it. But one thing when you talk
15 about the synergistic effect, the jury charge was such
16 that the State had to prove there was an excessive
17 amount of a schedule II drug in Stephanie's -- in the
18 child's system that caused the death. The other drugs
19 involved in this were not schedule II drugs. They were
20 three, four, maybe just minor regulated, so they were
21 not schedule II drugs.

22 Q. And if you had talked to somebody like Dr.
23 Scialli and had a better understanding that these drugs
24 don't work with different receptors and that kind of
25 thing, it might have helped you?

1 A. It would affect some, yes, absolutely. But even
2 -- they had no studies to show the synergistic impact of
3 having these together, they simply assumed it had to be.

4 Q. So you could have moved to exclude that
5 testimony?

6 A. I would have had some testimony that said that
7 you can't assume it had to be.

8 Q. These issues that we've talked about that had to
9 get there somewhere, the issues with Wendy Bell's
10 testimony, the synergistic effect, the leading
11 questions, are these all things that were errors on your
12 part at trial?

13 A. Well, the leading questions ---

14 THE COURT: Yes, sir?

15 MR. SPENCER: I'm just gonna renew that previous
16 objection concerning --

17 MR. KUPPENS: In your opinion?

18 MR. SPENCER: -- leading questions.

19 THE WITNESS: The leading question, I should have
20 objected to with Wendy Bell. The testimony as to renal
21 failure causing the death of the child obviously should
22 have been used because it completely changed the cause
23 of death and it was a 100 percent exoneration of
24 Stephanie. Not just something to get to the jury and
25 create controversy.

1 It is, as I read some of the cases, in a case
2 like this when, and this is a very, very circumstantial
3 evidence case, as I read some of the cases, particularly
4 U.S. versus Holland, when the defendant offers a
5 credible explanation of innocence, the burden shifts to
6 the State to disprove that. And based upon the
7 testimony from Dr. Twombly, I think that would be a
8 pretty high burden on the State in this case.

9 Q. So, just to kind of recap, if you had had the
10 information, if you had consulted experts like Dr.
11 Scialli and Dr. Twombly, that would have been
12 information that would have been valuable to you that
13 you think could have made a difference?

14 A. It would have been invaluable. I mean, it
15 changes the dynamics of the case. I mean, it just
16 simply says the cause of death was not morphine.

17 Q. And you could have objected to what you think was
18 a burden shifting statement about --

19 A. Uh-huh. Right.

20 Q. -- the State's witnesses that it had to go
21 through ---

22 A. It had to get there somehow.

23 Q. Right. And ---

24 A. And to be frank with you, they had to get there
25 somehow. It was not difficult for the jury to then

1 listen to Solicitor Barnette's closing argument about
2 the Canadian case and make them believe that that's how
3 it got there.

4 Q. And you could have objected to Dr. Bell's
5 testimony?

6 A. Yes.

7 Q. And you could have objected to the leading
8 questions that you've noticed?

9 A. Yes.

10 Q. And those reasons you didn't object were not
11 based on some strategy decision?

12 A. They were not.

13 Q. And in your opinion, do those issues
14 independently or collectively, in your opinion, lead to
15 a probability that the outcome of a trial may have been
16 different?

17 A. Particularly ---

18 MR. SPENCER: Your Honor, I have that same
19 objection.

20 THE COURT: Okay. I will allow him to answer the
21 question based on the objection that's been stated.
22 There is a part of the question that is improper, but
23 you may go ahead.

24 THE WITNESS: Taking Dr. Twombly's testimony,
25 that was pretty dramatic. The refuting the Canadian

1 study, certainly would have eliminated a very strong
2 argument as to how the morphine -- a very strong
3 argument as to the possibility of morphine getting into
4 Alexis through breast milk. That would eliminate that.
5 And then, I would like to think some of the questions on
6 cross would have watered down Wendy Bell's testimony.
7 But I think it's quite obvious from reading the
8 transcript, had an objection be made to some of those
9 leading questions where he began with obviously, I don't
10 know if he would have been able to go back and get her
11 to testify the same way with a proper question, because
12 there was no scientific study to back up the point he
13 was trying to make.

14 Q. And the information, the -- I'm -- the new
15 evidence regarding the discreditation of the Canadian
16 case report, would that have made a difference, in your
17 view, in the outcome?

18 A. It prevented a strong argument that Solicitor
19 Barnette had that I had no good answer to, other than
20 the fact it's codeine and a genetic study and that's
21 different.

22 Q. And in case I didn't ask the question before that
23 one properly, did the things that we've talked about
24 that you acknowledged that you could have done and
25 didn't do, could those have made a difference in your

1 view in the outcome?

2 A. Oh, yes. Yes.

3 MR. KUPPENS: Your Honor, one second, please?

4 Thank you so much, Mr. Wise.

5 THE WITNESS: Okay.

6 CROSS-EXAMINATION

7 BY MR. SPENCER:

8 Q. Mr. Wise, do you have a copy of the transcript?

9 A. Not in front of me, no.

10 Q. Okay. Let me go ahead and just bring you one.

11 A. Sure.

12 Q. I anticipate we'll be visiting it.

13 A. All right. No problem.

14 Q. Mr. Wise, I wanted to just start by asking you
15 about how is it you came to represent Ms. Greene?

16 A. I can't remember who recommended she come see me,
17 but she came to Greenwood with her husband, Randy, and
18 retained my services.

19 Q. And about when was that roughly?

20 A. Actually, they have the file. Otherwise, I could
21 have given you the exact date. It was, I want to say, a
22 good year to a year-and-a-half before the trial. She
23 was out on bond and at the time she came to see me and
24 was in jail for a few months before she got out on bond.
25 So it was a few months after she was arrested, but then

1 you've got to go back and she wasn't arrested about ten
2 months or so after the child died.

3 Q. And so just to kind of cut to something before we
4 get back on this, at that point in time there was no
5 possibility of testing any sort of breast milk?

6 A. No, there was not. I mean, any testing by the
7 time she came into my office was, you know, if it hadn't
8 been done it wasn't gonna get done.

9 Q. Let's go ahead and continue on. So, after your
10 consultation what happened next in the course of your
11 representation?

12 A. I started talking to a friend of mine in New York
13 who does some work with a lawyer who does work with
14 mothers who are pregnant, and she had recommended Dr.
15 Karch out of San Francisco who looked at the case.

16 Q. And that attorney, what was her name?

17 A. Lynn Paltro.

18 Q. Okay. And what's her role?

19 A. She's head of the National Advocate -- I can't
20 remember the name right now, but she's head of a
21 national organization in New York that deals with
22 advocating for pregnant women and women who have just
23 given birth.

24 Q. Okay.

25 A. National Advocates for Pregnant Women.

1 Q. Okay. And so, she recommended Dr. Karch. Did
2 you just hire him on the spot or did you consult with
3 him?

4 A. Well, on the spot is probably not the proper way
5 to look at it, I discussed with him on the phone. I
6 actually had a meeting in San Francisco after I was
7 retained by Stephanie to represent her. And Dr. Karch
8 agreed to meet with me to start some preliminary
9 discussions on the case. So I met with him. And after
10 that discussion, realized that even though I knew
11 something about pain drugs, I didn't know anything about
12 drugs passing through breast milk and I had a lot of
13 work to do.

14 Q. Tell me about Dr. Karch's credentials.

15 A. He -- there's some people that say basically he
16 has written the bible on toxicology in his fifth or
17 sixth edition of a book, which I have a copy of, dealing
18 with studies of the effects of drugs in the human body.
19 Constant levels, lethal levels, and stuff like that. I
20 have found that most people have a copy of his book that
21 deal with determination of toxic levels of drugs.

22 Q. So this publication is actually something that's
23 utilized a lot in --

24 A. Yes.

25 Q. -- practice?

1 A. Yes. I mean, it's a learning tool that can be
2 used to cross-examine an expert witness.

3 Q. Is that book, have you used that book ever since
4 this --

5 A. I --

6 Q. -- case?

7 A. I bought the book, I still have it. And if I
8 have a case involving drug levels in a case I will
9 consult it.

10 Q. And, actually, during trial that's, that's
11 something you told the jury he wrote the book?

12 A. Right. He literally wrote the book, yes.

13 Q. And that was kind of the argument as well. If he
14 had never heard of it --

15 A. Right.

16 Q. -- then it never happened?

17 A. Uh-huh. It's a little more than, you know, under
18 the theory of the trial, it was a little more than he
19 never heard of it. There were affirmative articles that
20 he had referred me to, and that I eventually found some
21 on my own that said it doesn't happen.

22 Q. And how did you use those articles at trial?

23 A. Well, I used them to cross-examine, in
24 particular, Dr. Eagerton with as to the fact that
25 there's no basis for finding that a woman taking

1 morphine and breastfeeding a child can reach a level of,
2 even a toxic level of morphine in the child, because it,
3 you know, it's not something you go out and do. You
4 know, what are we gonna do today? We're gonna do an
5 experiment on how much morphine can we get in the child?
6 That, you don't do that.

7 Having said that, there are studies where a woman
8 in the hospital is given morphine while breastfeeding
9 and they monitor the mother and morphine. They monitor
10 the amount of morphine given, the amount of morphine in
11 the mother and the amount of morphine in the child.
12 Those are the types of studies you have in this.

13 And I would assume you have studies that if an
14 infant dies and they test the blood, do you have
15 morphine and not have morphine, I'm assuming that would
16 be included in it. I believe Dr. Wren even mentioned a
17 study that talked about the ratio between the morphine
18 level in the mother and the morphine level in the child
19 as to what would pass through breast milk.

20 And I thought we were able to use that to our
21 advantage, but the jury obviously didn't think so.

22 Q. How so? How were you able --

23 A. Well, the, the ---

24 Q. -- to use it to your advantage?

25 A. If you use the ratio that Dr. Wren testified to,

1 and take the .52, which was the reading in this case,
2 and extrapolate that back to what had to be in the
3 mother, it turned out that Stephanie Greene should have
4 been dead three times over in order to pass that type of
5 level to her child.

6 Q. And so that's an attack on the evidence that you
7 utilized at trial?

8 A. Correct. Uh-huh.

9 Q. Okay. And just because this is in my head for a
10 moment, was there another part of the trial where you
11 were using the study and saying basically that level of
12 morphine is 125,000 times less than the number we had in
13 this case?

14 A. I don't know, I don't know about 125,000 times,
15 but the one I remember is, is pointing out that and then
16 the brief on appeal, pointed out that the level in a
17 woman who gets .52 milliliters per liter of morphine to
18 a child through breast milk would have to have a number
19 that's three times a lethal dose in her body, which only
20 illustrates how small amount does in fact pass through
21 to the breast milk.

22 Q. I want to try and kind of get back on track about
23 trial preparation.

24 A. Uh-huh.

25 Q. I'm the one who got us off track. Now, after

1 first consulting with Dr. Karch, then what did you do?

2 A. Well, after consulting with him, I started
3 reading a lot, basically, to be frank with you. And,
4 actually, Stephanie was helpful in finding some articles
5 too, about the safety of morphine. So we put together a
6 collection of articles from practical publications to
7 back up our theory that you cannot pass a lethal or even
8 a toxic amount of morphine through breast milk. And,
9 you know, if the State had ever said to a reasonable --
10 asked a question about to a reasonable degree of medical
11 certainty, we were prepared to use those articles in the
12 *in camera* hearing to say that such an opinion is not
13 scientifically valid.

14 Q. Okay. How many articles would you guesstimate
15 you've read?

16 A. Um, I think I used in court about four, maybe
17 five. I'm sure I read twice that many. Some of which I
18 didn't think came from a particular good source. So at
19 least twice that many.

20 Q. Did the -- excuse me. Did Dr. Karch provide you
21 or suggest any articles you should use?

22 A. Yeah. He started out providing them, so I'm
23 gonna know there was some mention in the, in the
24 footnotes to his book, which I went and got. And then I
25 started finding some on my own. If I remember

1 correctly, and I can't remember whether it was this case
2 or the previous case, I had actually set up an account
3 with some of the online publications to be able to
4 access those articles. And I'm thinking I started that
5 account with the previous case. So I had access to two
6 articles through an online account.

7 Q. Let me, let me kind of jump back. And you made
8 some reference during direct, but what was your
9 experience with the toxicology cases before this?

10 A. I had represented Dr. Ron McKeBrough (phonetic)
11 in a federal case. It was actually tried here in
12 Spartanburg on improper prescribing of drugs. And one
13 of his patients had died of an overdose of drugs. So
14 through that case, I've learned a lot about pain
15 medications and what you prescribe and what you don't
16 and what works together and what you don't, you know,
17 stuff like that. And also, gain some basic knowledge of
18 how you prove a drug test.

19 Q. How many attorneys around here would have that
20 sort of experience with that?

21 A. I'm -- I mean --

22 MR. KUPPENS: Object to the -- objection. It
23 calls for speculation.

24 THE WITNESS: Yeah.

25 THE COURT: He can answer it if he knows. If he

1 does not...

2 THE WITNESS: I have, I have expressed what I
3 know to several lawyers. I hope they would have some
4 basic knowledge, but beyond that, I wouldn't know
5 because you don't have that many trials on the criminal
6 side regarding a drug overdose death. You probably have
7 a lot more on the civil suit side where there's a civil
8 suit against the supplier of the drugs causing the
9 death.

10 Q. Let me jump back to Dr. Karch. And I feel like I
11 should get something with that in terms of his
12 background and I left that. Did he have expertise or
13 experience with pathology?

14 A. Yes, he did. He was also a pathologist.

15 Q. In fact, he was -- he worked for the San
16 Francisco --

17 A. Yes.

18 Q. -- coroner's office?

19 A. Yes, he did.

20 Q. And, in fact, did you discuss with him the
21 quality, if you will, the autopsy performed by Dr. Wren?

22 A. I'm sure I did, but if you ask me to sit here and
23 be specific about it, I would have trouble doing that,
24 which only tells me I know he had the autopsy report
25 because I sent it to him, which only tells me he did not

1 find anything out of the ordinary about it.

2 Q. I think you mentioned stomach contents. Did ---

3 A. Mention?

4 Q. And I don't want to mischaracterize it, but I
5 think he mentioned something about whether or not the
6 State should have done certain tests on the stomach
7 contents?

8 A. Right. That was one thing that Dr. Karch did
9 point out from Dr. Wren's report, is there was no
10 analysis of the stomach contents. And when you have a
11 case involving how did the child get the drugs, if you
12 had remnants of a pill in the stomach, then that could
13 tell you, you know, it got there another way.

14 Q. There was some testing that could have been done
15 on the contents of the stomach that ---

16 A. Dr. Karch believed there was some testing that
17 could have been done that was not done that would have
18 helped prove or disprove the case. I'm not gonna tell
19 you that he -- his opinion was testing the stomach
20 contents would 100 percent exonerate Stephanie Greene,
21 but it certainly would have answered some questions that
22 would have helped him understood [sic] the cause of
23 death.

24 Q. Did you elicit some testimony about his views on
25 that at trial?

1 A. Yes. Uh-huh.

2 MR. SPENCER: Beg the Court's indulgence. I'm
3 gonna retrieve something. Well, that was an
4 afterthought. I'm gonna go ahead and just continue on.
5 BY MR. SPENCER:

6 Q. But did the autopsy report, to your recollection,
7 say anything about there being pill remanents in the
8 stomach?

9 A. The what?

10 Q. Being pill remanent's in the stomach.

11 A. No. The stomach contents were never analyzed, so
12 the autopsy report's not gonna say whether it was or
13 wasn't there. That was the point. If you don't analyze
14 it, you can't say whether it is or is not there.

15 MR. SPENCER: Beg the Court's indulgence.

16 BY MR. SPENCER:

17 Q. Now, the amount of morphine that was in the ____
18 was .52 milligrams per litre?

19 A. Correct.

20 Q. And that was the result of SLED testing?

21 A. That was the result -- yes, it was.

22 Q. Did you have Dr. Karch review the SLED testing?

23 A. He did.

24 Q. And was that for the idea of trying to see if you
25 could formulate a challenge to that number?

1 A. He had more expertise in that than I did, and I
2 was interested in his opinion, yes. Uh-huh.

3 Q. And that admittedly was a high level of morphine,
4 right?

5 A. That was, that was in the lethal range, yes.

6 Q. And that would be a number that you would want to
7 attach that you could formalize an attack to it?

8 A. Correct.

9 Q. Did you and Dr. Karch discuss the applicability
10 of the postpartum, postmortem morphine level to
11 determine a premortem level?

12 A. Well, there's, there's a theory that morphine
13 levels will redistribute after death and increase the
14 levels in the blood, yes, that was discussed and that
15 was mentioned in the trial.

16 Q. And so that was another defense you pursued?

17 A. Well, I don't know if we pursued it, as much as
18 we just mentioned that it happened and hope it had some
19 impact. And the problem with that theory was that the
20 brain level and the liver level were also very much in
21 the same range. And redistribution should have been
22 back to the, the blood.

23 Q. Do you recall during Dr. Karch's testimony, him
24 talking about whether you should use a postmortem blood
25 level of a drug to say that ---

1 A. I don't recall right off hand, but I'm positive
2 that the testimony was that if you have redistribution
3 of a drug after death, then blood is not a good source
4 for determination of the level of any drug at the time
5 of the death. And from talking to Dr. Karch, he's --
6 that is particularly true with marijuana.

7 MR. SPENCER: Beg the court's indulgence. I
8 apologize, Your Honor. I'm looking at the wrong witness
9 outline.

10 BY MR. SPENCER:

11 Q. All right. This is a little off topic, but if
12 you could turn to 517.

13 A. Okay.

14 Q. And do you recall Dr. Karch saying it would have
15 been better to analyze the milk available when the baby
16 died?

17 A. Yes. Uh-huh.

18 Q. And so that was also something that was put out
19 there as something the State failed to do?

20 A. Right. I mean, I think there's some dispute as
21 to whether or not there was breast milk available in the
22 refrigerator, and I can't remember what the final
23 conclusion was. But easily the State could have
24 actually obtained breast milk from Ms. Greene
25 immediately afterwards for testing too.

1 Q. When was the toxicology results?

2 A. I don't remember the date of it. It was, I want
3 to say, a month, six weeks after the death.

4 Q. Okay. So prior to that, they were unaware that
5 there was even morphine in this baby?

6 A. Well, that would be profound. Prior to that they
7 were aware Ms. Greene was taking morphine. But prior to
8 that, you're correct, they weren't aware there was a
9 high level of morphine in the child.

10 Q. And at trial do you recall Dr. -- excuse me. The
11 coroner, Ellen Holmes, testifying that they were told
12 there was only formula in the refrigerator and not
13 breast milk?

14 A. I can't recall exactly. I can only tell you, you
15 know, what the transcript says. It says, I just tell
16 you that there was some confusion between, I think, the
17 incident report and the testimony was exactly what was
18 in the refrigerator.

19 Q. Okay. Was there any ---

20 MR. KUPPENS: Excuse me, Your Honor. Could I ask
21 Mr. Spencer to give the page and line type for the
22 reference on page 517 that he was asking about?

23 MR. SPENCER: It was -- Your Honor, basically I
24 was looking at 516.

25 THE COURT: 516?

1 MR. SPENCER: Yeah. It starts on 516. It
2 carries over to 517. And I think that might have -- the
3 concept was, you know, I think accurately stated, but
4 they're saying they got breast milk in the Canadian
5 study and that's how they knew it was in it. I think
6 that was an inference more than what was directly said.
7 My notes were a little off from what that testimony was,
8 but that's the essence of it. Thank you, Your Honor.

9 BY MR. SPENCER:

10 Q. Okay. Well, what were some of the strategies in
11 conferring with Dr. Karch that you --

12 A. Well, the ---

13 Q. -- started to pursue?

14 A. The strategy, basic trial strategy, after
15 conferring with Dr. Karch was that the State had a case
16 that they could not prove that's a matter of, to a
17 reasonable degree of medical certainty, that a lethal
18 dose of morphine would pass through breast milk to a
19 child. That's it in a nutshell. Basically, the theory
20 was the State had a case they could not win.

21 Q. Certainly. And in terms of the Canadian study in
22 which what everyone understood at the time, is that
23 there was a genetic defect in the mother and the child
24 in that case. Is that something that you brought out
25 through testimony or argument, that this child had --

1 A. Uh, I ---

2 Q. -- a genetic, the mother and she had a genetic
3 defect?

4 A. We, we tried the standard the State did not test
5 for any genetic defect that, you know, they could have
6 tested for genetic defect that caused the child to for
7 some reason have a strange response to morphine, then
8 that would have been beneficial to the defendant.

9 Q. All right. And why would that have been
10 beneficial to the defendant?

11 A. It would have explained the high number, and it
12 was to prove that through no fault of Stephanie, that
13 the number got that high.

14 Q. And so, the existence, if there were one, in that
15 defect would be something you would use to attack the
16 extreme indifference element?

17 A. If they had done the test, yeah. And it had been
18 favorable to the defendant. The point is to point out
19 what the State did not do to really evaluate this case.

20 Q. Certainly. And you brought out the fact that the
21 State didn't test for the M6G?

22 A. They didn't test what?

23 Q. For the metabolite M6G.

24 A. Right. Right. That was brought out during the
25 course of the trial.

1 Q. And so, I want to go to your impressions at the
2 time --

3 A. Uh-huh.

4 Q. -- because that's what kind of really matters.
5 How did you feel about Dr. Karch as an expert?

6 A. I thought Dr. Karch as an expert was a very good
7 expert. He literally wrote the book. You know, he was
8 not, however, an expert on drugs in infants.

9 Q. He was an expert on -- how do you typify his
10 expertise?

11 A. Excuse me?

12 Q. How would you typify his expertise?

13 A. Probably as good a toxicologist as you can find.

14 Q. And this was a toxicologist case?

15 A. It was -- I thought it was a toxicology case,
16 yes.

17 Q. That was your impression at the time?

18 A. Right. And in a sense it is, but it's a subset
19 of a toxicology case involving small children or child
20 -- infants.

21 Q. And did Dr. Karch suggest any other experts to
22 you guys?

23 A. No, he did not.

24 Q. Did you, in preparing for this case, consider
25 using any other experts?

1 A. Not that I can recall as I sit here, so it wasn't
2 a serious thought.

3 Q. And so fair to say, the reason you utilized Dr.
4 Karch for this trial and not anybody else is you thought
5 he was going to be a good expert for your case?

6 A. I did, yes. Uh-huh.

7 Q. And did he help you formulate any
8 cross-examination questions for Dr. Wren?

9 A. Yeah. He helped me in the sense that he put me
10 on to the articles that say you can't get a lethal dose
11 of morphine through breast milk. And he suggested in
12 cross-examination about didn't analyze the stomach
13 contents. And, you know, basically gave me the
14 confidence to know that I could ask the State's experts,
15 do you have any article that says don't take morphine
16 while breastfeeding and the answer would be no.

17 Q. Okay. Tell me about Dr. Eagerton. How did you
18 feel at the time, you know, how your cross-examination
19 went with Dr. Eagerton?

20 A. Considering the fact that he openly said he
21 didn't know how the morphine got into the child either,
22 I thought it went pretty well.

23 Q. And what about Dr. Wren's testimony?

24 A. I mean, basically the same thing. And I had met
25 with Dr. Wren before trial. He is actually from

1 Greenwood, and I knew him when he was in high school in
2 Greenwood. So I went up and spent considerable time
3 with him. And after leaving that conference, I, I knew
4 Dr. Wren was not gonna get on the stand and say that
5 morphine came through breast milk.

6 Q. And he knew ---

7 A. He was only gonna say it's there, that's all I
8 can say. How it got there, he didn't know. And that's
9 basically what he said in his testimony.

10 Q. So until yesterday -- well, let me backtrack.
11 Let's talk a little bit about you continued to represent
12 Ms. Greene on appeal?

13 A. That's correct.

14 Q. And that obviously is when I became involved in
15 the case also?

16 A. That's correct. Uh-huh.

17 Q. Okay. And how many oral arguments did we do in
18 this one?

19 A. Two.

20 Q. And how, how did -- were we ever in the Court of
21 Appeals?

22 A. No. It went -- the appeal started out in the
23 Court of Appeals and the Supreme Court took it from the
24 Court of Appeals without notice, in a sense. Because
25 all of a sudden we were in the Supreme Court and not the

1 Court of Appeals.

2 Q. And tell me about your analysis of Justice Few's
3 dissent in the opinion that came out.

4 A. Well, obviously, I agree with it. I mean, he
5 said they didn't prove it.

6 Q. Right. And what was one of the reasons he said
7 they didn't prove it?

8 A. Well, one of the reasons they didn't prove it is
9 that you can't prove that a -- there was absolutely no
10 testimony that the lethal dose came through breast milk
11 in the case.

12 Q. Okay. So, of course, you know, you, as you said,
13 you listened to all of the testimony yesterday.

14 A. Uh-huh.

15 Q. And you heard that you -- you heard both
16 witnesses agree that the .52 milligrams per liter of
17 morphine could occur if there was renal failure?

18 A. That's correct. And there's some inherent logic
19 to that.

20 Q. And so in the end, that -- and you recall Justice
21 Few questioning me during those oral arguments?

22 A. Oh, yeah. Yeah.

23 Q. And the question he put to me is, you don't have
24 one witness who can say that --

25 A. Uh-huh.

1 Q. -- a lethal dose of morphine can pass through
2 breast milk?

3 A. Correct. Uh-huh.

4 Q. And, basically, the testimony we heard yesterday
5 is actually it can?

6 A. Yes and no, all right? In normal circumstances
7 there was never any testimony or any article, for that
8 matter, leaving aside the Canadian one case analysis,
9 doesn't have any testimony in normal circumstances a
10 mother breastfeeding while taking morphine will get to a
11 lethal or near lethal dose or toxic dose even. You
12 know, there's no testimony on that.

13 The key difference being under normal
14 circumstances. You take abnormal circumstances,
15 obviously a different story. But when you get out of
16 normal circumstances, you get so much further away from
17 extreme indifference. Because extreme indifference to
18 me has to imply under normal circumstances did this
19 person show extreme indifference toward that child.

20 Q. Certainly. So some of this testimony yesterday
21 might have been useful as to the extreme indifference
22 element?

23 A. Well, it's extremely useful on the cause of
24 death, which according to Dr. Twombly, was renal
25 failure. It is also extremely useful on extreme

1 indifference if it gets to the jury as to the cause of
2 death.

3 Q. So as far as what Justice Few was asking in oral
4 argument, that would have been something I could point
5 to and say, well, absolutely you can get this level of
6 morphine through breast milk?

7 A. Only, and only if there's renal failure, which is
8 not an ordinary circumstance. You, in any -- basically,
9 any woman taking morphine while breastfeeding, under
10 normal circumstances is never gonna give their child a
11 lethal dose of morphine. To me that seems like pretty
12 clear scientific testimony.

13 So when you talk about extreme indifference, it
14 has to be extreme indifference as things normally are.
15 I have trouble getting to extreme indifference when all
16 of a sudden you've got something no one knew about.

17 Q. Such as like a genetic defect?

18 A. Such as?

19 Q. A genetic defect.

20 A. Genetic defect or renal failure.

21 Q. Do you recall Dr. Karch also testifying about the
22 baby potentially could not properly form the enzyme that
23 would breakdown morphine?

24 A. He testified early in the baby's life, you know,
25 a day or two, but he said you -- his testimony was you

1 regain -- you gain ability to break it down pretty
2 quickly. And, and to me, the fact that a baby gains the
3 ability to break it down pretty quickly, is supported by
4 the lack of any literature that says you get toxic
5 levels of morphine from breast milk. So that would be a
6 pretty clear indication to me that if you have any
7 problems on the first day or two of life you don't have
8 it after that.

9 Q. I'm actually talking about, if you could open to
10 page 503 of the transcript.

11 A. Okay. All right. Okay.

12 Q. And I'm talking about lines 6 through 16. And,
13 actually, you can keep on going from line 6 to 19.

14 A. Okay. Okay.

15 Q. And so, that was the testimony I'm talking about
16 when he's saying that child might not have developed a
17 proper enzyme or not have the proper enzyme.

18 A. Uh-huh.

19 Q. And that's something that would not be known to
20 the breastfeeding mother?

21 A. Uh-huh. Correct. Yeah.

22 Q. Okay. And you also brought out, just going down a
23 little bit further to the end of the page.

24 A. I would point out, if I may, there was no
25 testimony that the child did not have that enzyme which

1 caused an elevated reading. That was Dr. Karch
2 explaining that's one thing that could have been tested
3 for and determined whether or not the child would
4 normally breakdown morphine.

5 Q. Uh-huh.

6 A. So it's, in a sense it's proof in the negative in
7 that the State didn't test it so we don't know.

8 Q. And you also brought out the fact that the mother
9 wouldn't know that.

10 A. Right. That's correct.

11 Q. Just like the mother wouldn't know that the child
12 is suffering renal failure?

13 A. That's correct. Uh-huh.

14 Q. In referencing -- actually, if you could open to
15 page 504 of the transcript.

16 A. Okay.

17 Q. And I apologize if I've elicited this testimony
18 already. I don't think I did, but I'm looking at lines
19 14 through 18.

20 A. Okay.

21 Q. And so, would you agree with me what was going on
22 here is Dr. Karch was actually using the Canadian study
23 to say there could be a genetic defect?

24 A. Right. Yes. Trying to point out that if there's
25 a genetic defect that no one tested for, that could

1 cause a problem.

2 Q. And that wouldn't be something the mother would
3 know?

4 A. And that's something mother would not know,
5 that's correct.

6 Q. All right.

7 A. But, again, the problem is, you know, there
8 wasn't a test that said positively there is that defect
9 and the mother would not know about it.

10 Q. And that's why you're using the Canadian study to
11 put that possibility out there?

12 A. Well, yeah. It would put out, you know, the
13 possibility but, you know, it's always better to have
14 positive proof.

15 Q. Sure. But that said, if you were utilizing sort
16 of an adapt creating mechanism?

17 A. Right. Uh-huh.

18 Q. I did want to ask a little bit about Dr.
19 Twombley's testimony.

20 A. Okay.

21 Q. Is it your understanding that basically what Dr.
22 Twombley was testifying to is because the child had cold
23 symptoms, it's possible that she could have had renal
24 failure?

25 A. Because the child had what symptoms?

1 Q. Let me see if I can rephrase it. Because the --
2 because Alexis had some cold symptoms, that the child
3 could --

4 A. I didn't --

5 Q. -- have had renal failure?

6 A. I didn't catch what type of symptoms.

7 Q. Cold symptoms.

8 A. Cold symptoms, yeah. That's correct. Uh-huh.

9 Q. And children get colds all the time, right?

10 A. And which is one reason the mother wouldn't know
11 it, so yes. Uh-huh.

12 Q. And but at the same time most children don't get
13 renal failure from having a cold?

14 A. I would -- that is beyond any knowledge I have,
15 but I would assume that's true because most children get
16 colds and not that many die from renal failure.

17 Q. Because we're talking about in the context of the
18 jury trial, so you're talking about jurors using their
19 common sense.

20 A. Right. Uh-huh.

21 Q. And no matter how we got here, there's no
22 indication that there was anything unusual in the
23 kidney?

24 A. The autopsy report stated that Dr. Wren observed
25 them and they appeared normal, yes.

1 Q. All right. And did Dr. Karch suggest to you that
2 maybe we need to look at that kidney?

3 A. No, he did not.

4 Q. And Dr. Karch understands causes of death, is
5 that fair to say?

6 A. I would assume he does, yes.

7 Q. And, as a matter of fact, that Canadian study
8 references the possibility of renal failure in that
9 case?

10 A. Ooh, I'd have to read it again to make sure. I
11 don't recall it right off hand.

12 Q. That's fine. But you did look at that Canadian
13 study --

14 A. Yes.

15 Q. -- in preparation for trial?

16 A. I was familiar with it, yes.

17 Q. Okay. And Dr. Karch testified actually about
18 that Canadian study some?

19 A. Yes.

20 Q. And despite all that he did not suggest to you to
21 look at the kidney?

22 A. I never recall him saying we needed to get an
23 expert on infants with kidney failure or anything like
24 that.

25 Q. And he had a bit of pathology in his background?

1 A. Yes. Uh-huh.

2 Q. And so, is it fair to say -- and is it fair to
3 say that this expert who wrote the book on toxicology,
4 had this pathology background, you would rely on him to
5 say to at least some extent to figure it out where to go
6 in the course of your investigation?

7 A. I mean, I'm relying on him to some extent, yes.
8 And if he had suggested a lead, I would have definitely
9 pursued it.

10 Q. If that's something that was a viable lead, you
11 would expect it to come from him?

12 A. Yeah.

13 MR. SPENCER: Beg the Court's indulgence.

14 BY MR. SPENCER:

15 Q. Now, concerning the testimony on synergy --

16 A. Uh-huh.

17 Q. -- which number in the toxicology reports was the
18 number that everyone was most concerned with at trial?

19 A. Everybody was most concerned with the morphine
20 level.

21 Q. Okay.

22 A. I mean, I think when Dr. Wren was attempting to
23 talk about synergy finally said, I might as well say
24 morphine death because the number was there.

25 Q. Right. So he was ---

1 A. Right.

2 Q. And, basically, he was essentially saying it was
3 the morphine?

4 A. That's correct. He wasn't -- he wasn't talking
5 about synergy. He was talking about the morphine was
6 lethal.

7 Q. And to your recollection, did any particular
8 witness say that morphine and this particular drug
9 created a synergistic effect?

10 A. They implied that, but did they directly testify
11 to that, no.

12 Q. Do you remember Solicitor Barnette even
13 mentioning synergy in the closing argument?

14 A. Yes.

15 Q. Do you recall he did?

16 A. I was thinking he did. I'd have to look at it
17 again to be sure, but I was thinking he did.

18 Q. Certainly. Certainly. We can let the record ---

19 A. Excuse me?

20 Q. Oh, I'm sorry, I'm mumbling.

21 A. Okay.

22 Q. We can let the record --

23 A. Right.

24 Q. -- kind of clear that up.

25 A. I know I specifically re-read his argument about

1 the Canadian study. And I, I can't remember whether it
2 was testimony or oral argument or closing argument where
3 he went through the one and one equals three and one and
4 one equals five and all that.

5 Q. He definitely does that during the testimony.

6 A. He definitely did in the testimony. And I was
7 thinking he repeated it in closing, but I could be wrong
8 on that.

9 Q. And you mentioned that instruction to the jury.
10 And you asked Judge Cole to charge that the death had to
11 result from morphine coming through breast milk?

12 A. That's correct.

13 Q. And, actually, what he charged was schedule II?

14 A. Which morphine is a schedule II, yes.

15 Q. And was there any other drugs that were schedule
16 II?

17 A. None.

18 Q. So that basically was telling the jury you can
19 only consider morphine cause of death?

20 A. If the jury understood it that way, yes.

21 Q. That's a legal proposition. We presume the jury
22 follow instructions.

23 A. Excuse me? The renal proposition?

24 Q. Oh, I'm mumbling again, excuse me. As a legal
25 proposition --

1 A. Uh-huh.

2 Q. -- we assume that jurors follow instructions?

3 A. We do.

4 MR. SPENCER: Beg the court's indulgence.

5 BY MR. SPENCER:

6 Q. There was another issue I wanted to talk to you
7 about --

8 A. Uh-huh.

9 Q. -- that was presented at trial from Dr. Karch,
10 but was there an issue as to where the blood sample was
11 taken from?

12 A. There was somewhat of an issue. Gosh, I can't
13 recall it right off hand, but with an infant you don't
14 have a lot of choices. That's the first problem. And I
15 think where it was taken from, arguably could have
16 increased the amount. The problem with making a big
17 deal of it is that, again, the liver and the brain were
18 in the same range.

19 Q. But actually the issue was whether the blood
20 should be taken from the exterior, such as the toe or
21 the foot, a leg or something --

22 A. Right. Yeah.

23 Q. -- like that, versus taking it from the chest
24 cavity and --

25 A. Right. But ---

1 Q. -- and even the heart?

2 A. But, again, I think everybody kind of agreed with
3 an infant, where you get blood from is extremely
4 difficult.

5 Q. And I just wanted to turn to 501.

6 A. Uh-huh. Okay.

7 Q. And, actually, this go to synergistic effects.
8 And if you could actually read the testimony from Dr.
9 Karch, line 13 from 501, over to -- well, actually, just
10 go ahead and read all the way to line 7.

11 A. Okay.

12 Q. All right. There's a couple things in there. So
13 this is -- would you agree with me this is Dr. Karch
14 challenging the utility of talking about, you know,
15 synergistic effects with some of the other drugs?

16 A. Let me get through reading it.

17 Q. Oh, I apologize.

18 A. Okay. Okay. So, I'm ready.

19 Q. Okay. And the first thing was, is this part of
20 your attack on sort of the synergy testimony?

21 A. I'm probably gonna have to get a real running
22 start on it, because I don't see -- quite see that in
23 here.

24 Q. Okay. That, absolutely pleased with the context.

25 A. I think it's somewhat of that attack, yes. Not

1 as specific as I would perhaps like, but that was done
2 elsewhere.

3 Q. Is it fair to say the implication is Dr. Wren
4 wasn't so concerned about the other drugs either?

5 A. Correct. I'll -- I mean, I don't know if Dr.
6 Eagerton was that concerned about the other drugs. And
7 he talked more about it than Dr. Wren.

8 Q. And I think at one point concerning the Clonapam,
9 he's testified he thought it could have a synergistic
10 effect, but he also kind of backed up and said, well, it
11 could be a manifest of that.

12 A. Yeah. I mean, he, he -- you know, again, there
13 was no study ever used by them to back up the claim of
14 synergistic effect. So they were hypothesizing at best.

15 Q. And a lot of time they were saying it could
16 rather than it did?

17 A. Correct. I don't know if -- I don't know if they
18 ever say "did", to be frank with you.

19 Q. And, actually, still on 501, which is what I
20 originally meant to start with ---

21 A. Uh-huh.

22 Q. Actually, we can start with -- it's probably best
23 if you start right up towards the top of 500.

24 A. 501?

25 Q. And actually, go back a page to 500.

1 A. Okay.

2 Q. And, you know, please take your time and let me
3 know when you're ready. Read 500 over to the next page.

4 A. Okay. He's talking about a concentration of
5 drugs in the heart, and that's why generally the heart
6 is a bad place to get a blood sample from.

7 Q. And that's another attack on the State's
8 evidence?

9 A. Right. Right.

10 MR. SPENCER: Give me a moment, Your Honor. Beg
11 the Court's indulgence.

12 THE COURT: Uh-huh.

13 BY MR. SPENCER:

14 Q. Let me start while I get to the part of my notes.
15 Do you object to every single leading question?

16 A. I will not sit here and tell you I object to
17 every leading question, because a lot of leading
18 questions are asked about very, very routine matters.
19 And so, no. But once it gets beyond routine, I should,
20 yes, as should any lawyer.

21 Q. That's generally what your strategy is?

22 A. My general strategy is to object to leading
23 questions when they get beyond, you know, basic
24 information that is not harmful to the case at all.

25 Q. And kind of sitting here, is it fair to say you

1 probably want to remember, necessarily remember why you
2 didn't object to one leading question versus another?

3 A. I'd have to look at the questions, but the ones I
4 have specifically looked at and commented upon are the
5 ones that begin when Barry began the question with
6 "obviously". Those I have very specifically looked at.

7 Q. Okay. I wanted you to, if you could, turn to
8 page 265.

9 A. All right.

10 COURT REPORTER: I'm sorry, 265?

11 MR. SPENCER: 265.

12 THE WITNESS: Okay.

13 BY MR. SPENCER:

14 Q. And I wanted to, you know, first of all, at the
15 very top of the page, and maybe you need to go look at
16 264 for context, but...

17 A. Okay.

18 Q. This is you were making objections to testimony,
19 is that fair to say?

20 A. Correct. On 265, that's correct.

21 Q. And you were actually objecting because she was
22 testifying beyond the scope of her expertise?

23 A. Correct.

24 Q. And going down to that bottom 265, you were able
25 to sustain an objection based on her -- based on

1 testimony that was calculated to restate Dr. Wren's
2 conclusions? Is that a fair reading.

3 A. End of 265?

4 Q. Yeah. 265, probably needed to start with.

5 A. Right. Right. And she started saying, we were
6 told. And that's when I objected, which would be as
7 much of -- yeah, she's basing her conclusion on what
8 someone else told her.

9 Q. And as soon as you make objections where, you
10 know, obviously we do this in the moment. You make
11 objections when you feel something is not right?

12 A. That's correct.

13 Q. And, you know ---

14 A. Well, I try to make objections when things are
15 not right.

16 Q. And let me put it this way, how long have you
17 been practicing law?

18 A. Since 1969.

19 Q. Okay. So you've had a lot of opportunity to
20 decide when you're gonna object and not object to
21 leading questions?

22 A. That's correct.

23 MR. SPENCER: Beg the Court's indulgence.

24 BY MR. SPENCER:

25 Q. I want to ask you about Scialli.

1 A. Okay.

2 Q. Have you ever -- excuse me. Had you ever heard
3 of Dr. Scialli before?

4 A. I had not.

5 Q. Okay. Was there any reason outside of this
6 proceeding that you can think of that was likely to come
7 across Dr. Scialli?

8 A. I couldn't -- I could have run across him in
9 looking for experts in other cases but, you know, the
10 name never came up.

11 Q. And I want to talk about Dr. Twombly's testimony
12 yesterday.

13 A. Uh-huh.

14 Q. And she deposited the possibility that renal
15 failure alone could cause the death.

16 A. I believe her testimony was if renal failure did
17 cause the death.

18 Q. Did you hear testimony where she agreed with me
19 that morphine could have caused the death also?

20 A. Right. But then I think her final conclusion was
21 the most probable cause was renal failure.

22 Q. And that was without looking at any pathology,
23 you know, of any analysis of the kidney?

24 A. Yeah. I mean, it was based upon the inherent
25 logic, I think, of you have an impossible level of

1 morphine in a child, and the only way morphine gets out
2 of an infant is through the kidneys. And if you have a
3 buildup to that high, the only explanation is renal
4 failure. It's an analysis elimination, granted. But
5 still, it's a -- it has to be some very inherent logic
6 to it that, you know, you don't build up morphine
7 because you get a cold, and you don't fill up morphine
8 because you have a stomach problem or diarrhea, you
9 build up morphine when your kidneys stop working. And
10 there's not a way to build up morphine in someone whose
11 kidneys are working properly other than just massive
12 doses being given, I don't know what it is.

13 Q. But at the end of the day she can't say it wasn't
14 morphine?

15 A. That's correct, but the burden on the State is to
16 prove what it is, not what it wasn't.

17 Q. And, certainly, this is a case where we've got a
18 lot of expert testimony. I'm talking about the trial.

19 A. Uh-huh.

20 Q. This is a case where we have a lot of expert
21 testimony coming from both sides.

22 A. Yes, absolutely.

23 Q. And, ultimately, it's going to be a question for
24 the jury whether or not morphine caused the death or
25 renal failure caused the death.

1 A. No. If this case is tried -- if this case were
2 tried with the testimony that we heard yesterday and the
3 exact same testimony from the State's witnesses, with
4 the only explanation -- with the explanation of the
5 defense to prove credible witness, being the child died
6 of renal failure, and the State offering no testimony
7 the child did not die of renal failure, only that could
8 have -- the child could have died from morphine, I don't
9 see how that case gets to the jury for the jury to
10 decide.

11 Q. And that would be argument in directed verdict
12 setting.

13 A. Correct.

14 Q. All right.

15 A. Because if the burden is on the State to prove
16 the cause of death, and the defense offers credible
17 testimony. And let's exaggerate a little bit, because
18 sometimes that illustrates things better.

19 If we had 10 Dr. Twombleys' testifying the cause
20 of death was renal failure and the State had no witness
21 saying that the cause of death was not renal failure, I
22 don't see how that case gets to the jury, because the
23 State has not disproven what they need to disprove.
24 That is, renal failure caused the death of the child.

25 Q. And as I mentioned, you and I basically battle

1 over the directed verdict issues during the direct
2 appeal?

3 A. We battled over the directed verdict issue and
4 circumstantial evidence in more than one case, yes.

5 Q. Greene being one of them?

6 A. Right.

7 Q. Another one we've got pending.

8 A. Right. But it's, you know, if a toxicologist or
9 a pathologist is gonna say, as I think they do, they
10 have in cases I've had, then you can't say drugs caused
11 the death until you eliminate every other cause. Then
12 if the defense raises a very credible, not a fanciful,
13 but very credible defense of it was renal failure, then
14 that case, I have trouble seeing how that case gets to
15 the jury until the State offers some credible evidence
16 that renal failure did not cause the death.

17 Q. When, you know, in this scenario where, where
18 this case survives directed verdict, we would be
19 battling yet again --

20 A. Uh-huh.

21 Q. -- on the directed verdict issue.

22 A. Yeah, right. You know, and it happens. What I'm
23 getting ready to say happens. I understand that. I
24 don't know if it's good for the law or bad for the law,
25 but it just seems to me, via this case, via the civil

1 case, or any other criminal cases, asking a jury to
2 decide between very credible scientific people, I think,
3 is in a sense asking too much of the jury, but we do it.
4 We do it.

5 Q. Let me ask you this, that .52 milligram per litre
6 number has always been a concern with you, right?

7 A. Yes.

8 Q. Post trial, what have you done to see if you
9 could figure out --

10 A. I actually ---

11 Q. -- the difficulties with that?

12 A. I actually had two chemistry friends look at the
13 materials supplied with discovery to see if they could
14 find any irregularities in the report and neither one
15 could see anything irregularly. It's a number we could
16 not explain and that was one of the difficulties.

17 Q. Is it fair to say your concern in this case
18 didn't end with a verdict and didn't end with an appeal?

19 A. The verdict in this case will never end.

20 MR. SPENCER: Beg the Court's indulgence. Judge,
21 would it be appropriate for me to just ask for maybe
22 about a five-minute break, just to kind of ---

23 THE COURT: Well, if we're gonna take a break,
24 we'll take a break for lunch.

25 MR. SPENCER: Oh, okay. Very good, thank you,

1 Your Honor.

2 THE COURT: But how much more do you have?

3 MR. SPENCER: It's hard to say. It's kind of
4 where I was trying to just recalibrate.

5 THE COURT: We've been doing this witness since
6 10:26 and it's now, according to the clock on the wall,
7 12:06. You don't have any idea as to how much longer
8 you're gonna need?

9 MR. SPENCER: My guesstimate is probably not
10 accurate. Maybe a half hour.

11 THE COURT: All right. Lawyers approach.

12 (Bench conference was held off the record.)

13 MR. SPENCER: Thank you, Your Honor.

14 THE COURT: All right. We're gonna take a lunch
15 break. Sir, I need to remind you, you're in the process
16 of giving testimony, so don't have any discussions with
17 anyone about the substance of your testimony. But you
18 may step down. We will get back together, according to
19 the clock on the wall, let's say -- do y'all need to
20 take her to the detention center?

21 THE DEPUTY: Yes, sir.

22 THE COURT: Is 1:30 enough?

23 THE DEPUTY: (Nods head up and down.)

24 THE COURT: Okay. We'll get back together at
25 1:30.

1 MR. KUPPENS: Thank you.

2 THE COURT: Thank you very much.

3 MR. SPENCER: Thank you, Your Honor.

4 (Lunch recess was had from 12:08 - 1:32 p.m.)

5 THE COURT: Mr. Wise, do you want to come back up
6 here?

7 (Witness resumes witness stand.)

8 Is the State ready to proceed?

9 MR. SPENCER: Yes, Your Honor.

10 THE COURT: Yes, sir.

11 BY MR. SPENCER:

12 Q. Mr. Wise, first of all, I apologize for you
13 having to have lunch all alone.

14 A. Thank you.

15 Q. Second of all, would you open up the transcript
16 to page 501, please?

17 Q. Okay. And I apologize because this is the point
18 I was supposed to get at --

19 A. Uh-huh.

20 Q. -- with one of my last questions, earlier
21 questions. But if you could look again, and I guess it
22 would be line 16 on page 501 over to line 7 on page 502.

23 A. Okay.

24 Q. And, again, please let me know when you're ready.

25 A. Okay.

1 Q. And so is that a fair statement of what's going
2 on as you're trying to -- Dr. Karch is giving you some
3 testimony to attack full faith in that .52 number?

4 A. To attack what now?

5 Q. Attack the morphine level, the postpartum --
6 postmortem morphine?

7 A. Let me reread it then. I don't think it says
8 that. I think he's more talking about listing a lot of
9 other drugs in the report, really doesn't make much
10 sense.

11 Q. I'm focusing particularly on lines 4 through 7.

12 A. Line what?

13 Q. Lines 4 through 7.

14 A. On page 501?

15 Q. 502, I'm sorry.

16 A. 502, okay.

17 Q. And actually lines 1 through 7.

18 A. And that's correct. I mean, in the sense that,
19 you know, there could be some discrepancy between the
20 reading of living human beings and reading in a deceased
21 human being, yes.

22 Q. And that was just another way to attack that --

23 A. Uh-huh.

24 Q. -- morphine level number?

25 A. Uh-huh. Right.

1 Q. And then if you turn to pages or page 373?

2 A. 373?

3 Q. Yes, please.

4 A. Okay.

5 Q. Okay. And, you know, certainly read more if you
6 need the context, but I'm kind of focusing on line 21.

7 A. Okay.

8 Q. Carrying over to line 17 on 374.

9 A. Okay. Okay. All right.

10 Q. And so, basically, this is your cross-examination
11 of Dr. Eagerton.

12 A. Uh-huh.

13 Q. And he's agreeing with your math, basically.

14 A. Right. Uh-huh.

15 Q. The number in that study, you know, we have a
16 number 125 times higher than this study --

17 A. That's correct. Uh-huh.

18 Q. -- in this case? Okay. And that was, again,
19 part of your strategy, attack these sort of
20 implausibilities you sought with enough morphine coming
21 through breast milk?

22 A. Correct.

23 Q. Okay. Sorry, I keep you going to things. Can
24 you open to page 366? And I'm gonna ask you a bit about
25 the Canadian study, is what I'm focusing on.

1 A. About what?

2 Q. 366, and that question is gonna concern your
3 cross-examination concerning the --

4 A. Okay.

5 Q. -- Canadian study.

6 A. All right.

7 Q. Actually line 18 on 366.

8 A. All right.

9 Q. To line 11.

10 A. Line?

11 Q. Line 11 on the next page.

12 A. Okay. Okay.

13 Q. And, of course, you know, it appears to me just
14 in this context Dr. Eagerton hasn't even talked about
15 the Canadian study during direct.

16 A. Uh-huh.

17 Q. But on cross you're bringing it up to emphasize
18 the fact that there was an unknown genetic defect.

19 A. Right. That's correct.

20 Q. And so, again, this is something you're using as
21 an attack in the State's evidence?

22 A. Correct. Uh-huh.

23 Q. And 371, if you could please turn to 371.

24 A. All right. Okay.

25 Q. Okay. And this, you know, maybe if you could

1 read lines 3 through 21.

2 A. Lines 3 through 21?

3 Q. Right.

4 A. Okay. I'm very familiar with that part.

5 Q. Right.

6 A. Because it's one I specifically reviewed for
7 this.

8 Q. And he starts to talk about -- is it fair to say
9 he starts to talk about the Canadian article? You end
10 up emphasizing that there's no peer review article
11 talking about MS Contin creating a toxic level of
12 morphine.

13 A. Correct.. I mean, that was after a break. I
14 believe I'm correct. Yeah, that was after a break where
15 he was gonna find an article that he claimed supported
16 his position that you can transfer a significant amount
17 of morphine through breast milk.

18 Q. And did he ever find that article?

19 A. He admitted that it did not exist.

20 Q. And so that was a pretty good point for the
21 defense?

22 A. I thought it was, yes. Uh-huh.

23 Q. And if you could turn to 455.

24 A. Okay.

25 Q. And this is Dr. Wren. And, again, you're

1 bringing up the Canadian case, correct?

2 A. I'm bringing it up here. I'd have to go back and
3 look at Dr. Wren's direct testimony to remember whether
4 or not it's in response to something he mentioned. But,
5 yes, that's correct.

6 Q. And, again, you're emphasizing the fact that in
7 Canada they ordered a genetic test?

8 A. Right.

9 Q. And in this case they didn't?

10 A. Correct.

11 Q. And, actually, you can go back to the previous
12 page, 454.

13 A. Okay.

14 Q. And I am looking at your question on line 3, the
15 answer on line 8. And, actually, you can keep going on
16 down to line 19.

17 A. Okay. All right. That deals again with the
18 enzyme that if you have a lack of it, it won't clear out
19 morphine.

20 Q. Right. And so that's another thing your --

21 A. Right.

22 Q. Dr. Wren is agreeing with you, we didn't order
23 that test.

24 A. Correct.

25 Q. And he's saying it's too expensive.

1 A. That's correct.

2 Q. And do you recall during closing argument making
3 the point that just because a test is too expensive,
4 doesn't relieve the State of its burden?

5 A. Right. Uh-huh.

6 Q. And I want to just kind of briefly talk about the
7 challenges to extreme indifference element.

8 A. Okay.

9 Q. And in this case, was there a statement from Ms.
10 Greene to law enforcement that she did some internet
11 research?

12 A. Yes, there was.

13 Q. And how did you use that to your advantage?

14 A. Well, she did not testify. The State let that in
15 or got that in. I think let it in is probably more
16 accurate than got it in. And the point was anybody who
17 does any basic research on the internet is gonna come to
18 the conclusion that taking morphine while breastfeeding
19 the child is safe, because that's what you would find on
20 the internet.

21 Q. Right. And so that was an argument you had?

22 A. That was an argument that there was no extreme
23 indifference because she had done research to make sure
24 it was safe.

25 Q. And did you discuss, you know, bring out evidence

1 that Ms. Greene, in fact, needed some -- needed these
2 medications for legitimate medical purposes?

3 A. Yes, we did. She had been on morphine. Actually
4 was on a fentanyl patch for a while, which is actually
5 stronger. It wasn't working as well, because it fell
6 off and then she went to morphine. But she was involved
7 in a very, very serious automobile wreck several years
8 before this arose, that resulted in the prescription for
9 morphine.

10 Q. And I want to talk to you about one of your
11 pretrial motions.

12 A. Uh-huh.

13 Q. Was the State attempting to join the 30-day
14 subscription by fraud charges --

15 A. Yes, they were.

16 Q. -- as well?

17 A. Yes, they were.

18 Q. Okay. And did they get to do that?

19 A. They did not.

20 Q. And that was based on your motion?

21 A. That's correct.

22 Q. And I want to turn to the issue of the appeal.

23 A. Okay.

24 Q. And do you recall what issues you raised?

25 A. Well, I raised the sufficiency of the evidence.

1 And, generally, I think I raised the sufficiency of the
2 evidence specifically as to extreme indifference. We
3 raised some double jeopardy issues in the order of our
4 closing arguments. Uh-huh.

5 Q. Okay. As far as the double jeopardy -- well, let
6 me go back a little bit.

7 A. Uh-huh.

8 Q. How do you decide to -- which kind of issues
9 you're gonna raise on appeal?

10 A. Well, the ones that I have some feeling that have
11 real merit. Not every issue does, but the ones I raised
12 in this case I thought had real merit.

13 Q. All right. And, actually, going to the order of
14 closing arguments --

15 A. Uh-huh.

16 Q. -- was there a time where actually that was the
17 established case law?

18 A. At one time it was established case law that the
19 defense, if they put up evidence, defense goes first and
20 then no opening by the State, and then the defense gets
21 to reply. Excuse me, the State does its entire argument
22 in reply, which is inherently, I think, and have thought
23 so for years, inherently unfair to a defendant because
24 the State gets to respond to the best argument of the
25 defense, but the defense doesn't get to respond to the

1 best argument of the State. Uh-huh.

2 Q. And what, because the moment is escaping me, that
3 was the *Beatty* case?

4 A. That was the *Beatty* case. It altered ---

5 Q. Was that your case?

6 A. Excuse me?

7 Q. Was that your case?

8 A. That was my case, yes.

9 Q. Okay. So, I mean, actually that was an issue for
10 a time had some success with it?

11 A. Some degree. I think today I know of no judges
12 that do not require the State to open fully on the law
13 and the facts.

14 Q. And concerning the double jeopardy issue --

15 A. Uh-huh.

16 Q. -- what was the result of that?

17 A. Well, the result of that was that that was --
18 the court reversed the conviction of involuntary
19 manslaughter and affirmed the other two. They said you
20 can't have two convictions for one death. Now, how the
21 court decided which one had the distinction of being the
22 one upheld, we don't know, but they upheld the homicide
23 by child abuse and overturned the involuntary
24 manslaughter.

25 Q. And so that was basically new law that came out

1 of that case?

2 A. It -- well, I don't know if it was that -- well,
3 in a sense it was. It did, at least in part, overturn
4 an older case called State versus Easler, which should
5 have been.

6 MR. SPENCER: Beg the Court's indulgence.

7 BY MR. SPENCER:

8 Q. I also wanted to ask you, and this goes back to
9 some -- were you involved in a case called State versus
10 McKnight?

11 A. Yes, I was.

12 Q. Okay.

13 A. I was ---

14 Q. As an appellate lawyer?

15 A. Yes. I was not the primary lawyer on that case.
16 I was local counsel for a couple of lawyers from the
17 Washington D.C. area.

18 Q. Oh, okay. So, were you involved in the briefing
19 in that case?

20 A. Yes. I mean, to me the most accurate way is I
21 was involved in reading the brief they wrote.

22 Q. And did -- was part of that what -- if you could
23 give maybe a quick summation of what that case was
24 about.

25 A. That was a case ---

1 MR. KUPPENS: Your Honor, I would just object.
2 It seems like this is not relevant to the issues here.

3 THE COURT: All right. Do you want to lay a
4 foundation to get into it, other than just exploring his
5 legal history?

6 MR. SPENCER: Certainly. It is for ---

7 THE COURT: Because this is a PCR.

8 MR. SPENCER: Certainly. I understand.

9 THE COURT: Okay.

10 MR. SPENCER: But one of the allegations, Your
11 Honor, just to explain, is ineffective assistance of
12 appellate counsel, and this is also going to pertain to
13 actually another allegation.

14 THE COURT: Which one is that?

15 MR. SPENCER: And that is they have an allegation
16 in here that Mr. Wise should have challenged the statute
17 as unconstitutionally vague, by child abuse statute.
18 And so that's where I'm going with it.

19 THE COURT: Which is State versus McKnight?

20 MR. SPENCER: State versus McKnight. I do have a
21 cite for you here, Your Honor, if you care to take it.

22 THE COURT: Yes, sir.

23 MR. SPENCER: 352 S.C. 635, and 576 SE 2d 168.
24 It's a Supreme Court case from 2003 of our Supreme
25 Court.

1 THE COURT: All right.

2 BY MR. SPENCER:

3 Q. And what I was gonna ask you about -- well, first
4 of all, I just want to give a quick summation of what
5 the case was about, just so we kind of have context.

6 A. It was a homicide by child abuse case involving a
7 woman who allegedly took a lethal amount of cocaine or
8 crack cocaine. I can't remember which right now, and
9 basically killed the child she was carrying. It was an
10 extension of the *Whitner* case from decades earlier.

11 Q. And do you recall there was a challenge to
12 whether or not the homicide by child abuse --

13 A. Yes.

14 Q. -- was unconstitutionally vague?

15 A. That's correct.

16 Q. Was that successful?

17 A. Excuse me?

18 Q. Was that successful?

19 A. It was not successful.

20 Q. I wouldn't expect you to remember this, but would
21 you agree with me that that was discussed in footnote
22 six of that opinion?

23 A. Footnote six of what?

24 Q. The challenge to the statute as
25 unconstitutionally vague was addressed by the Supreme

1 Court in footnote six?

2 A. Of which opinion?

3 Q. State versus McKnight.

4 A. I haven't even looked at it. I'll take your word
5 for it.

6 Q. Certainly.

7 A. I recall it being addressed. Whether it was a
8 footnote or substance, I don't know.

9 Q. Thank you. Appreciate it.

10 Beg the Court's indulgence. Your Honor, I have
11 no further questions.

12 THE COURT: All right. Any redirect?

13 MR. KUPPENS: May it please the Court, Your
14 Honor?

15 THE COURT: Yes, sir.

16 REDIRECT EXAMINATION

17 BY MR. KUPPENS:

18 Q. Mr. Wise, just a few questions. First of all,
19 I'm gonna ask you to refer to the trial transcript. And
20 I just want to point out just a few things that are
21 mentioned in the transcript.

22 A. All right.

23 Q. Let's see here. First, if you look at the
24 testimony of Dr. Bell, Wendy Bell on direct examination
25 by Solicitor Barnette. So first, if you would, look at

1 page 258.

2 A. Okay.

3 Q. And just kind of a couple, just to set up a
4 couple of things that I want to ask you, but can you
5 agree with me that on 258 they're talking about, asking
6 her about drugs that were found in Lexi's body,
7 Acetaminophen on line three?

8 A. That's correct.

9 Q. Chlorpheniramine on line 13.

10 A. Uh-huh.

11 Q. Methorphan on line 16.

12 A. Right.

13 Q. Clonazepam on line ---

14 A. There's a litany of them that showed up.

15 Q. Right. And Clonazepam on 259 at line 15?

16 A. Uh-huh.

17 Q. Okay. Now, turn to page 262, please.

18 A. Okay. And just tell me if I'm reading this
19 correctly. On line 11 Solicitor Barnette says:

20 QUESTION: I know, but obviously these drugs,
21 they can pass through breast milk?

22 ANSWER: They can.

23 A. Right.

24 Q. And no objection was made; is that correct, sir?

25 A. Right.

1 Q. All right. Then, if you would, turn to page 444.

2 A. Okay. Tell me if I'm reading this correctly. I
3 direct your attention to line 2. This is Solicitor
4 Barnette examining Dr. Wren, right?

5 A. Correct. Uh-huh.

6 Q. QUESTION: But obviously this child died
7 from, well, actually morphine, plus the
8 other drugs and synergistic effect
9 from them?

10 A. Uh-huh.

11 Q. ANSWER: That's my opinion, yes.

12 A. Right. Uh-huh.

13 Q. Did I read that correctly?

14 A. Yes.

15 Q. All right. And then, finally, on page 504.

16 A. All right.

17 Q. And this is your examination of Dr. Karch.

18 A. Uh-huh.

19 Q. Line 19:

20 QUESTION: Could the baby had ever gotten
21 a morphine level that high from breast milk?

22 ANSWER: Yes.

23 A. Uh-huh.

24 Q. Did I read that correctly?

25 A. Yes.

1 Q. Okay. Now, I want to ask you a few questions
2 about Dr. Karch.

3 A. Uh-huh.

4 Q. Is -- Dr. Karch is not a pediatric nephrologist?

5 A. No, he's not. Uh-huh.

6 Q. He's not an expert in kidney failure in infants?

7 A. No, he is not.

8 Q. Okay. In any event, he never raised during his
9 testimony the possibility that renal failure was the
10 cause of death?

11 A. No, he did not, nor was that raised in our
12 pretrial discussions.

13 Q. And not raised by the defense at trial at all,
14 right?

15 A. Correct.

16 Q. All right. Now, Dr. Karch did testify that an
17 issue was a possible factor was a genetic defect?

18 A. Correct. Uh-huh.

19 Q. He said it was a possibility?

20 A. Right.

21 Q. He said it was something that could have been
22 looked into but was not.

23 A. That's correct.

24 Q. But he did not offer an opinion to a reasonable
25 degree of medical certainty that a genetic defect was

1 the cause of Lexi's death?

2 A. Yeah. He would not -- without tests, he would
3 not be in a position to say that.

4 Q. All right. In contrast to Dr. Karch --

5 A. Uh-huh. Uh-huh.

6 Q. Dr. Twombly did offer her opinion to a
7 reasonable degree of medical certainty that renal
8 failure was the cause of death.

9 A. That's correct. Uh-huh.

10 Q. She said renal failure caused buildup of morphine
11 or renal failure could have caused buildup of other
12 toxins. Either way, renal failure was the cause of
13 death.

14 A. Correct.

15 Q. Okay. And I think you understand, but I just
16 want to make it clear that there is a difference, based
17 on the testimony of Dr. Scialli and Dr. Twombly --

18 A. Uh-huh.

19 Q. -- between a lethal dose passing through breast
20 milk and a lethal dose building up in the kidneys
21 because of renal failure.

22 A. There's a huge difference, because like, you
23 know, the crime here is not did a person give morphine
24 to the child through breast milk. You know, arguably
25 under the *Whitner* decision they could have made that

1 charge, but that's not the crime. The crime is giving a
2 lethal dose through breast milk. So, yes, there's a
3 huge difference between the two.

4 Q. Thank you, sir.

5 THE COURT: All right. Thank you, sir, you may
6 step down.

7 THE WITNESS: Okay.

8 THE COURT: Applicant gonna have any other
9 witnesses?

10 MR. KUPPENS: Not from the Applicant. The
11 Applicant hereby closes its case.

12 THE COURT: All right. Does the State intend to
13 present any other witnesses?

14 MR. SPENCER: I just, one thing I want to verify
15 on the record. It's my understanding that the Giglio
16 claim, which was a claim of prosecutorial misconduct has
17 been dropped?

18 MR. KUPPENS: Correct. Giglio is not, not in
19 play.

20 MR. SPENCER: All right. Your Honor, the State
21 doesn't have any witnesses to present.

22 THE COURT: All right. Lawyers want to approach
23 a moment?

24 (Bench conference was held off the record.)

25 THE COURT: Yes, sir, I'll will be more than

1 happy to hear from you.

2 MR. WESTBROOK: Thank you, Your Honor. May it
3 please the Court? This is Dan Westbrook on behalf of
4 the Applicant.

5 So, in closing today, I guess what I'd like to
6 point out is the obvious, and something I think you've
7 pointed out a couple times today as well. This is, of
8 course, a PCR hearing. We're not here to retry Ms.
9 Greene's case. We have, in this case, we've brought
10 very specific Sixth Amendment claims of ineffective
11 assistance of counsel, as well as claims of newly
12 discovered evidence. And that's what our purpose has
13 been on, and that's what my purposes is going to be on
14 in this summation.

15 The claims we have brought are based on medical
16 issues that require special expertise to testify about.
17 Now, we've made those claims through the testimonies --
18 through the testimony of two extremely qualified expert
19 witnesses, Dr. Scialli and Dr. Twombly.

20 The State in this hearing has chosen not to call
21 any expert witness. And instead, the State has
22 attempted in vain to rebut the testimony of Dr. Scialli
23 and Dr. Twombly solely through cross-exams --
24 cross-examinations.

25 So, our first witness, Dr. Tony Scialli. Dr.

1 Scialli testified and was qualified as an expert in two
2 fields. One, reproductive and developmental toxicology.
3 And, I guess, three fields. The second obstetrics, and
4 the third gynecology.

5 Dr. Scialli testified. You may recall that we
6 had a, I don't recall whether it was a demonstrative or
7 exhibit, but four key elements of his -- four key
8 opinions that he had, because -- in blue on a white
9 background. He testified that to a reasonable degree of
10 medical certainty, the amount of morphine .52 milligrams
11 per litre found in Lexi's body at the autopsy, could not
12 have been that high, could not have been present due to
13 breastfeeding alone. That was his first major opinion.
14 That opinion was not offered on the defense at the trial
15 of this case.

16 His second major opinion is that .52 milligrams
17 per litre will only be that high, that level of morphine
18 would only be that high in Lexi's body if the excretion
19 of toxins was prohibited in some way, which Dr. Scialli
20 said was, quote, almost certainly by renal failure.
21 That opinion was not offered by the defense at the trial
22 of this case.

23 His third major opinion was that it was
24 inappropriate for the State at trial to rely on the
25 Canadian, what we have been calling the Canadian study,

1 for a couple of reasons at least, because it involved
2 codeine, not morphine. And also because the
3 calculations in it were unreliable.

4 Now, that was not offered at trial either, but
5 that was new evidence, because the Canadian study after
6 trial in the Zipursky study, it was exposed as being
7 those calculations were exposed very methodically as
8 being unreliable in the Zipursky study. And later, one
9 of the two papers upon which the Canadian study was
10 based was, in fact, retracted officially. Newly
11 discovered evidence that the defense could not have
12 presented at trial.

13 And Dr. Scialli's fourth major opinion was that
14 it was inappropriate at trial the State to offer the
15 synergy theory that they did of these. The synergistic
16 cause, as it may have been called at times. And what we
17 would point out about that is that trial counsel made no
18 objections to those references to synergistic effects or
19 synergistic phenomenon, and did not request the
20 State vs. Counsel motion on that. And that was another
21 failure of trial counsel and the trial team by the
22 defense.

23 Now, as far as Dr. Scialli goes, the State's
24 primary criticism of Dr. Scialli at this hearing, most
25 of which went on yesterday, but some today as well, was

1 related to the morphine-six glucuronide issue, which I
2 believe there was testimony that that could convert to
3 pure morphine in the intestine. By misstating Dr.
4 Scialli's opinion, I would refer to the record and, you
5 know, where he testified about this yesterday at great
6 length under a very lengthy cross-examination.

7 But what Dr. Scialli said to -- in
8 cross-examination and answers from Mr. Spencer. And
9 answers from Mr. Spencer in your cross-examination was,
10 well, yeah, but that's also a chance that didn't happen
11 at all. That would have been a no conversion or but
12 even if it was, at most, it would be 5 percent, which is
13 not enough to make a difference.

14 Now, I do want to point out that my partner, who
15 is a smarter lawyer than I am, Mr. Williams, today said
16 -- recalled it was 5 to 10 percent in Dr. Scialli's
17 testimony. I believe what he testified was 5 percent.
18 I don't think there was any 10 percent mentioned. The
19 record speaks for itself on that. So, again, these
20 major opinions by Dr. Scialli were not presented to the
21 jury at trial.

22 Let's go to Dr. Twombly.

23 THE COURT: Let me ask you a question.

24 MR. WESTBROOK: Yes, sir.

25 THE COURT: Did that issue about the conversion

1 of the morphine come up at the trial of the case?

2 MR. WESTBROOK: My memory is and, again, I'll
3 defer to the record. My memory is it did not. And I
4 believe the reason for that is because there was no
5 testing done. The State failed to test a whole number
6 of things in this case. I believe we've heard that.
7 Failed a test, the baby failed to test. The mother
8 failed to test the formula that was found in the
9 refrigerator and failed to test for glucuronides.

10 THE COURT: I was trying to get a hand -- I'm
11 trying to get my arms around a big issue of that.

12 MR. WESTBROOK: Okay.

13 THE COURT: And I want to be sure that I'm
14 viewing the issue that they're taking with that
15 information is just as it applies to this witness, and
16 not as to something that occurred at trial.

17 MR. WESTBROOK: That is my understanding. My
18 learned co-counsel will let me know if I'm off base, but
19 I think they're nodding their heads. I think that's
20 correct, Your Honor.

21 THE COURT: Okay, thank you.

22 MR. WESTBROOK: All right. So let's move on to
23 Dr. Twombly, who testified yesterday. Dr. Twombly, as
24 you'll recall, is the chief of MUSC's pediatric
25 nephrology program. She had fellowship training in

1 pediatric nephrology, and has an extensive background
2 and a lot of experience and training in pediatrics
3 nephrology generally and in renal failure in particular.
4 And she was qualified as an expert in both those areas
5 without objection.

6 Dr. Twombly testified to a reasonable degree of
7 medical certainty, she opined that the cause of death in
8 this case was renal failure. In fact, she said in
9 answer to my question, I recall this specifically and
10 I'm sure the record reflects this, that absent renal
11 failure the baby would not have died.

12 She testified in some detail about the sequence
13 of events that occurred over a three-day period. And
14 I'm just gonna repeat those for you. There was a
15 sickness. The baby had a sickness. There was evidence
16 of that. That resulted in her opinion, in a
17 dehydration, which could have resulted in weight loss,
18 which did result in renal failure, which further
19 resulted -- it's like a series of dominoes.

20 The renal failure resulted in an accumulation or
21 a buildup of morphine to a lethal level, which would not
22 have been a lethal level before the renal failure. The
23 renal failure caused the buildup to the 5.2. And that
24 resulted in the baby's death.

25 She also testified under cross-examination that

1 just one of the small sequences in there from the
2 dehydration, whenever that happened, which would have
3 been after the sickness, to the renal failure, could
4 have taken less than 24 hours. She says, in her
5 experience that happens very quickly.

6 And she further testified that even if there had
7 been no morphine in the baby's body. And she didn't
8 offer an opinion on that. She said, even if there had
9 been no morphine on the baby. And she didn't offer
10 opinions as to whether there was or there wasn't. But
11 she did offer her opinion that even if there was no
12 morphine in the baby's body, the renal failure alone
13 could very well have killed the baby, because the
14 failure to excrete toxins doesn't include just morphine,
15 it includes other things she used. She particularly
16 mentioned potassium.

17 So, again, the cause of death in her opinion was
18 renal failure. The renal failure, she testified, was
19 unforeseeable by either the mother or father of this
20 child. It would have been unforeseeable.

21 Now, at trial of this case, the defense and the
22 defense expert, Dr. Karch, did not mention renal
23 failure, much less offer it as an opinion about the
24 cause of death. And it's important, too, as Mr. Wise
25 testified a few minutes ago, Dr. Karch was not a

1 pediatrician. He was not a pediatric nephrologist. He
2 was not a pediatric anything. He was a toxicologist,
3 but he had no particular specialty with pediatric
4 toxicology or any, apparently any background in renal
5 failure. None that was brought out and everything. And
6 he certainly did not offer the opinions offered by Dr.
7 Twombly or Dr. Scialli.

8 The defense at trial offered no alternate theory
9 of causation. The State, of course, went with the sole
10 theory that the causation was morphine passing through
11 breast milk. That was it. That was their theory.
12 Nothing -- no nuances, no shades, no options, no
13 alternatives.

14 And the defense offered no alternative cause,
15 causation, even though there was a viable cause, theory
16 of causation, a viable one there for the taking. And
17 that was that renal failure caused the baby's death,
18 either through the accumulation, causing the
19 accumulation of morphine to a lethal level or some other
20 toxin. The accumulation of another toxin.

21 THE COURT: Was the expert's testimony, was her
22 -- was her testimony that a toxin was the -- caused the
23 death because of renal failure, or was her testimony
24 that renal failure caused that regardless if there had
25 been an accumulation of toxins?

1 MR. WESTBROOK: Well, I believe that her
2 testimony was that renal failure were to cause an
3 accumulation of some toxin. That toxin might have been
4 morphine, it might have been potassium, it might have
5 been something else. But I think her testimony also, as
6 part of that, was that if the . 2 -- excuse me, .52
7 milligrams per litre, if that was the cause of death,
8 the reason it was that -- the only reason it would have
9 been that high would have been because of the renal
10 failure. So absent the renal failure, neither the
11 morphine nor any other toxin would have built up to a
12 lethal level.

13 THE COURT: Was there testimony that renal
14 failure alone causes death?

15 MR. WESTBROOK: Yes. Well, it -- well, I guess,
16 my understanding of what Dr. Twombly said, and I'm sure
17 that, you know, her testimony on the record would
18 clarify this, it depends on what you mean by renal
19 failure alone. She felt, yes, renal failure can cause
20 death absent morphine, but the way that renal failure
21 causes death is it causes the accumulation of some
22 toxin, morphine, potassium, or some other kind of
23 toxins.

24 So the renal failure, I think the way she views
25 it is that renal failure causes death because absent the

1 renal failure, that toxin, whether it's morphine,
2 potassium, or whatever would not have accumulated to a
3 lethal dose, it would have been excreted.

4 THE COURT: Would I be wrong in saying but for
5 renal failure there would have been no death in this
6 case, as that's the theory of the Applicant?

7 MR. WESTBROOK: That is the Applicant's position,
8 yes, sir.

9 THE COURT: All right. Thank you for that.

10 MR. WESTBROOK: All right. Mr. Wise testified
11 today. He agreed that he should have objected, but
12 failed to object to certain things, to the testimony by
13 Dr. Wren that the morphine, quote, had to get there
14 somehow, which in effect was a shifting of the burden of
15 proof.

16 Mr. Wise testified he should have, but did not
17 object to Dr. Bell testifying when she, herself, said in
18 response to a question, well, that's outside my area of
19 expertise, but, and then proceeded to give an opinion.
20 He also, Mr. Wise also testified that he should have,
21 but failed to object to a number of leading questions
22 that were important. Not, as he put it, not to just
23 sort of routine information, but significant
24 information.

25 Mr. Wise, I believe also conceded that he should

1 have consulted or called as or retained as experts,
2 someone, a pediatric nephrologist such as Dr. Twombly
3 or a reproductive developmental toxicologist and OB/GYN
4 or OB/GYN like Dr. Scialli, but he did not. And he also
5 testified that none of these failures were based on any
6 kind of strategy, he just, he just didn't do it.

7 Now, he also testified, Mr. Wise did today, that
8 he believed, and he explained his reasons for this, that
9 there was a reasonable probability that had he done
10 these things, the outcome of this trial, of the trial of
11 Ms. Greene would have been different. He especially
12 emphasized Dr. Twombly and the Canadian, what we refer
13 to, everybody refers to as the Canadian study.

14 But we would submit, in addition to those,
15 equally as important, is his failure to call a
16 reproductive developmental toxicologist like Dr.
17 Scialli, who could have talked about morphine, the
18 buildup of morphine.

19 Also, we would submit that the cumulative effect
20 of these various failures to object to Dr. Wren, to Dr.
21 Bell, the failure to object to leading questions, the
22 other objections that Mr. Wise talked about that he
23 failed to object to, you know, other kinds of evidence.
24 The cumulative effect of all of that, could also very
25 likely had a reasonable probability of change in the

1 outcome of this trial. But particularly the renal
2 failure issue.

3 THE COURT: In a PCR I'm not aware that South
4 Carolina has adopted a cumulative effect test. Are you
5 arguing for a new test, or are you aware of any
6 precedents that talks about a cumulative effect?

7 MR. WESTBROOK: Your Honor, I'm not aware of a
8 precedent. I know I've argued that myself and haven't
9 been objected to, but maybe that was just slackness on
10 the part of myself and the other lawyer in that case,
11 but I, I don't know of a precedent, I'd have to admit.

12 THE COURT: All right.

13 MR. WESTBROOK: But I will say this, if there is
14 no precedent, I will say that it seems logical that if
15 you make one serious mistake that might affect the
16 outcome of the case. If you make three or four or five
17 of similar mistakes of the same magnitude, the chance of
18 a different outcome would be greater. It just seems
19 logic to me, but I don't know of a precedent.

20 So, in conclusion, Your Honor, trial counsel's
21 failures on his part and at trial, the failures at
22 trial, above all, the failures to call experts to
23 testify about the issues raised by Dr. Scialli and Dr.
24 Twombly was unreasonable, given that there are
25 pediatric, as Dr. Twombly testified, there were

1 multiple pediatric nephrologists available, living and
2 working in South Carolina at the time.

3 Reproductive developmental toxicologists, surely
4 Dr. Scialli is not the only one in the country. Those
5 experts should have been searched for. Dr. Karch, Mr.
6 Wise testified once he found Dr. Karch she really didn't
7 look anywhere else. Dr. Karch didn't advise him to, he
8 said, but so what. That's the lawyer's job is to go out
9 and find experts that can help your client, to help the
10 case. They're out there.

11 And that testimony should have been presented to
12 the jury and it wasn't. That's critical testimony, an
13 alternate cause of death by two -- as you put it this
14 morning, Your Honor, imminently qualified. I think you
15 were just referring to Dr. Scialli. I agree with you on
16 that, but Dr. Twombly is equally qualified. Two great
17 experts who know what they're talking about, who have
18 wonderful training and experience and expertise in this
19 area.

20 So that, Your Honor, is our case. We believe
21 that trial counsel -- and not forgetting the new
22 evidence about the Zipursky study and the, you know,
23 debunking position in the account of the State. But the
24 ineffective assistance of counsel by a good lawyer and a
25 good friend, even good lawyers make mistakes sometime.

1 That was a prejudicial, unreasonable prejudicial, and
2 unfair. Thank you.

3 THE COURT: Yes, sir.

4 MR. SPENCER: Thank you, Your Honor. A starting
5 point always *Strickland*. And, first of all, we need to
6 eliminate the affects of -- the starting affects in
7 hindsight under *Strickland*. And we have to look at what
8 Mr. Wise did and how he prepared for this case.

9 He was very qualified to try this case in a sense
10 that he already had some expertise for toxicology in a
11 criminal defense setting. There's not exactly a whole
12 lot of toxicology cases running through General
13 Sessions. And I don't know about federal court, but
14 that was a fairly unique experience he already had.

15 And, I think, one of the first things he did is
16 see if we could find an expert and what the -- what a
17 great place to go to. He goes to somebody with a center
18 up, you know, didn't know exactly what it was called,
19 and it was basically a group for pregnant women in the
20 law or something to that effect.

21 So he goes and tries to get -- he gets a
22 recommendation for Dr. Karch. He doesn't get a
23 recommendation for a reproductive toxicologist. He
24 doesn't get a recommendation for pediatric nephrologist.
25 He gets a recommendation for Dr. Karch.

1 He goes, he speaks with Dr. Karch. Dr. Karch
2 gives him some advice. He reads bunches of articles on
3 his own. He works with Dr. Karch. Dr. Karch, one of
4 the areas of expertise, one of the experiences he has
5 that is not present with the two witnesses that were
6 presented yesterday was pathology, he would have been an
7 examiner, I believe.

8 For instance, with the San Francisco's examiner'
9 office, I believe he had, his testimony was that during,
10 I think it was roughly ten years, had been involved with
11 every drug related death that came through the office in
12 San Francisco.

13 He has -- Mr. Wise said essentially the bible on
14 drugs and toxicology. And what he testified to here
15 today. And in his closing argument, one of the best
16 line he uses is he wrote the book. And part of that was
17 to say that if we ever heard of anybody who could get
18 that high on morphine level, if that had ever happened
19 anywhere, Dr. Karch would know about it. He wrote the
20 book.

21 So what we have is an attorney pursuing the trial
22 strategy, a reasonable trial strategy under the
23 professional norms. That's the standard that's, you
24 know, it's not mistake free representation. It's not a
25 question of is there a better way to try this case? The

1 question, because *Strickland* says there's multiple ways
2 to try a case. It's more of an art than a science.

3 Is there -- his performance is his choice. And
4 is his investigation reasonable? And I think the clear
5 indication here, considering this kind of case, which is
6 very unique considering the resources he used to find an
7 expert considering his level of preparation, considering
8 the excellent qualifications of Dr. Karch, is we can't
9 say that falls below objector standards of
10 reasonableness.

11 Another case mentioned in my pretrial brief is
12 Harrington versus Richter. And, basically, the
13 conclusion and the rule we get out of that: Trial
14 attorney is not expected to consult every conceivable
15 type of expert possibly applicable to the case -- such a
16 task may turn distractive -- instead, counsel is
17 entitled to formulate a focused strategy cognizant of
18 the reasonable resources and time.

19 And that goes just in step with what *Strickland*
20 is about. There's multiple ways to do it. And, you
21 know, Mr. Wise, I don't think anyone can say that he
22 wasn't putting his all into this case. I don't think
23 anyone can look at that trial record and say he didn't
24 develop some very good strategies and make some very
25 good points along the way and present basically a real

1 challenge to the State's evidence in this case.

2 He did an excellent job, which is what we would
3 expect from Mr. Wise. He's not an unknown entity to
4 this Court. He's not an unknown entity to the Supreme
5 Court. He did it in a very focused -- and made this a
6 very challenging endeavor for the State both at trial
7 and on appeal.

8 THE COURT: What if he made a mistake?

9 MR. SPENCER: If he made a mistake, you've got to
10 decide, does that fall below professional reasonable
11 standards? I would submit, for instance, you know, he
12 didn't object to a leading question. He should have
13 here or there, considering that can be rephrased --

14 THE COURT: I would say ---

15 MR. SPENCER: -- that's just unlikely to fall
16 below the standard.

17 THE COURT: Thank you for that. I mean, I meant
18 what if he --

19 MR. SPENCER: Sorry.

20 THE COURT: -- made a mistake in his approach to
21 the case? It seems like he made the decision to adopt
22 the State's theory, which was the toxic -- was the
23 morphine that killed the child. Not dissimilar to the
24 products liability case that you've already raised to
25 this Court, where there was an assumption made in those

1 experts when they were giving their opinions that there
2 was a defect.

3 So Mr. Wise seems to have approached this case
4 that this case, his assumption was that it was a tox --
5 it was a toxicology case, as opposed to what has been
6 presented for the last day-and-a-half here, is that it
7 was a renal failure case. And I believe his testimony
8 over here was that he didn't explore that and his
9 witness didn't explore that.

10 MR. SPENCER: Well, I think those -- I think
11 there's, you know, there's three parts to that. The
12 very first thing is you cannot have ineffective
13 assistance of an expert witness. I have some federal
14 law on that, you know.

15 You know, basically, we're looking at the trial
16 error and was he unreasonable in relying on Dr. Karch in
17 terms of that approach? We have somebody with a lot of
18 experience in pathology who says, well, let's challenge
19 his stomach contents. That someone with stomach
20 contents could have been tested. And we have somebody
21 that needs to come, you know, undoubtedly familiar with
22 renal failures and potential cause or potentiality.

23 THE COURT: You said Dr. Karch was someone that
24 was familiar with that?

25 MR. SPENCER: Dr. Karch, Judge. He would

1 undoubtedly be familiar with that, just for the sake of
2 his experience with the Examiner's office in San
3 Francisco. He actually mentions ---

4 THE COURT: In absence of being here in this case
5 that says Dr. Karch was -- had that expertise?

6 MR. SPENCER: Right, it is. It's not today, it's
7 in the trial transcript --

8 THE COURT: Okay.

9 MR. SPENCER: -- his level of expertise. It's
10 set out. And that's one of the things that jumps out at
11 me. You know, so you have some and then I think Mr.
12 Wise acknowledged that he has the expertise focused on
13 pathology that would make him capable of telling him
14 where to focus.

15 And he actually utilized Dr. Wren -- excuse me,
16 Dr. Karch to approach Dr. Wren's testimony, to conduct
17 the cross-examination for us to go into this fact that
18 the stomach could have been tested. And that would have
19 told us whether there were metabolites that would tell
20 us whether or not the child might have ingested, I
21 believe, ingested morphine from another source, for
22 instance.

23 I don't think it was an error, actually, to
24 approach it as a toxicology case because the reason is
25 we have a high blood level of morphine. We don't have

1 anything that would have been known to Mr. Wise at the
2 time to indicate renal failure played a part in this.

3 I'm gonna, you know, talk about the weight of Dr.
4 Twombley briefly. Probably would have focused more on
5 the reasonableness of what Mr. Wise did because,
6 frankly, I mean, no matter how good that testimony was
7 yesterday, Mr. Wise's actions were reasonable. That's
8 not ineffective assistance.

9 But, you know, Dr. Twombley gave testimony. She
10 did say renal failure caused the death. Renal failure
11 could be cause of death alone without morphine. But she
12 also agreed with me that morphine could have caused the
13 death. And she also ---

14 THE COURT: I didn't get that. I'm sorry, I did
15 not hear that.

16 MR. SPENCER: I understand.

17 THE COURT: You, you have represented to the
18 witness and you're now making an argument to the Court
19 that I did not hear. I never heard that doctor say
20 that, that the morphine could have been the cause of
21 death. I have heard that doctor's testimony be that
22 morphine could have caused, at best, when viewing it in
23 a light most favorable to the State, is that at best if
24 morphine played a role in causing the death of this
25 child, it was only because the renal failure occurred.

1 MR. SPENCER: I think she agreed with me, though,
2 that morphine could cause the death. And she also --

3 THE COURT: Sir.

4 MR. SPENCER: -- did a ---

5 THE COURT: Sir, I have to respectfully disagree.

6 MR. SPENCER: Okay.

7 THE COURT: She did not say that.

8 MR. SPENCER: You know, and obviously the
9 transcript can ---

10 THE COURT: Yes, sir, it will say that, but I
11 just want to let you know --

12 MR. SPENCER: Right.

13 THE COURT: -- that I heard her entire testimony.
14 I heard a question that you placed to her where it could
15 have been interpreted the way that you're stating it --

16 MR. SPENCER: Okay.

17 THE COURT: -- but I think it is a gross
18 misrepresentation of her testimony for you to argue that
19 point to this Court as a matter of fact, okay?

20 MR. SPENCER: All right. Well, I mean, and if
21 I've got that wrong, I certainly apologize. The last
22 thing in the world I would want to do is misrepresent
23 the testimony. That was my understanding --

24 THE COURT: I would suggest that you then --

25 MR. SPENCER: -- under cross-examination.

1 THE COURT: -- pull the testimony and take a look
2 at it in its entirety, okay?

3 MR. SPENCER: Certainly. Certainly. And ---

4 THE COURT: Because that is an important point in
5 this PCR.

6 MR. SPENCER: I don't disagree, Your Honor.

7 THE COURT: Okay.

8 MR. SPENCER: You know, and I don't know if maybe
9 what we need to, you know, if we need to order the
10 transcript and get that, that would be the best way.

11 THE COURT: You may want to do that --

12 MR. SPENCER: Yeah.

13 THE COURT: -- because I think the only way you
14 come to that conclusion that that was the doctor's
15 testimony is if you order the transcript and you isolate
16 a question, because her overall testimony was very clear
17 to this Court as to the role of renal failure and the
18 morphine in the case. I never heard this doctor testify
19 that morphine could have caused this case -- could have
20 caused the death of this child without renal failure.

21 MR. SPENCER: Certainly. And, you know, that's,
22 you know --

23 THE COURT: It is.

24 MR. SPENCER: -- obviously I'm not pretending to
25 be perfect and have something wrong. So, you know,

1 we'll order the transcript --

2 THE COURT: Okay.

3 MR. SPENCER: -- and that's obviously the best
4 way to reconcile that, Your Honor. And I'm not trying
5 to -- I'm trying to go off the best of my memory. And
6 that's my memory.

7 THE COURT: And I'm looking for help in deciding
8 this case.

9 MR. SPENCER: Absolutely, Your Honor.

10 THE COURT: And I simply do not want you to spend
11 time trying to convince me of the testimony of this
12 doctor that was -- that did not happen in this
13 courtroom.

14 MR. SPENCER: Certainly. I certainly can move on
15 from that, Your Honor.

16 THE COURT: Okay.

17 MR. SPENCER: You know, regardless, I think what
18 she wouldn't -- you know, if I had this wrong, again, I
19 absolutely, positively would never want to misrepresent
20 testimony.

21 THE COURT: Uh-huh.

22 MR. SPENCER: That's just not something I do.
23 But, Your Honor, as far as, you know, morphine playing a
24 role in this case, Your Honor, I think Solicitor
25 Barnette said it best, it applies to some of the defenses

1 that were raised at that trial and it applies here now,
2 is the morphine shouldn't have been there in the first
3 place.

4 There are fantastic amounts of morphine involved
5 in this case. Not just beyond the pills that were
6 missing; therefore, we get the inference that they were
7 consumed from the last prescription that was about 24
8 days before the death, but also during the course of her
9 pregnancy she continued to pick up every month. And ---

10 THE COURT: You're arguing things that were in
11 the trial transcript?

12 MR. SPENCER: Yeah, these are the trial
13 transcript, Your Honor.

14 THE COURT: All right.

15 MR. SPENCER: And, you know, certainly. And I
16 think they're set out pretty well in my pretrial brief,
17 which, you know, the facts are very similar to the facts
18 in the briefs that were used to -- that I used in the
19 Supreme Court. But there's fantastic amounts of
20 morphine that could be involved, that could have been
21 ingested.

22 And, you know, the point is it is there to be
23 consumed. And we have a very high morphine number.
24 Now, I think it was a very interesting point, what Mr.
25 Wise said is you could, you know -- obviously if

1 somebody had morphine in the system, you were high on
2 morphine but, you know, there's a bullet. There's an
3 injury. You know, absent some sort of lack of bleeding
4 or something like that where we know that there was a
5 shooting and we know that's probable cause of death.

6 THE COURT: But doesn't that shift the burden in
7 a criminal case, because that's where we are going to
8 rely upon your evidence? There's a lot of morphine
9 pills over here. There is a dead child over here so,
10 therefore, there must be some -- there must be --
11 therefore, we've met our burden of proof?

12 MR. SPENCER: Well, there is -- and, of course,
13 there's a lot of -- because, you know, this is a big
14 record, that's why it's all set out in a very long
15 statement of facts in my pretrial brief. But, you know,
16 the basics we have is there was a lot of morphine
17 missing, a lot of morphine that could have been
18 consumed.

19 There was a high morphine level in the child.
20 And there was -- and it's, you know, a well established
21 fact I think, especially now, that morphine passes
22 through breast milk. And there's additional testimony
23 that was eliminating other forms of ingestion or no
24 needle marks. And there's no co-remnants found.

25 There's, you know, there's an unlikelihood that,

1 you know, a child could act so -- neonate 46 days old
2 could accidentally swallow a pill. And that goes into it.
3 That's not something that they've been challenging today
4 with their two witnesses.

5 THE COURT: There's a lot of -- but all the
6 testimony in this PCR is that this child suffered from
7 renal failure.

8 MR. SPENCER: That's the testimony. And this ---

9 THE COURT: And the renal failure. But for the
10 renal failure, there would have been no accumulation of
11 toxicity of the morphine in the child.

12 MR. SPENCER: I understand your question, Your
13 Honor, and I do have a case for that. I handed them a
14 copy and I have it here to bring up, which is a good
15 time to bring it up.

16 THE COURT: Did you have a witness to testify to
17 this?

18 MR. SPENCER: As to renal failure?

19 THE COURT: As to what I just said.

20 MR. SPENCER: Let me hand you a case first, and
21 let me ---

22 THE COURT: Did you have a witness to testify to
23 that in this PCR?

24 MR. SPENCER: I'm sorry, if you could repeat the
25 testifying?

1 THE COURT: Did you have a witness to testify
2 that countered the testimony of the two witnesses who I
3 heard in this PCR that the child suffered from renal
4 failure? But for the child suffering from renal
5 failure, it would not have been the accumulation of the
6 toxicity of the morphine in the child?

7 MR. SPENCER: No, Your Honor, I didn't present
8 some witnesses. But the reason that's one of the things
9 in terms of your statement is the case that I handed up
10 to you is State versus McCall. And in State versus
11 McCall, what happened is two men, basically, took an
12 elderly man, who he did have a pre-existing heart
13 condition, and stick him in a trunk and he had a heart
14 attack and he died. And they argued that it wasn't
15 murder, that they didn't intend to do it, and the
16 Supreme Court -- excuse me, the Court of Appeals
17 rejected it.

18 The copy I handed you, somehow I managed to have
19 two different kinds of copies, basically. Mine doesn't
20 have a red flag, yours does, but it's the *Brightman* case
21 is what overruled *McCall* on other grounds. That's just
22 a case that discussed -- that can be *King* charge, that
23 was charged from the '90's and was no longer needed.
24 But that case stands for the simple proposition it's not
25 the only place you're gonna find it, is that we take your

1 victims as we find them.

2 If you're taking a lot of morphine outside of the
3 doctor's control, and this was outside of the child's
4 doctor's knowledge, the doctor who's actually
5 prescribing the morphine did not know that Ms. Greene
6 was pregnant and then later breastfeeding, didn't even
7 know the child died until, until a SLED agent, I
8 believe, showed up.

9 That establishes the crime, basically, because
10 narcotics ---

11 THE COURT: That establishes the crime?

12 MR. SPENCER: Yes. Because for one thing it
13 shows extreme indifference. It's well known that
14 narcotics are dangerous and should not be taken outside
15 of the doctor's care.

16 THE COURT: How is that -- okay. We have dealt
17 here with medical issues that are so complex that I
18 consider it to be outside of this Court's common
19 knowledge as to the interaction of the morphine with a
20 neonate or morphine with a nursing mother or the way
21 morphine passes through breast milk or the reaction of
22 toxins within a child. That is beyond common knowledge
23 of this Court.

24 MR. SPENCER: Absolutely. And that's ---

25 THE COURT: And so, that is why I sort of asked

1 several times, did the State have an expert witness? Is
2 the State presenting an expert witness? Because this,
3 this -- the decisions that this Court, part of what this
4 Court has to shift through is, is testimony that is
5 complex because it's medical in nature.

6 MR. SPENCER: Certainly. Certainly. And, you
7 know, my answer to that would be, of course, first of
8 all the standard of proof. Second of all, even if that
9 establishes prejudice, we still need to go back to the
10 reason --

11 THE COURT: That is true. And those are more ---

12 MR. SPENCER: -- the norms.

13 THE COURT: And those are more appealing
14 arguments in a PCR than to hear arguments where I'm
15 interpreting that the State's trying to argue the
16 criminal case.

17 MR. SPENCER: Well, this is what would happen if
18 you put these two witnesses up in a criminal case.

19 THE COURT: And so far the witnesses that I've
20 heard that you would put up in a criminal case, the only
21 witnesses I have heard are very compelling in favor of
22 the Applicant --

23 MR. SPENCER: I understand.

24 THE COURT: -- because the State has not
25 presented those witnesses as part of a PCR.

1 MR. SPENCER: Your Honor, I -- what I submit is
2 those two witnesses, you know, would we call witnesses
3 to counter that in a General Sessions trial? To me this
4 is a battle of the experts, it's a battle between Dr.
5 Karch and these two experts and reasonable -- whether
6 it's a reasonable decision on Rob's -- excuse me, Mr.
7 Wise's part, whether you've established prejudice
8 because Mr. -- Dr. Karch is going over in principle, at
9 least, a lot of the same things. And what is missing
10 from that trial you're talking about is renal failure.
11 And that's not something that was explored. The
12 question, first of all, was it unreasonable of, excuse
13 me, Mr. Wise to, to not explore that considering what he
14 did do, considering the defense he did present and
15 considered an expert in the case.

16 But the second part is, how does this play out in
17 a trial setting? And, Your Honor, I have more to argue
18 on that. I'm trying to argue some legal principles, but
19 I also would have, you know -- I also -- and then McCall
20 is important to that. McCall is you take your victims
21 as you find them. There's morphine -- we have evidence
22 that morphine's being consumed. We have evidence
23 morphine goes through breast milk.

24 Mr. Wise challenged how much could go through
25 breast milk the same way, in their way, that Dr. Scialli

1 has. You know, but that was challenged. I referred to
2 several parts of the transcript, including where he said
3 would I -- used some study to get one of our expert, I
4 believe it's Dr. Eagerton, to admit that number would be
5 125,000 more times than that number.

6 So he's doing, he's challenging the concept that
7 that level can get that high. If a woman is taking
8 morphine and breastfeeding outside of the doctor's care,
9 outside of the doctor's knowledge, and that results in
10 morphine toxicity whether renal failure is involved in
11 it or not. That is still homicide by child abuse if
12 you ---

13 THE COURT: Not with the evidence that's been
14 presented in this PCR.

15 MR. SPENCER: Your Honor?

16 THE COURT: Because all the evidence that's been
17 presented at this PCR is that renal failure was the
18 cause of that child's death, but for the renal failure
19 occurring there would not have been that level of
20 toxicity in the child.

21 MR. SPENCER: And, Your Honor, just a shorthand,
22 I would refer to, actually it's Solicitor Barnette's
23 argument, that trial, which I think is applicable here
24 is the morphine shouldn't have been here in the first
25 place, which is actually 567 record.

1 Also, if we look at Dr. Twombly's testimony for
2 purposes ---

3 THE COURT: So we disregard -- so your argument
4 to me is that part of this PCR I should disregard the
5 medical testimony because a solicitor has argued that
6 the morphine should not have been there in the first
7 place?

8 MR. SPENCER: Well, I think it still applies to
9 what's contemplated here. The morphine shouldn't have
10 been there in the first place. She should have been
11 taking this outside of the doctor's care.

12 THE COURT: And so, because she did, let's assume
13 that you're arguing facts that can be established at
14 trial.

15 MR. SPENCER: Right.

16 THE COURT: Beyond a reasonable doubt. Then she
17 is then guilty of a crime of, of having killed her
18 child?

19 MR. SPENCER: We established beyond a reasonable
20 doubt at the trial. These additional facts, how would
21 Solicitor Barnette theoretically deal with that? You
22 know, how would a prosecutor deal with it, really? And
23 I think one of the things is, what was the cause of the
24 renal fail? What was her testimony that supports? And
25 this is where I think it falls short, what is her

1 testimony? What is ---

2 THE COURT: You're talking about the expert's
3 testimony?

4 MR. SPENCER: Yeah, I'm sorry, I'm going by an
5 article, but what was Dr. Twombly's testimony in
6 support of the idea that there was renal failure? Well,
7 if this child had cold symptoms two days before the
8 child's death, that's what it comes down to.

9 THE COURT: Well, and I also heard, though, the
10 doctor's testimony was that the symptoms would not --
11 that a parent wouldn't not have foreseen that renal
12 failure would occur from the symptoms.

13 MR. SPENCER: Right. And that would be a
14 question that, you know, Mr. Wise said he would, if he
15 had the opportunity, would use to argue extreme
16 indifference. However, I think what *McCall* stands for
17 is the proposition. And put simply, is the morphine
18 shouldn't have been in there in the first place.

19 THE COURT: *McCall* stands for a proposition, as
20 well is that this gentleman died from a cause that does
21 not require medical testimony. I understand that in
22 *McCall* they offered a medical reason, but the big
23 difference in *McCall* is that the death was established
24 without the use of medical testimony.

25 MR. SPENCER: I think what the medical testimony

1 establishes here is, first of all, I think what it
2 establishes what we couldn't really establish very
3 readily at trial, which is enough morphine can
4 accumulate in the child causing death. And what she
5 testified to is there was renal failure, then there was
6 an accumulation. And what's accumulated? We know
7 morphine was accumulated. Do we know anything else was
8 accumulated?

9 That morphine shouldn't have been there in the
10 first place, so what we have is an intervening event,
11 such as a heart -- you know, an unexpected event,
12 perhaps, like a heart attack, but what we end up with is
13 a death and to support that it was from the morphine, a
14 high level of morphine in the blood, more than a lethal
15 level.

16 THE COURT: Well, I heard -- that's not what I
17 heard the doctor testify to. I heard the doctor testify
18 to the high level of morphine, but that the high level
19 of morphine would not have been there but for the renal
20 failure.

21 MR. SPENCER: Well, I think that doesn't take out
22 the causation element. I think that is, you know, but
23 for the heart attack individual in *McCall* wouldn't have
24 died, I think it's the same thing.

25 THE COURT: I, I disagree.

1 MR. SPENCER: Uh-huh.

2 THE COURT: I'm not seeing that it's the same
3 thing.

4 MR. SPENCER: It's medical but it's still going
5 in --

6 THE COURT: The morphine.

7 MR. SPENCER: -- the same substantive blockers.
8 Sorry.

9 THE COURT: Then we will respectfully disagree,
10 because the approximate cause or the causative effect of
11 a child's death is going to be, based upon the testimony
12 that's been presented here, is renal failure.

13 MR. SPENCER: And, Your Honor, one thing I would
14 point out there is there was no challenge actually.
15 They actually agreed they were not challenging both
16 experts, the actual morphine level that we saw in this
17 case, which was the .52 milligrams per liter. That's
18 kind of getting off of what you were saying, so I don't
19 want to sound ---

20 THE COURT: And I'm not saying -- and the .52 or
21 whether it was .52, .60, .75, or .80, the testimony in
22 this case has been that -- and I did not have any
23 witnesses presented by the State, was that renal failure
24 was the cause -- was the reason why the morphine
25 accumulated in the child.

1 MR. SPENCER: And, you know, and you point ---

2 THE COURT: And but for the renal failure, the
3 morphine would not have been in the child at a lethal
4 level and the child would not have died.

5 MR. SPENCER: Okay. And, Your Honor, obviously,
6 I think I've explained that sufficiently for the record.
7 And, again, I'm gonna turn back to the --

8 THE COURT: Okay. Go ahead.

9 MR. SPENCER: -- professional norms, which even
10 if all that is true --

11 THE COURT: Well, even if it was --

12 MR. SPENCER: -- that doesn't make ---

13 THE COURT: -- I want you to understand the way
14 that I saw --

15 MR. SPENCER: Sure.

16 THE COURT: -- the evidence because the State did
17 not bring in any independent testimony --

18 MR. SPENCER: Right.

19 THE COURT: -- from anybody to counter these
20 witnesses.

21 MR. SPENCER: I did want to -- I understand, Your
22 Honor. I'm not trying -- I understand your viewpoint,
23 and I hope you understand the argument I've been trying
24 to make. But I also would like to point out ---

25 THE COURT: That's why I think, at least from

1 helping you out, from where I stand --

2 MR. SPENCER: Certainly, Your Honor.

3 THE COURT: -- your better arguments are to
4 follow the PCR arguments under *Strickland*. Your better
5 arguments are not to challenge these doctors as to what
6 they testified --

7 MR. SPENCER: No.

8 THE COURT: -- to because you have not given the
9 fact finder any information of which I can judge
10 differently these doctors that have testified.

11 MR. SPENCER: I understand what you're saying,
12 Your Honor. And I respectfully disagree, and because of
13 the burden and because of, you know, basically from what
14 I've mentioned before. I'm not trying to keep on
15 arguing. I'm ready to move on.

16 THE COURT: Well, I sure would like to hear what
17 testimony you've brought into court --

18 MR. SPENCER: Right.

19 THE COURT: -- to counter these expert witness's
20 testimony?

21 MR. SPENCER: Your Honor, I have challenged those
22 witnesses through cross-examination. I didn't bring any
23 witnesses. But I agree with that, and that's --

24 THE COURT: Okay.

25 MR. SPENCER: -- you know, in that regard.

1 THE COURT: Okay. Then what -- give me your
2 *Strickland* arguments.

3 MR. SPENCER: My *Strickland* arguments again goes
4 to reasonable performance under professional norms.
5 Obviously, the case, I mean, you can find this testimony
6 as beneficial as you want. The question is whether it
7 still remains as to whether Mr. Wise's performance was
8 deficient. And I think for the reasons I was outlaying,
9 I think it started how he found this expert, how he
10 utilized this expert. How he formulated a trial
11 strategy. There was a number of ways he challenged the
12 State's evidence.

13 Was it reasonable for him to rely on the guy who
14 wrote the bible on toxicology in terms of formulating a
15 trial strategy, in terms of presenting this expert
16 testimony. In terms of trying to figure out where the
17 weak parts in the State's case were -- was. And I think
18 that's resoundingly yes. I think there's more than one
19 way to try a case.

20 I think the way he chose was a very good
21 strategy. If nothing else, he managed to get at least
22 one justice and was only two votes away from saying we
23 didn't present evidence at trial causation. No witness
24 until yesterday said enough morphine, whether renal
25 failure is a necessity, is part of that are not, no

1 witness has said before that enough morphine can
2 actually pass through milk to establish this level.
3 Whether you need renal failure as a predicate to that or
4 not, that's what's new. That, in my mind actually,
5 fills a gap in the State's case. But, again, going back
6 to what I was saying, I think Mr. Wise and his choices
7 in that regard were professional, reasonable, trial
8 strategy. Reasonable investigation and was an excellent
9 investigation.

10 Regarding the Canadian study, I think that
11 doesn't qualify as after discovered evidence. It is
12 quite possible that the child in Canada, it doesn't go
13 to guilt or innocence. That's the first problem with
14 that. It doesn't go -- you know, the fact that the
15 child may have died differently or the fact that that
16 study is coming in dispute to the point that it's been
17 retracted, does not affect the question in this case as
18 to whether or not the baby, Ms. Greene's baby, died from
19 morphine. So it doesn't quite meet the after discovery
20 and evidence test.

21 I want to quickly say why I put that other risk
22 in reply, because I actually ---

23 THE COURT: I'm sorry, put what?

24 MR. SPENCER: Sure. There was an article I put
25 into evidence that was sort of Dr. Koren's response to

1 the article that led to the retraction. I should very
2 much agree with Dr. Scialli's testimony that that was
3 not scientifically a useful reply.

4 THE COURT: The Canadian study?

5 MR. SPENCER: Yeah, that was -- basically, there
6 was the Canadian study. There was the Zipburger ---

7 MR. WESTBROOK: Zipursky.

8 MR. SPENCER: Zipursky, thank you. Article.
9 There was the retractions that they put in. And then
10 the one article I put on that was mother risk and it was
11 basically a response to the Zipursky article. But I
12 didn't put that in to say that that's a good argument.
13 I put that in to say there's holes in that study.

14 And so, unfortunately, that child's death was not
15 properly examined. One of the points there being, that,
16 you know, the investigation of another source of
17 morphine. That the law enforcement investigation, at
18 least indicated in that response, really didn't
19 eliminate other sources of codeine --

20 THE COURT: Okay.

21 MR. SPENCER: -- or morphine in that particular
22 case. So it's a limited view -- value that I felt it
23 was good to complete the record. I just want to move on
24 from that. I just want to explain why I was doing that.
25 I agree with, actually, Scialli's testimony on that

1 point.

2 In terms of the synergy effect, I think we've
3 heard testimony from Mr. Wise on that. How that was
4 presented. Nobody said it absolutely was -- there
5 absolutely was a synergistic effect. I think everybody
6 mostly couched it in terms of could of. That kind of
7 goes, I think, to jurors, and I think the importance of
8 that testimony at trial was it is dangerous to combine
9 drugs, whether you call that synergistic or whether
10 you're talking about additive effects, to whatever the
11 case may be.

12 I think that was the spirit in which it was
13 presented. It did become a very significant part of the
14 case, Your Honor. I think it was clear morphine was an
15 important thing. I think that was clear from Mr. Wise's
16 observations of Dr. Wren's testimony where he said he
17 couldn't test the disease. He said morphine
18 intoxication. And I think one of the ways Mr. Wise
19 dealt with that in a very excellent manner was to get a
20 charge that limited the State's theory of guilt to just
21 one.

22 So in that regard, I think Mr. Wise chose a
23 course that was fall -- does not fall, excuse me, below
24 professional norms. And I think obviously given that
25 morphine was the substance that loomed large in this

1 trial, it wasn't going to be prejudicial.

2 THE COURT: Did the Solicitor argue in his
3 closing argument about the synergy effect?

4 MR. SPENCER: When I looked through it, I did not
5 see him say that. And so I don't want to be wrong about
6 that, but my recollection is he didn't even mention
7 synergy. He might have mentioned multiple drugs, but I
8 don't think he mentioned synergy.

9 I'd hate to be wrong about that, of course, so I
10 mean it's not going in any briefing unless it's
11 absolutely true. But I've read and reread. I've read
12 this case a lot of times, but in my last reading I
13 didn't see any discussion of synergy.

14 Your Honor, I think the testimony about
15 ineffective assistance of appellate counsel, what issues
16 should have been raised, I think that was settled. You
17 don't have to raise every non-frivolous issue. They
18 brought -- raised some excellent ones. I read -- I
19 discussed that pretty well, I think, in my pretrial
20 brief, so refer to that.

21 One other thing I do want to return to, because
22 we have to know -- we have to think about how this would
23 have translated in a trial setting, I think the
24 testimony of the two experts was somewhat incongruous
25 because I think Dr. Scialli is presenting testimonies

1 like "it's gonna take", and we have that demonstrative
2 exhibit that they used with 55 jugs, I think it was, of
3 milk. It would take 55 gallons of milk to do that. The
4 reason, part of the reason it takes so much is there are
5 so many that would be eliminated. That's what the
6 steady state volume of distribution encompasses.

7 But then Dr. Twombly is saying they could -- you
8 could accumulate enough morphine in a day. I think
9 that's incongruous. I don't think -- you know, I think
10 that's something they would play, the prosecution would
11 play against them. I think the prosecution would say,
12 hey, the only evidence you have of renal failure is the
13 fact that the child had cold symptoms. I think, yes, it
14 would be a failure of proof in terms of what Mr. Wise
15 was talking about directed verdict standard.

16 I think there's enough evidence even, I think,
17 under, if I understand correctly, your understanding of
18 what that testimony was. You know, I don't -- I'm sure
19 that could be a -- you could -- I mean, I'm not gonna go
20 there again because it's just different recollections
21 and, certainly, mine cannot -- could be wrong.

22 But certainly, I think, there was enough evidence
23 in that to say it's a jury question as to whether
24 morphine caused the death and morphine, you know, when
25 you're looking at that morphine level, that's high, or

1 whether there's renal failure absent the morphine.

2 THE COURT: I will -- and I don't want to share
3 anymore comments. I think we've beaten this horse
4 enough. If all the testimony that is presented is the
5 ones that the medical experts that were presented in
6 this case and not the testimony that's in the transcript
7 that I have not gone through as detailed as I want --

8 MR. SPENCER: Certainly.

9 THE COURT: -- I don't think you will make it
10 through a directed verdict motion.

11 MR. SPENCER: I understand what you're saying.
12 You know, I think -- you know, I think if you look at
13 the State's evidence that was presented versus this, and
14 I think, you know, it certainly is dependent somewhat on
15 what *McCall* says. It's certainly dependent on the
16 nature of how this morphine was taken without the
17 prescribing doctors knowing the important details for
18 her care.

19 One thing I want to go back to a little bit about
20 the trial. Basically, what occurred is Ms. Greene was
21 pregnant in 2006. The treating doctor, which I believe
22 is Dr. Kooiska, if I'm saying that right, testified that
23 at that time she took Ms. Greene off all of her pain
24 meds.

25 What we have here in testimony, then, going

1 forward to 2010 when she becomes pregnant is that she
2 basically goes and gets the morphine prescription for
3 the first time. She had been having a fentanyl patch.
4 She switches, convinces the doctor to switch from
5 fentanyl patch to MS Contin in February. And basically
6 gets a monthly prescription during the course of
7 pregnancy without going to the doctor's office, without
8 telling this doctor that she -- that she's -- that's
9 prescribing the morphine that she's pregnant or that
10 later she's breastfeeding.

11 In the meantime she's not telling the OB/GYN that
12 she's taking morphine, even when the doctor asks or the
13 office asks which medications you take. And the
14 record's replete with opportunities for her to tell
15 different medical individuals all the drugs she's taking
16 and she's leaving MS Contin out from anyone that would
17 potentially, you know, say that's not safe. She's going
18 outside of the doctor's care in that regard. And I
19 think the record establishes my statement of facts gives
20 a lot of -- a lot to that.

21 So that's what I'm saying. We're outside of the
22 doctor's care, taking morphine. Your Honor, I think you
23 heard testimony, I had asked Dr. Scialli has there been
24 any tests where they examine what would happen if a
25 breastfeeding mother took MS Contin for weeks on end, 90

1 milligrams a day. And, of course, there are no studies
2 like that. Those are dangerous waters.

3 Those are dangerous waters that are being
4 navigated at all. It has to be done with a doctor and
5 the both of you, certainly when the child's safety is --
6 an infant's safety is at stake. She didn't do that
7 because she knew the doctor would take those pain meds
8 away. She disagrees with what a doctor's doing about
9 it.

10 MR. WESTBROOK: Your Honor, I have an Objection.

11 MR. SPENCER: I ---

12 MR. WESTBROOK: Objection. I am objecting. Let
13 me get my objection on the record.

14 MR. SPENCER: Your Honor, I think he could reply
15 to that. I just don't ---

16 MR. WESTBROOK: You haven't even heard my
17 objection yet.

18 THE COURT: I don't know what he's gonna say yet.
19 Let me hear from him.

20 MR. WESTBROOK: My objection is that once again
21 Mr. Spencer has abandoned the PCR hearing and is going
22 back at great length to the trial. Now, obviously, if
23 Your Honor wants to hear that, that's up to you.

24 I'll also say that we had -- I thought we had
25 agreed on an informal and kind of an approximate 15

1 minutes of closing, which he has exceeded in great
2 length. But more importantly, he is arguing the trial
3 all over again. And, you know, he is characterizing
4 what the evidence was, and I'm not sure I agree with all
5 his characterizations. That's my objection. Thank you,
6 Your Honor.

7 THE COURT: All right, thank you. I mean, it did
8 sound like you're making a closing argument for the
9 criminal trial and not for a PCR.

10 MR. SPENCER: Right. And part of that is I
11 wanted you to understand the evidence at trial, because
12 I think that's, obviously, that's part and parcel when
13 you consider the whole record. And that's why I was
14 doing that, Your Honor.

15 THE COURT: I'll consider the whole record, but
16 it sounds like you were making an argument to try to
17 divert from the issues that we have to decide at a PCR,
18 okay?

19 MR. SPENCER: I understand what you're saying.
20 I'm not trying to divert from anything, I'm trying to
21 say how this fits in when what was at trial. And, you
22 know, some of the questions -- some of the discussion, I
23 thought, implicated going into the trial evidence.

24 Sometimes it takes a little bit to spit it out
25 from the -- you know, obviously that was taking me a bit

1 of time. I understand that, Your Honor. I think the
2 evidence, in summary, I wanted you to understand how we
3 got to that point, why I'm saying the morphine shouldn't
4 be there, so to speak. And, obviously, I can rely on my
5 statement of facts in that regard.

6 And I think I've been heard on how I feel *McCall*
7 falls into this. I think what a prosecutor would do with
8 Dr. Twombly's testimony is say cold symptoms without
9 any other evidence is not enough to assume that there
10 was renal failure.

11 THE COURT: Did you have an expert witness to say
12 that?

13 MR. SPENCER: No, but I think, I think based on
14 what was presented, I think that's what a prosecutor
15 would argue. And I think that would be an easy argument
16 for the prosecutor to make.

17 THE COURT: Easy argument to make, but I'm not
18 sure that's an argument that -- I believe that this is
19 an argument that would have to be supported with some
20 type of medical testimony.

21 MR. SPENCER: I understand, Your Honor, in what
22 you're saying, Your Honor. I mean, obviously I cannot
23 present any expert testimony ---

24 THE COURT: Yeah. The interaction of the
25 morphine to taking the morphine, to transfer the

1 morphine, all that requires of the fact finder and of
2 this Court some type of medical testimony.

3 MR. SPENCER: Certainly, Your Honor. And I
4 think ---

5 THE COURT: Otherwise I'm put in a position I'm
6 gonna have to speculate. And I think that's an improper
7 function of a fact finder.

8 Let me ask you a question before you sit down.
9 Do you agree with my statement that South Carolina has
10 not adopted a cumulative error analysis for purposes of
11 postconviction relief?

12 MR. SPENCER: That's my understanding of the case
13 law, it has no status yet.

14 THE COURT: Okay. All right.

15 MR. SPENCER: Thank you, Your Honor.

16 THE COURT: Thank you. Do y'all want to reply?

17 MR. WESTBROOK: I think I'm gonna forego a reply.
18 I do have Mr. Williams, my partner, has a motion he
19 wants to make.

20 THE COURT: Okay. Mr. Williams, you have a
21 motion?

22 MR. WILLIAMS: Well, I ---

23 THE COURT: I thought we were through with
24 motions.

25 MR. WILLIAMS: If you'll hear it.

1 THE COURT: Okay. Yes, sir.

2 MR. WILLIAMS: I promise, four minutes. You can
3 time me. We wanted to put on the record, Your Honor's
4 heard the un-rebutted reliable expert testimony. At
5 this time we'd move for a directed verdict. There was
6 no scientific bases for the State's theory presented at
7 trial, the morphine level found in Lexi was transmitted
8 to breast milk.

9 The Zipursky study drives home this point. Dr.
10 Scialli opined to a reasonable degree of certainty that
11 renal failure was the likely explanation. There was no
12 reliable support, and is a professional experience and
13 research and literature for the breast milk theory.

14 Dr. Twombly's testimony was emphatic that renal
15 failure was the sole cause. Again, these are
16 un-rebutted. Mr. Wise testified it was an error to not
17 present the alternative cause of death, embraced the
18 serious question as to weigh the case. Whether the case
19 will even get to the jury, as Your Honor pointed out on
20 directed verdict.

21 It's not a strategy to sit in on his part. I
22 have offers of alternative calls. And he agreed it was
23 likely to change the outcome. So for that basis we'd go
24 ahead and move for a directed verdict or judgment as a
25 matter of law.

1 THE COURT: I don't think I've ever had a
2 directed verdict motion made in a PCR. I'd have to
3 think about it, though.

4 MR. WILLIAMS: Nelson Mullins loves motions.

5 THE COURT: Yeah, well, okay.

6 MR. KUPPENS: We love to be on the cutting edge,
7 Your Honor.

8 THE COURT: Obviously. Okay. I will -- do you
9 want to argue? Do you take questions, Mr. Williams?

10 MR. WILLIAMS: Sure.

11 THE COURT: Are you ready?

12 MR. WILLIAMS: Sure.

13 THE COURT: Okay.

14 MR. WESTBROOK: Let me just mention, if Your
15 Honor, would prefer, I think we can file this motion in
16 a document form later this week or next week, if that
17 would -- if Your Honor would rather do it that way.

18 THE COURT: I mean, that's fine by me. You mean,
19 are you talking about his directed verdict motion?

20 MR. WILLIAMS: Or any posttrial briefing, Your
21 Honor.

22 THE COURT: Yeah, if you want to file your
23 directed verdict motion go ahead. I've just never had a
24 directed verdict motion in a PCR, so I don't -- I don't
25 know what standard I can apply. I mean, I look back and

1 you're not gonna be very successful.

2 MR. WESTBROOK: All right. Well, let's hold off
3 on that one then, okay?

4 THE COURT: You can file whatever you want to
5 file. I've got a question for you.

6 MR. WESTBROOK: Your Honor, I think we've had a
7 change of heart.

8 THE COURT: Okay. Is the -- the State says and
9 contends that the retraction of the Canadian study does
10 not equal new evidence.

11 MR. WESTBROOK: The retraction of the Canadian
12 study ---

13 THE COURT: Did I say that correctly?

14 MR. WESTBROOK: I think that's what I heard him
15 say, yes. Well, the Canadian study was something that
16 was heavily relied on by the State during trial, and it
17 -- so, obviously, the retraction didn't occur until
18 after the trial, so there was no way to present evidence
19 of the retraction until it happened, which was, you
20 know, some time later.

21 But it seems like that if it was something that
22 was relied on, emphasized by the prosecution at trial.
23 It goes away, and turns out to be not what it was said
24 to be, then that seems like that's important news. And
25 that seems to me it would be important new evidence. I

1 don't agree with the State's position on that.

2 THE COURT: All right. What about the contention
3 by the State that -- and this is what I heard. And so
4 I'm -- I might be putting words in the State's mouth
5 instead of you can file papers later to say that's not
6 why I'm here. Okay?

7 I remember what the State's position is, is that
8 we have an extremely confident, respectful reputation
9 wise, experience wise lawyer who represented the
10 Applicant at trial and that he, assuming that even the
11 issues that are presented at the PCR have been
12 established in favor of the Applicant, how under a PCR
13 analysis this Court -- the State contends that this
14 Court cannot get around the *Strickland* standard, which
15 is that, okay, Mr. Wise might have made a bad decision
16 because he didn't consult with the right expert or his
17 expert that he consulted with didn't give him the right
18 information. So how do we get around a PCR analysis of
19 that, of that -- we have to find that trial counsel
20 acted efficiently?

21 MR. WESTBROOK: Well, Your Honor, I think that
22 it's just a fact finding that you would need to do. And
23 what I would argue is that Mr. Wise is a fine lawyer. I
24 said earlier, he's been a friend of mine for 25 years,
25 so I think a lot of him. But as I think you put it, he

1 made a mistake. This was a serious mistake and it had
2 ramifications. It was not reasonable under the
3 circumstances. And I think you just have to weigh the
4 evidence about that.

5 What I would suggest is the key thing that you
6 think about on that are that mistake that he made was
7 naming Karch. And he found one expert. The expert that
8 was recommended by somebody that he knew. And so let it
9 go with that. But Karch was not a pediatrician. This
10 is a case about an infant's death, so you would think it
11 would be reasonable to look somebody who know something
12 about pediatrics or some kind of specialty in the field
13 of pediatrics. What causes -- could cause the death of
14 a, of an infant? And under these circumstances.

15 I think, I'm not as good a lawyer as Mr. Wise, I
16 can tell you this. But when I got this case, I called
17 MUSC and said who's there that I can talk to in the
18 pediatric department? And I talked to one person,
19 talked to another. And finally after two or three calls
20 I found Dr. Twombly. Dr. Twombly said, momma. The
21 first conversation I had with her. I explained kind of
22 the circumstances and she said, yeah, kidney failure.
23 That's probably what it was. I need to know more, but
24 that's my initial thought is renal failure. That's
25 what, that's what comes to mind.

1 Now, that would have been something that would
2 have been reasonable for Mr. Wise to do. Same way with
3 Dr. Scialli. He's not the only reproductive and
4 developmental or develop -- yeah, reproductive and
5 developmental toxicologist in the country.

6 Your Honor, I heard my friend, Mr. Spencer here,
7 saying Karch's praises over and over. He wrote the
8 bible, he wrote the bible. Well, he didn't write the
9 bible in anything alleged pediatrics, or pediatric
10 nephrology. That's the bible writer that Mr. Wise
11 should have sought out. And if that took a few phone
12 calls, then he should have made them.

13 THE COURT: Okay. All right. Anything else from
14 anybody?

15 MR. SPENCER: Your Honor, basically just one
16 sentence, just to -- so we won't have to file papers on
17 it, whatever. My position is Mr. Wise did a great job,
18 actually.

19 THE COURT: He will write that down.

20 MR. SPENCER: Thank you.

21 THE COURT: The next time you're over at the
22 Supreme Court you're gonna pull it out and say counsel
23 said this, you know.

24 MR. SPENCER: Then I'll deny it. Thank you.

25 THE COURT: Yeah. Well, thank you all very much.

1 And thank you for your hard work and the effort you put
2 into it. I will probably, I think I spoke with the
3 lawyers ahead of time. I really don't want proposed
4 orders, but I would welcome briefing on the PCR issues
5 and what we heard in this PCR and what the Court has
6 received.

7 I know y'all have got other things to do. Do
8 y'all have a -- how much time do you need?

9 MR. WESTBROOK: Can we confer for a minute?

10 THE COURT: Yeah. Oh, yeah. I mean, and y'all
11 can talk among yourselves and even if you tell me 30
12 days and y'all decide you need more, just get back with
13 me.

14 MR. SPENCER: Your Honor, I probably would ask
15 for what I usually ask for, which would be 45 days and
16 that's not unreasonable.

17 THE COURT: 45 days, okay.

18 MR. WESTBROOK: I'm sorry, was that 45 days from
19 today or after the transcript?

20 MR. SPENCER: Well, you know, that's a good
21 question, Your Honor. And usually I don't even ---

22 THE COURT: We have two transcripts. We have two
23 court reporters.

24 MR. WESTBROOK: Right.

25 MR. SPENCER: Okay, yeah. So...

1 MR. WESTBROOK: When would be a reasonable time
2 that we would get the two transcripts, do you think?
3 Any rough estimate on that?

4 COURT REPORTER: I mean, for me I'm -- I have 15
5 ahead of you, but...

6 MR. WESTBROOK: I think what we'd be comfortable
7 with, and what I heard Mr. Williams just whisper it, and
8 I think this would be what we'd be comfortable with is
9 30 days after receiving both transcripts, if that suits
10 Your Honor.

11 THE COURT: Okay.

12 MR. SPENCER: I still, you know, 45 days is a
13 number I use.

14 THE COURT: After the transcript?

15 MR. SPENCER: After the transcript, yes. I think
16 that would be ---

17 THE COURT: Do you got any problem with 45 days
18 after the transcripts are received?

19 MR. WESTBROOK: No, sir.

20 THE COURT: Okay. All right. Y'all need to -- I
21 can't just tell her to do a transcript. Y'all are gonna
22 have to order the transcript to two different court
23 reporters. I just can't magically declare get the
24 transcripts.

25 MR. WESTBROOK: I understand, Your Honor.

1 THE COURT: All right. Listen, thank you
2 everybody. One thing I would like to have a copy of
3 from the State, I still don't have a separate copy of
4 the number two.

5 MR. SPENCER: Good, Your Honor.

6 THE COURT: I've got one but not two.

7 MR. SPENCER: Yes, Your Honor. I have that.
8 And, of course, I've probably misplaced it all over
9 again.

10 THE COURT: You send it to me.

11 MR. SPENCER: I will make sure you get that, if I
12 can find it in the next, you know, few seconds.

13 THE COURT: Thank y'all very much. I'm gonna
14 step down.

15 (Hearing concluded at 3:34 p.m.)

16
17 --- THIS ENDS REQUESTED TRANSCRIPT ---
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25

1 COURT REPORTER CERTIFICATE

2
3 I, the undersigned Julie A. Cendroski, Court
4 Reporter for the Seventh Judicial Circuit Court of the
5 State of South Carolina, do hereby certify that to the
6 best of my ability the foregoing is a true, accurate,
7 and complete transcript of record of all the proceedings
8 and evidence introduced in the hearing and/or trial of
9 the captioned case, relative to appeal, in the Court of
10 Common Pleas for Spartanburg County, South Carolina, on
11 the 20th day of September, 2022.

12 I do further certify that I am neither of kin,
13 counsel, nor interest to any party hereto.
14
15
16
17

18 s/Julie A Cendroski
19 Julie A. Cendroski
20 Circuit Court Reporter III
21 Seventh Judicial Circuit
22
23
24
25

Safety of codeine during breastfeeding

Fatal morphine poisoning in the breastfed neonate of a mother prescribed codeine

Parvaz Madadi, Gideon Koren, MD, FRCPC, James Cairns, MD, David Chitayat, MD, Andrea Gaedigk, PhD, J. Steven Leeder, PHARM.D, PHD, Ronni Teitelbaum, MSC, Tatyana Karaskov, MD, Katarina Aleksa, PhD

ABSTRACT

QUESTION Recently a newborn died from morphine poisoning when his mother used codeine while breastfeeding. Many patients receive codeine for postlabour pain. Is it safe to prescribe codeine for nursing mothers?

ANSWER When a mother is an ultrarapid metabolizer of cytochrome P450 2D6, she produces much more morphine when taking codeine than most people do. In this situation, newborns might be exposed to toxic levels of morphine when breastfeeding. Options to reduce this risk include discontinuing codeine after 2 to 3 days of use and being aware of symptoms of potential opioid toxicity in both mothers and newborns.

RÉSUMÉ

QUESTION Un nouveau-né est récemment décédé d'un empoisonnement à la morphine parce que sa mère avait pris de la codéine pendant qu'elle allaitait. De nombreuses patientes reçoivent de la codéine pour les douleurs après le travail. Est-il sécuritaire de prescrire de la codéine aux mères qui allaitent?

RÉPONSE Si la mère métabolise ultra rapidement le cytochrome P450 2D6, elle produit beaucoup plus de morphine lorsqu'elle prend de la codéine que la plupart des autres personnes. Dans une telle situation, un nouveau-né pourrait être exposé à des taux toxiques de morphine quand il est allaité. Pour réduire le risque, on peut, entre autres, cesser l'utilisation de la codéine après 2 ou 3 jours, et demeurer vigilant face aux éventuels symptômes d'une intoxication aux opioïdes chez la mère et le nourrisson.

Codeine is commonly used in the postpartum period for pain associated with episiotomy and cesarean section. As most mothers initiate breastfeeding, the safety of codeine and its pharmacologically active metabolite, morphine, among breastfed infants is of primary concern. The American Academy of Pediatrics and major authoritative texts list codeine as compatible with breastfeeding,^{1,2} despite insufficient published data to support this recommendation. To illustrate the need for further assessment of codeine and morphine transfer into breast milk, we describe a recently published case of a full-term, breastfed infant who died in a manner consistent with morphine overdose.³ Pharmacogenetic assessment of maternal drug biotransformation was consistent with enhanced formation of the pharmacologically active opioid, morphine. To the best of our knowledge, this is the first record of a breastfed baby succumbing to toxicity through breast milk.

Case

A newborn male infant, born after an unremarkable pregnancy and delivery (birth weight 3.88 kg, 90th percentile), developed difficulty breastfeeding and increasing lethargy at 7 days of age. At 11 days of

age, he was taken to a pediatrician owing to concerns about his skin colour and decreased milk intake. The pediatrician noted that the infant had gained his birth weight. Subsequently, on day 13, an ambulance team found the baby cyanotic and without vital signs. Resuscitation, which was initiated at home and continued in the hospital's emergency department, was unsuccessful. Full postmortem analysis failed to identify an anatomic cause of death.

Hepatic steatosis was investigated for medium-chain acyl-CoA dehydrogenase deficiency, which was ruled out. Other fatty acid oxidative disorders, organic acidemias, congenital adrenal hyperplasia, hypothyroidism, and galactosemia were also ruled out. Postmortem toxicologic testing using gas chromatography-mass spectrometry revealed a blood concentration of morphine at 70 ng/mL and acetaminophen at 5.9 µg/mL. Neonates receiving morphine for analgesia have been reported to have serum concentrations of morphine at 10 to 12 ng/mL.⁴

Review of the medical records revealed that in the immediate postpartum period the mother was

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prescribed Tylenol® 3 (codeine 30 mg and acetaminophen 500 mg). Initially she took 2 tablets twice daily, but she halved the dose on postpartum day 2 owing to somnolence and constipation. Following the development of poor neonatal feeding, the mother expressed milk and stored it in a freezer. Analysis of the milk for morphine using a specific enzyme-linked immunosorbent assay method for morphine revealed a concentration of 87 ng/mL. At this level, the cross-reactivity of the assay with codeine in our laboratory is less than 4%. The morphine measurement was further confirmed by gas chromatography-mass spectrometry.

Genotype analysis

To address the potential contribution of pharmacogenetic factors to maternal response and neonatal outcome following codeine administration, genotype analysis was conducted for cytochrome P450 2D6 (CYP 2D6), the enzyme catalyzing the O-demethylation of codeine to morphine,⁴ and for uridine diphosphate-dependent glucuronosyltransferase 2B7 (UGT 2B7), the enzyme catalyzing the formation of morphine-3-glucuronide (M3G) and morphine-6-glucuronide (M6G).⁵

The mother was found to be compound heterozygous for a CYP 2D6*2A allele and a CYP 2D6*2x2 gene duplication. In essence, the mother had 3 functional CYP 2D6 genes and would be classified as an ultrarapid metabolizer. The phenotypic consequence of this genotype is enhanced formation of morphine from codeine, consistent with the symptoms of somnolence and constipation that she experienced with the initial doses of Tylenol® 3. Both the father and the infant possessed 2 functional CYP 2D6 alleles (CYP 2D6*1/*2 genotypes). Both the mother and the infant were homozygous for the UGT 2B7*2 (-161TT, 802TT) allele, which has been associated with increased M6G:morphine compared with the UGT 2B7*1 allele (-161C, 802C).^{6,7} Morphine-6-glucuronide is a highly active metabolite of morphine.

Discussion

The clinical and toxicologic pictures in this case are consistent with opioid toxicity leading to neonatal death. Codeine itself has only mild opioid properties, while most of its analgesia and central nervous system-depressant effects are secondary to its biotransformation to morphine, a reaction catalyzed by CYP 2D6.⁵ While most people are extensive metabolizers of codeine to morphine, CYP 2D6 gene duplication results in an ultrarapid metabolizer phenotype (in an estimated 1% of people in Finland and Denmark, 10% of people in Greece and Portugal, and 29% of people in Ethiopia) and, thus, the potential for substantially increased production of morphine from codeine.⁸ In adults, this has been shown to result in serious opioid toxicity even with small doses of codeine,⁶ an observation consistent with the symptoms of opiate excess

experienced by the mother in this case. Furthermore, the high levels of morphine in the breast milk in this case (86 ng/mL) corroborate the clinical picture observed in the infant. Breastfed infants of mothers prescribed 60 mg of codeine for postnatal pain achieved maximum plasma morphine concentrations of only 2.2 ng/mL.⁷ In our case, a milk sample was available only for a period when the mother halved her dose. Hence, assuming linear kinetics, it is likely that peak levels of morphine in the milk were approximately 100 ng/mL.

The predominant routes of morphine elimination include biotransformation to M3G and M6G. The production of the active metabolite M6G is almost exclusively catalyzed by UGT 2B7.⁹ Sawyer et al¹⁰ reported increased M6G:morphine in individuals homozygous for the single nucleotide polymorphisms constituting the UGT 2B7*2 allele. Since the mother's genotype was UGT 2B7*2/*2, it is possible that the infant might have also been exposed to higher than anticipated concentrations of the pharmacologically active M6G metabolite, and not just of morphine itself.

There are several previous reports of somnolence¹¹ and neonatal apnea¹² in babies exposed to codeine through breast milk, suggesting that varying degrees of opioid toxicity are more prevalent than commonly assumed. Codeine is widely perceived to be compatible with breastfeeding, owing to previously measured low levels of morphine in milk.^{1,2} Our case reveals that polymorphism in CYP 2D6 and possibly UGT 2B7 can be life threatening for some breastfed babies. Given

MOTHERISK

Motherisk questions are prepared by the Motherisk Team at the Hospital for Sick Children in Toronto, Ont. Dr Koren is Director and Drs Karaskov and Aleksa are members of the Motherisk Program. Ms Madadi is with the Ivey Chair in Molecular Toxicology at the University of Western Ontario in London. Dr Cairns is with the Coroner's Office in Toronto. Dr Chitayat and Ms Teitelbaum are with Mount Sinai Hospital in Toronto. Drs Gaedigk and Leeder are with Children's Mercy Hospital in Kansas City, Mo. Dr Koren is supported by the Research Leadership for Better Pharmacotherapy during Pregnancy and Lactation and, in part, by a grant from the Canadian Institutes of Health Research. He holds the Ivey Chair in Molecular Toxicology at the University of Western Ontario.

Do you have questions about the effects of drugs, chemicals, radiation, or infections in women who are pregnant or breastfeeding? We invite you to submit them to the Motherisk Program by fax at 416 813-7562; they will be addressed in future Motherisk Updates.

Published Motherisk Updates are available on the College of Family Physicians of Canada website (www.cfpc.ca) and also on the Motherisk website (www.motherisk.org).

that a CYP 2D6 ultrarapid metabolizer genotype occurs at a frequency of 1% to 29%, genetic combination

Strategies to prevent neonatal morphine toxicity

1. Avoid prescribing codeine and use nonsteroidal anti-inflammatory drugs. This approach might not be possible in cases of severe pain.
2. Prescribe codeine-containing products for 2 to 3 days only, so neonatal accumulation of morphine is prevented.
3. Genotype all postpartum women about to receive codeine. This approach will identify CYP 2D6 and UGT 2B7 genotypes associated with the potential for increased formation of pharmacologically active codeine metabolites, morphine and possibly M6G, and, thus, individuals who are at risk of neonatal toxicity. Currently these tests are not available in most clinical facilities.
4. Carefully follow up all women taking codeine; test both mother and child when mothers are experiencing opioid toxicity.
5. Closely follow up all breastfed infants of codeine-using mothers; test morphine levels whenever there are adverse events consistent with opioid toxicity. In any case where you suspect opioid toxicity, a naloxone test might reverse, and thus corroborate, that toxicity.

would be expected to occur quite commonly among breastfeeding mothers.

As demonstrated by this case, the common practice of prescribing codeine in the postpartum period cannot be regarded as safe for all breastfed infants. Therefore, we propose several clinical approaches that can be considered to prevent life-threatening neonatal toxicity, each with its benefits and disadvantages (see box). Whatever clinical approach is taken, codeine cannot be considered safe during breastfeeding. ❁

References

1. Briggs GG, Freeman RK, Yaffe SJ. *Drugs in breastfeeding*. 7th ed. Philadelphia, Pa: Lippincott Williams Wilkins; 2005.
2. Committee on Drugs, American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. *Pediatrics* 2001;108:776-89.
3. Koren G, Cairns J, Chtayat D, Leader S, Gaedigk A. Pharmacogenetics of morphine poisoning in a breastfed neonate of a codeine prescribed mother. *Lancet* 2000;368:704.
4. Bouwmeester NJ, Hop WC, van Dijk M, Anand KJ, van der Anker JN, Tibboel D. *Intensive Care Med* 2003;29:2009-15.
5. Meyer UA. Pharmacogenetics of adverse drug reactions. *Lancet* 2000;356:1667-71.
6. Gasche Y, Daali Y, Fathi M, Chiappe A, Cottini S, Dayer P, Desmeules J. Codeine intoxication associated with ultrarapid CYP2D6 metabolism. *N Engl J Med* 2004;351:2827-31.
7. Meny RG, Naumburg EG, Alger LS, Brill-Miller H, Brown S. Codeine and the breastfed neonate. *J Hum Lact* 1993;9:237-40.
8. Gaedigk A, Bradford LD, Marcucci KA, Leeder JS. Unique CYP2D6 activity distribution and genotype-phenotype discordance in black Americans. *Clin Pharmacol Ther* 2002;72:76-89.
9. Stone AN, Mackenzie PI, Galetin A, Houston JB, Miners JO. Morphine glucuronidation by human UGTs. *Drug Metab Dispos* 2003;31:1086-9.
10. Sawyer MB, Innocenti F, Das S, Cheng C, Ramirez J, Pantle-Fisher FH, et al. A pharmacogenetic study of uridine diphosphate-glucuronosyltransferase 2B7 in patients receiving morphine. *Clin Pharmacol Ther* 2003;73:566-75.
11. Ito S, Blajchman A, Stephenson M, Eliopoulos C, Koren G. Prospective follow-up of adverse reactions in breastfed infants exposed to maternal medication. *Am J Obstet Gynecol* 1993;168:1393-9.
12. Davis JM, Bhutari UK. Neonatal apnea and maternal codeine use. *Pediatr Res* 1984;19:170A.



The Implausibility of Neonatal Opioid Toxicity from Breastfeeding

Jonathan Zipursky MD^{1,2,3} and David N. Juurlink MD PhD^{1,2,3,4}

¹ Department of Medicine, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ² Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada; ³ Institute of Health Policy, Management, and Evaluation, University of Toronto, Toronto, Ontario, Canada; ⁴ Sunnybrook Research Institute, Toronto, Ontario, Canada

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Correspondence: David Juurlink, MD, PhD
Sunnybrook Health Sciences Centre G-106
2075 Bayview Avenue
Toronto, Ontario Canada
M4N 3M5
email: david.juurlink@ices.on.ca

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College of Medical Toxicology. Both PROP and ACMT have publicly available positions related to opioid prescribing. David Juurlink has received payment for lectures and medicolegal opinions regarding the safety and effectiveness of analgesics, including opioids; Jonathan Zipursky has no conflicts of interest to declare.

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ABSTRACT

The belief that newborns can develop opioid toxicity from breastfeeding is widely held but supported by very little data. Based largely on a single, highly-publicized case report (the "Toronto Case"), major health agencies worldwide now caution against codeine use by nursing mothers. As a result, "stronger" opioids with greater abuse liability are increasingly prescribed in its place, potentially to the detriment of maternal health. We re-examine aspects of this case report to demonstrate why such an occurrence is highly implausible. The Toronto Case involved the death of a 13-day-old infant from opioid toxicity. The child's mother, who took codeine while breastfeeding, was found to have a duplication of *CYP2D6**2, consistent with ultrarapid metabolizer status. This led to the conclusion that the child died from opioid toxicity due to enhanced maternal conversion of codeine to morphine, with the subsequent passage of large amounts of morphine into breast milk. We argue that this explanation is implausible based upon several factors: 1) the exceedingly small amount of opioids passed into breastmilk irrespective of maternal CYP genotype, 2) the observation that significant neonatal opioid accumulation can only occur in the setting of severely impaired renal function, and 3) the previously unreported finding of a markedly elevated codeine concentration in postmortem blood. Finally, a review of the literature identifies a paucity of convincing reports of neonatal opioid toxicity during breast feeding, with no other confirmed cases of neonatal death despite the use of these drugs by millions of nursing mothers over the past two decades.

INTRODUCTION

The past two decades have witnessed a dramatic increase in opioid prescribing, including to women during and after pregnancy. In some jurisdictions, up to 30% of women are prescribed opioids following vaginal delivery, and more than 80% receive an opioid following Caesarian section.¹ These estimates suggest that hundreds of thousands of women breastfeed while receiving opioids each year in North America alone.

The belief that newborns can develop opioid toxicity from breastfeeding has permeated the medical literature and clinical practice. Codeine, in particular, has been characterized as unsafe because of its variable and unpredictable conversion to morphine as a consequence of cytochrome P450 2D6 (CYP2D6) pharmacovariants. Concerns about the safety of codeine during breastfeeding have been driven by a few scattered cases—and one fatal case in particular—interpreted as instances of neonatal opioid toxicity resulting from breastfeeding.^{2,3} This led the United States Food and Drug Administration, the European Medicines Agency, Health Canada, and the American College of Obstetrics and Gynecology to caution against codeine use by nursing mothers. In its place, “strong” opioids (meaning those generally used at lower milligram doses) such as oxycodone and hydromorphone are now increasingly prescribed following childbirth.^{1,4} This shift in practice may place new mothers at greater risk of persistent opioid use and addiction, and may also pose a hazard to toddlers in the home due to accidental ingestion.⁵

Despite the foregoing, converging lines of evidence indicate that neonatal opioid toxicity from breastfeeding is exceedingly improbable.^{6,7} We offer a detailed re-examination of this issue, drawing upon basic principles of pharmacology as well as clinical information not reported in two previous accounts of the case that changed practice.^{2,3}

The case that shaped current thinking: The “Toronto Case”

Concerns about the safety of codeine during breastfeeding gained international attention

following publication of a case report in 2006.² In that report, a full-term male infant weighing 3.88 kg was born to a mother who was prescribed Tylenol® with Codeine No. 3 (acetaminophen 300 mg, codeine 30 mg and caffeine 15 mg) for postpartum pain. She initially took two tablets twice daily until the second postpartum day, followed by one tablet every six hours (originally reported in error as twice daily^{2,3}). On day twelve, the child was noted to be difficult to rouse, appeared grey and exhibited poor breast milk intake. Paramedics were summoned to the home, and upon arrival found the baby without vital signs. The child was pronounced dead in hospital shortly thereafter. Postmortem investigation identified no anatomical cause of death but revealed a markedly elevated blood morphine concentration (70 ng/mL). The child was determined to have died of opioid toxicity.

The pharmacology of codeine

Codeine exhibits little pharmacologic activity on its own. Analgesia and respiratory depression arise principally from its hepatic conversion to morphine by CYP2D6 (Figure 1).⁸ Morphine is then metabolized to morphine-3-glucuronide (M3G) and morphine-6-glucuronide (M6G), the latter of which imparts opioid effects.⁸ Less widely appreciated is that sedation and other opioid effects may also result from codeine-6-glucuronide.^{9,10}

*****FIGURE 1 HERE*****

The activity of CYP2D6, and hence the conversion of codeine to morphine, varies from person to person because of genetic polymorphisms, with the majority of Caucasians (80-90%) displaying the “extensive metabolizer” (normal) phenotype.¹¹ Duplication of CYP2D6 genes is associated with increased enzymatic activity (“ultrarapid metabolizer” phenotype), while people with non-functional alleles exhibit a “poor metabolizer” phenotype, metabolizing codeine and other CYP2D6 substrate drugs poorly.¹¹

The prevalence of CYP2D6 ultrarapid metabolizers is particularly high in North Africa and the Middle East, where up to a third of people exhibit the phenotype.¹¹ It is also found in up to 5% of Caucasians.¹¹ In these individuals, conversion of codeine to morphine is modestly enhanced relative

to extensive metabolizers, yielding, on average, 23% higher maximal morphine concentrations ($C_{\max}$) and 45% higher total morphine exposure (Table 1).¹²

Observations on the Toronto case

Original interpretation

In the Toronto case, genotype analysis revealed the mother possessed a duplication of *CYP2D6**2, consistent with an ultrarapid metabolizer phenotype. This observation, coupled with the finding of a high morphine concentration in breast milk frozen three days before death (87 ng/mL), led investigators to conclude that the child died from opioid toxicity due to enhanced maternal conversion of codeine to morphine, with the subsequent passage of large amounts of morphine into breast milk.^{2,3} This interpretation of the case led the Food and Drug Administration and other major organizations to warn against the use of codeine by breastfeeding mothers.

Passage of opioids into breast milk

The amount of drug ingested via breastfeeding is represented by the Relative Infant Dose (RID), an estimate of the average daily dose ingested by the infant, expressed as a percentage of the weight-adjusted maternal dose.¹³ For example, an RID of 100% means that the infant receives the same daily dose per kilogram as the mother. The RID of most opioids ranges from 0.3% to 7.6% (Table 2).^{13,14}

In the Toronto case, the neonatal postmortem blood morphine concentration of 70 ng/mL far exceeds that expected from breast feeding alone. Breastfeeding neonates whose mothers take 60 mg of codeine every 4 to 6 hours for an average of 4 doses display morphine concentrations ranging from undetectable to 2.2 ng/mL.¹⁵

Not previously reported in the Toronto case was the postmortem neonatal codeine concentration of 300 µg/L obtained from the original toxicology report. This value is roughly 50 times higher than peak concentrations seen in neonates of mothers taking codeine while

breastfeeding.¹⁵ This obviously cannot be explained by maternal genotype, and suggests that conversion of codeine to morphine in the neonate (who was found to have an extensive metabolizer CYP2D6 genotype), rather than the mother, explains the elevated morphine concentration detected postmortem.

Dose of morphine via breast milk

An important inference can be drawn from the breast milk morphine concentration noted above. At 87 ng/mL, had the baby ingested 1000 mL of milk per day—roughly twice the amount expected for a baby of similar weight, and unlikely given the observation of poor feeding^{2,3}—the resulting daily dose of morphine would be only 87 µg. In contrast, the suggested oral dose of morphine for a 4 kilogram infant is up 3200 µg per day.¹⁶

The foregoing observations make clear that neither maternal CYP2D6 polymorphisms nor intake of codeine or morphine through breast milk can, on their own, explain neonatal opioid toxicity, because the amount of opioid ingested is simply far too low.

Factors affecting the disposition of codeine and morphine in children

Other factors influence the metabolism and clearance of codeine and morphine in neonates. CYP2D6 activity begins to increase in the 3rd trimester and then increases significantly within days to weeks of life.¹⁷ Submaximal CYP2D6 activity in the first few weeks of life might impart reduced ability to convert codeine to morphine. In addition, morphine is converted to its active metabolite morphine-6-glucuronide by UDP-glucuronyltransferase (UGT) 2B7. The child in the Toronto case was reported to be homozygous for UGT2B7 *2/*2³, which should lead to an increased ability to convert morphine to morphine-6-glucuronide. Like CYP2D6, UGT2B7 activity is low at birth; however, it increases with time into the early childhood years.^{18,19} It is therefore difficult to quantify the impact of the UGT2B7 *2/*2 rapid metabolizer genotype. Importantly, while the activities of CYP2D6 and UGT2B7 could influence the disposition of codeine and morphine in the Toronto case, they cannot explain the extremely high neonatal codeine concentration.

Determinants of morphine accumulation

What circumstances might permit development of a toxic neonatal morphine concentration via breastfeeding during maternal codeine therapy? An elaborate pharmacokinetic modeling study by Willmann et al. has addressed this exact question.⁷ The most important finding of this study was that neonatal morphine elimination, not the amount ingested, was the critical determinant of morphine accumulation. Irrespective of maternal codeine dose and CYP2D6 genotype, morphine concentrations exceeding 20 µg/L (20 ng/mL) were only predicted in neonates unable to eliminate morphine due to complete renal impairment.⁷ Even a partially preserved ability to eliminate morphine would be sufficient to prevent neonatal toxicity. Complete absence of morphine excretion seems unlikely in the Toronto case, given the previously unreported observation that the child's pediatrician made note of five wet diapers on the day before death.

The pharmacokinetic "worst case scenario"

Willmann et al. modeled a pharmacokinetic "worst case scenario" by setting all pharmacokinetic parameters to their extremes, including a maternal codeine dose of 2.5 mg/kg/day and ultrarapid metabolizer status, efficient transfer of morphine into milk, and a complete absence of neonatal morphine clearance.⁷ Under this highly improbable set of conditions, the maximum achievable neonatal concentration of morphine after 14 days of normal milk intake was estimated at 54 µg/L, nearly 25% lower than observed in the Toronto case.⁷ Of note, the maternal codeine dose employed in the Willmann simulation was lower than the actual dose, reflecting an error in the original report. Had the correct dose been used, a higher predicted neonatal morphine concentration would have resulted. Regardless, neonatal opioid toxicity would only be expected in the setting of negligible neonatal drug clearance. This point has also been emphasized by Ito in a recent review of the topic.¹³

Acetaminophen

An aspect of the Toronto case not originally reported was the postmortem acetaminophen concentration of 5.9 mg/L (39 µmol/L).³ As Bateman and colleagues have observed, this concentration would be expected shortly after ingestion of a therapeutic dose of the drug.^{6,20} Although

acetaminophen passes freely into breast milk, infants are expected to receive a maximum of only 5% of the maternal weight-adjusted dose through breastfeeding.⁶

Koren et al. have invoked postmortem changes in drug concentration to explain the acetaminophen finding.²¹ While there are little data regarding postmortem redistribution in neonates, several studies (indeed, including the one cited by Koren et al. in support of their claim²²) demonstrate that acetaminophen exhibits little postmortem redistribution, particularly when samples are drawn within 24 hours of death, as was the case here.²³ Simply put, it is difficult to envision how a neonatal acetaminophen concentration of 5.9 mg/L could arise from breastfeeding alone.

Other reports of neonatal opioid toxicity from breastfeeding

We reviewed other published reports of suspected neonatal opioid toxicity from breastfeeding (Table 3). Most describe neonatal lethargy, apnea or poor feeding that subsided after cessation of maternal opioid therapy. In most cases, data were obtained from retrospective interviews of parents regarding their children's behavior, sometimes years after the reported event. The informative value of these reports is undermined by the possibilities of self-selection and misclassification of exposures, outcomes, or both. In most reports, the association between maternal opioid use and adverse neonatal outcomes is questionable and not accompanied by pharmacokinetic data.

Some of these publications explicitly raised the possibility of neonatal opioid exposure via routes other than breastfeeding,^{24,25} while others, upon closer inspection, are not consistent with opioid toxicity at all. The latter is best exemplified by a report of neonatal bradycardia and central nervous system depression occurring six days after maternal use of a single 30 mg codeine tablet.²⁶ Although a causal relationship is clearly implausible in this case, it has nevertheless been cited as an instance of neonatal opioid toxicity resulting from maternal use of codeine while breastfeeding.²⁷

Only one other publication describes neonatal death in the setting of maternal opioid use while breastfeeding. In that report, a 10-month old child died of suspected oxycodone toxicity, although the

child was also found to have multiple head injuries.²⁴ The authors of the report were openly skeptical about the possibility of breast milk as the sole source of oxycodone.

We are aware of no other published reports of neonatal death due to opioids passed through breast milk, despite millions of postpartum women having taken opioids over the past two decades. This observation is consistent with the findings of a cohort study of 7,804 new mothers prescribed codeine within 7 days of discharge, which found no evidence of neonatal harm on several measures, including all-cause hospitalization, injury, resuscitation/mechanical ventilation, or death from any cause.²⁸

CONCLUSIONS

Neonatal opioid toxicity resulting from maternal codeine use during breastfeeding could only arise from a highly improbable combination of factors: a high maternal codeine dose, unusually high concentrations of opioids in breast milk, a large volume of neonatal milk intake, and—critically—profoundly impaired neonatal opioid clearance. The unlikely occurrence of such a scenario is consistent with the paucity of reports of neonatal opioid toxicity, despite the use of these drugs by millions of nursing mothers over the past two decades.

This should not be viewed as an endorsement of opioid use while breastfeeding. Codeine in particular is an unpredictable analgesic choice given its variable conversion to morphine, while other opioids such as oxycodone carry greater abuse liability. Acetaminophen and non-steroidal anti-inflammatory drugs are generally sufficient for the management of postpartum pain. When opioids are required, short courses should not be viewed as hazardous to breastfeeding neonates.

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REFERENCES

1. Badreldin, N., Grobman, W. A., Chang, K. T. & Yee, L. M. Opioid Prescribing Patterns among Postpartum Women. *Am. J. Obstet. Gynecol.* (2018).doi:10.1016/j.ajog.2018.04.003
2. Koren, G., Cairns, J., Chitayat, D., Gaedigk, A. & Leeder, S. J. Pharmacogenetics of morphine poisoning in a breastfed neonate of a codeine-prescribed mother. *Lancet (London, England)* **368**, 704 (2006).
3. Madadi, P. *et al.* Safety of codeine during breastfeeding: fatal morphine poisoning in the breastfed neonate of a mother prescribed codeine. *Can. Fam. Physician* **53**, 33–5 (2007).
4. Smolina, K., Weymann, D., Morgan, S., Ross, C. & Carleton, B. Association between regulatory advisories and codeine prescribing to postpartum women. *JAMA* **313**, 1861–2 (2015).
5. Finkelstein, Y. *et al.* Overdose Risk in Young Children of Women Prescribed Opioids. *Pediatrics* **139**, (2017).
6. Bateman, D. N., Eddleston, M. & Sandilands, E. Codeine and breastfeeding. *Lancet (London, England)* **372**, 625; author reply 626 (2008).
7. Willmann, S., Edginton, A. N., Coboeken, K., Ahr, G. & Lippert, J. Risk to the breast-fed neonate from codeine treatment to the mother: a quantitative mechanistic modeling study. *Clin. Pharmacol. Ther.* **86**, 634–43 (2009).
8. Crews, K. R. *et al.* Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines for codeine therapy in the context of cytochrome P450 2D6 (CYP2D6) genotype. *Clin. Pharmacol. Ther.* **91**, 321–6 (2012).
9. Eckhardt, K. *et al.* Same incidence of adverse drug events after codeine administration irrespective of the genetically determined differences in morphine formation. *Pain* **76**, 27–33 (1998).
10. Lötsch, J. *et al.* Evidence for morphine-independent central nervous opioid effects after administration of codeine: contribution of other codeine metabolites. *Clin. Pharmacol. Ther.* **79**, 35–48 (2006).
11. Bernard, S., Neville, K. A., Nguyen, A. T. & Flockhart, D. A. Interethnic differences in genetic polymorphisms of CYP2D6 in the U.S. population: clinical implications. *Oncologist* **11**, 126–

- 35 (2006).
12. Kirchheiner, J. *et al.* Pharmacokinetics of codeine and its metabolite morphine in ultra-rapid metabolizers due to CYP2D6 duplication. *Pharmacogenomics J.* **7**, 257–65 (2007).
 13. Ito, S. Opioids in Breast Milk: Pharmacokinetic Principles and Clinical Implications. *J. Clin. Pharmacol.* **58 Suppl 1**, S151–S163 (2018).
 14. e-lactation. at <<http://www.e-lactancia.org/>>
 15. Meny, R. G., Naumburg, E. G., Alger, L. S., Brill-Miller, J. L. & Brown, S. Codeine and the breastfed neonate. *J. Hum. Lact.* **9**, 237–40 (1993).
 16. *Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain.* (American Pain Society, Glenview, IL, 2016).
 17. Stevens, J. C. *et al.* Developmental changes in human liver CYP2D6 expression. *Drug Metab. Dispos.* **36**, 1587–93 (2008).
 18. Neumann, E. *et al.* Age-Dependent Hepatic UDP-Glucuronosyltransferase Gene Expression and Activity in Children. *Front. Pharmacol.* **7**, 437 (2016).
 19. Zaya, M. J., Hines, R. N. & Stevens, J. C. Epirubicin glucuronidation and UGT2B7 developmental expression. *Drug Metab. Dispos.* **34**, 2097–101 (2006).
 20. Pacifici, G. M. & Allegaert, K. Clinical pharmacology of paracetamol in neonates: a review. *Curr. Ther. Res. Clin. Exp.* **77**, 24–30 (2015).
 21. Madadi, P., Chitayat, D. & Koren, G. Codeine and breastfeeding - Authors' replay. *Lancet* **372**, 626 (2008).
 22. Yonemitsu, K. & Pounder, D. J. Postmortem toxico-kinetics of co-proxamol. *Int. J. Legal Med.* **104**, 347–53 (1992).
 23. Cook, D. S., Braithwaite, R. A. & Hale, K. A. Estimating antemortem drug concentrations from postmortem blood samples: the influence of postmortem redistribution. *J. Clin. Pathol.* **53**, 282–5 (2000).
 24. Levine, B., Moore, K. A., Aronica-Pollak, P. & Fowler, D. F. Oxycodone intoxication in an infant: accidental or intentional exposure? *J. Forensic Sci.* **49**, 1358–60 (2004).
 25. Meyer, D. & Tobias, J. D. Adverse effects following the inadvertent administration of opioids to infants and children. *Clin. Pediatr. (Phila).* **44**, 499–503

- Accepted Article
26. Smith, J. Codeine-induced bradycardia in a breast-fed infant. *Clin Res* **30**, 259a (1982).
 27. Lam, J. *et al.* Postpartum maternal codeine therapy and the risk of adverse neonatal outcomes: the devil is in the details. *Ther. Drug Monit.* **34**, 378–80 (2012).
 28. Juurlink, D. N. *et al.* Postpartum maternal codeine therapy and the risk of adverse neonatal outcomes: a retrospective cohort study. *Clin. Toxicol. (Phila)*. **50**, 390–5 (2012).

Table 1: Pharmacokinetics of codeine metabolism by genotype¹²

Phenotype	Peak codeine concentration (C _{max}), µg/L (median, range)	Peak morphine concentration (C _{max}), µg/L (median, range)	Codeine AUC µg·h/L	Morphine AUC µg·h/L
PM	45 (37 to 56)	0.05 (0.03 to 0.07)	180	0.5
EM	51 (24 to 104)	2.1 (0.6 to 4.3)	191	11
UM	43 (30 to 70)	2.6 (1.5 to 2.6)	192	16

Legend: N=26 patients (11 UM, 12 EM and 3 PM) given a single dose of codeine 30 mg. Maximum concentration (C_{max}) and total body exposure expressed as area under the concentration-time curves (AUC) of codeine and its metabolites were assessed over 24 hours after drug intake.

PM: poor metabolizer

EM: extensive metabolizer

UM: ultrarapid metabolizer

Table 2: Approximate relative infant dose of opioids¹³

Opioid	Primary metabolic pathway(s)	RID (%) [†]
Morphine	UGT2B7	2.5-7.5%
Codeine	CYP2D6	0.3-1.2%
Oxycodone	CYP3A4 (2D6, minor)	2.6-7.6%
Tramadol	CYP2D6	2.3%
Fentanyl	CYP3A4	1.2%
Hydromorphone	UGT	0.7%
Hydrocodone	CYP2D6/UGT	1.6-3.7%
Methadone	CYP3A4/2B6	1.2-7%
Buprenorphine	CYP3A4	0.4%

Legend: Enzymes responsible for opioid metabolism and estimated relative infant dose (RID) of opioids expected during breastfeeding.

RID: relative infant dose; CYP: cytochrome P450 enzymes; UGT: UDP-glucuronyltransferase

[†] Data from Lactmed: <https://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm>, and e-lactancia: <http://www.e-lactancia.org/>

Table 3: Other reports of suspected neonatal opioid toxicity from breastfeeding

Article	Details	Comment
Toronto case discussed herein		
Koren G et al. Lancet 2006;368:704.		
Madadi P et al. Can Fam Physician 2007;53:33-5		
Madadi P et al. Clin Pharmacol Ther 2009;85:31-5.	Neonate observed to be somnolent and breastfeeding poorly for the first 7 days of life, during which time the mother took codeine 120 mg per day. The mother reported drowsiness and was found to be a CYP2D6 UM. Cessation of breastfeeding was associated with resolution of neonatal symptoms.	Information collected from parental interview. No opioid concentrations reported.
West P et al. Clin Toxicol (Phila). 2009;47:721. Abstract 95	Mother who took two doses of methadone 40 mg. Her 13-month-old child developed an opioid toxidrome responsive to naloxone. The child's urine drug screen was positive for methadone.	No additional pharmacokinetic data. Methadone has an estimated RID of 3%. Authors acknowledge direct administration of methadone to the child as a potential explanation.
Levine B et al. J Forensic Sci 2004;49:1358- 60.	10-month-old child who died from a suspected oxycodone overdose. One day before death, the mother took oxycodone 60 mg and carisoprodol 700 mg, and on the day of death took hydrocodone 10 mg. The child had been febrile and the mother was administering acetaminophen. Postmortem liver and heart blood oxycodone concentrations were 1.6 mg/kg and 0.6 mg/L, respectively.	Mode of oxycodone exposure unclear but inconsistent with breast milk as sole source. Carisoprodol (estimated RID 6%) not detected postmortem, as would have been expected. Coroner ruled death a homicide.
Meyer D, Tobias JD. Clin Pediatr (Phila);44:499- 503.	5-week-old infant found cyanotic with minimal respiratory effort after a 4-5 day history of cough. The infant was intubated, admitted to the intensive care unit, and given naloxone IV with improvement in respiratory effort. The mother admitted to taking hydrocodone and methadone, and the child's urine drug screen was positive for opioids.	No accompanying pharmacokinetic data. Unclear how the child was exposed to a toxic dose of opioids.
Smith J. Clin Res	7-day-old breastfed infant with bradycardia and central nervous system depression six days after the mother took a single dose of codeine 30 mg.	Authors concluded symptoms were unlikely related to codeine given the dose and temporal relationship. No accompanying pharmacokinetic data.

1982;30:259a		
Timm NL. J Pediatr 2013;162:421-2.	4-day-old infant presented to the ER with hypothermia, pinpoint pupils and lethargy. The mother was breastfeeding and had taken 10 mg oxycodone the previous evening and 5 mg the morning of presentation to hospital. The child was given naloxone 0.34 mg IV resulting in awakening.	Maternal opioid dose was low and inconsistent with gradual accumulation of opioid in the neonate. Neonatal respiratory rate of 36 breaths/minute inconsistent with serious opioid toxicity. No accompanying pharmacokinetic data.
Ito S et al. Am J Obstet Gynecol 1993;168:1393-9.	Case series of children exposed to various drugs from breastfeeding. In 8 of 26 children whose mothers took codeine mothers reported neonatal drowsiness (5), irritability (1), and constipation (2).	Data collected by parental interviews at mean of 11.7 weeks after the initial call to the Motherisk consult service, raising possibilities of selection bias and misclassification of exposure, outcome or both. No information on opioid dose or timing in relation to symptoms. No accompanying pharmacokinetic data.
Davis J, Bhutani V. Pediatr Res 1985;19:170a.	Case series of four infants (4 to 6 days old) with periods of apnea. Mothers were breastfeeding and receiving codeine 60 mg every 4-6 hours. Apneic episodes resolved after 24-48 hours following stopping codeine.	Alternative explanations for apnea not excluded. No pharmacokinetic data. Ages of children (4-6 days) is unlikely to allow enough time for neonatal morphine accumulation via breastfeeding.
Bodley V, Powers D. J Hum Lact 1997;13:307-11.	Mother with mastitis who took hydrocodone 20 mg q4h while breastfeeding. Drowsiness in her and her 18-day-old child resolved after dose reduced to 20 mg daily.	Case focused on mother's health with only brief speculation of possible neonatal opioid toxicity. No pharmacokinetic data.
Lam J et al. Ther Drug Monit 2012;34:378-80.	Case 1: Mother of healthy infant took oxycodone for four days then codeine for three days while breastfeeding. At 8 days, the baby had a respiratory arrest and received IV naloxone in the ER with clinical improvement. Morphine concentration in breast milk was 30 ng/mL on the same day at the ER visit.	Child suffered from a presumed opioid toxidrome and responded to naloxone. No other pharmacokinetic data or information about maternal or neonatal drug clearance.
	Case 2: Lethargic 7-day-old infant was brought to hospital with pinpoint pupils and received IV naloxone with clinical improvement. The mother had been taking codeine and was breastfeeding the child.	Personal communication between the authors and a colleague. No information presented about maternal codeine dose. No accompanying pharmacokinetic data.
	Case 3: A 3-day-old infant was lethargic and difficult to rouse. The mother had been taking codeine 240 mg/day while breastfeeding. The symptoms subsided when codeine was stopped. The mother was found to be a CYP2D6 extensive metabolizer.	Anecdote of non-specific neonatal signs improving after cessation of maternal codeine. No accompanying pharmacokinetic data.
	Case 4: A 2-day-old infant too sedated to expectorate mucus experienced had a respiratory arrest. The mother was taking codeine at an unknown dose. The infant's urine was positive for	Cases 4-6 obtained from Health Canada online reporting system. Entries into this database can be made by anyone. Data are limited and of unknown validity.

	morphine, and symptoms improved upon cessation of breastfeeding. Case 5: A 4-day-old infant was drowsy and difficult to rouse. The mother was taking codeine at an unknown dose. Symptoms improved after cessation of breastfeeding. Case 6: A 7-day-old breastfeeding infant was lethargic and difficult to rouse. The mother was taking codeine up to 6 times a day at an unknown dose. The child's symptoms improved over the course of a hospitalization.	
Naumburg EG, Meny RG. Am J Dis Child 1988;142:11-2.	Case-control study involving 12 infants (12 hours to 7 days old) with unexplained apnea, bradycardia, or cyanosis matched to 16 asymptomatic infants. The mothers of 10 of 12 case infants took opioids (codeine, propoxyphene, meperidine) while breastfeeding, compared to 11 of 16 with little or no opioid exposure.	Pharmacokinetic data available only for one case. The infant had a serum morphine level of 1.2 ng/mL 108 hours after the mother's last dose of morphine. No morphine detected in breast milk at that time.
Madadi P et al. Clin Pharmacol Ther. 2009;85:31-5.	Case-control study of symptomatic infants whose mothers took codeine (n=17) matched to asymptomatic infants whose mothers took codeine (n = 55). Cases had 59% higher daily doses of codeine (1.62 ± 0.79 mg/kg/day vs. 1.02 ± 0.54 mg/kg/day ($P = 0.004$)).	Data primarily acquired by interview. CNS depression defined by parental report of sedation or abnormal breathing in the infant during the period of codeine use while breastfeeding. Previously reported cases (Koren 2006; Madadi 2007, Madadi 2009) were included as cases. No supporting pharmacokinetic data beyond the case described herein.
Lam J et al. J Pediatr 2012;160:33-7.e2.	Retrospective case series comparing the risk of CNS depression in neonates of mothers who took oxycodone, codeine ($\pm$ acetaminophen), or acetaminophen only while breastfeeding. In the oxycodone cohort, (n=139) 20.1% of mothers reported neonatal "CNS depression" compared to 16.7% in the codeine group (n=210), and 0.5% in the acetaminophen group (n=184). The rate of CNS depression in infants of mothers receiving codeine did not meet the predefined threshold for statistical significance. Higher doses of oxycodone and codeine were associated with increased reported neonatal symptoms.	High risk of selection and recall biases. All mothers voluntarily called the Motherisk program to be included in the study. They were contacted in follow-up sometimes years after the original call to Motherisk and were asked about infant symptoms. Some of the subjects in the codeine cohort were from Madadi, 2009.

Figure Legend

Figure 1: Codeine is converted by CYP2D6 to morphine, which is then metabolized to morphine-3-glucuronide (M3G), which is inert, and morphine-6-glucuronide (M6G), a potent μ -opioid agonist.

While the pharmacokinetics of M6G in breastfeeding are not well described, it confers considerably less respiratory suppression than morphine. Sedation and other opioid effects may also result from codeine-6-glucuronide. Percent values represent approximate metabolic contribution of each pathway.

