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STATE OF MICHIGAN
IN THE MICHIGAN SUPREME COURT

PEOPLE OF THE STATE OF MICHIGAN,
Plaintiff-Appellee,

-v-

MILTON LEE LEMONS,
Defendant-Appellant.

Supreme Court No. 163939
Court of Appeals No. 348277
Trial Court No. 06-004818-FC

On Appeal from The Court Of Appeals
Jonathan Tukel, P.J., And Kathleen Jansen And Thomas C. Cameron, JJ.

DEFENDANT-APPELLANT MILTON LEE LEMONS' APPENDIX

Michigan Innocence Clinic
University of Michigan Law School
David A. Moran (P45353)
Imran J. Syed (P75415)
Breezy Adams (Student Attorney)
Sam Clougher (Student Attorney)
ATTORNEYS FOR DEFENDANT-APPELLANT
701 S. State Street
Ann Arbor, MI 48109
(734) 763-9353

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APPENDIX TABLE OF CONTENTS

Trial Court Register of Actions.....1a-4a

Court of Appeals Docket 5a-21a

Trial: Testimony of Lori Lemons 22a-37a

Trial: Testimony of Ms. Pamela Van Meter 38a-49a

Trial: Testimony of Firefighter Jeremy Tima 50a-56a

Trial: Testimony of Dr. Bader Cassin.....57a-77a

Trial: Testimony of Chief John Williams 78a-90a

Trial: Prosecution's Closing Argument 91a-93a

Trial: Verdict.....94a-98a

Trial: Sentencing.....99a-101a

Trial Court Opinion October 5, 2018.....102a-127a

Michigan Supreme Court Order May 27, 2020 .....128a

Michigan Court of Appeals Opinion November 18, 2021.....129a-141a

Evidentiary Hearing Transcript (April 6, 2017): Testimony of Dr. John Galaznik.....142a-179a

Evidentiary Hearing Transcript (April 19, 2017): Testimony of Dr. Geroge Nichols 180a-205a

Evidentiary Hearing Transcript (April 20/July 19, 2017): Testimony of Dr. Patrick Barnes 206a-253a

Evidentiary Hearing Transcript (July 20, 2017): Testimony of Dr. Peter Strouse 254a-268a

Evidentiary Hearing Transcript (July 25, 2017): Testimony of Dr. Daniel Davis 269a-292a

Evidentiary Hearing Transcript (July 26/September 11, 2017): Testimony of Dr. Cindy Christian.....293a-319a

Evidentiary Hearing Transcript (September 13, 2017): Testimony of Dr. Chris Van Ee 320a-365a

Evidentiary Hearing Transcript (September 18, 2017): Testimony of Dr. Ronald Auer .366a-372a

Michigan Supreme Court Order September 30, 2022 .....373a

Defense Exhibit 31, 2017 Evidentiary Hearing, Report of Dr. Christian 374a-395a

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Back Skip to Main Content Logout My Account Search Menu New Case Search Refine Search Location : Criminal Cases Images Web Access Instruction Manual

REGISTER OF ACTIONS

CASE NO. 06-004818-01-FC

PARTY INFORMATION

		Lead Attorneys
Appellate Attorney	**Landau, Arthur H.**	
Defendant	**Lemons, Milton Lee**	**David A. Moran** *Retained* (734) 763-9353(W)
Plaintiff	**State of Michigan**	**Daniel Edson Hebel** (313) 444-0529(W)

CHARGE INFORMATION

Charges: Lemons, Milton Lee	Statute	Level	Date
1. Homicide - Felony Murder	750316-B	.	10/13/2005

EVENTS & ORDERS OF THE COURT

DISPOSITIONS

10/14/2005 **Plea** (Judicial Officer: Mack, Laura R)
1. Homicide - Felony Murder
Defendant Stand Mute: Plea of Not Guilty Entered by Court

08/11/2006 **Disposition** (Judicial Officer: Kenny, Timothy M.)
1. Homicide - Felony Murder
Found Guilty by Bench

09/05/2006 **Sentence** (Judicial Officer: Kenny, Timothy M.)
1. Homicide - Felony Murder
Condition - Adult:
1. Adult Criminal Sentence, Life in Prison 09/05/2006, Active 09/05/2006
State Confinement:
Agency: Michigan Department of Corrections
Effective 9/5/2006
Term: 0 Yr 0 Mo 0 Days to 0 Yr 0 Mo 0 Days

OTHER EVENTS AND HEARINGS

10/13/2005 **Recommendation for Warrant**
10/14/2005 **Warrant Signed**
10/14/2005 **Arraignment On Warrant** (9:00 AM) (Judicial Officer Mack, Laura R)
Parties Present
Result: Held
10/14/2005 **Interim Condition for Lemons, Milton Lee**
- Remand
10/26/2005 **Order For Criminal Responsibility**
10/26/2005 **At The Center For Forensic Psychiatry Filed**
10/26/2005 **To Adjourn**
10/26/2005 **At The Center For Forensic Psychiatry Filed**
10/26/2005 **Preliminary Exam** (9:00 AM) (Judicial Officer Mack, Laura R)
Parties Present
Result: Adjourned:Referred To Clinic For Report
04/20/2006 **Motion To Assign Counsel Filed/Signed**
04/20/2006 **Bound Over**
04/20/2006 **Competency Hearing** (9:00 AM) (Judicial Officer Mack, Laura R)
Parties Present
Result: Found Competent
04/20/2006 **Preliminary Exam** (9:05 AM) (Judicial Officer Mack, Laura R)
Parties Present
Result: Held: Bound Over
04/28/2006 **Trial Docket**
04/28/2006 **Filed**
04/28/2006 **Case Assignment to AOI Docket**
05/04/2006 **Order For A Competency Evaluation**
05/04/2006 **Order For Criminal Responsibility**
05/04/2006 **Signed And Filed**
05/04/2006 **Arraignment On Information** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present

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TRIAL COURT REGISTER OF ACTIONS

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	Result: Held
05/04/2006	**Calendar Conference** (9:05 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Held
05/04/2006	**Disposition Conference** (9:35 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Held
05/22/2006	**Competency For Miranda Rights**
05/22/2006	**Filed**
05/22/2006	**Order For Criminal Responsibility**
05/22/2006	**Filed**
06/12/2006	**Motion To Quash Information**
06/12/2006	**Filed**
07/05/2006	**Motion Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	06/08/2006 Continued to 06/30/2006 - Adjourned at the Request of the Defense - Lemons, Milton Lee
	06/30/2006 Continued to 07/05/2006 - Adjourned at the Request of the Defense - Lemons, Milton Lee
	Result: Adjourned:At The Request Of The Prosecution
07/07/2006	**Motion To Quash Information**
07/07/2006	**Heard And Denied**
07/07/2006	**Competency Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Adjourned:A Needed Report Was Not Available
07/28/2006	**Motion For An Investigation At Public Expense**
07/28/2006	**Heard And Granted**
08/03/2006	**Waiver of Trial By Jury Signed and Filed**
08/03/2006	**Signed And Filed**
08/03/2006	*CANCELED* **Jury Trial** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Scheduling Error
	Parties Present
	08/02/2006 Continued to 08/03/2006 - Adjourned at the Request Of the Court - Lemons, Milton Lee
	Result: Not Held And/Or Disposed
08/03/2006	**Bench Trial** (9:05 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: In Progress
08/07/2006	**Bench Trial** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: In Progress
08/08/2006	**Bench Trial** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: In Progress
08/11/2006	**Found Guilty by Bench Trial**
08/11/2006	**Refer To Probation For A Report**
08/11/2006	**Bench Trial** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Held
09/05/2006	**Order For Payment Of Supervision Fee Signed and Filed**
09/05/2006	**Victims Rights Fee Signed and Filed**
09/05/2006	**Sentencing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Held
09/13/2006	**Claim Of Appeal (Circuit)**
09/13/2006	**Filed**
10/11/2006	**Transcript Of Sentence**
10/11/2006	**Signed And Filed**
10/11/2006	**Motion Transcript(S)**
10/11/2006	**Signed And Filed**
01/05/2007	**Waiver Of Right to Trial By Jury Transcript**
01/05/2007	**Signed And Filed**
02/26/2008	**Appellate Court Decision; Affirms Lower Court**
07/29/2008	**Application For Leave To Appeal (Circuit)**
09/30/2009	**Motion**
11/17/2009	**Motion To Compel**
11/17/2009	**Motion To Show Cause**
01/21/2010	**Motion For Relief From Judgment**
01/21/2010	**Filed**
04/23/2010	**Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Parties Present
	Result: Adjourned at the Request of the Court
05/28/2010	**Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	05/14/2010 Reset by Court to 05/28/2010
	Result: Held
05/28/2010	**Order Denying Motion for Relief from Judgment Sgned & Filed** (Judicial Officer: Kenny, Timothy M.)
05/28/2010	**Motion For A New Trial** (Judicial Officer: Kenny, Timothy M.)
05/28/2010	**Denied - Order Signed and Filed** (Judicial Officer: Kenny, Timothy M.)
05/28/2010	**Motion For An Evidentiary Hearing**
05/28/2010	**Denied - Order Signed and Filed** (Judicial Officer: Kenny, Timothy M.)

TRIAL COURT REGISTER OF ACTIONS

03/21/2016 **Motion For Relief From Judgment**
06/20/2016 **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Result: Adjourned at the Request of the Court
09/07/2016 **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
07/05/2016 Reset by Court to 08/31/2016
08/31/2016 Reset by Court to 09/07/2016
Result: Adjourned at the Request of the Court
09/30/2016 **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Result: Adjourned at the Request of the Court
02/10/2017 **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Result: Held
03/31/2017 **Miscellaneous, Filed**
03/31/2017 **Defense Reply**
04/06/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
04/19/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Continued
04/20/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
04/19/2017 Reset by Court to 04/20/2017
Result: Continued
06/01/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
05/30/2017 Reset by Court to 06/01/2017
Result: Adjourned at the Request of the Court
06/12/2017 **Motion**
07/18/2017 *CANCELED* **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Adjourned:At The Request Of The Court
07/19/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
07/20/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
07/20/2017 **Order** (Judicial Officer: Kenny, Timothy M.)
07/25/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
07/26/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
08/04/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Result: Adjourned at the Request of the Court
08/07/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Result: Adjourned at the Request of the Court
09/11/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
09/13/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
09/18/2017 **Evidentiary Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
09/18/2017 **Order For Production Of Transcript**
09/19/2017 **Order For Production Of Transcript**
09/22/2017 **Order For Production Of Transcript**
09/22/2017 **Notice of Transcript Filed**
Vol./Book 5 427 pages
10/11/2017 **Notice of Transcript Filed**
Vol./Book 4 270 pages
10/27/2017 **Notice of Transcript Filed**
Vol./Book 1 92 pages
11/17/2017 **Brief Or Memorandum of Law**
11/20/2017 **Miscellaneous, Filed**
11/30/2017 **Defense Reply**
11/30/2017 **Miscellaneous, Filed**
12/07/2017 **Motion Hearing** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Parties Present
Result: Held
12/21/2017 **Order For Production Of Transcript**
01/16/2018 **Notice of Transcript Filed**
Vol./Book 1 52 pages
02/15/2018 *CANCELED* **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
Adjourned:At The Request Of The Court

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07/25/2018	**Miscellaneous, Filed**
07/25/2018	**Proof of Service, Filed**
07/27/2018	**Supplemental Brief Filed**
07/27/2018	**Proof of Service, Filed**
10/05/2018	**Order Denying Motion for Relief from Judgment Sgned & Filed** (Judicial Officer: Kenny, Timothy M.)
10/11/2018	*CANCELED* **Post Conviction** (9:00 AM) (Judicial Officer Kenny, Timothy M.)
	Case Disposed/Order Previously Entered
	03/30/2018 Reset by Court to 05/25/2018
	05/25/2018 Reset by Court to 07/13/2018
	07/13/2018 Reset by Court to 08/31/2018
	08/31/2018 Reset by Court to 09/28/2018
	09/28/2018 Reset by Court to 10/11/2018

Financial Information

	Defendant Lemons, Milton Lee			
	Total Financial Assessment			523.05
	Total Payments and Credits			523.05
	Balance Due as of 03/07/2019			**0.00**
02/18/2008	Transaction Assessment			420.00
02/18/2008	Mail Payment	Receipt # 2008-03967	Lemons, Milton Lee	(157.40)
04/09/2008	Transaction Assessment			52.52
04/28/2008	Mail Payment	Receipt # 2008-13741	Lemons, Milton Lee	(128.90)
09/09/2008	Mail Payment	Receipt # 2008-26993	Lemons, Milton Lee	(138.46)
03/26/2010	Mail Payment	Receipt # 2010-07951	Lemons, Milton Lee	(108.99)
04/28/2010	Transaction Assessment			50.53
04/28/2010	Mail Payment	Receipt # 2010-11489	Lemons, Milton Lee	(50.53)

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COA 348277
MSC 163939

PEOPLE OF MI V MILTON LEE LEMONS

Lower Court/Tribunal

WAYNE CIRCUIT COURT

Judge(s)

KENNY TIMOTHY MICHAEL

Docket | Case Documents

Case Information

Case Header

Case Number

COA #348277 | MSC #163939

Case Status

MSC	Pending on Application
COA	Case Concluded; File Open

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Parties & Attorneys to the Case – Court of Appeals

1

PEOPLE OF MI
Plaintiff - Appellee

Attorney(s)

HEBEL DANIEL E
#73580, Prosecutor

2

LEMONS MILTON LEE
Defendant - Appellant

Attorney(s)

MORAN DAVID A
#45353, Retained

Parties & Attorneys to the Case – Supreme Court

1

PEOPLE OF MI
Plaintiff

Attorney(s)

Daniel Edson Hebel
#73580

2

LEMONS MILTON LEE
Defendant

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Attorney(s)

Prof. David A. Moran
#45353

3

THE INNOCENCE PROJECT

Amicus Curiae

Attorney(s)

Wolfgang Mueller
#43728

4

CENTER FOR INTEGRITY IN FORENSIC SCIENCES

Amicus Curiae

Attorney(s)

Mary Chartier
#65327

5

PAAM

Amicus Curiae

Attorney(s)

Prosecuting Attorneys Ass'n of MI
#127489

SHOW 1 MORE PARTIES +

COURT OF APPEALS DOCKET

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COLLAPSE ALL EXPAND ALL

04/01/2019 1 Delayed App for Leave - Criminal

Attorney
MORAN DAVID A
#45353

Service Date
04/01/2019

Answer Due
04/22/2019

Fee Code
Prisoner Indigent

Comments
reply due 5/8; notice date modified

10/05/2018 2 Order Appealed From

Trial Court
WAYNE CIRCUIT COURT

Case Number
06-004818-01-FC

Trial Court Judge
KENNY TIMOTHY MICHAEL
#23009

Nature Of Case
Relief from Judgment

04/01/2019 3 Motion: Waive Fees

Party

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2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Service Date
04/01/2019

Answer Due
04/08/2019

Fee Code
Prisoner Indigent

04/01/2019	4	Transcript Filed By Party	×

Attorney
MORAN DAVID A
#45353

Document Date
04/01/2019

Hearing Dates
04/10/2006
07/07/2006
08/03/2006
08/07/2006
08/08/2006
08/11/2006
09/05/2006
04/06/2017
04/19/2017
04/20/2017
07/19/2017
07/20/2017
07/25/2017
07/26/2017
09/11/2017

Comments
transcripts not printed for file

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04/01/2019 5 Transcript Filed By Party

Attorney
MORAN DAVID A
#45353

Document Date
04/01/2019

Hearing Dates
09/13/2017
09/18/2017
12/07/2017

Comments
transcripts not printed for file

04/17/2019 9 Answer - Application

Party
1. PEOPLE OF MI

Attorney
HEBEL DANIEL E
#73580

Service Date
04/17/2019

Related Event
1. Delayed App for Leave - Criminal

07/16/2019 12 Submitted on Motion Docket

Submitted Events
1. Delayed App for Leave - Criminal
3. Motion: Waive Fees

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07/22/2019 13 Order: Application - Deny - Delayed App for Leave

Related Events

1. Delayed App for Leave - Criminal
3. Motion: Waive Fees

Panel

Murray Christopher M.
Hood Karen M. Fort
Letica Anica

Attorney

MORAN DAVID A
#45353

Amount

$0.00

VIEW ORDER →

08/05/2019 14 Motion: Reconsideration of Order

Party

2. LEMONS MILTON LEE

Attorney

MORAN DAVID A
#45353

Service Date

08/05/2019

Answer Due

08/19/2019

Fee Code

Prisoner Indigent

08/20/2019 15 Submitted on Reconsideration Docket

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Submitted Events

14. Motion: Reconsideration of Order

Comments

application submitted 7/16/19 RMD item #3

08/21/2019 16 Order: Reconsideration - Deny - Appeal Remains Closed

Related Events

14. Motion: Reconsideration of Order

Panel

Murray Christopher M.
Hood Karen M. Fort
Letica Anica

Attorney

MORAN DAVID A
#45353

Amount

$0.00

VIEW ORDER →

10/15/2019 17 Application for Leave to SCt

Supreme Court Number

160374

Answer Due

11/12/2019

Party

2. LEMONS MILTON LEE

Attorney

MORAN DAVID A
#45353

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11/13/2019 18 Trial Court Record Received

14 tr; 1 files;

12/20/2019 20 Supreme Court: Answer - SCt Application/Complaint

Party
1

Attorney
HEBEL DANIEL E
#73580

01/06/2020 21 Supreme Court: Reply - SCt Application/Complaint

Party
2

Attorney
MORAN DAVID A
#45353

05/27/2020 23 Supreme Court Order: Remand as Leave Granted

VIEW ORDER →

05/28/2020 24 Supreme Court - File Ret'd By - Re-Open as on Leave Granted

05/28/2020 25 Record Filed

Comments
lcf;14 tr--SC Remand

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05/29/2020 27 Telephone Contact

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Comments
advised counsel that, based upon the tolling order 2020-4, the 56-day period for filing defendant-appellant's brief on appeal will be counted from 6/12.

06/11/2020 29 Brief: Appellant

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Service Date
06/11/2020

Oral Argument Requested
Yes

Joint Parties

Timely
Yes

Comments
Efiled appendices not printed for filing

06/25/2020 30 Stipulation: Extend Time - AE Brief

Party

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1. PEOPLE OF MI

Attorney

HEBEL DANIEL E
#73580

Service Date

06/25/2020

Extend To

08/13/2020

08/13/2020 31 Motion: Extend Time - Appellee

Party

1. PEOPLE OF MI

Attorney

HEBEL DANIEL E
#73580

Service Date

08/13/2020

Answer Due

08/20/2020

Fee Code

Electronic Payment

Requested Extension

08/27/2020

08/18/2020 32 Submitted on Administrative Motion Docket

Submitted Events

31. Motion: Extend Time - Appellee

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08/18/2020 33 Order: Extend Time - Appellee Brief - Grant

Related Events

31. Motion: Extend Time - Appellee

Panel

Cameron Thomas C.

Attorney

HEBEL DANIEL E
#73580

Amount

$0.00

Extend To

08/27/2020

VIEW ORDER →

08/27/2020 34 Brief: Appellee

Party

1. PEOPLE OF MI

Attorney

HEBEL DANIEL E
#73580

Service Date

08/27/2020

Oral Argument Requested

Yes

Joint Parties

Timely

Yes

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08/28/2020 35 Noticed

Date Sent
08/31/2020

09/16/2020 37 Brief: Reply

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Service Date
09/16/2020

Joint Parties

01/20/2021 42 Telephone Contact

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Comments
Left message for DMoran to call regarding infomation not received in lower court records.

01/20/2021 43 Telephone Contact

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A

#45353

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Comments

Rec'd call from DMoran he has copy of Motion for relief from judgment dated 3/21/16. He will email it to me now.

01/20/2021 44 Material Received by Record Room

Comments

Mot for relief from Judgment and Reply

02/15/2021 51 Email Contact

Comments

Parties contacted via e-mail regarding 3/2/2021 COA Case Call Oral Argument & provided Zoom session link

02/17/2021 52 Correspondence Sent

Comments

Letter from Chief Clerk disclosing Judge Tukel possible connection to the case.

03/02/2021 50 Submitted on Case Call

03/02/2021 53 Oral Argument Audio

LISTEN TO ORAL ARGUMENT →

11/18/2021 59 Opinion - Per Curiam - Unpublished

Result

L/Ct Judgment/Order Affirmed

Panel

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Tukel Jonathan
Jansen Kathleen

Cameron Thomas C.

Pages
13

Comments
Judge Tukel not participating

READ OPINION →

01/12/2022 62 Application for Leave to SCt

Supreme Court Number
163939

Answer Due
02/09/2022

Party
2. LEMONS MILTON LEE

Attorney
MORAN DAVID A
#45353

Comments
Prior SC 160374

02/14/2022 63 Supreme Court: Answer - SCt Application/Complaint

Party
1

Attorney
HEBEL DANIEL E
#73580

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02/22/2022 64 Supreme Court: Reply - SCt Application/Complaint

Party
2

Attorney
MORAN DAVID A
#45353

03/15/2022 65 Supreme Court Motion: Amicus - Leave Application

Party
3. THE INNOCENCE PROJECT

Attorney
MUELLER WOLFGANG
#43728

Comments
Innocence Project; brief included

03/15/2022 66 Supreme Court Motion: Waive Fees

Party
3. THE INNOCENCE PROJECT

Attorney
MUELLER WOLFGANG
#43728

03/18/2022 67 Supreme Court Order: Chief Justice - Grant

Comments
Grant motions of the Innocence Project to file AC brf and waive the fee.

VIEW ORDER →

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03/29/2022 68 Supreme Court Motion: Amicus - Leave Application

Party

4. CENTER FOR INTEGRITY IN FORENSIC SCIENCES

Attorney

CHARTIER MARY
#65327

Payment Type

E-Pay

Comments

Center for Integrity in Forensic Sciences

04/15/2022 69 Supreme Court Order: Chief Justice - Grant

Comments

Grant motion of Ctr for Integrity of Forensic Sciences to file AC brf.

VIEW ORDER →

09/30/2022 70 Supreme Court Order: MOAA -Oral Argument on Lv Appl

Comments

Invited AC=Innocence Project, Ctr for Integrity in Forensic Sciences, PAAM, CDAM.

VIEW ORDER →

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September.

Q What about before that had you taken her to the doctors?

A I had taken her once before. Yes, she had been to the doctor.

Q Was that a regular routine visit or was there something wrong?

A When she was a week old she started gasping and come to find out she was allergic to milk. So we changed her to soy.

Q This occasion when she was one week old you described it as gasping?

A Yes, she was gasping. She was starting to turn colors and suctioned her out.

Q Did you actually see this happen with your own eyes?

A Yes, she was in my arms.

Q Had you just fed her?

A No, we had been in the heat all day and, you know, she had ate but it had been a little while.

Q You said you suctioned her. What is that?

A With a bulb syringe to clear her mouth. To clear her airway, her nose. Clear her airway to breath.

Q What happened after that?

A She was fine.

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Q Did you take her to the hospital or a pediatrician or any medical provider to address that?
A Not that day.
Q But you said it was determined that she was allergic to milk.
A Yes, we took her to the doctor and told him what happened and they monitored her and she had one other episode, but I wasn't home for this other episode and we changed her formula to soy and she was fine.

THE COURT: Can we get a time frame for that?

MR. WOODYARD: Sure, Judge.

BY MR. WOODYARD:
Q When did you take Nikita to the doctor and bring this problem to the doctor's attention?
A It was in August.
Q In August.
A And we changed her formula in August.
Q She would have been about a month old then?
A Yes, about a month.
Q Maybe even a little bit less.
A Yes.
Q What was her date of birth?
A Seven 24-05.

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Q So sometime during the course of the next five weeks you had taken her to the doctor for this problem of gasping?
A Yes.
Q And changed her formula?
A Yes, and she was fine.
Q To a soy base?
A Yes.
Q Was it after you changed her formula that this second episode occurred?
A I don't know if the second episode actually occurred. I was not at home.
Q Did somebody tell you that it occurred?
A Yes, my husband.
Q Do you remember what he told you about that?
A I was checking on my nephew and he called me to rush home because she was gasping. She was having another one of her episodes. When I arrived home, she was fine.
Q And some time after that you got --
A That day we changed her formula. We went and got soy milk and after that she was fine. We never had any other episodes.
Q And where did your mother in relation to your home, close by, far away?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A At first she was right across the street. Then we moved. Because we lived on Columbus at first then we moved in August to Clark Street.

Q So, sometime in August you changed her formula to soy?

A Uh-huh.

Q And after that you observed no further episodes of gasping?

A No further episodes.

Q Were you told about any further episodes of gasping?

A No.

Q How did you know to suction her mouth?

A CPR training, first aid training. I'm a certified nursing assistant.

Q All right.

A Go through the training.

Q You were certified by whom?

A The State of Michigan.

Q And in order to become certified as a -

A Nursing assistant.

Q As a nursing assistant, you had to go through some training?

A Yes.

Q Can you describe for the Judge what that training

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Ms. Lemons, we're going to give you every opportunity to answer, but you have to wait until the question is asked because my court reporter has to take down everything that is being said and she can't take down both at the same time. All right? So just wait if you would until you hear the question. Go ahead.

Q What else had to done with Nikita before you left?

A I fed her bottle. I changed her. I dressed her. I was playing with her. And then at 2:30 I put her in her swing and put her pacifier in the tray of the swing. My husband was changing our son and I left out for work at 2:30.

Q After you fed Nikita, do you remember what you did with the bottle?

A I put it in the sink.

Q Did you go to work? When you left did you go to work?

A Yes, at 2:30 I left out and went to work.

Q Did you work day proceed normally?

A Until around seven o'clock when I got a phone call from my husband.

Q And did you get that call on a work phone, a cell phone?

A My cell phone. I was in the main dining room

RECEIVED by MSC 11/14/2022 2:28:48 PM

doing dinner for the residents.

Q And did your husband say anything? By your husband I am referring to Mr. Lemons. Did he say anything?

A What I gathered from the call is I needed to come that she was aspirating and come home where I go get her. I took off running and I basically hung up and I, you know, left the facility to go home.

Q How did you get there?

A My aunt drove me.

Q Did your aunt work with you?

A Yes, she came to pick me up at 2:30 for work.

Q Did you go to your home on Clark Street in Wayne?

A Yes, I did.

Q Can you tell the Judge what you saw when you got there?

A When I arrived we had to park down the street. I ran down the block. When I got into the house, I seen my husband standing there. I seen paramedics working on my daughter laying on the floor. My mom was sitting in the computer desk chair holding our son and then after I arrived there the scene I went hysterical and my husband was hysterical as well after I arrived.

Q Did you see your daughter Nikita?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A Yes, she was laying lifeless on the floor. The paramedics were working on her. They were suctioning her when I came in.

Q What happened then?

A She was taken by ambulance to Annapolis Hospital. I rode in the ambulance and I was put in the waiting room once we arrived there. My aunt took my husband up there. My mom and some other family met us up there. I got to see her for a second. She was life flighted to U of M Motts Children's Hospital in Ann Arbor. We drove out there and at first we weren't allowed to see her and then I stayed at her bedside. I couldn't leave her side.

Q By that time had the doctors told you anything about her condition?

A She was being life flighted because possibly surgery might do something but her brain was nothing but blood around her brain.

Q What time was it that she arrived or you arrived at the University of Michigan Hospital? Do you remember maybe roughly what time it was?

A It was roughly maybe 10. I know at seven I left to go to the scene. I don't know exactly how long from that to the hospital.

Q So you were at U of M some time during the late

RECEIVED by MSC 11/14/2022 2:28:48 PM

evening hours?

A Yes, late evening.

Q On the 10th?

A Yes, on the 10th.

Q And during the course of the night, did your daughter's condition -

A Worsened. She had not quality - there was nothing left. She coded and then she came back, you know, they brought first because they were going to do a CAT scan that morning, but from what they had already seen there was nothing that could be done.

MR. CRIPPS: Judge, I hate to interrupt, but she's talking - what medical opinions here that are beyond her scope to testify.

THE COURT: I would agree. I think this is hearsay at this point. I'll strike those answers.

MR. CRIPPS: Thank you, Your Honor.

BY MR. WOODYARD:

Q What happened in the morning?

A She passed away at 6:28 on the 11th of October she passed away.

Q What did you do after that?

A I sat there with her as long as I couldn't give

RECEIVED by MSC 11/14/2022 2:28:48 PM

her up.

Q At some point in time did you then return to your home or your mom's home?

A Yes, I finally left the hospital and went back to my parents house.

Q Who was there with you?

A My family, my husband, my mother-in-law.

Q And this would have been some time during the day on the 11th; is that correct?

A This is in the afternoon.

Q Did you go any where at day?

A I never left.

Q Were you there that evening?

A Yes.

Q Like late in the evening?

A Yes, I was.

Q Did anybody come over to your home late in the evening?

A Officers came to the door 11:20 that night.

Q How do you know that?

A Me, myself and my husband were getting ready to lay down to go to bed and there was a knock on the door. I went upstairs and got my mom.

Q Where were you laying down getting ready to lie down?

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q So regarding this first incident you said your husband had called her; is that right?
A Yes.
Q All right. That would be Milton Lemons, the baby's father?
A Yes, that is correct.
Q Okay. And in response to that call your mother came over; is that correct?
A That is correct.
Q And had to use an aspirator.
A A bulb syringe.
Q And that's the first incident when she noticed she had stopped breathing; is that correct?
A Yeah, because she was gagging.
Q Is that correct?
A Yes.
Q Okay. And you describing that clearly to the sergeant regarding medical conditions; is that right?
A Yes.
Q Okay. And in fact even after that first episode it caused you concern to the extent that you decided to take the child to a doctor, to a pediatrician; is that right?
A Yes, we took her.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q And when you say we, I'm assuming you're referring here to the defendant, Milton Lemons?
A Yes.
Q So Milton Lemons was involved in that concern, too; is that correct?
A Yes.
Q Okay. And then you went on to describe to Sergeant Williams that there was a second episode when your daughter appeared to stop breathing; is that correct?
A Yes.
Q All right. And that's when your daughter was about five weeks old; is that right?
A Approximately. I wasn't home.
Q Well, did you tell the sergeant when the sergeant asked you, did you say the second episode happened when the victim was about five weeks old; did you say that? I'm just asking is you said it or not.
A Yes.
Q Did you say that?
A Yes.
Q Thank you. And there was a third area of concern, medical concern that you described to Sergeant Williams regarding your daughter; is that correct?
A Hum, refresh me.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q You don't remember?
A (Inaudible.)
Q Did you describe some concerns you had regarding your daughter just recently as two days up to this incident? In other words, October any where between October 8th and October the 10th, 2005?
Q You don't remember telling him anything regarding that?
A No.
Q Okay. Do you remember telling Sergeant Williams that over the past - on October 12th when you were talking to him, that over the past two days the victim had been acting fussy from your observation of her?
A Yes.
Q You do remember?
A Now I do. Now that you - yes, she was a tad on the fussy side.
Q And you told him about those three areas in response to his questions about her medical condition leading up to October 11, 2005; is that correct, ma'am?
A Yes.
Q Okay. And on the day of October 11, 2005 you testified that you had left for work; is that

RECEIVED by MSC 11/14/2022 2:28:48 PM

correct?

A October 10th.

Q October 10th. Roughly what time was it that you left on October 10th?

A Two-thirty in the afternoon.

Q And when you left, you had placed your daughter on a swing; is that what you said?

A I placed her in her swing. Put the pacifier on the tray of the swing. I turned it on. I turned the music part on.

Q Who else was present in the home at that time?

A My husband, my son and my aunt.

Q And what's your aunt's name?

A Tina Barber.

Q I'm sorry? Tina Barber?

A Uh-huh.

Q Is that a yes or a no?

A Yes.

Q Okay. So there were two adults there when you left the home; is that right?

A Yes, my aunt left with me. She came to pick me up for work.

Q There were two adults there when you left the home is my question.

A When I left the home, no, there was only one adult

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q And do you remember telling Sergeant Linberg in relation to the phone call that you had with Milton Lemons, quote: "Lorie Lemons said the defendant was in a panic." Did you say that to Sergeant Linberg?

A Yes. Okay.

Q Thank you. And then when you arrived there you saw at your home after the phone call, is that when you saw the fire trucks and the police vehicles outside of your house; is that right?

A Yes.

Q And you came into the house at that point; is that correct?

A Yes.

Q When you came into the house, you saw Mr. Lemons; is that right?

A Yes.

Q Okay. And you saw Mr. Lemons in terms of what he was doing and how he was appearing; is that correct?

A Yes.

Q And when you were talking to the police, did you describe that Mr. Lemons appeared as if he was blank?

THE COURT: He was what now?

RECEIVED by MSC 11/14/2022 2:28:48 PM

MR. CRIPPS: Blank, b-l-a-n-k.

THE WITNESS: Yes.

BY MR. CRIPPS:

Q Did you use that term to described how your husband appeared when you came into the house?

A Yes, I did.

Q Okay. And he appeared as if he had a blank look just standing there when I came into the house; is that right?

A Yes.

Q Okay. Did you also observe that my client, in your words, turned into a basket case after you had arrived?

A Yes.

Q And did you describe what you meant by basket case. Could you describe that to the Judge?

A He went into full-blown tears and just hollering not again - can't be happening.

Q Not again, is that what you said?

A Yes.

Q And then you have already described to the Judge at what you saw going on. Obviously with the CPR treatment and things like that; is that right?

A Yes.

Q Now you said that after whatever treatment was

RECEIVED by MSC 11/14/2022 2:28:48 PM

occurring that the child was taken to Annapolis Hospital; is that right?

A Yes.

Q And you went to Annapolis Hospital obviously; is that correct?

A Yes.

Q And so did Milton Lemons; is that right?

A Yes.

Q He was there at the hospital?

A Yes.

Q And then you described how the child was taken to the University of Michigan Hospital; is that right?

A Yes.

Q And you drove to the University of Michigan Hospital; is that correct?

A I didn't drive, but yes, we drove to the University.

Q And when you say we, Mr. Lemons also?

A Mr. Lemons, my other family, my mom, my aunt. We all went.

Q You all went, but the group that went also included Mr. Milton Lemons; is that right?

A Yes.

Q And when you were there at the hospital describing

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE WITNESS: Okay. THE COURT: Thank you.

BY MR. WOODYARD:

Q Do you have a daughter named Lori?

A Yes, I do.

Q All right. Lori is married - was married?

A Yeah.

Q And do you know to whom?

A To Milton Lemons.

Q Okay. And you just kind of nodded and looked in the direction. Is that Mr Lemons in court there?

A Yes, it is.

Q Ms. VanMeter, I'd like to ask you about your granddaughter, Nikita. Well actually I'll ask you about Lori's younger children, Milton, Jr. And Nikita.

A All right.

Q Was there a time when you lived across the street from Lori and Milton and their children?

A Yes.

Q When was that?

A Well, from the time they got married until just after Nikita was born. So, a year.

Q Okay. During that time, do you know who cared for the babies?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A Lori did, I had MJ often when Lori was at work.
Q And MJ is - what is his real name?
A Milton, Jr.
Q Milton, Jr. And you call him MJ?
A Uh-huh.
Q I'm going to ask you about the evening of October 10th of 2005. Do you remember that evening?
A Yes, I do.
Q Where were you that evening?
A I was at home.
Q Do you remember getting a telephone call?
A Yes, I do.
Q Who called you?
A Milton Lemons called.
Q Okay. Do you remember what he told you or what the conversation was about?
A He told me that Nikita stopped breathing and that was pretty much it. I said I was on my way and I left the house.
Q And where did you go?
A I went the house on Clark Street where they lived at that current time.
Q When you arrived what did you see?
THE COURT: Could I interrupt for just a moment before you move on?

RECEIVED by MSC 11/14/2022 2:28:48 PM

Ms. VanMeter, can you tell us at the time that you received this phone call, how far away from your daughter, son-in-law and grandchildren did you live?

THE WITNESS: About five minutes away. Between three and five minutes away.

THE COURT: Okay. Thank you. Go ahead.

BY MR. WOODYARD:

Q And when you got the call, did you go directly there?

A Yes, I did.

Q So it just took a minute or so?

A Yes, it didn't take long at all.

Q Okay. So when you arrived, what did you see?

A Mr. Lemons was standing in front of the door talking on the phone, his neighbor was sitting on the couch at the head of Nikita and Nikita was laying on the couch motionless.

Q Did Mr. Lemons say anything to you?

A She's not breathing.

Q And what did you do?

A I went over and I tapped her foot. I called her name. I rubbed her belly. I couldn't get no response from her. I started to do infant breathing for her but -

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q What is infant breathing?
A Small short breaths through the nose and mouth with my mouth covering. I wasn't getting no response. I was telling him to tell them to hurry up because the EMS - the EMT weren't there yet.
Q Was Mr. Lemons on the phone?
A Yes, supposedly with 9-11. I don't know who he was talking to. They said to tap her back. I tapped her back. I picked her up. I just couldn't get her - anything from her.
Q Okay. What happened then?
A Next the EMT's came in and they took over. They put her on the floor and started trying to revive her.
Q Okay. And were you there for the whole time that she was being worked on?
A Yes, until she left with the ambulance.
Q Now, Ms. VanMeter from the time that you arrived until the time that Nikita left in the ambulance did you ever see anybody do anything with her arms like bend them or pick her up by the arm or do anything like that?
A No.
Q Did you do anything like that with an arm or pick her up?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A I picked her up under her arm supporting her head and called her name and then I laid her on my lap. But I picked her up supporting her head under her arms, but not with the arms just the arms.

Q Did you go with your daughter and her husband to the hospital?

A Yes. Well, to Annapolis first. I took my grandson to my house and dropped him off with my husband and other children and then went from there to Annapolis. And then when she left to go to the University we drove out there and I was with them.

Q Who is we then?

A My sister, myself, Mr. Lemons and my daughter Lori.

Q Were there times when you were at Annapolis and at the University of Michigan when as a family you would speak to a doctor or a nurse about what was going on?

A There was one time that the nurse came to get a history out in the waiting room when we first go there, but other then that I didn't talk to the doctors after that.

Q During that conversation, did you hear that conversation?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A Bits and pieces of it.
Q All right.
A Not all of it.
Q Did Mr. Lemons speak during that conversation?
A Yes.
Q Did you hear anything that he said regarding the child?
A Hum, not that I can really come up with other than, you know, this has happened to me before. Why is it happening again? You know, I've lost a child before, why am I losing a child again?
Q Did he say anything about how Nikita may have come to stop breathing?
A Hum, what he told me and that was in travel was that she was drinking a bottle and that it came back up through her nose and mouth and that's how she stopped breathing.
Q Did he say anything else to the doctors or the nurse that you heard regarding that?
A Hum, no. He just said that it happened twice before.
Q During the time before the Nikita was born, to your knowledge, were there times when Mr. Lemons would watch his son?
A Yes.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q How is it that you know that was going on?
A Because Lori would be at work that day because I would take her work or he would take her work or, you know, one of us would take her to work.
Q Do you remember ever getting phones from Mr. Lemons during those times?
A Yes.
Q What would those phone calls be about?
A Well, sometimes he would ask me if I would come get him because he needed to just, you know, he's just too antsy and doesn't want to lay down. He needs to rest. Would I come get him?
Q You said sometimes that was the nature of the conversation. Were there other times that it was different?
A Sometimes he would just call and say, what's going on over at the house. Normal chit chat.
Q Do you remember speaking to Sergeant Williams about this?
A Yes.
Q Okay. And during that conversation, do you remember talking to him about Mr. Lemons caring for his son?
A Hum, that I would sometimes have him.
MR. WOODYARD: Judge, may I approach?

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q And were you informed by Mr. Lemons of any other incidents?
A Yeah, he said that there was one more.
Q One more?
A There was one more and that's when I said, well, maybe we need to look at her formula and switch the formula.
Q And in fact the day of this incident itself, did he call you again?
A He called my daughter because we work together, but no he never -
Q I thought you testified that on the evening November 10, 2005 -
A October 10th he called me on that incident.
Q Right. That's what I was asking you about.
A Oh, I'm sorry. There was an incident before that.
Q The incident before that you were talking about that one week after; is that correct?
A Correct.
Q Her birth?
A All right.
Q I was asking you - when I said the incident itself, I should have said I'm talking about October 10, 2005.
A Yes, he did call me.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q He called you again and again he said that Nikita had stopped breathing; is that right?
A Correct.
Q So this is the second time at least with you that he's called you about a breathing incident; is that right?
A Right.
Q Okay. And so you immediately went over there; is that right?
A Correct.
Q And you said when you came in the house, you saw Mr. Lemons on the phone; is that right?
A Yes.
Q And you saw another person there in the room?
A Correct.
Q Where was Nikita?
A On the couch.
Q With the other person?
A Yes.
Q What was the other person doing?
A Just sitting like up above her head. Just sitting on that part of the couch above her head.
Q Did she have the child in her hands?
A Not that I recall. Nikita was laying on the couch.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q And the neighbor was sitting right next to her?
A Right.
Q You don't know the neighbor's name; is that right?
A Her name was Rene.
Q Did you know her from the past then?
A I had met her once.
Q Did you see Rene perform any kind of attempt of CPR or anything in relation to the child?
A No.
Q All you saw was that she was sitting next to the child; is that right?
A Right and she said, I'm sorry I don't know anything about CPR.
Q What did you do?
A I went over and sat at the foot of Nikita and tapped her foot, rubbed her belly, called her name. I picked her up and called her name. I laid her on my lap.
Q How did you pick her up?
A I picked her up supporting her - my hand supporting her neck under the arms and picked her up and laid her on my lay.
Q And then what did you do?
A I tapped her back.
Q How did you - you turned her over then; is that

RECEIVED by MSC 11/14/2022 2:28:48 PM

right?
A I turned her - yeah, turned her on her stomach and tapped her back.
Q And then you started do CPR?
A I attempted to do some infant breathing.
Q Did you describe that as CPR?
A Yes.
Q That's what you told the police. You said you were doing CPR.
A Yeah, started doing infant breathing. I hadn't done any chest compressions or anything. I just started infant breathing.
Q When you spoke with the officer regarding this incident, did you say that when you arrived, you started assisting doing CPR on Nikita until rescue arrived?
A I did not say I started assisting. No.
Q If I were to show you Officer Emmerit's police report, when she says that you said that, would that refresh your memory?
A I don't remember saying assisted. I said I started CPR.
Q Would that refresh your memory if I showed you Officer Emmert's (Ph.) report and what she said that you said you had started assisting doing CPR

RECEIVED by MSC 11/14/2022 2:28:48 PM

until rescue arrived?

A Who was this, officer who?

Q Officer Emmert (Ph.) of the Wayne Police Department.

A I don't remember talking to that officer, but you can show it to me.

Q Do you remember on October 11th going or being on 3906 Clark Street?

A That evening, yes, I do.

Q And do you remember a Wayne police officer arriving?

A I remember that the Wayne police were there when we got there.

Q Okay. And do you remember talking to the police?

A Yes.

Q I'm asking you to read this over to yourself, just to yourself and I'll ask you a question when you're done reading it.

A Okay.

Q Did you have a chance to read that over?

A Uh-huh.

Q Is that a yes?

A Yes, it is.

Q Did you understand what you read?

A Yes.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q Are you saying it out of anger towards him?
A No. I'm not. That is how he is.
Q Because, obviously, you weren't there to know; isn't that correct, ma'am?
A No. I was not there, but he is not want to clean up just his stuff.
Q I'm asking you about a specific date and time when you weren't even present, ma'am. I'm not asking about what you believed his common practice was. Do you understand my question?
A Yes, I do.
Q And you wouldn't know on this given day on that given time, when you weren't there whether he used some other dishes and bottles and clean up after himself, would you?
A No, I don't.

MR. CRIPPS: Nothing further, Your Honor.

THE COURT: All right. Thank you, Ms. Lemons, you can step down.

I think we'll break at this time. I understand we're waiting on another witness that is not here. We have a matter to take up over the lunch hour as well. So we'll have to recess until two o'clock.

(Off the record.)

RECEIVED by MSC 11/14/2022 2:28:48 PM

(Back on the record.)

THE CLERK: Back on the record on Lemons

MR. WOODYARD: People Call Renee Zdye to the stand.

(The witness is sworn.)

R E N E E Z D Y B

Was called to the stand at the instance of the People after first being duly sworn, testified as follows:

D I R E C T E X A M I N A T I O N

BY MR. WOODYARD:

Q Good afternoon?

A Hi.

Q Will you tell the Judge what your name is please?

A Renee Zdyb.

Q And Mr. Zdyb, what city do you live in?

A Wayne.

Q What street?

A Clark Street.

Q Did you used to be neighbor with this man, I am pointing to the defendant?

A Yes, I did.

Q Do you know what his name is?

A Milton.

Q How did you know Milton?

A He was my neighbor.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q Where did he live in relation to you?
A A joining houses. I live in a duplex.
Q How long were you next door neighbors?
A Maybe two months.
Q Do you remember October 10th of 2005?
A Yes, I do.
Q Do you -- did something happen that day?
A Yes.
Q I'd like to direct your attention to sometime in the evening and ask, do you remember what time this occurred.
A No, I don't?
Q Okay. What was it that happened?
A There was a knock at the door. I was taking a nap, and Milton had asked my husband if I was home and he said yes. I was taking a nap. He said he needed to see me. So I got up and went over there and knock on the door. He came to the door with the baby in his arms, formula pouring out of her mouth. He said that she was choking on her formula. She was drinking her bottle and she started choking. I told him he needed to call 911 because I don't know child CPR.
Q Did you call 911?
A He asked me to hold the baby while he called 911, and I took the baby, and he took the phone into the

RECEIVED by MSC 11/14/2022 2:28:48 PM

bedroom and called his wife.

Q How do you know he called his wife?

A I heard him talking to her -- by name?

Q Then what happened?

A And he came back out, and I told him she's still not breathing, he needed to call 911. He went back into the bedroom and called his mother-in-law.

Q How do you know he called his mother-in-law.

A Because I heard him screaming. I didn't know it was his mother-in-law at the time.

Q Okay.

A But I found out later it was her that he had called.

Q What happened next?

A Then he came back out and I told him you have to call 911, I don't know CPR. He said I know CPR. He took the baby from me and put the baby on the couch, and I proceeded to call 911?

MR. WOODYARD: Judge, may I approach the witness?

THE COURT: Yes.

MR. WOODWARD: Your Honor, at this point, I'm going to offer People's Proposed Exhibit Number Five

THE COURT: Have you had heard it, Mr. Cripps?

MR. CRIPPS: Yes.

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Q But you don't know?
A At that time, I must have heard something because at that time, I did tell him once again to call 911 and that's when he handed me the phone.
Q What did you when you got the phone?
A I dialed 911.
Q And that's when you said we heard the voice on the phone said I need EMS right away at 3906 Clark Street. I got a baby that's not breathing?
A That's correct.
Q She's like two months old?
A That's correct.
Q So she wasn't breathing at that point?
A Right. She was not breathing when I walked into the house.
Q And they told you not to hang up, stay on the line, right?
A I don't remember if they told me that or not. They asked me if I knew child PCR and I told them no.
Q Before I get to that point of the tape, you said, quote, she's not breathing. She choking on some formula. She's not breathing. Do you remember saying that?
A Correct. Yes, I do.
Q They say have you been able to get anything out of her

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at all or seen anyone do anything, and your answer to that was, got some milk out of her?

A Yeah.

Q So, you got --

A I used the word got the milk that was in her mouth and around her mouth is what I had gotten, nothing actually came up.

Q But you said you got some milk out of her, that's what you said on tape; is that right?

A Yes.

Q That's what I just heard?

A That's what I heard too, yes.

Q Then you went on to say every now and then she let out like a little yuk and that's it. She can't -- she's not -- her chest is not moving at all. She lethargic. She is not responding.

A Actually, it was a little ka-a-a-a-a.

Q That's what I said on tape; is that correct?

A I said Ka-a-a-a-a. If you listen I said a little ka-a-a-a.

Q And then they asked whether the dad was there and you said the dad is right here. Did you want to talk to him then Mr. Lemons got on the phone; is that correct?

A That's correct.

Q And then you heard Mr. Lemons say after there's a

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reference, do you know anything about CPR and a baby, Mr. Lemons said, no, I don't. I know how do it on an adult, but I can't do it on a baby. You heard that?

A Yes, I did.

Q And then you heard the dispatcher say over and over again, be very very careful because it's a child, right?

A Right.

Q Now, there comes a point where the dispatcher said --

MR. WOODYARD: Judge, I'm going to object to what the rest of the people said on the tape. The Court has heard the exhibit. It has been admitted into evidence. This witness was not a party to that conversation. And I'll object to its relevancy as hearsay.

MR. CRIPPS: Well, it's an exhibit in the case.

THE COURT: Well, I think since the exhibit has been received, the witness can be asked about the contents. She can't speculate. Can't answer about things that she didn't hear, but as it give rise to some other responses or observations that she made, I think it's relevant, and I'll allow her to testify. Go ahead.

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Monday August 7, 2006,

Detroit Michigan

- - -

THE CLERK: This is Case NUMBER 06-4818, **PEOPLE of the STATE of Michigan versus MILTON LEMONS.** He's here today for continuation of a trial.

THE COURT: Appearances please.

MR. WOODYARD: Good morning. Michael Woodyard on behalf of the People.

MR. CRIPPS: David Cripps on behalf of Milton Lee Lemons, Sr.

We are ready to continue. Thank you.

THE COURT: All right. Mr. Woodyard, I understand you have another witness?

MR. WOODYARD: We do, Judge. We call Dr. Bader Casin to the stand.

(Witness is sworn.)

D R. B A D E R C A S I N,

was called to the stand at the instance of the People after first being duly sworn, testified as follows:

D I R E C T E X A M I N A T I O N

BY MR. WOODYARD:

Q Good morning.

A Good morning.

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Q Would you just state your name for the record please?
A My name is Bader Casin.
Q What do you do for a living, sir?
A I'm a physician. I practice pathology, and specifically, forensic pathology.
Q And where do you do that?
A I do that in Ann Arbor. I'm on staff of the University of Michigan in the Department of Pathology where I teach, and also Washtenaw County Medical Examiner.
Q How long have you been with the University of Michigan?
A Since 1995.
Q How long have you been the Washtenaw County Medical Examiner?
A Same time.
Q Where did you work before then?
A I was in Wayne County in Detroit. I was the chief medical examiner in Detroit since 1988.

MR. CRIPPS: Your Honor, if these questions are for the purposes of establishing credentials for his expertise and ability to testify as an expert in the field of the forensic pathology, I'm more than prepared to stipulate to that. I have cross-examined Dr. Casin countless times and I'm aware of his

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credentials, and I have no objection to him being qualified as an expert in that field.

THE COURT: Mr. Woodyard, unless --

MR. WOODYARD: Unless the Court has something to add we would --

THE COURT: I have known Dr. Casin for some time. He has appeared numerous times. So if there is a stipulation by the People as well, I will permit Dr. Casin to testify as an experts in the field of forensic pathology and to give his opinion in that area.

Go ahead.

MR. WOODYARD: Thank you.

CONTINUING BY MR. WOODYARD:

Q So Dr. Casin, in the course of your work, I would like to direct your attention back to October of last year, specifically, October 11th, and ask whether you recall performing an autopsy on that date?

A I did.

Q And did you perform more than one that date?

A I don't recall.

Q Do you recall performing an autopsy on a small baby?

A I do.

Q Do you remember the name of that baby?

A Nikita Faith Lemons.

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Q Do you know why you were asked to perform an autopsy on that child?

A The death was reported to our office, and it was reported to our office because it was believed to either be the product of trauma or, at least, the cause of death was not known?

Q In circumstances such as that, Doctor, where a death is referred to your office for those reasons, what do you generally do, or what is generally done?

A Our procedure is to investigate or initiate an investigation. We do this through an investigator. At the University of Michigan a couple pathology residents, that is to say, young physicians who are training in pathology, work for me as investigators and they do initiate an investigation by phone call to various agencies. If a police agency is involved, they call them. If an ambulance run is involved, they get that record. And if the patient has been in the hospital, which was true in this case, they access the medical records and speak to at least the principal physician.

They accumulate that information and then dictate a report and give it on to me. At the same time, as calling me to alert me that a certain case is in process.

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When the body comes to me and the time for examination occurs, and in this case, it was later that same morning. I then examine the body as well as the investigator's report and look at the outside surfaces of the body and then proceed if necessary to an internal examination, which is typically called an autopsy.

Following that, I assemble my thoughts and conclusions and begin to document those.

THE COURT: So, before we proceed any further, can I see both sides at Side Bar.

(Counsel approach the Bench.)

(Off the record.)

(Back on the record.)

THE COURT: Go ahead, Mr. Woodyard.

CONTINUING BY MR. WOODYARD:

Q Now, as it relates to these general procedures, do you know, if, in fact, these procedure were followed as it relates to Nikita Lemons?

A Yes, they were?

Q So, I'd like to then start from the moment when you conducted on external exam of the child's body, and do you remember seeing anything remarkable at all about that?

A There was nothing remarkably abnormal. The child

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appeared to be well fed and cared for. The child was described to me as approximately 2 1/2 months in age and did appear to be that age?

Q Do you remember if you saw any external signs of trauma, any cuts or bruises.

A I did not?

Q So you said the next step is to proceed on to what is referred to as an autopsy?

A Yes. I did so because it was not apparent to me what the diagnosis was at the stage we're speaking now. So I proceeded to an internal examination?

Q During the course of that examination, did it become apparent, to your opinion, what in fact, had caused the death of Nikita Lemon?

A Yes.

Q And in your opinion what was that?

A I found brain swelling with blood on the brain surfaces as well as in the nerve sheaf of both eyes and recognized this as an organization of findings in the absence of any other thing of phenomenon called Shaken Baby Syndrome.

Q You say you recognized this group of symptoms or conditions. Let's go further, if you will.

The brain swelling and the bleeding in the brain and the optic nerve bleeding. What sort of --

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describe for the Judge what this shaken baby is.

A It is understood in our field that shaking or rapid oscillation of the head of a child, which in fact, happens because the child's neck muscles at this age are insufficient to control a shaking back and forth, causes the brain to follow the shaking motions of the head whipping back and forth, but slightly behind it. And so the brain, the soft brain, is striking the internal surfaces of the skull.

At which time, it begins to swell, which is what a brain does when it is abused in this way, and the surface vessels that bridge between the internal skull surface and brain surface, are tearing. These are small bridging veins, and they deposit a surface of blood on the brain top. And at the same time, there is a stretching of some of the nerves of the brain.

The two largest nerves in which this is evident are those that go to the eyes, and there is bleeding therefore in the nerve sheaf or covering of those two large nerves.

Q Is this a natural phenomenon that might occur?

A It's not a natural phenomenon. We don't find it, for instance, in falls, that sort of thing, or in dropped children. We do not find it in when children run into

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objects or, for instance, or even when they are struck by automobiles.

Q So these were all findings that you made actually in the child's head?

A Correct.

Q And did you make any other findings as you continued your duties?

A The other findings were essentially normal. There were normal organs in the torso and all of the findings there were as expected in a healthy two and half month old child.

Q Did you x-ray this child's body?

A Yes.

Q Why did you do that?

A It is our routine to do full body series of films so as to pick up any subtle things in the skeleton, for instance, that we may not note at the time of our examination.

Q Do you recall what, if any, findings you were able to make as a result of that x-ray series?

A Yes. There was an abnormal finding. It was small fracture that was present at the top of the right shoulder.

Q Based on what you had learned about this case at the time you did those x-rays, I suppose up until now, you

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A A state of consciousness is rapidly loss in brain swelling in infants more rapidly than in adults, and I expect that the child would have loss consciousness quite soon. And by that, I mean within a minute or so of the time of this injury.

Q What about the vomiting or regurgitation, how quickly would that --

A That would happen as the brain swells, so it would happen at virtually the same time.

THE COURT: Doctor, why does the loss of consciousness come more rapidly to an infant than child or an an adult?

THE WITNESS: The brain swells more rapidly first of all.

Secondly, and so the speed of swelling is more enhanced and therefore the full affect is manifest sooner. That's probably the best answer.

THE COURT: Okay.

CONTINUING BY MR. WOODYARD:

Q Dr. Casin, did you learn anything about this child's previous medical history, or do you remember if what, anything you read about that?

A I did at the time review that and my recollection now is that the child had had some difficulty breathing on a previous occasion or perhaps several. That was

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manifested by gas pain I believe. I'm not quite sure of more of that, but that was a part of the review that I had.

Q So would that occurrence, would that circumstance, does that at all factor into your opinion about the child's cause of death, does it change it. If I told you, in fact, the child had gas and appeared to lose consciousness of breath when the child was one week old and when the child was five weeks old?

A It wouldn't change my opinion about the cause of death because first of all, I did not find anything in that review both grossly and microscopically that would explain such a history. And everything that I did find was of an acute nature. Something that had happened just before death.

In other words, I found no evidence of tumor. I found no evidence of malformation, and I found no evidence of (inaudible) bleeding or any previous injury.

That does not rule out -- if I might continue -- that does not rule out things I might not find evidence of such as a seizure that the child may have had, it couldn't change my opinion about the cause of death because seizure was not a part of this injury issue. This is an external force that caused

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this injury.

Q Clarify that for me will you. Could a seizure -- if the child had suffered a seizure could she have displayed the symptoms that were presented?

A I think possibly. I have not mentioned evidence of a seizure such as sudden rigid or abnormal behavior, loss of control of the body, but that would be manifest in a seizure. But it may be the symptoms may be or misinterpreted or interpreted as due to a seizure.

Q During the course of your examination, do you also then microscopically examine parts of the body?

A Yes.

Q Did you examine the child's eye balls?

A Yes.

Q Do you remember, if anything, you saw during that course of that examination?

A Yes. I confirmed that the hemorrhage and nerve sheaths were there and were acute. I also found that they were in both nerve sheaths. I found in the retinas of both eyes hemorrhages that were likewise acute. The retina is in the back of the eye.

Q Is retinal hemorrhage consistent or inconsistent with your opinion thus far?

A It's consistent.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q During the course of your professional efforts in this case both during the autopsy and at trial, is there anything that you have learned that would cause you to change your opinion?
A No.
Q Did you talk to the police during the course of your autopsy during the course of that day or the following day, do you remember?
A Yes, I usually do. I'm not sure if the police officer was present at that time, but I don't believe so. However, I did speak to a police officer from Wayne afterwards and I did so by making that phone call probably to report my findings.
Q Do you know whether before or during the course of your autopsy, actually, during the procedure, do you remember whether you had spoken to police or was it only afterwards?
A Could I check my report?
Q Of course?
A My report indicates only one witness and that would have been my assistant, and had a police officer been present, I would have named him or her.

MR. WOODYARD: Just one moment, Judge?

THE COURT: Sure.

(Off the record.)

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q And that was probably a response to a phone call that he may have made trying to find out what your preliminary diagnosis was?
A That could be. I'm not sure.
Q To assist him in his own investigation that he was conducting, I assume; is that right?
A I would assume that too.
Q And in relation to the phone call that you made that, in fact, you informed or tell Sergeant Williams on the phone that in relation to your examination of this case that the injuries that you saw could have been intentional or they could have been accidental injuries in relation to the death of Nikita.
A That sounds like something I might say.
Q That is, in fact, what you did say; is that right?
A I don't know.
Q You would agree that although you may not remember specifically, you would agree that you probably did say that to Sergeant Williams?
A Sure.
Q And just to kind of sum this up here, you already indicated to the Judge that you believe, ultimately, after looking at the microscopic slides that you reached this conclusion, as you've labeled it, shaken baby syndrome, you reached that conclusion in this

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case?
A I did.
Q But there are based on your examination and experience in these sorts of things, there are different explanation for how that can have occurred; is that right?
A Well, I am not in doubt that it could have occurred from shaking, but I'm not always prepared as I just indicated and you quote me, to interpret the intent under and the circumstances under which that happens.
Q But you have testified that even in relation to this case that the shaking of an infant can be done naively, is that right?
A Yes.
Q Without any sort of intent or purpose to injury a child?
A Yes.
Q Now, you did examine the scalp area of the child; is that right?
A I did.
Q There was no showing of a hemorrhage; is that correct?
A Correct.
Q There is no showing of subjacent skull fracture; is that correct?
A Correct.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q Does that undercut in any way the syndrome that we're talking about here, because you -- you didn't expect to find either?
A Not necessarily. In my practice I find sometimes relatively small but still present injuries in the scalp, in many cases none.
Q But isn't that something you expect to want to find in a shaken baby diagnosis?
A No. And I'm not sure why I would want to because strike the head is not an issue here, it is the shaking that does the damage?
Q Except you talked about it yourself that you want to exclude if you could a seizure as a possible cause here; is that right?
A Correct.
Q And obviously, a finding of hemorrhage or subjacent skull fracture would have helped you exclude a seizure?
A It would have helped, but the hemorrhage that I found inside helped me as well.
Q Also, Doctor, there was no showing of any distinct hemorrhages of the neck; is that right?
A That's correct.
Q And that's something that you'd want to find too in terms of a diagnosis of shaken baby because --

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A Correct.
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A It would have helped, but the hemorrhage that I found inside helped me as well.
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A That's correct.
Q And that's something that you'd want to find too in terms of a diagnosis of shaken baby because --

RECEIVED by MSC 11/14/2022 2:28:48 PM

probably you can phrase it better than I can, because of the weak muscles in the neck of an infant, right?

A In some cases you may find that, in many cases not.

Q We didn't find in this case either, die you?

A We did not.

Q So we have both combination of a lack of finding of a hemorrhage, of a lack of the finding of a subjacent skull fracture, and a lack of finding of any distinct hemorrhages of the neck?

A That's correct.

Q Which again makes this case a little bit closer question, would that be fair to say?

A Not to me. The essential findings in shaking are the subdural hemorrhages, and the nerve sheet hemorrhages, and the retinal hemorrhage and a swollen brain.

Q Let's talks about the small fracture to the right shoulder that you talked about in relation to the arm of child?

A Yes.

Q Now, that's obviously something that could have been caused by CPR; is that correct?

A I don't think so. This is A bone at THE top of the shoulder and again would come from an external stretch upward and outward stretch of the arm. I don't know how it was sustained, but I'm not aware that CPR could

RECEIVED by MSC 11/14/2022 2:28:48 PM

do that.
Q But it's a possibility; is that correct?
A There are a lot of possibilities.
Q And I asked you the same question at the preliminary examination. Remember we went over this area?
A Yes.
Q And I asked you a question in terms of your testimony regarding the injury of the shoulder of the child, is it is possible that it could have been done at the scene by excessive CPR in a small little infant. Answer -- page 84 --I have to say I don't know. I wouldn't want to say how the injury was sustained. I just found it. Do you remember testifying that way?
A I do now, yes.
Q That's a fair summary of what you said then and would it be fair to say that's your conclusion now; is that right?
A Correct.

MR. CRIPPS: Nothing further, Judge.

THE COURT: Mr. Woodyard.

MR. WOODYARD: Thank you, Judge.

REDIRECT EXAMINATION.

BY MR. WOODYARD:
Q Doctor, I just want to go over a couple points, if I may:

RECEIVED by MSC 11/14/2022 2:28:48 PM

A No.
Q No. And the major blood vessels of the neck were also normal upon your examination; is that correct?
A Yes.
Q So there is nothing in terms of looking at the neck that would suggest this syndrome at all is there from looking at the neck?
A Correct.
Q And again, it's something that you would hope to find in terms of a showing of shaken baby syndrome?
A No. I often don't find anything. Finding something in the neck is not common, but it is found in some cases. That's why I look.
Q It certainly would be helpful in a diagnosis of shaken baby syndrome?
A Depending on where the injury was and what it was.
Q And it would help in terms of answering the question like Judge Kenny asked about how many times, hypothetically, potentially, a child could have been shaken?
A Again, it's the number of times, but it might help a question, help answer a question, what direction was the flailing of the head, was it directly on center, or perhaps off center, which is when you would expect to have little more of that.

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Q You have excluded in this case for sure it sounds like if there was any shaking of the baby from side to side?
A Yes.
Q Lastly, in terms of -- this is a hypothetical question, but let's say somebody inartfully did CPR after a baby had some other complication like a seizure, could that have, now that we know that there is back and forth. If the baby were turned over and moved around when someone is pat and given excessive CPR to chest or back, could that have caused these injuries here?
A I don't think so. It's the oscillation that causes the injury. Admittedly, you've said inartfully.
Q Yes?
A So it would depend on was there oscillation, was part of the CPR unfortunately, a shaking of the child to see if that might elicit some response just to propose another -- then I would say I couldn't exclude that possibility.
Q Thank you.

MR. CRIPPS: Nothing further, Judge.

THE COURT: Mr. Woodyard, anything else?

MR. WOODYARD: No, Judge.

THE COURT: All right. Thank you,

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Doctor.

MR. WOODYARD: May the Doctor be excused.

THE COURT: Yes. Your Honor.

THE COURT: Mr. Cripps, did you want to take a moment to take quick call.

(Off the record.)

(Back on the record.)

THE CLERK: Back on the record on Milton Lemons, File Number, 06-4818.

Do you have another witness, Mr. Woodyard?

MR. WOODYARD: People would call John Williams to the stand.

(The witness is sworn.)

J O H N W I L L I A M S,

Was called to the stand at the instance of the People after first being duly sworn, testified as follows:

D I R E C T E X A M I N A T I O N

BY MR. WOODYARD:

Q Good morning to you, sir.

A Good morning.

Q How are you?

A Very good.

Q Would you state your name for the record please?

A John Williams.

Q And where do you work?

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one wasn't written.
Q Why wasn't one written, if you know?
A After the fact, it was because they had a baby that wasn't breathing who was transported to the hospital and they just didn't feel one was necessary at that time. I think it was being ni eve.
Q So when this additional information was learned you directed Officer Em irk to do some follow up and draft a report?
A Correct.
Q What happen then?
A I went home for the evening,and subsequently later that evening Officer Emrick contacted me at my home --

MR. CRIPPS: October as to any hearsay, Your Honor.

THE COURT: Response?

MR. WOODYARD: I'm not sure that that was hearsay, but I can move right on.

THE COURT: It does sound to me like it hearsay, but I'll take the answer not for the truth of what's contained in what Officer Emrick had said, but only has it gives some explanation as to what the Chief might have done as a result of that conversation.

Go ahead. You can answer that question.

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CONTINUING BY MR. WOODYARD:

A Officer Emrick informed me that he spoke with the mother-in-law, I believe, of Mr. Lemons and a neighbor. Through his conversations, he informed me that the neighbor had originally gone to the house because Mr. Lemons had gone over there, he handed her the baby and she told him to call 911. He then called his mother-in-law or his wife, I'm not sure. The neighbor told him again to call 911. Again, he called either his mother, mother-in-law, or his wife, and finally he took the baby back from the neighbor and she ended up having to make the call to 911.

Q And was this information somehow significant in the course of your investigation?

A Yes, it was.

Q What did it cause you to do?

A Well, in conjunction with some information that I found out from Dr. Casin as to the result of his autopsy, and the fact that the defendant was reluctant to call 911, I advised Officer Emrick that when Mr. Lemons returned home to arrest him on probably cause.

Q Do you know whether he was, in fact, arrested?

A He was.

Q Did you have an opportunity after that to speak with Mr. Lemons?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A I did, yes.
Q Do you remember when that was?
A It would have been the following morning, October 12th, I believe?
Q Do you remember what time, roughly?
A Approximately 11:30 in the morning.
Q Do you remember actually seeing Mr. Lemons for the very first time?
A I don't know if I remember -- I remember being in the interview room with him, but I don't remember the specific meeting.
Q All right. You said you remember being in the interview room with him. He was, in fact, in custody at that point in time?
A Yes.
Q What I'd like to do is --

MR. WOODYARD: Your Honor, this has been marked as People's Proposed Exhibit Number Eight. I've shown it to counsel.

CONTINUING BY MR. WOODYARD:

Q Chief Williams, I have handed you that document. It consist of several pages. Do you recognize that paper?
A Yes, I do.
Q Why do you recognize it? Have you seen it before?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A Yes. This is the Miranda Rights Notification Form that I used prior to my interview with Mr. Lemons and a hand-written statement by Mr. Lemons and an additional question and answer statement that I took from Mr. Lemons.

Q Let's talks about the Miranda Rights Notification, if you will. What is that?

A This is a form that is provided in our police department. Prior to interviewing anyone we read them their rights. We go through each right, ask them if they understand them. If they do, they initial the right at they are being read, and they also sign the form acknowledging that they understood their rights.

Q Is this the actual form that you'd use?

A Yes, it is.

Q How do you recognize it as being the actual form?

A It had my signature on it and it's also in the remark section and the bottom portion where it's the date and place. It's all in my writing.

Q Do you remember filling that out?

A Yes.

Q The rights that you're referring to they're numbered one, two, three, four, five, is that correct, at top of the page?

A That's correct.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q Next to each of those numbers are initials. What are those initials there for?
A Again, as each right was read, Mr. Lemons initialed them. If he understood them, he acknowledged that by initialing each right as we went.
Q Did you offer him that direction?
A Yes.
Q And in fact, there's another signature on this form also, is there not?
A That's correct.
Q And whose signature is that?
A Milton L. Lemons, Sr.
Q Did you watch Mr. Lemons put this signature on this paper?
A Yes, I did.
Q Did he do that for any particular reason?
A Once again, to acknowledge that he understood the rights.
Q In addition to the five numbered rights, there is also two sentenced paragraph there; is that correct, would you read that please?
A Yes.

I understand these are my rights under the law. I have not been threaten or promised anything.

Q And there are some initials there?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A Mr. Lemons also initial that, those lines.
Q You indicated remarks, what those remarked? What are the remarks?
A Prior to reading him his rights, I asked him how far he had gone through school, just to get an idea if he could read or interpret things. And he acknowledged that he had completed two years of college.

And I also had Mr. Lemons read the first right out loud just so I knew that he could read. So I wrote that down in the remark section that he read number one out loud.
Q And then what follows in People's Proposed Exhibit Number Eight, there are five pages there; is that correct?
A Yes.
Q What are those five pages?
A The first page is a hand-written statement by Mr. Lemons himself. The following four pages are a question/ answer form of the statement that I wrote down the questions in a Q and A form, put his answer down.
Q Do you recognize each of those five pages as the actual pages that were produced during that interview section?
A Yes.

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MR. WOODYARD: Judge, I move to admit People's Number Eight.

MR. CRIPPS: No objection, Your Honor.

THE COURT: All right. Proposed Exhibit Number Eight will be received.

CONTINUING BY MR. WOODYARD:

Q What I'd like you to do Chief Williams, if you -- how did Mr. Lemons come about writing down the statement?

A Well, initially, after I had read him his rights, I asked him what had happened referring to with his daughter. And he provided -- initially, began giving me a verbal statement. He informed me that about 2:30 his wife had gone to work and shortly right around four o'clock the victim was sleeping, and he heard her fussing at that time.

At around 5:30 I believe he said he got her out of bed or fed her a bottle, burped her and around 10 to 6, I think he said that he laid her back down to go to bed. And shortly after that, he heard his son one and half year old son banging on the wall. And the son also sleeps in the same room as the victim.

So he went in there -- and at that time, that the victim was having trouble breathing, I believe, were his terms. And at that point, he went to his neighbor's. Asked him neighbor to call 911.

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Went back in and started doing CPR on the baby. At point, he told me he didn't know if he shook her to hard when he was trying to wake her up.

Q What happened then during the course of your interview?

A At that point after what is he had told me, I confronted him with the fact that I had the results of the autopsy and the autopsy showed that Nikita had died as a result of being shaken. Something along those lines.

And at that point, he got very quiet and he provided me with a different version of what had happened.

MR. CRIPPS: Objection to his speculation, Your Honor.

THE COURT: I'll take the answer.

Overrule.

CONTINUING BY MR. WOODYARD:

A He provided me with the version that is now in his handwriting, and it page one of five.

In the upper left hand corner of the statement is my writing. It say Milton Lee Lemons, Sr., statement, October 2th, 2005, at 11:28 a.m., Case Number C05-22318. Upper right hand corner is also in my in my writing one of five.

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A Mr. Lemons also initial that, those lines.
Q You indicated remarks, what those remarked? What are the remarks?
A Prior to reading him his rights, I asked him how far he had gone through school, just to get an idea if he could read or interpret things. And he acknowledged that he had completed two years of college.

And I also had Mr. Lemons read the first right out loud just so I knew that he could read. So I wrote that down in the remark section that he read number one out loud.

Q And then what follows in People's Proposed Exhibit Number Eight, there are five pages there; is that correct?
A Yes.
Q What are those five pages?
A The first page is a hand-written statement by Mr. Lemons himself. The following four pages are a question/ answer form of the statement that I wrote down the questions in a Q and A form, put his answer down.
Q Do you recognize each of those five pages as the actual pages that were produced during that interview section?
A Yes.

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In Mr. Lemons' writing: On October 10th, 2005, my wife left for work at 2:30 p.m., which I dreaded because I didn't like to be left alone with her. At four p.m., I fed my son and laid him down for a nap. About 4:40 p.m., Nikita was in her swing fussing at this time. About 5:34 p.m., I fed her a bottle and laid her down. At about 6:20, my son started fussing and then she started crying also. I went into the room to get him out, but picked her up instead. She wouldn't stop crying and he was still crying too. So I shook her three or four times to get her to be quiet. She stopped crying and started spitting up formula, but was unresponsive.

I ran next door with her to the neighbors. She took her from me and called -- and I called 911. Then I took her and was still trying to do CPR. While the neighbors gave them the address, I called my mother-in-law and my wife from work. My mother-in-law got there first and started CPR. Then the ambulance got there and then my wife. They took her to the hospital.

And it's signed Milton Lemons, Sr., dated object 12, 2005.

Q You said Mr. Lemons had in fact, himself written that document?

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A Yes, sir.
Q What did you do after that?
A I went right into the question/answer format of the statement.
Q Why did you that?
A I just wanted to clarify and ask him any additional questions that I may have had at the time.
Q And you reduced that question and answer to writing?
A I did.
Q And is that then what is contained on pages two through five of People Number Eight?
A That's correct.
Q Then Chief Williams, what I would like you to do is read through the statement, question and answer portion, if you will please.
A Okay. In the upper right hand corner it says, two of five: Question, what is your full name. Answer, Milton Lee Lemons, senior. Question, are you currently under the influence of alcohol and/or drugs? Answer, no. Question, Did Sergeant Williams read you your rights? Answer, yes. Question, did you understand your rights? Answer, yes.

Question, did you provide a written statement to Sergeant Williams. Answer, yes? Question, is that statement the truth. Answer, yes?

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specially delineating the type of physical injury required to satisfy our burden under physical degree child abuse it - the legislature has separated those two offenses. And I don't know whether that errs on the state of mind, but quite frankly, I think that this Court can find first degree child abuse has been proven based on the evidence before you. And I think you can also find then that the second degree murder from the elements there knowingly creating very high risk of death, et cetera has also been satisfied by those very same facts. Just a couple of points, Judge, relating to Mr. Cripps argument.

It is not our intent nor is it our effort to hold Mr. Lemons to any higher standard because of his specific training. We're holding him to the same standard of everybody, but those standards come to the court cloaked in circumstances and Mr. Lemons particular circumstances are that he has the specialized training. He has this knowledge that not everybody has. And I think that you should take that into consideration when you determine whether or not he knowingly, whether he knew the nature of his conduct. And I think that Mr. Cripps made a couple of arguments about Dr. Cassin's testimony that, Judge, you, as the finder of fact, can rely upon your memory but I think that in terms of all the various findings that were not present as they related to the neck, the epidural

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hemorrhage, things like that, Dr. Cassin was unequivocal in his assessment that they did not change his opinion about the actual cause of death in this case. And as it relates to intentional versus accidental, Dr. Cassin was likewise unequivocal in stating that there is not a question about whether shaking caused this death. He said that intent is not ??? That's the job of the courts and the lawyers. And Judge, I believe that with all of the evidence before you the appropriate and correct verdict in this case is guilty as charged.

THE COURT: All right. I want to review the 9-11 tape. I also want the defendant's statement, the other exhibits in this particular matter. I also need to do some legal research on this matter. I'll give you my decision Friday morning the 11th at 9:00 a.m.

(Conclusion of proceedings.)

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C E R T I F I C A T E

STATE OF MICHIGAN)
) ss
COUNTY OF WAYNE)

I, **Sherry Scott**, do hereby certify that I reported the proceedings had before the **HONORABLE TIMOTHY M. KENNY,** Judge of the Circuit Court in Detroit, Michigan, and that the same was reduced to typewritten form; and that the foregoing is a true and accurate copy of my notes so taken.

I further certify that my certificate annexed hereto applies only to the original typewritten, signed, certified transcript. The undersigned assumes no responsibility for the accuracy of any reproduced copies not made under my control or supervision.

SHERRY SCOTT, CSMR 4640

Dated: December 11, 2006

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In this case, the Defense has raised a number of issues, and I think it's appropriate to address them, initially:

The first of which that the Court is to consider whether or not this is a circumstance that would constitutes an accident in the eyes of the law. And I am familiar with and have reviewed and have applied CJI 2nd,7.2, the defense of accident. That the defendant claims that he did not mean to kill or did not realize that what he did would probably cause a death or great bodily harm; or the Defendant did not mean to kill or did not realize that what he did would probably cause the death. That he is not guilty of murder.

And while certainly all of the testimony that was presented indicated that the defendant Mr. Lemons did not intend to kill his ten week old daughter, the defense of accident certainly requires me to also consider whether or not the defendant realized that what he was doing would probably cause the death or great bodily harm.

In this particular case, this is not what we would consider an accident in the traditional sense. This is not like a circumstance that Mr. Lemons was carrying the baby and happen to fall down

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the stairs with child in his arms, and the child ended up dying. But I think specifically in this particular case, the defense raises the contention and says that there is at least a reasonable doubt that perhaps well meaning or unintentional damage was done by the administration of CPR to this tiny infant.

I think a review of Dr. Casin's testimony indicates that this was no accident. There was according to Dr. Casin's testimony, the brain damage that was caused, the subdural hematoma, shaking of the brain, the severing of the nerve sheaths in the brain, is reflective of both a repeated shaking multiple times. And that it certainly given the damage that resulted not only to the brain, but also to the retinal nerves and the optic nerves in terms that there was hemorrhaging in both of those areas, certainly, is inconsistent with what any reasonable person would think, would go on with any type of CPR action. So I reject the defense of accident.

It does then cause me to examine what were the facts and what facts were established, if any, beyond a reasonable doubt. We do know that ten week old Nikita was left in the custody of her father, the defendant when Lori Lemons, the mother, went to work. And as the defendant indicated in his statement to the

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police, he dreaded being left alone with the child. And the reason he dreaded being left alone with the child is that he simply could not cope with the child crying.

And he indicated in this case that his son, his two-year old son was crying, he indicated that then ten week old Nikita was crying. He went into the deal with that particular issue, and when he went in there to deal with that, he said, first, he tried to feed Nikita with a bottle. In another portion of his statement he indicated that he had the baby in his lap. He was holding the baby and the baby was crying. And he indicated that he could not get the baby to stop crying. And then Mr. Lemons indicated that he shook the baby three or four times until the baby stopped crying.

And it does seem to me based on what Dr. Casin's testimony was, and the symptoms that Mr. Lemons himself acknowledged occurring, the fact that formula was being spit up out of the baby's mouth and that the breathing became very shallow, it does seem clear to me beyond any reasonable doubt that what had occurred is that Mr. Lemons had shaken the baby violently repeatedly. And the reason baby stopped crying is that the baby had, in fact, suffered severe

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violence, violence reflective of the defendant's anger as well as his depression.

And finally, I also consider the fact that the defendant worked in the health care profession. He was a nurse's said. Now, the degree to which he had specific knowledge, that was not attested to during the course of this particular trial, but as the decider of the fact just as a juror, I can rely on my own common sense and every day knowledge. And my view is that if you went out to a shopping mall and asked people at random, what do you think if you violently shook a ten week old infant three or four times? Do you think the child might get seriously hurt? I don't think anybody would say, well, oh, I have no idea what would happen.

I think it's a matter of common knowledge, and it is certainly something that someone who works in the health care profession should in fact know.

I do find after a review of the evidence in this particular case that I don't find that this was gross negligence on the part of the defendant. That it really did rise to the level of the intent that's sets forth in CJI 2nd, 16.5, the intent prong of second degree murder, which indicates that the defendant knowingly created a very high risk of great

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bodily harm or death knowing that death or such harm would be the likely result of that action.

This is I think a very anomalous kind of case where I think by virtue of finding that the intent as I just described, the intent for second degree murder has been made out. That that is virtual, almost the functional equivalent of the intent necessary for child abuse in the first degree as set out in PEOPLE versus MANARD.

So for the reasons stated on the record here, I do find that on October 10th of 2005 at 3906 Clark in the City of Wayne, County of Wayne, that the defendant while he was in the perpetration of child abuse in the first degree did, in fact, murder Nikita Lemons. That it rises to the level of the second degree element required. And I do find those facts beyond a reasonable doubt. And I believe that the law compels a verdict of murder in the first degree.

Sentencing set for?

THE CLERK: September 1st.

MR. CRIPPS: I wasn't planning on being in Court that day.

THE CLERK: What day do you plan on being in Court?

September 5th.

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Detroit, Michigan

Tuesday, September 5, 2006

Approximately 9:10 a.m.

PROCEEDINGS

THE CLERK: Case Number 06-4818. The People of the State of Michigan versus Milton Lemons.

Mr. Lemons is here today to be sentenced.

MS. WEINGARDEN: Lora Weingarden on behalf of the People.

MR. CRIPPS: David Cripps on behalf of Mr. Milton Lemons, who is standing to my right.

Your Honor, we have gone over the Presentence Report, and other than the misspelling of your name and his act, it is accurate in its content.

I explained to my client that in light of the conviction here that there is no discretion on the part of the Court for sentence.

So in light of that I am going to just point out to the Court that there is credit for 314 days, and his background is accurate in terms of education.

There is an interview -- content of interview with my client between the probation officer and him, and I guess we'll stand on that.

Thank you.

THE COURT: All right.

MS. WEINGARDEN: Judge, on behalf of the People, Laurie Lemons is here. She is the complainant's mother. She wrote a statement, which is now typed into the Presentence Report. She had originally wanted me to read it out loud, but if your Honor has seen it, then I don't think it's necessary to read it out loud.

THE COURT: Okay. That's fine.

All right. Thank you.

Mr. Lemons, anything you would like to say before I impose sentence?

DEFENDANT LEMONS: Yes, I do.

I just like to apologize, you know, to the family for what happened. It wasn't my intention to hurt the kid, you know. I was going through a lot of different things at that time, you know, dealing with my sexuality for one, and different personalities, substance abuse.

The frame of mind I was in at this time was just, you know, real bad at that time. And, you know, it's no excuse. I just like to apologize for what happened.

THE COURT: All right. Well, this is a tragic case all across the board I think by any measure. And while there may have been issues that you

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were going through, Mr. Lemons, that there is one inescapable reality. This was a 10 week old child who literally, literally had her life, her entire life in your hands, and that there was no way for your daughter to communicate other than to cry.

I don't believe you intended to kill your daughter in terms of intentionally trying to take her life, but this was your own flesh and blood that you had responsibility for caring for.

It's the sentence of the Court that you be committed to the Michigan Department of Corrections for the rest of your life without parole.

You have the right to file a Claim of Appeal with the Michigan Court of Appeals. If you choose to do so, sir, you must do so within 42 days.

If you can't afford to hire an attorney, the Court will appoint an attorney and furnish the attorney with portions of the transcript and records that may be needed.

Any request for the appointment of an attorney must also made within 42 days.

You'll get credit for 314 days already spent in custody.

MR. CRIPPS: Your Honor, for the record my client has signed the notice of right For timely appeal

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STATE OF MICHIGAN
IN THE THIRD JUDICIAL CIRCUIT COURT
FOR THE COUNTY OF WAYNE

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff,

-vs-

Hon. Timothy M. Kenny
Case # 06-004818-01-FC

MILTON LEE LEMONS,

Defendant.
_____/

OPINION

INTRODUCTION

After a bench trial before this court, defendant Milton Lee Lemons (who now prefers the name Ms. Chaz Lemons and will be referred to as "she" throughout this Opinion) was convicted of first-degree felony murder and first-degree child abuse. The defendant's conviction and sentence were affirmed by the Michigan Court of Appeals and leave to appeal to the Michigan Supreme Court was denied. The defendant filed the first motion for relief from judgment pursuant to MCR 6.500 et seq and it was denied on January 21, 2010. The present motion for relief from judgment is also filed pursuant to MCR 6.500 et seq.

As stated in the case of *People v Swain*, 288 Mich App 609, (2010) "A defendant is permitted to file a successive motion for relief from judgment when the asserted claim is permitted pursuant to MCR 6.502 (G) (2). This provision of the Michigan Court Rules permits a successive motion if there is either a retroactive change of the law that occurred after the first motion for relief from judgment or if there is a claim of newly discovered evidence. Any other alleged grounds for relief that do not comply with the

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requirements of MCR 6.502 (G) (2) must be dismissed." Since defendant Lemons alleges a claim of newly discovered evidence, the requirement of MCR 6.502 (G) (2) is satisfied.

The defendant's claim for relief must be analyzed using the standard set forth in MCR 6.508 (D) (3) - Entitlement to Relief:

"The defendant has the burden of establishing entitlement to the relief requested. The court may not grant relief to the defendant if the motion alleges grounds for relief, other than jurisdictional defects, which could have been raised on appeal from the conviction and sentence or in a prior motion under this subchapter, unless the defendant demonstrates:

(a) good cause for failure to raise such grounds on appeal or in the prior motion, and

(b) actual prejudice from the alleged irregularities that support the claim for relief. As used in this subrule, "actual prejudice" means that,

(i) in a conviction following a trial, but for the alleged error, the defendant would have had a reasonably likely chance of acquittal;"

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FACTS AT TRIAL

The defendant Chaz Lemons and spouse Lori Lemons lived together with their young son and two-month old infant daughter Nakita Lemons. Both Lemons worked in the medical field as nursing assistants.

In mid-afternoon of October 10, 2005 Lori Lemons left Nakita and their son with the defendant. In a statement to the police, the defendant indicated that at approximately 6:20 in the evening their son started fussing and that the infant Nakita began crying as well. The defendant told police the infant would not stop crying, so she shook her three or four times to get her to be quiet. Lemons further indicated that the baby stopped crying after the shaking, started spitting up formula and was unresponsive. When asked how hard she shook Nakita, the defendant stated that on a scale of one to ten she shook her at "a seven". The defendant said she did so, because she was very angry and depressed. Lemons indicated that the purpose in shaking the baby was to get her to be quiet. Additionally, the defendant told police she knew that shaking a baby could be fatal.

Defendant Lemons ran next door to the home of a neighbor and asked for help stating the baby was not breathing. The neighbor, Renee Zdyb told the defendant several times to call 911. Defendant Lemons did not heed the neighbor's advice but instead called Lori Lemons at work. The defendant also called her mother who lived across the street and asked her to come to lend assistance. When the defendant's mother arrived, she attempted to do gentle infant CPR but was unsuccessful. The

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neighbor Renee Zdyb called 911 and was able to get the paramedics to arrive. CPR was attempted on Nakita Lemons at the scene by paramedics.

The infant was brought to Annapolis Hospital and then air-lifted to the University of Michigan Children's Hospital in Ann Arbor. Nakita Lemons never regained consciousness and died at approximately 6:30 AM on October 11, 2005.

An autopsy was performed by Dr. Bader Cassin. He opined that the infant suffered from bi-lateral retinal hemorrhages, subdural hematoma, a fractured shoulder and subdural hemorrhaging. Dr. Cassin diagnosed that the victim died from Shaken Baby Syndrome and classified the manner of death as homicide.

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STANDARD OF REVIEW

The defendant has filed a successive motion for relief from judgment based on a claim of new evidence that was not discovered before the first motion for relief from judgment was filed. MCR 6.502 (G) (2) permits such a claim.

In the present motion for relief from judgment defendant raises the claim of newly discovered evidence in the form of recanted testimony by Dr. Bader Cassin the Medical Examiner who performed the autopsy in this case, as well as proffered expert testimony discrediting the diagnosis of Shaken Baby Syndrome (SBS). In order for a new trial to be granted on the basis of newly discovered evidence defendant must show that: (1) the evidence itself, not merely is materiality, was newly discovered; (2) the newly discovered evidence was not cumulative; (3) the party could not, using reasonable diligence, have discovered and produced the evidence at trial; and (4) the new evidence makes a different result probable on retrial. *People v Johnson*, docket # 154128, MI SC, (decided July 23, 2018) and *People v Cress*, 468 Mich 678, (2003).

In *Johnson,* the Supreme Court indicated "in order to determine whether newly discovered evidence makes a different result probable on retrial, a trial court must first determine whether the evidence is credible. In making this assessment the trial court should consider all relevant factors tending to either bolster or diminish the veracity of the witness's testimony. A trial court's function is limited when reviewing newly discovered evidence as it is not the ultimate fact-finder. Should a trial court grant a motion for relief from judgment, the case would be remanded for retrial, not dismissal.

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In other words, a trial court's credibility determination is concerned with whether a reasonable juror could find the testimony credible on retrial." (Pg. 20-21)

The Court in *Johnson* went on to state "if a witness's lack of credibility is such that no reasonable juror would consciously entertain a reasonable belief in the witness's veracity, then the trial court should deny a defendant's motion for relief from judgment. However, if a witness is not patently incredible, a trial court's credibility determination must bear in mind what a reasonable juror might make of the testimony and not what the trial court itself might decide were it the ultimate fact finder." (Pg. 22)

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DEFENDANT'S ADDITIONAL CLAIMS FOR RELIEF UNDER MCR 6.502 (G)

Defendant Lemon's successive motion for relief from judgment must meet the requirements of MCR 6.502 (G) (2). The rule states in pertinent part "A defendant may file a second or subsequent motion based on a retroactive change in law that occurred after the first motion for relief from judgment or a claim of new evidence that was not discovered before the first such motion."

The defendant's due process claim cannot be raised under MCR 6.502 (G) (2). The vehicle for obtaining relief in this case is limited to the claim of newly discovered evidence.

The court rule sets forth the grounds for successive motions for relief from judgment. This court is constrained to review only those claims that meet the language of the court rule for filing successive motions for relief from judgment. In formulating Michigan Court Rule 6.502 (G) (2) Michigan Supreme Court did not permit due process claims to be raised in successive motions. Defendant Lemons due process claim is procedurally barred by the court rule.

In the defense claim that the issue of ineffective assistance of counsel should be entertained by this court the defense relies on the Michigan Supreme Court order in *People v Swain* (Swain II 499 Mich 920 (2016). In *Swain* the trial court granted a new trial on a successive motion for relief from judgment. The Supreme Court determined that MCR 6.502 (G) (2) met "the new evidence discovered before the first motion for relief from judgment". The newly discovered evidence was evidence of a *Brady v Maryland* violation.

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The Michigan Supreme Court order in *Swain* does not countenance additional claims to be filed under MCR 6.502 (G) (2). The plain language of the court rule entitled the defendant in *Swain* to bring a successive motion for relief from judgment. The *Swain* order by the Michigan Supreme Court does not permit this court to revisit or entertain a motion for relief from judgment based on a claim of ineffective assistance of counsel.

Impact of People v Ackley, 497 Mich 381 (2015)

Defendant Lemons claims the Michigan Supreme Court decision in *People v Ackley* 497 Mich 381 (2015) supports the position that the defendant is entitled to a new trial. Language in the *Ackley* opinion makes reference to a Justice's concern about the medical question of Shaken Baby Syndrome. For several reasons the language regarding Shaken Baby Syndrome in the *Ackley* case is not controlling or binding in the present case.

In *Ackley* the issue presented to the Michigan Supreme Court was not an issue about the reliability of Shaken Baby Syndrome evidence. The issue resolved by the Michigan Supreme Court dealt with the ineffective assistance of counsel at trial.

The *Ackley* case, involving the blunt force injury death of a young child, was reversed because the defense attorney at trial failed to consult two recommended experts on the issue of blunt force injury. The Supreme Court found ineffective assistance of counsel for the failure to explore the potential defense that the child could have died as a result of a fall rather than from blunt force injury inflicted by the

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defendant. The nature of the injuries in the *Ackley* case did not, in any way, involve an allegation of Shaken Baby Syndrome.

The finding of ineffective assistance of counsel for failure to consult expert witnesses did not contain a ruling that the experts were qualified to testify. The opinion did not discuss whether potential expert testimony from the two expert witnesses met the requirements of *Daubert v Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993) and Michigan Rules of Evidence 702.

The language contained in the *Ackley* Supreme Court opinion is dicta and not binding on the court.

For these reasons the *Ackley* opinion is not controlling and the defense is not entitled to a new trial based on the language of that opinion.

CHANGED TESTIMONY OF DR. BADER CASSIN

Defendant Lemons contends that the recanting testimony of Dr. Bader Cassin indicates the defense burden of establishing a reasonable probability of a different result has been met. The defense contends the original autopsy report of Dr. Cassin would not be introduced, there would be no additional prosecution medical examiner testimony and the defendant's inculpatory statement to the police would not be admitted based upon the Corpus Delcti Rule. The assertions are incorrect.

The defense is in error believing that the original medical examiner's report would not be admissible or that the current Washtenaw County Medical Examiner Dr. Jentzen would not be permitted to testify. Dr. Jentzen, like several of the defense expert medical witnesses, reviewed all of the information regarding the medical records and

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autopsy findings in the Nakita Lemons death. In his role as the Washtenaw County Medical Examiner Dr. Jentzen would be able and would be permitted to testify about the cause and manner of death and give his opinion. *People v Dendel* (on Second Remand), 289 Mich App 445 (2010).

Based upon the testimony of the medical examiner, Dr. Jentzen, the detective would be permitted to testify to defendant Lemons inculpatory statement.

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RECANTING TESTIMONY OF DR. BADER CASSIN

The defendant contends that she is entitled to a new trial based on Dr. Cassin's testimony at the evidentiary hearing. The Defense claims Dr. Cassin's opinion now represents a shift in the doctor's thinking about Shaken Baby Syndrome or abusive head trauma. Defendant Lemons claims Dr. Cassin has now become a skeptic and has changed his testimony and opinion about Shaken Baby Syndrome and abusive head trauma since he gave testimony at the original trial in 2006.

Michigan appellate cases dealing with the issue of recanting testimony have traditionally involved civilian witnesses who have changed their testimony post-conviction. As far back as the early 20th century the courts have viewed recanted testimony with skepticism. In *People v Van Den Dreissche,* 233 Mich 38, (1925) the Supreme Court stated "recanting testimony is exceedingly unreliable and it is the duty of the court to deny a new trial where it is not satisfied that such testimony is true." (Pg. 46). Although the present case does not involve the recantation of a civilian witness, the principal of skepticism toward recanted testimony still applies.

At the post-conviction evidentiary hearing Dr. Cassin indicated he would change his finding regarding the manner of Nakita Lemons death. Dr. Cassin stated he would change the finding from homicide to indeterminate. In doing so he indicated that the manner of death might be natural, indeterminate or homicide.

Dr. Cassin testified at the post-conviction hearing that he reviewed slides, medical reports, trial transcript testimony, hospital and medical examiner records. Although Dr.

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Cassin stated during his testimony that medical examiners are required to conduct an investigation, he testified that the defendant's confession to the police did not contribute to his investigation of Nakita Lemons death and he believed it did not indicate anything with regards to the cause of the infant's death.

The basis for Dr. Cassin's change in opinion was like many portions of his testimony-vague. Dr. Cassin could not cite any specific authority, scientific studies or scientific journals or developments that have caused him to change his opinion. He even mentioned that he could not rule out vaccines as a cause of Nakita Lemons death but offered no medical or scientific support for that conclusion. It was, in this court's view, merely a speculative opinion.

One noteworthy conclusion reached by Dr. Cassin in his post-conviction testimony was not supported by the medical record and was simply incorrect. He stated he believed the fracture in Nakita Lemons' shoulder could have occurred during the autopsy. An examination of the medical records, however, clearly indicates the fracture was visible in x-rays taken at the University of Michigan Hospital when the infant was alive.

The present Washtenaw County Medical Examiner, Dr. Jentzen testified at the evidentiary hearing that the initial findings made during the autopsy were correct and substantiated the opinion the cause of death was Shaken Baby Syndrome. Dr. Jentzen identified the incorrect conclusions drawn by Dr. Cassin.

As stated in the *Johnson* and *Cress* opinions, the court must determine whether a different result would be probable on retrial, based upon the new recanted testimony of Dr. Cassin. This court finds that Dr. Cassin's equivocal testimony at the post-conviction

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evidentiary hearing included an acknowledgment that his earlier finding of homicide as the cause of death, could be accurate. Dr. Cassin's inaccuracy regarding the timing of the acromion fracture together with his lack of scientific or medical findings to support his change in opinion does not cause this court to believe that a different result would be probable at a retrial.

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THE ADMISSIBILITY OF EXPERT WITNESS TESTIMONY

In order to obtain the relief sought under MCR 6.508 (D)(3) defendant Lemons must establish that the newly discovered evidence would have brought a reasonable likelihood of acquittal. In order to do so the defense experts' testimony must be found to be admissible at trial and the testimony of the defense experts would have changed the result.

The admissibility of the defense expert witness testimony requires the court, in its gatekeeper capacity, to rule that the testimony of the defense experts be admissible.

In *Daubert v. Merrell Dow Pharmaceuticals, Inc.* 509 U.S. 579 (1993) the United States Supreme Court held that the trial court must serve the role of gatekeeper regarding the admissibility of expert testimony. The trial court is responsible for keeping out scientific or other expert testimony that is unsupported or flawed in its methodology or theory. The ruling in *Daubert* clearly requires a trial court to perform this function. It cannot be simply left to a jury to decide.

In *Gilbert v Daimler Chrysler Corporation*, 470 Mich 749 (2004) the Michigan Supreme Court adopted the *Daubert* holding requiring the trial court perform the gatekeeper function regarding the admissibility of expert testimony.

Michigan Rule of Evidence 702 is consistent with the *Daubert* and *Gilbert* rulings. MRE 702 states "If the court determines the scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue a witness qualified as an expert by knowledge, skill, experience, training, or

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education may testify thereto in the form of an opinion or otherwise if (1) the testimony is based on sufficient facts or data (2) the testimony is the product of reliable principals and methods (3) the witness has applied the principals and methods reliably to the facts of the case."

Additional guidance was provided to trial courts on the admissibility of expert witness testimony in *General Electric Company v Joiner*, 522 U.S. 136 (1997). In *Joiner* the court emphasized that under *Daubert* the trial court could not pass along the "battle of the experts" to the jury, but rather stated:

"Nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the Ipse Dixit of the expert. The court may conclude there is simply too great an analytical gap between the data and the opinion proffered." *Joiner* p. 146.

Additional clarification was provided to trial courts by the U.S. Supreme Court in *Kumho Tire Company LTD v Carmichael*, 526 U.S. 137 (1999). In *Kumho* the court asserted that the testimony of the expert witness must be reliable indicating the trial court must be certain "that an expert, whether basing testimony upon professional studies or personal experience employs in the court room the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."

The court in *Daubert* provided guidance to trial courts by providing for key questions the trial courts should use to determine the admissibility of scientific evidence. Questions include:

1. Is the scientific evidence capable of being tested to determine if it can be falsified?
2. Whether the theory or technique has been subjected to peer review and publication to determine whether there is any substantive flaw in methodology.
3. Does the offered scientific testimony have a known or potential error rate?
4. Is there general acceptance of the evidence within the relevant scientific community?

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THE RELIABILITY OF THE DIAGNOSIS OF SHAKEN BABY SYNDROME, ADULT HEAD TRAUMA AND THE TRIAD

Defendant Lemons claims the Shaken Baby Syndrome diagnosis based upon the findings of retinal hemorrhage, subdural hematoma and brain swelling is unreliable. The defense contends the syndrome fails to take into account other potential causes of death and is discredited by a substantial segment of the medical community. The defense offered several alternative possible causes of the death of two-month old Nakita Lemons. The defense argues that the unreliability of the Shaken Baby Syndrome diagnosis can be traced back to 1987 in the Duhaime article critical of the triad.

The testimony presented at the Lemons' trial established beyond dispute that the deceased infant suffered retinal hemorrhages, subdural hematoma and brain swelling.

The credible post-conviction evidentiary hearing evidence indicated Shaken Baby Syndrome is a subset of the diagnosis of abusive head trauma. The hearing evidence indicated the diagnosis of abusive head trauma in all of its various forms has been established and recognized by numerous well-respected medical organizations. In 2015 the American Academy of Pediatrics published an article indicating that the diagnosis of abusive head trauma in all of its various forms has been recognized by the following:

The American Academy of Pediatrics

The American Academy of Family Physicians

The American Academy of Ophthalmology

The American Association for Pediatric Ophthalmology Strabismus

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The American Association of Neurologic Surgeons

The American College of Radiology

The American College of Surgeons

The Canadian Pediatric Society

The Centers for Disease Control and Prevention

The Royal College of Ophthalmologists

The Royal College of Pediatrics and Child Health

The Royal College of Radiologists

The World Health Organizations

Additionally the People presented witnesses Dr. Peter Strouse current President of the Society for Pediatric Radiology, Dr. Cindy Christian, the immediate past chair of the American Academy of Pediatrics Child Abuse and Neglect Committee and Dr. Jeffrey Jentzen, past President and CEO of the National Association of Medical Examiners and current Washtenaw County Medical Examiner. All attested to the widespread acceptance of Shaken Baby Syndrome as a valid medical diagnosis. These witnesses made it clear that Shaken Baby Syndrome is a subset of abusive head trauma.

The testimony of Dr. Christian and Dr. Jentzen indicated Shaken Baby Syndrome is widely accepted in the medical community and is not made exclusively on the "triad" of retinal hemorrhages, subdural hematoma and brain swelling. A thorough examination of all of the facts and circumstances as well as medical test results need to be considered in evaluating whether or not a diagnosis of Shaken Baby Syndrome is accurate. Dr. Christian rejected the notion that Shaken Baby Syndrome was presumed based solely on the existence of the triad.

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The defense offered a number of alternative theories and possible explanations for the injuries and cause of death of Nakita Lemons. The theories offered by the defense are inconsistent with the diagnosis of abusive head trauma and specifically Shaken Baby Syndrome. The alternative theories are set forth below:

1. **The acromion fracture to Nakita Lemons may have occurred during the October, 2005 autopsy.**

During Dr. Cassin's testimony at the post-conviction hearing he indicated the acromion fracture may have occurred during the autopsy of Nakita Lemons. Other evidence produced, however, clearly indicated that x-rays taken at the University of Michigan Hospital when Nakita Lemons was alive revealed the acromion fracture. Dr. Cassin's opinion about the possible cause of the fracture is simply incorrect.

2. **Resuscitation efforts and choking were responsible for Nakita Lemons death.**

The defense experts Dr. Galaznik and Dr. Barnes opined that resuscitation efforts by civilian and EMS rescue personnel could have caused a fracture in the acromion. This opinion lacks not only factual support for the length and strength of the resuscitation efforts by civilian and EMS individuals, but it lacks any scientific support. There was reference to any scientific studies indicating that resuscitation efforts can in fact cause an acromion fracture in infants. As was stated in *Joiner*, the mere statement of an opinion by an expert with nothing more is insufficient to establish admissibility.

The defense advanced another theory claiming two-month old Nakita Lemons died from choking on formula. The defense alleged that Nakita Lemons suffered hypoxic-ischemic encephalopathy (blood flow loss to the brain).

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The defense experts relied on a theory that during resuscitation efforts and choking there was a return of blood to Nakita Lemons skull that caused blood to leak and caused subdural hemorrhage and subsequent retinal hemorrhages.

Witnesses offered by the defense relied on several journal articles to support the claim that leakage into the brain would cause subdural, as well as retinal, hemorrhages.

The defense introduced several journal articles by Scheimberg and Cohen which stated an association between subdural hemorrhages and hypoxic-ischemic encephalopathy. The studies by Scheimberg and Cohen concentrated on fetuses and newborns. In one of the studies only two infants were studied that demonstrated both the hypoxic-ischemic encephalopathy and subdural hemorrhages. The studies did not differentiate the findings for fetuses, newborns or young babies in the general age group of the victim Nakita Lemons.

This court finds the *Daubert* holding excludes the Scheimberg and Cohen studies. The group studied is significantly dissimilar from the age of the victim in this case and presents a methodological defect. Additionally the articles did not provide error rates for the group comparable in age to Nakita Lemons. Finally there is no showing to indicate a general acceptance in the medical community for their conclusion.

Dr. Nichols also testified on behalf of the defense advancing a theory that choking could have been possible. Dr. Nichols relied on an article written by Doctors Galaznik and Barnes and two others advancing the theory regarding choking as cause of subdural and retinal hemorrhage and then death. The article relied upon by Dr. Nichols

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provides no peer reviewed scientific study, error rates or data and analysis that meets the requirement of *Daubert*.

The People cited a study from Dr. Byard that involved the causes of hypoxic episodes in 82 infant deaths. None of the causes of death involved claims of Shaken Baby Syndrome. Fetuses, infants and toddlers were examined for purposes of this study. The cases examined did display hypoxic-ischemic encephalopathy, as well as brain swelling. The study revealed no macroscopic finding of subdural hemorrhaging.

Similarly a study conducted by Dr. Hurley and others examined 50 child death cases involving children under the age of four. No cases of head trauma were included in the study. As with the Byard case study no macroscopic subdural hemorrhage evidence was discovered.

The findings in the Byard and Hurley studies are both supportive of the notion that a study of Shaken Baby Syndrome found in the article Acceptance of SBS study revealed that less than 5% of the members of the medical community surveyed believed choking or hypoxic-ischemic encephalopathy caused subdural hemorrhages. This survey result leads to the conclusion that the choking and/or resuscitation theory of Dr. Galaznik and Dr. Barnes is not supported by the vast majority of medical experts and represents an opinion not generally accepted in the medical community.

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3. Abusive head trauma or Shaken Baby Syndrome would have resulted in a greater amount of blood in the subdural hemorrhage.

Defense witnesses Dr. Galaznik and Dr. Nichols shared the view that in a case of abusive head trauma or Shaken Baby Syndrome there would have been considerably more blood discovered during the course of the autopsy than the 15 cc's that were actually noted.

Doctors Galaznik and Nichols offered their opinion regarding blood amounts that should be found after an abusive head trauma without any data support or any scientific research substantiating their opinion. Both offered their opinions as fact. However, as stated in *Joiner* more than a mere assertion of an opinion by the witness is needed for admissibility. Testimony on this issue does not rise to the level required by *Daubert*, *Joiner* and *Kumho*.

4. Rickets Claim

On behalf of the defendant Dr. Barnes offered the opinion that two-month old Nakita Lemons could have been suffering from rickets. He opined that an examination of the x-rays indicated certain areas of the bone structure suggested the possibility of rickets. Dr. Barnes' opinion, however, was negated by the testimony of Dr. Christian and the blood test results for Nakita Lemons. While Dr. Barnes indicated that rickets would be manifested by a very low calcium level, the blood test results at the University of Michigan Hospital reflected Nakita Lemons' calcium level was normal with a slight reduction. Additional chemical test results reflecting a normal alkaline phosphate level scientifically indicated that Nakita Lemons did not have rickets.

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Dr. Barnes' opinion testimony regarding rickets fails to meet the *Daubert* standard because the medical data flatly contradicts his assertion.

5. Cause of death of Nakita Lemons may have been a reaction to vaccines.

Dr. Cassin in his post-conviction hearing testimony stated it is possible Nakita Lemons may have died as a result of reaction to vaccines. The doctor, however, did not offer any scientific basis for that opinion, nor were there any studies, publications or other research documents supporting the position. As presented, Dr. Cassin's opinion was personal speculation without scientific foundation.

6. Biomechanical engineering expert cast doubt on the Shaken Baby Syndrome diagnosis.

The defense called biomechanical engineer Chris Van Ee in rebuttal. Although the witness was able to refer to a number of studies done by use of biomechanic principles, Mr. Van Ee's opinion is none-the-less inadmissible under *Joiner*. As stated in the *Joiner* opinion evidence is inadmissible if there is too great an analytical gap between the data and the opinion proffered.

During his testimony Mr. Van Ee acknowledged that biomechanics is presently unable to replicate the precise mechanics of Shaken Baby Syndrome. Although models or small animals have been used in biomechanical engineering studies, Mr. Van Ee acknowledged the studies are unable to fully replicate the myriad and complicated injuries the brain may suffer. Simply put, biomechanical studies are not presently able to replicate the exact number and degree of injury to the brain that would occur as a result of Shaken Baby Syndrome.

For these reasons, the testimony of Mr. Van Ee would be inadmissible.

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CONCLUSION

Defendant Lemons has the burden of proof under MCR 6.502, *People v Johnson* and *People v Cress*, to show that it is probable that a new trial would have a different result. The defense has failed to meet that burden.

The case before this court is not a circumstantial death case containing only evidence of subdural hemorrhages, retinal hemorrhages, and brain swelling. The defendant's confession to forcefully shaking the two-month old and the acromion fracture in the infant's shoulder area were also important items of evidence for the experts and this court to evaluate.

At the post-conviction evidentiary hearing the defense failed to provide admissible expert testimony that met the foundational requirements of *Daubert*, *Joiner*, and *Kumho*. The witness testimony offer medical theories in this case that are outliers, not generally accepted in the medical community and do not meet the threshold for admissibility. Several theories advanced by the defense are contradicted by the physical evidence (i.e. the rickets theory and the acromion fracture) or are personal opinion and speculative.

The trial court is obliged to follow its gatekeeper role and cannot merely pass on any difference in expert opinions to the trier of fact to decide at a new trial. The mere fact that experts have different opinions is insufficient, by itself, to meet the foundational requirements of *Daubert*, *Gilbert* and *Joiner*.

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In this case Shaken Baby Syndrome as a subset of abusive head trauma, was established by The People. The admissible forensic pathology evidence, hospital medical records, civilian testimony, as well as the defendant's confession clearly indicate the defendant's guilt beyond a reasonable doubt. The defendant's confession is an integral part of the proofs against the defendant and cannot be ignored. The confession set forth that the defendant was angry and depressed, shook two-month old Nakita Lemons three or four times in an effort to quiet the baby and did so very vigorously. After the shaking was ended the baby stopped crying and was breathing in a shallow manner. After resuscitative efforts, the baby was transported to the hospital and eventually died at the University of Michigan Hospital.

The defendant has failed to meet the burden required under *Daubert*, as well as MCR 6.502, and for those reasons the motion for relief from judgment is DENIED.

October 5, 2018
Date

Hon. Timothy M. Kenny
Presiding Judge – Criminal Division
Third Judicial Circuit Court of Michigan

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STATE OF MICHIGAN
IN THE THIRD JUDICIAL CIRCUIT COURT
FOR THE COUNTY OF WAYNE

PEOPLE OF THE STATE OF MICHIGAN,
Plaintiff,

Hon. Timothy M. Kenny

-vs-

Case# 06-004818-01-FC

MILTON LEE LEMONS,
Defendant.

_____/

ORDER

At a session of this Court held in the Frank

Murphy Hall of Justice on October 5, 2018

PRESENT: HON. Timothy M. Kenny
Presiding Judge – Criminal Division
Third Judicial Circuit Court of Michigan

In the above-entitled cause, for the reasons set forth in the foregoing Opinion;

IT IS HEREBY ORDERED that Defendant's Motion for Relief from Judgment is

DENIED.

October 5, 2018
Date

Hon. Timothy M. Kenny
Presiding Judge – Criminal Division
Third Judicial Circuit Court of Michigan

Order

Michigan Supreme Court
Lansing, Michigan

May 27, 2020

Bridget M. McCormack,
Chief Justice

160374

David F. Viviano,
Chief Justice Pro Tem

Stephen J. Markman
Brian K. Zahra
Richard H. Bernstein
Elizabeth T. Clement
Megan K. Cavanagh,
Justices

PEOPLE OF THE STATE OF MICHIGAN,
Plaintiff-Appellee,

v

SC: 160374
COA: 348277
Wayne CC: 06-004818-FC

MILTON LEE LEMONS,
Defendant-Appellant.

_____/

On order of the Court, the application for leave to appeal the July 22, 2019 order of the Court of Appeals is considered and, pursuant to MCR 7.305(H)(1), in lieu of granting leave to appeal, we REMAND this case to the Court of Appeals for consideration as on leave granted.

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I, Larry S. Royster, Clerk of the Michigan Supreme Court, certify that the foregoing is a true and complete copy of the order entered at the direction of the Court.

May 27, 2020

Clerk

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If this opinion indicates that it is "FOR PUBLICATION," it is subject to revision until final publication in the Michigan Appeals Reports.

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STATE OF MICHIGAN

COURT OF APPEALS

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff-Appellee,

v

MILTON LEE LEMONS,

Defendant-Appellant.

UNPUBLISHED
November 18, 2021

No. 348277
Wayne Circuit Court
LC No. 06-004818-01-FC

Before: TUKEL, P.J., and JANSEN and CAMERON, JJ.

PER CURIAM.

Following a bench trial in 2006, defendant[1] was convicted of first-degree felony murder, MCL 750.316(1)(b) (predicated on first-degree child abuse), in connection with the death of her daughter, Nakita, and sentenced to life imprisonment without the possibility of parole. She now appeals as on leave granted[2] an order denying her second motion for relief from judgment. We affirm.

I. BACKGROUND

Nakita was the youngest of defendant's two children. According to defendant's wife, they discovered that Nakita was allergic to milk when she was approximately one week old after she began gasping during a feeding. Following a second incident of this nature, Nakita was switched to a soy formula and had no further problems. Defendant was caring for the children on October 10, 2005, while her wife was at work. Nakita was 2½ months old at the time. Defendant called her wife to come home at approximately 7:00 p.m. because Nakita was choking. Nakita

[1] Defendant identifies as a female. We will adopt her preferred use of a feminine pronoun in this opinion.

[2] This Court initially denied defendant's application for leave to appeal, *People v Lemons*, unpublished order of the Court of Appeals, entered July 22, 2019 (Docket No. 348277), but the Supreme Court remanded the case for consideration as on leave granted, *People v Lemons*, 505 Mich 1084; 943 NW2d 139 (2020).

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was subsequently transported by ambulance to Annapolis Hospital, then by helicopter to University of Michigan Children's Hospital, where she died the following morning.

Dr. Bader Cassin, the Washtenaw County Medical Examiner at the time of Nakita's death, performed Nakita's autopsy on October 11, 2005. He indicated that there were no external signs of trauma or abuse. But during an internal examination, Dr. Cassin discovered "brain swelling with blood on the brain surfaces as well as in the nerve sheaf of both eyes . . . ." There was also hemorrhaging in both retinas. In the absence of other findings, he recognized these symptoms as indicative of shaken baby syndrome (SBS). Dr. Cassin testified that the immediate visible symptoms for this type of injury would include vomiting or regurgitation and loss of consciousness. An x-ray also revealed a small fracture at the top of Nakita's right shoulder.

Detective John Williams interviewed defendant on October 12, 2005. Defendant initially said she fed Nakita around 5:30 p.m., burped her, and put her to bed around 5:50 p.m. Shortly afterward, defendant heard her son banging on the wall and went to check on the children, at which point she discovered Nakita was having trouble breathing. Defendant said she did not know if she shook Nakita too hard while trying to wake her up. Detective Williams then confronted defendant with the autopsy results suggesting that Nakita died from SBS. Defendant "got very quiet and [s]he provide[d] me with a different version of what happened." This version was reflected in defendant's written statement:

> On October 10th, 2005, my wife left for work at 2:30 p.m., which I dreaded because I didn't like to be left alone with her. At four p.m., I fed my son and laid him down for a nap. About 4:40 p.m., Nikita was in her swing fussing at this time. About 5:34 p.m., I fed her a bottle and laid her down. At about 6:20, my son started fussing and then she started crying also. I went into the room to get him out, but picked her up instead. She wouldn't stop crying and he was still crying too. So I shook her three or four times to get her to be quiet. She stopped crying and started spitting up formula, but was unresponsive.

Defendant confirmed these facts and provided additional details in response to Detective Williams's follow up questions. As noted earlier, the trial court found defendant guilty of first-degree felony murder and sentenced her to life imprisonment without the possibility of parole. This Court denied defendant's direct appeal in February 2008. *People v Lemons*, unpublished per curiam opinion of the Court of Appeals, issued February 26, 2008 (Docket No. 273058).

In 2010, defendant filed her first unsuccessful motion for relief from judgment *in propria persona*. With the assistance of counsel, defendant filed her second motion for relief from judgment in 2016; it is this motion that is at issue in this appeal. Defendant argued that she was entitled to a new trial because of newly discovered evidence about the significant controversy regarding SBS in the medical community. Defendant also raised several additional legal theories for relief regarding this same evidence, including a claim that she was denied the effective assistance of counsel because her trial counsel failed to investigate or present evidence regarding the SBS controversy at the time of her trial. The prosecution asked the trial court to declare defendant's proposed expert testimony inadmissible because it failed to meet the standards for admissibility outlined in *Daubert v Merrell Dow Pharm, Inc*, 509 US 579; 113 S Ct 2786; 125 L Ed 2d 469 (1993).

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Over the course of 11 evidentiary hearings held throughout 2017, the trial court heard testimony from several defense experts, including Dr. John Galaznik, an expert in pediatrics; Dr. George R. Nichols, an expert in forensic pathology; Dr. Patrick D. Barnes, an expert in pediatric radiology and neuroradiology; Dr. Chris Van Ee, an expert in biomechanical engineering; and Dr. Roland Nikolaus Auer. Dr. Nichols explained the general science behind the "SBS hypothesis":

> Well, the theory is that an adult, or I guess a minor of adult stature[,] can grasp an infant by the chest, or I guess maybe by the arm and vigorously shake the child back and forth.
>
> The motion that is produced is sufficient to cause tearing of veins that run from the upper surface of the brain through the dura, which is the outer membrane over the brain to enter into a big vein called the superior sagittal sinus. The rupture of the bridging vein results in bleeding into a potential space within the head called the subdural space.
>
> There is a bleeding in the subdural space, which is associated with damage, functional damage to the brain with alteration in mental status and also the finding of retinal hemorrhages. So that's the triad that composes SBS. Subdural bleeding and encephalopathy of some type and retinal hemorrhages.

This "triad" of findings, i.e., subdural hemorrhaging, retinal hemorrhaging, and some form of encephalopathic presentation, was discussed at length. Collectively, the defense experts questioned whether abusive shaking alone was capable of causing the triad, criticized use of the triad as a means of diagnosing SBS, and opined that Nakita's injuries could have been attributed to causes other than SBS. The primary alternative theory of causation urged by the defense was that Nakita choked on formula, which caused hypoxic-ischemic encephalopathy (HIE), and the subdural and retina hemorrhages were secondary to the HIE.

Dr. Cassin was also called as a defense witness. Dr. Cassin confirmed the accuracy of his findings during the autopsy, but indicated that his opinion regarding SBS had changed since the time of defendant's trial because of developments in scientific research. Looking at the evidence now, Dr. Cassin would have characterized Nakita's manner of death as indeterminate, meaning it could have been natural, accidental, or homicidal.

Forensic pathology expert Dr. Jeffrey Jentzen, pediatric radiology expert Dr. Peter Strouse, forensic pathology expert Dr. Daniel Davis, and pediatric expert Dr. Cindy Christian testified on behalf of the prosecution. They defended the validity of SBS as a subcategory of abusive head trauma (AHT), and opined that while the triad is not exclusive to SBS, it is highly indicative of child abuse and requires further evaluation with an eye toward that possibility. The prosecution's experts emphasized that the vast majority of medical professionals endorsed SBS as a legitimate diagnosis, while most of the defense theories regarding alternative causation were considered "fringe opinions" held by less than 5% of the medical community. They maintained that the evidence was consistent with Dr. Cassin's original SBS diagnosis and, conversely, did not support defendant's alternative theories. Both sides cited numerous professional studies, case reports, and other literature supporting their respective opinions and explained why they disagreed with contrary authorities.

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The trial court denied defendant's motion for relief from judgment after finding that none of defendants' new expert testimony was admissible. With respect to Dr. Cassin's retraction of his previous opinion regarding SBS as the probable cause of Nakita's death, the court determined that his new testimony would not result in a different outcome on retrial. This appeal followed.

II. STANDARDS OF REVIEW

We review a trial court's denial of a motion for relief from judgment for an abuse of discretion. *People v Kasben*, 324 Mich App 1, 7; 919 NW2d 463 (2018). Decisions regarding the admissibility of expert testimony are likewise reviewed for an abuse of discretion. *People v Brown*, 326 Mich App 185, 195; 926 NW2d 879 (2018). "A trial court abuses its discretion when its decision falls outside the range of reasonable and principled outcomes, or makes an error of law[.]" *People v Swain*, 288 Mich App 609, 628-629; 794 NW2d 92 (2010) (*Swain I*) (citations omitted). We review factual findings supporting the trial court's decision for clear error. *Kasben*, 324 Mich App at 7. "Clear error exists when the reviewing court is left with a definite and firm conviction that a mistake was made." *People v McDade*, 301 Mich App 343, 356; 836 NW2d 266 (2013).

III. DENIAL OF MOTION FOR RELIEF FROM JUDGMENT

Defendant first challenges the trial court's treatment of SBS precedent, rejection of the defense experts, and denial of her motion for relief from judgment. Although we agree that the trial court abused its discretion by excluding *all* of the defense experts' proposed testimony, we are not persuaded that the trial court ultimately abused its discretion by denying defendant's motion.

To begin, defendant relies heavily on the decisions in *People v Ackley*, 497 Mich 381; 870 NW2d 858 (2015), and *In re Yarbrough Minors*, 314 Mich App 111; 885 NW2d 878 (2016), maintaining as she did below that these decisions stand for the proposition that a judgment in a contested case involving SBS cannot be sustained if the fact-finder heard only one side of the scientific controversy.

We disagree with defendant's interpretation of this precedent. Although both cases cited by defendant recognized medical controversy surrounding SBS and the importance of expert evidence in rebutting SBS allegations, *Ackley*, 497 Mich at 391-395; *Yarbrough*, 314 Mich App 131-132, 135, they do not compel the conclusion that the trial court abused its discretion in this case. Neither case held or implied that all expert testimony proffered by a party accused of abusive shaking is per se admissible. Indeed, neither case referenced the admissibility of specific proposed testimony at all. An otherwise precedential decision that presumes, but does not decide, a related legal issue is not binding with respect to the presumed point. *People v Douglas (On Remand)*, 191 Mich App 660, 662; 478 NW2d 737 (1991). See also *Riverview v Michigan*, 292 Mich App 516, 523; 808 NW2d 532 (2011) ("A matter that a tribunal merely assumes in the course of rendering a decision, without deliberation or analysis, does not thereby set forth binding precedent.").[3] The

[3] *Riverview* has since been superseded by statute on other grounds. *Telford v Michigan*, 327 Mich App 195, 197-198; 933 NW2d 347 (2019).

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trial court correctly concluded that *Ackley* does not control the issue of admissibility of expert testimony, and it did not err by declining to address *Yarbrough* in its opinion.

Defendant moved for relief from judgment on the basis of newly discovered evidence that she characterizes as falling within two categories: Dr. Cassin's recantation and the broader controversy concerning the validity of SBS diagnoses. Because the latter category of evidence involves preliminary questions of admissibility and has foundational significance to Dr. Cassin's recantation, we will address the admissibility of the excluded evidence first.

A. ADMISSIBILITY OF DEFENSE EXPERTS' TESTIMONY

In our view, the "broader controversy" evidence actually involved two types of evidence, supported by multiple witnesses. The first was the validity of SBS diagnoses and, more particularly, the reliability of the triad as diagnostic criteria. The second matter included the defense experts' alternative theories regarding the cause of Nakita's death. These are distinct issues involving different scientific support and, therefore, must be addressed separately. See *People v Kowalski*, 492 Mich 106, 135-136; 821 NW2d 14 (2012) (finding that exclusion of one subject of expert testimony did not preclude the expert from testifying about other related subjects).

MRE 702 governs the admissibility of expert testimony:

> If the court determines that scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

"A court considering whether to admit expert testimony under MRE 702 acts as a gatekeeper and has a fundamental duty to ensure that the proffered expert testimony is both relevant and reliable." *Kowalski*, 492 Mich at 120. Because MRE 702 has been recognized as incorporating the reliability principles articulated in *Daubert*, see, e.g., *Gilbert v DaimlerChrysler Corp*, 470 Mich 749, 781; 685 NW2d 391 (2004), Michigan courts generally turn to *Daubert* and its progeny for guidance in assessing the reliability of proposed expert testimony.

Daubert outlined several factors that a court may consider in assessing reliability, including "whether the theory has been or can be tested, whether it has been published and peer-reviewed, its level of general acceptance, and its rate of error if known." *Kowalski*, 492 Mich at 131, citing *Daubert*, 509 US at 593-594. This list, however, is not exhaustive, nor will each factor be applicable in every case. *Kumho Tire Co, Ltd v Carmichael*, 526 US 137, 150; 119 S Ct 1167; 143 L Ed 2d 238 (1999); *Daubert*, 509 US at 593-595. Additionally, the focus "must be solely on principles and methodology, not on the conclusions that they generate." *Daubert*, 509 US at 595. The United States Supreme Court later qualified this statement, noting that a court may properly exclude proposed expert testimony if "there is simply too great an analytical gap between the data and the opinion proffered." *Gen Electric Co v Joiner*, 522 US 136, 146; 118 S Ct 512; 139 L Ed 2d 508 (1997). As this Court has previously summarized:

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> Pursuant to *Daubert* and MRE 702, "the trial court's role as gatekeeper does not require it to search for absolute truth, to admit only uncontested evidence, or to resolve genuine scientific disputes." *Chapin v A & L Parts, Inc*, 274 Mich App 122, 127; 732 NW2d 578 (2007) (opinion by DAVIS, J.). Instead, the proper role of the trial court is
>
> > to filter out expert evidence that is unreliable, not to admit only evidence that is unassailable. The inquiry is not into whether an expert's opinion is necessarily correct or universally accepted. The inquiry is into whether the opinion is rationally derived from a sound foundation. [*Id*. at 139.]
>
> See also *Nelson v American Sterilizer Co (On Remand)*, 223 Mich App 485, 491-492; 566 NW2d 671 (1997). The standard focuses on the scientific validity of the expert's methods rather than on the correctness or soundness of the expert's particular proposed testimony. *Daubert*, *supra* at 589-590. An expert's opinion is admissible if it is based on the "methods and procedures of science" rather than "subjective belief or unsupported speculation." *Id*. at 590. [*People v Unger*, 278 Mich App 210, 217-218; 749 NW2d 272 (2008) (alteration in original).]

The trial court's opinion said little about the defense experts' testimony regarding the validity of SBS, instead focusing primarily on the prosecution's evidence demonstrating that SBS is a generally accepted diagnosis within the medical community, and that the triad findings are not intended as an exclusive diagnostic tool. It did, however, determine that the testimony offered by Dr. Van Ee, i.e., the only biomechanical engineering expert, was inadmissible under *Joiner* because the biomechanical studies could not replicate the intricacies of the infant brain. Presumably, the trial court's rationale concerning Dr. Van Ee's opinions extended to the other defense experts' reliance on biomechanical studies and literature.

The respondent in *Joiner* claimed that his exposure to polychlorinated biphenyls (PCB's) "promoted" his development of small-cell lung cancer. *Joiner*, 522 US at 143. But the animal studies his experts relied on involved clearly dissimilar circumstances in which the animals were injected with substantially higher doses of concentrated PCB's than the respondent encountered and developed a different form of cancer than the respondent was diagnosed with. *Id*. at 144. Other epidemiological studies either did not conclude that PCB exposure caused cancer in the test group, did not establish a statistically significant rate of cancer deaths to suggest a causal link, involved chemicals other than PCB, or focused on a test group who had been exposed to numerous other potential carcinogens. *Id*. at 145-146. Under these circumstances, the Court was satisfied that the trial court did not abuse its discretion by excluding the proposed expert testimony because "[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." *Id*. at 146.

Considering the parallels between the Supreme Court's decision in *Joiner* and the trial court's ruling in this case, we find *Joiner* particularly persuasive. While the biomechanical research and studies may very well involve legitimate scientific methods and reasoning, they extrapolate data from animal studies, physical modeling, computational modeling, cadaver studies, and recorded data from other mechanisms of injury dissimilar to abusive shaking. The defense did not establish that principles derived from this research can be reliably applied to alleged SBS

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cases. Although Dr. Van Ee indicated that the research to date established good reason to question whether angular accelerations produced by shaking could cause torn bridging veins, he also acknowledged several deficiencies in the research. Dr. Van Ee seemed to agree that, despite improvements over the years, mechanical models generally attempted to simulate only specific, relevant parameters and some of the foundational studies used models that were not even close to representative of an infant. Many of the studies were also premised on data from animal experiments involving a single acceleration or hyperextension of the neck, as opposed to the repetitive forces that would occur in the context of shaking. The prosecution's medical experts emphasized that the biomechanical studies using inanimate models or animal testing were unreliable because the results would not necessarily translate to human infant anatomy. For obvious ethical reasons, there was no way to corroborate the biomechanical findings through human testing in a controlled setting. The trial court determined that the deficiencies in the biomechanical evidence rendered its application to the case too tenuous. Like the Supreme Court in *Joiner*, we must conclude that the trial court's decision fell within the range of principled outcomes.

Biomechanical studies, however, were not the only reasons cited by the defense experts for their skepticism of relying on the triad as diagnostic of SBS. They also questioned the scientific quality of the professional literature regarding the diagnostic accuracy of the triad and, as further evidence that its use in diagnosing SBS was unreliable, identified a number of other conditions that could cause the triad. The defense experts cited published articles, reports, and studies that supported their opinions. Although the opinions expressed in those articles have been criticized, the mere fact that many or even most practitioners do not agree with these opinions does not make them automatically unreliable. This type of evidence does not easily lend itself to the factors identified in *Daubert*, in that the opinions are more akin to peer review of existing literature than scientific theories that can be tested or explored for error rate. But it is noteworthy that those who favor SBS and the diagnostic significance of the triad apparently rely on the same sources of data—existing literature regarding the subject and empirical evidence on which the literature is based—as a basis for their favorable opinions. They simply attach different interpretations and importance to the information. In other words, their conflicting opinions are but two sides of the same coin. "[A]n opposing party's disagreement with an expert's opinion or interpretation of facts, and gaps in expertise, are matters of the weight to be accorded to the testimony, not its admissibility." *Bouverette v Westinghouse Electric Corp*, 245 Mich App 391, 401; 628 NW2d 86 (2001). The extensive expert testimony offered in this case and plethora of authority cited below make it clear that there is a genuine dispute regarding SBS and the diagnostic significance of the triad, and it was not for the trial court to decide which view ought to be credited.

Next, the defense experts also proposed a number of alternative theories to explain the autopsy findings that were attributed to SBS. The trial court determined that these opinions were inadmissible because they either lacked factual or scientific support. The trial court's decision regarding these opinions was generally reasonable, and most of the alternative theories do not merit significant discussion. For instance, Dr. Cassin was asked whether he could rule out the possibility that Nakita's subdural and retinal hemorrhages were caused by a reaction to vaccines. Although he answered in the negative, he also said he did not believe that to be true in this case. The defense did not otherwise demonstrate the reliability of this theory, so the trial court properly excluded it. Dr. Cassin's brief reference to the possibility of Nakita's acromion fracture having been inflicted during the autopsy was clearly at odds with the record evidence, which included a

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premortem imaging in which the fracture was visible. There were also suggestions that the fracture could have been inflicted in the course of the back blows defendant was instructed to use during CPR, but the defense experts were unable to cite any authority for this theory.

Concerning the nature of the fracture seen in the x-rays, Dr. Nichols testified that Dr. Cassin should have visually explored the shoulder joint to confirm whether it was truly a fracture and whether there was any evidence of healing. Dr. Barnes reviewed the postmortem x-ray and observed that the x-ray was insufficient to establish whether the defect was a fracture or mere evidence of a developmental defect or bone fragility disorder. He too indicated that the best practice for resolving the question would have been for Dr. Cassin to conduct a gross examination, followed by a microscopic examination, which was not done in this case. Dr. Barnes was of the opinion that if the defect seen in the x-ray was not a fracture, it could be evidence of healing rickets. Yet Nakita's laboratory results during her hospital admission were not indicative of the deficiencies associated with rickets, so Dr. Barnes's opinion on this matter was nothing more than irrelevant speculation that would not aid a fact-finder in deciding a material issue.

The one alternative theory of causation that requires further consideration is defendant's contention that Nakita choked on formula, with the resulting asphyxiation leading to HIE and secondary subdural and retinal hemorrhages. Again, the experts seemed to uniformly rely on the same types of evidence—medical literature, general understanding of anatomical and physical processes, personal clinical experience, etc.—to support their opinions. The trial court determined that the defense experts' opinions regarding this theory were inadmissible because one of the primary articles cited by the defense studied a group of subjects of dissimilar age to Nakita (ranging from fetuses to three-year-old children), did not provide error rates for the age group comparable to Nakita, and there was no showing of general acceptance in the medical community. An additional article cited by Dr. Nichols did not involve a peer reviewed scientific study, error rates, or data and analysis that satisfied the requirements of *Daubert*. Moreover, the prosecution presented two studies finding no evidence of subdural hemorrhaging and, therefore, contradicted the defense theory. The court viewed these articles as supporting a 2016 study that reported less than 5% of the medical community as believing that choking or HIE caused subdural hemorrhages.

We find the trial court's reasoning troubling, as it appears that the court was attempting to assess which of the competing views regarding HIE was correct. The defense theory is again one that is apparently disputed within the medical community, and the court should have focused on the reliability of the underlying scientific methods, rather than attempting to resolve the dispute. *Unger*, 278 Mich App at 217. The trial court could not accept the opinions of the prosecution's experts that were premised on traditionally accepted medical research and evidence as reasonable and admissible, while rejecting competing opinions involving the same methodologies as unreliable merely because the defense experts' views represented a minority opinion within the medical community. General acceptance of an opinion is but one factor in assessing reliability. The experts relied on the same methods to reach their opinions, and the court's role as gatekeeper did not allow it to limit expert testimony to a one-sided set of opinions that it deemed more correct or universally accepted. *Id*. Moreover, unlike other defense theories that were highly speculative and unrelated to the facts of the case, there was factual evidence to support this theory, including Nakita's earlier history of apparent life-threatening events and witness statements about the formula in her mouth during resuscitative efforts.

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In sum, the trial court did not abuse its discretion by concluding that the biomechanical engineering evidence and testimony was inadmissible or excluding alternative causation theories that lacked scientific or factual support. However, its decision to exclude the defense experts' opinions regarding the validity of SBS diagnoses, reliance on the triad as a diagnostic tool, and the possibility of choking as an alternative cause of death was outside the range of reasonable outcomes.

B. ENTITLEMENT TO NEW TRIAL ON THE BASIS OF NEWLY DISCOVERED EVIDENCE

A defendant who seeks a new trial on the basis of newly discovered evidence must prove four things: "(1) the evidence itself, not merely its materiality, was newly discovered; (2) the newly discovered evidence was not cumulative; (3) the party could not, using reasonable diligence, have discovered and produced the evidence at trial; and (4) the new evidence makes a different result probable on retrial." *People v Cress*, 468 Mich 678, 692; 664 NW2d 174 (2003) (quotation marks and citation omitted). In assessing the probability of a different result on retrial, "the evidence that must be taken into consideration . . . is not simply the evidence at the original trial, but also the evidence that would be presented at a new trial." *People v Johnson*, 502 Mich 541, 571; 918 NW2d 676 (2018).

With respect to Dr. Cassin's recantation, defendant has likely established the first three requirements outlined in *Cress*. Dr. Cassin did not express his change of opinion until the 2017 evidentiary hearings were under way, and his new testimony was clearly not cumulative because it is contrary to the only expert medical testimony offered at defendant's trial. The prosecution does not take issue with these requirements in its appellate brief. Instead, the focus of the parties' disagreement regarding this issue is whether Dr. Cassin's new testimony would make a different result probable on retrial. The trial court observed that lay witnesses who recant testimony are generally viewed with skepticism and opined that the same principle applied to Dr. Cassin, despite his role as an expert witness at defendant's trial. The court also viewed Dr. Cassin's testimony about why he changed his opinion as vague, while other portions of his testimony were speculative or clearly inaccurate. Additionally, Dr. Cassin still acknowledged that Nakita's death could have been a homicide. Considering the sum total of Dr. Cassin's new testimony, the court did not believe a different result was probable on retrial.

We disagree with the trial court's stated reasons. Although it is true that courts are not typically swayed by recantations, *People v Rogers*, ___ Mich App ___, ___; ___ NW2d ___ (2020) (Docket No. 336000); slip op at 12, the general rule has little application in this context. Dr. Cassin has no relation to defendant that might tempt him to change his testimony for improper reasons. His new testimony centers on his change of professional opinion, rather than personal observations or perceptions that may have faded with time. Moreover, Dr. Cassin's change of opinion came about because of developments in scientific research, so this is not a situation in which he must establish that he perjured himself in the past and simultaneously demonstrate that he is still worthy of belief.

Nor do we agree that Dr. Cassin's testimony was rendered unreasonably vague merely because he was unable to cite specific authority for his change of opinion. Dr. Cassin did not become involved in the postconviction proceedings until the evidentiary hearings were already

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under way, so it does not appear that he was called by the defense for the purpose of establishing the shifting medical perspectives regarding SBS. Instead, his role was merely to discuss how new developments affected the opinion he offered at trial. Dr. Cassin made it clear that his new opinion was premised on the changes in scientific and professional literature, and defendant presented testimony from several other experts to discuss those changes in greater detail. Finally, while the trial court correctly observed that Dr. Cassin's testimony about when Nakita's acromial fracture occurred was clearly inaccurate, this detail was not so pivotal to the case that it outweighed the importance of Dr. Cassin's other testimony. After all, Dr. Cassin performed the autopsy, he was the only medical expert to testify at defendant's trial, and his original testimony regarding SBS was crucial to defendant's conviction.

Even so, we are convinced that the trial court reached the correct result regarding this evidence. The crux of Dr. Cassin's testimony at the evidentiary hearing was that his findings regarding the triad were correct, but he would no longer attribute the findings to SBS and he was no longer persuaded that those findings were sufficient to characterize the manner of death as a homicide. He would therefore certify the manner of death as indeterminate. This evidence is obviously favorable to defendant, but defendant's confession leaves the distinction drawn by Dr. Cassin without significant weight.

In recognition of this problem, defendant preemptively argues that her confession is unreliable because she confessed only after Detective Williams told her about the "supposedly conclusive medical evidence." Defendant cites *Aleman v Hanover Park*, 662 F3d 897 (CA 7, 2011), another case involving SBS allegations in which the plaintiff "admitted" shaking an 11-month-old baby after he was falsely told that three doctors had determined the baby was abusively shaken. *Id*. at 902. The plaintiff had, indeed, shaken the baby gently after the baby collapsed, and a police officer implied that the plaintiff must have caused the child's injuries. *Id*. at 901-902. The plaintiff then said: "I know in my heart that if the only way to cause [the injuries] is to shake that baby, then, when I shook that baby, I hurt that baby . . . . I admit it. I did shake the baby too hard." *Id*. at 902 (quotation marks omitted; alteration in original). In the plaintiff's civil lawsuit, the Seventh Circuit Court of Appeals reasoned that the officer's lie "destroy[ed] the information required for a rational choice." *Id*. at 906. Faced with a "settled medical opinion" excluding other possible causes, the plaintiff could only conclude that the gentle shaking "*must* have been the cause of death." *Id*.

Although similar in some respect, the circumstances of defendant's confession are distinguishable. Unlike in *Aleman*, defendant was the first to question whether she shook Nakita too hard. It was only after defendant raised this issue in her first account of events that Detective Williams told defendant about the autopsy results. Defendant then admitted shaking Nakita "three or four times to get her to be quiet," after which Nakita stopped crying, began spitting up formula, and became unresponsive. Thus, by defendant's account, Nakita's health declined *after* defendant shook her, whereas the baby in *Aleman* collapsed before the plaintiff shook him to elicit a response. Defendant also estimated that, on a 1-to-10 scale, she shook Nakita at a seven. While defendant's estimation cannot be quantified in terms of force, she subjectively believed that the shaking was vigorous, which would be consistent with defendant's stated intention to "quiet her up." Defendant also stated that she did not tell anybody about what happened because she did not want anybody to be disappointed in her. In contrast, even after his "confession," the plaintiff in *Aleman* repeatedly expressed disbelief that he could have caused the baby's injuries. *Id*. at 902.

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Furthermore, we do not agree with defendant's suggestion that her confession and Dr. Cassin's testimony were the only sources of inculpatory evidence at trial. Defendant's neighbor testified that defendant brought Nakita to her for help, claiming that Nakita started choking while drinking from a bottle. The neighbor told defendant to call 911. Defendant handed Nakita to the neighbor and stepped into a bedroom. But instead of calling 911, defendant called her wife. When defendant returned from making this call, the neighbor again urged defendant to call 911 because Nakita was not breathing. Defendant stepped back into the bedroom and called her mother-in-law. The neighbor insisted, for a third time, that defendant call 911 because the neighbor did not know CPR. At that point, defendant said she knew CPR and took Nakita from the neighbor's arms. It was the neighbor, rather than defendant, who ultimately called 911. Defendant's reluctance to call 911 after Nakita stopped breathing can easily be construed as consciousness of guilt, and this evidence is entirely independent of Dr. Cassin's original testimony. Considering this delay and defendant's admissions, it is improbable that Dr. Cassin's new uncertainty about the manner of Nakita's death would cause a different outcome on retrial.

The same analysis is applicable to the newly discovered admissible expert testimony. This evidence would call the prosecution's causation theory into question and provide a possible alternative explanation for Nakita's death, but SBS would also remain a plausible explanation. Even if a jury was persuaded by the defense experts that the subdural hemorrhage, retinal hemorrhage, and brain swelling discovered during Nakita's autopsy did not establish a sufficient basis for diagnosing SBS, defendant's suspicious behavior and subsequent confession would likely be viewed as confirming the diagnosis. Thus, it is improbable that defendant would be acquitted on retrial, and the trial court did not abuse its discretion by denying defendant's motion for relief from judgment.

IV. INEFFECTIVE ASSISTANCE OF COUNSEL

Lastly, defendant argues that the trial court erred by refusing to consider her claim of ineffective assistance of counsel because the Supreme Court's order in *People v Swain*, 499 Mich 920 (2016) (*Swain III*), confirms that all legal claims may be considered in a successive motion for relief from judgment as long as they are based on new evidence that a defendant did not possess at the time of an earlier motion. We agree that the trial court should have considered defendant's alternative legal theory. Nonetheless, the trial court's error was harmless and does not warrant appellate relief.

MCR 6.502(G)(1) states that "one and only one motion for relief from judgment may be filed with regard to a conviction." At the time of the trial court's ruling in this case, MCR 6.502(G)(2) carved out an exception to this general rule, permitting a successive motion for relief from judgment based on a retroactive change in the law or "a claim of new evidence that was not discovered before the first motion."[4] See also *Swain I*, 288 Mich App at 632 (discussing limited scope of successive motions).

[4] MCR 6.205(G) has since been amended to add the caveat that the trial court "may waive the provisions of this rule if it concludes that there is a significant possibility that the defendant is

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In *People v Swain*, unpublished per curiam opinion of the Court of Appeals, issued February 5, 2015 (Docket No. 314564) (*Swain II*),[5] this Court reversed a trial court's grant of a successive motion for relief from judgment in connection with a *Brady*[6] violation, reasoning that the defendant had not satisfied several requirements of the four-part *Cress* test applicable to motions for a new trial on the basis of newly discovered evidence. *Id*. at 3-5. The Supreme Court reversed this Court's decision in a brief order stating:

> The Court of Appeals erred in applying *People v Cress*, 468 Mich 678; 664 NW2d 174 (2003), to an analysis of a successive motion filed pursuant to MCR 6.502(G)(2). *Cress* does not apply to the procedural threshold of MCR 6.502(G)(2), as the plain text of the court rule does not require that a defendant satisfy all elements of the test. . . . The defendant provided "a claim of new evidence that was not discovered before the first" motion for relief from judgment, MCR 6.502(G)(2), and we conclude that the trial court did not abuse its discretion in ordering a new trial on the facts of this case. [*Swain III*, 499 Mich at 920.]

The Supreme Court's reversal in *Swain III* demonstrates that MCR 6.502(G)(2)'s reference to new evidence is a "procedural threshold" for determining whether a successive motion for relief from judgment is permitted, and the procedural threshold is entirely distinct from the separate question of whether the defendant is actually entitled to relief. Additionally, the fact that the motion at issue in *Swain II* was premised on a *Brady* violation, rather than a typical motion for a new trial on the basis of new evidence, shows that the legal theory asserted is not dispositive of whether the successive motion is allowed. Thus, an ineffective assistance of counsel claim is not precluded as a matter of law. To be clear, this interpretation does not create an open door for every claim of ineffective assistance that a defendant was not previously aware of. In all cases not involving a retroactive modification of the law, there must be actual new evidence that was discovered after the defendant's first motion for relief from judgment. A new legal theory or new appreciation for the significance of existing evidence would not suffice.

Defendant's claim of ineffective assistance of counsel met the threshold for consideration because she argued that new evidence, i.e., expert testimony challenging the validity of SBS diagnoses, was not, yet should have been, discovered and presented by her trial counsel. Defendant submitted an affidavit with her motion explaining that she knew nothing about the controversy surrounding SBS when she filed her first motion for relief from judgment in 2010. Thus, defendant's motion was "based on . . . a claim of new evidence that was not discovered before the first such motion." MCR 6.502(G)(2). That defendant presented more than one legal theory regarding the significance of the new evidence is irrelevant. The trial court erred by refusing to consider defendant's alternative theory.

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innocent of the crime," and to specifically include "shifts in science" within the scope of new evidence for purposes of a successive motion for relief from judgment. MCR 6.205(G)(2).

[5] Although we do not ordinarily cite unpublished opinions, we do so in this case to clarify the significance of the Supreme Court's later order in *Swain III*.

[6] *Brady v Maryland*, 373 US 83; 83 S Ct 1194; 10 L Ed 2d 215 (1963).

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Although we would ordinarily remand to the trial court for consideration of this theory in the first instance, the record suggests that a remand in this case would be futile. To prevail on a claim of ineffective assistance, a defendant must establish that "(1) counsel's performance fell below an objective standard of reasonableness and (2) but for counsel's deficient performance, there is a reasonable probability that the outcome would have been different." *People v Trakhtenberg*, 493 Mich 38, 51; 826 NW2d 136 (2012). In its opinion denying defendant's motion, the trial court already commented on the other evidence of defendant's guilt, the most significant of which is her own confession. Defendant admitted that she vigorously shook Nakita several times to make the child stop crying, triggering the quick and ultimately fatal decline in Nakita's health.

The testimony from the defense experts suggests there was already a debate in the medical community regarding SBS in 2006, but much of the evidence offered in connection with defendant's motion encompassed advancements in the relevant research and literature that occurred after defendant's trial. It is therefore unlikely that trial counsel would have been able to marshal the same quantity or quality of expert support for the defense that was seen in the context of this motion but for his alleged failure to diligently investigate the SBS issue. Even if trial counsel had been able to secure comparable expert testimony with adequate support from the then-existing research, there is no reason to believe that he would have been more successful in admitting a wider scope of expert opinion than was properly admissible here. As explained in Part III(B) of this opinion, the evidence would still demonstrate that SBS was a plausible cause of Nakita's death. Coupled with defendant's admission and other circumstantial evidence, it is improbable that the expert testimony would have resulted in a different outcome but for trial counsel's allegedly deficient performance. As such, defendant cannot demonstrate entitlement to a new trial on the basis of ineffective assistance of counsel.

Affirmed.

/s/ Kathleen Jansen
/s/ Thomas C. Cameron

TUKEL, P.J., did not participate.

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movement of the head forward and backward that is thought to be damaging. It is the rotation, the head flipping from the front of the body to the back of the body.

That in that process the hypothesis was that the brain might swirl around inside the skull like a bell climber ripping and tearing on itself causing injury to the axon, the fuse axonal injury.

Those are the branches coming off of the nerve cells that the big veins going from the surface of the brain over to the big vein collecting systems attached to the skull like a superior sagittal sinus, is the medical name for it would be stretched and torn causing subdural bleeding.

The idea was that the clear jelly inside the eyeball attached to the retina would be swirling at a different rate than the retina itself, ripping and tearing that retina causing the retinal bleeding. That is the classic abusive shaking hypothesis of the time.

Q. So, Doctor, while the AAP did not updates its stance between 2001 and 2006, are you familiar with any challenges that came about to this diagnoses between 2001 and 2006?

A. Yes, well back in '87 a biomechanical engineer and a neurosurgeon had done some research and questioned

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whether the levels of rotational acceleration, deceleration could be generated that would be adequate to cause thee findings. But the American Board of Pediatrics persisted in its belief.

Biomechanical article in 2003, the claim Doctor Duhaime was part of that research as well. She was a neurosurgeon. Constructive models to try to predict at the highest level of this rotational acceleration that might be generating abusive shaking of a ten pound infant and felt that the levels were not high enough to be a primary cause of brain injury or of subdural bleeding.

So that was a major challenge and felt that the term shaking baby syndrome or any terminology referring to the shaking mechanism should be dropped.

That was 2003.

But again the American Academy of Pediatrics persisted. Other research was done that would indicate that no matter what models you created, that you would not be predicted to reach levels that would be predicted to cause primary brain injury, primary subdural bleeding.

But like I said, the American Academy of Pediatrics did not change its 2001 position statement.

Other research that came forward was in 2001.

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John Plunkett published his witness short distance fall article, one of which was a video taped short distance fall where the child subsequently died of subdural bleeding, died with brain injury, of course, and had retinal hemorrhaging.

So the statement made as an absolute in 2001 constellation of these findings did not occur in short falls, would clearly be rendered absolutely wrong. But again the Academy did not change its position on that until 2009.

Q. Doctor, who is Carole Jenny?

A. Carole Jenny is child abuse pediatrician. She's old like me, and she has been involved in research and some of the position statements through the years.

Q. Did she publish anything or write anything during this time period between 2001 and 2006?

A. Yes. She got together with Aprica, which is a Japanese manufacturer of I think infant seats, and between with her collaboration they constructed two very sophisticated you might call them test devices or shaking dummies.

That medical term is antimarket test device, ATV. These are not Walmart dummies. They are very sophisticated measuring instruments.

One weighed less than five pounds, and one

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weighed a little less than eight pounds and shook these models to see what levels of rotational acceleration, deceleration could be produced.

And the numbers that fell out of that was shaking an eight pound model, she was reporting only 1436 radiants per second square, which was way below what would be predicted to be necessary to cause primary brain injury and primary subdiffusion.

Q. So, Doctor, while the AAP hadn't updated its official position on SBS before 2006, has it since updated its position?

A. Well, in 2009 the American Academy of Pediatrics was almost put in position to make revisions, number one.

In 2007 they had been challenged to defend the role of retinal hemorrhaging in cases of an alleged abusive shaking. And by 2009 confronted with the video taped short distance fall, which they could not deny, crush injuries, which they could not deny, and the emergence of concern over medical mimics, in 2009 they published a new position statement.

And in that they make the statement that while shaking has the potential to cause neurologic injury, blunt force or blunt force plus shaking does cause injury.

But what's common about that comment first of

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all it acknowledges that blunt force can clearly cause neurologic injury, and the second thing is in 2009 they avoided defining injury.

In 2001 it was very clear retinal hemorrhaging, subdural bleeding and encephalopathy. In 2009 they left it vague as an injury.

I believe you can injure a child by shaking. I think you can break its neck and kill a child by shaking, but the question was in the absence of those kind of findings, can you really cause primary brain injury and primary subdural bleeding and primary retinal hemorrhaging by the shaking mechanism.

They went on to knowledge that the biomechanical literature had both challenged that some might be taken as supporting the abusive shaking hypothesis, but the only real evidence that might be taken as supporting the abusive shaking hypothesis was the what is called the confession literature and that from that it could be assessed that shaking was associated with or occurred in some of these presentations.

But association is not causation. Just because you have a history of possible shaking, which you have a hard time defining, occurred in a child's presentation, does not establish that whatever occurred

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absolutely caused the finding. And then they went on in that statement to say that controversy remains.

So it was an acknowledgement of controversy.

In 2001 there was no acknowledgement of controversy.

In 2009 they are acknowledging it is now controversy.

And then they go on to state that they do not no longer recommend the use of the term shaken baby syndrome because it implies a specific mechanism of injury; i.e., shaking, and they recommended adoption of a much broader term to be inclusive of all potential mechanisms by which an abusing care giver could cause neurologic injury to a child.

So they were aborting declaring whether they thought an injury was shaking versus impact versus suffocation versus strangulation versus some other way that a care giver could cause injury.

Because remember they did not have inclusive any experimental evidence confirming that abusive shaking was absolutely a cause of a diagnostic constellation.

They went on then further to say in 2009 that the American Academy recommends adoption of the term abusive head trauma for the constellation of findings

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of cerebral injury, cranial injury and spinal injury.

Notice there that it was retinal hemorrhaging, subdural bleeding and subretinal bleeding and brain injury.

In 2009 they did not specifically mention retinal hemorrhaging, but replaced it with neck injury or spinal injury, and that's because the biomechanical studies were indicating that if you actually violently shook a small infant, that it would be predicted that you would break the infant's neck, literally cause ligament structural failure of the neck before you would potentially reach a level that would cause any primary brain injury or primary retinal hemorrhaging.

Q. Doctor, if I could just briefly summarize what you said so far. Please tell me if my summary is correct.

That in 2001 the AAP's official position was that SBS was a settled science?

THE COURT: I think I already heard this. I'm paying attention too.

Let's move along.

BY MR. KRAMER:

Q. Doctor, after the 2009 statement did the academy say anything about regarding retinal hemorrhages?

A. Yes, in 2010. Remember in 2007 they had been specifically challenged to defend the assumption that

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retinal hemorrhaging was a direct primary mechanical cause of shaking that would allow it to be served as a finding of great significance in these cases, since retinal hemorrhaging was then being reported in fatal short distance falls and in medical conditions.

In 2010 what they were forced to acknowledge, what they acknowledged is that while retinal hemorrhaging in the past had been an indicator of abusive head trauma, that retinal hemorrhages also occurred in many other conditions as the recognition that retinal hemorrhages are none specific and can occur in a variety of situations.

And so they would not be unique to shaking and could not be asserted as establishing shaking. They did, however, try to assert in 2010 that but if retinal hemorrhages were extensive in all four quadrants extending to the far periphery, particularly if associated with what's called a retinoschisis or a pole, that abusive, that repetitive acceleration, deceleration was the most supported hypothesis.

Now when I say repetitive acceleration, deceleration, the only situation that would occur in would be an abusive shaking. There would be no single impact, would not be rapidity and medical conditions would not be competitive, but certainly retinal

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hemorrhages occur in medical conditions from child birth. 40 percent of all babies in the nursery can have retinal hemorrhaging just from being. There is no shaking going on there.

We clearly know in impact injury it can occur. We know and the literature of the text books has long recognized that increases in cranial pressure can cause retinal hemorrhaging. Coagulation problems can cause retinal hemorrhaging. There are lot of causes of retinal hemorrhaging.

But unlike in 2001 where the American Academy was basically saying any retinal hemorrhage was adequate to satisfy the triad constellation leaving the, guiding the pediatrician to presume abusive shaking.

By 2009 they acknowledged that retinal hemorrhaging can have many causes and that, but still try to assert that. But if they are extensive, that abusive shaking or repetitive rotational acceleration would be the explanation that one should look to.

Q. Doctor, were there any developments in this field since that 2010 statement?

A. Yes. Then the question really becomes in 2010 is abusive shaking, which would be the only real cause of rapidity rotation acceleration, deceleration, is it

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really a valid, unique cause of these retinal findings.

And since 2010 we have had first of all a clinical case report in the year of 2011 where an infant had a ruptured aneurism, which is a blood vessel that popped inside the head causing an acute increase in pressure inside the head, and that infant had retinal hemorrhages.

Q. Doctor, can you hear us? Can you hear me?

A. Yes.

Q. I believe you cut out when you were speaking about the relation between increased intercranial pressure and severe retinal hemorrhages.

A. Backing up a little bit there. Increased pressure inside the head even in the literature and even in textbooks of child and adult neurology and opthalmology has long recognized increased pressure inside the head can --

Q. Sorry. We lost you again.

Doctor, we're going to upgrade our connection here. We'll be right back with you.

A. I stay put like I am; right?

MR. KRAMER: Yes.

BY MR. KRAMER:

Q. Hi, Doctor. We're back. Okay.

Do you remember where you were?

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A. Yes. I think I do. I was saying that increased pressure inside the head has long been a recognized cause of retinal hemorrhaging, but the child abuse community was asserting that it would not be extensive.

But with the publication of the Mena Case Report, a seven month old who had a ruptured aneurism which caused an increased pressure inside the head. The infant had died with extensive retinal hemorrhaging with no question, no assertion that the child had been shaken or abused.

So that was the medical diagnosis that resulted in an extensive retinal hemorrhaging. So then the question became is abusive shaking, this rapidity rotational acceleration actually a cause of any grossly visible retinal findings.

Remember, the child abuse community was asserting that it was the, could be caused but nothing else. And since 2010 we have had four major experimental efforts with animals, and we have had emergence of real human data, which has failed to suggest that the rotational accelerations that could be achieved in abusive shaking would actually even be a valid primary mechanical cause of any grossly, visible retinal findings at all.

And these studies were involved in 2010, 2012

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and the coast, Bernabahm, Cindy Christian, a child abuse pediatrician of 2016 collating that with the Bushon Data of 2009, the Daniels' data of 2012 and the Lloyd data of 2011.

Q. Doctor, are you familiar with the 2016 study from Sweden entitled Traumatic Shaking, the Role of the Triad in Medical Investigations of Suspected Traumatic Shaking?

A. Yes. I'm aware of it.

Q. Doctor, did that study say anything about the quality of evidence supporting the notion of shaking can cause that triad at all?

A. Yes. That study set out to look at the body of medical literature through 2015 which would, whether that literature actually was of a quality that would support one diagnosing abusive shaking based on the triad of retinal hemorrhaging, subdural hemorrhaging and brain injury.

And in that review they, I think went to the literature and found 3770 articles and applied, some of them were clearly involved cases which were not in the less than 12 months of age, or they were not, didn't involve at least ten patients in the report and various exclusion criteria.

And it ultimately came down to about 1,070

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which they thought needed to be reviewed.

So they reviewed all of these articles, and out of that they only found 30 that were of --

Q. Sorry, Doctor. We lost you a little there. You were discussing the 30 articles that they first identified?

A. Down to 30, and of those 28 of the 30 had a high level of inherent bias and circular reasoning, which could not about relied on, and they only had two that they felt were moderately of, only a moderate set of quality still infected with some bias and had shortcomings.

So of their review they found no studies, no clinical-based studies which were clearly of a high quality which were not infected.

Q. Sorry, Doctor, you cut out again.

You have not come back yet.

MR. KRAMER: Your Honor, do you prefer that we switch to phone at this point?

THE COURT: Yes. It doesn't seem to be working.

MR. KRAMER: Doctor, we're going to switch you to the speaker phone in here.

So can I give you a call back?

WITNESS GALAZNIK: Yes.

MR. KRAMER: And we will give you a call back.

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BY MR. KRAMER:

Q. Doctor, I think before you cut out, you were discussing the quality of evidence that the Swedish study, which is Defense Exhibit Four, The quality of evidence that that study found supporting the idea that shaking can cause the triad?

THE COURT: That's no good.

Let's take a couple of minutes. You can get it going.

(Whereupon a recess was had by all).

THE COURT: Mr. Hebel, are you okay?

MR. HEBEL: The People are ready.

BY MR. KRAMER:

Q. Doctor Galaznik, can you hear us?

A. I can hear you just fine now.

THE COURT: Hold on. We don't have your client.

All right, Mr. Kramer, go ahead.

BY MR. KRAMER:

Q. Sorry about that, Doctor. We were discussing the SBU study. Can you tell us the quality of evidence that was found confirming that shaking could cause a triad, et al?

A. Their conclusion that there is insufficient scientific evidence on which to assess the diagnostic accuracy of

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the triad in identifying traumatic shaking, very low quality evidence.

That would mean that the evidence that they found that is out there is of low quality and is insufficient to lead one to conclude that the presence of the triad is diagnostically accurate enough to assess, where the shaking clearly did not occur is the way I understand it.

Q. Doctor, earlier you mentioned that there were some circularity problems in the confession literature. Can you please elaborate on that?

A. Well, the problem with circularity is that if the doctor is of the mindset that all cases with subdural bleeding and retinal hemorrhaging can only be from shaking, then the diagnosis that is made is going to be shaking.

So you have built into your diagnostic criteria a finding, and that's circular reasoning. Your research then comes, just mutually reinforces a bias that you have built into your research.

Q. Doctor, in 2015 the Michigan Supreme Court stated that there was a quote "prominent controversy within the medical community regarding the reliability of SBS/AHT diagnosis."

Do you agree with that statement?

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A. Yes. I agree on several reasons that first of all the literature supporting that the triad can be taken as diagnostic of abusive shaking is not there, low quality.

In addition to that, I would say that the biomechanical studies with the animal studies coupled with the human data has failed to confirm that the levels of rotational acceleration that could be achieved in abusive shaking of a 10, 12, 15 pound infant would actually produce primary brain injury, primary subdural bleeding in a previously normal child or primary retinal hemorrhaging.

And if they cannot do those things, then the whole diagnoses of injury by abusive shaking has become suspect. That's not to say that shaking is benign. That's not to say you can't injure a child by shaking. That's not to say that you can't --

Q. Doctor, I believe you cut out again. I'm sorry.

We're going to try and get you back here.

You're back right now.

A. Okay. That's not to say that abusive shaking is benign. That's not to say that you can't injure a child by shaking. Not to say you can't kill a child by shaking. But to make a diagnosis of injury by abusive shaking based on the presence of those three findings

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is first of all there is no, the SBU study concluded that there was insufficient evidence to make that conclusion. And the forthcoming biomechanical animal and human data that we have has failed to confirm that abusive shaking would be a primary mechanical cause of any grossly visible retinal findings or be predicted to be a primary mechanical cause of brain injury, but it would predict that it would destroy the neck.

Now if you destroy the neck, if you injure the spinal cord, if the child then had neck injuries to the point of not breathing --

Q. I'm sorry. You cut out one more time.

You're back right now.

A. Okay. I'm back right now. But not to say if you destroy the neck, and the child then basically could not breathe, and then the brain died from lack of oxygen because the neck was destroyed, and then the brain became swollen, and then the pressure went up and then increased pressure caused retinal hemorrhaging or other findings, that could occur in an abusive scenario.

But in that situation those findings are what we call secondary, not primary, and anything which set that motion could get you to the same findings in the end.

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So the diagnosis of abusive shaking and accusing the last man with the child of doing it based on the triad of retinal hemorrhaging, subdural bleeding and brain injury I don't think is supported in the clinical literature or in the experimental literature.

Q. Doctor, the medical examiner in this case testified that Nakita died as a result of abusive shaking and did not suggest any neck or impact injury.

In your review of this case did you notice any evidence that would indicate a neck or impact injury?

A. I seen very much 2006 in terms of his end.

Q. I'm sorry. I think we lost the first couple of words of your response.

A. I did not find anything in the record to suggest or neck injury or significant neck injury, and his testimony appeared to be very much in line with the 2001 position statement from the American Academy of Pediatrics and appeared to be making the diagnosis --

MR. HEBEL: Objection.

MR. KRAMER: I'm sorry, Doctor. We have an objection.

MR. HEBEL: Objection, your Honor. I just ask for it to be in question and answer format rather than a narrative.

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THE COURT: Response?

MR. KRAMER: This is an expert witness. We'd ask for a little bit of latitude to allow him to fully explain himself.

THE COURT: I think you had a lot of latitude. I'm going to sustain the objection.

BY MR. KRAMER

Q. Doctor, you still with us?

A. Yes.

Q. Okay. What significance does a total lack of neck or impact injury have in this case?

A. Well, if there were impact injury, then impact would conceivably account for the findings in this case, but there was no history of impact and no remote findings to confirm or indicate impact.

In terms of neck injury, there was no documented neck injury either. So that given that the biomechanical research is indicating that if you shook a child to the point of neurologic injury, that you would be predicted to cause structural failure of the neck. Then the absence of documented --

Q. I'm sorry, Doctor, you cut out again.

Doctor, we lost you again.

We're back.

A. That given that the biomechanical research, including

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that if you apply the numbers out of Carole Jenny's research, would indicate that you predict neck injury and neck failure with the shaking, and in the absence of documented neck injury, would lead me to conclude that that is no support for neck injury in this case as would be expected with a significant shaking.

Q. Doctor, in your review of this case did you notice any subdural hemorrhage or any evidence of that?

A. Well, in my review of the case it is interesting that the initial presentation and the initial CT Scan only called subarachnoid hemorrhage and did not appear to show or document any subdural hemorrhage. By the time of autopsy when the child died 12 hours after the initial 911 call, the medical examiner --

Q. Doctor, we lost you again.

A. By the time of autopsy the medical examiner reported finding only 15 cc's, which is one tablespoon of subdural blood and then scattered subarachnoid hemorrhaging. So there was very little subdural blood in the head, and it was not documented or visible on the first CT Scan.

Q. What is the significance of the low amount of subdural blood?

A. Well, to me the significance of that is that in the conditional assumption in 2006 that the source of

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subdural bleeding would be from a tear and an abusive shaking. That it would be if from a tear, a rupture of a bridging vein spilling blood into creating an subdural compartment.

Now there is about 15 to 20 or so bridging veins running from the surface of the brain over to the superior sagittal spine, which would be theoretically stressed or stretched in an abusive shaking, and each of those veins is predicted or estimated to be carrying five to 10 cc's of blood per minute.

So if you ruptured one of those, I would anticipate significant amount of subdural blood visible on the CT Scan by the time of the first CT Scan, and we do see cases where the history is short distance fall impact where they do a CT Scan and document significant subdural blood, and the neurosurgeon goes in and documents a torn bridging vein. But the amount of blood is significant, and it's there fast.

So in this case where the CT Scan failed to demonstrate significant subdural blood, I saw no evidence to confirm that a bridging vein had actually been torn.

Q. Doctor, did you find any evidence in the records suggesting think Nakita was hypothermic or anthropomorphic?

RECEIVED by MSC 11/14/2022 2:28:48 PM

SBS should be a diagnosis of exclusion?

A. Well, by 2006 they were saying that most of the recent advances, not in particular shaking baby, but in terms of child abuse in general, have come in the recognition of mimics, which means by 2006 they were starting to recognize that there are conditions, didn't say specifically abusive shaking, but conditions which could present and look abuse and not be.

And since the 2009 statement is saying that a thorough workup needs to be done to rule other potential causes.

Q. So having reviewed the record in this case, do you have a differential diagnosis that you believe is more likely to have caused Nakita's injuries than shaking?

A. Yes. When I look at a case, I generally try to start, I start with the history that comes through the chart. And in this case the history through the chart to the 911 operator and the Emergency Medical Service responders, why that this child has been fed, laid down, had had two prior episodes or choking type of events, and that the care giver heard the child gasping with formula and vomit is kind of coming out of the mouth. The formula in the mouth was confirmed by EMS. They had to do repeated suctioning's, and it was further confirmed in the emergency room.

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So starting with that history, then I start to say that is the history that is awkward.

Q. So after you see that history, what's sort of your next step in pursuing a diagnostic strategy?

A. I think that that is the history that's on the chart. One might consider trauma or one might consider infection, or one might consider other medical conditions.

But when I encountered the chart then as a reviewer, I start with that history and see if that history and the clinical unfolding that caused can account for all of the findings in this case.

Q. Was there any other evidence in the medical record that indicated to you that Nakita suffered a choking aspiration event?

A. What I found in the records was first of all that was the history that was offered, plus two prior episodes of certain, and that was formula, a vomitus, excess secretions documented by EMS and the hospitals and that there was evidence of infiltrates on the right side of the lung more than left, and most aspirations go toward the right lung as opposed to the left.

And so I thought that the X-rays were consistent with an aspiration event. And the autopsy also documented early bronchial pneumonia which would

RECEIVED by MSC 11/14/2022 2:28:48 PM

be at least consistent with an aspiration event.

Q. Doctor, could this choking aspiration event be lethal?

A. It is recognized by a literature from the American Academy of Pediatrics. A choking aspiration event can be devastating, and they can be lethal, and it doesn't require a ton of formula getting into the lungs.

But if it sets off a reflex closure of the airway, then it can cause a devastating outcome.

Q. How could this choking event cause death?

A. Cause death?

Q. Yes, or brain death.

A. Well, if breathing and oxygenation of the blood is interrupted for an extended period of time, the child then proceeds to facing death. The heart stops.

And in this case by the time Emergency Medical Service arrived, the child was in a-systole, meaning there was no pulse and no heart rate, and the child was without any spontaneous circulation for more than 45 to 50 minutes.

So this child, the brain was getting no circulation or no oxygen for more than 45 minutes. So that it gets you to brain damage.

Now the question then comes does that, can you get from point of brain death from any cause to the retinal hemorrhaging, the optic nerve sheath

RECEIVED by MSC 11/14/2022 2:28:48 PM

hemorrhaging and the brain swelling and the intercranial hemorrhage. And my opinion there is that when the brain has been injured severely from lack of oxygen, and then after 45 minutes circulation is restored, and the blood came back in this case as hypertensive levels for an infant.

So you have suddenly blood surging back to the vessels and structures which have been damaged by lack of oxygen, and then you have coagulate hypothermic, acidotic coagulopathy on top of that.

The brain begins to swell, and this was clinically evident on physical exam by a full firm fontanelle, that's the soft spot to top of the head.

And it was further confirmed on the imaging by loss of bright light and on the seat of brain edema, which would indicate injuries fresh inside of the brain, and increased pressure inside the head would have been rapid because these findings were being documented within an hour of two of presentation.

And the rapid increase in intercranial pressure is a recognized cause of retinal hemorrhaging even extended retinal hemorrhaging.

It is also a recognized cause of optic nerve sheath hemorrhaging. That's hemorrhage in the optic nerve right behind the eyeball, and this would count as

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an asphyxial death, and text books of forensic pathology for years have recognized that in asphyxial death small amounts of subarachnoid hemorrhage can be found. That's not just in babies. That's in adults or whoever can after an asphyxial death small amount of subarachnoid hemorrhage is not an unexpected finding, and in this case the CT documented subarachnoid hemorrhage as opposed to subdural.

So from my perspective if you had a choking event that got you to a brain lethal period of hypoxia; i.e., the heart stops for more than 45 minutes, and then the child's heart was resuscitated followed by a rapid increased pressure compounded by coagulopathy, that would account for retinal hemorrhaging, optic nerve sheath hemorrhaging and potentially a subarachnoid hemorrhaging that was observed on the CT Scan.

It could also account for the onset of potentially some subdural breathing, but that was not documented until autopsy.

Q. Doctor, can you please briefly explain the difference between subdural hemorrhage and subarachnoid hemorrhage?

A. Yes. If you put your hand up on your head, you feel the scalp, and under that you have the skull, and right

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on I guess the inside of the skull is a membrane called the dura. In an infant it is very vascular, and it is fairly firmly attached to skull. And right underneath the dura you have another membrane called the arachnoid, which is loosely attached to the dura, and then has no blood supply.

But then between the arachnoid and the brain you have about three to five millimeters, which is about a fifth of an inch space caused by valves and valves of little threads called the arachnoid trabecular arteries, and this space is called cerebral spinal fluid which looks like water if you tap it and look at it.

Now subdural blood is blood or fluid or oxygen that accumulates is abnormal bleeding between the dura and the arachnoid. Subarachnoid blood is bleeding between the arachnoid and the surface to the brain into that fluid, the subarachnoid, the cerebral spinal fluid, that space between the arachnoid and the brain.

And traditionally a torn bridging vein as alleged in abusive shaking is supposed to cause subdural bleeding, which was in this case not documented on the initial CT Scan, and the scan would cause widespread, some arachnoid bleeding spread all

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over, which was not really what you would expect with the torn bridging vein.

Q. Thank you, Doctor.

I would like to direct your attention over to your skeletal review of this case.

In your review did the medical examiner in this case identify any possible fractures on Nakita's body?

A. Yes. The survey read the death called a fracture, the report called a fracture of the core cord process, and the medical examiner picked that up and put that in the autopsy report. The only fracture that was documented was of this right shoulder area.

Several, I note some weeks later indicated that the fracture location had been misidentified, and it was not in the core cord process but was in the acromial process.

So the initial reader who documented it put it in the wrong place, and it appears that the medical examiner was unaware of the proper location of the finding.

At autopsy the medical examiner did not dissect down to the area to confirm the presence or absence or location of the fracture. I think the call was simply made on X-ray.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. Doctor, in your experience can a fracture diagnosed on X-ray later be found to be nothing or just not a fracture upon visual inspection?

A. It can, and it can also on visual inspection have been found to be older. And let's say is it truly a fracture or not. I'm not saying it is not a fracture, but if it is a fracture, is it consistent with having occurred on the day of presentation or could it be five, seven, ten days, or two weeks old.

And without autopsy if there is no visible call up, and we got autopsy going down and actually looking at the location and possibly looking at it with a microscope, one has not fully evaluated for its age and its or how old it, is, whether it's a true fracture.

The problem with pediatrics is that infants have growth plates and growth centers which can be confused with fractures. Now I'm not saying it's not a fracture. That's not my point. My point is there was an X-ray finding that it was not confirmed physically at autopsy. It was simply an X-ray reading, and the initial identification and the identification of its location by the medical examiner was not properly labeled.

Q. Doctor, if this fracture did exist, in your opinion is

RECEIVED by MSC 11/14/2022 2:28:48 PM

it indicative of abuse?

A. In my opinion it would be an inflicted fracture, but in this case the care giver by the 911 operator was instructed to turn the child over, put the head down and deliver back blows to the infant, which is standard procedure if the child is trying to choke.

But in that procedure would be delivering blunt force trauma over this child's back at the instruction of the 911 operator, and on the 911 tape. They say clearly, you know, be careful don't break anything I think was the actual wording.

So that when I then look at this location of this fracture of this finding at the pulmonary process, in my mind if I execute the back blows, and we are taught in basic life support where you turn the child over, you'd be supporting the child's chin and head between your thumb and index finger, and the remaining three fingers would be stabilizing probably the right shoulder if you're right handed.

And then you'll be delivering a blow with your fist between the scapula there. In my mind I can see the acromia process being stabilized by the fingers of your left hand and the blow driving the body of the scapula forward, which would be a stress exactly to the location where this defect is being noted.

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So that if it's a fracture and looks like a fracture, potentially a fracture in my opinion it could be an inflicted injury, but given the history where the care giver --

Q. I'm sorry, Doctor. We lost you.

MR. KRAMER: Your Honor, while we're waiting for him to come back on, I'll say there's only a few more questions, and we can wrap in just a few minutes.

THE COURT: I also want you to be mindful of the fact that the doctor is allowed to testify with regards to the area of pediatrics, which is his expertise but not a myriad of child abuse because from his own words he is not an expert in child abuse.

So phrase your questions accordingly.

BY MR. KRAMER:

Q. Doctor, can you hear now?

A. Yes.

Q. Doctor, having reviewed the records in this case, do you believe that shaking could have caused Nakita's injuries and death?

A. The shaking could have caused these injuries?

Q. Yes.

A. In my opinion that I see no evidence that convinces me that this child was abusively shaken. There was no neck injury. And given the current state of our

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medical biomechanical and human data and literature, I do not believe that abusive shaking would be a primary mechanical cause of retinal hemorrhaging, optic nerve sheath hemorrhaging or brain injury that would be expected to account for this child's death.

Q. Doctor, after a police interrogation in this case Ms. Lemons gave a statement in which she said she had shaken Nakita before she became unresponsive. In your opinion does the medical literature support the notion that that shaking could have caused Nakita's injuries?

A. In my opinion the medical literature has not established that abusive shaking in the absence of neck injury would be a primary, valid mechanical cause of primary brain injury, primary retinal hemorrhaging or primary subdural bleeding in a previously normal child.

So that's my opinion.

Q. Doctor, in your opinion are there any issues with relying on a confession with the scientific data --

MR. HEBEL: Objection, your Honor. I believe this is far beyond the scope of the witness' expertise.

THE COURT: I agree.

Sustained.

MR. KRAMER:

Q. I just have one last question for you, Doctor. After reviewing this case do you believe that a choking or

RECEIVED by MSC 11/14/2022 2:28:48 PM

the believability of the quote a confession or its implication. I come at this from the medical records and from the history provided to the doctors, through the doctors.

And in this case the history that I found important was what was offered to the 911 operator, offered to the first ER and then to the second hospital.

Q. So basically what you're saying is it's your job to decide which statements of the defendant are useful for your position. Because you just told me that the 911 statements were relevant when he said one thing happening, but when the defendant said shaking, that one was irrelevant. So you made the determination right there what statements were important or not?

THE COURT: That's several questions, Mr. Hebel.

WITNESS GALAZNIK: I think you're mischaracterizing what I said because I, like the 911 statement and the first ER statement because allegations of abuse and suggestions of how that abuse might have occurred have not yet been made. Once the --

Q. The Judge asked me to break down that question because he felt that that was too many questions, and quite

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frankly he was right.

So, I'm going to go ahead and withdraw that question, and I'm sorry if it has caused any confusion. But maybe I can make it really simple. Just ask one simple question. It should be very easy. The fact that the victim stopped responding immediately after shaking doesn't actually change your view of what happened; is that correct?

A. It doesn't change my testimony.

Q. All right.

A. But remember, I am not here to swear this is or isn't abuse. I'm here to say that the findings in this case are consistent with a history of a choking event, and the clinical unfolding I find in the medical records. And I'm here to say that the current medical literature in this case would in my opinion not support shaking in the absence of demonstrated neck injury in this case.

I am not here to tell you this is or is not abuse. I'm not here to tell you for sure exactly what happened. I'm here to tell you what the findings I see in this case in my opinion coupled with the current literature would support that it could all have occurred as a choking event as originally offered.

Q. At this point I think you have answered the question significantly more, and I get the impression that the

RECEIVED by MSC 11/14/2022 2:28:48 PM

defense is going to want to ask a bunch of questions on redirect so you can explain further then.

But right now I have no further questions at this time.

THE COURT: All right. Mr. Kramer.

REDIRECT EXAMINATION

BY MR. KRAMER:

Q. Hello, Doctor Galaznik.

A. How are you?

Q. I'm doing well.

How about you?

A. We're fine.

Q. So the prosecution just brought up some articles discussing retinal hemorrhage in AHT cases.

Can you clarify the distinction between SBS and AHT?

A. Absolutely. That's the problem. If it is shaken baby syndrome applies a specific mechanism injury which is abusive shaking, and as hypothesized in the 2001 position statement, and as rapidity rotational acceleration, deceleration.

In 2009 given the challenges to the pure shaking hypothesis and the emergence of cases of blunt force and other causes causing the finding, the American Academy of Pediatrics recommended that term

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versus a mindset at the time of trial.

Would you like me to re-ask the question?

A. Yes.

Q. At the time of the trial in this case in 2006 was the AAP's official position that retinal hemorrhaging, regardless of severity was indicative of shaking?

A. Yes.

Q. Thank you, doctor.

The prosecution mentioned a study by Byard which found that no evidence correlating HIE with subdural hematoma. That was published in 2007. Have there been any advances in the field since 2007?

A. Yes.

Q. Could you please briefly summarize those advances?

A. I would be fighting the work Square, Mack, Shonberg and Cohen, and I do not have those references at my fingertip, but the publications came after 2007.

Q. And did cases show a link in HIE and subdural hematoma?

A. They were documenting bleeding in the dura with some extravasation into the subdural compartment.

MR. KRAMER: Can I have a moment, your Honor?

THE COURT: Sure.

BY MR. KRAMER:

Q. Doctor, I just have one last question for you. While I think we all agree that a child in Nakita's age

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probably wouldn't be playing peewee football, or jumping rope or being in a jump-a-roo, how are the studies discussing those still relevant issues of this case?

A. Because they show that at least we human data that levels of rotational acceleration in excess of what could be generate with abusive shaking is apparently producing no injury, and that's as close as to the two and a half month old crowd as we currently have data, and the corollary of that. Then do we have data, experimental data, that the level of rotational acceleration that could be generated in abusive shaking does cause the injury, and the answer to that is no pretty much.

But the best data we got, and it can be presented because it has to be dealt with. There is no experimentally demonstrated data that the level of rotational acceleration, deceleration that can generate an abusive shaking would be cause, could be predicted to cause primary brain injury and or primary retinal hemorrhages in a previously normal infant or child.

MR. KRAMER: Thank you, Doctor.

Your Honor, I have nothing more.

THE COURT: Mr. Rebel?

MR. REBEL: The People have no further

RECEIVED by MSC 11/14/2022 2:28:48 PM

questions as well.

THE COURT: All right. Thank you.

Let me see counsel at sidebar.

MR. KRAMER: Thank you so much, doctor. We're going to hang up right now.

WITNESS GALAZNIK: Before I hang up, can I say something?

THE COURT: No. No.

MR. KRAMER: Sorry, Doctor.

THE COURT: We will be in recess until the 19th.

Let me check. I'm going to check with the jail, and if they do a fast turn-around on a writ, I will send your client back.

What's the facility?

MR. KRAMER: Carson City, your Honor, Regional Facility.

THE COURT: Yes. That's north of Lansing.

(Matter concluded).

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A. That would certainly be my attempt. Yes.

MS. SCANLON: Your Honor, at this time we move to admit Doctor Nichols as an expert in forensic pathology.

THE COURT: Any voir dire or any objection, Mr. Hebel?

MR. HEBEL: No objection to the expert being qualified in forensic pathology as an expert.

THE COURT: All right.

He will be recognized as such and can give his opinion.

Go ahead, please.

MS. SCANLON: Thank you, your Honor.

BY MS. SCANLON:

Q. Doctor, you've seen many cases involving infant injury or death. Are you familiar with the medical diagnosis about shaken baby syndrome?

A. Of course.

Q. Are you familiar with the current literature of shaken baby syndrome?

A. Yes. Now known as abusive head injury or none accidental head trauma, yes.

Q. Does that literature include biomechanical research?

A. Yes.

Q. From your perspective as a medical examiner and

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forensic pathologist, can you explain briefly what the shaken baby syndrome hypothesis is?

A. Well, the theory is that an adult, or I guess a minor of adult stature can grasp an infant by the chest, or I guess maybe by the arm and vigorously shake the child back and forth.

The motion that is produced is sufficient to cause tearing of veins that run from the upper surface of the brain through the dura, which is the outer membrane over the brain to enter into a big vein called the superior sagittal sinus. The rupture of the bridging vein results in bleeding into a potential space within the head called the subdural space.

There is a bleeding in the subdural space, which is associated with damage, functional damage to the brain with alteration in mental status and also the finding of retinal hemorrhages. So that's the triad that composes SBS. Subdural bleeding and encephalopathy of some type and retinal hemorrhages.

Q. Doctor, does your understanding of the current literature support the hypothesis that the triad can only be caused by abuse?

A. There are certainly reviews that state that that is not correct. That there are other causes of the triad to occur that are unrelated to shaking.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. Doctor Nichols, have you ever concluded during your career as a medical examiner that shaking was a cause of an infant's death?

A. Of course. Early on it was the conclusion in which the triad was there. I actually used as a part of reviewing records SBS as a diagnosis for the first time in the history of this state in 1983. The deceased was Amanda Carroll. She had the triad. So I made a diagnosis of shaken baby syndrome, but she also had impact injuries to her head resulting in a skull fracture, scalp contusion and primary brain contusion.

So she was impacted, whether she was hurled, thrown or beaten, I can't tell you the instrumentation, but that was in my opinion what actually caused the triad to be present.

Q. And has your position on the shaken baby hypothesis evolved over time?

A. Absolutely. It was an almost religious canon if we found that the triad alone, that it had to have been caused by shaking is the only explanation. That's no longer my position.

Q. When did your position change?

A. It began to change when I was seated with the Commonwealth Attorney listening to the testimony of a forensic pathologist concerning a surviving child who

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had a head injury, including the triad, and the other pathologist testified that the injury that occurred resulted in the triad was not due to shaking. It was rather due to a short fall, and he quoted authors that I never heard of.

He referenced papers that I had and journals I never even seen, and this is at the very end of my career as the medical examiner. I began to eventually collect literature concerning shaken baby syndrome and other injuries to the head and spent quite some time learning the literature and having to relearn enough physics so that I could basically at a minimal level understand what the biomedical engineers were trying to tell me or tell themselves.

I had to learn at least part of a new language so that I could understand an entirely new hypothesis. So that's when it began to change, and there were a series of events that happened. That probably the most seminal was the publication of a paper by Donohoe in the American Journal of Clinical Forensic Medicine and Forensic Pathology, which is the highest journal of the National Association of --

Doctor Donohoe questioned the evidence in the papers that had been used to support the theory of shaken baby syndrome as causal.

RECEIVED by MSC 11/14/2022 2:28:48 PM

He used the principles defined by a Doctor Sackett, who was the father of evidence-based medicine to actually dissect the methodologies employed.

Doctor Donohoe found that there was deficiency in all of the literature that had been published to that point, to 2003 that he reviewed, that the papers supporting the science behind shaken baby syndrome were not of scientific quality. There have been others. Excuse me.

Go ahead.

Q. May I go back and just get the dates of some of these events?

So you mentioned that you had attended a trial. Do you recall what year that trial took place in?

A. '96 or '97.

Q. And the article by Donohoe, in what year was that published?

A. 2003.

Q. Thank you.

Doctor Nichols, in your opinion is the hypothesis that only shaking can cause the triad supported by evidence?

A. No, it is not.

Q. Shaking an infant could be dangerous; is that correct?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Of course.
Q. And do you believe that a child could die from shaking?
A. Yes. In fact, I have seen I believe two cases in which the findings were I think diagnostic of the shaken baby syndrome. In each case there was an injury to the neck of the child, a mechanical injury had occurred to the upper cervical spine resulting in injuries to the spinal nerve roots and to the cervical spinal cord.

These in combination would cause apnea or cessation of breathing because the neuro pathway to stimulate the movement of the diaphragm was interrupted. So the diaphragm would not move.

Q. And so you agree that shaking a baby or impacting a baby's head is harmful or fatal, but you disagree with the shaken baby hypothesis.

Can you explain what the difference is?

A. Impact is certainly a causal for fatal injury in children. I don't know that I understand your question.

Do you want to repeat that for me again? I mean I've seen it. I think shaking killed two children. So I think I'm professionally sure that it cannot only be harmful. It can be fatal.

I think, however, that the majority of the shaken baby syndrome cases, at least the ones that I

RECEIVED by MSC 11/14/2022 2:28:48 PM

have reviewed, do not have the neck injury, and there is no evidence that shaking caused the death.

Q. Thank you.

Doctor Nichols, among medical examiners was the diagnoses of shaken baby syndrome controversial before 2006?

A. Yes. And clearly it was discussed more frequently after Donahoe's paper was accepted and published in a peer review journal.

Q. Has the National Association of Medical Examiners published a position on the controversy?

A. Yes, they have.

Q. And who is the National Association of Medical Examiners? What do they do?

A. Well, it's obviously an association of people who have an interest in the medical examiner's programs throughout the country. It's primarily composed of forensic pathologists, an occasional forensic anthropologist and forensic dentists, as well as the investigators in the various offices throughout the United States.

It does educational seminars for students. It does educational seminars for forensic pathologists and their staffs, and it is the, it publishes a peer review journal.

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Q. And so you said that the National Association of Medical Examiner's had taken a position before 2006.

What was that position?

A. Well, it was 2001 when a committee by the Board of Directors included that they supported shaken baby syndrome as a prudent theory of child fatality.

Q. And is that still the position of the National Association of Medical Examiners?

A. That paper had a five-year limitation upon its circulation, and the five-year interval lapsed, and there was no reissue of any physician paper for the National Association of Medical Examiners concerning the validity of shaken baby syndrome.

Q. And so when did the position officially change?

MR. HEBEL: Objection.

THE COURT: Hold on.

I don't think the position changed. You need to rephrase the question. If I heard Doctor Nichols correctly, I think he indicated that there was a position paper in 2001, and after a five-year period there was no reissue or no reaffirmation. There was silence on the issue.

Did I hear you right?

WITNESS NICHOLS: You're correct, your Honor.

THE COURT: All right.

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Go ahead.

MS. SCANLON: Thank you, your Honor.

BY MS. SCANLON:

Q. Doctor Nichols, let's talk about changes in the shaken baby hypothesis then since 2006. Has the medical community learned anything about -- strike that.

Doctor, can you define hypoxia?

A. Well, it's a less than normal amount of oxygen contained within the blood stream of a person. Its effects depends upon how much the oxygen is lowered and for how long the person is subjected to the lowered oxygen.

Q. And has the medical community learned anything about the relationship between Doctor Roblies (ph) and hypoxia since 2006?

THE COURT: Do you want to define which medical community you're talking about please?

Rephrase the question.

BY MS. SCANLON:

Q. Has the community of forensic medical examiners learned anything about the relationship between these beliefs and hypoxia?

A. Well, the work I believe you're referencing was actually by a neuropathologist in England, two groups of them in which they looked at infant brains and

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infant dura of children who had known hypoxia, but obviously they were born in hospitals, no trauma to the head.

And most of them, some of them were selected because they were born by C-section rather than by a vaginal delivery, which is a potential for head trauma.

At any rate what the investigators found was that the lowered levels of oxygen, there was actual bleeding occurring from damage due to hypoxia to the lining cells, the small blood vessels within the dura and that the dura vessels would leak, and they would leak and produce a thin subdural hemorrhage or film is what it's usually described as, because it's that thing over the surfaces of the convexity, and that was published in several papers.

Q. And when that was published?

A. I believe starting in 2007.

Q. And has the community of pathologists learned anything about the effects of increased intercranial pressure?

A. Yes. There have been papers that have been authored in which increased intercranial pressure has been described as the cause or hemorrhages in the retinal vessels and within the optic nerve sheath.

Q. And when were those papers published?

A. I'll have to look and see if I have the date on that.

RECEIVED by MSC 11/14/2022 2:28:48 PM

It's not in my brain, but it was in the two thousands.

Q. Thank you.

Doctor Nichols, are you familiar with the 2016 report from Sweden entitled "Traumatic Shaking, the Role of the Triad in Medical Investigations of Suspected Traumatic Shaking?"

A. I am indeed, the SBU report.

Q. Could you explain what that report is?

A. This is an investigation of taking by a portion of the Swedish government that was in charge of investigating sciences and how science was conducted, and they looked specifically at the literature for shaken baby syndrome, the world literature for shaken baby syndrome.

They reviewed some amazing number of papers. Let's see. It is 3,773 papers concerning shaken baby syndrome, abusive head injury, none accidental head trauma. And out of those 3,773 studies, and these were peer reviewed studies, they found two papers of quality evidence based medicine.

One by Vinchon, and the other by Edmunson, and they came to the conclusion that there is no support. There is insufficient supporting science existing today to conclude that shaken baby syndrome causes infant death.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. Did the report come to any conclusion about the quality of the evidence that had been used to validate the SBS hypothesis?

A. That's primarily what they looked at. They looked at the quality of the evidence due to Doctor Sackett's determination of evidence-based medicine, and they saw that the problems with the papers had to do with risk of bias, with infancy of selection, with imprecision of words and imprecision of goals and a risk of publication bias that there were certain journals that would repeatedly allow the publication of these, according to the Swedes, unscientific, scientific papers.

Q. And we would indicate for the record that the Swedish Study is Exhibit Number Four in the defendant's binder.

THE COURT: All right.

BY MS. SCANLON:

Q. Doctor Nichols, let's turn now to the present case. You looked at the autopsy report and the materials in this case. Could you describe the abnormal, physical findings that were present in Nakita Lemons' brain?

A. She has a massively swollen brain with a thin subarachnoid hemorrhage and very small and thin subdural hemorrhage over the upper portion of the convexity.

RECEIVED by MSC 11/14/2022 2:28:48 PM

The brain had herniated under membranes that separate the sides and separate the brain from the brain stem. So the brain is massively swollen, and it does not show any evidence of a primary brain bruise or contusion to it.

There was no evidence that was detected of injury to the white matter, diffuse axonal injury. It is a swollen brain with a thin amount of bleeding on its surface and in the subdural space, but there is no description of mass effect by the subdural bleeding.

Q. Doctor Nichols, what does mass effect mean?

A. Well, first of all, the subdural space again is a potential space. It doesn't exist like the real space in your chest where the lungs and the heart are or in your abdominal cavity. It's a potential space.

The membranes should fit together like this. There should be no separation. It is the separation that allows the collection of blood. Mass effect is when subdural bleeding becomes of sufficient quantity that it compresses the nearby brain causing pressure to increase on the brain causing direct damage to the brain in that particular location and initiates brain swelling.

Q. And the findings that you just listed that were found in this case, what in your opinion caused those

RECEIVED by MSC 11/14/2022 2:28:48 PM

findings?

A. Hypoxia as the result of gagging and being obstructed, and dysphagic choking is the science word for that.

Q. Doctor, can you just repeat that. You cut out for a moment. We want to make sure we got all of it right.

A. I think the brain swelled as the result of hypoxia or lack of oxygen long enough to cause massive brain swelling. The brain swelling occurred because the child choked on its feed, on it's formula resulting in what is called dysphagic d-y-s-p-h-a-g-i-c choking, in which the child could not breathe properly, and presented to the adults that were surrounding the child as an ALTE or apparent life-threatening event.

Q. Doctor Nichols, what evidence in the record leads you to believe that choking caused the hypoxia?

A. Well, the caregiver that was there described a formula to be present in the mouth. When neighbors came to assist, they saw that there was a substantial amount of vomiting and "formula pouring out of the mouth."

When EMS got there, they described a large amount of white fluid in the mouth, and at the initial hospital in the emergency department, there was still what was described as milk in oral pharynx in a baby who is now synotic or blue.

Q. And was there any prior history that might lead you to

RECEIVED by MSC 11/14/2022 2:28:48 PM

believe that choking caused the hypoxia?
A. Yes. Contained within the medical record was the history and physical examination by the Director of Pediatric & Clinical Care, and he quoted the parents as saying that two prior episodes of gagging and gasping for breath had occurred, one at one week of age and one at one month of age.
Q. And, Doctor, why would those prior incidents be important in your conclusion?
A. Because ALTE's can happen in a recurrent fashion, and the chances of a terrible outcome increase as the number of ALTE's increase.
Q. Doctor Nichols, could the hypoxia explain the subdural bleed?
A. Yes, on the basis of the hypoxic intradural leak that was described in the literature that we discussed.
Q. And could the hypoxia explain the retinal hemorrhage and nerve sheath hemorrhage?
A. Yes, because it certainly is responsible for a cerebral edema. Cerebral edema, brain swelling with increased intracranial pressure has been proposed as a mechanism by which retinal hemorrhage and optic nerve sheath hemorrhages will occur.
Q. Doctor Nichols, was there evidence in this case of any injury to the neck?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. No.
Q. What is the significance in your opinion of a lack of a neck injury?
A. As I said, at this point I don't know how many cases I've looked at of alleged shaken baby syndrome, but it's multiple hundreds. I've only seen two cases with neck injury, with which I am confident that those children were shaken.
Q. Doctor Nichols, was there evidence in this case of external injury to the head?
A. No. No bruising, no hemorrhages seen on the outside. No description of bruise on inner surface of the scalp or on the galea, which means helmet, is a membrane that holds the scalp to the outer surface of the cranial bones. So there is no evidence of head injury.
Q. Was there any evidence of direct traumatic injury to the brain?
A. No. No description or cerebral or contusions diffuse axonal injury.
Q. Was there evidence of any primary traumatic injury?
A. No. Described are a few abrasions on the skin of the upper medical, insignificance.
Q. Doctor, may I interrupt you for a moment. You cut out. Could you begin that answer again?
A. Yes. The pathologist who performed the examination,

RECEIVED by MSC 11/14/2022 2:28:48 PM

Doctor Cassin, described two small areas of very minor skin injury called abrasions not on the head.

Q. And what is the significance in your opinion of the lack of external and internal traumatic injury?

A. Well, the child was not beaten or thrown, hurled, stomped on by anybody or anything. The child did not suffer an abusive event resulting in physical injury due to impact.

Q. And why is that lack of impact significant?

A. Well, in the brain injuries the forces that are generated with an impact are great. They are far greater than can be achieved with a shake alone.

Q. Now the medical examiner in this case concluded that Nakita had died of shaken baby syndrome. You reviewed his conclusion. Can you comment on whether you agree or disagree with his conclusion?

A. Well, I disagree with the conclusion. I do not believe the shaken baby syndrome existed in this case. That one must take into account history and alternative explanations for a disorder. That is still a theory only.

Q. Can you comment on any deficiencies in your opinion in the investigation by the medical examiner?

A. Well, I don't know exactly how much the medical examiner had to do with the interrogation of any of the

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witnesses at the scene, which would be of importance. Usually at least the investigator will be there to find out what has occurred. But sometimes the medical examiner investigator will allow the local police department to carry out the witness interrogation.

Q. Were there any deficiencies in the autopsy process itself?

A. Well, the eyes weren't examined for one thing. There was no examination of the retina to prove whether or not the retinal hemorrhages existed. So the only description here is of "bleeding behind the eyes" which I presume means that the hemorrhage beneath the sheath of the optic nerves. So that's a deficiency.

The other deficiency is the fact that the skeletal survey, which is routine practice in pediatric forensic pathology, was performed not before but after the autopsy.

Q. And to discuss that skeletal survey, did the medical examiner identify any fractures?

A. Medical examiner did not explore the right shoulder joint, which there is a description of a bony abnormality described as a coracoid process fracture or an acromial fracture, but there is no description of expiration of the joint to see (a) if that really is a fracture or not, (b) if it is a fracture, how long it

RECEIVED by MSC 11/14/2022 2:28:48 PM

has been there by examining the bone and studying it to see what if any healing had occurred in the bone fracture.

Q. And, Doctor Nichols, how would be the practice of pathologists to examine that area?

A. Well, after you would remove the tissue from the neck and the chest, you would use a series of surgical instruments. You would open up the shoulder joint and examine the bursa, which is the sack that covers the joint, the fluid within the bursa and the bone.

Q. Could you repeat that? You cut out for a moment.

A. You will take surgical instruments, and you would explore the shoulder joint by exploration. You would look at and examine the sack that surrounds the joint, the bursa, the fluid contained within the bursa, the articular surfaces of the various bones in the shoulder joint. And also while you are there, you can look at some ligaments which are of importance.

Q. The medical examiner also concluded that the suspected fracture was caused by abuse. Assuming this was a true fracture, do you agree it had to be the result of abuse?

A. It doesn't have to be. There are other explanations for boney abnormalities.

Q. Could you give an example of what those explanations

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may be?

A. Well, there are all sorts of pediatric bone disorders. They are basically clustered into metabolic disorders, and sometimes there are deficiency disorders of vitamins and other nutrients.

Q. Could resuscitation ever cause fractures in the area where there was suspected fracture in this case?

A. I have never seen one in an area due to CPR.

Q. And, Doctor Nichols, is the amount of blood that was reported in the subdural hemorrhage relevant to your conclusion that the shaken baby diagnosis was erroneous?

A. Yes. The amount of blood that is there is what one sees with the things that cause cerebral hypoxia. It is not what one sees with a fatal subdural hematoma. What is described as in an estimate is a combined 15 milliliters or three teaspoons full, total on both sides of the cerebral hemisphere.

For a mass effect to occur, there would have to be substantially more than 15 milliliters. I can only estimate in the neighborhood of at least 25 milliliters if not more, and that would be on one side not on two.

You have to remember for subdural hemorrhage to cause symptoms, it must produce mass effect. So

RECEIVED by MSC 11/14/2022 2:28:48 PM

mass is critical.

Q. The medical examiner in this case suggested that the small amount of bleeding could have resulted because the brain swelling cut off blood flow to some of the veins.

Do you agree with this conclusion?

A. I disagree with that. The brain swelling would have had to occur almost instantaneously to produce a tamponade effect from a bleeding blood vessel is cerebral edema takes a while to occur. It requires actual swelling of the neurons to occur, and fluid has to be delivered from the blood vessels to the nerve cells to allow them to swell. So it takes a while for cerebral edema to occur.

MS. SCANLON: Thank you, Doctor.

We have no further questions at this time.

THE COURT: Mr. Hebel.

MR. HEBEL: Thank you, your Honor.

CROSS-EXAMINATION

BY MR. HEBEL:

Q. All right. I wanted to get that right. So I guess it is still good morning, Doctor?

A. It is good morning.

Good morning, sir.

Q. My name is Dan Hebel. I'm the Wayne County Prosecutor,

RECEIVED by MSC 11/14/2022 2:28:48 PM

and I'm going to ask you a few questions. The first is as always with any electronic connection, if you don't understand my question either due to the content or due to losing me for a moment, could you please tell me?

A. Yes, sir, I will.

Q. And then second is can you answer only the questions that I ask you? Can you promise to do that?

A. Yes.

Q. Perfect. All right.

I want to ask you a few questions about your perspective. First is you retired from your position at the Kentucky Medical Examiner's office about 19 years ago?

A. Yes.

Q. And since then you've stayed active. You've held teaching positions. You also run a company that provides expert testimony in legal cases and consultation; right?

A. Yes.

Q. And it does primarily civil cases, but then you also do defense cases as well in criminal matters?

A. Well, actually I've done some work for prosecuting attorneys also both in the Commonwealth of Kentucky and several Attorney General Offices and the United States Attorney.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. Not on shaking baby cases with this consulting firm?
A. No, not with shaking baby cases. That is correct, sir.
Q. In fact, you were discussing your opinions on shaken baby cases during direct, and one of things that you said was that you saw two cases both with neck injuries that you think that the baby was shaken; correct?
A. Yes, sir.
Q. And without that, you categorically disbelieve all other shaking baby cases; correct?
A. Yes. There must be some explanation for the findings of the dead child. Sometimes we just plain don't know.
Q. According to the Washington Post you went so far as to tell the Kentucky Public Defenders to call you any time they had SBS cases where you previously testified on behalf of the People; correct?
A. Yes. That is correct, and amazingly enough nobody came to me and had me reverse myself. So I hadn't been using SBS terminology.
Q. I'm going to ask a follow up question to something that was asked on direct, and we went through it real fast, and I want to back up.

That is you said that there was some articles, some literature about intradural hemorrhages leaking into the subdural space, and do you know what article that intradural leak theory was brought out?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Squires and Mack.
Q. Yes. Squires and Mack. Squires is a pediatric neuropathologist, and Mack is of all things a radiologist.

MR. MORAN: Mr. Hebel, we do have that article.

THE COURT: Do you need a copy of that made, Mr. Hebel?

MS. SCANLON: That would be ideal so we can have our copy back.

MR. HEBEL: Yes, I would. I'm just checking it.

BY MR. HEBEL:
Q. Was this article based on the study that was done by Doctor Geddes?
A. I don't think the author stated it was based upon anybody's theory or previous studies.
Q. I'm going to change places now. Let's go to your Affidavit because I think that would be the easiest way to go through the testimony once again since unfortunately I don't have an identic memory.

And let's start once we get into the meat of things around points 24 through 28.
A. Okay.
Q. Just so that we are on the same page, you agree that

RECEIVED by MSC 11/14/2022 2:28:48 PM

the victim had some subdural hemorrhaging; correct?
A. Yes. As seen on the autopsy, yes.
Q. And you agree that the victim had brain swelling; correct?
A. Yes. Absolutely.
Q. And retinal nerve sheath hemorrhaging?
A. Well, optic nerve sheath hemorrhaging, but okay.
Q. You agree that the victim had what you described as a hospital-acquired pneumonia?
A. Yes.
Q. And you would agree a hospital-acquired pneumonia is usually caused by bacterial infection?
A. Yes.
Q. All right. Going on jumping on down to points 37 through 39. And in this you are discussing the Duhaime Study, which you cite in 1987 as one of the first times that SBS was called into question by a biomechanical study; correct?
A. Correct, sir.
Q. And you would agree that technology has developed dramatically since 1987; correct?
A. Yes.
Q. Are you aware of the comprehensive biomechanical study by Doctor Carole Jenny that was published four days ago in the Journal of Neural Trauma?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Yes. I had a copy of it three days ago.
Q. Excellent. And that study was conducted using a far more advanced dummy model than the one that was featured in Duhaime's; right?
A. Right. One of the co-authors is also a member of the faculty of the University of Louisville. So that's how I knew about it.
Q. Excellent. And this study found that shaking alone did exceed the brain injuries threshold; correct?
A. Yes. May I? It's my turn. But the impact point where the threshold was, at least from my interpretation of the data where the threshold was exceeded was when the model's chin struck the chest of the dummy. It wasn't until that impact happened that the forces exceeded the force necessary to tear a vein.
Q. And that was without any impact outside of the chin striking the chest; correct?
A. Yes. But if a child's chin strikes its chest with that amount of force, one would expect at least some bruising either on the chin or on the skin of the chest where it was struck.
Q. Something else about that Carole Jennings study. The author criticizes the current published injury threshold criteria as not taking into account the differences in the human infant's brain and the

RECEIVED by MSC 11/14/2022 2:28:48 PM

abuse.

THE COURT: All right.

Mr. Hebel, any objection?

MR. HEBEL: No objection at this point.

THE COURT: Certainly Doctor Barnes will be permitted to testify and give his opinion in the area of expertise, which is pediatric radiology, pediatric neuroradiology.

BY MR. LINDGREN:

Q. All right. Doctor Barnes, let's talk about that history of shaken baby syndrome. When was the shaken baby syndrome diagnosis first theorized?

A. Oh, my goodness. Depending on how far back you want to go, but in the United States certainly as early as 1940's, 1950's, and then from that point on.

Q. Doctor, are you familiar with a Doctor Gulpkelch and his work?

A. Oh, certainly.

Q. What was his role in the history of shaken baby syndrome?

A. He published one of the earliest series on shaking as a potential cause of injury, particularly brain injury in infants due to abuse.

Q. And what was Doctor Gulkelch's finding?

A. His findings were that certain types of shaking could

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lead to what is called a whiplash type injury that can result in brain injury. That is manifested by hemorrhage inside the skull, what we call subdural hemorrhage. Also can be associated with bleeding in the eyes or retinal hemorrhage, as well as brain swelling, the so-called triad.

Q. And what was Doctor Gulkelch basing his theory on?

A. His observations and a series of cases, and then also basing his opinions on some of the scientific work that was being considered and subsequently done and reported by Doctor Ommaya, for instance, in the United States, and Doctor Gulpkelch's work became incorporated by Doctor Cathy with his work in shaken baby syndrome.

Q. Were you trained that the triad was proof that a baby was shaken?

A. Yes, I was in my early training. That's correct.

Q. Did you come to question that theory?

A. Yes, I did.

Q. Was there a precipitating event or case that led you to question that theory?

A. Yes. In the mid to late nineties, the Nanny Case or the Au Pair case in Cambridge, Massachusetts where I was practicing at the Boston Children' Hospital was one of the precipitating cases that started us questioning the validity of shaken baby syndrome.

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Q. And to be clear is that the Louise Woodward prosecution?
A. Yes. That involved an eight month old male infant, Matthew Ethan.
Q. What was your role in that case?
A. In that particular case as the Chief of Radiology at Boston Children's Hospital I was asked by the prosecutors to present to the jury and the judge the imaging findings in that particular case, the CT of the brain, as well as some other x-ray abnormalities.
Q. What was the perspective that you testified to in that case?
A. That this was at the time a shaken baby syndrome, a SBS case, but it also had a fracture of the skull which would also indicate impact injury.
Q. And what did you base your opinion on at that time?
A. The existing knowledge base and literature primarily in the pediatrics literature, the child maltreatment literature and the pediatric radiology literature.
Q. And, Doctor, has your testimony in subsequent cases been different than it was in that 1997 case?
A. Yes. There has been a change in my approach to child abuse. My testimony, particularly as I started reviewing other cases sent to me and when we started using more modern advanced imaging techniques beyond

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X-rays and CT's such as MRI, and particularly in the context of the introduction of evidence-based medicine principles in that particular decade.

Q. Okay. Doctor, I want to turn to the biomechanical studies in SBS research. Have there been biomechanical studies that challenge the shaken baby syndrome diagnosis?

MR. HEBEL: Objection, your Honor. Beyond the scope of this witness' expertise.

THE COURT: Response?

MR. LINDGREN: Doctor Barnes researches shaken baby syndrome. He writes extensively. He teaches in this field, and the radiologists regularly rely on biomechanical studies to create that diagnoses.

THE COURT: I haven't heard that yet.

I'll sustain to the form of the question.

MR. LINDGREN: I can lay a foundation.

BY MR. LINDGREN:

Q. Doctor Barnes, do you use biomechanical studies in your work as a radiologist?

A. Yes, I do.

Q. How do you do that?

A. With regards to interpreting the image in potential causes, particularly if we're talking about trauma and accidental versus non-accidental, a general knowledge

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seizures, but those can occur together. So that's essentially what we would work on in terms of the SCAN Team, the doctors taking care of a child, what we see on the pre-mortem brain CT.

Q. Okay. Doctor Barnes, I think we are going to move on to the next power point slide, which is a little different here. So this is slide five, which is Exhibit 16, page one.

Doctor, what are we looking at here?

A. Now this is an X-ray, post-mortem X-ray of the baby's head or skull, but also the shoulders and chest. The top of the image is the top of the baby's head. The bottom of the image is where the chest is, and then you can see at 3:00 o'clock and at 9:00 o'clock, if you will, areas of the shoulders and bones of the shoulders.

And then I have a small, black area pointing to one of the bony parts of the scapula or the shoulder blade, and now we're going to magnify that with the next image.

Q. All right. Here is slide six, which is Exhibit 16. It's page one, the same page. It's just zoomed in.

A. Yes. So this is magnification, one of 31, and maybe the Judge and everyone else can now appreciate a hair line kind of straight to curved defect in the bone

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there known as the acromion. It's process or projection of bone off the top of the scapula or shoulder blade, and there is a line there. And, of course, we see something like that, the first thing we have to do consider is it a fracture. If it's a fracture, accidental, non-accidental.

And then the third category is when we see something that's a fracture is rule out a bone fragility disorder.

So in the older literature this particular area, if it's a fracture, has been reported to be of moderate to high specificity for abuse.

We now know that there is not a good scientific basis for that as we progressed through the evidence-based medicine literature now that we know, particularly of the bone fragility disorders, and we also know that depending upon the type of resuscitating measures used in this child, whether it be chest impression, back blows or resuscitating shaking or jostling of the child, that we have to consider the possibility that that in fact could be instead of abusive, it could be accidental.

And particularly as the only finding from a fracture standpoint, we don't see anything quite like it on the other side, but we should also consider the

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more modern literature too that once in a while we run into what is incomplete development or bone formation, what we call ossification of the part of the shoulder and the shoulder blade, and that's a well-known issue also.

So from a point of view of just a radiologist just looking at that X-ray, I'm not sure that we can decide among those three possibilities of what caused this. We know that it's a post-mortem X-ray. We would hope that the medical examiner at autopsy would be directed to that area, just like the brain CT finding shows abnormalities that would help direct the medical examiner pathologist to those particular areas to look at specifically both grossly or macroscopically as well as microscopically.

Q. Okay. Doctor Barnes, one more image here of the shoulder. This is slide Seven, Exhibit 16 page 20.

Is there anything further significant in this image?

A. No. Just to confirm that that finding is there by X-ray. Yet I find no other fractures that would be considered in 2005 for instance to be, you know, more concerning for abuse like rib fractures or fractures of the growing ends of bones what some call CML's or classic metaphyseal lesions, although we do have a few

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additional findings on this post-mortem X-ray that would warrant maybe not as much in 2005 as now a bone fragility disorder.

Now that we know that bone fragility disorders, particularly Vitamin D deficiency and other deficiencies that can cause rickets or fragile bones would be a consideration.

Q. All right. Moving on to the next slide.

Doctor, what is on this slide? This is slide eight?

A. Yes. This is just a publication. There is a series of publications on fractures of the acromion that's part of the scapula, that even though the scapula is the shoulder blade, behind the shoulder this process kind of projects toward the shoulder.

And the importance of fractures in young children, but also the importance of identifying what are called variance, meaning developmental variance or incomplete development of ossification or bone formation of the acromion, centers of the acromion in this particular area, how it can mimic fractures.

That's what we may have in this particular case, but we would only be able to confirm that based on microscopic examination by way of post-mortem examination and/or other testing.

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Q. Okay. Here is slide nine. What is on this slide?
A. Several of the cases that are shown here, both fractures as well as defects that are developmental. I think these are pictures of fractures that actually with time heal, which tells us that they are likely fractures, although it doesn't rule out bone fragility disorder that heals, particularly with treatment like Vitamin D.

And if you can go to the next slide, I think.

Q. That's your slide ten. What do you see here?
A. Now talking yes, like I think that's Figure 5a there is now talking about some of the developmental defects or variances that can look very similar to what we have in this particular case.
Q. I believe this is slide 11. What do you see on this slide?
A. Just again comparing one side to the other of Figure 5a, and this is a three month old by the way, and it shows the difference in appearance of that particular bone, the acromion where the bones do separate two centers. The bone hasn't quite formed yet.

So it leaves an area that looks like a fracture, but it's not a fracture. It just incomplete ossification.

Q. Here is slide 12. What do we see on this slide?

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A. This is just a schematic type of picture of development of the scapula or shoulder blade and its component bone centers, including the acromion. With age they ossify or form bone, and how incomplete formation or connection of the bone components or fusion of them to form one solid shoulder blade, those defects and ossification can be mistaken for fractures.

Q. And, Doctor, here is slide 13, which I believe is the last slide in the deck. This is Exhibit 16 page nine.

What is significant on this slide?

A. In this particular slide this I just chose one of the bones, but similar findings are in other bones. This is the right forearm of the Lemons baby, and the arrows are pointing to the bones on the forearm. There is two bones in the forearm, the radius and the ulna.

So those middle white arrows are pointing to the middle of the bones that extend up to the elbow at the top, and down at the bottom is the wrist and then the hand bones. But those two arrows in the middle are showing how these bones are not straight. They are curved.

And at the lower ends of the bones are two arrows that are the growth centers, what we call the metaphyses, and they're kind of chalky and irregular instead of nice and smooth and straight, and that

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finding certainly can be seen with healing rickets in a two and a half to a three and a half month old.

So in this day and age we would point to those findings and say we may have a bone fragility disorder. Some of it looks like it's in the healing phases, but consider that also as part of the differential diagnoses for the chromium defect.

Q. And, Doctor, would the rickets or the potential rickets or bone fragility disorder have any relationship to the brain injury that you saw?

A. Yes, it can. And we now know that you know ten years later we would be doing Vitamin D levels on the child, looking at calcium and phosphorus, if we found severe deficiency, particularly if calcium was low.

Calcium is not just in bones, but it's in brain. It's in the heart. It's in muscle, and it's important such that if the calcium got too low because of Vitamin D deficiency for instance that that can be associated with breathing and swallowing problems with the baby and can even be part of the choking spell and blockage of the airway when part of the airway goes into spasm.

So sometimes babies with rickets, severe Vitamin D deficiency, low calcium levels can present with breathing problems on the basis of that mechanism.

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Q. Doctor, just to circle back for a moment. You mentioned that choking could have caused the symptoms we saw here. Could you explain how choking could be a cause of all of the symptoms present in this case?

MR. HEBEL: Objection. I believe that would be -- I can't speak today. I believe that's beyond the scope of the witness' expertise.

THE COURT: Response?

MR. LINDGREN: This is right within the doctor's expertise as a radiologist who diagnoses injuries.

MR. HEBEL: I believe, if I may continue, your Honor.

THE COURT: Go ahead.

MR. HEBEL: I believe that what the doctor said was that the actual diagnoses was beyond the determination of radiology but rather that radiology would present options.

MR. LINDGREN: This is exactly what Doctor Barnes does regularly as a member of the SCAN Team, and he's not, I haven't asked him like exactly, I haven't asked him if the choking was the only cause. I'm just asking how that would cause potentially the symptoms we see in this case.

THE COURT: I'll take the answer.

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Q. Doctor Barnes, since we last spoke have you had a chance to look at the medical examiner's hospital report which was dated October 11th, 2005, and this was previously admitted, your Honor, as one of the original Defense Exhibits.

A. Yes, I have.

Q. And page two of that report, did you see this notation no retinal hemorrhages were observed on opthalomogic examination by the admitting physician?

A. Yes. I see that.

Q. Could you explain why that observation is significant to you that the admitting physician for Nakita Lemons did not see any retinal hemorrhages when she was admitted?

A. Yes, sir. At that time the theory of retinal hemorrhages associated with shaken baby syndrome was predicated upon the direct traumatic injury causing the retinal hemorrhages, and that the retinal hemorrhages should be immediately present and observable on clinical examination.

Q. So if the baby had been violently shaken before she went to the hospital, under the shaken baby syndrome theory, the retinal hemorrhages should have been there; is that right?

A. Correct.

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Q. If on the other hand the baby suffered increased intercranial pressure eventually causing retinal hemorrhages, could the retinal hemorrhages then have shown up before autopsy?
A. Yes.
Q. Now have you had a chance to review the reports of Doctors Strauss and Christian that were submitted after you last testified?
A. Yes, sir, I have.
Q. Turning to the Strauss Report, which was dated May 22 of this year, paragraph one he concludes therein I'm quoting "an unequivocal transverse fracture of the acromial process."

Do you agree?

A. I don't agree.
Q. Could you explain a little bit why?
A. Yes. There is a defect in the acromion process which I showed you earlier from the imaging. The X-ray does not tell us if that is a developmental defect or if it is a fracture or if it is a defect from an existing or preexisting bone fragility disorder.
Q. And so how should the medical examiner have determined which of those possibilities it was?
A. Well, the current gold stamp is gross examination followed by microscopic examination.

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Q. That wasn't done here?
A. That was not done according to the report that I read.
Q. Okay. Now later in that first paragraph in Strauss' Report he says, I'm quoting "acromial fractures are not reported with cardiopulmonary resuscitation specifically not with back blows."
Are you aware of any literature about that?
A. I am not.
Q. Are you aware whether blunt force trauma can create acromial fractures at least in adults?
A. Yes, it can.
Q. So in adults blunt force trauma can cause acromial fractures?
A. That is correct.
Q. And hopefully you can do this on camera. Can you just point for the Judge's benefit where the acromia is on you?
A. Yes. If I'm pointing to my left shoulder right here. So where the clavicle or the breast bone extends from about right here over to the tip of the shoulder where the clavicle articulates with the scapula is the acromion process of the scapula.
Q. So is it toward the back or the front of the shoulder?
A. Well, it projects from the back to the front to meet the clavicle right where I'm pointing. So that's a

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The prosecution's report claims that it is a straw man that's never diagnosed from the triad. I'm asking if that is correct.

THE COURT: Anything else, Mr. Hebel?

MR. HEBEL: The lack of relevance is my only --

THE COURT: All right. I'll take the answer. Overruled.

BY MR. MORAN:

Q. Doctor, you can answer the question.

A. The answer is and particularly in 2005 in the last decade, and there is plenty of literature to support this that there was little, if any, multi-disciplinary approaches at that time to the diagnosis of shaken baby syndrome.

And yes, you will find in the literature where the triad has been described as essentially compedeumonic (ph) or unique, and I have referred to you before to the Letter to the Editor by Chadwick, et al, published in Pediatrics in 1998 following the Nanny Case or Matthew Ethan case where the statement is essentially made that the triad is unique and to shaken baby syndrome, and that is published elsewhere, and Chadwack, et al, are a group of forensic pediatricians or child abuse pediatricians that signed on to that

RECEIVED by MSC 11/14/2022 2:28:48 PM

Letter.

THE COURT: I don't think that was your question.

MR. MORAN: I'm satisfied, your Honor.

THE COURT: Okay. Well, I wasn't. I thought the question was pretty straight forward.

BY MR. MORAN:

Q. I guess the question was have you seen cases then in which the triad alone was used to diagnosis shaken baby syndrome?

A. Yes, I have seen cases in the past. That's how I participated in the diagnosis of shaken baby syndrome was on the basis of the triad.

Q. In this particular case did you review Doctor Cassin's autopsy report?

A. Yes, I did.

Q. Does it appear that he just diagnosed shaken baby syndrome from the triad?

A. Yes. In fact, it's specifically stated in his report.

Q. That he sees these three symptoms, and that's the characteristic of shaken baby syndrome?

A. That's almost exactly what he says in his report.

Q. Now turning to the page 14 on Christian's report. It's not numbered. So I've written in the numbers. On page 14 of Doctor Christian's report she writes the

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rejection that shaking is not harmful to infants is promoted by a relatively small group of physicians and engineers?

And on page 19 of her report she asks why would anyone deny shaking a baby is dangerous.

Doctor Barnes, have you ever heard anyone deny that shaking a baby is dangerous and harmful?

A. I've not heard that ever. It is well known that shaking can potentially or in reality apparently harm an infant. I've never heard experts or anyone else say that.

Q. Is that really the issue that is debated whether or not it's harmful at all to shake a baby?

A. No, that's not the debate. That's never been the debate that I have been part of.

Q. On page 16 of Christian's report two thirds of the way down, she refers to an article that you co-authored about ALTE, and she writes that you and your co-authors, and I'm quoting now "misrepresented the clinical history, the opthalomogic, radiographic and autopsy findings of the case and the legal outcome of the case, this represents falsification of research and research misconduct."

Did Doctor Christian and others make such a complaint to the journal in which this article was

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County.

Q. And, Doctor Cassin, you testified previously in this case in 2006. Do you recall doing that?

A. Well, I don't recall it, but I have read that testimony.

Q. You were qualified at that time as an expert in forensic pathology?

A. Yes.

Q. You have been qualified as an expert in forensic pathology roughly how many times in court?

A. Over a thousand times I'm sure.

MR. MORAN: Your Honor, I would move to have Doctor Cassin qualified again in this case as an expert in forensic pathology.

MR. HEBEL: No objection.

THE COURT: All right. Certainly. I am well familiar with Doctor Cassin, and he's testified before me in any number of times, and I will allow him to testify and give his opinion as an expert in the field of forensic pathology.

MR. MORAN: Thank you, your Honor.

BY MR. MORAN:

Q. Now when you issued your Summary Investigation Report on October 11th, 2005, which counsel, is page three of the Defendant's Exhibit 12 in this case, you wrote, and

RECEIVED by MSC 11/14/2022 2:28:48 PM

I see you don't have it with you.

Could I show you a copy?

A. Please.

MR. MORAN: May I approach, your Honor?

THE COURT: Yes.

BY MR. MORAN:

Q. You wrote in that report "death was caused by brain swelling with bleeding behind the eyes and onto the brain surfaces. These features are the essential components of the shaken baby syndrome."

Doctor Cassin, have you heard those three symptoms called the triad?

A. Yes, triad of findings at autopsy.

Q. Was that an accurate statement of what you believed then that the triad equals shaken baby syndrome?

A. Yes.

Q. So that you saw those three symptoms, you would diagnose shaken baby syndrome?

A. Well, I should qualify that by saying that there would be no other obvious cause of death, and it would be in a subject or infant that came from circumstances that led to acute death or sudden death.

Q. All right. And I'm going to show you some of your trial testimony.

Counsel, this is August 7, 2006 at page eight

RECEIVED by MSC 11/14/2022 2:28:48 PM

of the transcript.

MR. MORAN: Approach again, your Honor?

THE COURT: Yes.

WITNESS CASSIN: Do you want me to read it to you?

BY MR. MORAN:

Q. Sure.

A. I found brain swelling with blood on the brain surfaces as well as in the nerve sheath of both eyes, and recognized this as an organization of findings in the absence of any other thing or phenomena called the shaken baby syndrome.

Q. Thank you.

Now in those days then were you taught to diagnose shaken baby syndrome if you saw those symptoms unless there was something else?

MR. HEBEL: Objection. Leading.

THE COURT: No. I'll take the answer.

WITNESS CASSIN: I wasn't taught much in those days, but I had been taught prior to those days that that triad of signs at autopsy would be qualifications that I just mentioned evoked the or should evoke the diagnosis of shaken baby syndrome.

BY MR. MORAN:

Q. Did you teach others that those three symptoms taken

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together evoked shaken baby syndrome?
A. I did.
Q. Did you work with a Doctor Jentzen?
A. I have.
Q. Who is he?
A. Doctor Jentzen had been a medical examiner for a lot of years in Milwaukee, Wisconsin and then left that position and was looking for another position at the same time that we were looking for a deputy medical examiner in Washtenaw County. So that's when he joined me there as deputy medical examiner.
Q. Were you aware that in 2001 he wrote a book chapter and a book entitled Shaken Baby Syndrome, a multi-disciplinary approach?
A. No.
Q. I'm going to -- Mr. Hebel sent us a copy of this Book Chapter. I'm going to read just a quote from that and ask if that is consistent with your understanding of what forensic pathologists believed in circuit 2001; is that all right?
A. Okay.
Q. The quote is, this is on page 206 counsel, "despite the current debate over the exact mechanism of injury of shaken impact syndrome, the classical finding of retinal hemorrhage, subdural hematoma and brain

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swelling cannot be fully explained by any other medical entity."

Does that fairly reflect the thinking of pathologists in 2005, 2006?

A. I think it reflects the findings of the majority of pathologists, yes.

Q. As you were taught shaken baby syndrome, or as you learned it, if the baby was abusively shaken, when would you expect the retinal hemorrhages would show up?

A. Well, at that time I expected that retinal hemorrhages would occur immediately. In fact, it was part of the shaking injury that occurred.

Q. So if hypothetically there were no retinal hemorrhages present when Nakita Lemons was admitted to U of M Hospital, that would be inconsistent with shaken baby syndrome; is that right?

A. Yes.

Q. Now there were retinal hemorrhages present at the autopsy; is that right?

A. Correct.

Q. Do you know if they were severe or multi-layered?

A. I think they were multi-layered as I recall reviewing them. By the way I don't recall that review. I recall the review I did a few days ago, but they were acute hemorrhages.

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Q. Let me ask you about that. You had a chance to look again at the slides just a few days ago?
A. I had the chance to look at not the exact same slides but recuts from the same blocks.
Q. Did you see retinal hemorrhage in any of those slides?
A. Yes.
Q. And would you characterize them as severe or multi-layered, or do those terms mean anything?
A. Severe doesn't mean anything to me. It's either hemorrhage there or not. Hemorrhage was indeed there, and it was layered but all acute.
Q. Now, sir, you were the Washtenaw County Medical Examiner in 2005 and 2006. When did you leave that office?
A. I don't remember exactly. It was some time around 2012 or so.
Q. And did you get any forwarded requests from the Washtenaw County Medical Examiner from me or my clinic that we were looking for you, that we wanted to speak with you?
A. No.
Q. Did you get any requests forwarded to you from the prosecutor's office that they were looking for you?
A. No.
Q. So when was the first time that you made contact with

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either me or the prosecution that this case was being litigated?

A. The end of June, in other words within the last month.

Q. And how did that contact come about?

A. It came by you calling my office phone and asking if I would be willing to review this case.

Q. And in preparing for your testimony today I think you already said you looked at some of the slides?

A. I look at the slides. I looked at 13 slides.

Q. Did you look at your original autopsy report?

A. I looked at the copy of the original autopsy report.

Q. Did you look at your testimony from the trial?

A. I did.

Q. Did you look at the medical records that we sent you?

A. Yes.

Q. Did you look at the reports from other experts?

A. I did. I looked at some. I don't know how many of them generated.

Q. Did you look at any literature that has been written about shaken baby syndrome or abusive head trauma?

A. I have read it over the years, but I looked at some reviews of literature, yes.

Q. So has your opinion changed about the validity of the shaking baby syndrome hypothesis since the time of the trial?

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A. Since the time of this trial in 2006, yes.
Q. Can you elaborate on that? How has your thinking changed?
A. My thinking has changed I think consistent with the community of forensic scientists around the world that first of all the triad of findings is not pathogenic or exclusively diagnostic of what is called or what was called at that time the shaken baby syndrome.

And, in fact, the term shaken baby syndrome has been essentially dropped from common use, both by the forensic community as well as by pediatric head trauma specialists.

Also the forces necessary to produce the injuries that are described in this case, as well as in other cases of similar type are challenged as being produced by shaking and only by shaking rather, many biomechanical scientists have demonstrated that the forces in shaking are insufficient to produce such injury.

So those are the two main things that have occurred in the scientific and professional literature, again that the findings in the triad are explainable by diseases and other abnormalities, as well as injuries and that the forces in shaking are insufficient to produce such injury.

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Q. Having had a chance now to look back at the records in this case, Nakita Lemons' medical records, the autopsy report, the slides and so forth, how would you now characterize Nakita Lemons' death?

A. I would characterize her death as having occurred with the findings that I mentioned at the time. I think that is incontrovertible.

I found subarachnoid and subdural hemorrhage. I also found nerve sheath hemorrhages. I also found brain swelling, and then in addition to that I found some early bronchial pneumonia.

I think she would have died from all of these things or with all of those things in any case, but the mechanism of how those changes occurred, that is to say essentially the cause of death is to me not explainable now.

And, therefore, as a manner of death I would have certified indeterminate, meaning it's unable to be determined. It could either be natural, or it could be accidental or perhaps even homicidal.

Q. And you saw in the reports from the other experts that other experts have opined in this case that choking to death on formula likely caused Nakita Lemons' death.

Do you believe that is a plausible manner, cause or manner of death in this case?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. I do believe it's a plausible manner of death. Excuse me. Cause of death in this case simply because she did lose consciousness prior to the arrival of Emergency Medical Service workers and maintained her comatose state throughout her short hospitalization, and therefore very likely could have been caused by that concept, loss of consciousness, could have been caused by an aspiration event.

Q. Did you see in the evidence in the records as to whether or not there was formula in her respiratory system?

A. There was. The phone call to the Emergency Medical Service phone operator mentioned it as well as the neighbor, who was talking to the Emergency Medical Service operator, and the Emergency Medical Service workers mentioned it as well.

Q. That they found formula in her respiratory system?

A. Yes.

Q. I'm going to shift gears a little bit, Doctor, and turn to the acromial fracture or the alleged acromial fracture that may have been present in this case.

At trial, this is page 37, counsel, of the same date, August 7th, 2006.

At trial you agreed that you didn't know how the acromial fracture occurred but agreed that it could

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have been caused by excessive CPR on a small infant.

Do you still agree that that's a possible cause of that acromial fracture if it was a fracture?

A. I can't rule it out quite frankly, but let me discuss that issue if you don't mind briefly.

THE COURT: Go ahead.

WITNESS CASSIN: First of all, I learned about the acromial fracture subsequent to the autopsy. It was discovered by a radiologist and reported by a radiologist who looked at post-autopsy films. And so the body had been dissected and opened when that skeletal survey was done.

I reviewed the reports. And as I recall and I think in my review I saw a film that shows a transverse fracture of the acromia, which is part of the right shoulder. It's part of the shoulder. This particular injury is depicted on the right shoulder.

However, I have to say and finally that this fracture may be artifact in the sense that it may have occurred during the autopsy procedure or the manipulation of the body by some personnel after the dissection of the body.

During the autopsy I described no injury in the shoulder, and the shoulder was exposed, at least the area of the acromion by the autopsy incision

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through the skin that opens that part of the chest.

I described no presence or blood or any sign of injury at that time. And then finally with regard to CPR, let me just say that's anterior.

So applying force to the front of a child's body or an adult's body would not in my experience produce that kind of a fracture.

However, other measures of CPR were applied, such as reversing the child's body and pushing upward and very hard on the back, and that would push force into the scapula, which is the shoulder bone at the end of which is the acromion. So it may be, it may be that that is another possible cause for the acromion fracture.

Q. Is it fair to say, Doctor, though at the time you didn't think that that possible fracture supported the diagnosis of child abuse that you made?

A. At that time I was told that there was a coracoid process factor, which is on the front of the chest, and it was described by the radiologist as highly specific or highly suggestive.

Anyway, I don't want to put words into his mouth. I believe the word is, you can find his report, highly suggestive perhaps of abuse.

Q. But that turned out to be incorrect. It was not a

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coracoid. It was an acromial fracture?
A. Yes.
Q. So even then you wouldn't have used the acromial fracture to support your diagnosis of abuse?
A. No.
Q. You wouldn't today?
A. No.
Q. Doctor, I believe we discussed that subsequent to your finding of shaken baby syndrome Mr. Lemons was interrogated by a police officer and made some admission of shaking.

Does that change your view today?
A. Frankly, I don't know if I knew that at the time or not, but apart from that now I do know it. I have read an account of it and perhaps several accounts, even quotes of it and so on.

And today it does not contribute to my investigation of the death in this regard, and that is it does not indicate anything with regard to the cause of death.
Q. Now, Doctor, I understand that when you left the Washtenaw County Medical Examiner's Office, you may not have been on the very best of terms with Doctor Jentzen; is that fair?
A. We had some disagreements, but I don't know what you

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mean.

Q. Well, I will cut straight to the question. Are you testifying the way you are because of some resentment against Doctor Jentzen or the Washtenaw County Medical Examiner's Office?

A. No. Absolutely not.

Q. What motivated you to come to my office last month and agree to testify today?

A. Well, quite frankly I reviewed my report. I put that into the context of my reading since that period of time in the last dozen years or more, and in my experience I think that I used the wrong language and made a mistake, and I believe that I owe Judge Kenny and you an explanation.

MR. MORAN: Thank you, Doctor Cassin.

I have nothing further.

THE COURT: Mr. Hebel?

CROSS-EXAMINATION

BY MR. HEBEL:

Q. Good morning.

A. Good morning.

Q. Quick preliminary matter. If you don't understand the question, please state so.

Can you promise to do that?

A. Yes.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. And answer only the question that I ask you. Can you promise to do that?
A. Okay.
Q. Just to recap, you reviewed your original opinion in this case and still see all the same injuries; correct?
A. I do.
Q. And that includes subdural hemorrhage, retinal hemorrhage, nerve sheath hemorrhage and brain swelling?
A. It does include this.
Q. And you have changed your opinion from homicide as the cause to indeterminate as the cause?
A. Currently I have changed my opinion yes, but it's not the cause. It's the manner of death.
Q. The manner of death?
A. That wasn't answering your question. I'm sorry.
Q. Actually, it was.
A. I should have said no.
Q. Well, this happened in 2006. That was the time of the original report. And since then since the years after authoring this report, have you written any peer review publications on the issue of child abuse?
A. No.
Q. How about shaking baby syndrome or abusive head trauma?
A. No.
Q. Have you presented any papers or presentations to

RECEIVED by MSC 11/14/2022 2:28:48 PM

national or international committees or meetings on the subject of child abuse?

A. No.

Q. In that case what scholarly article changed your mind from the opinion that shaken baby was a real and active diagnosis to not? What publication changed your mind?

A. I don't know that there was any publication that changed my mind.

Q. So your change of opinion is not based on a scholarly article or study?

A. It's based on a number of them, but the answer is no, not on a scholarly article or publication.

Q. So it's based on a number of them. Can you tell me which ones?

A. No.

Q. Now you also mentioned that the forces necessary for shaking to generate the type of injury, that is a concept that has been challenged, and you mentioned that on direct; correct?

A. Yes.

Q. Can you give me any citations for those challenges?

A. None. I don't want to simply because I may be wrong. So I don't want to do that, but I'm sure you will hear many citations that would support that.

Q. You also said that diseases can mimic the findings of

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subdural hemorrhage and retinal hemorrhage and brain swelling; is that correct?

A. I did.

Q. Which diseases?

A. I don't want to tell you which ones, but they are in the category of hemologic and connective tissue diseases.

Q. Do you recall in your findings that the victim had any of those?

A. No.

Q. Now the manner of death being indeterminate, can you give me a full definition of what indeterminate means in all cases when it's used?

A. Well, literally the term means unable to be determined. So that's the best definition of what it really means.

Q. Makes sense.

Thank you.

Correct me if I'm wrong, but doesn't indeterminate, aren't indeterminate deaths highly indicative of homicide?

A. No, they are indeterminate.

Q. They are indeterminate obviously, but is it usual for people to drop dead for no reason?

A. Is it usual? I don't know how usual it is. A lot of people do.

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Q. Now in your new report, you claim that the injury.
A. Excuse me a minute.
Q. Yes.
A. I don't know that I answered your question. So if you don't mind a brief comment.
Q. Absolutely.
A. You said drop dead for no reason. Indeterminate does not say there is no reason. It says that you can't classify the type of death as to manner, perhaps that's a clearer answer.
Q. That's specifically by autopsy?
A. By investigation really. Medical examiners are bound to do an investigation. So it depends on the information that you have around autopsy as well as the autopsy itself, which an autopsy is only part of the evidence.
Q. In your report you claim that the injury to Nakita may be caused by something else, and you discuss that a little bit?
A. Yes.
Q. But you also specifically and very specifically on direct don't rule out trauma or even homicide. In fact, your original autopsy, original conclusion could be correct. You just can't testify that it absolutely is correct. She could have been?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Is that a question?
Q. Yes. Is that accurate?
A. That's accurate.
Q. Now did you review the medical records of Nakita Lemons in preparation for this case?
A. I reviewed some of them, the most recent medical records.
Q. Did you note that the victim had her vaccines on time?
A. Yes.
Q. And does the fact that this infant was vaccinated, would that have anything to do with your opinion here?
A. That she may have had a reaction to vaccination? I have to ask for clarification.
Q. That's just, right. Yes. Could that have had something to do with the subdural hemorrhages and retinal hemorrhages, those findings?
A. I can't rule that out.
Q. So this might have been caused by vaccines?
A. By reaction to vaccine, possibly.
Q. And so in your professional opinion you believe that the victim's injuries could have been caused by a reaction to vaccinations?
A. I can't rule that out. It is not my opinion.
Q. But you can't rule it out?
A. I can't rule it out.

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Q. In your opinion have you discovered in the past that reactions to vaccinations have caused these types of injuries?
A. I've heard about it, yes.
Q. Have you given any opinions to that effect in other cases?
A. I don't know.
Q. Quick question. Do you remember the case of an infant with the last name of Elreba?
A. The name is familiar to me. I don't remember the case, although I was told that you would be asking me about that this morning when I came, and I was shown a report which I very briefly reviewed that I had written.
Q. You did write that report?
A. I wrote it, yes. Is that what you are asking?
Q. Yes.
A. Yes.
Q. And with that the People are going to offer Proposed Exhibit 13.

Actually before I do that, I'm going to show you a copy of that report.

MR. HEBEL: May I approach the witness?

THE COURT: Yes.

BY MR. HEBEL:
Q. And what I am showing you has been marked for

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identification as People's Exhibit 13.

A. Yes.

Q. And is that the report from this case that you authored?

A. Yes.

Q. And in this report do you suggest that the brain hemorrhages in the case were possibly caused by vaccine-medicated toxic reaction masquerading as head injury, and that is on the second page, Point B?

A. I see it now. Yes. Hemorrhages allow for the possibility of a vaccine-mediated toxic reaction masquerading as head injury.

Q. So that is correct?

A. That is what I wrote.

MR. HEBEL: Your Honor, the People would offer Proposed Exhibit 13 into evidence.

MR. MORAN: I have no objection, your Honor.

THE COURT: 13 will be received.

I got a copy of there.

May I approach?

THE COURT: Certainly.

BY MR. HEBEL:

Q. Is it your opinion that the majority of forensic pathologists would agree that vaccines can mimic head injury?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. No, it's not my opinion.
Q. Okay. So you disagree with that?
A. That it is the -- I have to repeat the question.
Q. Fair enough.
A. Do I disagree with your proposed statement?
Q. Do you believe that the majority of practicing forensic pathologists agree that subdural hemorrhages can be caused by reaction to vaccines?
A. I don't know.
Q. Do you believe that the majority of forensic pathologists agree that non-traumatic events can cause subdural hemorrhages, retinal hemorrhages?
A. I'm sorry. I don't quite understand the question. It's my fault.
Q. Not a problem whatsoever. I might be asking the question confusingly.

In your opinion do you believe that the majority of forensic pathologists agree that non-traumatic events can cause subdural hemorrhage and retinal hemorrhage?

A. Today I do, yes.

MR. HEBEL: Thank you.

No further questions at this time.

MR. MORAN: Just a few redirect, your Honor.

THE COURT: Go ahead.

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REDIRECT EXAMINATION

BY MR. MORAN:

Q. Do forensic pathologists rely on by biomechanical literature?

A. I believe they do.

Q. And you rely on biomechanical literature in forming your opinions?

A. I do.

Q. Now Mr. Hebel asked you about you mentioned hematological diseases as something else as mimics of the symptoms of shaken baby syndrome. He asked you whether you saw any of these in Nakita Lemons' autopsy.

Were you looking for mimics of shaking baby syndrome such as hematological diseases in 2005?

A. No.

Q. Once you saw the triad, you thought this was probably shaking baby syndrome?

A. Yes. I must have I guess is my best answer.

Q. Now Mr. Hebel asked you some questions about what it means to say that the manner of death was indeterminate, and he asked you whether it might still today be trauma or homicide. Would you still say today that this is shaken baby syndrome?

A. No. I wouldn't even use the term in any case.

Q. And just one question about the vaccine. Is it known

RECEIVED by MSC 11/14/2022 2:28:48 PM

in the forensic pathology community that vaccines occasionally do cause injuries in children?

A. It is reported, and I must have known that at the time that I wrote that statement that I wrote in 2011.

Q. Doctor, are you aware of whether there is a federal program to compensate children who have been injured by a vaccine?

A. Yes, there is.

MR. MORAN: No further questions.

THE COURT: Mr. Hebel, anything else?

MR. HEBEL: Just briefly.

RECROSS-EXAMINATION

BY MR. HEBEL:

Q. As defense counsel and you just discussed, you would no longer use the terminology shaken baby syndrome for any case; correct?

A. No. I wouldn't, sir, because it's too controversial. I'm sorry.

Q. That's just fine. But the replacement constellation of injury is abusive head trauma; correct?

A. It is a more generic term that is used. Yes.

Q. And potentially even though the manner of death is indeterminate, if this was caused by homicide, the correct terminology would be abusive head trauma; correct?

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. And you would agree that there is actually a controversy between the medical community regarding the reliability of the diagnosis of shaken baby syndrome and abusive head trauma?
A. There is a, I guess you could call it a controversy. There is a minority of forensic pathologists that do indicate that they no longer support. I would assume Doctor Cassin is one of those in the diagnosis of shaken baby syndrome.
Q. So you're familiar with study conducted by Doctor Norain in which he finds that only 40 percent of forensic pathologists surveyed believe that shaken baby syndrome is a valid diagnosis?
A. I'm not aware of that. No.
Q. And when you indicated that there is a minority of doctors that believe that a controversy exists, would you say it's fair to characterize it as a disagreement within the medical community about the validity of shaken baby syndrome and abusive head trauma diagnosis?
A. I would say it's a disagreement.
Q. Part of the disagreement stems from research provided from biomedical studies?
A. But biomedical studies have not been able to adequately or accurately determine the mechanism. There has been a number or studies that have been mainly by inanimate

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or none human models that have attempted to mimic the shaken, the mechanism shaking baby syndrome.

We have not yet developed the ideal model in order to do that, and there has been a number of challenges as to the models that have been used to make those determinations.

Q. And then the controversy that also exists about infant traumatic brain injury also stems in part from research about the causes, about the mechanisms that occur to subsequently result in the symptoms that are discussed as triad, the retinal hemorrhages, the subdural hematoma, the brain swelling?

A. I wouldn't say the mechanisms. I would say that there has been a hypothesis on, a recent hypothesis on hypoxic brain injury, which is lack of oxygen to the brain, and we have known and documented hypoxic episodes to the brain ever since the shaken baby was first determined by the evidence of brain swelling, which is indicative of lack of oxygen to the brain, which is the final mechanism of all injuries to the brain.

So it's nothing new in indicating that there may have been lack of oxygen to the brain.

Q. But you agree that these researchers believe that hypoxia, especially when accompanied by intercranial

RECEIVED by MSC 11/14/2022 2:28:48 PM

pressure and CPR in an instance like this where it's for an extended period of time could lead to the constellation of injuries, the triad of injuries?

MR. HEBEL: I'm going to object. The question was specifically about what particular researchers believe, and I would just ask number one, I think it's speculation as to what certain researchers believe, and number two, I would just request specificity on which researchers.

THE COURT: I agree.

Let's rephrase the question please.

MR. HAHN: Thank you. I will.

Actually, Judge, I'm going to come back to that issue if that's okay.

THE COURT: That's fine.

MS. HAHN: I'm going to touch on something else.

BY MS. HAHN:

Q. And so do you agree that there is a prominent controversy within the medical community regarding the reliability of shaken baby syndrome and abusive head trauma diagnoses?

A. I would agree that there is disagreement.

MR. HEBEL: I'm going to object to the term medical community and ask for specificity because we're

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talking with a forensic pathologist not a pediatric surgeon, not an emergency room doctor, just specificity in what area of the medical community.

THE COURT: Ms. Hahn, do you want to comment on that?

MS. HAHN: Yes, your Honor. I'm directly quoting the language from the Michigan Supreme Court Justices in case of People versus Ashley.

THE COURT: Well, I appreciate that. I guess my concern is that we've heard from a number of different doctors in terms of specialties, radiologists and medical examiners and what not. I think in terms of asking about the, I think certainly Doctor Jentzen may be capable of answering whether or not in the forensic pathology community there is disagreement, and I think he can answer that.

I think with all due respect to the doctor, I think let's keep him in his lane.

How's that?

MR. HAHN: Okay. Do you want me to repeat the question?

WITNESS JENTZEN: No. I would indicate there are disagreements with the minority of forensic pathologists like Doctor Cassin, who have indicated in their opinion there may be changes due to the research.

RECEIVED by MSC 11/14/2022 2:28:48 PM

But when you look at the research, there is still nothing that has been developed, no research or hypothesis has been proven to disprove the fact that severe shaking of an infant can and does cause death, and this has been an accepted diagnoses.

It has been in current textbooks and in the current literature. It has been documented by statements made in numerous investigations, and it has been documented by findings.

One of the major issues is that if there is enough force that's going to cause a death from shaking, there should be some injury in the neck.

Well, there is now evidence that there is injury in the neck in cases of infants that are violently shaken. So there is nothing. Certainly there has been a number of papers and research that has been done to attempt to determine that, and there are new hypothesis on the horizon, but none of these has disproven that shaking baby syndrome is a subset of abusive head injury.

Q. So you're familiar with the SBU Report, that Swedish Report?

A. I am. And that again is controversial and not accepted by general acceptance in the medical community.

Q. You will agree that that study questions the validity

RECEIVED by MSC 11/14/2022 2:28:48 PM

of shaking baby syndrome and abusive head trauma diagnoses?

A. Yes. It's one of them. But again the methodology from that study is questioned and not accepted in the general medical literature.

MS. HAHN: Just one second, your Honor.

THE COURT: Of course.

MS. HAHN: Nothing further, your Honor.

THE COURT: Mr. Hebel?

MR. HEBEL: Thank you, your Honor.

REDIRECT EXAMINATION

BY MR. HEBEL:

Q. Couple of quick follow-up questions. It was discussed that one of the 911 calls, a lay witness said that she thought the baby was choking. Does that equal a diagnosis of choking in your perspective?

A. I interpret it as a statement from a lay witness and seeing formula coming out of the child's mouth and the terminology would be choking.

But the paramedics indicated that there was no gag reflex at the time the child was first viewed, and that was confirmed when the child was admitted to the hospital. The child was basically unconscious and in an early coma by the time paramedics arrived, and there was a delay in getting the child to medical

RECEIVED by MSC 11/14/2022 2:28:48 PM

process that should not be there, that is a fracture.

BY MR. HEBEL:

Q. Are there other slides showing this fracture that you'd like to go to?

A. Yes. You could advance it, please.

THE COURT: Dr. Strouse, if I could just interrupt for a moment. Could you clarify for me when these films were taken.

THE WITNESS: So I believe the first chest x-ray, chest radiograph was obtained when the child came to the emergency room and I have the date and time on the slides there. The second one was obtained a few hours later. I don't have the slip. Is that the first one or the second?

MR. HEBEL: The first one is labeled October 10th, 2005 at 10:17 p.m., the second one is labeled October 11, 2005 at 6:11 a.m.

THE COURT: Okay.

THE WITNESS: So this chest extra basically shows us the same thing, perhaps a little better. Again, the red arrow is indicating the fracture within the acromion process.

BY MR. HEBEL:

Q. Can you as a pediatric radiologist experienced with this type of imaging can you tell the difference

RECEIVED by MSC 11/14/2022 2:28:48 PM

between this being a normal variant or being a fracture?

A. That is a fracture. It's sharply defined line. The normal variant of scapula ossification usually are closer to the end of the scapula and not in the middle or towards the base as this one is. It's asymmetric. There's not a similar finding on the other side, although that doesn't completely exclude it being a normal variant. If it were a normal variant we would expect the margins of it to be less well defined and maybe a little white from some sclerosis because it's a normal structure and that's what it would look like. This is clearly not a normal variant.

Q. What is the significance of a fracture in the acromion process in this particular area?

A. Fractures of the acromion process in young children and infants are very rare. It's considered an injury that's of high specificity for child abuse because it's rarely seen outside of the setting of child abuse therefore it's concerning.

Q. Can this type of fracture be caused by resuscitative efforts?

A. In my years of experience I have never seen a case where an acromion fracture was attributed to recitation nor am I aware of any such case within the

RECEIVED by MSC 11/14/2022 2:28:48 PM

medical literature.

Q. And do you stay up-to-date in the medical literature in this field?

A. Yes, I do very much so.

Q. Are there any other slides that you would like to look through on this particular issue?

A. Yes. You can advance. The rest of the slides are from a skeletal survey that was performed after the child passed away and after an autopsy was performed or during the autopsy was being performed.

I'm not sure why the skeletal survey was done after the autopsy. Standard today would be to do it before an autopsy. So we see changes of the autopsy on these images.

The skeletal survey is basically a series of radiographs of all parts of the body of the infant or in this case the deceased infant looking for fractures, looking for other abnormalities, looking for evidence of other diseases that might be present. So these are x-rays of the child's head and upper torso basically showing post autopsy changes but nothing else abnormal other than the acromion fracture.

If you go to the next slide. This is a magnification of one of the pictures on the prior

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A. Un-huh. Right.
Q. And Currarino and Prescott go onto say in that same opening paragraph, they are seen most often in Battered Children's Syndrome -- Excuse me. Battered Child Syndrome, end quote. Do you agree with that?
A. They're most often seen in the setting of child abuse. Battered Child Syndrome is a term that was used previously to describe a name for child abuse. I would say yes.
Q. Battery means hitting, right?
A. I wouldn't necessarily say so. It just means the child is abused.
Q. Really? Battered doesn't mean hitting?
A. I don't know. You could ask Dr. Kemp who originated the term how he meant it to be defined but I don't know. I have avoided that term myself.
Q. But back to that paper which you cited in your report. Currarino and Prescott found several cases in which the suspected acromial fracture wasn't really an acromial fracture, right?
A. In that paper they have examples of a normal variant, they have examples of I think three or four examples of fractures. The appearance of the fractures in that paper is much more consistent with what we see in this child than the acromion -- the normal variant is --

RECEIVED by MSC 11/14/2022 2:28:48 PM

most of the cases in that case are healing fractures so they do appear different than the fracture that we see in our case that does not have signs of healing.

Q. That really wasn't my question. My question was is that Doctors Currarino and Prescott found examples of variants that look like on Radiology acromial fractures?

A. They did.

Q. But there is no chance that you made that mistake because as you put it --

A. This is a fracture. It doesn't look like a normal variant.

Q. Doctor, I'm grateful if you let me finish my question. Because you stated this is unequivocal?

A. Right.

Q. Okay. Now the other article you cited in your report is by Kleinman and Spevak. Variations in acromial ossification simulating infant abuse in victim of sudden infant death syndrome, and that's a 191 article from Radiology; do you remember citing that one as well?

A. Yes.

MR. MORAN: Your Honor, at this point I move to admit Kleinman and Spevak as Defendant's Exhibit 22. I have previously sent it to Mr. Hebel.

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE COURT: Any objection?

MR. HEBEL: No objection.

THE COURT: Twenty-two will be received.

(At about 11:39 a.m. Whereupon Defendant's Exhibit 22 admitted into evidence.)

BY MR. MORAN:

Q. And that article again notes that there are anatomical variations that could easily be confused on Radiology for an acromial fracture, correct?

A. By the inexperienced, yes.

Q. And the article ends with and I'll quote, "in suspected fatal abuse the acromion should be resected as should all other sites of osseous injury for further radiographic and histological analysis." Can you tell us what a histological analysis?

A. It's the pathologist looking microscopically at specimens.

Q. And so to translate that sentence into plain English, if the infant is deceased the medical examiner should confirm the suspected acromial fracture by resecting the area; is that right? Is that what they're saying?

A. I don't think informations needed here but it would have been nice if it had been resected.

Q. Doctor, my question was is that what Kleinman and Spevak were saying?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Yeah. It sounds like they're suggesting that, yeah.
Q. But that wasn't done here, was it?
A. Not to my knowledge.
Q. But despite what that article says in a fatal case you should resect the area and confirm through histology that it is a acromial fracture. You're very confident that this is an acromial fracture?
A. I have no doubt.
Q. Unequivocally?
A. Right.
Q. Now, your -- you mentioned Jeffrey Jensen, and you mentioned that you consulted with him; can you tell me what that was about?
A. I already forgot what I said about Dr. Jentezen.

THE COURT: It was with regard to certain -- talking with him about the file on the Nikita Lemons matter.

MR. HEBEL: I'm going to object and this -- my memory of what the witness said was that he may have acquired the autopsy report from Dr. Jensen rather than through my office.

THE WITNESS: Correct. That's what I said, but I did not consult with him further than that.

MR. MORAN: I don't remember frankly myself, your Honor.

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE COURT: Okay.

BY MR. MORAN:

Q. But you know Dr. Jensen?

A. Yes.

Q. And he wrote a book chapter in a book called the Shaken Baby Syndrome in 2001 that was discussed yesterday, and at page 217 of that book chapter which Mr. Hebel has, the last sentence of the carryover paragraph at the top of the page let me read that to you. In cites where radiograph suggests the present (sic) should by presence, of recent or remote skeletal injury, the area should be incised, examined and fractured bones removed for examination with more detailed radiological and histological methods, end quote. So if you translate that into English again Dr. Jentezen was suggesting that in a case of a fatal injury or a fatality that the area should be incised and histological methods and more detailed radiological methods should be used; is that fair?

MR. HEBEL: I'm going to object at this point because this is beyond the scope of this witness's expertise. That is chapter specifically referring to pathological findings and this witness discussed the radiological findings of the acromion, not the pathological.

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MR. MORAN: Your Honor, the question is what should you do when the Radiology suggest an acromial fracture in a case where the infant is dead and I am questioning whether or not this is an unequivocally acromial fracture.

THE COURT: I understand. I'll allow it.

MR. MORAN: Thank you, your Honor.

BY MR. MORAN:

Q. Again that wasn't done here; is that right? None of that what Dr. Jensen suggested was done in this case?

A. To my knowledge they didn't resect the acromion.

Q. Robert Reese and Cindy Christian wrote a book called Child Abuse Medical Diagnosis and Management, are you familiar with that book?

A. I'm familiar with Dr. Reese having written books but not specifically with that one, although I may very well have it on my shelf in my office.

Q. It was 3rd edition 2009, so about eight years ago, published by the AAP, can you tell us what the AAP is?

A. The American Academy of Pediatrics.

Q. And at page 236 of that book they write: Variations in the ossification pattern of the acromion process have been recorded as mimics of inflicted trauma. And later on the same page they write: In deceased patients histological evaluation of skeletal lesions

RECEIVED by MSC 11/14/2022 2:28:48 PM

identified during the skeletal x-ray survey should clarify the traumatic versus nontraumatic origin of the finding. I take it you disagree with that, that you don't need to do that? You can make the call as to an acromial fracture?

A. In this case there is an unequivocal acromial fracture. I don't need pathology to confirm it. It would be nice if we had pathology to confirm it and unfortunately we don't, but it's a fracture.

Q. All right, now, Doctor, where exactly is the acromial process? Could you point on your body where it is?

A. It's right here.

Q. So you're pointing towards the front of your shoulder?

A. Correct.

Q. Let me show you a diagram. I'm gonna have this marked as Defendant's Exhibit 23 from a medical text book. Propose Defendant's Exhibit 23.

MR. MORAN: May I approach, your Honor?

THE COURT: Yes.

BY MR. MORAN:

Q. Can you look at that diagram?

A. Um-hum.

Q. That seems to show that the acromion is towards the back of the shoulder and the coracoid process is more towards the front of the shoulder; is that wrong?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. That's wrong.
Q. So it's not?
A. Both the acromion and the coracoid process are extensions of the scapula, the shoulder blade which extend towards the front. Both of them extend towards the front a few centimeters. On that drawing you're basically looking essentially down the barrel of the acromion, so you don't appreciate its length or the fact that it extends towards the front nor do you appreciate that for the coracoid on that drawing.
Q. Now, how far apart are the acromion and the coracoid?
A. It depends on the age of the patient. A centimeter maybe or so in a little -- in an infant. Three or four centimeters in an adult maybe.
Q. But they are separated by a little bit?
A. Um-hum.
Q. And they are separated by the main body of the scapula; is that right?
A. Well, they both connect to the main body of the scapula. I mean, in-between there's soft tissues and ligaments.

MR. MORAN: Well, your Honor, I move to admit Defendant's Exhibit 23 and we have Dr. Strouse's commentary on it.

MR. HEBEL: At this point the People would

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THE WITNESS: I'm sorry.

THE COURT: Go ahead.

BY MR. MORAN:

Q. Were you aware of the majority also expressed concern about whether --

A. I'm not aware of the particulars of the case. I gave those citations as examples of the Supreme Court citing articles that have been discredited in the literature. I think namely the Donahue evidence baby -- shaken baby article which has been thoroughly discredited in the literature which they used in that case. It was the purpose of making that citation.

Q. I see. All right. Now, and you talk about not just Radiology in this editorial, you're talking about what you consider to be bad science, bad medical science throughout the medical science; is that fair?

A. Yes. It's more than Radiology.

Q. You're actually not just talking about other radiologist?

A. Correct.

Q. So, based on that statement and that editorial would you agree or disagree they there is a prominent controversy within the medical community regarding the reliability of SBS AHT diagnoses?

A. Within the greater medical community I don't think

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there's much of a controversy. Within the small group of people who discount the diagnosis of Shaken Baby Syndrome and Abusive Head Trauma, yeah, there is disagreement there.

Q. So if a court wrote that that's another example of the court getting it wrong about the state of the controversy in a medical community?

A. I believe so, yes.

Q. Doctor, I'm going to turn to another editorial you wrote in Pediatric Radiology in 2012. This one coauthored with Slovis, Coley and Rigsby.

A. Correct.

Q. Am I pronouncing those names correctly?

A. Correct.

MR. MORAN: And am going move to admit this as Exhibit 24 -- 25. I previously provided a copy of this to Mr. Hebel. I'm moving to admit this -- it's an editorial entitled The creation of non-disease: an assault on the diagnosis of child abuse.

THE COURT: Any objection?

MR. MILLER: No objection.

THE COURT: Twenty-five will be received.

(At about 12:09 p.m. Whereupon Defendant's Exhibit 25 is admitted into evidence.)

MR. MORAN: I'm going to give Dr. Strouse a

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copy so he can follow along. May I have a moment, your Honor?

THE COURT: Sure.

BY MR. MORAN:

Q. On page 903 of that article you and your coauthors wrote -- right column. A small group of individuals, has during depositions and courtroom testimony perverted cases by using incomplete statements of the facts and unproven hypotheses to obscure the straightforward historical and physical findings utilized to make the diagnosis of child abuse; you acknowledge writing that or cowriting that?

A. Yes.

Q. And in that you speak of unproved hypothesis. SBS, Shaken Baby Syndrome is a hypothesis, isn't it?

A. I think it's very well-accepted within the medical community that Shaken Baby Syndrome occurs. So, yeah, you could call it a hypothesis. It's also something that's well-known to occur.

Q. Let me make this statement and let me know is this a hypothesis, that if an infant comes in with retinal hemorrhages, subdural hematoma and cerebral edema or encephalopathy, then that baby has very likely been abusively shaken; is that a hypothesis?

A. No. That's actually a very hard statement to say very

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likely and basically those are red flags. The child needs a comprehensive evaluation to, you know -- with further testing with further lab work with expert, you know, physicians from different disciplines. So it's very concerning.

Q. Would you agree that Dr. Norman Guthkelch is one of the founding fathers of Shaken Baby Syndrome hypotheses?

A. He wrote some papers decades ago that were some of the initial papers on subdural hematoma and abusive head trauma, that's correct.

Q. You're referring to infantile subdural hematoma and its relationship to whiplash injuries which appeared in the British Medical Journal in 1971?

A. I think he wrote another one earlier than that one too.

Q. Were you aware that in 2012 Dr. Guthkelch wrote an article entitled problems of infant retino-dural hemorrhage with minimal external injury. Have you seen that article?

A. Yes.

Q. And in that article he wrote on pages 203 and 204, while society is rightly shocked by any assault on it's weakest members and demands retribution there seemed to have been instances in which both medical

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testimony of Pamela Van Meeter, court testimony of Jerry Teamer or Timer, court testimony of Renee Sydem, court testimony of Bader Cassin, court testimony of John Williams and then scene photographs.

Q. Did you also review the defense' experts reports in this case?

A. I don't specifically remember if I did or not. I certainly didn't pay any attention to them.

MS. HAHN: Objection. Strike the answer. None responsive.

THE COURT: It's the questioner's prerogative.

Overruled. Go ahead please.

BY MR. HEBEL:

Q. Let's talk about the science behind shaken baby for a minute. In your position as a forensic pathologist, do you stay up to date with the science and literature regarding shaking baby syndrome and abusive head trauma?

A. Well, I can't say that I read every single article that has been published up to this date, but I am very familiar with the literature. Yes.

Q. And can you describe for us what happens when a baby is forcibly shaken?

A. Well, basically what happens is the brain rotates in

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the head, and it damages the substance of the brain itself, causing the baby to become immediately abnormal alarmingly so such that someone usually makes an effort to provide intervention one way or another.

Q. And have you created a demonstrative presentation of what happens when a baby is shaken?

A. Yes.

MR. HEBEL: Your Honor, at this point the People would offer into evidence People's Exhibit 16. People's Exhibit 16 is a slide show, almost a video that was prepared by this expert for the purpose of demonstrating what happens during a shaking scenario.

THE COURT: Ms. Hahn, have you seen it?

MR. HAHN: I have seen it. It has been tendered. I would just reserve the right to question the witness about it.

THE COURT: Oh, certainly.

It will be received.

MR. HEBEL: Thank you, your Honor.

BY MR. HEBEL:

Q. Doctor, if I could ask you to bring up on the screen your presentation regarding shaking. What happens when a baby is shaken, and for the record that would be People's Exhibit 16.

A. Okay. I got to figure out how to do this.

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Q. We see your computer screen right now.
A. I'm not sure what's going to happen.
Do you see the word blank?
Q. Yes.
A. Okay. I think this is the shaken baby syndrome on your screen.
Q. We still have a blank screen.
A. Does it say blank, or does it say the mechanism of injury in the shaking baby syndrome?
Q. It doesn't say anything. It's a black screen right now.
A. So you don't see anything right now?
Q. That's correct. We do see a mouse.
There we go. We just saw the picture of the baby.
A. I need to figure out how to get this to work on your screen.
MR. HEBEL: For a moment there we did see a picture of a baby.
WITNESS DAVIS: But you don't currently; right?
MR. HEBEL: Now we do.
WITNESS DAVIS: You do?
MR. HEBEL: That's correct.
WITNESS DAVIS: So to understand what happens

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in shaken baby syndrome, we have to learn something about baby head anatomy.

MR. HEBEL: We just lost the picture of the baby.

WITNESS DAVIS: Now you got it?

THE COURT: No.

WITNESS DAVIS: Let me see what I can do. Now do you see something?

MR. HEBEL: We see the picture of the baby again.

WITNESS DAVIS: Do you see the baby moving?

MR. HEBEL: The screen just went blank completely.

Would it be doable to use the video version and pause it intermittently?

WITNESS DAVIS: You're not going to be able to do it at the appropriate times.

Let's see. I don't know how to do it. I don't know how to do it. Apparently your program won't allow it. Let's do this. Try share application. Let's see what that does.

How about now? Do you see the baby?

MR. HEBEL: The baby is moving.

WITNESS DAVIS: Oh, perfect Okay.

So to understand what happens with shaken

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baby syndrome, we have to create what is a baby's anatomy.

One is the fact that the baby has a skull and you see the skull, the word skull and all that?

BY MR. HEBEL:

Q. Yes.

A. Okay. So the skull on a baby is much thinner than an adult, but it protects the baby from the usual impacts they're going to sustain as part of the normal wear and tear on a baby growing up.

The brain looks like an adult's brain, even though they are a baby. But the difference is that the brain is like just-set jello in a baby. It's much, much softener than an adult's brain.

There's a space between the skull and the brain called the subdural space, which is a potential space, and for us that's like the space in a folded paper bag. It's there, but you're not using it.

There is a series of bridging veins that connect between the brain and a large vein at the top of the brain that I just call the central vein because it's got a big medical name.

And blood flow generally goes from the bridging veins to the central vein and is returned to the heart.

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You also have to understand something about the nervous system in a baby. The first line I'm going to describe is the sensory nervous system, where impulses travel up nerve fibers or axons, from this case the hand up to the brain to tell the baby's general contour, weight, shape, et cetera.

There is a roughly parallel system of axons that impulses travel on typically out to muscles that also perform action.

The system we're interested in though is the autonomic or some people call automatic nervous system that begins in the brain stem and sends signals to the lungs to breathe, keeps the baby awake, alert and has an effect on heart rate. Any interruption of this system the baby is going to become immediately unresponsive, stop breathing and will affect heart rate.

So when a baby is shaken, it's typically grasped around the chest or the chest and the arms and is shaking violently back and forth, and given that the brain is a semi-solid object surrounded by a fluid layer, which is super spinal is inside of a rigid object, which is the head, the skull, the brain actually rotates back and forth inside the head.

It's the bridging veins that rupture on both

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sides of the central vein, and then bleeding of the subdural space as a film of blood called the subdural hematoma.

Additionally most of these cases have bleeding that occurs in the back of the eye, the retina that involves multiple layers and is diffuse over most of the retina, retinal hemorrhage.

The real problem though is not the bleeding over the brain. What is happening to the brain itself, when the brain is rotating, there is tremendous distortion of the substance of the brain, causing strains and stresses on these delicate nerve fibers throughout the brain, and the brain stem that we were never evolved to be able to handle. We are pretty good a taking a head bump, but we were never designed to have our brain stirred.

As a result of that thousand or millions of these minute microscopic nerve fibers throughout the brain and especially the brain stem are injured, blocking the transmission of signals or the origin of signals over these axons in a process we call axon injury.

The effects are immediate, and they are dramatic. Your eyes roll back in your head.

Q. One moment, Doctor. We lost what you said last because

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of a microphone.

A. So did you see this rotation?

Q. Yes, we did.

A. Okay. Thousands or millions of axons throughout the brain and brain stem are injured in this process called axon injury. The results of that are immediate. They are traumatic, and typically the babies are stunned. Their eyes go back in their head. They may stiffen up, breathing will stop or become extremely irregular and shallow, and it will be an effect on heart rate.

Eventually if there is no more breathing, the heart will stop altogether as well.

We know this happens because babies that have a significant survival interval, many hours to days, has characteristic bulbs that form at the zones of injury on the nerve fibers, the axons, that we can identify under microscope using special stains, specifically beta amyloid precursor protein.

That's the end of that part.

Q. If you could stop sharing your screen so that you'll once again go full screen for us.

A. So do you see me yet?

Q. We see you in the corner. I believe that if you put a menu, if you stop sharing your screen with us.

A. Where does it stay stop sharing.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. It should be one of the options in the menu.
A. I don't see that option.
Q. I think possibly the easiest way would be to hang up and immediately redial.

Would that be doable, Doctor?

A. I know this is painful. I'll just see if I can figure out how this -- it's up. Okay.
Q. Thank you very much, Doctor.

In your review of the evidentiary material in this case, do the injuries to the victim match the injury mechanism shown in the video?

A. Yes.
Q. So you mention rotational force and brain rotation during the video; is that correct?
A. Yes.
Q. And have you personally made any effort to answer the question of whether or not the brain rotates during shaking?
A. I have.
Q. And what did you do?
A. Well, it was the result of confluence of technologies available approximately three years ago that I made as biofidelic as I could a baby's head containing a brain, silicon brain surrounded by a slippery layer of fluid, which is water for the purposes of proving or

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a baby's brain surrounded by a slippery fluid layer in pink, which would be cerebral spinal fluid as we have around our brains.

A bridging vein system, a ponning (ph) system in the model to show the connection between bridging veins and the brain. Then rotate the head mechanically to approximately 120 degrees, which was mentioned in one article as to the maximum speed that can be obtained by shaking range of motion.

Then somehow record the whole thing to see what happens when the head is shaken.

Those are the design parameters. So towards that end I had a case a few years ago of baby that died of an abdominal catastrophe not associated with trauma and used the software that I used to examine the radiology on all my cases.

It's called OsiriX MD. It's FDA approved for medical use. That has significant capability for first of all looking at images in a 2-D access, the cross sectional access to begin with that all software can do that.

But in addition it's able to do 3-D reconstruction, several forms, one of which is volume rendering, which is in fact that particular baby. That is in fact this baby's skeleton and to show the

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fidelity of the software in achieving a 3-D model of the skeleton.

Just rotating the skeleton around allows us to view all aspects of the skeleton and do certain cropping maneuvers in order to appreciate that a baby's skull is in fact made up of several plates with spaces between the plates that eventually will fuse together over many years as we become older and more adult.

So this software also allows the technique of surface rendering, which then will generate files that represent CAD information, computer-aided design information, from which an actual model can be made.

So in this case I exported the surface CAD file of the baby's skin and then the surface CAD file of this baby's skeleton, specifically interested in the head itself, from which I was able to, I employed an animator to use that data to create a digital model of that baby's head, which then was made in two parts.

The lower part of the head is in fact the baby's head, the outside skin surface and the inside of the skull directly opposing the brain.

My model or animator repaired the skull base because we got plates that are separate in the real baby's head. So he simply pulled in those gaps so we have a solid interior, and then he made an interlocking

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rim on the edge of the bottom half of the baby's head, which then is going to join the top half.

We're going to see in a second.

He also performed some repair work on the baby, illuminated the two beams and sealed up holes to make the baby a solid object and more aesthetic.

The top half from the very same baby's model fit perfectly on the bottom half, and you can see that it's not a perfect shape because no baby's head has a perfectly, round shape.

But there is as the bottom half a plumbing system that makes up the central vein or superior sagittal sinus, several tubes that will ultimately be bridging veins.

They will be squared with silicon and then the side tubes for the bridging veins will be broken off so that silicon tendrils will hang out to be imbedded into the baby's brain.

And then although I tried to actually create the model on a low-end 3-D printer, I ended up doing it commercially, but the technique from the low-end printer is identical to the commercial method, and this one is called photo acrylic resin modeling, and I use that technique because it creates a clear model.

So this is from the Internet. I had no idea

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Thank you.

So just for clarification, you're not a biomechanics expert; right?

A. I'm not.

Q. And this was specifically to demonstrate whether or not there would be rotation of a semi-solid object like a brain inside of a rigid object like a skull; correct?

A. Given they're separated by a filmed layer of a slippery fluid like water, yes. I had very humble holes in this.

Q. Now you discussed the tearing of bridging veins on the demonstrative model and your demonstrative study. It has been asserted that if there were a tear in one of the victim's bridging veins, there would have been far more blood than just 15 cc's found at subdural hemorrhage in the victim's head.

Do you agree or disagree with that assertion?

A. That there should be more blood in quantity?

Q. Yes.

A. Well, there never is. I mean every infant to about age one year or slightly beyond that has the subdural hemorrhage --

Q. One second, Doctor.

We missed the last thing that you said. The camera went out for a second.

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A. So babies up to about a year of age or beyond never have a significant accumulation of blood such that the blood quantity is worrisome for mass effect or pressing on the brain. They just don't get large collections of blood. They only get filming, volumes of film, F-I-L-M, volumes of blood over the brain.

So one can opine that there should be more blood, but there just never is, and I don't know what the explanation is. I do find at autopsy that the bridging veins that are ruptured are usually clotted off. So that may be that there is a hemostatic mechanism that actually prevents further bleeding, or maybe it has something to do with their anatomy, but there is never more blood.

Q. Are there problems with relying on biomechanical models to make claims about whether or not shaken baby syndrome or abusive head trauma exists?

A. Well, there is physical biomechanical models. I guess I just made one, although I think it's more biofidelic than most anything I have seen. I think the legitimate criticism that that is not a baby's head. That is a plastic case the shape of a baby's head with a silicon brain. So, you know, I have to concede that no, it's not a baby's head.

There is also the theoretical biomechanical

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models which are just based on calculations as to what would happen, given that you got a certain kind of a structure like a skull inside of which is fluid inside of which is a brain.

And although calculations can be made to examine the probability of brain injury, one, they're based on other assumptions from the animal studies that go back into the eighties and nineties, and they're scaled up for humans, which you know, is not quite clear whether you can even do that.

And none of them seems to except for one article I'm aware of seems to ever examine the actual properties of the brain itself, given that it's rotating, what happens to the substance of the brain.

And that one article they use something called finite element analysis, which seems to be leaning better in the direction of making better estimates.

But in the very end the third problem is that the only way they can ever corroborate their calculations on the theoretical models is to prove it by shaking a baby. And, of course, we're never going to do that.

So there just really isn't anything beyond the animal experiments years ago, and those really

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aren't done any more. There isn't anything beyond animal experiments where anybody has injured anything to prove or disprove or establish thresholds for injury on a living person.

I mean it just hasn't been done and undoubtedly won't be done. You need that to legitimize the biomechanical theory, and you don't have none of that.

Q. Now in this particular case have you observed the radiology of the head?

A. I have.

MR. HEBEL: I'm going to ask for admission at this point of People's 18, which is two head scans.

THE COURT: This is of Nakita Lemons?

MR. HEBEL: That's correct.

MS. HAHN: No objection to the admission of the scan.

THE COURT: People's Exhibit 18, which are two?

MR. HEBEL: Two slides from the head scan, your Honor.

THE COURT: 18 will be admitted.

MR. HEBEL: Thank you.

BY MR. HEBEL:

Q. Doctor Davis, if I could ask you to pull up the two

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radiology images. That will be People's Exhibit 18.

A. So you're looking at my screen right now?

Q. That is correct.

A. Now are you seeing radiology?

Q. Yes. So this is all of the radiology that you have prepared as a PDF document to look at. This is post-mortem X-rays. And then at the bottom are slices from the CT Scan.

A. Which would you like to talk about?

Q. Of the two images that you sent to me, you mentioned that you found, well, let me rephrase that.

Did you find subdural or subarachnoid hemorrhages in these scans?

MS. HAHN: Judge, I'm objecting to this line of questioning.

THE COURT: Hold on, Doctor.

Yes, Ms. Hahn, please.

MS. HAHN: I believe the way the question is posed is to elicit information from an examination of the slides. Doctor Davis was qualified as a forensic pathologist not a radiologist, and so we're fine with the doctor reviewing, discussing the report that he read in connection with the case documents.

But as far as to give an opinion and specify things about the actual slides, I believe it's beyond

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distinguishing skeletal injuries versus soft tissue because it contrasts skeleton or metallic objects very well against soft tissue.

There is some exceptions where infusions are made of a contrast substance where blood vessels and some organs would be quite distinctive, but it's very bad at distinguishing subtle differences between soft tissue densities like small amounts of blood in muscle, for instance.

The gold standard for that is in fact MRI, magnetic residence imaging. That is ideal for looking for soft tissue injury, which we might see in the soft tissues of babies that are shaken, but it's rarely applied to a baby during the short course that many of them have in the hospital prior to declaration of death.

I've only seen a couple of cases in my career as consult cases where somebody thought to do an MRI within the first couple of days, and sure enough there is soft tissue ligamentous injury identifiable on MRI, but not identifiable on CT.

Q. You reviewed the autopsy and assessed the findings. It has been repeatedly suggested that Nakita Lemons died from choking or aspirating without shaking.

Is that a possibility in this case?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Well, I don't think so because there are situations where infants and children can aspirate, but they don't end up with a subdural hematoma as a result of it. I mean there are different phenomena.

Q. And what was the root cause of any aspiration that the victim may have experienced in your professional opinion?

A. In my opinion it's a consequence of unresponsiveness and regurgitation of formula and/or CPR applied by various people.

Q. All that was the result of what?

A. The initial inciting event, which was brain injury as a result of shaking that started the train of subsequent event, which would be CPR or the natural phenomena of vomiting and aspirating fluid from the stomach, brain swelling. Those are all consequences of some brain dysfunction and the events that follow.

Q. In shaking cases how common is this outcome where there might be some sort of regurgitation or aspiration or both?

A. Well, I think most of the cases that I reviewed or had myself over my career have evidence of irritation down in the lungs as a result of aspirating gastric contents and the intubation and what not. So I would say it's quite common if not almost uniform.

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Q. Do you see any signs that this child had congenital defects that could mimic shaking baby syndrome?
A. I did not.
Q. In your experience do things like vaccine reactions cause subdural hemorrhages and retinal hemorrhages?
A. Not to my knowledge. I mean there's always the individual case report where somebody is associating a vaccine with some untoward result.

I am, you know, familiar with and had have seen in my own practice increase in the size of lymph nodes shortly after vaccinations that have created things like inter abdominal twisting of the intestines and what not that caused death, but to my knowledge there is no legitimate association between vaccination and the presence of subdural hemorrhage.

Q. The original medical examiner noted multi-layered retinal hemorrhages in the slides.

What does that mean?

A. I'm sorry. Say that again.
Q. The original medical examiner noted multi-layered retinal hemorrhages in the slides.

What does that mean?

A. Well, that is as depicted in the demonstrative aid on shaking, that is a frequent if not almost uniform consequence of the event of shaking where there is the

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diffuse, i.e., most of the retina diffuse bleeding that involves most of the time all of the layers of the retina, which is three layers.

So that would be, yet again that would be consistent with the phenomena of shaking as the mechanism of injury.

Q. Now when you observed the slides in this particular case, the case of Nakita Lemons, did you observe multi-layered retinal hemorrhages?

A. Well, only one slide depicted one eye, and I can't remember which slide that was evaluable. The other slide was poorly cut and poorly mounted on the slide. So I don't have an opinion on the other eye, but the eye that was on the slide that I looked at did in fact show multi-layered retinal hemorrhage. I can't say it was diffuse only because it's only a fraction of the eyeball. It's not the whole eyeball.

So normally when someone is going to opine that it's diffuse, you want to save the eyeball and affix the solution, then cut it in half and then shine a light in there and take a photo of it to guarantee that it is diffuse.

But on the section I looked at, it covered edge to edge the retina that was available on the slide. So I would presume it to be diffused.

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Q. Now the original medical examiner noted bilateral optic nerve sheath hemorrhaging.

What does this mean?

A. Well, it's that space is continuous with the subdural space over the brain, which is the eyes or something out pouching of the brain. So it's the same membrane that covers the brain and extends down over the optic nerves, and there are in fact bridging veins between that membrane and optic nerve itself, which rupture and blood forms in the space around the open nerve.

It looks like a bright red brain, and that's seen on two occasions by the forensic pathologist.

And first at autopsy when they remove the brain, you can see the ends of the optic nerve, and typically they're going to show that, and on the microscope slide one confirms that because you can obviously see it on the microscope slide.

In this case both optic nerves were on glass. They showed fresh perioptic nerve hemorrhage or optic nerve sheath hemorrhage some people say.

Q. Now that first thing that we discussed, the multi-layers retinal hemorrhages, does the presence of that support or oppose a finding of shaken baby syndrome and/or abusive head trauma in this case?

A. Supports.

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Q. And then the bilateral optic nerve sheath hemorrhaging does that support or oppose a finding of shaken baby syndrome or abusive head drama in this case?
A. Supports.
Q. Does the presence of subdural hemorrhage support or oppose than finding of shaken baby syndrome or abusive head trauma in this case?
A. Supports.
Q. In your experience do most medical examiners agree with shaking as a cause of these symptoms?
A. I would say that most medical examiners will not rule out shaking as the cause of these. I would say the majority accept shaking as the exact mechanism of blunt head trauma. While some are reluctant to use that mechanism specifically, but they agree that abusive head trauma causes, to my knowledge, causes this particular spectrum that we are talking about.
Q. In your professional opinion do you see anything in the autopsy report or the associated records that causes you to doubt the cause of death listed in the autopsy report?
A. I do not.

MR. HEBEL: No further questions at this time.

THE COURT: All right. Let me give my court

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five minutes, and then we will resume.

Doctor, we'll resume in five minutes.

(Whereupon a recess was had by all).

THE COURT: Back on the record People versus Milton Lemons.

Mr. Hebel, you're done?

MR. HEBEL: With one additional thing, and that is People's Exhibits 16 and 17 are on a disk. I want to provide that for the record. And also we had prepared People's 18, which was the CT Scan, but defense counsel brought up a really good point which is in black and white you cannot tell where the arrows are. So we're going to reprint those in color and provide them at a later time.

THE COURT: All right. That sounds fine. If you will just before you submit to it me, just make sure you show it to Ms. Hahn and make sure we're good to go.

All right.

Ms. Hahn, whenever you're ready.

Your voice tends to be soft. So if I could ask you, particularly since we're dealing with someone remotely here, if you can keep your voice up for us.

All right.

MS. HAHN: Thank you, Judge.

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would not be able to generate sufficient force to create the injuries described or would require a broken neck before the injuries that are symptomatic of shaken baby syndrome would appear.

Now before we go into that, are you a biomechanist?

A. I am not a biomechanical engineer. I would never put myself up to be a biomechanical engineer. I have worked for many years with some of the leading biomechanical engineers in the country who do a good majority of the work of biomechanical modeling around shaken baby syndrome and abusive head trauma, but my responsibility and my role on that team is as a clinician.

It's as the doctor sees the patients who can bring the clinical reality to the table, and I can give you examples of how important that is in the work of biomechanical engineering.

Q. Now do you see any problems with biomechanical engineers claiming that their findings disprove diagnoses like shaken baby syndrome?

MR. LICHSTEIN: Objection, your Honor. The witness just testified she's not a biomechanical engineer.

MR. HEBEL: Your Honor, this is not a

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biomechanical question. This is a question that goes to her expertise.

THE COURT: I agree. I'll take the answer.

WITNESS CHRISTIAN: Could you repeat the question please?

BY MR. HEBEL:

Q. Do you see any problems with biomechanical engineers claiming that their findings disprove diagnoses like shaken baby syndrome or disprove that shaking can cause the injuries connected?

A. I do understand that there are some problems with that claim. I think very broadly, although biomechanical engineers can measure and calculate forces, there really is not data that shows us the actual injury threshold of tissue to know what injury one might or might not expect from certain forces.

That's the first problem.

There is also no, although people, biomechanical engineers like to describe their biofidelic models, there is no perfect biofidelic model of an infant to date.

And then finally some of the articles that have been used in courtrooms, and I know they have been used in courtrooms because I have been in the courtrooms when they have been used to prove that you

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cannot shake a baby or harm a baby without catastrophic neck failure are so fundamentally flawed, erroneous as they should not even be considered.

Yet they're used in courtrooms and have been used in courtrooms to try to disprove that you can shake a baby and cause subdural hemorrhages without neck, you know, you couldn't do it the without neck injury, and I specifically refer to the Bandak article for that.

Q. And does anything about these biomechanical studies change the clinical realities that you deal with?

A. They don't. Some of the biomechanical studies that are done find that the calculated angular accelerations don't meet kind of what thresholds are thought to be for subdural. Some of them find that they do. Many of them show that with blunt impact there is higher forces that make sense.

But if your biomechanical model doesn't fit with what doctors see over and over and over again on a daily, weekly, monthly, annual basis, then you have to go back and ask what's wrong with your model, not what's wrong with the patient, but where is the model kind of missing things.

And again just as an example when I started working with the bioengineers, they were under the

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assumption that skull fractures would be very uncommon in infants who had impact jury because they have sutures that are still open, because they have very thin skulls that are more pliable, and that when they hit their head, there would be deformation and that the forces would be transmitted more interiorly into the head.

That really was one of their biomechanical assumptions, and I would tell them repeatedly that they were wrong. That we see skull fractures in babies who fall and hit their head all the time, as I like to say a dime a dozen.

Babies fall, and if they hit their head in a certain way, or if they hit their head on a hard enough surface, or they fall a certain distance, they get skull fractures. And in the vast majority of those cases, there is no underlying intracranial injury, and there certainly is extremely rare or unusual that there is significant intracranial injury.

So again I think a clinician or pediatrician or a doctor who sees patients regularly works with others who have different expertise so that together they can try to understand kind of mechanisms and what's going on.

But again I go as the clinician, and in fact

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when Bandak published his article, I brought that article to the biomechanical journal club that we had weekly so we could review it because I could not look at the mathematics and determine what was flawed.

But they could, and they did and wrote a very strong letter to the editor regarding his mathematical miscalculation.

Q. Thank you.

Now the defense has suggested that the victim's subdural hemorrhage could have been caused by potentially intradural leakage. Is this a claim that is supported by the weight of the science right now?

A. No. It's not a claim that is supported by the majority of evidence. I think that we have learned over many decades and years more and more about anatomy and about the infant head and brain.

And there is a complex of blood vessels that supply the dura and the arachnoid and the brain and all of the tissues, and there have been a few reports that show that in certain situations usually with either fetal demise or in neonates, that microscopically when investigators look at the dura, which is the tough membrane just underneath the surface of the skull, they find red blood cells, and they postulate that's the subdural hemorrhage that is seen in cases of shaken

RECEIVED by MSC 11/14/2022 2:28:48 PM

you unsure, or do you disagree that they are valid?

And then they published their results I think it was last year in JAMMA, in the Journal of The American Medical Association Pediatrics. I think that's where it was published. And they found that of all those different physicians, and there were probably 600 or so, I don't remember the exact number that more than 90 percent, and if look at --

Q. I'm going to interrupt you for just a moment and say for the record we are referring to the Defense Exhibit Number 27, which is the article by Sandy Narang regarding the study.

A. Yes. I apologize. It was in the Journal of Pediatrics not in JAMMA Pediatrics. So in the Journal of Pediatrics, another excellent journal, they found that the validity or that specialists thought that abusive head trauma was valid somewhere between 88.5 percent and 100 percent of specialists.

And then when they asked about -- and a grand total of one, two, three, four, five, six doctors out of hundreds said that abusive head trauma was not a valid diagnosis. And when they looked at shaken baby syndrome whether that was valid, the percentage of doctors who said yes ranged from 97 percent down to 40.7 percent, and the outliers for that were

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pathologists. Only 40.7 percent of pathologists felt shaken baby syndrome was valid, and neurosurgeons who thought, 76 percent of neurosurgeons thought it was valid. But again of those pathologists 11 said it was valid. Eight were not sure, and then eight said no.

So more doctors said that shaken baby syndrome, more pathologists said shaken baby syndrome was valid, or they weren't sure and said no, it wasn't a valid diagnosis. And overall more than 95 percent of the doctors who were surveyed recognized either shaken baby or abusive head trauma as a valid diagnosis.

I would be happy also to talk about the fringe diagnosis that they asked about.

Q. We'll to get that. But I also want to ask what percentage of pathologists said that they thought abusive head trauma was valid?

A. 92.6 percent.

Q. What percentage of neurosurgeons said that they thought abusive head trauma was valid?

A. 100 percent.

Q. Now you mention fringe theories. And in this article what did it discuss as fringe theories, and what is a fringe theory?

Let's start off with that.

A. Well, you know, I think in research it's really always

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important and helpful to define kind of what you're going to look at before you actually ask the questions. Okay.

So these authors defined fringe theories as fringe opinions as ones in which less than five percent of the respondents thought that a given mechanism for a finding as likely or very unlikely.

So if less than five percent ascribed to yes, I believe that this happens, that's how they define a fringe theory. But they defined it as such before they send the surveys out and before they looked at the results of the survey because that's the way you should reliably do research.

So if, for example, they said if less than five percent of doctors said shaken baby syndrome was a real diagnosis than not, they would have called it a fringe theory because less than five percent of the doctors would have said that yes, I think that this is valid.

So they did ask about some alternative causation and whether doctors felt that certain things could cause subdural hemorrhages, retinal hemorrhages or comas or death.

So, for example, when they asked whether vaccines could cause subdural hemorrhages, zero percent

RECEIVED by MSC 11/14/2022 2:28:48 PM

found, and if ALTE was the cause of the subdural, don't expect to find other injuries on the baby, if the baby simply choked and then got hypoxic and then developed a subdural.

But what they found were that babies who had ALTE-associated subdurals were five times more likely to have other injuries than babies who had none ALTE associated subdurals.

And so in the ten babies who had a dysphasic choking type ALTE history, all of them had at least one suspicious extracranial injury. So their conclusion was that ALTE's were not supported as a causative mechanism of subdural hemorrhages, retinal hemorrhages or encephalopathy and that their findings were actually the opposite of what you would expect if the choking, dysphasic ALTE hypothesis were true, because those babies simply had more severe injury.

They had more injury than the babies who didn't have that hypothesis which is, I believe, what you see in this case as well.

Q. Now the defense just a few minutes ago brought up the idea that perhaps the baby stopped responding after choking and an ALTE.

MR. LICHSTEIN: Your Honor, I object to the characterization. If you look at the report of the

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defense experts in this case, they are very clear.

THE COURT: Let me hear the question first before I hear an objection.

BY MR. HEBEL:

Q. As the defense was just saying before we got into this topic, that perhaps the infant, the victim here, started choking or had an ALTE or some sort of asphyxia that resulted in hypoxia and resuscitative efforts, and those resuscitative efforts were responsible for the intercranial injuries that we see.

Is that a possibility in this case?

A. I do not believe that that is what happened in this case. We see lots of babies unfortunately who come in with hypoxic-Ischemic or asphyxial injury. Hypoxia means low oxygen. Ischemia means poor blood flow, which, of course, if you have no blood flow, you can't deliver oxygen. Asphyxia means lack of oxygen basically.

We see lots of babies who come in with arrest from those problems, and many of them get resuscitated and then survive for some time. Sometimes they survive, and sometimes they survive and then die. And in those cases, and this has been studied. We do not see clinically significant, we do not see on our scan subdural hemorrhages.

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In the babies who suffer from shaken baby syndrome and abusive head trauma, what we typically see is this. On their first image, when is often a Cat Scan because a Cat Scan is something that you can do very quickly when a baby is in dire condition.

An MRI can take an hour or more. You can't leave a critically ill baby in a MRI machine for an hour or more when they first come into the hospital.

So most of these babies have an initial Cat Scan. And what we see on the initial Cat Scan is some blood, and the brain may or may not start looking a little bit bad like there has been damage and hypoxia, although the baby is comatose. So we can see the baby is not doing well and has had a some global brain injury.

You don't see the hypoxia. Very often you don't see it on that initial scan. You see the bleeding, but you don't see evidence of the hypoxic injury. That begins to develop in many cases over the course of the next 24 or 48 hours, and by MRI we can really see this in more subtle ways.

There have been studies that have looked at babies who died of known asphyxial causes. We see babies who drown in bathtubs; right? They're asphyxiated. They are trying to breathe against water

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in a closed lotis. They may have kind of obstructive apnea and hypoxic-ischemic injury.

When babies drown, and they get resuscitated, and you do a Cat Scan or an MRI, or they die, they don't have subdural hemorrhages.

We see babies who are smothered by other people. So their parents overlay them. They sleep on top of them for an extended period of time. They wake up, the baby is blue and dying or dead, and they get resuscitated. They have subdural hemorrhages.

And there was an article that was published in 2010 that specifically asked whether there was a causal relationship between hypoxia-ischemia associated with cardiac arrest and resuscitation and some hematoma.

They looked at --

MR. LICHSTEIN: Your Honor, I guess I would object at this point. If the witness is reading something, I'd like to know what it is.

THE COURT: Okay. I think that's fair. I'll allow the doctor to continue.

But, Doctor, are you referring to a specific article that you're looking at?

WITNESS CHRISTIAN: I am, your Honor, and unfortunately this particular article wasn't included

RECEIVED by MSC 11/14/2022 2:28:48 PM

in my reference list of more than 50 articles simply because I forgot about it until recently, but it was an article whose lead author was Mr. Hurley, H-U-R-L-E-Y published in the British Journal of Radiology in 2010 and entitled, "Is there a causal relationship between the hypoxia-ischaemia associated with cardio respiratory arrest and subdural hematomas, an observational study." And I'm trying to look at the total number of children that were included.

MR. LICHSTEIN: Your Honor, excuse me, Doctor. I didn't mean to interrupt you.

At this point I'm going to object the testimony about an article that wasn't included in the report, was not provided by the prosecution for the hearing.

THE COURT: All right. I'm going to allow it. What we will do is we'll make that article available, and if as a result of that article there needs to be additional questioning of the witness, we'll see that that happens.

MR. LICHSTEIN: Thank you, Judge.

THE COURT: Okay. Sure. You bet.

WITNESS CHRISTIAN: I'm sorry.

Am I supposed to stop, or I am supposed to continue?

RECEIVED by MSC 11/14/2022 2:28:48 PM

MR. HEBEL: You can go ahead and relate to us about that article.

WITNESS CHRISTIAN: So there were 50 children who were included who had cardiac arrest and had resuscitation and then either survived or died.

So 43 died and then also had post-mortem examinations. And in those 50 children who had cardiac arrest, resuscitation, lived a little bit, got imaging or autopsy, none of them had a significant and clinically apparent subdural hemorrhage.

One child has a small clot adherent to the dura at post-mortem finding, and two had microscopic intradural hemorrhage, but it was unclear whether they were artifacts as each had otherwise small brains.

So these researchers in England specifically tested the hypothesis of whether hypoxia-ischaemia, cardiac arrest, resuscitation resulted in young infants.

They were infants zero to 39 months, and 40 of the 50 were less than six months of age, and none of them had clinically significant and subdural hemorrhage. And that agrees with what I have seen over 30 something years of clinical practice. That yes, babies suffer terrible hypoxic-ischemic encephalopathy from asphyxia, from many different causes, but they

RECEIVED by MSC 11/14/2022 2:28:48 PM

don't develop significant or even visible subdural hemorrhages from that.

So again that's a hypothesis maybe, but it is but it is not an in-clinical experience and in-clinical research.

BY MR. HEBEL:

Q. One of the defense' experts claimed that the acromion fracture could be related to CPR or rickets. Is that possible?

MR. LICHSTEIN: Objection, your Honor. There has been nothing in the testimony about the doctor's qualifications that she's a radiologist. She has the certification in radiology. I would object to any specific testimony about that fractures.

I understand she used that to support her opinion in this case. I don't have a problem with that, but the specific characteristics of her independent diagnosis I don't think would establish her qualifications to do that.

MR. HEBEL: If I may respond, your Honor.

THE COURT: Please.

BY MR. HEBEL:

Q. Doctor Christian, in your experience do radiologists diagnose and treat fractures?

A. The radiologists diagnose fractures. They don't treat

RECEIVED by MSC 11/14/2022 2:28:48 PM

fractures generally.
Q. Who would treat a fracture?
A. Usually, well in some cases a general physician might, a pediatrician might, depending on where they practice, but very commonly an orthopedist might or some fractures don't need specific treating. They actually, depending like, for example, rib fractures there is no specific treatment. They just heal by themselves. Same for most acromial fractures, they just heal.
Q. So have you been in a position where you have diagnosed or treated fractures in the course of your job as a child abuse pediatrician?
A. Many, many, many, times. Many. I can't even count how many times. There is probably thousands of time.
MR. HEBEL: The People will ask to renew that question.
MR. LICHSTEIN: Your Honor, I guess I renew the objection. The fact that she's diagnosed or treated a fracture does not make her qualified to read scans and interpret them. We have had radiologists testify. The state called one. The defense called one, and additional testimony by someone who is not qualified to do that specific interpretation isn't going to be helpful.
THE COURT: Well, whether it's helpful or not

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Absolutely. And the word encephalopathy is a long word, but yes, I have made alternative diagnoses in children who presented with those features, with those findings.

Q. Now you looked at the autopsy report, the medical records, the radiology and the testimony and other evidence in this case.

Is there another non-traumatic diagnosis that explains the death of Nakita Lemons?

A. I do not believe so.

Q. And in your professional opinion did Nakita Lemons die from shaken baby syndrome, subset of abusive head trauma?

A. In my opinion she did.

MR. LICHSTEIN: Your Honor, I guess I would ask that we have some clarity about what mechanism of injury we're talking here. Shaken baby syndrome, subset of AHT is very vague as to what the mechanism is.

The mechanism testified to at trial was shaking. If we're going to do a diagnosis, we need to know what mechanism of injury we're talking about.

THE COURT: Response?

MR. HEBEL: My response is I will ask follow-up questions to make that crystal clear.

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE COURT: Okay. That's fine.

BY MR. HEBEL:

Q. When shaken baby syndrome is diagnosed in your opinion, that should constitute the damage caused by shaking; correct?

A. Correct.

Q. So in this case in your professional opinion Nakita Lemons died because she was shaken?

A. Correct.

MR. HEBEL: No further questions.

THE COURT: All right.

MR. HEBEL: Was your answer not complete, the delay.

WITNESS CHRISTIAN: Well, I just wanted to say that she was shaken, and then all of the consequence that happened from that trauma to her brain. Absolutely. So, hypoxic-ischemia is part of that. That's more the physiology, but the mechanism was that she was shaken. That's what Mr. Lemons said happened, and the findings were consistent with that, and I didn't see any evidence of other medical disease.

And the other alternative hypotheses are not ones that I believe are supported by clinical experience or research.

MR. HEBEL: Thank you, Doctor.

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE COURT: Okay. All right. Thank you.

We had a sidebar discussion. There is going to be considerable fairly comparable time wise cross-examination, at least that's the original estimate. And there is a jury coming back at one o'clock in this particular matter, and the defense is in need of seeing another article that was referenced in direct examination.

We're going to have to find another time when the doctor is available sometime down the road. And we're going to resolve that in the next day or so.

We'll get your schedule, Doctor Christian, find a time that will be convenient for you. Okay.

Thank you.

MR. HEBEL: I'll give you a call shortly, Doctor.

THE COURT: I have a conference call on the 4th at 2:30 on this matter.

MR. MORAN: There was one other matter relating to the transcripts. I spoke with the court reporter about that.

I understand that you figured out a way to make sure that the hearing that was transcribed last week, last Thursday, the 20th, by a different a court reporter that will also be ordered?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. With me?
Q. Yes.
A. You broke up for second. So I didn't hear all the words.
Q. Did he co-edit the textbook Child Abuse, Medical Diagnosis & Management, third edition with you?
A. He did, or I did with him.
Q. Either way I'm going to read you. And before the third edition there was a second edition, which you were not a co-editor of but Doctor Reece was; is that correct?
A. Correct.
Q. I'm going to read you two quotes from the second edition. First from page 503, the second from page 504.

Hold on one second, Doctor.

Doctor, page 503 says "shaken baby syndrome usually produces a triad of injuries that include cerebral edema, subdural hemorrhages and retinal hemorrhages. No other medical condition fully mimics all of it's features."

Then on page 504 it says "after a discussion about whether shaking alone is sufficient to cause the injuries, "this academic dispute should not be construed, however, to indicate that there is any disagreement that the diagnostic triad of shaken baby

RECEIVED by MSC 11/14/2022 2:28:48 PM

syndrome represents serious inflicted injury."

You disagree that that's in Doctor Reece's second edition textbook?

A. I don't have it in front of me. So I can't agree or disagree. I mean if you're just reading it, then I am happy to assume that you read accurately. And, you know, and I haven't memorized a previous or any textbook.

Q. But if Doctor Reece's 2001 edition said that, doesn't it establish that a medical textbook says the triad is a diagnostic entity?

A. Again I don't know any doctor who practices medicine by finding three things out of context of doing what doctors do every day, which is doing a thorough evaluation and making a diagnosis.

And as I said, if you look at previously healthy infants who come in with subdurals, retinal hemorrhages and encephalopathy, many of them have been victims of abusive head trauma, some of them shaken baby syndrome.

Q. I understand that you wouldn't do that today, but that's not what I'm talking about, what I'm asking you is --

A. I'm sorry. Complete your question.

Q. I'm not talking about whether you believe the triad is

RECEIVED by MSC 11/14/2022 2:28:48 PM

a diagnostic entity today. You established that you don't. What I'm talking about is whether the medical literature said that the triad is a diagnostic of abuse, and I just read to you a portion of a textbook that to me establishes that that's what the medical literature said.

So I am asking you am I incorrect somehow that the medical literature said that?

A. I wouldn't deny what you read to me, but I don't have it in context. I would imagine that there is a chapter in that textbook that talks about differential diagnosis that looks at other diseases that you have to consider, and again it all depends on what context you are writing about.

Q. Doctor, the 2009 edition that you co-edited took out that language about the triad being diagnostic; isn't that correct?

A. You know what? No, I didn't, or we didn't take out things. We wrote a new edition. So there also I think my line of questioning happened with the policy statement that I answered about with whether I changed the triad.

If I never subscribed to a triad, then I didn't take out the triad. I edit and write about my understanding of what the science tells us as I am

RECEIVED by MSC 11/14/2022 2:28:48 PM

writing. And if there is new data that informs my understanding, I will incorporate new information into my future writing. That is how medicine and science works. That there is always additional and new information.

But if you ask me did I take out the triad, I have absolutely no recollection, nor did I in any way intentionally remove a triad from an edition of a textbook because it's not how I think clinically, and it's not how doctors practice medicine.

So sure, you can have a triad that is characteristic, but it doesn't mean that I specifically took something out of the book.

Q. That's okay. I didn't mean to interrupt you, but the delay sometimes gets in the way.

Sorry about that.

Okay. Doctor, I want to move to a different topic.

You agree with me there is legitimate controversy about whether shaking alone can cause the triad injuries?

A. I think that there has been some controversy, but I think that the evidence is clear that shaking can cause these injuries.

Q. But do you believe there is legitimate controversy

RECEIVED by MSC 11/14/2022 2:28:48 PM

about whether shaking can cause the triad injuries? Yes or no.

MR. HEBEL: Objection. Asked and answered.

THE COURT: I'll take the answer.

Overruled.

WITNESS CHRISTIAN: Again I think that there is controversy. You would have to be specific with what legitimate controversy is.

And again, your Honor, my answer is that I believe that there is very good medical evidence that the shaken baby syndrome exists.

BY MR. LICHSTEIN:

Q. So you're willing to grant there is controversy, but as to whether it's legitimate you won't say, or you're not sure?

A. I think it would depend on what article you are referring to or what concept you're referring to.

Q. I am referring to -- it's a very simple question. The question is is there that legitimate controversy about whether or not shaking alone can cause the triad injury?

A. As I answered, I think there is controversy. I don't know that all of it is legitimate, and I think that the evidence shows that it exists.

Q. Is some of the controversy legitimate?

RECEIVED by MSC 11/14/2022 2:28:48 PM

MR. HEBEL: Objection. This is very nebulous. The witness has no idea what some controversy is.

THE COURT: I agree.

Rephrase the question.

BY MR. LICHSTEIN:

Q. I'll move on.

We'll talk more specifically, Doctor.

You testified on direct examination if I remember correctly that you have great respect for Doctor Duhaime, D-U-H-A-I-M-E; is that right?

A. I don't recall saying that I have great respect for Doctor Duhaime, but she is a friend and colleague. I do respect her, but I just don't remember specifically saying that.

Q. Did you dedicate your textbook to her praising her "objectivity and critical thinking?"

A. I probably did as one of my mentors.

Q. Would you agree that Doctor Duhaime has worked on a series of studies that question whether shaking alone can cause the triad injury?

A. I think she published a study in 1987 that looked at those clinical case series and some early dummy studies and concluded that in the most severe cases there was usually an impact associated with the shaking that

RECEIVED by MSC 11/14/2022 2:28:48 PM

caused, that was responsible for much of the injury.

Q. Did she say in the abstract at page 409 "it was concluded that severe head injuries commonly diagnosed as shaking injuries require impact to occur and that shaking alone in an otherwise normal baby is unlikely to cause the shaken baby syndrome."

Does that sound about right?

A. Well, if that's in the abstract, I think in the actual paper it says at least I think it refers to in the most severe cases, but that was a paper that she published in 1987.

Q. But it does say what I quoted in the abstract; is that right?

A. Again I don't have it in front of me. So I don't know if you quoted it correctly, but something to that effect.

Q. Okay. Did you co-author an article with Doctor Duhaime in 1998 in the New England Journal of Medicine?

A. I did.

Q. Did that article say "whether shaking alone can cause the constellation of findings associated with the syndrome, it's still debated?"

A. I don't remember. I haven't memorized it. I don't have it in front of me. I won't disagree if it said that, but I don't remember specifically.

RECEIVED by MSC 11/14/2022 2:28:48 PM

Q. Okay. Did Doctor Duhaime publish another study in 2003 in the Journal of Neurosurgery that said, no doubt has showed that the accelerations that occur in shaking are "sufficient to cause subdural hemorrhages or primary traumatic external injury in infants?"

A. I don't know what article that is. So I can't tell you if that's what it says. If you're just reading an article, I wouldn't deny that it said that, but again I don't know the article that you are referring to.

Q. And then your textbook at page 64 said in infant models have shown that "shaking does not generate force sufficient to reach the threshold of brain injury."

Your textbook say that?

A. In part it says that.

MR. HEBEL: I'm going to object. I'm going to for ask for the Rule of Completeness here because it's described in the very next couple of sentences what she means by that.

THE COURT: Response?

MR. LICHSTEIN: I mean it's a direct quote. If he wants to put it in context on redirect, I think that's fine.

THE COURT: No. I want you to do it.

Go ahead.

Go ahead, Doctor. You can give the complete

RECEIVED by MSC 11/14/2022 2:28:48 PM

his oath as follows:

DIRECT EXAMINATION

BY MR. MORAN:

Q. Doctor Van Ee, what do you do for a living?

A. I'm a biomedical engineer at Design Research Engineering, and I have an adjunct professorship at Wayne State University right here in Detroit.

Q. Do you have an undergraduate engineering degree?

A. I do. That is in mechanical engineering, and that was from Dordt College. It's a small school in Northwest Iowa.

Q. Then did you go on to graduate school?

A. I did.

Q. Where?

A. I went to Duke University to the Department of Biomedical Engineering, and I received a PhD from Duke University in 2000.

Q. What was that PhD in?

A. That was in the Department of Bioengineering or Biomedical Engineering, but my area of study is impact in orthopedic biomechanics.

Q. Can you explain to the Court what is the impact in orthopedic biomechanics?

A. Sure. First, orthopedic biomechanics that's like artificial knees or artificial hips or braces, what

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types of screws. It's the engineering behind the things that orthopedic surgeons use. So what kinds of threads do you want on a screw that's going to go into the sternum. And fundamentally those are engineering questions. Obviously there's a clinical component to it, but that's orthopedic biomechanics.

The other area where I have spent most of my research time as well as my training is impact biomechanics, and that's a study of the response of the human body to impacts or accelerations.

That includes external forces upon the body and how those types of forces or accelerations result in distortions of tissues in the body or injuries in the body, whether that's breaking of bones or stretching of say a bridging vein or something like that where you have actually have injuries created by mechanical forces. That's impact biomechanics.

Q. On the way to getting your PhD at Duke, what kind of projects did you work on there?

A. So I started there in '92. That was right about the time air bags were coming into the field. And one of the issues was people who were too close to the air bags when the air bags would go off, and they could suffer injuries, and that ended up being my dissertation topic.

RECEIVED by MSC 11/14/2022 2:28:48 PM

I worked for the Highway Traffic Safety Administration along with General Motors, and what I did along with my colleagues, what my specific project was to look at how strong the neck is when an air bag is up underneath the chin and stretching the neck.

So figure out what force equals injury, what types of injuries are produced under that scenario and then ultimately to give data to safety designers, people who design air bags to say if you take a crash dummy, and you put it in front of an air bag, and you blow that air bag up, how do you interpret the numbers from that dummy in terms of whether it would cause injury in a person or not.

And so my work along with work from the University of Wisconsin and Washington, University of Washington was used when the Department of Transportation came out with the new regulations which allowed for second generation air bags. So we had a better idea what causes neck injuries so they could adjust how the air bags performed, or at least set regulations which would then affect how air bags were designed and how they were evaluated.

So that was work that I did.

While I was there, we also looked at injuries to children related to air bags. I looked at

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properties of muscle and how they change post-mortem so when we do test cadavers, what does that mean to a living person that obviously doesn't have catabatic or dead muscle.

Q. So in your research at Duke then did you focus at all on neck or head injuries in children?

A. I did, and it was mostly related to, at least the application was related to air bags. We had training specifically in how tissues changed. That was class room training, as well as laboratory training that happens through maturation.

So when you have a young child, how are brain properties different than say an elderly individual or a teen-ager. How did that change occur.

That's tendon, that's bone, ligament, things like that. So it's a change of both geometry as well as structure of the tissue itself.

And so training that as far as application, it would be related to automotive injury while I was at Duke.

Q. Did that include infants?

A. It did.

Q. Children under one year of age?

A. Right. We were looking at injuries that occurred to children. I mean yes from age zero, anybody who was in

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the car.

Later when I got to University of Michigan, we even looked at injuries to fetuses in the Mom and how those injuries could occur.

Q. After you got your PhD at Duke, where did you go?

A. I moved to Ann Arbor and took a job at the University of Michigan Transportation Research Institute.

Q. What were you doing for them?

A. Similar impact biomechanics. A lot of the applications had to do with automotive safety or at least transportation safety, looked at injuries, as I said before. Looked at injuries that occurred to pregnant Moms and the babies they were carrying as well as knee, thigh, hip injuries.

So then somebody is in a frontal crash, they slide forward in their seat, and their knees usually hit the dashboard.

And so the question is how should you design the dashboard to help stop the body, but limit the kind of injury you get. Or if there is an injury, make the injury the least severe possible.

So you can shatter a kneecap. You can break a femur in the middle, or you can dislocate or break a hip ball at the socket.

So what determines what injury you get when

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you're in your frontal crash. Does it depend on angle of the leg? Does it depend on how firm the surface you're hitting.

So we did lots of experiments using human cadavers and computer modeling to once again evaluate how these injuries occur, and then that data was again used in evaluating regulations for frontal crash design put out by the Department of Transportation.

Q. Where are you currently employed?

A. My primary job is at Design Research Engineering, which is a consulting company in Novi, Michigan.

Q. And what do you do for them?

A. I'm an injury consultant. Primarily, you know, as a consultant what I do is people call with technical questions, and if the questions are related to impact biomechanics or mechanical engineering, my two areas of expertise, then I try to give them help.

I try help answer the questions or design experiments to help answer their questions or point then to relevant literature or regulations that are relevant to the issues that they're dealing with.

Q. You also mentioned that you teach at Wayne State?

A. I'm an adjunct faculty member at Wayne State. I'm not teaching any courses right now. I have been advising graduate students the last number of years. These are

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graduate students in impact biomechanics. One of them was looking at underbody blasts and IED types of explosions that occur in head and neck injuries that war fighters suffer in the field and how can we design restraints, as well as the inside of the occupant cabin to minimize or particularly prevent these kinds of injuries that are happening to people under that sort of situation.

The other graduate student was looking at impacts to the forehead and as they relate to non-lethal or less lethal munitions. These are the rubber bullets or plastic bullets that law enforcement can sometime use, and we're trying to figure out what types of speeds and weight and stiffness those types of objects, if they're going a certain speed, how can you predict whether a skull fracture will occur or not.

Q. I gather from your research that you've worked with crash test dummies?

A. I have.

Q. Have you worked with crash test dummies simulating very young children, infants?

A. I have. As far as advance crash test dummies, there is one that represents a six month old child, and I work with that one a lot. There is also one that represents a one year old and a one and a half year old child.

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Q. Have you worked then with not only car manufacturers but also restraint systems?

A. Yes. So and when I hear restraint systems, because of the ages of the children, we look at two parts. We're looking at the restraint system in the car, which is the belts and the air bags. And so that maybe working with TRW or another tier one supplier, but we're also looking at the child seat, the child restraint system.

And then we're looking at Graeco, Even-flo, Costco's. These are different companies I've worked with in different cases evaluating the performance of these seats in the field.

Sometimes those cases relate to ongoing litigation, where we look at a crash and look at the performance of the child seat in that crash.

Q. Has some of your research touched on or been motivated by an interest in shaken baby syndrome?

A. So I have been asked that question. What really was motivating me when I have done my research in pediatric head injury is to really understand what are the types of forces, what are types of environments or conditions that result in head injury to children.

So I don't think I have a single publication that has the words shaken baby syndrome in it, but I certainly have publications that talk about the type of

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accelerations or forces that give rise to injuries to the brain, as well as the skull in children and infants.

And so yes, the motivation for the work is to try to understand what causes injury. And then it doesn't matter if you're evaluating a case of abuse versus accident, or if we're evaluating a case of, is this car seat better than that car seat.

If we know how injuries occur, and we know quantitatively what are the factors that go into that. What are the important factors that determine whether a baby gets a subdural hematoma or skull fracture or both, then we can change designs for, if it's a design thing, we can change the design to minimize those injuries.

If it's an abuse versus accident scenario which I have been involved with a number of those types of cases or questions related to that, then maybe we can at least bring the best data to the table that may or may not shed light on that particular case.

Q. So particularly have you studied forces and angular acceleration associated with subdural hematomas?

A. I have, yes.

Q. And forces and acceleration associated with other brain injuries?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Yes.
Q. And neck injuries?
A. Yes.
Q. And that's been part of your research?
A. It has.
Q. Have you compared accelerations produced by shaking versus other causes?
A. I have.
Q. Can you describe that a little bit?
A. Sure. I would say as far as specifically as it relates to when I've compared shaking to other scenarios, it was work that I did was published in I think it's neuropathology. It's a book by Jan Leestma, L-E-E-S-T-M-A. I think.

And he published a book on neuropathology, and within that book I contributed materials and test data specifically that relates shaking to things like falls or car accidents or things like that in terms of head accelerations.

So as far as published, that's where that's been. The publications I have had on infant head injury, I don't think specifically address shaking, but they certainly have addressed accelerations related to head injury.

Q. Can you talk about those publications related to

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accelerations in infant head injury?

A. Sure. So you said infant, which is typically to me it's 12 months or younger. I do have a publication that's about, it relate to infants. It was a case study of a child who was 22 to 23 months old who fell approximately 48 inches and hit on to a carpeted floor. This was on video tape.

MR. HEBEL: At this point I'm going to object, your Honor. This is kind of far afield from a two month old where there is no suggestion of falling injury.

MR. MORAN: I'm having him explain his expertise in pediatric head injuries, and he's talking about all the publications he's written on pediatric head injury.

THE COURT: I will give him a little latitude.

Go ahead.

WITNESS VAN Ee: So in that case this child fell. It was on videotape. The grandmother was videotaping the incident. Certainly didn't know it was going to happen. The child fell and suffered what ultimately was a fatal subdural hematoma, brain injury with bleeding in the eyes.

And so what I did, that was published by

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Plunkett. As an engineer I looked at that. I said we know that that kind of fall can cause these injuries. That's plain enough. We see it on video. It's documented.

The question is how does that relate to, if I take a crash dummy and an air bag blows up, it's in a car accident, and I get these numbers out of the dummy, how do I know those numbers relate to injury.

So what I did is use the videotape to reconstruct what happened to the child in the laboratory using a crash dummy. So the dummy fell, impacted into the carpeted floor. We measured the head accelerations, both angular accelerations and linear accelerations, and now we have data of what this engineering tool measures under conditions where we have a known injury outcome.

So then we can start to put these things together. Some of that had been done before me. I certainly was not the first person to do that. The question was for me was how good are the numbers that we have?

And so this was published in 2009, and specifically it was, we know what happened to this child. Let's put the dummy through it and see if the dummy predicts injury like what we see in this case,

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and it did. So that was worthy of a publication because a lot of the data that we have there are questions about, was that from scaling?

In other words using things that we know that happens to adults and applying that to children, and you can adjust for size. You can adjust for tissue properties. But ultimately there is still a question of were those methods effective. So that was one check on that.

Another publication I worked on was looking at skull fracture patterns in infants and how they relate once again to the child crash test dummy or the infant crash dummy. That was also published in 2009 and it specifically related, actually gave a risk assessment where you can interpret the head G's or head accelerations for an impact and say what percent chance of skull fracture you'd have in a child based on experiments that were done in the eighties in Germany.

Q. Have you ever testified before as an expert in biomechanics?

A. I have.

Q. About how many times?

A. In court it's probably on the order of 70 or 80 times.

Q. Have you testified as an expert in biomechanics in cases involving alleged shaken baby syndrome?

RECEIVED by MSC 11/14/2022 2:28:48 PM

A. Yes, where there is allegations of abuse or shaken baby syndrome, yes.
Q. Any estimate as to how many times?
A. I don't know. I mean it's hard for me to know how many times the word shaken baby syndrome came up in the case. But if it relates to cases people have baby alleged shaking or impact into a soft surface and --

THE COURT: Let's just talk about shaking as opposed to impact on a surface.

WITNESS VAN Ee. That's fair. I would say it's come up at least 15 to 25 times, but I'm not sure because I'm not always there for the whole trial. But certainly a number of cases I've worked in shaking has come up in the medical records, and we do that I would say that's probably on the order or 40 or 50 times I had cases where shaking is mentioned in the medical records.

BY MR. MORAN:
Q. Any of these case has the Judge held you not to be qualified to testify as an expert in biomechanics?
A. No.

MR. MORAN: At this time I would move to have Doctor Van Ee qualified as an expert in biomechanics.

THE COURT: Mr. Hebel?

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BY MR. HEBEL:

Q. You said approximately 15 to 25 somewhere in there times you testified in shaken baby cases; right?

A. Cases where I think shaking was mentioned in court, but you know, that's a really hard number for me to evaluate because I am usually just here for my own testimony.

So unless I read a transcript or heard from it somebody else, I don't know if shaking was mentioned or not.

Q. And of those 15 to 25 times, how many of these times were you testifying for the People?

A. I have never testified. The People or the State has never called me as a witness in that kind of case. They consulted me prior to a trial, but they've never called me as a witness at trial.

MR. HEBEL: No further questions.

THE COURT: Any argument?

MR. HEBEL: About the motion for the witness to be qualified as an expert in biomechanics?

THE COURT: In biomechanical engineering; right?

MR. MORAN: Correct.

MR. HEBEL: The People have no objection.

THE COURT: I'll permit it.

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Go ahead.

BY MR. MORAN:

Q. Doctor Van Ee, you're being called as a rebuttal witness in this case. So we're going to be limited to talking about what the prosecution witnesses have already said.

And so we've heard a lot of testimony in this case about whether humans can shake infants with enough force to cause the injuries associated with shaken baby syndrome.

So let me begin with a tangential question to that.

From your experience and from your knowledge of the infant brain, could shaking a baby injure or kill it?

A. Sure, not just, you say based on knowledge of the infant brain, knowledge of the infant injury tolerance head to toe, absolutely shaking could kill an infant.

Q. Have you ever heard an expert say that shaking is not harmful?

A. I have not heard that.

Q. So from a biomechanical perspective where is the controversy about shaken baby syndrome if you understand it?

A. Yes. So it's the mechanism. How does this happen. So

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shaking is the action. The injuries typically associated with it are bleeding in the eyes, et cetera, hemorrhages and whether a brain swelling or some sort of problem with the brain, that's typically the injuries that are associated with it.

And there is some argument about whether that's called a triad or how that is. Those are semantics to me. But ultimately the question is how does shaking result in this presentation or those injuries when the kid gets to the ER or to the morgue, unfortunately in some cases.

And if indeed if you see these injuries, even more important if you see these injuries, can you determinately say with confidence and accuracy that this child was shaken to get that.

So there is two steps. One is, and I think the second one is even harder than the first. The first step is can shaking produce these injuries, and there is controversy there.

And then the second step is let's say we knew that which, in my opinion we do not, but let's say we knew that. Can you then just look at the injuries and go backwards and say this child must have been shaken, which obviously means those sorts of injuries or that sort of presentation can only occur if shaking happened

RECEIVED by MSC 11/14/2022 2:28:48 PM

or something that can be eliminated through a history given.

So for the first step there has been a lot of research. I looked at can shaking give you this presentation. And so when you're talking about that, you say what's the mechanism? In other words, what's the pathway that makes shaking overall result in no injury to the chest, no injury to the neck, but these injuries in the head and the eyes.

Q. How can biomechanics be helpful in leading us toward a resolution of this controversy?

A. I would say I don't know if it helps in the resolution, but it certainly helps in evaluating the hypothesis.

So if a child is shaken, that's an impact biomechanical sort of question. That doesn't mean that only an engineer can talk about it. I don't mean to give that impression. I have a unique perspective on it. Physicians also have a unique perspective.

But when you're looking at how these forces are transmitted from the hands of the purported assailant up through the torso through the neck and to the head and doesn't cause injury along this path, those are biomechanical type questions.

So you need to know the strength of the chest. You need to know the strength of the neck. You

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need to have an idea what types of rotation or accelerations result in injury to the head and the brain.

And specifically when shaking baby was hypothesized, they said look, you look at these studies by Doctor Ommaya, who was at the NIH, and in these cases they took primates or monkeys, had them in a seat and accelerated the seat up to be 30 miles per hour.

There was no restraint for the head. So the head went back like this in a real stretching motion we call hyperextension.

And that data -- and so these primates then showed some injury in the neck and some injury in the head and brain.

The researchers at that time looked at these studies by Ommaya and said I think that shaking, this abusive action, which clearly is abuse, no question about it. But I think shaking gives this injury of the brain and the injury of the eyes, and it's through this angular acceleration of the head.

So that was the original hypothesis.

Now that is something that we can start to test, evaluate.

Q. Now outside of this shaken baby syndrome context do we rely on biomechanical research to help us predict and

RECEIVED by MSC 11/14/2022 2:28:48 PM

prevent infant injuries in other contexts?

A. Absolutely. Impact biomechanics is used by our federal government, particularly as it relates to children. It's also used by the Consumer Product Safety Commission, Department of Transportation. It's not just in our country. It's world wide, and particularly First World countries in evaluating what type of biometry come from it.

Now if you look at infants or typically on biometrics, but for infants you look at a car seat. You look at car seat design, playground equipment, things like that.

Q. There have been some suggestions from a previous witness that biomechanics may not be at level as clinical practice in understanding infant head injury because biomechanical researchers use models instead of looking at actual infants.

Do you agree with that?

A. Well, I think that is very dismissive and very narrow minded of saying what biomechanics does and does not do. I mean hopefully we all look at field data, which is injuries to children and how they happen. That's fundamentally where everybody has to start.

And if somebody's a pediatrician, and they're just in the hospital, and all they ever see is the

RECEIVED by MSC 11/14/2022 2:28:48 PM

presentation, but they never go visit the accident site, if's it a car accident, or they never go visit other places and investigate how these injuries are occurring, what types of forces cause these injuries, they're not going to have any insight in my opinion on how this actually happens other than what people tell them.

So if I'm designing, if I want to know how car crashes happen and how they result in injury, if I just work in an ER, I'll see a bunch of injuries, and they will say yes, they were in car crash.

But how do I know how fast they were moving, if they're wearing their seat belt, what they hit their head on inside the car? Is that a glass injury, or is that an injury of a piece of metal that bent.

If you don't go look at the car, you can't really help design cars and figure out how people get hurt in cars and how to prevent it.

Same happens in my opinion with infant injuries. If we looking at trauma, and primarily what I do is look at trauma. If we don't go really investigate this, we don't know the types of forces that result in these types of injuries because all you do is see the injury otherwise out of context.

THE COURT: Where do you suggest you look for

RECEIVED by MSC 11/14/2022 2:28:48 PM

that? When we're talking about a baby that was shaken as opposed to some sort of trauma?

WITNESS VAN Ee: That's is great question. I am only aware of three videos available that have been posted on the News where a child was shaken, and in those cases those three children thankfully didn't have any long-lasting injury.

So that's certainly not nearly enough data to say firmly one way or the other.

What we can do is take data from shaking and to understand what type of exposure that results in the head. In other words, what are the accelerations in shaking and compare it to situations where we do know injury occurs.

How do those accelerations relate to when an air bag hits a child in the head? We do have hundreds of data points on what happens to children in car crashes when air bags hit them in the head. That's in the Department of Transportation data base where they send crash investigators out to look at car crashes where children have been hurt.

We can also look at things like falls. Some falls are well documented by video, and we can understand what type of exposure happens there, and maybe even reproduce it in a lab like I did and then

RECEIVED by MSC 11/14/2022 2:28:48 PM

have an idea of the numbers that cause injury.

But you are right, your Honor, it's limited in what we can say. I think that goes both ways.

THE COURT: Okay. Sorry, Mr. Moran.

MR. MORAN: That was a great aside, your Honor.

BY MR. MORAN:

Q. So you have seen videos of shaking or have in fact been a few by video cases of babies being abusively shaken?

A. Yes.

Q. And they didn't have shaken baby syndrome?

MR. HEBEL: Your Honor, at this point I'm going to object. We are far afield from rebuttal testimony. This is original, and if we wanted to discuss these cases, it would have been, you know, much more useful in the case-in-chief.

MR. MORAN: I was just following up on the answer the Court got from Mr. Van Ee.

THE COURT: All right. Let's, I think we need to sort of circle back I think to the area that I thought you were going toward, Mr. Moran, and that was the notion of an earlier witness saying that biomechanical engineering knowledge is not as valuable as clinical knowledge.

I know I'm sort of oversimplifying it, but my

RECEIVED by MSC 11/14/2022 2:28:48 PM

expectation is that you have called Doctor Van Ee to talk about what biomechanical engineering brings to the table in that area. So I think we can get back to that.

BY MR. MORAN:

Q. How long has biomechanical research entered the shaken baby syndrome hypothesis been going on?

A. Well, as far as specifically the shaken baby syndrome, the first article that I'm aware of is published in 1987 out of the University of Pennsylvania that's specific to shaken baby syndrome in that presentation from a biomechanic standpoint.

The research that Ommaya did at the NIH that I talked about earlier with the monkeys, that wasn't about shaking baby. That was about understanding subdurals. But certainly Ommaya commented about the use of that data and whether it did or did not support the shaken baby syndrome theory.

Q. So if you could summarize that body of biomechanical research into shaken baby syndrome, what has it taught us about the controversy? Where do we stand with the biomechanical research today?

A. Sure. I mean the simple answer is we don't know, and there is good reasons to question that the angular accelerations produced in shaking will give rise to

RECEIVED by MSC 11/14/2022 2:28:48 PM

ripping of bridging veins. So let's piece that out a little bit.

So in '87 that's the first study that comes out at the University of Pennsylvania. It's done by their Bioengineering Department, and I think Duhaime, the first author, is actually a neurosurgeon if I'm not mistaken at that lab. Doctor Thibault was in charge of that lab.

They said let's look at this. Let's look at shaking. Look at the head accelerations that are produced in shaking. This is the same approach that they use when studying subdurals that occur in car accidents or subdurals that occur to boxers or things like that.

So it's the same methods that are being used to design boxing helmets or design air bags or seat belts.

And so what they said is we made a test device to represent an infant, and they had the University of Pennsylvania football players shake it as hard as they could. Then they also compared it to the shaking. They also said now shake it and slam it on a bench.

And what they found is that when you looked at the head accelerations that occur in shaking, they

RECEIVED by MSC 11/14/2022 2:28:48 PM

are relatively small. They are below the levels that are typically associated with injury like subdural hemorrhage diffuse axonal injury.

However, when they slammed the head on to a hard surface, and I think intuitively we certainly would agree that can result in massive head injury to children. And they said, and it's often been, I think that study has been misquoted or certainly has been referenced in a way that it gives it either more or less creative -- they never said look, you can't shake a baby heard enough to give shaken baby syndrome.

People often say well, Duhaime in '87 said that. I've heard both sides of this debate say that. What they said is look, when you shake, those head accelerations are well below the injury we associate with where injury occurs. They say specifically it's unlikely that shaking is going to give rise to these injuries without injury to the neck or the chest, without some sort of head impact, and that was as strong as they said it.

I think it was very important, but that was the first step. So that's '87. That lab continues to study this issue through today. One of the co-authors on that article, Doctor Margulies is still in that lab and still publishing on this topic of infant head

RECEIVED by MSC 11/14/2022 2:28:48 PM

injury as relates to shaking, and they have added a whole component, particularly starting with the work of Michael Prange, looking at how do the head accelerations in shaking compare to falls.

Q. And you have done some research to that as well?

A. I have.

Q. In short falls?

A. Yes.

Q. Like six-inch falls?

A. One foot typically is on the low end, but yes.

Q. And with a one-foot fall would you expect --

MR. HEBEL: I'm going to object to this line of questioning because not only doesn't it have anything to do with this case, it was not presented, no information was presented to my recollection during either side's case-in-chief on short falls.

THE COURT: Let me hear the full question first, Mr. Hebel, and then I'll hear your objection.

BY MR. MORAN:

Q. Did you compare angular acceleration or accelerations produced in such short falls with accelerations produced in shaking?

A. I did.

Q. And what did you find?

MR. HEBEL: Same objection.

RECEIVED by MSC 11/14/2022 2:28:48 PM

THE COURT: I'll take the answer.

WITNESS VAN Ee: We found that even a one-foot fall, which typically doesn't result in injury of any child, produces angular accelerations that far exceed those that are produced in shaking.

BY MR. MORAN:

Q. So a short fall, a one-foot fall, which you wouldn't expect to produce injury, would produce more angular acceleration than so far that has been demonstrated by biomechanics in shaking?

A. I want to add one clarification. There have been a couple of studies that have come out starting I think in 2002 was the first one where when they did the shaking, they had the head slammed into either the chest or the back. So it's a head impact situation, but it's a head impact into the body of the test device.

Under those conditions you can get head accelerations that are more than a one-foot fall. But where the head doesn't hit anything, which was the original shaken baby hypothesis, where you don't have impact on the head, those sort of situations, the head accelerations are well below that of a one-foot fall.

MR. MORAN: Your Honor, could I have the record reflect that Doctor Van Ee, when he was

RECEIVED by MSC 11/14/2022 2:28:48 PM

referring to the impact sites, he was pointing to his chin and I believe his upper chest.

THE COURT: Sure. That's fine.

BY MR. MORAN:

Q. Now I want to talk about one of those studies that's come up in this case. It's the 2017 biomechanics study which Carol Jenning was the lead author.

Are you familiar with that study?

A. I am. I have a copy of it if I'm allowed to pull it up.

THE COURT: Sure.

BY MR. MORAN:

Q. Did that study, is that one of the studies that in which the shaking was allowed to impact the baby's chin and the back of the head was allowed to impact the torso?

A. So this is the 2017 Jenny article. My understanding is that the chin did hit the chest in the testing, but I don't know that they were able to generate a back of the head to the back of the spine. That was generated in another study called Corian Jones.

Q. So if you're shaking a baby hard enough or at a high enough rate where the chin is hitting the chest, from a biomechanics point of view would that be injurious?

A. Well certainly. First of all even if the chin doesn't

RECEIVED by MSC 11/14/2022 2:28:48 PM

hit the chest, you can get injury by shaking. Don't get me wrong. There is big forces in the chest. There is tension and great bending of the neck.

It wouldn't surprise me at all if a child was shaken hard that you can get injury in those locations. Now specifically as it relates to this banging phenomenon of the child's chin into the sternum or the back of the head into the back of the spine, that's a scenario where at least based on the Corian Jones in the Jenny article, they're are producing accelerations that are very large, and those accelerations can only be generated by large forces. Force equals mass times acceleration.

So if you are to generate a large head acceleration when that chin hits the chest, that means there's a lot of force there, and you would expect to see visible injury in those locations if that's a true phenomenon in shaken baby syndrome.

I haven't seen that in cases that I've reviewed, but certainly you could.

And the other thing about this test device is they weren't looking at making the properties of the chin and the properties of the sternum necessarily reflective of a child. Doesn't mean that they weren't. They just weren't really looking at that particular

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issue. They are saying look, if the head when you're shaking it, goes bang, bang, bang, bang back and forth, under those conditions do you get bigger accelerations, and the answer is absolutely you do.

Q. Was there anything else about the size of the dummy in the Jenny article that stood out?

A. Yes. The test device that she used in this 2017 study was five and a half pounds. So it represents a fifth percentile of Japanese newborns, and I think it's important to note that she's using that test device, this very small test device, she was able to generate these head accelerations that are on the order of where we think injury could occur.

However, I have other test data where she used a test device of seven and a half pounds. So it's just a scaled-up version of this. I don't know which of the two dummies APRECA made first, but in that test device, when that was shaken, it only created 1600 radiants per second squared, and that was an 88 percent reduction.

In other words, it's about a tenth of the level as what she reported when she had the five and a half pound test device.

So when she moves from a five and a half pound test device, it represents a super very, very

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small child and then moves to a seven an a half pound and has a female shake it, she was able to produce values that are more in line with what had been produced in the past and reported by Duhaime and Prange. That are these very low levels of head acceleration. They are not typically associated with injury.

Q. Now looking at the Jenny study, did the Jenny study seek to answer the question of whether allowing the infant's head to slam into the torso would have produced injuries to the chin or the torso?

A. That was not addressed, no.

Q. Did the Jenny study attempt to answer the question of whether allowing the head to go back and forth that far would have produced neck injuries?

A. As far as I understand if they monitored neck forces, they certainly didn't report it. There was not a comment about what types of forces would be produced and whether those forces would be consistent with injury or not.

Q. In fact, are infant necks vulnerable to injury?

A. Very vulnerable to injury.

Q. You do a lot of work in the automotive field. Is that a concern in the automotive industry about infant necks?

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A. I would say if you turn the clock back in the seventies and eighties when the whole reason that we put infants in a rear-facing child seat as opposed to forward facing is because their necks are weak.

So frontal crashes are the most common type of crash. If I rear end somebody, I have a frontal crash. They have a rear crash. But if I run into a tree, that's a frontal crash just for me.

So if you look at the broad spectrum of crashes, for every rear crash there is always a front, and a lot of crashes are only a front. So frontal crashes or the most predominate crash mode, as you want to offer the best protection into that crash mode.

What they found is that under high velocity crashes, 25 to 35 mile per hour Delta V, so change in velocity. So hitting a brick wall 25 to 35 miles an hour the infant, who is held in a forward-facing car seat, the chest is held by the straps. The child moves forward. The straps get tight, and the head bends forward like this and starts to stretch that neck.

And what happens, and I have seen in cases that I have evaluated, there's a lot of articles about it in the literature. They talk about how the base of it, of the skull, the occiput, starts to separate from the first two cervical vertebrae, C-1 and C-2.

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So you may have an OC-1 one separation, and when you look at an X-ray where the head should be and the neck should be right beneath it, there's like an inch gap in there. Some of the infants die. Some are catastrophically injured with spinal cord injuries. So that we know that the infant neck is vulnerable. It's weak. And so as a result that's also what we try to protect under this.

If the head is moving unconstrained, we know that that can stretch that neck and injure the neck, and that has implications to the shaken baby syndrome theory.

Q. Because if a baby is violently shaken, that can impact the neck?

A. Those forces have to get through there. So that neck is going to be bent and stretched back and forth multiple times, and based on the limited data and what's available, it's certainly reasonable that shaking can give rise to a hundred pounds of tension in the neck, and that sort, 50 to 100 pounds is enough for infants to start causing these catastrophic injuries of the neck.

Q. So if there was high enough angular acceleration or high enough force to produce a subdural hematoma from shaking, would that have any implications for the neck?

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A. So if it's a non-contact head situation so the head isn't hitting something externally, and you are not getting impact sites between the chin and the chest or the back of the head and the spine, under that condition then that head motion is controlled by what is happening with that neck. It's like a rope. It's going back and forth and getting stretched and pulled each way.

So the point is when they've done the shaking, they can generate forces in the neck that are at about the level of injury, but they are way below the levels that are associated with bridging vein failures and getting subdural hematomas.

So if you start doing the tests, the tests say look, neck injury is probably going to be the most logical place to look for injury when this happens.

Just like if I had my foot out, and somebody stepped on my lower leg, I'm going to start looking where they stepped, and the knee and the ankle for injuries. I'm not going to immediately look somewhere farther away. I'm going to look at the contact site and the joints near it.

That's what we see in shaking baby is that if you are doing this big force injury or big force abuse to this child, where is the injury to the chest, and

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where is the injury to the neck.

It doesn't mean you can't have a head injury, but these look to be very vulnerable places for injury to show up.

Q. A final area of questioning that I'll ask you about. Did you have a chance to view the animated video Doctor Dan Davis has produced and sells about the mechanism of shaken baby syndrome?

A. I have. Yes.

Q. Do you have any comment on the value or accuracy of that video from a biomechanical point of view?

A. So being the accuracy, if this is his hypothesis, which is how I understand it, if he says this is how it happens, that's inappropriate.

But if he says my hypothesis is this, then that's I guess okay. But he shows brain motion in the animation, and that brain motion is not based on actual brain motion measuring experiments.

I mean it may be his idea, which I assume it is, but right here at Wayne State I mean there are studies looking at how the brain moves when there is an impact to the head or an angular rotation to the head, and these have been published, and what has been done, they put these high-speed X-rays --

MR. HEBEL: I'm going to object to the

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narrative, and I'm also going to object to specificity because he's --

THE COURT: I agree.

MR. HEBEL: He's obviously referring to something without naming what it is.

MR. MORAN: Your Honor, if I ask him what study he's referring to?

THE COURT: Go ahead.

BY MR. MORAN:

Q. What study are you referring to?

A. So it would be the work by Doctor Hardy, one of those would be the SOU article, S-O-U I think.

MR. MORAN: I did send Mr. Hebel a copy of the SOU article in advance of Doctor Van Ee's testimony.

MR. HEBEL: That is absolutely correct, and at this point I'm going to object both the SOU article and the prior Hardy articles before that refer to a 2001 study by Hardy, in which he used two cadaver brains neither of which does it say anywhere were infants. This is not an infant study. This is an adult study.

THE COURT: Response?

MR. MORAN: That is true. It is an adult study, but Doctor Van Ee has drawn some knowledge and

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information from the study, and it's an adult study. He's not going to pretend it's anything else.

THE COURT: I'm going to sustain the objection.

Go ahead.

BY MR. MORAN:

Q. Is there anything, any other comment you want to make about the Doctor Davis video?

Let me ask a more specific question.

The Doctor Davis video, I believe, purports to show bridging veins, severing or hemorrhaging as a result of the shaking. Is that based on any biomechanical knowledge?

A. The studies today do not support what he is showing in that video as far as that you can reach levels of angular acceleration in shaking that will do what he's showing in the video.

MR. MORAN: I have no further questions, your Honor.

I'm sorry, your Honor.

I would like to move to admit Doctor Van Ee's CV as Defense Exhibit Two.

Mr. Hebel has a copy.

THE COURT: No objection to that?

MR. HEBEL: No objection.

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THE COURT: It will be received.

CROSS-EXAMINATION

BY MR. HEBEL:

Q. Just a couple of quick preliminary matters. If you don't understand any of my questions, can you please say so?

A. I will answer them to the extent that I understand them. If I don't get it all, I will certainly ask you.

But if I answer a question that you meant something different, it's the best I can do.

Q. Fair enough. That actually ties into the next one, and that is when you do understand my question, answer only the question that I ask you.

Can you do that?

A. As long as I don't think it's misleading, sure.

Q. If you think it's misleading, can you point that out to me?

A. Sure. If it's misleading or incomplete, but sure.

Q. Are you doing this case pro bono?

A. I haven't been paid anything. I don't plan to charge anything.

Q. You mentioned that you thought it was very narrow minded I believe was the terminology for a pediatrician to be dismissive of biomechanics.

Was that a correct summary of what you said?

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A. I thought that statement that was made was very dismissive, and I thought it was narrow minded, yes.
Q. Would you believe that a more knowledgeable pediatrician would be somebody that worked with biomechanical engineers to, shall we say, get out of just the clinical setting and expand this person's horizon to more areas than just the clinical studies?
A. I don't think somebody working with bioengineers necessarily makes them more informed. I think it could if they are listening and they have the aptitude to understand what it is they're doing, then they could.

But just being in the room with them is not necessarily going to make them maybe understand the area of science better. It's certainly a first step.

Q. What is a subdural hematoma?
A. It's a collection of blood underneath the dura.
Q. And what are the different ways that you know -- now I know you're not a medical doctor, but what are different ways that you know of that subdural hematoma can occur?
A. Well, typically it's impact or angular acceleration. But if you're want to say specifically where blood is coming from that creates a pool of blood, I think that's up for discussion.

There is theories about it being bridging

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A. I'm not a medical doctor. Correct.
Q. And specifically that means you never performed forensic examinations on a deceased body?
A. Not as a forensic pathologist, no. I certainly have done many autopsies, but they are biomechanical autopsies. They would be different than what a forensic pathologist would do.
Q. You never medically diagnosed a case of child abuse?
A. Can't do that.
Q. And you have never performed a skeletal survey?
A. No.
Q. And that's because you are in fact a bioengineer as you already stated multiple times. And as a bioengineer how many experiments have you conducted on living babies?
A. 10 to 20, probably something in that order. Obviously it's a situation where you don't want the child to get hurt. You're looking at things like child seat fitness or movement or things like that.
Q. But when it moves from fitting to injury models, you can't use living, human subjects?
A. It would be unethical to hurt the child. That is part of it, but certainly there are video tapes of children being injured where you can start to evaluate those sort of things.

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Q. But from an experimental controlled perspective it's completely out of the question ethics wise?
A. In my opinion, yes.
Q. Now that relegates outside of, you know, limited occasional videos bioengineers tend to perform their studies using animal studies, physical modeling, computational modeling and cadaver studies.

Those are the big four; correct?

A. So when I talk about where we get our data, it's those plus what happens in the real world, and the real world is life experience, what's happening in car accidents or falls or things like that where we have data, but that's the main areas, yes.
Q. Excellent. And so really in the field of biomechanics you deal with replication hypothesis; correct?
A. I never heard that term. In science you make a hypothesis. Then you evaluate that hypothesis using the best tools available. That's just science.
Q. But you're not retrospectively dealing with fixing or amending the reality of living subjects that have gone through trauma of any kind?

THE COURT: Could you repeat that? I'm not sure I follow that question.

Maybe you did, Doctor. I didn't.

MR. HEBEL: Fair enough.

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BY MR. HEBEL:

Q. I'm saying that this, the main thing is that you have a theoretical, calculated exercise rather than an afterwards approach to repairing something that has already happened in the real world?

A. I will answer the question as best I can based on my understanding.

I don't treat children. I'm not looking at rehabilitation. I'm not looking at stabilizing them in the ER. I don't treat children. I'm not an ER. I'm not trying to get them back to health.

And if that's what you mean, I think that's what I understood you to start to say. I'm a Monday morning quarterback as it relates to how trauma happens and what are the important factors that govern, what injuries somebody gets under certain exposure of trauma.

Q. Actually that was a really good way. It wasn't exactly the way I was predicting it asking the question, but it's a really good answer. So thank you very much.

Now because of that, because of, you know, essentially your quarterbacking from behind, what you're actually trying to do is trying to make the most biofidelic model or replication possible in order to have it as closely related to the real world as

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I'm aware of.
Q. So do you use videos of real injuries being inflicted?
A. Inflicted implies that it's specifically abuse. I don't know that I have seen a video of an inflicted injury. I certainly have seen -- that's not true. I actually have seen videos of injury being inflicted. So I have used that.
Q. You have seen videos of accidents?
A. Yes. I've seen many videos of accidents, yes.
Q. And you use autopsies of real bodies?
A. So use the data that's from the autopsy report and the photos of that, or are you saying have I performed biomechanical autopsies on cadavers that we've done testing on?
Q. The latter.
A. The latter. Both. I use both. We do autopsies after we do our experiments to figure out what the injuries were and the nature of them.
Q. So what I'm trying get at you're not just tethered to one type of source of information about how these injuries might be inflicted or might be caused?
A. No.
Q. I want to briefly ask about the Cooper Alderman article.
From your reading of that did they try to

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discover whether shaking of the magnitude that was in their model would have any effect on the neck?

A. I don't recall that they looked at that issue in any depth at all, that they really commented on whether that shaking would result in neck injury or not.

Q. Let me turn to the Wolfson article that Mr. Hebel talked about. It wasn't an article. It was a thesis.

A. The one he brought up was his dissertation, yes.

Q. A PhD thesis. And he pointed you to some language on page 94?

A. Yes.

Q. You said there's something two pages later?

A. Yes.

Q. What would you like to talk about that is two pages later?

A. So on page 96 it's the very last paragraph of his entire dissertation of at least of that Chapter Seven. It says "Thesis Conclusions."

And what he writes his very first sentence is "at this time there is no clear explanation for how brain injuries are caused in cases of shaken baby syndrome without impact."

Q. Do you agree with that?

A. I agree with that.

Q. There's no clear explanation of how you get shaken baby

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syndrome injuries without impact?
A. Yes.
Q. That's the very last paragraph of the thesis before the appendices and the tables.
A. I think so. I mean he goes through and says what he did in this. He goes, I've done some work. I answered a few questions, but ultimately this is still with the article.
Q. Now a few pages earlier he writes that he thought through his model he was able to possibly induce brain injuries; is that right?
A. So when he's talking about one part of this whole dissertation project, he talked about a part that said, that suggested that maybe you could produce injury, yes.
Q. Was he able to specify the brain injury he's talking about is subdural hematoma?

Did he claim that he could show that subdural hematomas could be produced through these courses?
A. The paragraph that was read to me was specifically about diffuse axonal injury not subdural injury not subdural hematoma.

MR. MORAN: Your Honor, may I have just another minute?

THE COURT: Yes.

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and raises the pressure pumping the blood back through these damaged vessels; is that right?

A. That's correct. Often Epinephrine is given. That raises the pressure across these leaking vessels further.

Q. That's how you can get blood in the subdural space from for instance choking?

A. Yes. It's a high flow state through damaged vessels bleeding like a sieve.

Q. Doctor, I want to just very quickly touch on the research base that supports the opinion you just gave.

Am I correct that there has been research in the area of non-traumatic subdural hemorrhaging?

A. Yes. You're correct in that statement.

Q. And are you familiar with several articles by authors named Scheimberg and Cohen on this topic?

A. Yes, I am.

Q. I first want to ask you about an article from 2013 Scheimberg, Cohen, et al. In a journal called Pediatric & Developmental Pathology.

MR. LICHSTEIN: Your Honor, I believe it is Exhibit 28, Defense Exhibit 28.

BY MR. LICHSTEIN:

Q. Are you familiar with that article, Doctor Auer?

A. Yes, I am.

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Q. Just briefly what is the significance of that article to the subject of hypoxic injury?
A. Yes. The article looked at children, 382 infants, and they looked at how many had subdural hematoma, and these were not traumatic cases. These were natural deaths. Sadly offspring who are born do not live to adulthood. So these are natural deaths, and the subdural was present in 72 of them, which was noted as a striking finding by the authors.
Q. Am I correct that that research was not limited to neonates?
A. That is correct. The age was up to three years of age. I'm just checking the paper as I'm reading here, up to 36 months of age.
Q. And did the authors find an association between subdural hemorrhaging around hypoxic-ischemic encephalopathy?
A. Yes, they did. Of the 72 children, young children who had subdural hematoma, 65 of them had hypoxic-ischemic encephalopathy. So most of them.
Q. Was there also an association between successful CPL and hypoxic-ischemic encephalopathy?
A. Yes, there was and also between age and hemorrhage.
Q. Okay. Doctor, I don't want to spend too much time going through additional studies, but is it fair to say

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that your opinion is based on several other studies in this area?

I'm going to list a few and ask you if they are part of the research base you're relying on. Okay?

A. Okay.

Q. A 2010 study by an author named Cohen in Forensic Science International. Is that one of the articles you relied on?

A. Yes.

Q. A 2009 study by Cohen and Scheimberg in Pediatric & Developmental Pathology. Have you relied on that?

A. I have, yes.

Q. 2014 commentary by Commentary by Cohen and Ramsay in Forensic Science, Medicine & Pathology?

A. Yes.

Q. A 2009 study by Squier and Mack in Forensic Science International?

A. Yes.

Q. A 2008 study by Max, Squier, et al, in Pediatric Radiology?

A. Yes.

Q. And finally a 2014 commentary by Squier in Forensic Science & Medical Pathology?

A. Yes.

Q. Okay. Finally, Doctor, I want to ask you about a

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couple of studies relied upon by prosecution witnesses in this case. I previously provided you with an article by an author named Byard, B-Y-A-R-D, that's 2007 in Pediatric & Developmental Pathology.

Are you familiar with that article?

A. Yes.

Q. And also an article by an author named Hurley, 2010 British Journal of Radiology.

Are you familiar with that?

A. Yes.

Q. Did either of those studies change the opinion you have given today?

A. No.

Q. Doctor, did you when you reviewed those studies, see flaws in them?

A. Yes.

Q. Let me ask you. Is case selection an important factor in designing a study?

A. Very much so. Yes.

Q. Did you see problems with case selection as to the Byard and Hurley studies?

A. Yes.

Q. Could you explain briefly what those problems are, why case selection in those studies is an important aspect of evaluating the results?

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obvious bruising, signs of child abuse, or would you still have a problem with that?

A. Broken bones is another entirely different issue and relates to our living indoors and Ricketts, and your question is conflating several aspects of child abuse, and I would ask for a clear and simple question please.

Q. Fair enough.

Do you believe that children are abused? Let's start this. That is as simple as it gets.

A. I just told you that I opined on two cases of true abuse in Montreal and Toronto. Clearly there is abuse out there.

Q. Okay. If that's the case, do you believe that abuse can cause subdural hemorrhage?

A. Yes.

Q. Then do you believe that there are any cases of abuse that also involve hypoxia?

A. Yes.

Q. So if you have a study that does not exclude abused children but rather includes abused children with subdural hematomas and other children who died of hypoxia who may or may not have subdural hematomas, you won't learn anything about whether or not abuse causes subdural hematomas because you're lumping them all together?

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You wouldn't have any idea?

THE COURT: Is that a statement or a question?

BY MR. HEBEL:

Q. Correct.

A. No. Incorrect because contained in the diagnosis of abuse is the answer due to subdural hematoma. For example, abusive head trauma, which is what shaken baby syndrome is now called to include impact, contains within it the definition of subdural hematoma. So it becomes a self-fulfilling circular reasoning, circular prophecy that will always fulfill it's own definition because it's contained in the definition.

Abusive head trauma contains the answer within it. That's the circularity, whereas really abuse is speculation, is surmised, is inferred. There is no signature of abuse in the subdural hematoma. There cannot be.

Q. So any study that removes clearly abused children in your opinion would not meet the definition of an objective study?

A. No. I did not say that because you cannot remove clearly abused children because the diagnosis of abuse is surmised. It is inferred. It is indirect. So one cannot clearly remove such children from any study.

RECEIVED by MSC 11/14/2022 2:28:48 PM

It could be circular to do so, and you cannot do it for that reason.

Q. Isn't it just as circular to keep them in because what you are actually doing then is you put abused children in a study clearly with children with broken bones, children with bruises all over their body.

You put those children in with other children with no such sign, and then when you say oh, these children have both hypoxia and subdural hemorrhage, you say there's an association between hypoxia and subdural hemorrhage?

Isn't that circular reasoning?

A. No, because those children that have bruising often have before bruising due to disseminated intervascular coagulation, which comes about when the heart stops.

When you look at those children where the heart has stopped, and they have reperfusion, you medically handle them. You turn them. You change the sheets, you move them, and you get bruising. You intubate them. You get bruising, and that bruising is falsely attributed to abuse when the child has another condition which explains it and ditto for broken bones.

Vitamin D deficiency is ubiquitous because we live in buildings and rooms with no sunshine. So the same applies there, and multiple broken bones and what

Order

Michigan Supreme Court
Lansing, Michigan

Bridget M. McCormack,
Chief Justice

Brian K. Zahra
David F. Viviano
Richard H. Bernstein
Elizabeth T. Clement
Megan K. Cavanagh
Elizabeth M. Welch,
Justices

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September 30, 2022

163939

PEOPLE OF THE STATE OF MICHIGAN,
Plaintiff-Appellee,

v

SC: 163939
COA: 348277
Wayne CC: 06-004818-FC

MILTON LEE LEMONS,
Defendant-Appellant.

_____/

On order of the Court, the application for leave to appeal the November 18, 2021 judgment of the Court of Appeals is considered. We direct the Clerk to schedule oral argument on the application. MCR 7.305(H)(1). The parties shall address whether the Court of Appeals erred in holding that: (1) the Wayne Circuit Court did not abuse its discretion by concluding that the biomechanical engineering evidence and testimony was inadmissible, or by excluding alternate causation theories that purportedly lacked scientific or factual support; (2) the Wayne Circuit Court correctly denied the defendant relief despite its erroneous decision to exclude the defense experts' opinions regarding the validity of SBS diagnoses, reliance on the triad as a diagnostic tool, and the possibility of choking as an alternative cause of death; or (3) the new evidence presented by the defendant was insufficient to create a reasonable probability of a different outcome on retrial and warrant relief under *People v Cress*, 468 Mich 678, 692 (2003).

Amici who appeared at the application stage are invited to file supplemental briefs amicus curiae. The Prosecuting Attorneys Association of Michigan and the Criminal Defense Attorneys of Michigan are invited to file briefs amicus curiae. Other persons or groups interested in the determination of the issues presented in this case may move the Court for permission to file briefs amicus curiae.

I, Larry S. Royster, Clerk of the Michigan Supreme Court, certify that the foregoing is a true and complete copy of the order entered at the direction of the Court.

September 30, 2022

Clerk

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May 22, 2017

Daniel E. Hebel, Esq.
Assistant Prosecuting Attorney
County of Wayne
Office of the Prosecuting Attorney
1200 Frank Murphy Hall of Justice
1441 St. Antoine Street
Detroit, Michigan 48226-2302

RE: People vs. Milton Lemons

Dear Mr. Hebel,

At the request of your office, I have reviewed the materials sent to me regarding the above named case, which is under appeal. Included for my review were the following:

1. Defense Claims in People vs. Milton Lemons
   a. Affidavit of John Galaznik
   b. Affidavit of Patrick Barnes
   c. Affidavit of George R. Nichols II
   d. Affidavit of Defendant
   e. Defendant's motion and Brief arguing for relief from judgment
   f. Defendant's response to the People's Reply Brief
   g. Notes on the Case
2. Evidence in People vs. Milton Lemons
3. Waiver Trial Transcript, People of the State of Michigan vs. Milton Lemons, dated August 3, 2006
4. Radiographs taken of Nikita Lemons, including chest X-rays, CT scan, and a post-mortem skeletal survey
5. 911 tape
6. Scene photographs

I will summarize the pertinent facts of the case and the basis for appeal, and will offer an opinion regarding the veracity of the diagnosis of abusive head trauma (AHT) and shaken baby syndrome (SBS), and arguments raised by defense witnesses.

Review of the Medical Examiner Report and medical records:

Nikita Lemons (DOB 7/24/2005) was a 2.5-month-old infant at the time of her death. She was a previous full term, generally healthy infant with a history of gagging and gasping for breath on two occasions, at one week of age and at one month of age. The first episode was associated with perioral cyanosis. By report,

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she was seen by her pediatrician after the second event, and a sleep study was planned, but never done (medical records were not available for review). Immunizations were up to date, she was formula fed, and she was on no medications. On 10/10/2005, Mr. Lemons was home alone with Nikita and his 1.5-year-old son. Mr. Lemons reportedly fed Nikita a 5-ounce bottle followed by some water at 5:30 PM, and put her in her crib. Approximately 30 minutes later, he heard her gasping, and found her with water and formula coming out of her mouth. He tried to pat her and calm her down, and she became limp and pale around the mouth. CPR was started and 911 was called. On arrival to Annapolis Hospital, Nikita was pulseless and cyanotic. She was resuscitated, with return of heart rate and blood pressure, and was life-flighted to University of Michigan Health System for further care. A chest x-ray at Annapolis Hospital notes prominent central markings, but makes no mention of the skeleton. On arrival to the Pediatric ICU, she was unresponsive and hypothermic (32 degrees C). Her pupils were 5mm and non-reactive, and she had a negative oculocephalic reflex and corneal reflex, no response to painful stimuli and was in a flaccid coma. No external injuries were identified on examination, although her admission examination noted a small abrasion under her left chin (#2, p 65/151). A head CT noted subarachnoid hemorrhages and diffuse edema. Chest X-rays note the placement of the endotracheal tube, ng tube, normal heart size and mild pulmonary edema. Laboratory evaluation revealed a normal CBC (platelets 347K) elevated D-dimer (>55), and mild coagulopathy (13.8/1.04/28.6 that increased to 14.5/1.5), normal fibrinogen 156 (normal 150-450), consistent with ischemia-reperfusion injury. A calcium level was 9.3 mg/dL (normal), phosphorus 6.7 mg/dL (normal) with a mildly elevated AST (138 IU/L) and ALT (76 IU/L) and alkaline phosphatase 357 IU/L. An ophthalmology consult and skeletal survey were planned for the morning, but I did not see any notation of a formal ophthalmologic examination. Given Nikita's severe neurological injury and grave prognosis, the family elected to change her status to DNR, and Nikita died on 10/11/2005 at 6:28 AM. The University of Michigan Death Notice indicates that the immediate cause of death was "unknown cause of death". The medical examiner was notified because the death was "sudden unexpected and unexplainable."

The official reading of the head CT identified complete loss of gray-white differentiation with diffuse effacement of cortical sulci, consistent with diffuse cerebral swelling, and subarachnoid blood and deep parietal, occipital fissure, interhemispheric fissure, left sylvian fissure and over the cerebral convexities. (My review of the CT is consistent with these findings, and I note that the interhemispheric blood seen on CT can be of subdural or subarachnoid origin- and this is where the subdural blood was seen at autopsy).

Skeletal survey done after the autopsy revealed a transverse fracture of the right coracoid process (written as coracoid, but is actually the acromion, which I will use through this report), best seen on the supplemental view of the right humerus and on the Towne's view of the skull. This fracture is also seen on the chest radiographs of 10/10/05 and 10/11/05. The left acromion process appears intact. Grossly, the bones appear normally mineralized and no wormian bones are identified within the

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skull. The impression noted a "Fracture of the right coracoid (actually acromion) process. A fracture at this location is considered to be of high specificity for child abuse." No additional fractures are identified and the evaluation of the skull and distal tibias/fibulas were limited.

In reviewing the medical records, I do not see any documentation that a retinal examination was done prior to Nikita's death.

Review of Investigator's Reports

On 10/10/2005, Mr. Lemons was home alone with Nikita, his 2.5-month-old daughter, and his 1.5-year-old son. At approximately 7 PM, both children were crying in their cribs. Mr. Lemon picked up Nikita, patted her on the back, then held her out in front of him and told her to be quiet. Nikita continued to cry, and Mr. Lemons shook her violently three or four times. Nikita became quiet, her head slumped to the side, formula ran out of her mouth and she stopped breathing. Mr. Lemons ran to a neighbor's home (Ms. Zdyb) and told her that Nikita was not breathing. Mr. Lemons and Ms. Zdyb ran back to Mr. Lemon's apartment, and Ms. Zdyb instructed Mr. Lemons to call 911. Mr. Lemons first called his mother-in-law and then his wife, before handing the phone to Ms. Zdyb, who called 911. Nikita was transported to Annapolis Hospital and then Med-flighted to the University of Michigan Hospital, where she died.

An autopsy was performed by Dr. Bader Cassin of the Washtenaw County Medical Examiner's office. At the time of her death, Nikita weighed 5600 grams (12.5 pounds). There was a ½ inch abrasion beneath the left mandibular angle, and a ½ inch abrasion overlying the left scapular spine. There was no skull fracture or scalp hemorrhage. Approximately 15 ml of dark red liquid and soft-clotted blood was found on the paracentral subdural surfaces (left>right), with small, scattered subarachnoid hemorrhages on the anterolateral frontal surfaces. There was generalized brain swelling with uncal and cerebellar herniation. There were prominent subarachnoid hemorrhages in both optic nerves. No hemorrhages were discovered on laminar subglottic dissection, including en bloc removal of the hypopharynx. Microscopic analysis of the lung showed early acute bronchopneumonia, lower lobe alveolar blood and partial atelectasis. Bilateral optic nerve sheath and retinal hemorrhages were found. Brain and brain stem showed acute subdural hemorrhage, multifocal subarachnoid hemorrhages and mild hypoxic cellular changes. Other organs were unremarkable. Toxicology revealed a blood acetaminophen level of 11.7 mcg/ml and a diphenhydramine level of 59 ng/ml. The death was determined to be a homicide, with features that "are the essential component of the shaken baby syndrome", and an additional acute fracture of a small bone in the right shoulder, and superficial small scrape injuries on the left side of the neck and top of the left shoulder.

According to the police narrative (#2, p 130/151), Mr. Lemons initially stated that Nikita was fussy that afternoon, but she took a bottle, and he put her down in her

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crib. A short time later he found her having difficulty breathing and spitting up. He stated he gave Nikita CPR and he was not sure if he shook her too hard to wake her up or not. At that time, Sergeant Williams stopped Mr. Lemons and informed him of the preliminary autopsy results. Mr. Lemons became quiet. When Sergeant Williams confronted Mr. Lemons about his story, he changed his story and provided a written statement. He stated that he dreaded when his wife went to work because he didn't like to be left alone with Nikita. At 4:30 PM, Nikita was in her swing, and was fussing and crying. Both Nikita and her brother were crying. He picked Nikita up and shook her 3 or 4 times to get her to be quiet. She stopped crying and started spitting up formula, but was unresponsive. He then ran next door for help. He also answered questions, and stated that he picked up Nikita because she was crying and patted her on the back. He held her in front of him and said be quiet, and then he shook her 3 or 4 times and she stopped. Nikita's head was moving back and forth as he shook her, and he stated that he just wanted her to stop crying. After this, Nikita was breathing shallow, and her head slumped to the side, and formula ran from her mouth. He felt very angry, depressed and a combination of things as he was shaking Nikita. He loved her but she cried a lot. He also stated that he used to pinch his son when he cried. He didn't intend on killing Nikita, but intended to quiet her up when he shook her. He did not tell anyone what happened because he did not want anyone to be disappointed with him. He also stated that he did not want to be a father, and that when Nikita was not crying he loved to be around her, but he hated it when she cried. Mr. Lemons was also taking male hormone pills, after having breast implants removed and stopping female hormone pills.

Mr. Lemons was arrested on 10/11/2005, and provided a written statement on 10/12/2005. In his written statement, Mr. Lemons wrote that he dreaded when his wife left for work, because he didn't like to be left alone with Nikita. He fed his son and put him down for a nap, at which time Nikita was in her swing fussing. At 5:30 he fed her a bottle and laid her down. At 6:20 Nikita and his son started crying. He entered their room, picked Nikita up because she wouldn't stop crying, he shook her 3 or 4 times to get her to be quiet. She stopped crying and started spitting up formula, but was unresponsive. Mr. Lemons reported to police that he picked Nikita up because she was crying and that he felt "very angry, depressed, it was a combination of things" as he shook the infant. He stated that he loved Nikita, but that she cried a lot. He stated that he used to pinch his son when he cried. He did not intend on killing Nikita, but that when he shook her he intended to "quiet her up". After he shook Nikita, she was unresponsive, with her head to the side and milk was coming out of her mouth.

Review of Trial Testimony

A waiver trial, People of the State of Michigan vs. Milton Lemons, Sr. was held before the Honorable Timothy M. Kenny on August 3, 2006. The prosecutor in the case was Michael Woodyard, Esq. and Mr. Lemons was represented by David Cripps, Esq.

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Mrs. Lemons testified that Nikita was a healthy infant. She reported that when the baby was just under one-month-old, she had an episode where she began gasping for breath, and began changing color. Her mother was holding her at that time. Her mother bulb-suctioned Nikita's nose and mouth, and she was fine. On another occasion, Nikita was home with her father, who called Mrs. Lemons and reported that Nikita again was gasping, but Nikita was fine by the time Mrs. Lemons arrived home. Nikita's formula was changed to soy, and she was fine after that, without further episodes of gasping. Mrs. Lemons reported that her first day back at work from maternity leave was on October 10, 2005. Mr. Lemons called her at work and told her that Nikita was aspirating, and Mrs. Lemons returned home to find paramedics at the home, and Nikita lifeless on the floor. Mr. Lemons initially appeared "blank" but then began crying and hollering 'not again- can't be happening'. Mrs. Lemons testified that she heard Mr. Lemons state that he hoped what happened to Nikita was 'not because I shook her to wake her up.' He stated this while at both hospitals. Mrs. Lemons reported that in the days before her death, Nikita was a little fussy, but was alert, responsive and would play. She would cry because she was gassy. Mrs. Lemons was called back to testify later (#3; page 94), and stated that she fed Nikita in the late morning but did not feed her before leaving for work at 2:30. She reviewed a photograph, and testified that she put the used bottle in the sink, which she identified in a photograph. When she returned home after Nikita's arrest, she did not find any other bottles that had been given to Nikita; "there were not other used bottles to be found." (#3; p 95). She also testified that Mr. Lemons would not have only washed one bottle, without washing the other dishes that had been left in the sink.

Pamela Van Meter, Nikita's maternal grandmother, testified that when Milton Jr. (Nikita's older brother) was an infant, Mr. Lemons told Ms. Van Meter that he couldn't handle the child's crying, that Mr. Lemons would call and say he couldn't take the crying. She also testified seeing Nikita struggle to breath once in the past, when Nikita was one-week-old, and that she responded to suctioning her nose and mouth by crying. Ms. Van Meter testified that Mr. Lemons called her when Nikita was approximately one-week-old stating she wasn't breathing. Ms. Van Meter went to the house, noted that Nikita was turning red, struggling to breath. She suctioned her nose and mouth and she returned to normal breathing. On October 10th, Ms. Van Meter arrived at the home after Mr. Lemons called, and found Nikita on the couch, not breathing. A neighbor was also at the home at that time. Ms. Van Meter checked Nikita, picked her up, turned her on her stomach and "tapped her back" and began CPR (infant breathing, not chest compressions). She testified that at the hospital, she heard Mr. Lemons state that "this has happened to me before. Why is this happening to me again?" and that she heard Mr. Lemons tell the doctor at the hospital that he tried to shake her awake when this happened.

Paramedic Jerry Tima testified that he received a dispatch that a child was not breathing due to choking. When he arrived at the home, he found Nikita laying on the sofa unresponsive and she was pulseless and apneic. There were large amounts of white fluid coming out of her mouth, requiring suctioning. CPR was done,

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including 3-finger chest compressions and bag-mask breathing. The paramedics inserted an endotracheal tube and an interosseous line. He testified that there was white fluid in Nikita's throat.

Neighbor Rene Zdyb testified that she was home napping when Mr. Lemons came to her door asking to see her. In response, Ms. Zdyb knocked on Mr. Lemon's door, and he came to the door with Nikita in his arms, formula pouring out of her mouth, stating she was choking on her formula. Mr. Lemons reported that Nikita was drinking her bottle and started choking. She instructed Mr. Lemons to call 911, and he asked her to hold the baby while he called 911, but he called his wife instead. When he returned, Ms. Zdyb again instructed him to call 911, but he then called his mother-in-law, screaming. Ms. Zdyb again told Mr. Lemons to call 911, and that she didn't know CPR. Mr. Lemons stated he knew CPR, took Nikita from Ms. Zdyb, put her on the couch and Ms. Zdyb called 911. Ms. Zdyb stated that she saw a puddle of formula on the floor in the home. She also stated that while Mr. Lemons had the phone, she turned Nikita over on her stomach, and rubbed her gently on her back. Ms. Zdyb told 911 that the Nikita was not breathing, that she was choking on some formula and that she had gotten milk that was in and around her mouth out. Mr. Lemons told 911 that he knew how to do CPR on an adult, but not a baby, and the dispatcher told Mr. Lemons to be very careful because it's a child. Ms. Zdyb testified that when Mr. Lemons put Nikita down on the couch, he took his hand and was pushing on her whole torso, bouncing the baby on the couch-which she thought 'that's not CPR'. Mr. Lemons also told Ms. Zdyb that he flushed Nikita with water. Ms. Zdyb testified seeing Mr. Lemon's mother-in-law give Nikita breaths while Nikita was on the couch.

Dr. Bader Cassin, forensic pathologist at the University of Michigan testified that he performed Nikita's autopsy on October 11, 2005. She had no external evidence of injury. On internal examination, Dr. Cassin found brain swelling with blood on the brain surfaces as well as in the nerve sheaths of both eyes. He recognized this as "an organization of findings in the absence of any other thing a phenomenon called Shaken Baby Syndrome." Dr. Cassin described that shaking or rapid oscillation of the head of a child causes the brain to follow the shaking motions of the head whipping back and forth, but slightly behind it, causing the soft brain to strike the internal surfaces of the skull. The brain then swells and surface vessels that bridge the internal skull surface and brain surface tear and deposit a surface of blood on the brain top. There is stretching of some nerves of the brain, including the optic nerves, and there is bleeding around those nerves. Dr. Cassin testified that these findings are not a natural phenomenon. He noted that by skeletal survey there was a small fracture at the top of the right shoulder, which he stated is an unusual fracture, due to trauma and associated with an extension of the arm beyond it's usual range of motion in an infant. This fracture means that either the arm is being pulled very hard, or that the arm was flailing about when the child was in motion. From the autopsy, Dr. Cassin determined that the baby's injuries were fresh; the bleeding was slight and fresh and the swelling was well developed. Dr. Cassin reviewed the autopsy and the history and estimated that the baby's injury occurred

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late in the afternoon of October 10th. Dr. Cassin testified that immediate symptoms are fairly routine in brain injury of this sort, and that when the brain swells, the body revolts, manifested with vomiting, regurgitation of whatever is in the stomach, and there is loss of consciousness within a minute, as the infant brain tends to swell more quickly than in an adult. He testified that the breathing would diminish, become irregular, faint then disappear, and the breathing and heart rate would be the last things to go. Dr. Cassin testified that on microscopic examination, he identified both optic nerve sheath and retinal hemorrhages. He testified that the retinal hemorrhages were consistent with his opinion that the baby died of trauma. On cross examination, Dr. Cassin testified that on the death form from the hospital, the proposed cause of death was 'unknown cause', and category was 'unexpected and unexplainable death'. Dr. Cassin was asked about the notation by Dr. Flemings (pediatric resident) that no retinal hemorrhages were found. Dr. Cassin testified that Dr. Fleming specifically said he couldn't see retinal hemorrhage. Dr. Cassin also testified that he could not say the exact duration of time between the injury and the baby's death. Dr. Cassin testified that it is possible he told Sergeant Williams on the phone that the injuries he saw could have been intentional or accidental. He agreed that shaking of an infant can be done naively, without intent or purpose to injure a child. Dr. Cassin testified that he did not find any distinct hemorrhages of the neck. Dr. Cassin testified he did not think the shoulder fracture came from CPR, although he agreed that at a preliminary hearing, he testified that he did not know if excessive CPR could have caused the fracture, and that he didn't want to state how the injury occurred. In response to questions from the court, Dr. Cassin testified that one shake (or drop) could not cause the findings identified in this case; rather, shaking back and forth with force would cause these findings. He testified that the loss of consciousness is very rapid, almost immediate. The vomiting is a manifestation of the loss of brain control, and happens when brain stem swelling develops. Dr. Cassin testified that the small amount of subdural blood (approximately 15 ccs) is something that is common in cases of shaking. He also reiterated that he did not find neck injury, which is not uncommon (i.e., it is common not to find any neck injury). He testified that shaking the baby from side to side would be more likely to result in neck injury.

Sergeant John Williams testified that he received the autopsy report and called Dr. Cassin to review whether this was an accident, natural death or homicide. Sergeant Williams testified that based on preliminary investigation that indicated that Mr. Lemons was reluctant to call 911, and on the preliminary autopsy findings, Mr. Lemons was arrested. Sergeant Williams testified that Mr. Lemons initially told him that after feeding Nikita, she and her brother were in their room, and he heard his son banging on the wall. He entered the room and found Nikita having trouble breathing. He went to his neighbor's house to call 911. He returned home and started CPR on the baby, and at that point, Mr. Lemons told Sergeant Williams that he didn't know if he shook her too hard when he was trying to wake her up. Sergeant Williams *then* confronted Mr. Lemons with the autopsy results that showed that Nikita had died of shaking. Mr. Lemons then became very quiet, and provided a different version of what had happened. Mr. Lemons provided a written

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statement that stated that his wife left for work at 2:30 PM, which he dreaded because he didn't like to be left alone with Nikita. At 5:34, he fed her a bottle and laid her down. At 6:20, his son started fussing and Nikita also started to cry. Mr. Lemons went into the room to get him out, but picked up Nikita instead. She wouldn't stop crying and his son was still crying, and Mr. Lemons shook Nikita three or four times to get her to be quiet. Nikita stopped crying and started spitting up formula, but was unresponsive. Mr. Lemons wrote that he ran next door with her to the neighbor, who took Nikita from him and he called 911. He attempted to do CPR, and called his wife and mother-in-law. Mr. Lemons signed the statement, and Sergeant Williams began a question/answer format of the statement. In this part of the statement, Mr. Lemons stated that he was home alone with his children. He picked up Nikita because she was crying, patted her, held her in front of him and said be quiet. He shook her three or four times and she stopped. On a scale from 1-10 (10 being very hard), Mr. Lemons stated he shook Nikita at a 7. He stated her head went back and forth, that he went blank, and he just wanted her to stop crying. After he shook her, Nikita's breathing was shallow. He stated that when he shook her he felt very angry and depressed, and it was a combination of things. He stated he loved Nikita but she cried a lot, and he got nervous when he was alone with her, because he didn't want to do something wrong. He denied intending to kill Nikita; he intended to quiet her up. He stated that he knew shaking could be fatal. After he shook her, Nikita was unresponsive, meaning that she was not saying anything with her head to the side and milk was coming out of her mouth. Mr. Lemons stated he didn't tell anyone what happened because he didn't want anyone to be disappointed in him, and he stated his answers were truthful.

After the above testimony, Defense attorney David Cripps made a motion for a directed verdict. Mr. Lemons decided not to testify, nor to call any witnesses on his behalf. After arguments, the judge in this bench trial believed that the law compelled a verdict of murder in the first degree.

Review of Defendant's Arguments

In the Defendant's Statement of Facts, the case history is summarized. It is stated that Nikita experienced 2 episodes of difficulty breathing shortly after being fed. At one week of age, she started gasping and her face started turning colors. Her mother used and bulb syringe in her nose, and this resolved. Her parents did not seek medical attention for this episode. At 5 weeks of age, when home with Mr. Lemons, Nikita began gasping, and Mr. Lemons called his wife to come home. Nikita was fine by the time Lori arrived home. Nikita was brought to her pediatrician, and was changed to a soy formula. On October 10th, Lori left for work at 2:30 PM, after she fed Nikita and placed her in a baby swing. At 5:30 PM, Mr. Lemons woke, fed, and burped Nikita, and put her down to sleep in her bedroom. Shortly after, Mr. Lemons returned to the bedroom and found Nikita struggling to breathe. He rushed to a neighbor, Renee Zdyb, for help. Mr. Lemons called Lori and his mother-in-law, Pamela Van Meter, to tell them that Nikita stopped breathing. Ms. Zdyb called 911,

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as Mr. Lemons attempted CPR after placing Nikita on the couch. Nikita spit up formula but was otherwise unresponsive. The 911 operator instructed Mr. Lemons to turn Nikita over and hit her between the shoulders. Emergency responders arrived and brought Nikita to the hospital.

Nikita had no evidence of external injury, and at the time of her death, the physician caring for her characterized her cause of death and "sudden unexpected and unexplainable" and Nikita's body was referred to the ME's office. After the autopsy identified subdural, subarachnoid and retinal/optic nerve sheath hemorrhages, (with an acromion fracture), a diagnosis of SBS was made. Mr. Lemons was arrested on October 11, and was interviewed the following morning. During the interview, Mr. Lemons spontaneously stated that he wondered if he had shaken Nikita too hard during CPR. At that time, Mr. Lemons was informed of the preliminary autopsy results, and he then stated that he shook Nikita three or four times because he could not get her to stop crying. He was charged with first-degree murder.

Dr. Galaznik reviewed the medical records and testimony transcripts and opined that Nikita Lemons experienced a choking/aspiration event, which resulted in hypoxia and cardiac arrest. He believes the available evidence in this case does not support an allegation that abusive shaking was the primary mechanism of injury in this case. Dr. Galaznik noted that Nikita's pediatric records have been destroyed, but reported that at one week and at one month of age, Nikita stopped breathing. He opined that on 10/10/2005 Nikita suffered an ALTE (acute life threatening event), which was an episode of choking/aspiration. She underwent CPR and was transferred to Annapolis Hospital, and had approximately 45 minutes without spontaneous circulation. Nikita was transferred to Mott Children's Hospital, and no clinician noted external evidence of trauma or physical injury. Nikita died in the morning of 10/11/2005, and underwent an evaluation at the Medical Examiner's office. The Medical Examiner concluded that Nikita's death was caused by brain swelling, bleeding behind the eyes and onto the brain surfaces, essential components of the shaken baby syndrome. The Medical Examiner also discovered a fracture of the acromion process, which was determined to be highly specific for abuse. The death was classified as a homicide.

Dr. Galaznik's position is that Shaken Baby Syndrome (SBS) is a controversial diagnosis. He states that the American Academy of Pediatrics began to modify its position on SBS in 2007, and recommended abandoning the term in a 2009 policy statement. He also states that the AAP redefined the "constellation" of findings in AHT, replacing retinal hemorrhages with spinal injury. Dr. Galaznik states that a shaken baby diagnosis in this case is not supported by currently available experimental biomechanical research, and his opinion is that shaking was not the cause of Nikita's death, "particularly given the complete absence of neck or spinal injury". Dr. Galaznick also asserts that biomechanical studies predict that if shaking had caused primary subdural bleeding and primary retinal hemorrhage, there would first be a structural failure of the neck or spine, which Nikita did not have. He also opines that had tearing of the bridging veins been the cause of Nikita's subdural

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bleeding, he would expected a larger quantity of subdural blood than the 15 ml the ME reported. Dr. Galaznik opines that the subdural/subarachnoid blood in this case is more consistent with a fatal hypoxic event/choking than with an alleged fatal abusive shaking trauma. He states that Nikita was severely hypothermic and acidotic at the hospital, which impedes blood clotting, and she would have had a "hypothermic coagulopathy". He notes that this coagulopathy was likely related to her hypothermia because the initial CT did not note any subdural blood, but the autopsy documented 15cc of subdural blood.

Dr. Galaznik questions the certainty of the acromial fracture, but notes that if it is real, it is likely related to back blows performed during resuscitation, at the instruction of the 911 operator.

Dr. Galaznik states the cause of death in this case is most consistent with a choking aspiration event, which fatally interfered with the lungs' capacity to oxygenate the blood and supply the brain with oxygen. He sites the notation of large amounts of milk/formula in Nikita's airway as evidence of choking/aspiration. He states that chest X-rays document infiltrates, which he states represents aspiration, and why the autopsy documented early bronchopneumonia in the lungs. He states that small amounts of subarachnoid hemorrhage are recognized in asphyxia deaths due to fatal choking/ aspiration. He also states that the subdural blood can be of an intradural origin, resulting from prolonged asphyxia event such as choking/aspiration. Finally, he states that Nikita suffered from lethal brain hypoxic insult, and when resuscitated, blood began to pump at hypertensive pressures back through the intracranial tissues that had been injured by hypoxia, resulting in brain swelling. This brain swelling and increase in intracranial pressure is a recognized cause of intracranial, retinal and optic nerve sheath hemorrhages.

Patrick Barnes, M.D. stated that imaging often cannot distinguish non-accidental injury from accidental injury or medical conditions. He opines that there is nothing in the imaging findings in this case that is specific for, or characteristic of, non-accidental injury. He believes strong consideration should be given to predisposing causes for obstructive, central or combined apnea with associated dysphagic choking, leading to cardiopulmonary arrest and resuscitation resulting in hypoxic-ischemic brain injury. He feels the acromion defect may be a developmental variant or a result of accidental (resuscitation) trauma or rickets. He states that "although shaking NAI may be a hypothetical consideration, the current literature indicates that shaking alone (without impact) is unlikely to produce intracranial injury in the absence of requisite injury to the spinal cord, spinal column, or neck." He also notes that intracranial injury can result from short-distance impact scenarios or from medical disease. He also includes a long, nonspecific differential diagnosis list to be considered, including dysphagic choking or other forms of apnea and vaccination administration and states that all of these issues should be medically evaluated. He states that the high density findings in this case may represent recent hemorrhage or venous thrombosis, and may range from approximately 3 hours to 7-10 days old. Dr. Barnes also lists a differential diagnosis for venous thrombosis. He also includes

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a differential diagnosis for fractures, and according to his interpretation, the radiographs show an acromion defect, anterior rib flares, craniotabes, radial-ulnar metaphyseal changes and bowing, which do not rule out a dysplastic or metabolic bone fragility disorder. Dr. Barnes also mentions the "lucid interval" phenomenon, and states that in the context of sibling or other child peer or pet factors, it cannot be assumed that a given caretaker is responsible for an injury.

George Nichols, MD, a forensic pathologist, concluded that Nikita Lemons choked on formula, triggering an apparent life-threatening event (ALTE) that fatally restricted blood flow and oxygen to the brain, and states that there is no support in evidence or in the medical literature that shaking caused her death. Dr. Nichols reviewed medical, autopsy records, investigative reports and testimony transcripts, summarized findings and offered opinions regarding the evaluation and ultimate findings in this case. He noted that the medical history included parent reports of two episodes of gagging and gasping for breath at one week and one month of age, the first with a history of perioral cyanosis. The CT showed diffuse edema and bilateral subarachnoid hemorrhage, and the autopsy showed acute subarachnoid and subdural hemorrhage, with retinal and optic nerve sheath hemorrhages and marked edema. There was not primary traumatic contusions or shearing, or evidence of head impact. At autopsy, the baby's lungs showed atelectasis, intra-alveolar hemorrhage and early pneumonia. The pneumonia was likely hospital acquired. Dr. Nichols states that the ME failed to adequately investigate the "perceived acromial fracture, which was diagnosed by radiograph only because the skeletal survey was performed after the autopsy". He feels this was insufficient to diagnose an acromial fracture with certainty, as the bone and surrounding tissues must be examined in order to diagnose this type of fracture. Without bone examination, he does not believe one can reliably conclude there is an acromion fracture. Finally, he notes that there is nothing in the records indicating an injury to the spinal cord, column or neck.

Dr. Nichols states that SBS is a scientifically unproven hypothesis and that the medical examiner did not complete a disciplined evaluation of the differential diagnosis in this case. He opines that the "triad" of neurological deterioration, subdural bleeding and bleeding behind the eyes are not pathognomonic for SBS or any type of abusive head trauma. Dr. Nichols states this cannot be SBS in part because of the complete absence of a neck or spinal injury. He states the primary pathologic process is anoxia due to airway obstruction, resulting in HIE, severe brain swelling, herniation and death, all as a direct consequence of an ALTE and dysphagic choking. He states that if an ALTE repeats, the chance of fatality increases.

In the Defendant's Statement of Facts, the history of SBS is provided, noting Duhaime (biomechanics), Donohoe ("evidence based medicine"), Gilliland (lucid interval), which they state rejected the view that the "triad" of symptoms proved abuse, instead arguing such symptoms could occur naturally or accidentally. They argue that by 2006, it was "generally understood that the "triad" could have a wide

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array of causes other than intentional shaking…" and they cite Donohoe, Bandak, Mins, Uscinski). They summarize the arguments made by defense experts (see above). They also state that at the time of the baby's death and Mr. Lemons' interrogation, he was suffering from a variety of mental health issues that made him susceptible to a false confession. Finally, they argue that the acromion fracture may not be a real finding, and that it cannot be diagnosed by radiograph alone. If it is real, they attribute the injury to resuscitation efforts, specifically back blows, or to underlying natural disease.

Note: In the Defendant's Motion for Relief from Judgment, the factual summary indicates that Mr. Lemons, after being presented with the preliminary autopsy findings, admitted to shaking Nikita. Mr. Lemons' lawyers now argue that "there is now no credible evidence that shaking caused Nikita Lemons's death". Ultimately, the lawyers argue that Mr. Lemons "was convicted using scientific evidence known today to be fundamentally flawed and inaccurate."

Impression

In summary, Nikita Lemons, a generally healthy 2-month-old infant with a history of 2 previous episodes of ALTE that did not require medical intervention, experienced a sudden, ultimately fatal event while under the care of her father. The notable findings during hospitalization and at autopsy included subdural, subarachnoid, retinal and optic nerve sheath hemorrhages, cerebral edema and an acute fracture of the acromion process of the right shoulder. Mr. Lemons was convicted of murder, based on trial testimony that Nikita died of shaken baby syndrome. An appeal is now based on a number of arguments that question the medical diagnoses and the basis for conviction. In reviewing the above materials, the general areas of argument in this appeal include the following: Shaken Baby Syndrome (SBS) is a controversial hypothesis that has never been proven; Nikita could not have died of shaken baby syndrome because there was no injury to the neck or spinal cord identified; Nikita died of "dysphagic choking" leading to asphyxia, which then resulted in the intracranial hemorrhage; A flawed triad of subdural hemorrhage, retinal hemorrhage and encephalopathy has been used to diagnose shaken baby syndrome; the acromion fracture is non-specific and possibly related to rickets; and Mr. Lemons' confession was coerced because of his mental health disease. I will address each of these arguments individually.

<u>Shaken baby syndrome is a non-proven, controversial hypothesis</u>

The premise that vigorous shaking of an infant is dangerous is agreed upon by an overwhelming majority of medical practitioners, [1] even by some who are acknowledged skeptics and have written medical articles that have been used to question SBS as a diagnosis.[2,3] As an example, in a 2014 commentary on controversies in abusive head trauma, neuropathologist Waney Squier wrote: "Contrary to Byard's suggestion, the SBS/AHT controversy is not about whether infants can be damaged or killed by violent shaking or abuse; of course they can. The real

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controversy is over whether shaking or abuse may reliably be inferred from specific findings, classically, subdural and retinal hemorrhage with encephalopathy (the triad)."[2]

Contention surrounding this diagnosis has increased over recent years, primarily directed at the courtroom. In children's hospitals throughout the country, SBS is a well-recognized phenomenon, and each year, almost 2,000 children are diagnosed at US hospitals with non-fatal abusive head injury;[4] it is estimated that another 150 young hospitalized children sustain fatal inflicted head injuries.[5] The identification of an abused infant presents challenges to front line physicians: the abuse is rarely witnessed, an accurate history of trauma is rarely offered by the perpetrator, the infant is incapable of providing a verbal history, there is no single or simple test to determine the accuracy of the diagnosis, the mechanisms and resultant injuries of accidental and abusive head injury overlap, there are medical diseases to consider in the differential diagnosis, and the social and legal consequences of the diagnosis can be very significant.[6] These challenges fuel debate regarding the pathogenesis of characteristic features of SBS and make identifying victims difficult. Indeed, it is estimated that approximately one-quarter to one-third of victims diagnosed with abusive head trauma have been previously misdiagnosed with more innocent medical conditions by unsuspecting physicians.[7,8] Many of these infants return to care with more severe or fatal injury. Further debate is generated because our knowledge about the infant brain is incomplete. The response to injury in the developing infant brain is only partially understood, although it is recognized that the infant's unique biochemical and physiologic makeup render the immature nervous system more vulnerable to injury.[9]

Medical skepticism and scientific debate are important in order to advance medical knowledge, patient treatment and public health prevention. And there is much to learn about mechanisms, pathophysiology and treatment of infant head trauma. New knowledge is best advanced by careful medical research, published (and debated) in medical literature. Systematic reviews highlighting the injuries associated with abusive head trauma and those arguing against the diagnosis of SBS have been published;[10,11,12,13] Some have been criticized for improper methodology and objectivity.[14] However, because the civil and criminal justice systems are often involved in cases of abusive head trauma, scientific debate related to SBS is often argued during legal proceedings, a system not designed to determine scientific truth. Some have opined that the SBS controversy is at its core fabricated for the courts and represents an example of denialism: alternative hypotheses are developed not to advance a clinical or scientific need, but to promote legal theories; medical literature is misused to create an illusion of evidence to support novel theories; and rhetoric is used to manufacture controversy and uncertainty.[1,15] Debates regarding the biomechanics of head and neck injury in abusive head trauma, the creation of the dysphagic choking diagnosis, and the use of the much maligned "triad" as a strawman are representative of these problems, in the present case and others.

The validity of SBS and to a lesser extent AHT has recently been called into question by courts and in some medical literature, which could impact the acceptance of

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these diagnoses in courtroom testimony. Among physicians who actually care for infants and children every day, however, the diagnosis of SBS is well-established and accepted as a cause of both significant neurologic morbidity and infant and child mortality. In an effort to determine whether SBS and AHT are "generally accepted" diagnoses in the medical community, researchers recently queried a national, multidisciplinary sample of physicians to evaluate opinions regarding a number of potential causes of subdural hemorrhage, retinal hemorrhages, coma and death, and the validity of shaken baby syndrome and abusive head trauma as medical diagnoses.[16] Among 628 physicians who represented a range of subspecialties at 10 leading US children's hospitals, SBS and AHT were considered valid diagnoses by 88% and 93% of respondents, respectively, and together SBS or AHT was characterized as valid by 97% of respondents. The researchers also defined (a priori) "fringe theories" as those that less than 5% of respondents believed were likely or very likely. In this same sample of physicians, 2.7% thought it was likely or highly likely that choking would cause subdural hemorrhages, 0% believed vaccines were likely to cause retinal hemorrhages, and 0.6% believed that Vitamin D deficiency was likely to induce coma or death- all consistent with the researcher's definition of fringe theories, and all mentioned in the reports from Drs. Barnes, Galaznik or Nichols in the present case.

Dr. Galaznik opines (as he has on multiple past occasions) that the American Academy of Pediatrics (AAP) abandoned the term SBS in 2009. That is incorrect, if you simply read the policy statement, which I co-authored. I also am not sure how Dr. Galaznik has determined what I intended in my writing, since he has never spoken to me about this policy paper, and can't possibly induce how my clinical approach to practice influences my academic writing. He has *interpeted* the updated policy report as an abandonment of a diagnosis, but it was simply a call to be careful about terminology, since there are a number of mechanisms of injury that can cause infant brain damage from abuse. The policy statement specifically recognizes the importance of shaking as a mechanism of head and brain injury. He also has created a story in his head that the AAP substituted retinal hemorrhages for spinal injury in the triad. Again, he is conjuring his own theories of the policy paper I wrote. His theories are wrong and do not belong in legal arguments. Additionally, Dr. Galaznick notes that the chest x-rays documented infiltrates, but fails to note that the infiltrates improved overnight, and were diagnosed as pulmonary edema. This finding is well recognized after massive brain injury, including after abusive head trauma.[17] While not specific for AHT, these infiltrates are not characteristic of an emerging pneumonia, as they improved over the course of the infant's short hospitalization. Finally, I note that Dr. Galaznik has little to no clinical experience caring for abused or critically ill infants. His credibility is lacking in this field, as ethical standards for expert testimony by pediatricians includes the AAP recommendation that witnesses are "actively and meaningfully engaged in clinical practice in the medical specialty or area of medicine about which they testify".[18]

The rejection that shaking is not harmful to infants is promoted by a relatively small group of physicians and engineers, who generally argue the following:

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1. Shaking an infant, without blunt head impact, cannot generate forces necessary to cause brain injury; or
2. Shaking an infant, without impacting their head, cannot generate forces necessary to cause brain injury without evidence of severe neck failure; or
3. The etiology of infant subdural and retinal hemorrhages is hypoxia (perhaps in association with choking, coughing, valsalva manveuver, increased intracranial pressure and/or coagulopathy) and not trauma.

Biomechanical modeling has been used to both support and refute the contributions of shaking to abusive head trauma (AHT).[19,20,21] In reality, all models and theories have known limitations, and manipulation of models to improve biofidelity results in significant differences in measured and computed head acceleration and other results. Many clinicians and researchers acknowledge that although biomechanical models can improve our understanding of kinematics during shaking, thresholds for infant neuropathological injury remain unclear, and a biofidelic model of the infant body has yet to be developed.[17]

Nikita could not have died of shaken baby syndrome because there was no injury to the neck or spinal cord identified

Bandak, in a flawed 2005 mathematical paper, argued that if an individual could shake a baby hard enough to cause subdural hemorrhages, the forces on the infant neck would far exceed the limits for structural failure of the cervical spine, which would therefore be a universal finding in cases of SBS.[21] Bandak's flawed calculations (for example, not multiplying by the radius of the infant's neck, thereby assuming a value of 1, in meters) caused him to erroneously conclude that neck forces in even the least severe shaking event far exceed the published injury tolerance of the infant neck. When bioengineers accurately recalculated, the range of neck forces were considerably lower, and included values that are far below the threshold for injury.[22] Using more appropriate calculations, these bioengineers concluded that the possibility exists for neck injury to occur during a severe shaking event without impact. Indeed, this is what clinical data supports. Both pathological and recent radiographic literature suggest that by MRI or autopsy, up to 2/3 of victims of AHT have abnormalities of the neck identified: cervical cord injury, hemorrhage around the cord, ligamentous injury or soft tissue injury. [23,24,25] These findings, however, are far from universal. Additionally, Drs. Galaznik and Barnes argue that Nikita could not have died of SBS because of the absence of *requisite* injury to the spinal cord, spinal column, or neck. For both biomechanical and medical reasons, this is a flawed argument. There are no medical diagnoses for which an individual must display EVERY component of the disease or problem to meet criteria for diagnosis. An empyema is not a *requisite* for a diagnosis of pneumonia, a malar rash is not a *requisite* for a diagnosis of lupus, a seizure is not a *requisite* for a diagnosis of stroke, adenopathy is not a *requisite* for a diagnosis of cancer, heart block is not a *requisite* for a diagnosis of rheumatic heart disease, a broken leg is not a *requisite* for a diagnosis of motor vehicle crash trauma, and a

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neck injury is not a *requisite* for a diagnosis of SBS. Additionally, at the time of Nikita's death, MRIs were not as technically sophisticated as they are now; she never had an MRI to evaluate her spine; and I do not believe there is documentation that she had a posterior neck dissection. Whether there was minor injury to the ligaments or soft tissues of her posterior neck is unknown.

Nikita died of "dysphagic choking" leading to asphyxia, which then resulted in the intracranial hemorrhage

Drs. Galaznik, Barnes and Nichols all theorize individually that the evidence in this case suggests that Nikita died of asphyxia, related to choking, aspiration, ALTE, and/or dysphagic choking. In preparing this report, I entered the term "dysphagic choking" into PubMed, the online US National Library of Medicine search engine at the National Institutes of Health. The only references to appear related to this phenomenon in infants were an article entitled "Infant acute life-threatening event—dysphagic choking versus nonaccidental injury", authored by Dr. Barnes, Galaznik, Gardner and Shuman, and a subsequent research paper examining this hypothesis.[26,27] Dr. Barnes' single case report, the entirety of the medical literature describing this clinical phenomenon, misrepresented the facts of death regarding an infant who died with subdural hemorrhage, retinal hemorrhage and acute and healing rib fractures. The authors, who did not care for the infant (most case reports are reported by the team of physicians who cared for an interesting or unique patient), but were all defense experts in the case, failed to disclose their relationship to the case, failed to include the healing rib fracture in their case report (as it would call to question their conclusion that the fractures identified were due to CPR- another contention made in this case), misrepresented the clinical history, the ophthalmologic, radiographic and autopsy findings of the case, and the legal outcome of the case.[28] This represents falsification of research and research misconduct.[29] There is no significant support for the "choking/ALTE hypothesis" as an etiology for subdural and retinal hemorrhages. In response to this case report, and to test the hypothesis that dysphagic choking/ALTE results in the development of subdural hemorrhages, researchers compared the prevalence of suspicious extracranial injuries in children with "ALTE-associated subdural hemorrhages" to those with "non-ALTE subdural hemorrhages", postulating that if the dysphagic choking theory was true, patients with a history of ALTE leading to subdural hemorrhage would be less likely to have other evidence of injury at the time of presentation.[27] They found, however, that of 170 subjects, those (n=64) with ALTE-associated SDH were nearly 5 times more likely to have at least one suspicious extracranial injury, had worse neurological outcomes, and were more likely to die, supporting the conclusion that they were more severely injured. Furthermore, all 10 subjects with a dysphagic-choking type ALTE history had at least one suspicious extracranial injury. ALTEs were not supported as a causative mechanism for subdural hemorrhage, retinal hemorrhage or cerebral encephalopathy, and their "findings were the opposite of what would be expected if the choking/ALTE hypothesis were true."[27]

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An ALTE (*Apparent* Life Threatening Event) is a term that has been used to describe "an episode that is frightening to the observer and that is characterized by some combination of apnea, color change, marked change in muscle tone, choking or gagging".[30] The term has more recently been replaced by the American Academy of Pediatrics by the term BRUE, which stands for a Brief Resolved Unexplained Event.[30] This terminology change was made to better reflect the transient nature and lack of clear cause to events and to remove the "life-threatening" label. Because choking and gagging usually indicate common diagnoses such as gastroesophageal reflux or a respiratory infection, they are not considered BRUEs. In a systematic review of causes and outcomes of ALTEs, gastro-esophageal reflux disease, a common problem in young infants, was the most common diagnosis (31%), and overall, death after a diagnosis of ALTE was rare (<1% of infants), all of which occurred in infants with an underlying medical condition.[31]

Asphyxia refers to a deprivation of oxygen and describes a wide variety of causes that interfere with oxygen uptake or utilization. Causes of asphyxia in infants and children include perinatal (birth) asphyxia related to obstetric complications, choking, strangulation, wedging, overlying, hanging, and smothering. Accidental asphyxia in infants commonly involves wedging, obstruction of the nose and mouth by loose bedding, or overlying.[32] Toddlers and pre-school aged children are vulnerable to asphyxia from inhalation of food and other foreign objects. Implicated foods include hot dogs, candy, nuts and grapes, but evidence that milk or formula leads to asphyxia and death is lacking.[28,33] Furthermore, there is no established medical literature that supports the contention that choking in children results in subdural hemorrhage and extensive retinal hemorrhages. [34]

Hypoxic ischemic encephalopathy (HIE), injury to the brain due to lack of oxygen and blood flow to the brain, is a common feature of AHT, and is largely responsible for the poor outcomes of victims.[35] The pathophysiology for the HIE seen in victims of AHT is multifactorial, and includes traumatic axonal injury to the brainstem and spinal cord, apnea due to injury, seizures, alterations in cerebral blood flow after trauma, unmet metabolic demands of the injured brain, secondary cerebral edema and others.[36] Potential causes of HIE in infants and children are myriad, including birth asphyxia, accidental or intentional trauma or suffocation, infection, metabolic disease, congenital anomalies, drowning, and choking. Over the past decade, a few researchers have postulated that the SDH seen in victims of AHT are the result of hypoxia, brain swelling and raised intracranial venous pressure leading to vascular leakage from immature dural vessels,[37,38,39,40] although strong evidence to support this hypothesis is lacking. Other investigators who have tested this hypothesis have not found SDH in children with HIE from known causes,[34,41,42,43] including neonates who have sustained perinatal asphyxia.[44,45,46]

<u>A flawed triad of subdural hemorrhage, retinal hemorrhage and encephalopathy has been used to diagnose shaken baby syndrome</u>

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Arguments against the validity of AHT/SBS have focused on the specificity of a "triad" of subdural hemorrhage, retinal hemorrhage and encephalopathy that is claimed to be diagnostic of AHT. This controversy regarding a "triad" is, in fact, a straw man, created for legal arguments against the diagnosis of AHT/SBS.[47] In fact, in the Defendant's Memorandum in Support of Motion for Relief of Judgment, the lawyers provide a "History of the Shaken Baby Syndrome" (page 9). They describe publications in the 1970s by Guthkelch and Caffey, and state "Their hypotheses eventually morphed into the theory now known as SBS, the idea that shaking an infant could cause a fatal "triad" of symptoms: encephalopathy (brain injury), subdural hematoma (bleeding on the surface of the brain), and retinal hemorrhaging (bleeding behind the eyes). See Deborah Tuerkheimer, FLAWED CONVICTIONS: "Shaken Baby Syndrome" and the Inertia of Justice, 5 (2014)." The reference cited to argue against the so called triad is a legal review written by a lawyer who argues against child abuse issues, not a medical paper arguing that a triad is diagnostic of abuse. The pediatric and child abuse communities have never subscribed to a diagnostic triad. The findings of subdural, retinal hemorrhage and encephalopathy, while commonly identified in victims of AHT/SBS, and characteristic of abuse, are not diagnostic of such, and there are known diseases and other medical conditions that are considered in the clinical differential diagnosis. In all cases, a diagnosis of AHT or SBS requires careful consideration of all clinical facts. The findings should be considered in the appropriate clinical context, and a rush to diagnosis is never appropriate. For some children, the identification of additional injury confirms the diagnosis of injury and child abuse (as in this case).[48] In others, known medical diseases are identified, and abuse is eliminated from consideration. In some cases, additional investigation by law enforcement or child protective services uncovers information that supports or refutes accidental or abusive injury (as in this case).[47]

<u>The acromion fracture is non-specific and possibly related to CPR or rickets</u>

Fractures of the acromion are unusual injuries in infants, but are well described in victims of abuse. They are thought to be due to indirect, abnormal forces, generated with gripping of the thorax with violent shaking, or abnormal rotation or traction forces applied to the shoulder via the upper extremity.[49] Accidental fractures of the scapula are rare during infancy, although acromion fractures have been described in infants with metabolic bone disease of prematurity and severe osteopenia associated with chronic illness.[49] There are also known developmental synchondroses of the acromion described in infants.[50] A PubMed search of "Acromion fracture and Rickets" revealed zero references ("No documents match your search terms"). In this case, a post-mortem skeletal survey revealed an acromion fracture. In retrospect, this injury was identified in both pre-mortem hospital chest X-rays. Dr. Barnes contends that the fracture might be related to rickets. His reading of the skeletal survey included the following findings: acromion defect, anterior rib flares, craniotabes, radial-ulnar metaphyseal changes and bowing. In reality, there is no evidence of rickets in these films, and I believe if these films were read blindly by 100 board-certified pediatric radiologists few to none would identify manifestations of rickets. In preparing this report, I performed a PubMed search of "Acromion fracture and CPR" which revealed the same finding:

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"No documents match your search terms." I could find no reference that CPR or rickets is a cause of an infant acromion fracture. These opinions provided by Dr. Barnes are unique theories of causation; they have no place in the courts of law, and I would challenge Dr. Barnes to provide documented medical literature that supports his opinion. Additionally, review of Nikita's medical records revealed that at the time of her hospitalization, she had no laboratory testing that would support a diagnosis of rickets, including normal calcium, phosphorus and alkaline phosphatase levels at the time of her hospitalization. There is simply no evidence of rickets in this case and no support for invoking rickets as a contributor to Nikita's death.

Mr. Lemons' confession was coerced because of his mental health disease

Prior to any interrogation, Mr. Lemons repeatedly mentioned shaking Nikita. He mentioned this to relatives and in the hospital. When confronted with this comment by investigators, Mr. Lemons confessed that he didn't like to be alone with Nikita and couldn't tolerate her crying. He stated he shook her to stop her from crying, and then accurately described Nikita as breathing shallowly, with her head slumped to the side, with formula running out of her mouth. He stated he did not intend to kill her, and only wanted her to stop crying. This description of events is well documented as the most common reason why adults shake infants. In a study published in 2011, Adamsbaum, et al, compared 29 cases of AHT with perpetrator confessions to 83 additional cases in which there was no confession.[51] The injuries identified in the 2 groups were similar, and all confessions came from forensic investigations. All of the perpetrators described having shaken the infant violently, and more than half described repeated episodes of violent shaking. All of the perpetrators reported that shaking was repeated because it stopped the infant's crying. Multiple quotations regarding shaking from perpetrator statements were included in the published article.

Attorneys for Mr. Lemons argue that at the time of Nikita's death and Mr. Lemons' interrogation, he was suffering from a variety of mental health issues that made him susceptible to a false confession. It is more likely, given the totality of facts in this case, that Mr. Lemons' mental health problems (coupled by possible use of male hormones at the time of this event), made him susceptible to lashing out at his crying daughter. He became frustrated with Nikita's crying, picked her up and violently shook her, resulting in the injuries that caused her death.

In conclusion, there are many ways to harm a crying baby. The literature since this trial includes research on confessions in cases of SBS, showing that the injury patterns in cases of confessed vs. non-confessed SBS/AHT are not different, and that when perpetrators confess, their statements are similar: THE BABY WAS CRYING, AND I COULDN'T STAND THE CRYING AND I WANTED THE BABY TO STOP CRYING, AND I SHOOK THE BABY. Why would anyone deny that shaking a baby is dangerous? Published peer-reviewed medical literature regarding AHT is extensive,[52,53]

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and clinical experience and reasoning by thousands of physicians leaves no doubt that infants and young children sustain head and brain injury by those who are entrusted to care for them. There is much still to learn about the infant brain, its response to trauma, and approaches for early detection and prevention of abuse. But to deny the existence of SBS or AHT based on imperfect biomechanical models, faulty mathematical papers, reliance on unique alternative theories of causation, and intolerance for the imperfection of clinical research is unreasonable. The opinions offered by Drs. Barnes, Galaznik and Nichols contain truths, but they also contain fabricated, 'alternative facts' that are not substantiated by the medical literature, and are not supported by clinical experience.

I retain the right to amend this report if additional information becomes available.

Sincerely,



Cindy W. Christian, MD

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