No. 17-8151

IN THE

Supreme Court of the United States

RUSSELL BUCKLEW,

Petitioner,

v.

ANNE PRECYTHE, *et al.*,

Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Eighth Circuit

PUBLIC JOINT APPENDIX—VOLUME I OF II

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PETITON FOR CERTIORARI FILED MARCH 15, 2018
CERTIORARI GRANTED APRIL 30, 2018

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U.S. DISTRICT COURT
WESTERN DISTRICT OF MISSOURI (KANSAS CITY)

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Civil Docket for Case #: 4:14-cv-08000-BP

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BUCKLEW

v.

PRECYTHE, *et al.*

———

RELEVANT DOCKET ENTRIES

DATE	NO.	PROCEEDINGS
05/09/2014	1	COMPLAINT against All Defendants filed by Cheryl Ann Pilate on behalf of Russell Bucklew. Filing fee $400, receipt number Pending. Service due by 9/11/2014. (Attachments: # 1 Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Civil Cover Sheet)(Diefenbach, Tracy) (Attachment 2 replaced on 5/9/2014) (Diefenbach, Tracy). (Entered: 05/09/2014)
		* * *
03/18/2015	29	ORDER. This matter comes before the Court on the Eighth Circuit's opinion regarding this Court's denial of Bucklew's Motions for Stay of Execution and an Injunction and sua

DATE	NO.	PROCEEDINGS
		sponte dismissal of his claims, (Docs. 27 and 28). Bucklew is ORDERED to file an amended complaint that meets the pleading requirements for his Eighth Amendment claim within 14 days of the date of this Order. Signed on 3/18/2015 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 03/18/2015)
04/01/2015	30	AMENDED COMPLAINT against All Defendants filed by Cheryl Ann Pilate on behalf of All Plaintiffs. (Attachments: # 1 Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Exhibit 4)(Pilate, Cheryl) (Entered: 04/01/2015)
		* * *
05/01/2015	37	AMENDED COMPLAINT *(Second Amended)* against All Defendants filed by Cheryl Ann Pilate on behalf of Russell Bucklew. (Attachments: # 1 Exhibit 1 - Declaration of Dr. Zivot, # 2 Exhibit 2 - Declaration of Dr. Jamroz, # 3 Exhibit 3 - Declaration of Dr. Sasich, # 4 Exhibit 4 - Supplemental Affidavit of Dr. Zivot)(Pilate, Cheryl) (Entered: 05/01/2015)
		* * *
06/18/2015	46	AMENDED COMPLAINT *(Third Amended Complaint)* against All Defendants filed by Cheryl Ann

DATE	NO.	PROCEEDINGS
		Pilate on behalf of Russell Bucklew. (Attachments: # 1 Exhibit A - Declaration of Dr. Zivot, # 2 Exhibit B - Declaration of Dr. Jamroz, # 3 Exhibit C - Declaration of Dr. Sasich, # 4 Exhibit D - Affidavit of Dr. Zivot) (Pilate, Cheryl) Modified on 6/23/2015 at the request of counsel to correct document quality. Attachment 1&2 replaced. NEF regenerated. (Travis, Kendra). (Entered: 06/18/2015)
		* * *
10/13/2015	53	AMENDED COMPLAINT, *Fourth Amended Complaint*, against All Defendants filed by Cheryl Ann Pilate on behalf of Russell Bucklew. (Attachments: # 1 Exhibit 1 - Dr. Zivot Declaration, # 2 Exhibit 2 - Dr. Jamroz Declaration, # 3 Exhibit 3 - Dr. Sasich Declaration, # 4 Exhibit 4 - Dr. Zivot Supplemental Affidavit, # 5 Exhibit 5 - Dr. Zivot Declaration, # 6 Exhibit 6 - Photographs)(Pilate, Cheryl) (Entered: 10/13/2015)
		* * *
11/02/2015	55	MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM filed by Michael Joseph Spillane on behalf of All Defendants. Suggestions in opposition/response due by 11/19/2015 unless otherwise directed by the court. (Attachments: # 1

DATE	NO.	PROCEEDINGS
		Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3)(Spillane, Michael) (Entered: 11/02/2015)
		* * *
12/04/2015	61	SUGGESTIONS in opposition re 55 MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM filed by Cheryl Ann Pilate on behalf of Plaintiff Russell Bucklew. Reply suggestions due by 12/21/2015 unless otherwise directed by the court (Attachments: # 1 Exhibit 1 - Information regarding gases, # 2 Exhibit 2 - Request for information under Sunshine Act and response, # 3 Exhibit 3 - Declaration of Dr. Zivot dated 12-4-15, # 4 Exhibit 4 - Request for funding filed in Bucklew v. Roper, # 5 Exhibit 5 - Suggestions in Opposition filed by Missouri Attorney General's office to Petitioner's funding request, # 6 Exhibit 6 - Order in Cornell v. Florida, # 7 Exhibit 7 - Transcript excerpt of oral argument in Bucklew v Lombardi)(Related document(s) 55) (Pilate, Cheryl) (Entered: 12/04/2015)
12/17/2015	62	REPLY SUGGESTIONS to motion re 55 MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM *Reply Suggestions in Support of Motion to Dismiss Fourth Amended*

DATE	NO.	PROCEEDINGS
		Complaint filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell. (Related document(s) 55) (Spillane, Michael) (Entered: 12/17/2015)
01/29/2016	63	ORDER granting in part and denying in part 55: Defendants' Motion to Dismiss is GRANTED in part and DENIED in part. Counts II and III are dismissed. Defendants shall file an Answer to Count I within 28 days of this Order. Signed on 1/29/16 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 01/29/2016)
		* * *
07/18/2016	100	TRIAL BRIEF, *Brief on Scope of Requested Discovery* by Russell Bucklew. (Pilate, Cheryl) (Entered: 07/18/2016)
		* * *
07/28/2016	102	TRIAL BRIEF *Defendant's Brief on the Scope of Discovery* by David Dormire, George A Lombardi, Terry Russell. (Spillane, Michael) (Entered: 07/28/2016)
		* * *
08/11/2016	105	ORDER REGARDING SCOPE OF DISCOVERY. This Order provides guidance regarding the scope of

DATE	NO.	PROCEEDINGS
		discovery in this case. Signed on 8/11/16 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 08/11/2016)
		* * *
03/23/2017	169	NOTICE (SEALED) by Russell Bucklew *Motion to Compel and Exhibits per Order 166* (Attachments: # 1 Exhibit re 166, # 2 Exhibit re 166, # 3 Exhibit re 166)(Pilate, Cheryl) (Entered: 03/23/2017)
03/23/2017	170	NOTICE of filing *Exhibits in Support of Motion to Compel 169* by Russell Bucklew (Attachments: # 1 Exhibit 1-Defendants' Response to 1st RFPs, # 2 Exhibit 2-Def. Lombardi's Response to 1st interrogatories, # 3 Exhibit 3-Production Log, # 4 Exhibit 4-Def. Lombardi's Supplemental Response, # 5 Exhibit 5-Email re Lombardi's Response, # 6 Exhibit 6-Def. Lombardi's Response to 1st RFA, # 7 Exhibit 9-Def. Lombardi's Deposition Transcript, # 8 Exhibit 10-Open Portion of Protocol, # 9 Exhibit 11-Email re 2nd Supp RFP, # 10 Exhibit 12-Email re Lethal Gas, # 11 Exhibit 14-Good Faith Certificates)(Pilate, Cheryl) (Entered: 03/23/2017)
		* * *

DATE	NO.	PROCEEDINGS
03/29/2017	172	MOTION to seal document *Motion for Leave to File Suggestions in Opposition under seal* filed by Michael Joseph Spillane on behalf of All Defendants. Suggestions in opposition/ response due by 4/12/2017 unless otherwise directed by the court. (Spillane, Michael) (Entered: 03/29/2017)
03/29/2017	173	SUGGESTIONS in opposition (SEALED) re 172 MOTION to seal document *Motion for Leave to File Suggestions in Opposition under seal Suggestions in Opposition to Motion to Compel Discover* filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell, Troy Steele. Reply suggestions due by 4/12/2017 unless otherwise directed by the court. (Attachments: # 1 Exhibit A, # 2 Exhibit B, # 3 Exhibit C, # 4 Exhibit D, # 5 Exhibit E, # 6 Exhibit F, # 7 Exhibit G, # 8 Exhibit H, # 9 Exhibit I, # 10 Exhibit J, # 11 Exhibit K, # 12 Exhibit L, # 13 Exhibit M, # 14 Exhibit N, # 15 Exhibit O, # 16 Exhibit P)(Related document(s) 172) (Spillane, Michael) (Entered: 03/29/2017)
03/29/2017	174	SUGGESTIONS in opposition re 172 MOTION to seal document *Motion for Leave to File Suggestions in*

DATE	NO.	PROCEEDINGS
		Opposition under seal Redacted suggestions in opposition for public docket sheet filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell, Troy Steele. Reply suggestions due by 4/12/2017 unless otherwise directed by the court. (Related document(s) 172) (Spillane, Michael) (Entered: 03/30/2017)
		* * *
04/05/2017	178	MOTION to seal document filed by Cheryl Ann Pilate on behalf of Russell Bucklew. Suggestions in opposition/response due by 4/19/2017 unless otherwise directed by the court. (Attachments: # 1 Exhibit - Proposed Sealed Exhibit)(Pilate, Cheryl) (Entered: 04/05/2017)
		* * *
04/06/2017	180	ORDER denying 178 motion to file document under seal. The Court will review Plaintiff's Motion to Compel and will contact the parties if it believes that a review of M3's deposition is necessary to resolve issues raised in that motion. In the meantime, M3's deposition should not be filed in this case. Signed on 4/6/2017 by District Judge Beth Phillips. This is a TEXT ONLY

DATE	NO.	PROCEEDINGS
		ENTRY. No document is attached. (Wolfe, Steve) (Entered: 04/06/2017)
04/10/2017	181	MOTION for summary judgment filed by Michael Joseph Spillane on behalf of All Defendants. Suggestions in opposition/response due by 5/1/2017 unless otherwise directed by the court. (Spillane, Michael) (Entered: 04/10/2017)
04/10/2017	182	SUGGESTIONS in support re 181 MOTION for summary judgment filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell, Troy Steele. (Attachments: # 1 Exhibit 1-Dr. Zivot Depo w Exhibits, part 1, # 2 Exhibit 1-Dr. Zivot Depo w Exhibits, part 2, # 3 Exhibit 1-Dr. Zivot Depo w Exhibits, part 3, # 4 Exhibit 2-Article, # 5 Exhibit 3-Dr. Antognini Depo, # 6 Exhibit 4-Redacted Briesacher Depo, # 7 Exhibit 5-Redacted Dormire Depo, # 8 Exhibit 6-Redacted Lombardi Depo, part 1, # 9 Exhibit 6-Redacted Lombardi Depo, part 2, # 10 Exhibit 6-Redacted Lombardi Depo, part 3, # 11 Exhibit 7-Redacted Precythe Depo, # 12 Exhibit 8-Redacted Steele Depo, # 13 Exhibit 9-Dr. Stephens Depo, # 14 Exhibit 10-Dr. McKinney Depo, # 15 Exhibit 11-Bucklew 2008 and 2009 Pleadings and Orders)

DATE	NO.	PROCEEDINGS
		(Related document(s) 181) (Spillane, Michael) (Entered: 04/10/2017)
04/11/2017	183	ORDER GRANTING IN PART AND DENYING IN PART PLAINTIFF'S MOTION TO COMPEL (Doc. 169 . See Order for details. Signed on 4/11/17 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 04/11/2017)
		* * *
05/15/2017	190	NOTICE (SEALED) by Russell Bucklew *filing sealed version of Reply Brief in Support of Motion to Compel Discovery, unredacted version of Doc. 177* (Pilate, Cheryl) (Entered: 05/15/2017)
		* * *
05/15/2017	192	MOTION to seal document - *Motion to Seal Portion of Plaintiff's Suggestions in Opposition to Motion for Summary Judgment and to Seal Three Exhibits* filed by Cheryl Ann Pilate on behalf of Russell Bucklew. Suggestions in opposition/response due by 5/30/2017 unless otherwise directed by the court. (Attachments: # 1 Exhibit Plaintiff's Suggestions in Opposition to Defendant's Motion for Summary Judgment - Partially Redacted, # 2 Index of Exhibits, # 3 Exhibit 1 - Procedure for Execution - Redacted, # 4 Exhibit 2 - Dormire

DATE	NO.	PROCEEDINGS
		Affidavit, # 5 Exhibit 3 - Defendants' Response to Plaintiff's Request for Admission, # 6 Exhibit 4 - Bucklew Pre-execution Medical Summary, # 7 Exhibit 5 - Excerpt of Prison File, # 8 Exhibit 6 - Excerpt of Medical Records, # 9 Exhibit 7 - Excerpt of Dormire deposition - Redacted, # 10 Exhibit 8 - Excerpt of Steele deposition - Redacted, # 11 Exhibit 9 - Witness statements, # 12 Exhibit 10 - Blank Pre-execution Summary of Medical History, # 13 Exhibit 11 - Oklahoma House Bill 1879, # 14 Exhibit 12 - Oklahoma MCGJ Interim Report, # 15 Exhibit 13 - Report of Oklahoma Death Penalty Review Commission, # 16 Exhibit 14 - Lombardi supplemental interrogatory response, # 17 Exhibit 15 - Louisiana Report by Dept of Public Safety)(Pilate, Cheryl) (Entered: 05/15/2017)
05/15/2017	193	MOTION for leave to file *Supplemental Suggestions in Opposition* filed by Cheryl Ann Pilate on behalf of Russell Bucklew. Suggestions in opposition/response due by 5/30/2017 unless otherwise directed by the court. (Attachments: # 1 Exhibit 1 - Proposed Supplement to Plaintiff's Suggestions in Opposition to Defendant's Motion for

DATE	NO.	PROCEEDINGS
		Summary Judgment)(Pilate, Cheryl) (Entered: 05/15/2017)
		* * *
05/16/2017	197	NOTICE (SEALED) by Russell Bucklew re 195 Order on Motion to Seal Document, *Suggestions in Opposition to Defendants' Motion for Summary Judgment* (Attachments: # 1 Exhibit Ex 1 Execution Procedure (UNREDACTED), # 2 Exhibit Ex 7 Excerpt of Dormire Deposition (UNREDACTED), # 3 Exhibit Ex 8 Excerpt of Steele Deposition (UNREDACTED))(Pilate, Cheryl) (Entered: 05/16/2017)
05/16/2017	198	ORDER denying 193 : Plaintiff's Motion for Leave to File Supplemental Suggestions in Opposition is DENIED. Signed on 5/16/17 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 05/16/2017)
05/16/2017	199	NOTICE of filing *Redacted Suggestions in Opposition to Defendants' Motion for Summary Judgment (unredacted version filed as Doc 197)* by Russell Bucklew (Attachments: # 1 Exhibit 2 - Dormire affidavit, # 2 Exhibit 3 - Defendants' Response to Plaintiff's Request for Admission, # 3 Exhibit 4 - Pre-execution Medical Summary, #

DATE	NO.	PROCEEDINGS
		4 Exhibit 5 - Excerpt of Prison File, # 5 Exhibit 6 - Excerpt of Medical Records, # 6 Exhibit 9 - Witness statements, # 7 Exhibit 10 - Blank Pre-execution summary, # 8 Exhibit 11 - Oklahoma House Bill 1879, # 9 Exhibit 12 - Oklahoma MCGJ Interim Report, # 10 Exhibit 13 - Report of Oklahoma Death Penalty Review Commission, # 11 Exhibit 14 - Lombardi supplemental answer to interrogatory, # 12 Exhibit 15 - Louisiana Report by Dept of Public Safety)(Pilate, Cheryl) (Entered: 05/16/2017)
05/30/2017	200	REPLY SUGGESTIONS to motion re 181 MOTION for summary judgment *Reply in Support of Defendants' Motion for Summary Judgment* filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell, Troy Steele. (Related document(s) 181) (Spillane, Michael) (Entered: 05/30/2017)
		* * *
06/15/2017	202	ORDER Defendants Motion for Summary Judgment on Count I is GRANTED. 181 Signed on 6/15/2017 by District Judge Beth Phillips. (McIlvain, Kelly) (Entered: 06/15/2017)
		* * *

DATE	NO.	PROCEEDINGS
07/14/2017	210	MOTION for Order (SEALED) *Plaintiff's Motion to Alter or Amend Judgment - Unredacted* filed by Cheryl Ann Pilate on behalf of Russell Bucklew. Suggestions in opposition/response due by 7/28/2017 unless otherwise directed by the court. (Pilate, Cheryl) (Entered: 07/14/2017)
07/14/2017	211	SUGGESTIONS in opposition re 210 MOTION for Order (SEALED) *Plaintiff's Motion to Alter or Amend Judgment - Unredacted* filed by Michael Joseph Spillane on behalf of Defendants David Dormire, George A Lombardi, Terry Russell, Troy Steele. Reply suggestions due by 7/28/2017 unless otherwise directed by the court. (Related document(s) 210) (Spillane, Michael) (Entered: 07/14/2017)
		* * *
07/17/2017	214	ORDER DENYING PLAINTIFF'S REQUEST FOR ACCESS TO DEPOSITIONS TAKEN IN OTHER CASES. Signed on 7/17/17 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 07/17/2017)
		* * *
07/24/2017	216	REDACTED ELECTRONIC TRANSCRIPT of Teleconference held 3/15/2017 before Judge Beth Phillips.

DATE	NO.	PROCEEDINGS
		Court Reporter: Katie Wirt, 816-512-5608, katie_wirt@mow.uscourts.gov. Number of pages: 31. Related document 164 Electronic Transcript. **Release of Transcript Restriction set for 6/19/2017.**(Wirt, Katie) (Entered: 07/24/2017)
07/28/2017	217	NOTICE of filing *of discovery dispute summaries of Plaintiff and Defendants relating to Order issued as Doc. 214* by Russell Bucklew (Attachments: # 1 Exhibit 1 - Plaintiff's discovery dispute summary, # 2 Exhibit 2 - Defendants' discovery dispute summary)(Pilate, Cheryl) (Entered: 07/28/2017)
		* * *
07/31/2017	220	REPLY SUGGESTIONS to motion (Sealed) re 210 MOTION for Order (SEALED) *Plaintiff's Motion to Alter or Amend Judgment - Unredacted* filed by Cheryl Ann Pilate on behalf of Plaintiff Russell Bucklew. (Related document(s) 210) (Pilate, Cheryl) (Entered: 07/31/2017)
08/21/2017	221	ORDER denying 210 : Plaintiff's Motion to Alter or Amend Judgment is DENIED. Signed on 8/21/17 by District Judge Beth Phillips. (Cordell, Annette) (Entered: 08/21/2017)
		* * *

DATE	NO.	PROCEEDINGS
09/19/2017	224	NOTICE OF APPEAL by Russell Bucklew. (Pilate, Cheryl) (Entered: 09/19/2017)
		* * *
03/06/2018	229	USCA Judgment and/or Opinion as to 224 Notice of Appeal filed by Russell Bucklew **This is a preliminary judgment and/or opinion of U.S. Court of Appeals; jurisdiction is not recovered until the Mandate is issued by the U.S Court of Appeals. It is hereby ordered and adjudged that the judgment of the district court in this cause is affirmed in accordance with the opinion of this Court.** (Attachments: # 1 Opinion) (Crespo, Wil) (Entered: 03/06/2018)
03/15/2018	230	ORDER of US COURT OF APPEALS: Bucklews motion for stay of execution has been considered by the court and is denied. (Crespo, Wil) (Entered: 03/15/2018)
03/19/2018		WRIT OF CERTIORARI Petition filed on 3/15/2018. 8th Circuit Court of Appeals Case Number: 17-3052. This is a text entry only. There is no document attached. (Crespo, Wil) (Entered: 03/19/2018)

DATE	NO.	PROCEEDINGS
03/21/2018	231	ORDER of Supreme Court: The application for stay of execution of sentence of death is granted. (Crespo, Wil) (Entered: 03/21/2018)

* * *

UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT

Court of Appeals Docket #: 17-3052

RUSSELL BUCKLEW,

v.

ANNE PRECYTHE, ET AL.

RELEVANT DOCKET ENTRIES

DATE	PROCEEDINGS
	* * *
09/21/2017	Originating court document filed consisting of notice of appeal filed 9/19/17, Order & Judgment filed 6/15/17, Order denying motion to alter or amend Judgment, & docket entries, [4581535] [17-3052] (JMH) [Entered: 09/21/2017 02:37 PM]
	* * *
10/05/2017	STATEMENT of issues filed by Appellant Mr. Russell Bucklew - w/service 10/05/2017. [4586941] [17-3052] (RNH) [Entered: 10/05/2017 04:24 PM]
	* * *
12/01/2017	**BRIEF FILED** - APPELLANT BRIEF filed by Mr. Russell Bucklew. w/service 11/30/2017 , Length: 12,481 words **10 COPIES OF PAPER BRIEFS**

DATE	PROCEEDINGS
	WITHOUT THE APPELLATE PDF HEADER FROM Russell Bucklew due 12/06/2017 WITH certificate of service for paper briefs . Brief of Appellees David Dormire, Anne L. Precythe and Troy Steele due on 01/02/2018 [4606035] [17-3052] (MER) [Entered: 12/01/2017 11:22 AM]
12/01/2017	**ADDENDUM** of APPELLANT FILED by Appellant Mr. Russell Bucklew , w/service 11/30/2017 [4606037] [17-3052] (MER) [Entered: 12/01/2017 11:23 AM]
	* * *
12/01/2017	RECORD FILED - APLNT/PET APPENDIX, 5 volumes, Location STL, 1 box, Comments: 3 sets - *** Volume V SEALED *** [4606055] [17-3052] (MER) [Entered: 12/01/2017 11:38 AM]
	* * *
01/03/2018	**BRIEF FILED** - APPELLEE BRIEF filed by David Dormire, Anne L. Precythe and Troy Steele, w/service 01/02/2018 , Length: 12,896 words **10 COPIES OF PAPER BRIEFS WITHOUT THE APPELLATE PDF HEADER FROM David Dormire, Anne L. Precythe and Troy Steele due 01/08/2018 WITH certificate of service for paper briefs** . Reply brief of Russell Bucklew due on 01/17/2018. [4616364] [17-3052] (MER) [Entered: 01/03/2018 04:19 PM]

DATE	PROCEEDINGS

* * *

01/18/2018	**BRIEF FILED** - APPELLANT REPLY BRIEF filed by Mr. Russell Bucklew. w/service 01/18/2018 , Length: 6,465 words **10 COPIES OF PAPER BRIEFS WITHOUT THE APPELLATE PDF HEADER FROM Russell Bucklew due 01/23/2018 WITH certificate of service for paper briefs** [4620909] [17-3052] (AMT) [Entered: 01/18/2018 09:35 AM]

* * *

01/29/2018	RECORD FILED - APLEE/RES APPENDIX, 1 volume, Location STL, Comments: 3 copies [4624245] [17-3052] (MER) [Entered: 01/29/2018 01:39 PM]
02/02/2018	**ARGUED & SUBMITTED in St. Paul** to Judges Roger L. Wollman, James B. Loken, Steven M. Colloton on 02/02/2018. Mr. Robert N. Hochman for Appellant Mr. Russell Bucklew and Mr. Joshua Divine for Appellees David Dormire, Troy Steele and Anne L. Precythe. Rebuttal by Mr. Robert N. Hochman for Mr. Russell Bucklew RECORDED. Click Here To Listen to Oral Argument [4626247] [17-3052] (CYZ) [Entered: 02/02/2018 11:32 AM]
03/06/2018	OPINION FILED - THE COURT: Roger L. Wollman, James B. Loken and Steven M. Colloton AUTHORING JUDGE:James B. Loken (PUBLISHED), DISSENT BY:

DATE	PROCEEDINGS
	Steven M. Colloton [4636271] [17-3052] (MER) [Entered: 03/06/2018 11:10 AM]
03/06/2018	**JUDGMENT FILED -** The judgment of the Originating Court is AFFIRMED in accordance with the opinion. ROGER L. WOLLMAN, JAMES B. LOKEN and STEVEN M. COLLOTON Hrg Feb 2018 [4636289] [17-3052] (MER) [Entered: 03/06/2018 11:25 AM]
03/09/2018	PETITION for enbanc rehearing and also for rehearing by panel filed by Appellant Mr. Russell Bucklew w/service 03/09/2018 [4638004] [17-3052] (RNH) [Entered: 03/09/2018 02:20 PM]
	* * *
03/09/2018	**ADDENDUM in Support of PETITION FOR REHEARING EN BANC** FILED by Appellant Mr. Russell Bucklew , w/service 03/09/2018 [4638064] [17-3052] (SRD) [Entered: 03/09/2018 03:27 PM]
03/09/2018	MOTION for stay of execution, filed by Attorney Mr. Robert N. Hochman for Appellant Mr. Russell Bucklew w/service 03/09/2018. [4638012] [17-3052] (RNH) [Entered: 03/09/2018 02:25 PM]
03/10/2018	RESPONSE in opposition to motion for stay [4638012-2] filed by Attorney Mr. Joshua Divine for Appellees David Dormire, Anne L. Precythe and Troy Steele , w/service 03/10/2018. [4638134] [17-3052] (JD) [Entered: 03/10/2018 10:12 AM]

DATE	PROCEEDINGS
03/12/2018	REPLY to motion [4638012-2] filed by Appellant Mr. Russell Bucklew w/service 03/12/2018. [4638199] [17-3052] (RNH) [Entered: 03/12/2018 09:00 AM]
03/15/2018	JUDGE ORDER: PUBLISHED.; [4638004-2] Hrg Feb 2018 [4639783] [17-3052] SMITH, Chief Judge, WOLLMAN, LOKEN, COLLOTON, GRUENDER, SHEPHERD, KELLY, ERICKSON, GRASZ and STRAS, Circuit Judges DISSENT: Judge Kelly Appellant Bucklew's petition for rehearing by panel is denied. Judge Colloton would grant the petition for rehearing by panel. Appellant Bucklew's petition for rehearing en banc has been considered by the court and the petition is denied. Chief Judge Smith and Judge Kelly would grant the petition. Judge Colloton and Judge Gruender would grant rehearing en banc on Point I of the petition for rehearing en banc. Judge Duane Benton took no part in the consideration or decision of the petition for rehearing en banc. (SRD) [Entered: 03/15/2018 09:30 AM]
03/15/2018	JUDGE ORDER: Bucklew's motion for stay of execution has been considered by the court and is denied. [4638012-2] PUBLISHED ORDER. Hrg Feb 2018 [4640068] [17-3052] (MER) [Entered: 03/15/2018 04:12 PM]
03/15/2018	JUDGE ORDER: A judge in regular active service having requested a poll on

DATE	PROCEEDINGS
	whether to hear Bucklew's motion for stay of execution en banc, a poll was conducted. A majority of the judges in regular active service did not vote to hear the motion en banc. Judge Kelly would hear the motion en banc. Judge Benton took no part in the consideration of this motion. PUBLISHED ORDER. Hrg Feb 2018 [4640079] [17-3052] (MER) [Entered: 03/15/2018 04:29 PM]

* * *

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI

Case No. 14-08000

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, DAVID A. DORMIRE, and TERRY RUSSELL,

Defendants.

FIRST AMENDED COMPLAINT

* * *

114. Mr. Bucklew is mindful of the Court's direction to allege a "feasible, alternative method." This requirement has been satisfied by the detailed allegations concerning Mr. Bucklew's medical condition and identification of specific risks posed by Missouri's lethal injection protocol. It is up to the State of Missouri, not Plaintiff, to obtain adequate diagnostic imaging of Mr. Bucklew and to make adjustments that appear to be warranted by the results of the imaging studies.

* * *

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI

Case No. 14-08000

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, DAVID A. DORMIRE,
and TERRY RUSSELL,

Defendants.

SECOND AMENDED COMPLAINT

* * *

16. Mr. Bucklew recognizes that this Court has directed him to identify a "feasible and readily implemented alternative procedure that will *significantly* reduce a substantial risk of severe pain that the State refuses to adopt." Order of March 18, 2015 at 1 (emphasis in original).

17. However, any effort to identify an "alternative procedure" first requires a proper evaluation of Mr. Bucklew's present medical condition – which has continued to worsen in the past year – and the risks posed to him by an execution under Missouri's protocol.

18. To properly identify and evaluate the risks that are unique and specific to Mr. Bucklew, it is necessary that Mr. Bucklew receive a thorough medical examination, including a high resolution CT scan of his chest, head, neck and brain. Absent a physical exam and up-to-date imaging, any attempt to identify a

"feasible and readily implemented alternative procedure" constitutes nothing more than unsupported speculation.

19. Further, Mr. Bucklew needs the opportunity to conduct basic discovery to ascertain what adjustments or changes the DOC is prepared or willing to make and which changes they may refuse to adopt. Further, in the event that the risks of lethal injection under any scenario are too substantial, Mr. Bucklew needs to ascertain whether Missouri is prepared to proceed with any other method of execution.

20. Mr. Bucklew and his counsel lack medical and scientific expertise, and, further, lack adequate information about Mr. Bucklew's medical condition and the capabilities of the DOC. Under such circumstances, one cannot plausibly – or in good faith – propose a "feasible and readily implemented alternative procedure." Therefore, as will be explained in upcoming motions for discovery and for the appointment of experts, Mr. Bucklew intends to seek the information that would be necessary for him to litigate this case under the standard set forth by this Court.

* * *

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
WESTERN DIVISION

Case No. 14-08000-CV-W-BP

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, *et al.*,

Defendants.

ORDER

This matter comes before the Court on Plaintiff's Motion for Leave to File a Third Amended Complaint, (Doc. 39), Defendants' Motion to Dismiss, (Doc. 38), and Plaintiff's Motion to Extend the Deadline for Filing Response to Defendants' Motion to Dismiss, (Doc. 41). For the following reasons, Plaintiff's Motion for Leave to File a Third Amended Complaint is GRANTED, and Plaintiff's Motion for [sic] Extend the Deadline and Defendants' Motion are DENIED as moot.

In his Motion for Leave to File an Amended Complaint, Plaintiff contends the Court must grant him leave to amend his complaint because Rule 15(a) affords him a right to amend his complaint as a matter of course within 21 days of the filing of a responsive pleading. The Eighth Circuit has held that whether a plaintiff exercises the right to amend via a motion with the Court or by simply filing the amended complaint is irrelevant. *See Pure Country, Inc. v. Sigma Chi Fraternity*, 312 F.3d 952, 956 (8th Cir. 2002).

Specifically, the Eighth Circuit has stated: "seeking leave to amend does not, by itself, invoke the district court's discretionary authority to deny leave if the amendment would otherwise fall within the purview of the first sentence of Rule 15(a)." *Id.* (rejecting the argument that "the mere act of filing a motion to amend or seeking leave to amend negates the otherwise applicable 'as a matter of course' language of Rule 15(a)," if that is the portion of the Rule under which plaintiff seeks leave to amend).

Here, because Plaintiff specifically sought leave to file an amended complaint "as a matter of course" under Rule 15(a) within 21 days after Defendants filed their Motion to Dismiss, he has the right to file his Third Amended Complaint as a matter of course. *See* Fed. R. Civ. P. 15(a); *Pure Country*, 312 F.3d at 956. Therefore, Plaintiff shall be granted leave to file his Third Amended Complaint within 3 days of the date of this Order. Because the Third Amended Complaint may raise additional issues that Defendants have not discussed in their pending Motion to Dismiss, the Court will also deny as moot Defendants' Motion so that they may address any additional issues in a second motion to dismiss specific to the Third Amended Complaint.

Accordingly, Plaintiff's Motion for Leave to File a Third Amended Complaint, (Doc. 39), is GRANTED. Plaintiff shall file his Third Amended Complaint within 3 days of the date of this Order. Further, Defendants' Motion to Dismiss, (Doc. 38), is DENIED as moot. However, Defendants may file a motion to dismiss specific to the Third Amended Complaint in accordance with the Federal Rules of Civil Procedure. Additionally, as the Court has denied Defendants' Motion to Dismiss as moot, Plaintiff's Motion to Extend the Deadline for

Filing Response to Defendants' Motion to Dismiss, (Doc. 41), is also DENIED as moot.

IT IS SO ORDERED.

/s/ Beth Phillips
BETH PHILLIPS, JUDGE
UNITED STATES DISTRICT COURT

DATE: June 16, 2015

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
WESTERN DIVISION

Case No. 14-08000-CV-W-BP

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, *et al.*,

Defendants.

ORDER DIRECTING PLAINTIFF TO FILE FOURTH AMENDED COMPLAINT

Pending is Defendants' Motion to Dismiss Plaintiff's Third Amended Complaint. (Doc. 47.) The Court agrees with Defendants that Count I of the Third Amended Complaint fails to state a claim, but instead of dismissing the case the Court elects to afford Plaintiff one last opportunity to properly plead his claim.

I. BACKGROUND

As the Court previously observed on May 19, 2014, (Doc. 17, p. 1), the background of a related case is relevant to this litigation. In 2012, Bucklew and others filed suit against these same defendants in the Circuit Court of Cole County, Missouri, and Defendants removed the suit to this Court. That suit has been, and in this Order will be, referred to as either "the *Zink* litigation" or simply "*Zink*" because that was the name of the lead plaintiff. For ease of reference, *Zink*'s case

number was 12-CV-4209-BP.[1] The Court directs the reader to its May 19, 2014 Order for the history of these two cases, and begins here with a recounting of events near that date.

Among other claims, *Zink* alleged that Missouri's death penalty protocol constituted cruel and unusual punishment in violation of the Eighth Amendment. The Court dismissed that claim because the plaintiffs expressly declined to identify an available alternative that did not pose the risks of pain and suffering they had alleged. Meanwhile, Bucklew commenced this suit on May 9, 2014. Count I of Bucklew's Complaint alleged a violation of his Eighth Amendment rights because administering lethal injection to a person with his particular medical condition would constitute cruel and unusual punishment. This claim focused on the fact that Bucklew suffers from a congenital condition known as cavernous hemangioma, which raises unique issues regarding the efficacy and risks of intravenous drugs used in in Missouri's lethal injection protocol. Like the *Zink* Complaint, Bucklew's Complaint failed to allege a feasible and available alternative that would significantly reduce the risk of severe pain and suffering. For that reason, on May 19, 2014 the Court dismissed Bucklew's Complaint *sua sponte* without affording him an opportunity to amend, explaining that Bucklew had declined such an invitation in *Zink* so affording him a chance to do so in this case would be futile. (Doc. 17, p. 12.)

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[1] "The district court may take judicial notice of public records and may thus consider them on a motion to dismiss." *Stahl v. United States Dep't of Agriculture*, 327 F.3d 697, 700 (8th Cir. 2003).

Both dismissals were appealed, and the Eighth Circuit issued decisions in both cases on March 6, 2015.[2] In the *Zink* appeal, the Court of Appeals affirmed the dismissal of Count I and explained that

> to establish a constitutional violation, an inmate ultimately must prove that another execution procedure exists that is feasible and readily implemented, and that the alternative method will significantly reduce a substantial risk of severe pain. *The existence of such an alternative method of execution, therefore, is a necessary element of an Eighth Amendment claim, and this element—like any element of a claim—must be pleaded adequately.*

Zink v. Lombardi, 783 F.3d 1089, 1103 (8th Cir.) (en banc) (per curiam), *cert. denied,* 135 S. Ct. 2941 (2015) (citations omitted; emphasis supplied).

However, the Eighth Circuit vacated the dismissal of Bucklew's Complaint and remanded. The Court of Appeals explained that Defendants' alteration of the protocol in light of Bucklew's medical condition

> tended to support Bucklew's detailed allegations that the State had unreasonably refused to change its regular method of execution to a feasible, readily implemented alternative that would significantly reduce the substantial risk of pain. At a minimum, it should have warned the court not to assume that Bucklew would decline an invitation to amend the as-applied challenge in his complaint simply because the *Zink* plaintiffs had

[2] There is more to the intervening history, particularly with respect to Bucklew's appeal, but none of it is relevant to the present proceeding.

> declined to amend the very different facial challenge in their complaint.

Bucklew v. Lombardi, 783 F.3d 1120, 1127 (8th Cir. 2015) (en banc). After the Mandate was issued, the Court ordered Bucklew to

> file an amended complaint that meets the pleading requirements for his Eighth Amendment claim and is consistent with the Eighth Circuit's opinions in *Bucklew* and *Zink* . . . . Specifically and in addition to alleging sufficient facts indicating that the execution protocol as applied to him creates a substantial risk of serious harm, Bucklew's amended complaint must identify a feasible, and readily implemented alternative procedure that will significantly reduce a substantial risk of severe pain that the State refuses to adopt. Any assertion that all methods of execution are unconstitutional does not state a plausible claim under the Eighth Amendment or a cognizable claim under § 1983. Bucklew is advised that failure to amend his complaint to comply with the pleading standard discussed in this Order and the Eighth Circuit's opinions will result in dismissal of his Eighth Amendment claim.

(Doc. 29, p. 1 (quotations, citations, and emphasis deleted).) Afterward, Bucklew filed his Amended Complaint. Later, Bucklew was given leave to file a Second Amended Complaint. (Doc. 37.) After Defendants filed a Motion to Dismiss, (Doc. 38), Bucklew responded with a request to file his Third Amended Complaint. (Doc. 39.) The Court again granted Bucklew's request (Doc. 45.) and Bucklew filed his Third Amended Complaint. (Doc. 46.) While the factual allegations have changed and expanded with each version of

Bucklew's pleadings, his legal claims and theories have remained largely the same.

The Third Amended Claim contains three counts; the focus here is on Count I, which asserts an Eighth Amendment claim alleging administration of lethal injection on Bucklew would constitute cruel and unusual punishment. Specifically, Count I alleges that executing Bucklew "by lethal injection will cause extreme and needless suffering" due to the effect his medical condition will have on the administration of any lethal injection protocol, which necessarily depends on the circulatory system for proper application of the drugs. (Doc. 46, ¶¶ 144-45, 148.)

Defendants filed a Motion to Dismiss (Doc. 47); the Court will focus on only two arguments. First, Defendants contend the *Rooker/Feldman*[3] doctrine deprives the Court of jurisdiction over all of Bucklew's claims. Second, Defendants argue that Count I should be dismissed even if the Court has jurisdiction because Count I fails to plead the existence of a feasible and alternative method of execution that will significantly reduce the risk of pain and suffering and thus seeks a ruling that Bucklew cannot be executed at all. Bucklew contends the *Rooker/Feldman* doctrine does not apply because there is no state court decision that would be reversed by a ruling in his favor. Bucklew also insists that the Third Amended Complaint alleges that lethal gas is a feasible and available means of execution.

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[3] The doctrine derives its name from the Supreme Court decisions that created it: *Rooker v. Fidelity Trust Co.*, 263 U.S. 413 (1923) and *District of Columbia Court of Appeals v. Feldman*, 460 U.S. 462 (1982).

II. DISCUSSION

* * *

B. Count I – Cruel and Unusual Punishment

1. *Pleading Requirements*

The Supreme Court recently revisited "what a prisoner must establish to succeed on an Eighth Amendment method-of-execution claim." *Glossip v. Gross*, 135 S. Ct. 2726, 2737 (2015). "[D]ecisions in this area have been animated in part by the recognition that because it is settled that capital punishment is constitutional, it necessarily follows that there must be a constitutional means of carrying it out." *Id.* at 2732-33. Moreover, "because some risk of pain is inherent in any method of execution, we have held that the Constitution does not require the avoidance of all risk of pain." *Id.* at 2733. In light of these observations, a prisoner alleging that a particular form of execution is cruel and unusual within the meaning of the Eight [sic] Amendment must first establish that the method to be utilized "presents a risk that is sure or very likely to cause serious illness and needless suffering, and give rise to sufficiently imminent dangers." *Id.* at 2737 (quotations and emphasis deleted). Second, the prisoner must "identify a known and available alternative method of execution that entails a lesser risk of pain, a requirement of all Eight [sic] Amendment method-of-execution claims." *Id*. at 2731. According to *Glossip*, this is not merely a matter of proof: "the Eighth Amendment requires a prisoner to *plead* and *prove* a known and available alternative." *Id.* at 2739 (emphasis supplied).

Glossip was decided after Bucklew filed his Third Amended Complaint. However, *Glossip* confirmed the Eighth Circuit's holding in *Zink* – and *Zink* was

decided before Bucklew filed each of his three amended complaints. Further, the relevant portion of *Zink* was set forth on pages two and three above, and was quoted extensively in the Court's Order directing Bucklew to file an amended complaint. To reiterate: it is not enough to generally concede that other methods of execution would be constitutional. *Zink*, 783 F.3d at 1103. "The existence of such an alternative method of execution . . . is a necessary element of an Eighth Amendment claim, and this element – like any element of a claim – must be pleaded adequately." *Id*. This means a plaintiff cannot present "barebones" or "formulaic" allegations: the complaint must not only identify a feasible and available alternative, but it must present factual information sufficient to plausibly explain why that alternative will significantly reduce the substantial risk of severe pain. *Id*.; *see also id.* at 1098 (discussing pleading standard generally).

2. *The Third Amended Complaint*

The Third Amended Complaint plausibly explains how and why lethal injection will inflict severe pain and suffering on Bucklew: his medical condition creates a substantial risk that any drugs administered into his circulatory system will not act in the manner that is expected and will expose him to a risk of severe pain. However, the Third Amended Complaint lacks any allegations identifying a feasible and available alternative, as well as any allegations that plausibly explain how such an alternative significantly reduces the risk of pain.

Bucklew insists that he has identified an available alternative: lethal gas. However, review of the Third Amended Complaint demonstrates that he has generally labeled lethal gas as an alternative that exists, but has not actually alleged that it will significantly

reduce the risk of pain and suffering. Moreover, the Third Amended Complaint does not provide a plausible explanation as to how lethal gas would reduce the risk. The four instances in which the Third Amended Complaint mentions lethal gas are set forth below:

1. In an introductory section appearing before the Third Amended Complaint's actual allegations, Bucklew asserts that "[w]ith regard to the issue of an 'alternative method,' that method would have to be determined by the State of Missouri, which presently authorizes execution only by lethal injection or lethal gas. Mo. Rev. Stat. § 546.720.1. It is therefore up to the executive and legislative branches of the State of Missouri to determine which alternative methods of execution are both 'feasible' and 'readily implemented.'" (Doc. 46, p. 4.)

2. Paragraph 21 of the Third Amended Complaint largely repeats the first reference to lethal gas.

3. The third reference to lethal gas alleges that Bucklew "needs the opportunity to conduct discovery to ascertain what other methods of execution would be regarded as both 'feasible' and 'readily implemented' by the State of Missouri. Certainly, there are other methods of execution, including lethal gas . . . and Mr. Bucklew needs to be able to conduct necessary discovery concerning these methods." (Doc. 46, ¶ 24.)

4. The final reference to lethal gas merely reconfirms that lethal gas is authorized as a means of execution in Missouri, (Doc. 46, ¶ 30), so it adds nothing to the discussion.

The first two references (which are virtually identical) do not represent that lethal gas is a feasible and available alternative to lethal injection. Moreover,

these statements seek to shift the responsibility for identifying such an alternative to the Defendants, when *Zink* had already held that the responsibility rested with Bucklew. In concert, these allegations are no better than the general allusions to alternatives that the Eighth Circuit found insufficient in *Zink*. *See Zink,* 783 F.3d at 1103.

The third reference contains no information suggesting a plausible reason for believing lethal gas will significantly reduce the severe risk posed by lethal injection. More importantly, the third reference (and Bucklew's response to the Motion to Dismiss) misapprehends his need for discovery. *Zink* rejected this argument:

> The prisoners further contend that they cannot propose a reasonably available alternative method of execution without discovery of information about the State's present suppliers of lethal drugs, so the *Lombardi* rule is unworkable in practice. . . . Their complaint is accompanied by affidavits from experts who criticize the use of compounded pentobarbital as a lethal drug. These or similar experts presumably are in a position to know and to inform the prisoners whether some other lethal drug exists that would significantly reduce the alleged risk of pain arising from the current method. In any event, the Supreme Court has rejected the notion that discovery must be available to a plaintiff who cannot allege sufficient factual matter to suggest plausibly an entitlement to relief.

Zink, 783 F.3d at 1105-06. Bucklew underwent an examination in or around May 2014, and the results of that examination have enabled him to present expert affidavits opining about the effect of lethal injection in light of his physical condition. *Zink* explains that

Bucklew should rely on those same experts to opine about the effects of the chemicals capable of being used in the gas chamber, or rely on them to suggest another means of execution that will significantly reduce the risk of severe pain and suffering occasioned by his cavernous hemangioma. Bucklew can identify as many or as few alternatives as his experts might suggest. If he does so, Defendants will be required to file an Answer, at which time they can contest Bucklew's allegations or adopt one of Bucklew's alternatives.

Bucklew also suggests that he needs to conduct discovery to find out what the State might regard as "available" or "feasible." However, as the concluding passages from the *Zink* quote on the preceding page suggests, a plaintiff does not have the right to conduct discovery before pleading his or her claim. "'Rule 8 marks a notable and generous departure from the hyper-technical, code pleading regime of a prior era, but it does not unlock the doors of discovery for a plaintiff armed with nothing more than conclusions.'" *Id*. at 1106 (quoting *Ashcroft v. Iqbal*, 556 U.S. at 678-79 (2008)). If Defendants deny Bucklew's contention that a particular method of execution is available or feasible, discovery will commence on that issue. And, if such discovery reveals the availability or feasibility of a different, as-yet unpleaded method, there are procedures available to deal with such an eventuality. But a properly pleaded claim comes before, not after, discovery.

Both *Zink* and *Glossip* require Bucklew identify a feasible and available alternative that significantly reduces the risks of severe pain and suffering in order to properly plead this claim. The Third Amended Complaint fails to contain such allegations, and thus fails to state a claim.

3. *Dismissal or Amendment?*

After significant deliberation, the Court exercises its discretion and will permit Bucklew to submit one last Amended Complaint. There are certainly reasons not to permit this opportunity: Bucklew's original Complaint did not plead an alternative despite the Court ordering him to do so in *Zink*. The Eighth Circuit then affirmed the requirement for such allegations in affirming *Zink*. In remanding Bucklew's appeal, the Eighth Circuit specifically directed that "at the earliest possible time, [Bucklew] must identify a feasible, readily implemented alternative procedure that will *significantly* reduce a substantial risk of severe pain and that the State refuses to adopt." *Bucklew*, 783 F.3d at 1128 (emphasis in original). Bucklew then amended his Complaint three more times – and still chose to not include allegations identifying a feasible and available alternative.

Nonetheless, the Court will afford a final opportunity for Bucklew to submit a Complaint that satisfies the pleading requirements. No discovery will be ordered for the reasons stated above.

In granting this opportunity, the Court wishes to be extremely clear: this is fifth and last time Bucklew will be given the opportunity to correctly plead his Eighth Amendment claim.

III. CONCLUSION

Bucklew shall have twenty-one calendar days to file a Fourth Amended Complaint that amends Count I to comply with the pleading requirements for the claim asserted therein. Once this is done, the Court will solicit Defendants' input as to how they wish to proceed.

IT IS SO ORDERED.

/s/ Beth Phillips
BETH PHILLIPS, JUDGE
UNITED STATES DISTRICT COURT

DATE: September 21, 2015

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI

Case No. 14-08000

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, DAVID A. DORMIRE,
and TERRY RUSSELL,

Defendants.

FOURTH AMENDED COMPLAINT

Plaintiff Russell Bucklew, by and through his counsel, hereby files his Fourth Amended Complaint, requesting this Court declare and enforce his rights under the First and Fourteenth Amendments and issue an injunction under 42 U.S.C. § 1983 and the Eighth Amendment commanding defendants not to carry out any execution by lethal injection on him. Because of Mr. Bucklew's unique medical condition, Missouri's execution procedures will almost certainly cause him to suffer a bloody, prolonged and excruciating death.

As required by this Court in light of the Supreme Court's decision in *Glossip v. Gross*, 135 S. Ct. 2726 (2015), Mr. Bucklew specifically alleges a "feasible, alternative" method of execution, lethal gas. This alternative method is specifically authorized by Missouri law, Mo. Rev. Stat. § 546.720.1, and will significantly

reduce the risk of severe pain by avoiding the circulation of the lethal agent through Mr. Bucklew's impaired and abnormal vascular system. (Doc. 52 at 7-8)

Mr. Bucklew suffers from a rare disease – cavernous hemangioma – that is unique, severe, and progressive. Since Mr. Bucklew filed the present lawsuit in May 2014, his condition has grown significantly worse, with the blood-engorged, unstable tumors in his head and throat causing daily pain, regular bleeding, and an ever-enlarging obstruction to his airway, causing him to struggle for air when he lies flat. The blood-filled tumors are prone to rupture under stress or any rise in blood pressure. When this occurs, Mr. Bucklew bleeds through his facial orifices and in his throat, further obstructing his airway and causing him to choke. These vascular abnormalities also create a great risk that the lethal drug will not circulate as intended in Mr. Bucklew's body, leading to a prolonged and very painful death.

Any attempt to execute Mr. Bucklew under Missouri's present protocol, or by *any* means of lethal injection, will almost inevitably lead to a prolonged and tortuous execution, with Mr. Bucklew hemorrhaging, struggling to breathe and suffocating. Because lethal gas will bypass Mr. Bucklew's impaired circulatory system, it is more likely than any other feasible and available alternative method to significantly reduce the risk of severe pain. *See Glossip*, 135 S. Ct. at 2737.[1] The use of lethal gas, for instance, will likely reduce the great risk that Mr. Bucklew will choke and suffocate on his

[1] A firing squad would similarly reduce the risk of severe pain, but it is not authorized under Missouri law. Mo. Rev. Stat. § 546.720.1

own blood; it is also likely to significantly reduce the likelihood of a prolonged and excruciating execution.

The use of lethal gas is both a "known" and "available" alternative, as it is one of the two methods specifically authorized by Missouri statute, Mo. Rev. Stat. § 546.720.1. Given the State of Missouri's unwillingness to disclose the most basic information regarding its execution protocol and procedures – refusing to confirm, for instance, even the type of drug it is using, whether manufactured or compounded pentobarbital – and given the DOC's refusal to obtain up-to-date medical imaging of Mr. Bucklew's hemangiomas, it appears that, by far, the most "feasible" method with this medically fragile prisoner is to employ the alternative method of lethal gas.

INTRODUCTION

1. Mr. Bucklew has suffered his entire life from a dangerous, and, at times, debilitating congenital condition – cavernous hemangioma – that causes clumps of weakened, malformed vessels to grow in his head, face, neck, and throat, displacing healthy tissue and rupturing under stress. Mr. Bucklew has had this condition since birth, and his vascular malformations have grown progressively worse throughout adulthood, causing constant facial pain and pressure, labored breathing, and impairment of his hearing and vision.

2. Mr. Bucklew's vascular malformations have proved resistant to any form of medical or surgical treatment. Surgery has been rejected because the results would be both disfiguring and disabling, and the only medical treatment for the past several years has been pain management.

3. Mr. Bucklew's vascular tumors are massive, occupying his nose, throat, and airway passages. He

hemorrhages on a regular basis, and sometimes experiences a major rupture with extensive bleeding.

4. The size of Mr. Bucklew's tumors and the weakness of his distended vessels create a very substantial risk that he will suffer excruciating, even tortuous pain during an execution.

5. Because the vascular tumors partially obstruct Mr. Bucklew's airway, he is at high risk of choking during an execution, particularly if the distended vessels in his mouth or throat rupture and bleed. This will cause gasping, coughing and choking that Mr. Bucklew will experience as suffocation.

6. There is also a grave risk that, because of Mr. Bucklew's severe vascular malformations, the lethal drug will not circulate as intended, delaying the suppression of the central nervous system and prolonging the execution – which will likely cause excruciating pain to Mr. Bucklew. These grave risks – which establish that execution by lethal injection is highly likely to violate Mr. Bucklew's rights under the Eighth Amendment – are heightened even further by the use of a drug, pentobarbital, whose provenance Missouri has shrouded in complete secrecy.

7. Because of his unique condition, which poses specific and substantial risks, Mr. Bucklew cannot be executed under Missouri's protocol without inflicting cruel and unusual punishment in violation of the Eighth Amendment of the United States Constitution.

8. Mr. Bucklew's medical condition is well documented in the Department of Corrections' own records, which describe the hemangiomas as "very massive" and "extensive" with "bulging lesions." As repeatedly documented, the hemangiomas cause chronic facial pain, recurrent bleeding, frequent headaches and spells

of dizziness and even loss of consciousness. Mr. Bucklew also suffers from impaired hearing and vision.

9. Various therapies to treat the hemangiomas – including chemotherapy, radiation therapy and sclerotherapy – have all failed, and doctors have stated that any effort to remove them surgically would be "mutilating and very risky as far as blood loss." Mr. Bucklew is presently on a regimen of daily narcotic pain medication.

10. Mr. Bucklew's vascular tumors have grown throughout his adult life, including his 19 years in prison, and have continued to grow progressively larger in the last year. More recently, the growing tumors in his throat have increasingly interfered with his ability to speak clearly, typically causing labored breathing and slurred, indistinct speech.

11. Despite the progressive nature of his condition and Missouri's obligations under the Eighth Amendment, the Department of Corrections (DOC) has obtained no diagnostic imaging (CT scans or MRI) in the past five years. This is significant because the imaging studies are necessary to guide proper medical care and the day-to-day management of Mr. Bucklew's condition. They also are essential to provide the information that Mr. Bucklew needs to litigate his present claims. Indeed, even though Mr. Bucklew has made clear for more than a year his need for up-to-date imaging, the Department of Corrections still has not arranged such diagnostic testing, despite its constitutional obligation to do so.

12. By the mid-1990s, doctors noted that Mr. Bucklew's hemangiomas were impinging on his airway. In 2010, an MRI established that the large degree of

airway obstruction was beyond dispute. Following an MRI in June 2010 – the last diagnostic imaging of Mr. Bucklew – the treating physician issued a report to the DOC describing Mr. Bucklew's tumors as a "large complex right facial mass" that extended through the right-side nasal passages, sinuses, pharynx, jaw, palate and throat. As a result of the large mass, Mr. Bucklew's *"airway is severely compromised."* (Emphasis added).

13. Two highly trained, board-certified physicians – an anesthesiologist who teaches at the Emory University School of Medicine and a neuroradiologist who practices at St. Luke's Hospital in St. Louis – have provided sworn statements stating that Mr. Bucklew's vascular malformations create a significant risk that the lethal drug will not circulate properly during an execution. This will create a great risk of prolonging the execution and causing Mr. Bucklew to suffer excruciating pain.

14. Both doctors state in their affidavits that an examination of Mr. Bucklew and his vascular malformations is necessary to evaluate the specific risks to Mr. Bucklew during an execution by lethal injection. An adequate examination would necessarily include up-to-date medical imaging.

15. Dr. Joel Zivot, the Emory anesthesiologist, has reviewed Mr. Bucklew's medical records and imaging studies and has also examined him at the prison.[2] He has also spoken recently with Mr. Bucklew by telephone to obtain updated information regarding his symptoms. In his sworn statements, Dr. Zivot has

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[2] Dr. Zivot examined Mr. Bucklew in the prison cafeteria, which was the space the administration at Potosi Correctional Center made available.

addressed the risk of Mr. Bucklew hemorrhaging during an execution as well as the risks posed by the severe degree of Mr. Bucklew's airway obstruction, which could readily lead to choking and suffocation.

16. Following his review, Dr. Zivot provides his expert opinion in great detail, stating the following points:

– a substantial risk exists that Mr. Bucklew will suffer from "extreme or excruciating pain as a result of hemorrhaging or abnormal circulation of the lethal drug, leading to a prolonged execution";

– Mr. Bucklew's airway, partially obstructed by unstable and blood-engorged tumors, creates a very substantial risk that Mr. Bucklew could choke, cough and gasp for air during an execution;

– the mass in his airway continues to increase in size, likely causing the labored breathing and speech difficulties that Mr. Bucklew has experienced in recent months;

– during an execution by lethal injection, Mr. Bucklew is at high risk of a blood pressure spike, and such a spike greatly increases the risk that Mr. Bucklew will suffer hemorrhaging in his face, mouth and throat, leading to further coughing and choking and increasing the risk of suffocation; and,

– Mr. Bucklew's multiple medications create a substantial risk of an adverse drug interaction during an execution by lethal injection.

(*See* Exhibit 1 at ¶¶ 15, 17, 18, Zivot Declaration of May 8, 2014; *see also* Exhibit 4 at ¶¶ 4-17; Exhibit 5 at ¶¶ 6-21).

17. To monitor the delivery of the drug and flush the intravenous lines, the training regimen for Missouri

executions has historically provided for the use of methylene blue as a dye in the IV line. (Exhibit 1 at ¶ 17) As Dr. Zivot noted, however, methylene blue tends to cause a rise in blood pressure – a dangerous side effect that would likely prompt Mr. Bucklew's hemangiomas, already engorged with blood, to "rupture, resulting in significant bleeding in the face, mouth and throat." If blood enters Mr. Bucklew's airway, "it would likely cause choking and coughing, which Mr. Bucklew will experience as severe pain and suffocation." (Exhibit 1 at ¶ 18; Exhibit 5 at ¶ 29). Moreover, the use of methylene blue creates a great risk of a dangerous drug interaction with the regular medications that are prescribed to Mr. Bucklew, including those that are necessary to treat his psychiatric condition. (Exhibit 5 at ¶¶ 30-35).

18. Mr. Bucklew brings this lawsuit, as the sole plaintiff, because his situation is unique and the risks to him during an execution are grave. The claims raised in this suit are based on his particular medical condition and are separate and distinct from those raised in *Zink v. Lombardi*, Case No. 12-4209 (W.D. Mo).

19. Unlike the Eighth Amendment claims in the Zink case, which specifically challenged the use of compounded pentobarbital, Mr. Bucklew's claims rest on his specific and unique medical condition. Although the risks to Mr. Bucklew are heightened further by Missouri's alleged use of a compounded drug of unknown origin, purity and potency, lethal injection by *any* drug creates a very substantial risk that Mr. Bucklew will suffer hemorrhaging, choking and suffocation during the execution, thereby inflicting cruel and unusual punishment in violation of the Eighth Amendment.

20. Thus, it is clear that the claims of Mr. Bucklew are wholly separate from the claims raised in *Zink*. It is also clear from the stay of execution granted by the United States Supreme Court that Mr. Bucklew's ability to prevail on his claims bears no relationship to the ability of the other *Zink* petitioners to prevail on theirs. Indeed, the two cases rest on completely separate and distinct facts and legal theories.

21. Mr. Bucklew further alleges that the claims raised in *Zink* may have been *moot* at the time they were raised. To the extent that those claims rested on the claim that Missouri was using compounded pentobarbital, reasonable inferences from the known facts – including Missouri's steadily growing inventory of pentobarbital, much of which has been stockpiled for months – strongly suggest that since approximately February 2014, Missouri has been using *manufactured* pentobarbital, not *compounded* pentobarbital.

22. *Alone* among all of the states conducting executions and using pentobarbital, Missouri has had ongoing, unimpeded access to a steady supply of pentobarbital, permitting it to build up its inventory to an amount sufficient to conduct 16 or more executions. The stockpiling of pentobarbital is inconsistent with the use of the compounded form of the drug, which has a very short shelf life.

23. What is also telling – and seems to confirm that the DOC is no longer using compounded pentobarbital – is that Missouri has recently begun hedging in its pleadings, stating in a filing with the United States Supreme Court that it did not "admit or

deny" that Missouri is using compounded as opposed to manufactured pentobarbital.[3]

24. In Mr. Bucklew's case, the State of Missouri has similarly made its arguments in carefully couched language, and recently suggested that it was *Mr. Bucklew*, *not the State of Missouri*, who originated the allegation that Missouri uses the compounded form of pentobarbital in carrying out executions. In its second Motion to Dismiss, Defendants state: "Bucklew does not limit his allegations to compounded pentobarbital, which is the type of pentobarbital *he alleges* will be used in the execution." (Doc. 47 at 8) (emphasis added). This coy deflection by Defendants further cements the wall of secrecy surrounding Missouri executions.

25. The extreme secrecy regarding the nature of the pentobarbital used by Missouri is troubling, as the sole FDA-approved source of pentobarbital, manufacturer Akorn, prohibits its suppliers from selling to correctional institutions. http://investors.akorn.com/phoenix.zhtml?c=78132&p=irol-newsArticle&ID=2022522 This suggests that Missouri's growing inventory of pentobarbital may have been procured through improper means. If Missouri is using manufactured pentobarbital, then it is either: obtaining pentobarbital manufactured by Akorn in violation of Akorn's purchasing agreements, or it is using pentobarbital manufactured for veterinary use that is not approved for use in humans,

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[3] [3] Although Missouri has maintained since October 2013 that its lethal drug is a 5 gram dose of *compounded* pentobarbital, it has recently hedged about this, stating in its brief in opposition to the petition for writ of certiorari in *Zink v. Lombardi*, Case No. 14-9223, that it "does not admit or deny the chemical now used is compounded as opposed to manufactured [pentobarbital]." Brief in Opposition (filed April 30, 2015).

or it is obtaining pentobarbital illegally from a non-FDA approved, foreign source.

26. Putting aside the issue of the drug's origin, Mr. Bucklew's medical condition is so grave and the risks of hemorrhage and airway obstruction are so great that execution by lethal injection with *any* drug creates a very substantial risk that Mr. Bucklew will suffer a tortuous and prolonged execution, in violation of the Eighth Amendment's prohibition on cruel and unusual punishment.

27. To properly proceed with his Eighth Amendment claims – supported primarily at this point by a physician who has not been granted access to conduct a full examination – Mr. Bucklew needs a complete medical exam complete with appropriate imaging studies. (Exhibit 1 at ¶¶ 20-21, 31; Exhibit 4 at ¶ 17; Exhibit 5 at ¶¶ 16-18, 38).

28. To adequately identify and evaluate the risks that are unique and specific to Mr. Bucklew – and therefore to provide the further factual underpinning for his Eighth Amendment claims – Mr. Bucklew must be provided a high resolution CT scan of his chest, head, neck and brain as well as an angiogram to assess the degree of vascularity of Mr. Bucklew's hemangiomas. (Exhibit 1 at ¶¶ 20-21; Exhibit 4 at ¶ 17; Exhibit 5 at ¶¶ 16-18, 38). Obtaining this information will allow Mr. Bucklew to establish that execution by lethal injection creates a "substantial risk of serious harm" and an "objectively intolerable risk of harm" and is "sure or very likely to cause serious illness and needless suffering." *Baze v. Rees*, 553 U.S. 35, 50-52 (2008).

29. Although Mr. Bucklew's counsel lack the medical and scientific expertise necessary to conduct in-depth research evaluating alternative methods

of execution,[4] the research they have been able to conduct allows them to conclude that lethal gas is a "feasible" and "alternative" method that is highly likely to "significantly reduce the risk of severe pain" as it bypasses Mr. Bucklew's circulatory system. With execution by gas, the lethal agent enters the body through the lungs, presumably causing death without prolonged or excruciating pain.

30. Lethal injection is not only authorized by the State of Missouri, the DOC also appears to have an execution chamber available for the use of lethal gas. (*See* Exhibit 6, photograph of Missouri gas chamber). Indeed, section 546.720.1 states that the director of the DOC is "directed to provide a suitable and efficient room or place . . . and the necessary appliances for carrying into execution the death penalty by means of the administration of lethal gas or . . . lethal injection." Further, Missouri Attorney General Chris Koster has publicly stated that the gas chamber is an "option we have to enforce Missouri law" if death by lethal injection is not feasible or possible. *See* Associated Press, "Missouri Could Resort to Gas Chamber

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[4] Although Dr. Zivot has been both willing and able to thoroughly acquaint himself with Mr. Bucklew's medical condition and render opinions regarding the severe risks posed by lethal injection, he has also made clear, that, as a medical doctor, he is "ethically prevented from prescribing or proscribing a method of executing a person." Exhibit 5 at ¶ 5. Dr. Zivot also points out that he is a member of the American Society of Anesthesiology, and that if any board-certified anesthesiologist participated in lethal injection he or she would lose board certification. *Id*. Dr. Zivot is bound by his profession's ethics. Although he can identify and opine on the risks associated with lethal injection under Missouri's protocol, he attests that he "cannot advise counsel or the Court on how to execute Mr. Bucklew in a way that would satisfy Constitutional requirements."

Attorney General Warns." *St. Louis Post Dispatc*h, July 3, 2013, available at: http://www.stltoday.com/news/local/crime-and-courts/missouri-could-resort-to-gas-chamber-attorney-general-warns/article_7470560c-2ae3-5b38-91f5-0c8d77a91c86.html. Under these circumstances, it would appear that the use of lethal gas is certainly "feasible."

JURISDICTION AND VENUE

31. Jurisdiction is conferred by 28 U.S.C. § 1331 and § 1343, which provide for original jurisdiction of this Court in suits based respectively on federal questions and authorized by 42 U.S.C. § 1983, which provides a cause of action for the protection of rights, privileges or immunities secured by the Constitution of the United States. Jurisdiction is further conferred by 28 U.S.C. § 2201 and § 2202, which authorize actions for declaratory and injunction relief.

32. Venue is proper in the Western District of Missouri under 18 U.S.C. § 1391(b)(1)-(3) in that defendant Lombardi resides in the territorial jurisdiction of this district, and defendant Lombardi's decisions regarding Missouri's execution protocol are made within this court's territorial jurisdiction.

PARTIES

33. Plaintiff Russell Bucklew is a resident of the State of Missouri and presently resides at Potosi Correctional Center in Mineral Point, Missouri. He is sentenced to death, and was scheduled to die by lethal injection on May 21, 2014, but obtained on that date a stay of execution from the United States Supreme Court, pending the outcome of his appeal to the Eighth Circuit Court of Appeals, *Bucklew v Lombardi*, Case No. 14-2163. Mr. Bucklew has exhausted his claims administratively through Potosi's grievance procedures.

34. Defendant George Lombardi is the Director of the Department of Corrections (DOC) of the State of Missouri. His office is located at the DOC's central office at 2729 Plaza Drive, Jefferson City, Missouri.

35. A Missouri statute, Mo. Rev. Stat. § 536.720, authorizes and directs the Director of the DOC to prescribe and direct the means by which the Department carries out executions within the statutorily prescribed methods of lethal gas or lethal injection. Director Lombardi fulfills that statutory role and carries out those responsibilities.

36. Defendant David R. Dormire is the Director of the Division of Adult Institutions at the Department of Corrections of the State of Missouri. His office is also at the DOC's central office in Jefferson City, Missouri.

37. Defendant Dormire is the chief executive officer of the Division of Adult Institutions, and has command-and-control authority over the DOC officials, officers, contractors and employees who are involved, directly or indirectly, with carrying out executions.

38. Defendant Terry Russell is the Warden of the Eastern Reception and Diagnostic & Correctional Center (ERDCC), 2727 Highway K, Bonne Terre, Missouri. The State of Missouri has conducted its executions at ERDCC since April 2005.

39. By virtue of his authority over the staff at ERDCC, defendant Russell is responsible for the manner in which executions are conducted in Missouri.

40. All defendants are sued in their official and individual capacities. All actions taken by them are taken under color of state law.

FACTUAL BACKGROUND

Russell Bucklew's Medical Condition

41. Mr. Bucklew has suffered from the symptoms of congenital cavernous hemangioma his entire life, including frequent hemorrhaging through his facial orifices, disturbances to his vision and hearing, difficulty breathing, pain and pressure in his head, constant headaches, dizziness, and episodes of loss of consciousness. He frequently bleeds through his mouth, nose and ears, and has sometimes bled even through his eyes.

42. The hemangiomas—which are clumps of weak, malformed vessels – fill Mr. Bucklew's face, head, neck and throat, displacing healthy tissue and stealing blood flow from normal adjacent tissues, depriving those tissues of necessary oxygen. (Exhibit 1 at ¶ 13).

43. The hemangiomas are vascular tumors, and, by their nature, these tumors continuously expand. Although the tumors are classified as benign, their growth is locally invasive and destructive.

44. Over the years, Mr. Bucklew's doctors have noted recurrent episodes of bleeding and associated hospitalizations. One doctor consulted about the bleeding stated: "I have real concerns that this I/M [inmate] may have future *uncontrollable bleeding*." (Emphasis added). Another doctor noted the "increasing frequency of bleeding [in the] oral cavity and nose."

45. Mr. Bucklew's hemangiomas grow throughout his head, neck and throat, protruding even into his airway, causing labored breathing and requiring him to sleep with his upper body elevated. Doctors have repeatedly noted the looming threat from the growing

obstruction in Bucklew's airway. A specialist examining Bucklew in 2010 stated that a "complex right facial mass" extended to the parapharyngeal space and occupied a large area with the "oropharynx and hypopharynx" right above the epiglottis. As a result, Mr. Bucklew's airway, partially obstructed for many years, was now *"severely compromised."* (Emphasis added). In the last five years, Mr. Bucklew has particularly suffered from labored breathing and cannot sleep lying flat as the tumor then fully obstructs his airway.

46. Over the years, doctors have attempted treatment on many occasions, only to conclude that the available treatments – chemotherapy, sclerotherapy, radiation therapy and surgery – have all failed and that they offer no appreciable chance of success.

47. In 1991, a specialist who examined Mr. Bucklew and treated his hemangioma for many years noted that any attempt to surgically remove the vascular tumor "would require extensive surgery which would be mutilating and *very risky as far as blood loss."* (Emphasis added).

48. In April 2012, another doctor's report notes the minimal success of the various attempts at treatments and states: "The large size makes the hemangioma not amenable to sclerotherapy." The report also notes that surgery would result in "large concomitant disability and disfiguration."

49. Doctors have described the hemangiomas as "very massive," "extensive" and a "large complex . . . mass." In March 2003, a physician caring for Mr. Bucklew wanted him examined immediately by a specialist because of the progression of the vascular tumor, which the doctor believed "could be *potentially fatal to the patient*." (Emphasis added).

50. In 2011, a doctor described the alarming expansion of the hemangioma, stating it encompassed "the entire soft palate and uvula, which are impossible to visualize due to the expansion of the lesion." The doctor further noted: "This lesion also extends into the right cheek and entire right maxilla. *This has been present for 20 plus years but has increasingly grown larger and larger."* (Emphasis added).

51. Throughout the medical records, doctors repeatedly warn of the ongoing expansion of the vascular tumor. There are also many references to "recurrent bleeding," pain associated with bleeding, and increasing frequency of oral and facial hemorrhages.

52. The possibility of another attempt at treatment was dismissed in April 2011, when Mr. Bucklew's doctor observed "there was minimal benefit from the previous sclerotherapy" and that the "large size" of the hemangioma precluded effective treatment with sclerotherapy.

53. A physician's report in 2011 noted Mr. Bucklew's increasing anxiety regarding the growth of the hemangiomas and the obstruction of his airway: "He is also afraid that the hemangioma will occlude his throat and he cannot breathe." Subsequent reports document difficulty with "bleeding management," and a report in March 2013 describes an episode of severe pain, with lightheadedness and loss of consciousness. Doctors ordered narcotic drugs for pain.

54. Periodically, the blood-filled tumors rupture, and Mr. Bucklew bleeds in his throat and through his facial orifices. Medical personnel provide gauze and biohazard bags so that he can collect the bloody discharge.

55. Mr. Bucklew frequently suffers from nausea, dizziness and bouts of excruciating pain. He is treated with narcotic pain medication, which he must take three times per day.

56. In recent months, Mr. Bucklew's condition has continued to worsen, a course long predicted by his doctors given the progressive nature of cavernous hemangioma. He is experiencing increased episodes of pain and dizziness and has ongoing problems with balance and coordination. The bleeding in his nasal and oral cavities has grown worse, and the bloody tumors are now pressing into Mr. Bucklew's right eye, causing problems with his vision.

57. In addition, the "massive hemangioma" growing in Mr. Bucklew's airway increasingly causes "stridor" (noisy and labored breathing), and it often makes it difficult for Mr. Bucklew to speak clearly. (*See* Exhibit 5 at ¶ 21).

58. Along with the tumor growth, Mr. Bucklew has also experienced a vast array of new and deeply troubling psychiatric symptoms in recent months. Although he previously suffered from extreme anxiety and mood swings, Mr. Bucklew's mental issues have grown dramatically worse since May 2014.

59. Following his return to Potosi Correctional Center from the death house at Bonne Terre (where he came within hours of execution), Mr. Bucklew has suffered from auditory and visual hallucinations, flash-backs, nightmares, and episodes of uncontrollable crying. In a short period of time, he lost 20 pounds and suffered constant insomnia. A prison psychiatrist diagnosed him with "stress-induced psychotic reaction." For the past 10 months, Mr. Bucklew has been on a

heavy regimen of psychiatric drugs, including medication used to treat psychosis, schizophrenia and bipolar disorder.

Missouri's Lethal Injection Protocol

60. Missouri's lethal injection protocol calls for the administration of 5 grams of pentobarbital,[5] divided into two syringes, and administered through an IV line into the execution chamber, where the prisoner is alone and strapped to a gurney. No medical personnel are close at hand, and the prisoner is monitored remotely from the "execution support room." Although medical personnel insert the IV lines at the outset, the lethal drug itself is injected by non-medical personnel pushing syringes into the IV line at a pre-determined flow rate.

61. The procedure itself begins with the insertion of the IV lines – one in each arm (or a central line in the femoral, jugular or subclavian vein if venous access in the arms is limited). About 15 to 30 minutes before the lethal drug is injected, a saline solution, which has historically been colored with methylene blue (or another dye), is injected into the prisoner to determine if the lines are clear. The gurney is positioned so medical personnel can remotely observe the prisoner's face, directly, "or with the aid of a mirror." Medical personnel "monitor" the prisoner remotely during the execution.

62. Non-medical personnel administer the lethal drug through syringes into the IV lines. After the administration of the initial 5 grams of pentobarbital,

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[5] Missouri's protocol is silent on whether the pentobarbital is compounded or manufactured. It appears that the written protocol would allow the use of either form of the drug.

the nonmedical personnel flush the IV lines with saline and methylene blue. Shortly thereafter, the execution chamber's curtains are closed and medical personnel check the prisoner to see if he is dead.

63. If the prisoner is not dead, then non-medical personnel then inject an additional 5 grams of pentobarbital through two additional syringes.

64. During the administration of the lethal drug, no one is in the execution chamber other than the prisoner, and no medical personnel are at hand. The prisoner is monitored only remotely from the "execution support room." The members of the execution team only enter the execution chamber when the curtains are closed and only to determine if the prisoner has died. They check after administration of the first 5 grams of pentobarbital, and then again after the administration of the second 5 grams of pentobarbital.

65. If the prisoner does not die after the administration of 10 grams of pentobarbital, Missouri's protocol provides no further guidance. The protocol is completely silent on what procedures to follow in the event the lethal drugs do not properly enter the prisoner's body or do not properly circulate within the body.

66. If the prisoner is not killed by the execution, there is no protocol or equipment for resuscitating the prisoner.

67. If the execution is halted, and the prisoner remains alive, the State of Missouri must resume medical care of the prisoner, as it is obligated to do under the Eighth Amendment of the United States Constitution. Missouri's protocol is completely silent on this possible scenario.

68. A 2014 execution in Oklahoma was halted because the lethal drugs did not properly enter the prisoner's body and did not cause death. The prisoner, Clayton Lockett, reportedly died of a heart attack after the attempt to execute him failed. After Mr. Lockett groaned and writhed and it was clear he was still alive, Oklahoma officials hastily closed the window blinds on the execution chamber. They reportedly considered taking Lockett to the hospital to resuscitate, but it was too late. A subsequent review of the botched execution concluded that an improperly placed intravenous line allowed the drugs to perfuse surrounding tissue rather than flowing directly into Lockett's bloodstream. The problems with the Lockett execution could recur – in an even more horrific fashion – with an attempt to execute Mr. Bucklew, given his gross vascular abnormalities and the risk of venous rupture.

69. Mr. Bucklew's unique vascular malformations create a substantial risk that the execution will not proceed as intended, and that the lethal drug will not properly enter or circulate in Mr. Bucklew's body, leading to an ugly, prolonged and excruciating execution. The weak, malformed veins in Mr. Bucklew's head and throat could easily rupture – leading to facial bleeding, internal hemorrhaging, choking and suffocation.

70. The risk that the lethal drug will not properly enter Mr. Bucklew's veins is heightened by the apparent abandonment – at least at present – of the use of any dye in the IV line. (It is not known whether this change is temporary or permanent, and, of course, the use of methylene blue carries its own risks). Although the execution team training records show that they have been trained to carry out their tasks aided by the use of a dye in the IV line – which helps

team members determine if the solution is flowing properly into the prisoner's veins as opposed to diffusing in the surrounding tissue – records recently obtained through a request under Missouri's Sunshine Act, Mo. Rev. Stat. 610.010 *et seq*., show that the Department of Corrections has not possessed either methylene blue or indigo carmine since February 2015. Nothing in the protocol specifically addresses the use of dye or how team members – including its non-medical members – can safely run the IV line and inject the lethal drug in the absence of a visual indicator that the line is flowing properly.

71. Further, there is no aspect of Missouri's execution protocol that addresses how to handle the risks posed by a prisoner's unique medical or physical condition, particularly a congenital vascular malformation such as Mr. Bucklew's, which creates very grave risks. The last-minute protocol adjustments proposed by the State of Missouri in May 2014, as discussed below, not only fail to ameliorate any potential risks to Mr. Bucklew, they actually increase the risk of an extended, excruciating procedure that will be visually horrifying to witnesses and tortuous for Mr. Bucklew.

72. Although Mr. Bucklew's medical records run into the thousands of pages, the "Pre-Execution Summary of Medical History" – to be reviewed by medical personnel on the execution team – is merely one page, asking such simple questions as whether the "offender recently had a cold or flu" or suffered from "back pain."

73. There is no consideration of adverse medication interactions or serious chronic conditions or grave

illness. A "yes" answer to any of the screening questions must be answered in three lines at the bottom of the page.

74. Missouri's protocol is grossly inadequate to address the significant risks to Mr. Bucklew during an execution – risks that could cause a prolonged and excruciating procedure, in which Mr. Bucklew hemorrhages through his mouth, nose, eyes or ears, and chokes or suffocates on his own blood.

75. No medical assistance will be at hand – instead the "medical personnel" will be watching from the "execution support room," unable to lend any aid to Mr. Bucklew.

Affidavit of Dr. Gregory Jamroz

76. Gregory Jamroz, M.D. is board-certified radiologist. He practices in the specialty of neuroradiology at St. Luke's Hospital in St. Louis, Missouri.

77. After reviewing the medical records of Mr. Bucklew, Dr. Jamroz concluded to a reasonable degree of scientific certainty that the use of a blood-borne sedative or other drug would not likely bring about a rapid, humane death for Mr. Bucklew, given his unique medical condition. (Exhibit 2 at ¶ 23). Dr. Jamroz stated that Bucklew's vascular malformations cause "shunting" of the blood, which would likely affect the circulation of the lethal drug to the brain.

78. Dr. Jamroz opined that an examination was essential to determine the precise quantity of shunting. But regardless of the "quantity of shunting, [the] presence of vascular malformations compromises the supply of blood to the brain." (Exhibit 2 at ¶ 21). These malformations have been present in Mr. Bucklew's head and neck since infancy. (Exhibit 2 at

¶ 14). The hemangiomas are "tangle[s] of arteries and veins" with "low vascular resistance," which leads to "shunting" of the blood and decreased blood flow to the brain. (Exhibit 2 at ¶¶ 15-19)

79. Dr. Jamroz concluded: "[I]t is my opinion to a reasonable degree of scientific certainty that reliance on a blood-borne sedative or other substance to bring about a rapid and painless death in Mr. Bucklew's case is questionable, and that in light of the pre-existing medical condition discussed in this declaration, examination of the vascular malformations is indicated . . . ." (Exhibit 2 at ¶ 23).

Affidavit of Dr. Joel Zivot

80. Dr. Joel Zivot is a board-certified anesthesiologist who teaches at the Emory University School of Medicine and serves as Medical Director of the Cardio-Thoracic Intensive Care Unit at Emory University Hospital.

81. Dr. Zivot has reviewed Mr. Bucklew's medical records as well as Missouri's Execution Protocol and related documents. Also, in May 2014, he examined Mr. Bucklew at Potosi Correctional Center, although a full exam could not be conducted because of the inadequate lighting, limited facilities and restrictions imposed by the DOC. (As reflected in footnote 2, *supra*, the examination occurred in the prison cafeteria).

82. Based on his review of Missouri's execution protocol and Mr. Bucklew's medical records, Dr. Zivot opines that a "substantial risk exists that, during [an] execution, Mr. Bucklew will suffer from extreme or excruciating pain as a result of hemorrhaging or abnormal circulation of the lethal drug, leading to a prolonged execution." (Exhibit 1 at ¶ 15; *see also* Exhibit 5 at [sic]).

83. Dr. Zivot identifies unique dangers arising from Mr. Bucklew's partially obstructed airway, including "a very substantial risk that during an execution he could suffocate." (Exhibit 1 at ¶ 15). Dr. Zivot also observes that Mr. Bucklew is prescribed several medications, including medications for pain, and there a "substantial risk he will suffer an adverse event from drug interactions." (Exhibit 1 at ¶ 15). Since Dr. Zivot issued his initial Declaration, the number and dosage of Mr. Bucklew's medications have increased, creating an even greater risk of adverse medication interactions, as discussed further below.

84. Before the lethal drug is even injected, Mr. Bucklew is at risk from the use of methylene blue, which has historically occupied a critical role in Missouri's execution procedures. Methylene blue is part of the saline mixture supposedly used to check the flow in the IV line and to ensure that the lethal drug is properly flowing into the vein rather than simply spreading into the surrounding tissues. Although methylene blue would not pose a risk to most inmates, it poses a unique and grave risk to Mr. Bucklew. Methylene blue is a nitric oxide scavenger and will likely "cause a spike in blood pressure if injected." (Exhibit 1, ¶ 16; Exhibit 5 at ¶¶ 28-29; *see also* Exhibit 3 at ¶¶ 8-9, 20, Declaration of Dr. Larry Sasich).[6]

85. Blood pressure is not monitored during lethal injection. Yet, any spike in blood pressure raises a great risk of hemorrhage for Mr. Bucklew, as the

[6] Missouri has grown progressively more secretive about its execution procedures, and it is not known whether methylene blue is presently being used by the execution team. The team has historically trained with it, however, and DOC records from 2013 and 2014 show that the DOC maintained a stock of methylene blue and/or indigo carmine for execution purposes.

hemangiomas are a "plexus of blood vessels that are abnormally weak and can easily rupture, even when the blood pressure is normal." (Exhibit 1, ¶ 17).

86. If Mr. Bucklew's "blood pressure spikes after the methylene blue injections, the hemangiomas, now further engorged with blood, are likely to rupture, resulting in significant bleeding in the face, mouth and throat." If blood enters Mr. Bucklew's airway, "*it would likely cause choking and coughing, which Mr. Bucklew will experience as severe pain and suffocation.*" (Ex. 1 ¶ 18) (Emphasis added). The suffocation risk is further heightened by the fact that Mr. Bucklew's airway is severely obstructed, and any further swelling of the hemangiomas or rupturing of the tumors would likely cause Mr. Bucklew to gasp and struggle for air.

87. Mr. Bucklew's vascular malformations also give rise to a great risk that the lethal drug will not circulate as intended. The cavernous hemangiomas create "alternative low-resistance pathways to injected drugs." It is highly likely "that this abnormal circulation will inhibit the effectiveness of the pentobarbital. . . ." (Exhibit 1 at ¶ 19).

88. The "reduced effectiveness of the pentobarbital and the delayed depression of the central nervous system will create a substantial risk of a prolonged and extremely painful execution for Mr. Bucklew." (Exhibit 1 at ¶ 19).

89. All of these risks are further augmented by the fact that Mr. Bucklew takes several medications to manage his medical condition, including narcotic pain medication and several psychiatric medications. This creates a substantial risk of adverse events resulting from drug interactions. (Exhibit 1 at ¶ 22). The risk of

a dangerous drug interaction has increased greatly in the last year, as additional, potent drugs have been prescribed to address Mr. Bucklew's worsening psychiatric problems, including stress-induced psychotic reaction and post-traumatic stress disorder. The need for a thorough evaluation of all of Mr. Bucklew's medications is addressed further below, and will require consultation with experts as well as additional discovery from the Department of Corrections.

90. The lethal drug itself poses additional problems. Pentobarbital is not an analgesic (pain reducer), but is, in fact, an *antalgesic*, that is, it tends to exaggerate or worsen pain. (Exhibit 1 at ¶ 23). Mr. Bucklew's medications may interact with pentobarbital – an antalgesic – in a manner that increases pain, causing a substantial risk that Mr. Bucklew will experience an extremely painful death. (Exhibit 1 at ¶ 24).

91. The risks arising from drug interactions and the antalgesic effects of pentobarbital are further exacerbated by the use of a compounded drug (assuming that Missouri is indeed still using compounded pentobarbital). A compounded drug, unlike a manufactured drug, carries no guarantees of its safety, potency, or purity. (Exhibit 1 at ¶¶ 23-25; Exhibit 3 at ¶¶ 12-20, Declaration of Dr. Larry Sasich).

92. To date, Defendants have accorded little or no attention to the risks that attend the execution of Russell Bucklew, other than proposing hasty, last minute changes to the protocol aimed at rushing Mr. Bucklew into the execution chamber when he faced a May 21, 2014 execution date.

93. Just two weeks before that scheduled date, on May 7, 2014, counsel in the Missouri Attorney General's Office contacted counsel for Mr. Bucklew

and inquired about conducting a venous study of Mr. Bucklew's arms. There was no request to conduct any scans of the engorged and unstable vascular malformations in Mr. Bucklew's head, neck and throat.

94. Indeed, the Department of Corrections has obtained no imaging studies of Mr. Bucklew's cavernous hemangiomas since 2010 when an MRI was performed. The imaging report described Mr. Bucklew's hemangioma as "a large complex right facial mass" and noted that Mr. Bucklew's airway was "severely compromised."

95. In contrast to the indifferent conduct of the Missouri Department of Corrections, counsel for Mr. Bucklew endeavored to obtain a timely examination of Plaintiff in May 2014. Although hindered by a lack of resources and the inability to examine Mr. Bucklew in a properly equipped medical setting, Dr. Zivot was able to conduct at least a limited visual examination and medical interview.

96. Following that examination, on May 12, 2014, Dr. Zivot provided a supplemental affidavit stating additional opinions and observations. (*See* Exhibit 4).

97. Dr. Zivot noted that, during the examination, Mr. Bucklew's blood pressure was elevated, 140/100 on both arms, representing severe hypertension. (Exhibit 4 at ¶ 4). Certainly, an increase in blood pressure was not surprising, given the stress of the then-scheduled execution and Mr. Bucklew's fear and discomfort.

98. Examining the interior of Bucklew's mouth and throat, Dr. Zivot noted a "very large vascular mass" that arises "through the hard palate, extends into the upper maxilla on the right, and fully encompasses the uvula and distorts the anatomy of Mr. Bucklew's airway." (Exhibit 4 at ¶ 4).

99. Mr. Bucklew's airway is "severely compromised or obstructed due to the hemangiomas." The airway "is also friable, meaning it is weak and could tear or rupture. If you touch it, it bleeds." (Exhibit 4 at ¶ 6).

100. Dr. Zivot observed that if Mr. Bucklew were his patient, "managing his airway would be a top priority during any medical procedure" and would require the "highest level of vigilance from a medical team." (Exhibit 4 at ¶ 7). Indeed, the only way to properly perform a medical procedure on Mr. Bucklew would be to perform it in a hospital with a fully equipped surgical suite and the ability to do an emergency tracheostomy if necessary. (Exhibit 4 at ¶ 8).

101. During an execution, Mr. Bucklew will be at "great risk of choking and suffocating because of his partially obstructed airway and complications caused by the hemangiomas." (Exhibit 4 at ¶ 9). At the same time, the use of any tube or other standard airway equipment typically used to maintain an open airway will only create more problems "as the placement of any device in the pharynx will cause instant bleeding" and such bleeding would further constrict the airway and also impair the visibility of it. (Exhibit 4 at ¶ 10).

102. Executions are conducted on a gurney, and the risks arising from Mr. Bucklew's airway are even greater if he is lying flat. (Exhibit 4 at ¶ 11). Because of the hemangiomas, Mr. Bucklew is unable to sleep in a normal recumbent position because the tumors cause greater obstruction in that position. (Exhibit 4 at ¶ 11). "Mr. Bucklew's airway tumors are of a dynamic nature. That is, they worsen when he is recumbent, even when recumbent for only a few moments." (Exhibit 4 at ¶ 11).

103. Dr. Zivot further opines that any increase in Mr. Bucklew's blood pressure, such as from stress, will only further aggravate the vascular tumors and increase the risk of airway obstruction. If any secretions enter the airway or he starts breathing hard – because of stress or any other cause – his airway will become even more constricted. (Exhibit 4 at ¶ 12). This will likely start a "dangerous cycle in which more strenuous attempts to breathe by Mr. Bucklew will only increase the degree of his airway obstruction. . . . [T]he harder he tries to breathe, the less air he will get." (Exhibit 4 at ¶ 12).

104. Any effort to prevent such a gruesome scenario for Mr. Bucklew in any medical setting would require physicians experienced in airway management to be at arm's length proximity to Mr. Bucklew and prepared to perform an emergency tracheostomy. (Exhibit 4 at ¶ 14).

105. Missouri's execution protocol provides no contingency for a failed execution or any situation in which a prisoner starts gasping for air or experiences hemorrhaging. (Exhibit 4 at ¶ 13).

106. Based on Mr. Bucklew's unique and severe condition, there is no way to proceed with Mr. Bucklew's execution under Missouri's lethal injection protocol "without a substantial risk to Mr. Bucklew of suffering grave adverse events during the execution, including hemorrhaging, suffocating or experiencing excruciating pain." Exhibit 4 at ¶ 16).

107. Under any scenario or with any type of lethal drug, execution by lethal injection poses an enormous risk that Mr. Bucklew will suffer extreme, excruciating and prolonged pain – all accompanied by choking and struggling for air.

108. Mr. Bucklew's condition is inoperable and incurable. Indeed, it is steadily progressive and will likely ultimately cause his death. There is no medical procedure that will allow his blood-engorged tumors to be excised or reduced in size. Therefore, any execution of Mr. Bucklew by lethal injection, regardless of the drug used, violates the Eighth Amendment's prohibition on cruel and unusual punishment.

Nature of Mr. Bucklew's Claims: Separate and Distinct from Zink

109. Because Mr. Bucklew's claims concern the specific and unique risks posed to *him* by lethal injection, and those risks exist regardless of the drug used, his claims are entirely separate and distinct from those raised in *Zink v. Lombardi*, Case No. 12-4209.

110. Mr. Bucklew understands that if both cases had not been dismissed, that it might have been efficient to consolidate them for discovery purposes, given the general subject matter and common parties. The *Zink* discovery was limited, however, and no discovery has yet occurred in the *Bucklew* case.[7]

111. When Mr. Bucklew filed his suit on May 9, 2014, the *Zink* case was still pending before this Court and was not finally dismissed as to all claims until May 16, 2014. (Case No. 12-4209). Had this Court wished to consolidate the two cases, it could have done so. Similarly, the two cases could have been consolidated in the Eighth Circuit, and they were not. Moreover, the Eighth Circuit granted relief to Mr. Bucklew while denying relief to the other *Zink* plaintiffs, clearly suggesting that Mr. Bucklew is situated differently than the other prisoners challenging

[7] [sic]

Missouri's execution procedures. *Zink v. Lombardi*, Case No. 14-2220 (March 6, 2015) (affirming dismissal of case); *Bucklew v. Lombardi*, Case No. 14-2163 (reversing and remanding for further proceedings).

112. Further, as is apparent, entirely different facts and legal theories support Mr. Bucklew's claims as compared with the plaintiffs' claims in *Zink*. None of the *Zink* plaintiffs challenged Missouri's execution protocol based on their unique medical condition. To the contrary, their claims were almost entirely based on the variety of risks posed by the use of compounded pentobarbital. While those risks are not wholly irrelevant to Mr. Bucklew's case, Mr. Bucklew's claims under the Eighth Amendment exist regardless of the particular drug used. The great likelihood that Mr. Bucklew will suffer extreme and tortuous pain during an execution is based on the dangers caused by his abnormal circulatory system, his malformed veins, the blood-engorged tumors that fill his head and throat, and the severe obstruction of his airway. These physical conditions, by themselves and irrespective of the drug used, place Mr. Bucklew at grave risk during an execution by lethal injection.

Mr. Bucklew's Condition Worsening in the Past 12 Months

113. Since Mr. Bucklew filed the present lawsuit in May 2014, his medical condition has significantly worsened, with the blood-filled tumors growing larger and more unstable and causing additional pain, balance problems, impairment to his vision and problems with breathing. Following a recent telephone call with Mr. Bucklew, Dr. Zivot noted that the increasing size of the hemangioma obstructing Mr. Bucklew's airway was causing "stridor" or noisy breathing. (Exhibit 5 at

¶¶ 20-21). Because of the growing obstruction, Mr. Bucklew frequently has difficulty speaking clearly.

114. Mr. Bucklew's medical records from May 2014 to the present refer to increased dizziness, episodes of stumbling and falling, increased facial pain, bleeding from his mouth, and pressure on his right eye from an encroaching hemangioma.

115. Even more pronounced than the physical changes have been the changes in Mr. Bucklew's mental state. His psychiatric condition has markedly deteriorated, and he is presently on an extensive regimen of drugs used to treat psychosis, schizophrenia and bipolar disorder.

116. One of the prison psychiatrists who treated Mr. Bucklew documented an array of alarming psychiatric symptoms that developed in the wake of Mr. Bucklew's near execution in May 2014. Although Mr. Bucklew's previous mental problems primarily involved General Anxiety Disorder, Mr. Bucklew began suffering from flashbacks, nightmares of being injected with poison, and auditory and visual hallucinations. He lost 20 pounds and had episodes of uncontrollable crying.

117. The psychiatrist diagnosed him with "stress-induced psychotic reaction," and prescribed an array of psychiatric drugs, most of which are not typically taken together and many of which pose a risk for adverse drug interactions during an execution.

118. The medications currently prescribed to Mr. Bucklew include Clonazepam (Klonipin), Fluphenazine (Prolixin), Hydroxyzine Pamoate (Vistaril), Mirtazapine (Remeron), Olanzapine (Zyprexa), Perphenazine (Trilafon) and Tramadol. All of the drugs, except for

Tramadol, are psychiatric drugs used to treat mood disorders, psychosis, schizophrenia or bipolar disorder.

119. In a recent psychiatric visit, Mr. Bucklew reported ongoing auditory hallucinations and/or "intrusive thoughts." His psychiatric records contain several references to a potential diagnosis of Post-Traumatic Stress Disorder.

120. Mr. Bucklew's medication regimen gives rise to a number of potentially troubling side effects, including "Serotonin Syndrome," for which he is already at risk, as documented in his medical records. Serotonin Syndrome results from a buildup of high levels of serotonin in the brain and features an array of troubling side effects, including twitching, lethargy, confusion, delirium, agitation, and seizures.

121. Significantly, the use of methylene blue during an execution poses an additional and severe threat to an individual already at risk for Serotonin Syndrome. (*See* Exhibit 5 at ¶¶ 31-35). In 2011, the FDA issued a "Safety Announcement," indicating that except in emergency circumstances, methylene blue should *never* be administered to an individual at risk for Serotonin Syndrome or taking certain psychiatric drugs, including Mirtazapine (Remeron). Mr. Bucklew is presently taking Mirtazapine daily for treatment of one of his severe psychiatric conditions. (*See* Exhibit 5 at ¶¶ 31-35).

122. Any plan to move forward with an execution of Mr. Bucklew must include not only a complete physical examination of him, including imaging studies, but must also include a thorough evaluation of his medications and the potential for adverse interactions during an execution.

Missouri's On-the-Fly Adjustments to Protocol Insufficient

123. In May 2014, as Mr. Bucklew faced an execution date and raised the issues addressed in this lawsuit, the Missouri Department of Corrections hastily attempted some last-minute, ill-considered changes to the execution protocol that would actually have the effect of *increasing* the risk to Mr. Bucklew.

124. The DOC, in response to concerns raised regarding methylene blue, stated it would not use methylene blue, but would instead use indigo carmine. (Documents obtained through a Missouri Sunshine Act request revealed that when the DOC offered this adjustment, it had already been using indigo carmine for four months, with no disclosure to counsel for any of the prisoners). When counsel for Mr. Bucklew pointed out that indigo carmine posed the same (or worse) risks as methylene blue, the DOC stated it would forego the use of *any* dye, even though the execution team (which includes non-medical members) is trained only to carry out executions with the use of a medical dye in the intravenous lines.

125. The use of dye is essential to ensure that the IV line is flowing properly. It also provides a telling visual indicator if the saline infusion is not entering the bloodstream but is in fact dispersing in surrounding tissues, as it did in Oklahoma's botched execution of Mr. Lockett. Absent the use of a dye, the non-medical members of the execution team, who do the actual pushing of the syringes, will have no way of determining whether the saline solution and the lethal drug are entering Mr. Bucklew's bloodstream. Given the risks already posed by Bucklew's vascular malformations and the likelihood the drug will not circulate properly, the increased risk posed by using *no dye* – a

method for which the team has received no training – poses a constitutionally intolerable threat to Mr. Bucklew.

126. The risks to Mr. Bucklew are further increased by the alleged use of a compounded drug, pentobarbital, which, unlike a manufactured drug, carries no guarantees of its safety, potency, or purity. (Exhibit 1 at ¶¶ 23-25; Exhibit 3 at ¶¶ 12-20, Declaration of Dr. Larry Sasich).

127. Because the State of Missouri improperly refuses to provide any information about the safety, purity or provenance of its lethal drug – or even confirm whether or not the drug is tested – Plaintiff is left to draw inferences about the precise nature of the drug being used. Given the seeming ease with which Missouri apparently procures what is alleged to be pentobarbital when other states are stymied in their efforts to obtain a reliable supply of the drug, one may logically infer that perhaps Missouri's drug has been obtained through improper channels, perhaps through a foreign, non-FDA approved source or through a supplier for the sole FDA-approved manufacturer, Akorn, which has distribution controls in place to preclude the sale of the drug to prison systems.[8] (*See* paragraph 25, *supra*). That said, *regardless of the particular drug used,* execution by lethal injection poses a very substantial risk that Mr. Bucklew will suffer a prolonged and tortuous death in violation of the Eighth Amendment.

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[8] The DOC has taken the position that providing an answer to the question of whether or not the pentobarbital is tested would tend to reveal the source of the drug. Plaintiff finds the DOC's position perplexing, as it tends to suggest that the drug may have been obtained in manufactured form from an improper source.

128. In May 2014, the DOC also proposed a second adjustment in its protocol, offering to adjust the gurney so that Mr. Bucklew is not lying completely prone. Although the stated intent was to reduce the choking risk to Mr. Bucklew, the DOC has obtained no imaging studies of Mr. Bucklew since 2010, and therefore has no information on which to base any decisions about the angle of the gurney. As a practical matter, no adjustment would likely be sufficient, as the stress of the execution may unavoidably cause Mr. Bucklew's hemangiomas to rupture, leading to hemorrhaging, bleeding in his throat and through his facial orifices, and coughing and choking on his own blood.

Diagnostic Imaging Studies Essential to Evaluate and Establish Risks

129. In order to fully evaluate and establish the risks to Mr. Bucklew from execution by lethal injection, a full and complete set of imaging studies must be conducted. (*See* Exhibit 5 at ¶¶ 16-17). This is necessary to allow Plaintiff to prove his claims under the Eighth Amendment.

130. Mr. Bucklew's vascular malformations occupy much of the right side of his face and head, extending into his nose, sinuses, jaw, mouth and throat – and, more recently, his right eye. The blood-engorged tumors put constant pressure on Bucklew's face and brain, and may even extend into his brain.

131. To identify the "full extent of the tumor's involvement with Mr. Bucklew's airway and brain, a repeat high resolution CT of Mr. Bucklew's chest, neck, head and brain should be performed." (Exhibit 1 at ¶ 20; Exhibit 5 at ¶ 16). The CT study should be performed with and without contrast to characterize the extent of the anticipated abnormal intracranial

structures. The CT scan is necessary to characterize the location and extent of the tumor and to assess the severe degree of compromise of Mr. Bucklew's airway." (Exhibit 1 at ¶ 20; Exhibit 5 at ¶ 16).

132. If the CT scan does not fully characterize "the extent of the known soft tissue tumors, then an MRI should be performed. In addition, a venogram and ultrasound evaluation should be performed of Mr. Bucklew's upper extremities" to determine venous patency and vascular access locations. (Exhibit 1 at ¶ 21). In addition, an angiogram would also be necessary to further establish the risks to Mr. Bucklew, and would also help determine the degree of vascularity of Mr. Bucklew's hemangiomas. (Exhibit 4 at ¶ 17; Exhibit 5 at ¶ 17).

133. Although there are aspects of the lethal injection protocol that, superficially, appear to draw on medical expertise, lethal injection does not possess any of the safeguards of the practice of medicine and anesthesiology. (Exhibit 1 at ¶ 26).

134. Execution team members either lack the necessary training to safely carry out lethal injection – particularly in the case of someone like Mr. Bucklew who has a complex medical condition – or they are acting explicitly contrary to the dictates of safe medical practice. (Exhibit 1 at ¶ 27).

135. If an execution by lethal injection goes forward, the enormous risks to Mr. Bucklew necessitate monitoring by a qualified physician who is in the execution chamber for the purpose of being able to revive Mr. Bucklew in the event the execution is unsuccessful. The physician would not be a member of the execution team and would have no role or assignment in any way with lethal injection. (Exhibit 1 at ¶ 28).

136. The State of Missouri has no plan for handling an execution that does not proceed as intended. Significantly, there is no equipment or protocol for resuscitating a prisoner who survives an execution.

137. The State of Missouri lacks any kind of back up or contingency plan for unanticipated events during an execution. Contingency plans are especially important given the likelihood of adverse events during an execution of someone like Mr. Bucklew who has a very serious medical condition. The risk of adverse events is furthered heightened by the alleged use of compounded drugs that are not approved or reviewed by the FDA and which are not prepared in an FDA-regulated facility. The risk of contaminants, allergens, and improperly adjusted pH levels is particularly substantial with compounded drugs. These risks are heightened further in Mr. Bucklew's case because of his weak, distended and malformed veins. Yet, the State of Missouri has provided no information whatsoever about its lethal drug and will not even confirm whether the drug is tested for safety, potency or purity.

138. Regardless of the drug used, however, Mr. Bucklew's severe vascular abnormalities, standing alone, create a situation of extreme risk to Mr. Bucklew, as he is highly likely to experience a prolonged, excruciating and tortuous execution.

139. Mr. Bucklew is mindful of the Court's directive to allege a "feasible, readily implemented alternative procedure that will *significantly* reduce a substantial risk of severe pain. . ." (Doc. 52 at 11) (emphasis added). Mr. Bucklew has complied with the Court's order by researching and proposing execution by lethal gas, which is specifically authorized by Missouri law and which Missouri's Attorney General has stated the DOC is prepared to implement. The Missouri Attorney

General has also suggested that the legislature should appropriate funds for the purpose of implementing this alternative form of execution. *See* paragraph 30, *supra*, including cited article from the Associated Press.

140. In the event that an execution by lethal injection proceeds despite the grave risks arising from Mr. Bucklew's condition, the Department of Corrections should not proceed in the absence of a full and proper evaluation of Bucklew's present medical condition. To properly identify and evaluate these unique risks, it is essential that Mr. Bucklew receive a thorough medical examination, including all of the medical imaging studies described above. Absent a physical exam and up-to-date imaging, any attempt to reduce the risks to Mr. Bucklew during lethal injection would be based on nothing more than speculation.

141. Given the complexity of Mr. Bucklew's medical condition, it is essential that the parties be able to obtain expert guidance from qualified professionals. At present, both sides are hampered by their lack of access to qualified medical professionals. Mr. Bucklew has no appointed expert, although Dr. Zivot has worked on the case diligently to this point. Further, the DOC's expert for many years, Dr. Mark Dershwitz, has informed all of the states that he was advising on lethal injection, including Missouri, that he will no longer fulfill that role. Dr. Dershwitz announced his decision to terminate his role in June 2014, indicating that statements made by the State of Ohio in connection with a particular execution could jeopardize his standing with the American Board of Anesthesiology.

142. Obviously, Mr. Bucklew cannot further identify or quantify the risks posed by lethal injection absent additional consultation with an expert who is able to conduct a proper examination of Mr. Bucklew in a fully

equipped medical setting and also obtain up-to-date imaging studies.

143. To obtain access to the necessary medical information and expertise, Mr. Bucklew intends to seek the appointment of Dr. Zivot by this Court. To date, Dr. Zivot has been compensated for only a small portion of his fees, through monies provided by Mr. Bucklew's family. Dr. Zivot's out-of-pocket expenses have been largely covered by counsel.

144. Based on all of the allegations stated here, Mr. Bucklew has fully complied with the requisites of the Court's pleading requirements and the standards set by *Glossip*. Certainly, the stay of execution, issued by the United States Supreme Court on May 21, 2014, also provides a strong basis for inferring that Mr. Bucklew has satisfied the standards for properly pleading an Eighth Amendment claim.

145. Mr. Bucklew's claims, while fully ripe, did not accrue until it was clear that his airway obstruction would likely cause choking and suffocation during any execution. Indeed, the very substantial risk that Mr. Bucklew would suffocate to death during any execution by lethal injection is the core of his Eighth Amendment claim. That claim did not accrue until May 2014, when Dr. Zivot was able to examine Plaintiff's medical records and examine him in person, thereby identifying the grave risk posed by Mr. Bucklew's obstructed and fragile airway. Until May 2014, the Department of Corrections was in sole possession of evidence necessary to raise Mr. Bucklew's Eighth Amendment claim and had the sole ability to procure and obtain necessary diagnostic assessment and medical imaging. Prior to May 2014, when Mr. Bucklew's counsel were able – under the press of an execution date – to persuade Dr. Zivot to undertake Mr. Bucklew's case, Plaintiff

had no ability to assert a viable Eighth Amendment claim and litigate a well-supported motion for stay of execution.

146. Although Mr. Bucklew's counsel sought court funding no less than eight times in six years for the purpose of obtaining an expert opinion on Mr. Bucklew's medical condition, those requests – to the United States District Court, the Eighth Circuit and every level of the Missouri state courts – were repeatedly denied. Because the State of Missouri repeatedly and effectively opposed Mr. Bucklew's efforts to obtain expert funding (in those instances when the requests were filed in open court, rather than *ex parte*), Defendants here should be estopped from arguing that Mr. Bucklew failed to timely assert his claims. Indeed, it is State of Missouri that is largely responsible for Mr. Bucklew's inability, since 2008, to obtain the necessary expert services.

147. By June 2010, the blood-engorged tumor in Mr. Bucklew's throat had grown to a sufficiently large size as to create a severe blockage to Mr. Bucklew's airway. It was in the June 2010 imaging report that Mr. Bucklew's physician reported that the "large complex facial mass" had extended into multiple cavities, severely compromising Mr. Bucklew's airway.

148. Despite the troubling report issued by Mr. Bucklew's physician, the DOC obtained no further diagnostic tests or imaging of Mr. Bucklew's vascular tumors. Since June 2010, the DOC has failed to assess or monitor the growth of Mr. Bucklew's tumors, and medical care has been restricted to the provision of medications intended to treat pain and anxiety.

149. Under these circumstances, when the DOC has had exclusive custody and control over Mr. Bucklew

and exclusively held the ability to obtain appropriate testing, no claim based on Mr. Bucklew's medical condition could accrue. At the earliest, such claim accrued at the point that Mr. Bucklew's counsel were able to obtain, with no promise of payment, the expert services and opinions of Dr. Zivot.

Count I

Claim Against All Defendants Under the Cruel and Unusual Punishment Clause of the Eighth Amendment Based on the Use of Missouri's Lethal Injection Protocol on Mr. Bucklew

Plaintiff realleges the foregoing and further states as follows:

150. Execution by lethal injection poses unique and specific risks to Mr. Bucklew that arise from his lifelong and severe medical condition.

145. Executing Mr. Bucklew by lethal injection will cause extreme and needless suffering to Mr. Bucklew, including but not limited to hemorrhaging during the execution; coughing, choking and suffocating; and suffering a prolonged and excruciating execution because the lethal drug fails in its intended effect or fails to circulate properly in Mr. Bucklew's body.

146. Mr. Bucklew's unique and severe medical condition is further exacerbated by his deteriorating psychiatric condition. He suffers from extreme anxiety and has been diagnosed with stress-induced psychotic reaction disorder. He experiences intrusive thoughts, flashbacks and auditory and visual hallucinations. The stress that he would almost certainly experience during an execution poses an extreme and additional risk to Mr. Bucklew, both because of the psychiatric drugs he takes which give rise to adverse interactions

with methylene blue, and because the stress he experiences is likely to cause a rise in blood pressure, thereby triggering hemorrhaging. Plaintiff knows of no steps that have been taken or will be taken to ameliorate the grave and specific risks attendant to executing Mr. Bucklew by lethal injection.

147. If Missouri proceeds with its execution of Mr. Bucklew, it will be conducting an unregulated experiment on a human subject, as there are no studies that support Defendants' use of Missouri's lethal injection protocol on an individual suffering from vascular malformations and prone to hemorrhaging and choking or suffocating to death.

148. Missouri's lethal injection protocol, *as applied* to Mr. Bucklew, presents a substantial risk of causing excruciating or tortuous pain and inflicting needless suffering.

149. Absent a thorough physical examination and complete imaging studies, it is not possible to further address whether any additional or specific changes or adjustments to the lethal injection protocol would reduce the very substantial risk that Mr. Bucklew will suffer extreme and excruciating pain during an execution by lethal injection.

150. In adherence with the pleading requirements set forth in *Glossip*, and as stated above, Mr. Bucklew specifically alleges lethal gas as a feasible and available alternative method that will significantly reduce the risk of severe pain to Mr. Bucklew.

151. Defendants' intended actions under their lethal injection protocol, as set forth in this Fourth Amended Complaint, will inflict extreme, tortuous and unnecessary pain on Mr. Bucklew and will therefore violate

the Cruel and Unusual Punishments Clause of the Eighth Amendment of the United States Constitution.

Count II

Claim Against All Defendants for Failure to Take Reasonable and Necessary Precautions with Regard to Mr. Bucklew's Execution, thereby Acting with Deliberate Indifference to Plaintiff's Serious Medical Needs in Violation of the Eighth and Fourteenth Amendments of the United States Constitution

Plaintiff realleges the foregoing and further states as follows:

152. Defendants have taken no reasonable and necessary steps to assess the risks to Mr. Bucklew during an execution by lethal injection. They have not conducted a thorough physical examination nor obtained up-to-date imaging studies to determine whether or how Mr. Bucklew may be executed without violating the Eighth Amendment of the United States Constitution.

153. Defendants' failure to take reasonable and necessary steps to assess and monitor Mr. Bucklew's condition constitutes deliberate indifference to Mr. Bucklew's serious medical needs, as Mr. Bucklew has a right to appropriate medical care up to the moment of his death.

154. As long as Mr. Bucklew is a prisoner within the custody and control of Defendants, they have a constitutional obligation to provide for his serious medical needs. Although they have the right to carry out a death sentence, Defendants may only do so consistently with the dictates of the United States Constitution, including the Eighth Amendment.

155. Defendants have not only failed to take reasonable and necessary steps to determine whether or how Mr. Bucklew may be executed within the parameters of the Constitution, they have made no contingency plan in the event the lethal drugs fail to kill Mr. Bucklew. The Missouri protocol is completely silent on such a possibility. There is no equipment or protocol for resuscitation.

156. Instead, Mr. Bucklew, an individual with a largely obstructed airway and distended, malformed vessels, will be alone in the execution chamber, monitored only remotely by medical personnel who are not tasked with providing any assistance in the event of a botched execution.

157. Even if such an eventuality did not previously occur in the State of Missouri, the botched execution of Clayton Lockett in Oklahoma establishes that an execution can go tragically wrong when the lethal drugs either do not properly enter the prisoner's body or fail for some other reason. Despite the Oklahoma failure, an event of nationwide prominence, Defendants have made no changes to their execution protocol to address unforeseen or unintended events.

158. Defendants' failures and omissions constitute deliberate indifference to the serious medical needs of Mr. Bucklew, in violation of the Eighth Amendment.

159. Defendants' actions have caused, and will continue to cause, needless harm and extreme suffering to Mr. Bucklew, who faces undergoing lethal injection in the absence of necessary precautions or any assessment of whether he may be executed by lethal injection without violating the Eighth Amendment's prohibition on cruel and unusual punishment. Defendants' actions therefore violate the Eighth

Amendment of the United States Constitution as well as the Due Process Clause of the Fourteenth Amendment.

Count III

Claim Against All Defendants for Violation of Mr. Bucklew's First Amendment Right to Petition the Government for Redress of Grievances and His Rights to Due Process and Access to the Courts Under the Fourteenth Amendment

Plaintiff realleges the foregoing and further states as follows:

160. Defendants' execution practices and its use of a lethal drug are shrouded in secrecy.

161. Defendants refuse to provide any information whatsoever regarding the purported pharmacist or the pharmacy that prepares the drug, or how or when the drug is prepared, or where or when the active pharmaceutical ingredient is obtained, or whether the pharmacy is registered with or has ever been inspected by the Food and Drug Administration or even whether the drug has been subjected to any testing for safety, potency or purity. Indeed, Defendants refuse to even admit or deny whether the pentobarbital they claim to use is compounded as opposed to manufactured.

162. Defendants' utter failure to provide a single relevant fact about the provenance or safety of the execution drug prevents Mr. Bucklew, an individual whose vessels are abnormally weak and prone to rupture, from petitioning the government for redress of grievances.

163. Absent basic information about the provenance, purity, potency and safety of the drug, any

allegations by Mr. Bucklew about the drug are vulnerable to being labeled "speculation."

164. To effectively petition the government for redress of grievances, as is his right under the First Amendment, and to exercise his right of access to the courts under the Due Process Clause of the Fourteenth Amendment, Mr. Bucklew needs access to information about the safety, purity, potency and origins of the drug. Such information is now completely withheld, as Defendants refuse to even state whether the drug is subjected to any laboratory testing or whether it is compounded at all or whether it is a manufactured drug, which has been obtained through unknown means.

165. Defendants' practice of shrouding the execution drug in extreme secrecy violates Mr. Bucklew's rights under the First and Fourteenth Amendments, causing him to be subjected to experimental and dangerous drug protocols with no ability to effectively challenge the drug protocol in court or to petition any agency of the federal, state or local government for redress.

166. In addition, any requirement that Mr. Bucklew plead with any greater specificity than he already has violates his rights to due process, fundamental fairness and access to the courts. Absent fundamental information about the lethal drug being used or the specifics of Missouri's lethal injection protocol, Mr. Bucklew is unconstitutionally constrained in seeking redress or any further remedies, either from this Court or any other agency of local, state or federal government.

PRAYER FOR RELIEF

WHEREFORE, Mr. Bucklew requests the following relief:

1. That this Court assume jurisdiction of this cause and set this case for a hearing on the merits.

2. That this Court issue a declaratory judgment declaring and enforcing the rights of Plaintiff Bucklew, as alleged above, and further issue a temporary restraining order or preliminary or permanent injunction to enforce Plaintiff's rights under the First, Eighth and Fourteenth Amendments, commanding Defendants to provide necessary information about the provenance, safety, potency and purity of the lethal drug so as to permit Plaintiff to petition for redress of grievances, and, further to permit Plaintiff access to the courts, consistent with the requirements of the Due Process Clause.

3. That this Court issue a declaratory judgment declaring and enforcing Plaintiff's rights under the Eighth Amendment and, further, issue a temporary restraining order or a preliminary or permanent injunction directing Defendants to not carry out any execution by lethal injection on Mr. Bucklew until such time as Plaintiff has conducted discovery, reasonable and necessary medical tests have been performed, and reasonable and necessary steps have been taken to determine whether and how Mr. Bucklew may be executed by lethal injection, or any feasible alternative method, without violating the prohibition on cruel and unusual punishment of the Eighth Amendment.

4. Mr. Bucklew also seeks this Court's order under 42 U.S.C. ¶ 1988 awarding him a reasonable attorneys' fee and costs, and such further relief as this Court deems just and proper.

WHEREFORE, Plaintiff Bucklew prays this Court for its order and judgment as stated above.

Respectfully Submitted,

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DECLARATION OF JOEL B. ZIVOT, M.D.

I, Joel B. Zivot, being of sound mind and lawful age, hereby state under penalty of perjury as follows:

* * *

15. Based on my review of Mr. Bucklew's medical records, it is my opinion that a substantial risk exists that, during the execution, Mr. Bucklew will suffer from extreme or excruciating pain as a result of hemorrhaging or abnormal circulation of the lethal drug, leading to a prolonged execution. Mr. Bucklew also has a partially obstructed airway, which raises a very substantial risk that during an execution he could suffocate. Further, because Mr. Bucklew is prescribed several medications, including medications for pain, there is a substantial risk he will suffer an adverse event from drug interactions

* * *

19. There is also a very substantial risk that, because of Mr. Bucklew's vascular malformation, the lethal drug will not circulate as intended. The presence of cavernous hemangiomas creates alternative low-resistance pathways to injected drugs. It is very likely that this abnormal circulation will inhibit the effectiveness of the pentobarbital, thereby delaying the depression of Mr. Bucklew's central nervous system. The reduced effectiveness of the pentobarbital and the delayed depression of the central nervous system will create a substantial risk of a prolonged and extremely painful execution for Mr. Bucklew.

* * *

DECLARATION

COMES NOW the declarant, Gregory A. Jamroz, and as authorized by 28 U.S.C. § 1746, states and declares under penalty of perjury all as follows:

* * *

13. At the request of counsel and of the man's family, I have examined the medical records of Rusell E. Bucklew, CP-137, a prisoner of the State of Missouri under sentence of death.

14. Since infancy, Mr. Bucklew has had vascular malformations known as cavernous hemangiomas in the head and neck.

15. These vascular malformations have lower vascular resistance than the brain. The brain has many small capillaries and would have a higher vascular resistance. But the vascular malformations are a tangle of arteries and veins that would have low vascular resistance.

16. These abnormalities of the circulatory system are "fed" or supplied with blood by the external carotid artery.

17. The external carotid artery is in turn fed by the common carotid artery.

18. The common carotid artery also feeds the internal carotid artery, which also supplies blood to the brain.

19. When there is marked shunting of the blood to the external carotid artery, the blood from the common carotid artery preferentially goes into the external carotid artery due to the lower vascular resistance of the vascular malformations.

20. In order to determine the precise quantity of shunting in Mr. Bucklew's case, examination of him would be indicated.

* * *

IN THE UNITED STATES DISTRICT COURT FOR
THE WESTERN DISTRICT OF MISSOURI
WESTERN DIVISION

Case No. 14-08000-CV-W-BP

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, *et al.*,

Defendants.

ORDER AND OPINION GRANTING IN PART DEFENDANTS' MOTION TO DISMISS

Pending is Defendants' Motion to Dismiss Plaintiff's Fourth Amended Complaint. Defendants contend all three claims should be dismissed because they fail to state a claim for which relief can be granted, are time-barred, and are barred by claim preclusion principles. For the reasons set forth below, the motion, (Doc. 55), is GRANTED IN PART and Counts II and III are DISMISSED.

I. BACKGROUND

Plaintiff Russell Bucklew ("Bucklew") was convicted in state court of first degree murder, kidnapping, burglary, forcible rape, and armed criminal action. He was sentenced to death for the murder and various terms of years on the other crimes. His convictions and sentences were affirmed on direct appeal. *State v. Bucklew*, 973 S.W.2d 83 (Mo. 1998) (en banc), *cert. denied*, 525 U.S. 1082 (1999). He subsequently sought postconviction relief, but his request was denied.

Bucklew v. State, 38 S.W.3d 395 (Mo.) (en banc), *cert. denied*, 534 U.S. 964 (2001). Plaintiff then sought habeas relief in federal court pursuant to 28 U.S.C. § 2254; this effort was unsuccessful. *Bucklew v. Luebbers*, 436 F.3d 1010 (8th Cir.), *cert. denied*, 549 U.S. 1079 (2006).

In 2012, Bucklew and others filed suit against these same defendants; that suit has been, and in this Order will be, referred to as either "the *Zink* litigation" or simply "*Zink*" because that was the name of the lead plaintiff. For reference sake, *Zink*'s case number was 12-CV-4209-BP. [1] Three counts from *Zink*'s Second Amended Complaint are relevant to this case:

- Count I, which alleged Missouri's lethal injection protocol violated the Eighth Amendment because it utilized drugs obtained from "an undisclosed compounding pharmacy or compounding pharmacist" (*Zink*, Doc. 338, ¶ 401;)
- Count III, which alleged "the delivery of the medication necessary to bring about a rapid death without gratuitous pain and suffering is a serious medical need" and Defendants' use of the protocol constituted deliberate indifference to Plaintiffs' serious medical needs in violation of the Due Process Clause (*Zink*, Doc. 338, ¶¶ 411-15;) and
- Count X, which alleged Defendants' refusal to disclose the identities of health-care professionals, sources for the drugs, and other participants in the execution process denied

[1] "The district court may take judicial notice of public records and may thus consider them on a motion to dismiss." *Stahl v. United States Dep't of Agriculture*, 327 F.3d 697, 700 (8th Cir. 2003).

> Plaintiffs their First Amendment right to petition the government for redress of grievances. (*Zink*, Doc. 338, ¶¶ 475, 479.)

In May 2014, while *Zink* was still pending, Bucklew filed a separate suit of his own. Generally, he alleged that administering the lethal injection protocol to him would violate his Eighth Amendment rights because (1) administering lethal injection to a person in his condition would constitute cruel and unusual punishment and (2) Defendants would be deliberately indifferent to his serious medical needs if they executed him under the current protocol. Bucklew's Complaint also asserted a First Amendment claim. The first two claims focused on the fact that Bucklew suffers from a congenital condition known as cavernous hemangioma, which raises unique issues regarding the efficacy and risks of intravenous drugs used as part of Missouri's lethal injection protocol. Neither Bucklew's Complaint nor the operative pleading in *Zink* alleged a feasible and available alternative that would significantly reduce the risk of severe pain and suffering; for that reason, in May 2014 the Court dismissed both cases. (*Zink*, Doc. 443; *Bucklew*, Doc. 17.)

The Eighth Circuit affirmed the dismissal in *Zink*. *Zink v. Lombardi*, 783 F.3d 1089 (8th Cir.) (en banc), *cert. denied*, 135 S. Ct. 2941 (2015). However, it vacated the dismissal of Bucklew's Complaint and remanded because "the State's concession that it would alter its procedure . . . brought Bucklew's claim at least potentially within the purview of *Baze* [*v. Rees*, 553 U.S. 35 (2008)] and therefore made pre-answer *sua sponte* dismissal of [Bucklew's] complaint inappropriate." *Bucklew v. Lombardi*, 783 F.3d 1120, 1128 (8th Cir. 2015) (en banc). The Court of Appeals also identified two issues that it declined to address because they had

not been addressed by this Court: (1) whether a prior in-camera filing in the Court of Appeals suggested the statute of limitations had expired, *id.* at 1128-29, and (2) whether Bucklew's claim in this case is barred by the preclusive effect of the Eighth Circuit's decision in *Zink*. *Id.* at 1122 n.1.

After the Mandate was issued, Bucklew filed a series of Amended Complaints. The latest – the Fourth Amended Complaint – is the operative pleading, and it contains three counts:

- Count I asserts an Eighth Amendment claim, alleging that executing Bucklew "by lethal injection will cause extreme and needless suffering" due to the effect his medical condition will have on the administration of any lethal injection protocol, which necessarily depends on the circulatory system for proper application of the drugs. (*E.g.*, Doc. 53, ¶¶ 145, 148.)
- Count II asserts another Eighth Amendment claim, contending that Defendants' failure to take necessary steps to assess Bucklew before the execution, and the failure to plan to take necessary steps to assess Bucklew during the execution, both constitute deliberate indifference to Bucklew's serious medical needs. (*E.g.*, Doc. 53, ¶¶ 152-56.)
- Count III alleges Bucklew's First Amendment right to petition the government/courts for redress of grievances has been violated because Defendants "refuse to provide any information whatsoever regarding" the drugs to be used to execute him or the personnel involved in the drugs' preparation. (Doc. 53, ¶ 161-165.)

Defendants have filed a Motion to Dismiss (Doc. 53). They contend that Count I should be dismissed because (1) it fails to plead the existence of a feasible and alternative method of execution that will substantially reduce the risk of pain and suffering, (2) the claim is barred by the statute of limitations, and (3) claim is barred by principles of claim preclusion. Defendants contend Counts II and III should be dismissed because they are also barred by preclusion principles and because they are not legally viable. Bucklew defends Count I by arguing that (1) lethal gas and a firing squad are feasible and available means of execution, (2) the statute of limitations did not accrue until May 2014 when he underwent a physical examination and finally learned the information necessary to advance his as-applied challenge, and (3) his claims are not subject to claim preclusion. Bucklew reiterates these responses with respect to Counts II and III and further contends that these two counts are different from the claims presented in *Zink*, so *Zink*'s rejection of their viability does not foreclose his claims.

II. DISCUSSION

When considering a motion to dismiss under rule 12(b)(6), the Court "must accept as true all of the complaint's factual allegations and view them in the light most favorable to the Plaintiff[ ]." *Stodghill v. Wellston School Dist.*, 512 F.3d 472, 476 (8th Cir. 2008).

> To survive a motion to dismiss, a complaint must contain sufficient factual matter, accepted as true, to state a claim to relief that is plausible on its face. A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged. The plausibility standard is not akin to a probability

> requirement, but it asks for more than a sheer possibility that a defendant has acted unlawfully. Where a complaint pleads facts that are merely consistent with a defendant's liability, it stops short of the line between possibility and plausibility of entitlement to relief.

Ashcroft v. Iqbal, 556 U.S. 662, 678 (2009). A claim is facially plausible if it allows the reasonable inference that the defendant is liable for the conduct alleged. *E.g., Horras v. American Capital Strategies, Ltd.*, 729 F.3d 798, 801 (8th Cir. 2013). In making this evaluation, the Court is limited to a review of the Fourth Amended Complaint, exhibits attached to the Fourth Amended Complaint, and materials necessarily embraced by the Fourth Amended Complaint. *E.g., Mattes v. ABC Plastics, Inc.*, 323 F.3d 695, 697 n.4 (8th Cir. 2003).

A. Count I – Cruel and Unusual Punishment

1. Adequacy of the Pleadings

In *Glossip v. Gross*, the Supreme Court determined "what a prisoner must establish to succeed on an Eighth Amendment method-of-execution claim." 135 S. Ct. 2726, 2737 (2015). "[D]ecisions in this area have been animated in part by the recognition that because it is settled that capital punishment is constitutional, it necessarily follows that there must be a constitutional means of carrying it out." *Id.* at 2732-33. Moreover, "because some risk of pain is inherent in any method of execution, we have held that the Constitution does not require the avoidance of all risk of pain." *Id.* at 2733. In light of these observations, a prisoner alleging that a particular form of execution is cruel and unusual within the meaning of the Eight Amendment must first establish that the method to be

utilized "presents a risk that is sure or very likely to cause serious illness and needless suffering, and give rise to sufficiently imminent dangers." *Id.* at 2737 (quotations and emphasis deleted). The prisoner must then "identify a known and available alternative method of execution that entails a lesser risk of pain, a requirement of all Eight Amendment method-of-execution claims." *Id*. at 2731. According to *Glossip*, this is not merely a matter of proof: "the Eighth Amendment requires a prisoner to *plead* and *prove* a known and available alternative." *Id.* at 2739 (emphasis supplied).

Defendants do not contend that the Fourth Amended Complaint fails *Glossip*'s first requirement. Instead, they contend it fails to "plead sufficient factual matter, plausible on its face, showing how the State could . . . modify its execution protocol to significantly reduce a substantial risk of severe pain." (Doc. 55, pp. 2-3.) Specifically, they argue that the Fourth Amended Complaint (1) does not actually contend that execution by firing squad is available and (2) presents no reason to believe that execution by lethal gas will significantly reduce the risk of pain and suffering. The Court agrees with Defendants' first contention but disagrees with the second.

(a). Firing Squad

The Fourth Amended Complaint mentions the use of a firing squad only once: in a footnote, Bucklew alleges that "[a] firing squad would similarly [to the use of lethal gas] reduce the risk of severe pain, but it is not authorized under Missouri law." (Doc. 53, p. 2 n.1.) While there can be little dispute that firearms are readily procurable by the State, the footnote actually states that execution by firing squad is not "available" because it is not "authorized," and thus the footnote

explains why Bucklew has chosen not to suggest firing squad as an alternative means of execution. "[A]n inmate ultimately must prove that another execution procedure exists that is feasible and readily implemented, and that the alternative method will significantly reduce a substantial risk of severe pain." *Zink*, 783 F.3d at 1103. While little needs to be said to explain why a firing squad is feasible, the Fourth Amended Complaint does not set forth a factual basis establishing that it can be "readily implemented."[2] To the contrary, the footnote explains why a firing squad cannot be "readily implemented."

Bucklew's response to the Motion to Dismiss expands on the footnote, casting "doubts that Defendants would have much trouble pushing through legislation authorizing the use of a firing squad" and that there is "time to work with the General Assembly to authorize death by firing squad as an alternative method of execution." (Doc. 61, p. 11.) These allegations do not appear in the Fourth Amended Complaint,[3] and the Court cannot consider them. Bucklew's

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[2] The Fourth Amended Complaint also does not allege facts that plausibly explain why a firing squad would significantly reduce the risk of severe pain; it merely states the fact in a conclusory manner. This is insufficient under both *Iqbal* and *Glossip*, but Defendants have not raised the point.

[3] The Fourth Amended Complaint's solitary reference to a firing squad should be contrasted with the number and nature of the allegations about lethal gas. For instance, the Fourth Amended Complaint states that "Mr. Bucklew specifically alleges a 'feasible alternative' method of execution, lethal gas. This alternative method is specifically authorized by Missouri law, and will significantly reduce the risk of severe pain by avoiding the circulation of the lethal agent through Mr. Bucklew's impaired and abnormal vascular system." (Doc. 53, pp. 1-2 (citation omitted).) No mention of a firing squad is made here. Elsewhere, it is alleged that lethal gas "is more likely than any

response raises what could be an interesting question about whether an execution method that is factually available but not legally permitted is "available" under *Glossip*, *Zink*, and *Baze v. Rees*, 553 U.S. 35 (2008), but the Fourth Amended Complaint does not present the issue. At best, it insinuates the potential issue, but insinuation is insufficient. Accordingly, the Court concludes the Fourth Amended Complaint does not allege that the use of a firing squad is "available" within the meaning of *Glossip*, *Baze*, and *Zink*.

(b) Lethal Gas

The Court reaches a different conclusion with respect to Bucklew's allegations about the use of lethal gas as an alternative to lethal injection. Defendants first contend Bucklew has made only a "naked assertion that execution by unspecified lethal gas would significantly reduce a substantial risk of severe pain from execution by lethal injection. . . . And his pleading is itself facially implausible." (Doc. 55, p. 2.) However, reading the Fourth Amended Complaint as a whole, Bucklew alleges that his vascular system has deteriorated to the point that it cannot be relied upon to circulate the drugs used in *any* lethal injection protocol, and that doing so creates a substantial risk of

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other feasible and available alternative method to significantly reduce the risk of severe pain." (Doc. 53, p. 2.) It is here that the footnote mentioning the firing squad is attached, which means the footnote *contrasts* the firing squad from lethal gas based on the fact that it is not authorized by law and, hence, is unavailable. Later still, the Fourth Amended Complaint alleges that "Mr. Bucklew specifically alleges lethal gas as a feasible and available alternative method that will significantly reduce the risk of severe pain to Mr. Bucklew." (Doc. 53, ¶ 150.) Once again, there is no mention of the use of a firing squad, reinforcing the conclusion that the footnote does not proffer a firing squad as an alternative but instead explains why it is not being proffered.

severe pain. (*E.g.*, Doc. 53 pp. 1-2; Doc. 53-1, ¶ 19; Doc. 53-2, ¶ 23; Doc. 53-5, ¶ 11.) Moreover, the use of some of the drugs used in the process will increase Bucklew's blood pressure to the point that it increases the risk of hemorrhaging and corresponding pain. (*E.g.*, Doc. 53, ¶ 84; Doc. 53-3, ¶¶ 8-9; Doc. 53-5, ¶ 11.) Therefore, a method of execution that does not rely on Bucklew's circulatory system will reduce or eliminate this risk. (*E.g.*, Doc. 53, pp. 2-3; Doc. 53, ¶ 29.) The fact that Bucklew has not specified a particular gas to be used is irrelevant because the point of Bucklew's claim is not the chemical/drug being used, but the delivery method and the system of the body being utilized.

Defendants suggest lethal gas presents just as much risk of severe pain, but this argument is premature. The question is whether Bucklew's allegations are plausible, and in resolving this question the Court is limited to a review of the Fourth Amended Complaint. Bucklew has alleged facts that plausibly demonstrate lethal gas will not pose the same risks as lethal injection; Defendants are free to argue that the risk of pain is just as great under both methods, but that is a factual dispute the Court cannot resolve under Rule 12(b)(6).

Defendants also contend Bucklew has not sufficiently alleged "facts showing that lethal gas is a feasible and readily available alternative method of execution." (Doc. 55, p. 3.) However, in addition to alleging that the use of lethal gas is permitted by state law, the Fourth Amended Complaint describes comments by the Missouri Attorney General indicating that the State could use the gas chamber for execution and attaches pictures of the gas chamber. (Doc. 55, ¶ 30.) Read in the light most favorable to Bucklew, the

allegations demonstrate that execution by lethal gas is an available method of execution.

In summary, the issues Defendants raise regarding lethal gas are issues of proof, not pleading. Defendants are free to allege and attempt to prove that lethal gas will not significantly reduce a substantial risk of severe pain, or that the use of lethal gas is not readily available. Presently, however, the only issue before the Court is whether the Fourth Amended Complaint – read in the light most favorable to Bucklew – adequately alleges that lethal gas is a readily available alternative that will significantly reduce a substantial risk of pain. The Court concludes that it does, and for that reason the motion to dismiss must be denied and Defendants will be required to submit an Answer.

2. Statute of Limitations

Defendants contend Count I is barred by the statute of limitations. The Court concludes the procedural posture and Record do not presently allow for resolution of this argument, so Defendants' request to dismiss on this ground is denied and Defendants may assert it as an affirmative defense.

"Bar by a statute of limitation is typically an affirmative defense, which the defendant must plead and prove. A defendant does not render a complaint defective by pleading an affirmative defense, and therefore the possible existence of a statute of limitations defense is not ordinarily a ground for Rule 12(b)(6) dismissal unless the complaint itself establishes the defense." *Jessie v. Potter*, 516 F.3d 709, 713 (8th Cir. 2008) (citations omitted). In evaluating the issue at this early stage, the Court may also consider materials that could ordinarily be considered under

Rule 12(b)(6). *See Noble Sys. Corp. v. Alorica Central, LLC*, 543 F.3d 978, 982-83 (8th Cir. 2008).

The parties agree that the limitation period for Count I is five years. The question then becomes: when did Plaintiff's claim under Count I accrue? "[T]he accrual date of a § 1983 cause of action is a question of federal law that is *not* resolved by reference to state law," and the standard rule is that accrual occurs "when the plaintiff has a complete and present cause of action." *Wallace v. Kato*, 549 U.S. 384, 388 (2007) (quotations omitted). Defendants point to court filings demonstrating Bucklew was aware that he suffered from cavernous hemangioma or that his condition had deteriorated, but his claim did not necessarily accrue at these points in time. The critical question is: when did Bucklew become aware that lethal injection administered to a person in his then-present condition supported a claim that all uses of lethal injection would violate his Eighth Amendment rights?

Defendants first suggest Bucklew's claim accrued in June 2009, when he asked the Missouri Supreme Court to order the Missouri Public Defender System to fund an expert to assist him in presenting an Eighth Amendment claim. Defendants find this action significant because, in their view, it demonstrates Bucklew knew enough then to allege (as he does now) that utilization of any lethal injection procedure violated his Eighth Amendment rights. Defendants point to the Suggestions in Support Bucklew filed with the Missouri Supreme Court, but a significant portion of that document's rationale rests on the particular drugs being utilized and did not generally challenge the use of all lethal injection applications. (Doc. 55-2, pp. 5-6.) Moreover, the factual basis for the information contained in the Fourth Amended Complaint

is derived from medical examinations conducted in 2014. Nothing in the materials filed with the Missouri Supreme Court establishes when Bucklew had the information necessary to allege that all applications of lethal injection to a person with his medical condition presented a serious risk of substantial pain.

Defendants next suggest that Bucklew's claim accrued in early 1999, when direct review of his conviction and sentence were completed. (Doc. 55, p. 7.) The Court rejects this theory, as the Record does not establish that Plaintiff's medical condition in 1999 was such that he *could* assert such a claim. In other words, his claim may have been premature (i.e., not ripe) in 1999. A similar reasoning applies to Defendants' charge that "[t]here is no good reason he could not have brought the claim in 2008, or as part of the *Zink* litigation in which he was a plaintiff in 2009." (Doc. 55, p. 8.) The Fourth Amended Complaint and the court documents Defendants have submitted do not conclusively establish when Bucklew's claim accrued.

Determining the date of accrual is inherently fact-bound, and the necessary facts are not before the Court. The materials the Court is permitted to review under Rule 12(b)(6) do not permit the Court to conclude when Bucklew had the information necessary to present his Eighth Amendment claim that lethal injection, as a method of execution regardless of the drugs utilized, constitutes cruel and unusual punishment when administered to a person in his condition. The materials the Court is permitted to review do not even establish when Bucklew's condition deteriorated to the point that his claim was possible. The Court is thus unable to conclude that he had this information more than five years before he filed this lawsuit. When Defendants file their Answer, they can assert the

statute of limitations as an affirmative defense and discovery will commence on the issue. This will also allow Bucklew an opportunity to garner evidence to support his claim that the statute of limitations should be tolled in light of the State's opposition to his efforts to obtain medical information necessary to present his claim.[4] But, for the present, the request to dismiss the case based on the statute of limitations is denied.

3. Claim Preclusion

Res judicata is also an affirmative defense that must be pleaded, but it can also be resolved on a motion to dismiss if the defense is apparent from the Complaint or if it can be established through the use of public records (such as decisions from other courts). *C.H. Robinson Worldwide, Inc. v. Lobrano*, 695 F.3d 758, 763-64 (8th Cir. 2012). Pointing out that Bucklew was a co-plaintiff in *Zink*, Defendants contend Bucklew's claim is barred by the final judgment in *Zink* because Bucklew could have asserted the same as-applied challenge he presents here in that case. The Eighth

[4] In this regard, the Court notes that both *Zink* and *Glossip* require a plaintiff in Bucklew's position to plead that the State's chosen method of execution creates a demonstrated and substantial risk of severe pain in light of their medical condition and that an alternative method of execution will significantly reduce that risk. Defendants suggest the mere fact that Bucklew raised any challenges to the use of lethal injection demonstrates that Bucklew knew enough to advance his present claim. Bucklew argues that the State should not be able to deprive a prisoner of the information necessary to plead such allegations while at the same time permitting the State to seek dismissal of the claim because the information is not pleaded or contending the effort to obtain necessary evidence/confirmation means the limitation period has commenced. The novelty of these issues presents an additional reason for the Court to address them on a more complete Record.

Circuit acknowledged this issue arises in an "unusual situation," *Bucklew*, 783 F.3d at 1122 n.1, and Defendants have not adequately addressed the unique issues raised by the differences between the claims raised in *Zink* and this case.[5]

"The preclusive effect of a federal-court judgment is determined by federal common law." *Taylor v. Sturgell*, 553 U.S. 880, 891 (2008). A claim is precluded by a final judgment in another case if "(1) the first suit resulted in a final judgment on the merits; (2) the first suit was based on proper jurisdiction; (3) both suits involve the same parties (or those in privity with them); and (4) both suits are based upon the same claims or causes of action." *Yankton Sioux Tribe v. United States Dep't of Health & Human Servs.*, 533 U.S. 634, 639 (8th Cir. 2008) (quotation omitted). With respect to the fourth component, "'whether a second lawsuit is precluded turns on whether its clams arise out of the same nucleus of operative facts as the prior claim.'" *Magee v. Hamline Univ.*, 775 F.3d 1057, 1059 (8th Cir. 2015) (per curiam) (quoting *Costner v. URS Consultants, Inc.*, 153 F.3d 667, 673 (8th Cir. 1998)). The second lawsuit need not assert the same legal theory: the question is whether the same wrong is to be redressed by both actions. *Costner*, 153 F.3d at 674. Moreover, "'claim preclusion does not apply to claims that did not arise until *after* the first suit was filed . . . .'" *Magee*, 775 F.3d at 1059 (quoting *Baker Grp., L.C. v. Burlington N. Santa Fe Ry. Co.*, 228 F.3d

[5] The Court also notes that Defendants have relied in part on the dissenting opinions from two Supreme Court cases without advising the Court that they were relying on dissents. (*See* Doc. 55, p. 9 (citing *Elgin v. Department of the Treasury*, 132 S. Ct. 2126, 2147 (2012) (Alito, J., dissenting) and *Magwood v. Patterson*, 561 U.S. 320, 345-46 (2010) (Kennedy, J., dissenting).)

883, 886 (8th Cir. 2000)). As set forth earlier in connection with Defendants' statute of limitations arguments the Record does not conclusively establish when Bucklew's as-applied challenge accrued, so the Court cannot presently determine whether the as-applied challenge is barred by the final judgment in *Zink*.[6]

B. Count II – Deliberate Indifference to Bucklew's Serious Medical Needs[7]

The gravamen of Count II is that Bucklew will experience pain and suffering unless certain changes are made in the lethal injection protocol, and the failure to make these changes constitutes a deliberate indifference to his serious medical needs in violation of the Eighth Amendment. Defendants contend this Court's prior decision in *Zink* – which was affirmed on appeal – forecloses Bucklew's claim. Bucklew insists his present claim is different from the one he presented in *Zink*. The Court agrees with Bucklew that the claim is different in that he presents it as an as-applied claim,

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[6] Bucklew's intimation that Count I is not barred because it was filed before *Zink* was final, (Doc. 61, pp. 26-27), must be rejected. "The general rule is that, as between actions pending at the same time, the first judgment to become final is conclusive in the other action as *res judicata*, even if the first judgment was not final when the second action was filed." *Bucklew*, 783 F.3d at 1122 n.1.

[7] The Suggestions in Support incorporate Defendants' arguments presented in support of their Motion to Dismiss the Third Amended Complaint, and adds little to them. (Doc. 55, p. 2.) Bucklew has followed suit in his Suggestions in Opposition. The Court has thus relied on the parties' arguments advanced in connection with the Motion to Dismiss the Third Amended Complaint.

but also agrees with Defendants that he has failed to state a claim.

Count II contends Defendants have not taken what he characterizes as reasonable and necessary steps to assess and address the risks Bucklew faces in light of his medical condition, (Doc. 53, ¶¶ 152-53), and do not have a contingency plan in the event something goes awry during the execution. (Doc. 53, ¶ 155.) Bucklew alleges these facts "constitute deliberate indifference to [his] serious medical needs, in violation of the Eighth Amendment" and will cause him to suffer "needless harm and extreme suffering . . . ." (Doc. 53, ¶¶ 158-59.) Count II thus challenges the lethal injection protocol, and must satisfy the pleading requirements set forth in *Zink* and *Glossip*. This point is best demonstrated in *Zink*, where the Court of Appeals ruled that the deliberate indifference claim was not legally viable for the same reasons that the cruel and unusual punishment claim had not been stated. *Zink*, 783 F.3d at 1107.

This means that Bucklew must allege sufficient facts to indicate that the staffing and planning procedures Defendants intend to utilize will create a substantial risk of serious harm; that is, Bucklew must "plead more than just a hypothetical possibility that [his] execution *could* go wrong, resulting in severe pain to [him]." *Id*. at 1098-99. Instead, he must allege facts that these aspects of the protocol are "sure or very likely to cause serious illness and needless suffering." *Id*. at 1099 (quotation omitted); *see also Glossip*, 135 S. Ct. at 2737. The Fourth Amended Complaint does not do this; all that is alleged is that the procedures employed are insufficient, but it does not allege what procedures should be employed (other than not performing an execution). Count II simply

states, in a conclusory manner, that the State's procedures violate the Eighth Amendment – but conclusory allegations are insufficient to satisfy the pleading standard.

C. Count III – First Amendment

Defendants contend *Zink* also establishes that Bucklew has failed to state a First Amendment claim. Bucklew again insists his claim is different from the one he presented in *Zink*, but even if he is correct this observation does not change the rationale employed by the Eighth Circuit in holding that a claim of this type is not cognizable.

Bucklew alleges Defendants' refuse to provide him information about "the purported pharmacist or the pharmacy that prepares the drug, or how or when the drug is prepared, or where or when the active pharmaceutical ingredient is obtained, or whether the pharmacy is registered with or has even been inspected by the [FDA] or even whether the drug has been subjected to any testing for safety, potency or purity." (Doc. 53, ¶ 161.) He further alleges that his First Amendment rights are violated if he is not given "access to information about the safety, purity, potency and origins of the drug." (Doc. 53, ¶ 164.) *Zink* involved virtually the same claim. *Zink*, 783 F.3d at 1111 ("The prisoners also argue that they stated a claim that the First Amendment entitles them to information regarding the source of the drug to be used in their executions."). Bucklew suggests his claims are different from those presented in *Zink*; the Court is not convinced,[8] but even if Bucklew is correct

[8] Bucklew contends that "[t]he *Zink* plaintiffs complained of secrecy surrounding the execution team members" while he is complaining about "the secrecy surrounding the compounded

he does not explain why this difference justifies a different outcome, and the Court discerns no reason that it should. There is no need to repeat the Eighth Circuit's rationale: it is enough to note that the Eighth Circuit rejected the claim in *Zink*, 783 F.3d at 1111-13, and the differences in the type of information sought do not distinguish the rationale or justify a different result. *Zink* establishes that Bucklew's First Amendment claim is not cognizable, and for that reason Count III must be dismissed.

III. CONCLUSION

For the reasons stated above, Defendants' Motion to Dismiss, (Doc. 55), is GRANTED IN PART and DENIED IN PART. Counts II and III are dismissed for failure to state a claim. Defendants shall file an Answer to Count I within twenty-eight days of this Order.

IT IS SO ORDERED.

/s/ Beth Phillips
BETH PHILLIPS, JUDGE
UNITED STATES DISTRICT COURT

DATE: January 29, 2016

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drug posed a special risk to him . . . and that such secrecy prevented him from petitioning the government for redress of grievances." (Doc. 50, p. 24.) As outlined in the text, there is at least significant overlap between the First Amendment claim asserted in *Zink* and the First Amendment claim asserted in this case.

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
WESTERN DIVISION

Case No. 14-08000-CV-W-BP

RUSSELL BUCKLEW,

Plaintiff,

v.

GEORGE A. LOMBARDI, DAVID DORMIRE, and TROY STEELE,[1]

Defendants.

ORDER REGARDING SCOPE OF DISCOVERY

Plaintiff was convicted in state court of kidnaping, rape and murder, and was sentenced to death. He challenges Missouri's planned method of execution as applied to him, contending that the current lethal injection protocol will cause him needless suffering and pain in violation of the Eighth Amendment. At the Court's direction the parties filed briefs regarding the scope of discovery, and the parties' positions conflict in certain respects.

The Court will confine the scope of discovery to the matters alleged in Count I of the Fourth Amended

[1] Troy Steele has succeeded Terry Russell as the Warden of the Eastern Reception, Diagnostic, and Correctional Center. Accordingly, Troy Steele is substituted as a Defendant in place of Terry Russell. Fed. R. Civ. P. 25(d). The Clerk of Court is directed to amend the Docket Sheet accordingly.

Complaint. This Order is intended to provide guidance regarding the proper scope of discovery.

I. BACKGROUND

A.

The scope of discovery is informed by the issues involved in the case, so the Court begins by describing Plaintiff's claim and the governing law. Plaintiff's remaining claim is Count I of the Fourth Amended Complaint. (Doc. 53; *see also* Doc. 63 (dismissing Counts II and III of the Fourth Amended Complaint).) As has been described in various orders, Plaintiff suffers from cavernous hemangioma, which is a congenital condition that causes clumps of weak, malformed blood vessels and tumors to grow throughout his body, including his head, face, neck and throat. These tumors are very susceptible to rupture. Plaintiff alleges that execution by lethal injection is likely to cause the tumors to rupture because lethal injection depends on the circulatory system, and that the ruptures can increase his pain and suffering because (1) the chemicals will not travel through his body in the manner intended and (2) ruptured tumors in his throat can cause him to choke. The Fourth Amended Complaint does not allege that changing the lethal injection protocol will alleviate these risks; to the contrary, the allegations broadly relate to any method of lethal injection. The Fourth Amended Complaint alleges that execution by lethal gas will significantly reduce the risk that tumors will rupture and will not cause the needless suffering associated with an execution method that relies on his compromised circulatory system.

In declining to dismiss this claim, the Court held that Plaintiff's allegations satisfied the pleading

requirements set forth in *Glossip v. Gross*, 135 S. Ct. 2726 (2015). There, the Supreme Court described its prior holdings as establishing that a plaintiff must establish "a substantial risk of serious harm, an objectively intolerable risk of harm that prevents prison officials from pleading that they were subjectively blameless for purposes of the Eighth Amendment." 135 S. Ct. at 2737 (quotations omitted). A plaintiff must then "identify an alternative that is feasible, readily implemented, and in fact significantly reduces a substantial risk of severe pain." *Id*. (quotation omitted). *Glossip*'s holding is similar to the Eighth Circuit's prior decision in *Zink v. Lombardi*, where the Court of Appeals held that "to establish a constitutional violation, an inmate ultimately must prove that another execution procedure exists that is feasible and readily implemented, and that the alternative method will significantly reduce a substantial risk of severe pain." 783 F.3d 1089, 1103 (8th Cir.) (en banc), *cert. denied*, 135 S. Ct. 2941 (2015).

B.

Plaintiff has proposed discovery be conducted in six broad categories: the execution protocol, the lethal chemicals utilized, the execution team, alternative methods of execution, DOC policies and procedures, and "Fact and/or Expert Witnesses." Specific topics are set forth within each category. In addition, Plaintiff intends to "depose all medical members of the execution team and the protocol team" as well as all fact and expert witnesses (among others). Plaintiff also indicates he "may request" an opportunity inspect the execution chamber.

Defendants contend that discovery should be conducted in phases. They propose that the first phase be limited to the feasibility of lethal gas as a method of

execution, the likelihood that lethal gas will decrease the risk of pain, and matters related to Defendants' statute of limitations defense. Defendants intimate there would then be an opportunity for them to seek summary judgment, reasoning that if Plaintiff cannot prevail on the issues involved in the first discovery phase there is no need to conduct further discovery. Should Plaintiff demonstrate at least a triable issue that his claim is not time-barred and that lethal gas is feasible and will significantly decrease the risk of pain and suffering, discovery can proceed to the second phase. At that time, discovery regarding Plaintiff's medical condition and the effects of lethal injection can be conducted. Finally, Defendants contend that many subjects described in Plaintiff's discovery plan are unnecessary in light of the issues to be resolved.

II. DISCUSSION

A.

For ease of discussion, the Court first addresses Defendants' proposal to conduct phased discovery. The Court is not persuaded that phased discovery will prove beneficial. In remanding this case, the Eighth Circuit suggested that "[t]he District Court will have the usual authority to control the order of proof, and if there is a failure of proof on the first element that it chooses to consider, it would not be an abuse of discretion to give judgment for defendants without taking further evidence." *Bucklew v. Lombardi*, 783 F.3d 1120, 1128 (8th Cir. 2015) (en banc) (quotation omitted). The Court now has the benefit of the Fourth Amended Complaint, and the issues it presents suggests that parsing out some issues for discovery and reserving others will not be useful. For instance, Defendants suggest that Phase 1 include discovery

related to the likelihood that lethal gas will significantly reduce the risk of unnecessary pain and injury to Plaintiff. However, determining the extent to which lethal gas will reduce that risk requires consideration of the effect of lethal gas on Plaintiff given his medical condition – and Defendants suggest that discovery about Plaintiff's condition be postponed until Phase 2. Similarly, determining whether any reduction in pain and suffering is "significant" – a matter Defendants propose for Phase 1 – requires a comparison to the pain and suffering that is likely to occur through the use of lethal injection, but Defendants propose that discovery on this issue also be postponed until Phase 2.

The Court further believes that phased discovery may result in duplication of effort and prolong the ultimate resolution. For instance, if discovery occurs in phases, witnesses may have to be deposed twice: first to discuss lethal gas, then again to discuss lethal injection. Defendants' proposal also raises the potential of multiple "rounds" of dispositive motions, one after each phase of discovery. Finally, discovery is currently scheduled to close by the end of this year, and dispositive motions are to be filed by the end of January 2017. (Doc. 79, ¶¶ 5, 7.) Even if these deadlines are extended for some reason, the Court doubts that phased discovery would expedite the ultimate resolution of this case, particularly given that the scope of discovery will not be as broad as Plaintiff contemplates. (*See* Part II.B, *infra*.) For these reasons, the Court is disinclined to require that discovery be conducted in phases.

B.

The scope of discovery is limited to nonprivileged matters[2] that are "relevant to any party's claim or defense and proportional to the needs of the case, considering" a variety of factors. Fed. R. Civ. P. 26(b)(1). In light of Plaintiff's proposal, the most problematic factors are "the importance of the issues at stake in the action [and] the importance of the discovery in resolving the issues," *id.*, because these considerations demonstrate Plaintiff's planned scope for discovery is overly broad.

As noted earlier, Plaintiff has proposed discovery be conducted in six broad categories, with each category containing specific topics. The Court's discussion is organized around these six categories.

1. Execution Protocol – Plaintiff anticipates requesting documents relating to the development and adoption of the current protocol, research regarding the chemicals to be used, the effects of those chemicals on the human body, documents concerning alternative lethal injection protocols that were researched or considered, and "documents concerning the complete execution protocol, including all phases of the execution, from the arrival of the team at the facility to the documentation and disposal of the lethal chemicals." (Doc. 100, p. 7.) Some of this information is relevant to the issues in the case. For instance, Plaintiff is entitled to discover the execution protocol that Defendants intend to employ, including the chemicals to be used and the

[2] The Court does not offer an opinion regarding Defendants' claim of privilege because, as Defendants concede, "[p]rivilege analysis is beyond the scope of" the parties' briefing, (Doc. 102, pp. 6), and because the issue is best addressed in the context of a specific discovery request.

manner in which the chemicals will be administered. Plaintiff is also entitled to obtain any information Defendants may have regarding the chemicals' effects on the human body. However, information relating to "the documentation and disposal of the lethal chemicals" is not related to Plaintiff's claims. Similarly, information related to other methods of lethal injection that might have been considered by DOC is not relevant because Plaintiff does not claim use of different chemicals is a viable alternative: not only is this revealed by the Fourth Amended Complaint, but he admits that he "has alleged that any execution by lethal injection poses unacceptable and unconstitutional risks to him . . . ." (Doc. 100, p. 6.) Finally, "documents about the development and adoption of the current lethal injection protocol, including each protocol developed since 2013 and all amendments and changes," (Doc. 100, p. 7), are not relevant to any issues in the case. The current protocol is relevant, but prior protocols and the evolution of the process over time are not relevant.

Plaintiff justifies discovery about alternative chemicals and further details about the process to guard against Defendants contending that lethal injection is the only available and viable method of execution. In that event, Plaintiff wishes to conduct broad discovery to "seek[ ] ways that changes or alterations not previously known or contemplated might significantly reduce the risks to Mr. Bucklew and, hence, achieve compliance with the Constitution." (Doc. 100, p. 6.) However, the only alternative method Plaintiff has pleaded is execution by lethal gas – he has not alleged that changes to the lethal injection protocol or the use of different chemicals will "achieve compliance with the Constitution." To the contrary, he has disclaimed

the possibility that any utilization of lethal injection will reduce the risk of pain and suffering.

The Fourth Amended Complaint does not justify wide-ranging scrutiny into matters unrelated to his claims.[3] This conclusion is not only supported by Rule 26 generally, but by the pleading requirements set forth in *Glossip* and *Zink*. As the Eighth Circuit explained, "[t]he existence of . . . an alternative method of execution . . . is a necessary element of an Eighth Amendment claim, and this element – like any element of a claim – must be pleaded adequately." *Zink*, 783 F.3d at 1103. Moreover, a general allegation "that other methods would be constitutional, devoid of further factual enhancement, fails to state a claim under the Eighth Amendment." *Id*. Here, Plaintiff has not even made a general allegation that changes to the lethal injection process would be constitutional – he has instead denied that any changes can be made. Thus, he has not presented an Eighth Amendment challenge that justifies exploring intricate details of the lethal injection protocol in order to determine if changes can be made.

2. Lethal Chemicals – Plaintiff seeks a list of the chemicals utilized by the State to execute inmates, and the Court agrees Plaintiff is entitled to discover the chemicals that the State intends to use. Plaintiff is also entitled to obtain packaging, labeling, and other inserts to the extent that they describe the chemicals' contents or their effects on the human body (including

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[3] Plaintiff also points to the Court's prior observation that "'if discovery reveals the availability or feasibility of a different, as-yet unpleaded method, there are procedures to deal with such an eventuality.'" (Doc. 107, p. 3 (quoting Doc. 52, p. 10).) The Court did not intend this statement to permit Plaintiff to conduct discovery beyond the bounds set by the pleadings.

warnings), although the name of the manufacturer or provider can be redacted.

Plaintiff would seek documents relating to the purchase, procurement, prescriptions, attempts to obtain chemicals, the DOC's inventory and expiration dates, and the method of maintaining, storing and securing lethal chemicals. None of this information is relevant to Plaintiff's claim.

3. Execution and Protocol Teams (Medical and Non Medical) – This category seeks information about the individuals who will participate in or conduct the execution. Plaintiff explains that "given the severity of his medical condition, the training and qualifications of the execution team members are especially important, as the risks of a botched or excruciating execution are particularly great in his case." (Doc. 100, p. 6.) However, his remaining claim does not allege that changing the execution team members will significantly decrease the risk of pain and suffering, so the relevance of this information is not evident. This information might have been relevant to Count II,[4] but Count II was dismissed. The Court holds that detailed discovery about the execution team members is unnecessary to resolving the issues in this case. Plaintiff may obtain, as part of the discovery regarding the execution protocol, information generally describing the composition of the team (*e.g.,* the number of doctors, nurses, anesthesiologists) as well as the functions they will perform. Finally, in light of the lack of a

[4] Count II alleged, among other things, that executing Plaintiff would violate the Constitution because there was "no contingency plan in the event the lethal drugs fail to kill Mr. Bucklew" and there was no training of personnel or contingency plans in place to address the possibility of a "botched execution." (Doc. 53, ¶¶ 155-57.)

relationship between the execution team members and the specifics of Plaintiff's claim, the Court discerns no need for Plaintiff to learn the identities of, or depose, the execution team members.

4. Alternative Methods of Execution – Within this category Plaintiff seeks documents regarding alternative methods of execution and further specifies that the scope of this category includes, but is not limited to, lethal gas. Information related to lethal gas is clearly relevant because Plaintiff has alleged that lethal gas is a viable and available alternative and a basis for believing that lethal gas will significantly decrease the risk of pain and suffering. However, it is the only alternative method he has alleged, so it is the only method for which discovery is justified and the breadth of this category must be limited accordingly.

5. DOC Policies and Procedures – The topics in this category relate to DOC policies for obtaining or using lethal chemicals, as well as documents relating to the training of execution team members. To the extent that "prescribing, administering, or using" lethal chemicals relates to the protocol, this information has been addressed in the context of other categories. The remaining respects are beyond the proper scope of discovery for this case. Plaintiff's claim does not depend upon how or from where the chemicals are procured, nor does it depend on the execution team's training. Therefore, discovery into these issues is unnecessary.

6. Fact and/or Expert Witnesses – This category seeks findings and conclusions from fact and expert witnesses, and other information that must be disclosed pursuant to Rule 26(a)(2). Obviously, the parties must comply with Rule 26(a)(2). It is not clear

what else this category encompasses, so the Court cannot comment further.

III. CONCLUSION

For the reasons set forth above, the Court denies Defendants' request that discovery be conducted in phases. Moreover, the scope of discovery shall be limited to the claim and theory advanced in Count I of the Fourth Amended Complaint, as set forth more fully in Part II.B of this Order.

IT IS SO ORDERED.

/s/ Beth Phillips
BETH PHILLIPS, JUDGE
UNITED STATES DISTRICT COURT

DATE: August 11, 2016

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI

Civil Action No. 4:14-CV-8000-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE LOMBARDI, *et al.*,

Defendants.

Hon. Beth Phillips

PLAINTIFF'S MOTION FOR LEAVE TO FILE *EX PARTE* AND UNDER SEAL AN EXHIBIT IN SUPPORT OF PLAINTIFF'S REPLY BRIEF IN SUPPORT OF HIS MOTION TO COMPEL DISCOVERY

Plaintiff Russell Bucklew, by and through counsel Cheryl A. Pilate, hereby moves to file *ex parte* and under seal an exhibit in support of his Reply Brief in Support of His Motion to Compel Discovery. The exhibit contains excerpts from the depositions of the execution team's doctor, M3, that were taken during the litigation of *Ringo et al. v. Lombardi, et al.*, Case No. Case No. [sic] 09-4095-BP and *Zink et al. v. Lombardi, et al.*, Case No. 12-4209-BP.

Mr. Bucklew seeks to file the present exhibit under seal because the depositions of M3 were designated "confidential" under the terms of the protective orders entered in *Ringo*, Case No. 09-4095 (Doc. 112) and

Zink, Case No. 12-4209 (Doc. 112). Although undersigned counsel Cheryl Pilate was counsel in those cases, her present co-counsel from Sidley firm were not. Therefore, this motion seeks leave to file the exhibit containing the M3 deposition excerpts under seal and *ex parte*, but *ex parte* as to the Sidley counsel *only*. Although the exhibit cannot presently be served on Ms. Pilate's co-counsel, it may be served on Defendants' counsel in the Attorney General's office, who already have copies of all three of M3's depositions.

In further support of the present Motion, Plaintiff states:

1. Russell Bucklew was one of the plaintiffs in *Ringo*, and counsel Cheryl Pilate represented him that action. On September 24, 2010, Ms. Pilate deposed M3 via teleconference, an arrangement chosen to protect M3's identity. The transcript from that deposition was subsequently submitted to this Court, under seal, as Exhibit 5 to Doc. 211, Suggestions in Support of Plaintiffs' Motion for Summary Judgment. *See Ringo et al. v. Lombardi et al.*, Case No. 09-4095 (January 21, 2011).

2. Ms. Pilate also represented Mr. Bucklew in the multi-plaintiff *Zink* case. On July 11, 2013, and on January 16, 2014, Ms. Pilate's co-counsel in *Zink* deposed M3, also via teleconference.

3. Undersigned counsel believes that portions of all three depositions of M3 are highly relevant to the present litigation. For the purpose of permitting the Court to readily review some of the relevant portions, counsel seeks to submit, under seal, a proffer of a representative sample of the deposition excerpts. This

exhibit would be served on opposing counsel, but *not* on Ms. Pilate's co-counsel at the Sidley firm.

4. This Motion for leave to file under seal and the procedures suggested above comply with the protective orders entered in *Ringo* and *Zink* while allowing Plaintiff to submit material relevant to this Court's determination of Plaintiff's Motion to Compel Discovery. The proposed sealed proffer of M3's deposition testimony is referenced in footnote 1 in Plaintiff's Reply Brief in Support of His Motion to Compel. The reference is necessarily general, however, as the Sidley co-counsel have not had access to any of M3's depositions.

5. Undersigned counsel contacted Defendants' counsel to obtain their position as to this Motion, and defense counsel indicated they were opposed to the filing of the deposition excerpts even under seal.

WHEREFORE, for the foregoing reasons, Plaintiff respectfully requests that this Court grant him leave to file attached proposed exhibit under seal, in support of his Reply Brief in Support of His Motion to Compel Discovery.

Plaintiff respectfully requests such other, further relief this Court deems appropriate.

Dated: April 5, 2017

Respectfully Submitted,

By: *Cheryl A. Pilate*

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Counsel for Plaintiff Russell Bucklew

PROPOSED SEALED EXHIBIT

(Fully redacted)

From: ecfMOW.notification@mow.uscourts.gov

To: cmecf_atynotifications@mow.uscourts.gov

Subject: Activity in Case 4:14-cv-08000-BP Bucklew v. Lombardi, et al Order on Motion to Seal Document

Date: Thursday, April 06, 2017 9:39:43 AM

U.S. District Court
Western District of Missouri

Notice of Electronic Filing

The following transaction was entered on 4/6/2017 at 9:39 AM CDT and filed on 4/6/2017

Case Name: Bucklew v. Lombardi, et al

Case Number: 4:14-cv-08000-BP

Filer:

Document Number: 180(No document attached)

Docket Text:

ORDER denying [178] motion to file document under seal. The Court will review Plaintiff's Motion to Compel and will contact the parties if it believes that a review of M3's deposition is necessary to resolve issues raised in that motion. In the meantime, M3's deposition should not be filed in this case. Signed on 4/6/2017 by District Judge Beth Phillips. This is a TEXT ONLY ENTRY. No document is attached. (Wolfe, Steve)

[1] IN THE UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MISSOURI

CASE NUMBER: 4:14-CV-8000-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE A. LOMBARDI, DAVID A. DORMIRE,
And TERRY RUSSELL,

Defendants.

DEPOSITION OF
DR. JOEL B. ZIVOT, MD, FRCP

MARCH 8, 2017

SCHEDULED AT 12:30 P.M. (E.S.T)

* * *

[6] Whereupon,

DR. JOEL B. ZIVOT, MD, FRCP
being duly sworn, was examined
and testified as follows:

EXAMINATION

BY MR. SPILLANE:

Q. Dr. Zivot, I'm Mike Spillane, from the Missouri Attorney General's office. I wanted to start out by talking about this list of exhibits we have in front of you. And I wanted to go through real quickly and have you identify them. I think everything here is something you'll be familiar with. The first thing I have is

Exhibit 1, which is the Missouri Execution Protocol. I assume you're familiar with that.

(Exhibit Number 1 was identified for the record.)

THE WITNESS: Oh, right. This – this is –

BY MR. SPILLANE:

[7] Q. That's the exhibit list, and then the first one –

A. I see.

Q. – is the Missouri –

A. (Reviewing). Yes.

Q. Right. And then the second one is your Supplemental Report, which I assume you're familiar with.

(Exhibit Number 2 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. And the third one is a group that I've stapled together of three Affidavits that you gave in this case. And I assume you're familiar with those.

(Exhibit Number 3 was identified for the record.)

THE WITNESS: (Reviewing). Yes.

BY MR. SPILLANE:

Q. Okay. Fourth thing is Dr. Antognini's Supplemental Report.

(Exhibit Number 4 was identified for the record.)

THE WITNESS: I – I'm skimming these, obviously. So if you want me to –

BY MR. SPILLANE:

[8] Q. Right. Yeah, yeah. I mean, you – I'm just asking if you've – if you've read Dr. – and I'll represent to you that it's Dr. Antognini's report and you're familiar with his report.

A. Yes.

Q. And then that was the supplemental. The second one is his original report, which is Exhibit 5, and I assume you have read that and are familiar with it, if that is his report.

(Exhibit Number 5 was identified for the record.)

THE WITNESS: (Reviewing). Yes.

BY MR. SPILLANE:

Q. Okay. Next thing is an article you authored. I have it labeled as Exhibit 6. It's in USA Today, and it's titled "Why I'm for a Moratorium on Lethal Injections." I assume you remember writing that and are familiar with it.

(Exhibit Number 6 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. The next one is a piece you did for CNN, Exhibit 7, titled "Lethal Injection Explained." I assume you're familiar with that.

[9] (Exhibit Number 7 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. All right. The next one is another article you authored for Time, and it's Exhibit 8, and it's "The

Slippery Slope From Medicine to Lethal Injection." I assume you're familiar with that.

(Exhibit Number 8 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. The next one is an article that you wrote in the University of Richmond Law Review, called "Lethal Injection: States Medicalize Execution", Exhibit 9. I assume you wrote that and are familiar with it.

(Exhibit Number 9 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. The next one is an article you wrote in Philosophy, Ethics and Humanities in Medicine, I've labeled Exhibit 10, and it's titled "The Absence of Cruelty is Not the Presence of Humanness, Physicians and the Death Penalty in the United States." I assume you're [10] familiar with that.

(Exhibit Number 10 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. The next one is an article which you authored in the Fordham Law Review. It is – I've labeled it Exhibit 11, and it specifically discusses Mr. Bucklew's case to a certain extent, and it's called "Too Sick to be Executed: Shocking Punishment and the Brain."

(Exhibit Number 11 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Are you familiar with that?

A. Yes.

Q. The next article I have is Exhibit 12. It's written in a document – i [sic] a publication called Medpage Today, Public Health and Policy, and it's called "The White Coat: A Veil for State Killing?"

And I assume that you're familiar with that as you are the author of that article.

(Exhibit Number 12 was identified for the record.)

THE WITNESS: Yes.

[11] BY MR. SPILLANE:

Q. Okay. The next one is an interview, I believe you gave, in the New York Times. And it is Exhibit 13, and it is called "Timeline Describes Frantic Scene at Oklahoma Execution." And I assume you recall giving that interview and are familiar with its contents.

(Exhibit Number 13 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. The next one is another interview that you gave for the Washington Post, and it's called "Florida's Gruesome Execution Theater." And I assume you're familiar with that and recall giving the interview.

(Exhibit Number 14 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. The next one is an interview you gave for a publication. I believe it's called Crime. It's listed as Exhibit 15, and it says – it's titled "Oklahoma Wants to Reinstate the Gas Chamber, and Experts Say it's a Bad Idea."

(Exhibit Number 15 was identified [12] for the record.)

THE WITNESS: I don't – I don't recall this.

BY MR. SPILLANE:

Q. Well, let me see if I can refresh your recollection.

A. I see – I see my name here, but I don't recall this publication. So I don't know.

Q. Right. You're – the – the quotation that you supposedly gave was on page 2 of 6, and you talk about nitrogen hypoxia. Does that refresh your recollection?

A. I see that, yes.

Q. Okay. Do you remember giving that interview now, about nitrogen hypoxia, or speaking about it?

A. I do.

Q. Okay.

A. I just don't recognize the name of this publication.

Q. Right. Kind of an odd name. Crime.

A. Yeah.

Q. Oh, you know what, I'm absolutely wrong. The publication is the Huffington Post, and Crime is part of the title, I guess. The Crime section of Huffington [13] Post.

A. I see.

Q. So I apologize. So now does that refresh your recollection?

A. Yes.

Q. Okay. The next thing I have is – again, it's a Time interview, and it's called "The Harsh Reality Of Execution by Firing Squad," and you gave a little interview for that. And I don't know if you recall that.

(Exhibit Number 16 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. Seventeen is an opinion of the Florida Supreme Court, in a case called Gissendaner – I'm sorry, of the United States Court of Appeals for the Eleventh Circuit, in a case called Gissendaner versus Commissioner. And I believe you gave evidence in that case.

Do you recall giving evidence in that case and the Supreme Court opinion? Excuse me, the Eleventh Circuit opinion.

(Exhibit Number 17 was identified for the record.)

THE WITNESS: I don't – I – I recall the [14] case. I would have to, you know, look to familiarize myself again but, yes, I recall the case.

BY MR. SPILLANE:

Q. The next document I have is Exhibit 18, and it is an Affidavit which you gave in the Gissendaner case. Do you recall giving that now, the Affidavit –

A. Yes.

Q. – and the contents of it?

(Exhibit Number 18 was identified for the record.)

BY MR. SPILLANE:

Q. The next is Exhibit 19, which is a Florida Supreme Court opinion in a case called Davis v. Florida.

A. Uh-huh (affirmative).

(Exhibit Number 19 was identified for the record.)

BY MR. SPILLANE:

Q. Do you recall participating in that case?

A. Yes.

Q. Okay. And then the next thing after that is Exhibit 20, which is an order of the Circuit Court denying the stay of execution – well, I guess it's what they call the Circuit Court. The trial level court in Florida, denying the stay of execution in the Davis case.

[15] (Exhibit Number 20 was identified for the record.)

BY MR. SPILLANE:

Q. Do you recall that?

A. Yes.

Q. Okay. Exhibit 21 is your testimony that you gave in the Davis case, and I believe your testimony actually starts at page 19 of the transcript I've handed you.

(Exhibit Number 21 was identified for the record.)

THE WITNESS: (Reviewing). Yes, I see that.

BY MR. SPILLANE:

Q. Yeah. And you recall giving that testimony?

A. Yes.

Q. Okay. The next thing I have is a Florida Supreme Court Decision in a case called Henry v. State of Florida, in which you gave evidence. Do you recall that case?

(Exhibit Number 22 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

[16] Q. All right. And do you recall this decision at all?

A. Not specifically.

Q. Okay. The next thing I have is Exhibit 23. And if you – it is a pleading that was filed by Mr. Henry in the State of Florida. And if we flip to the back of it, attached to it is an Affidavit that you gave in the case. Do you recall that Affidavit I'm looking at? I think it's farther back.

(Exhibit Number 23 was identified for the record.)

THE WITNESS: Yes.

BY MR. SPILLANE:

Q. Okay. Now I'm going to ask you something specifically about your report. When you listed the interviews and such that you did in your report, which is Exhibit 2, you referred to an interview that you gave with Dahlia Lithwick, which was a podcast for something called Slate. Do you recall doing that?

A. Yes.

Q. Okay. I have in my notes that at page two – at two minutes and thirty seconds into that podcast, you

said that the Constitution does not ask for a punishment to be humane, but it does ask that punishment not be needlessly cruel. Is that accurate?

[17] A. I don't have a copy of the transcript, so I –

Q. Is that consistent with your views?

A. Say it again.

Q. What you said was the Constitution does not ask for the punishment to be humane. It does ask that the punishment not be needlessly cruel. Is that consistent with your views?

A. Yes.

Q. Okay. I have at page – excuse me, twelve minutes and twelve seconds into that, you said, lethal injection can never meet the requirement for not needlessly cruel. You didn't say being – actually – I didn't misread it. It actually says lethal injection can never meet the punishment for – meet the requirement for not needlessly cruel. Do you remember saying that?

A. Perhaps.

Q. Is it consistent with your views?

A. Yes.

Q. Explain, please. Explain why lethal injection can never meet the requirement for not being needlessly cruel.

A. Lethal injection, as I've seen it practiced, or have – having reviewed protocols, imagines that the chemicals that are employed can produce death in [18] a way that the chemicals are not able to do.

Q. Okay. Let me refer you to Exhibit 8, which was an article you wrote, on page 2, and it's The Slippery

Slope From Medicine to Lethal Injection article. And it's page 2 of that. And I'm looking at the paragraph that says:

(Reading:) Lethal injection is merely an impersonation of medicine, nothing more. It wastes scarce drugs that could serve dozens of patients in medical need. When I study the details of lethal injection – of the lethal injection protocol, my medical knowledge feels more like a curse as I see mistakes that lead to unnecessary cruelty (end of reading).

Is that consistent with your view?

A. Yes.

Q. And I'm going to skip down to the next paragraph where you wrote: (Reading:) Lethal injection was never anything other than a facade for punishment, never not needlessly cruel (end of reading).

Is that consistent with your views?

A. Yes.

Q. All right. Also, and I – I don't know if you recall this, but I'll simply step out of order here a little bit. In your testimony in the Davis case, you refer to yourself as a vocal advocate against lethal [19] injection. Is that accurate? I mean, are you a vocal advocate against lethal injection?

A. I'm not sure what you mean when you define a vocal advocate.

Q. I don't know. I'll come back to – I – I've got the quote here and when I get to it, I'll probably ask you what you meant then.

A. Okay.

Q. I would refer you now to Article – excuse me, to Exhibit 6. It's an article you wrote titled Why I'm for a Moratorium on Lethal Injections. One of the first things I saw there is you were talking about when you first witnessed an anesthetic, sodium thiopental, being used. And you described that it raced into a vein and in a moment rendered the patient unconscious. Is that accurate?

A. This article was written, you know, for a newspaper audience. And so if you're asking me to define what a moment means as a specific amount of time in seconds, then I think maybe that's what we have to discuss.

Q. Well, tell me what you meant.

A. That in a – in a short period of time. So, I don't know, I think a moment was just meant to mean relatively quickly.

[20] Q. All right. Let me ask you something else you wrote. You wrote that your right to use thiopental was earned through thousands of hours of study, training and evaluation, and proof of your sound, safe and sage practice is being endangered by the use of lethal chemicals in injections. Is that accurate?

MS. CARLSON: Do you have that – are you reading from somewhere?

MR. SPILLANE: Yeah. I have it written down here, but it's also in the article if you wish to – let's see. Give me a moment and I'll find the exact quote.

BY MR. SPILLANE:

Q. (Reading:) My right to use sodium thiopental was earned through thousands of hours of the study of pharmacology, anatomy, physiology, training and evaluation. It was earned by the granting of a medical

degree. It was granted by State medical boards whose job is to protect the public. It was validated by granting the hospital privileges based on proof of my sound, safe and sage practice and a license from the Drug Enforcement Agency (end of reading).

And above that, you talk about how that – the right to use thiopental has been taken away because it's been used in lethal injections and is no longer [21] available. Is that accurate?

A. Yes.

Q. Talking a little bit – this may go a little bit into your qualifications. Explain to me a little bit about the thousands of hours of training and so forth that go into your ability to use anesthetics.

A. An anesthesiologist is a physician who has trained in that particular specialty after having completed four years of college and four years of medical school. That training is an additional four years. During that time, I studied anatomy and physiology and – and chemistry as it applies to anesthesiology.

At the end of that training, I write an exam, and I have a – I'm further examined through an oral exam format. And the American Board of Anesthesiology, which is an organization recognized by the – a group – by an organization that grants specialty certification to various medical specialties.

I submit myself to that, and having passed those things, I'm – I'm granted as a – or designated as a member of the American Board of Anesthesiology in this case. And so the sum total of that time, of all that training, is – is thousands of hours.

Q. That would include conducting many, many surgeries, doctor?

[22] A. Anesthetics.

Q. Well, what – I probably misspoke. Doing the anesthesia during many, many surgeries?

A. Correct.

Q. How many?

A. Well, are you asking me during my training or –

Q. Yes. During your training in order to become board certified, how many anesthesias would you have to do during surgeries?

A. Well, on average, it would be – say we could estimate four, maybe four anesthetics a day. So that would be twenty a week. Maybe eighty a month. Maybe eight hundred a year, times by four would be thirty-two hundred anesthetics in the training experience.

Q. When you did these anesthesias, were you required to be competent to set IV lines?

A. Yes.

Q. Were you required to be competent to do that in peripheral veins?

A. Yes.

Q. Were you required to be able to do that in central veins?

A. Yes.

[23] Q. Would that include the femoral vein?

A. Yes.

Q. Would it include the subclavian vein?

A. Yes.

Q. Would it include the jugular vein?

A. Yes.

Q. And how many times did you have to do that in the period you were training to be board certified, sir?

A. I would say that I did that – in each of those locations or in total?

Q. Well, just tell me generally how often you had to use a central line. I won't differentiate between the location, between the large veins.

A. Well, during my training, I would say that I did that a hundred times, maybe two hundred times. I don't recall specifically, but it was an often enough experience that I would do it on a regular basis.

Q. And is that typical for persons that are trained to be a board-certified anesthesiologist, sir?

A. Yes, it is.

Q. And would it be fair to say that if you weren't competent at that, you wouldn't have gotten certified?

A. That would be one of the requirements that [24] an anesthesiologist would require for certification.

Q. All right. Let's flip to Exhibit 13, Frantic Scene at State Killing. Page 4 of 4 is what I'm interested in.

MS. CARLSON: Did you say 13?

MR. SPILLANE: Yes, ma'am.

BY MR. SPILLANE:

Q. Timeline Describes Frantic Scene at Oklahoma Execution. Sorry, my notes didn't quote it exactly. Are we at page 4 of 4? Four – 4 of 4?

A. Yes, sir.

Q. Okay. Yes?

A. Yes.

Q. And it earlier describes that Oklahoma had said that a femoral vein had blown to explain the allegedly – the botched execution. And you have a comment there. Let's see. (Reading:) The femoral vein is a big vessel, Dr. Zivot said. Finding the vein, however, can be tricky. The vein is not visible from the surface and is near no major artery. You can feel it and you can't see it. Without special expertise –

A. You can't feel it.

Q. Oh, I'm sorry. You're right. (Continues reading:) You can't – without special expertise, you can't feel it. Without special expertise, the failure is [25] not surprising (end of reading).

And so what I'm gathering here is – from the paragraph above that, that you're disputing Oklahoma's assertion that the femoral vein was blown.

A. This was – this – that was –

Q. I'm sorry. Let me ask a better question. I'll read the paragraph I'm thinking about. (Reading:) Dr. Joel Zivot, an anesthesiologist at Emory University School of Medicine, said that the prison's initial account that the vein had collapsed or blown was almost certainly incorrect (end of reading).

And I want to know why you – why you said that.

A. The – what was described was that the catheter that was used was actually a short catheter. And so I think that the word blown might be a bit of a term of art. So they claimed that the vessel did not – ruptured in some way. And my view here is that the catheter was pulled out of the vein, was not in the vein. And so the distinction here, I think, is perhaps what you're asking me.

Q. Yes. That's – I was trying to get at why you made that conclusion. I wasn't sure from the article. And in the next paragraph when you're describing your conclusion, you say, the femoral vein is [26] a big vessel.

Would that go to your reasoning in why you concluded it wasn't blown as they used the term?

A. The femoral vein is a vessel of a – of a large caliber, and should be able to, if – when properly placed, take a fair amount of fluid when – as it is infused into the vein. And so for that vein to rupture, from what was described, seemed unlikely.

Q. And let me contrast it to a peripheral vein. If a peripheral vein was used, that might be more likely to rupture because it's not a big vessel, as you describe the femoral vein?

A. Yes.

Q. Okay. Now your article at Exhibit 7, for CNN, the thrust that I got from that article is that it's opposition to lethal injection, and at one point you said, if capital punishment continues, it needs to be a better method. Is – is that a fair summary of the article?

A. Not really.

Q. Well, tell me – tell me what you meant there.

A. Well, are you saying that that's – I think that's one point.

Q. That's one point that you made, is –

[27] A. Yeah.

Q. – that if lethal – if execution continues, it shouldn't be lethal injection. Is that a fair point?

MS. CARLSON: Take your time to read the entire article if you need to because he's asking you a lot of questions about various articles.

THE WITNESS: Ask – please ask me that question again.

BY MR. SPILLANE:

Q. Well, let me – let me see if I can come to a specific point that I can ask you about then, instead of – please keep reading and I'll ask you about a specific point.

A. (Reviewing).

Q. I'm looking at your – in the concluding thing at the end of page 3 of 3. And you begin the paragraph: (Reading:) Lethal injection as presently practiced is an impersonation of medicine populated by real doctors who don't acknowledge the deception. The rightness or wrongness of capital punishment remains an open question, but it's time to reject lethal injection. If capital punishment continues, it needs another method (end of reading).

Is that consistent with – what you wrote [28] there, consistent with your views?

A. Yes.

Q. I'm going to go next to Exhibit 10, which is titled The Absence of Cruelty is Not the Presence of Humanness.

A. Humanness (pronouncing), actually.

Q. Oh. Okay. I thought there would be another E there. My mistake. Not the presence of humanness, physicians and the death penalty in the United States.

Are you familiar with the content of this article?

A. Yes.

Q. I'll read the last sentence in the article. (Reading:) If the death penalty is cruel, then attempts to reduce cruelty by pharmacological adjustments are not necessarily humane, or worse, create an illusion of humanness as they are physician directed (end of reading).

Do you agree with that analysis?

A. Yes.

Q. Okay. Now the next article I'm going to go to is Number 11, which is the Fordham Law Review article, Too Sick to be Executed: Shocking Punishment and the Brain. And I'm going to turn to page 2 of 7. I [29] apologize for taking a moment here, but I have a specific quote I wanted to ask you about.

Here we go. I'm looking at – under Roman Numeral II, Too Sick to be Executed. I believe it to be the second full sentence in the paragraph, and it's describing Mr. Bucklew's tumors. And it says –

A. Which number is that? I think these are all numbered –

Q. Roman Numeral II.

A. No, but these are all numbered sentences. So which number?

Q. Well, it's – it's right after Footnote 34. It begins these vascular tumors.

A. I see.

Q. Okay. (Reading:) These vascular tumors have been present since birth and will continue to grow. They are resistant to definitive treatment and will eventually obstruct Bucklew's airway and kill him by

self-strangulation if he is not executed first (end of reading).

Is that your – do you agree with the statement that you wrote there?

A. Yes.

Q. Okay. And I think let's shift then to your actual Supplemental Report, which is Exhibit 2. And if [30] we go to page 8.

A. Just give me a moment to find 2.

Q. Oh, I'm sorry. Well, how about let's go to – let's go to page 8, paragraph 10, when you get there.

A. Yeah. This is 5. This is 2. All right, I found it.

Q. All right.

A. All right. So here's 2. So, I'm sorry, where?

Q. Paragraph labelled 10 at the bottom of page 2. This is in your report.

A. Bottom of page 2.

Q. Bottom of page 8. I'm sorry. If I said 2, I apologize. It's paragraph 10 at the bottom of page 8.

A. Okay.

Q. All right. What you wrote there: (Reading:) As already described, Mr. Bucklew's condition is progressive. As of April 2012, Mr. Bucklew's medical records indicate that his condition did not appear to place him at risk of life-threatening hemorrhaging.

My examination of Mr. Bucklew on January 8, 2017, as well as my review of recent MRI and CTI imaging reports, form the basis of my conclusion at the – at the present time. Mr. Bucklew is at risk of life-threatening hemorrhaging, particularly under the

conditions imposed [31] by Missouri's execution procedure (end of reading).

So is – is that paragraph consistent with your earlier conclusion that if he's not executed, the hemangioma is eventually going to strangle him?

A. Yes.

Q. Okay. Let's go to – oh, let's see, page 9, conclusion A. (Reading:) It is my professional opinion that Mr. Bucklew suffers from a severe and life-threatening form of cavernous hemangioma. Given the nature of Mr. Bucklew's condition, it is my medical opinion that the vascular tumors that obstruct Mr. Bucklew's airway will present a permanent threat to his breathing, and that life-threatening choking episodes will occur on an ongoing basis. When these choking episodes occur, they will be associated with hemorrhaging to a varying degree that will be easily visible by any observer (end of reading).

Is that also consistent with your conclusion that the hemangioma will strangle him if he's not executed?

A. I think that what I said here is consistent with my view, so, yes.

Q. Okay. And when that happens, then there will also be hemorrhaging is what I take from A. When he chokes, there will also be hemorrhaging.

[32] A. That's my belief.

Q. Okay. Now I'm going to shift to Exhibit 12, which is The White Coat: A Veil for State Killing? Now as I take this article, it is your account of an execution that you witnessed in the State of Georgia.

A. Yes.

Q. Why would you write an account of an execution which you witnessed in the State of Georgia?

A. I'm not sure I understand your question.

Q. Well, this is – let me ask it this way. Did you write an article – did you witness an execution in the State of Georgia and write an article about it as part of your vocal advocacy against lethal injection?

MS. CARLSON: Objection. Form.

BY MR. SPILLANE:

Q. You can answer it if you can understand it. If it's too confusing, I'll try again.

A. I – I don't really understand what you're asking me.

Q. Why did you write the article, The White Coat: A Veil for State Killing?

A. Why did I write it?

Q. Yes, sir.

A. I'm – I'm interested in the subject.

Q. Why did you witness the execution?

[33] A. I was requested to witness it by the person executed, Mr. Wellons.

Q. Okay. When we go to page 3 of 6, you described a little bit of what you saw there. And I'm looking at the paragraph that begins, the inmate. I believe it is the one, two, three, fourth paragraph from the top, the fourth full paragraph.

A. Yes.

Q. Okay. And you said: (Reading:) The inmate has an apparent change in his respiratory pattern and I assume the execution has therefore begun. He twitches

strongly once, mostly on the left side of his body. I am looking hard now for something in his breathing or in his movements that I could construe as consciousness or the lack of it (end of reading).

And then you kind of move on to something else. I was wondering if you saw something in his breathing that you could construe as consciousness or the lack of it?

A. No.

Q. Okay. Next you said that a corrections officer fainted, in the next paragraph.

A. He collapsed. The corrections officer collapsed.

Q. All right, yeah. And you used the word, I [34] lose count when suddenly one of the corrections officers faints and falls forward. I was using your word.

A. Okay.

Q. Okay. How long were you distracted by the corrections officer's fainting?

A. I don't understand your question.

Q. Well, later in the article, you came back and talked more about the inmate and didn't see anything abnormal occur. But that talk – that happens after you talk about the corrections officer fainting and you describe that. So I was wondering how long your attention was off of the inmate.

A. I don't –

MS. CARLSON: Objection. Foundation.

THE WITNESS: I don't know how long it went on for. I had no watch. I had no way – if you're asking me

in matter of minutes, is that what you're asking me, or is this a –

BY MR. SPILLANE:

Q. Well, let me ask the question a different way. Earlier you described you didn't see anything prior to the guard fainting, any change in breathing that would indicate he was or was not conscious. Did you see anything like that during the remainder of the execution?

A. It was very hard to see much. So all I [35] could see, I was looking through a window from a distance. It was hard to see things with great precision.

Q. All right. I'm looking at page 5 of 6, and I'm looking at the paragraph that begins with, if the Georgia Composite Medical Board.

A. Uh-huh (affirmative).

Q. And you write there that: (Reading:) If the Georgia Composite Medical Board or any other State medical board refuses to be a plaintiff against the warden for an order of mandamus to force disclosure of the identities of physicians hired to supervise lethal injections, then probably any resident in that state has sufficient interest in knowing whether the men in question are his or her doctors (end of reading).

And then in the next paragraph, you say: (Reading:) Residents may bring a relator action against the warden and may name the medical board as a defendant in whose name Mr. Jordan – I assume – Mr. Jones (end of reading). I assume that's the guard – moves for mandamus.

A. No, Mr. Jones is –

Q. Mr. Jones is the defendant? Okay.

MS. CARLSON: No. I think he's – no. I think that misstates what the article says.

[36] THE WITNESS: It's just – he's a –

BY MR. SPILLANE:

Q. Who is Mr. Jones?

A. A theoretical plaintiff.

Q. Okay. The citation of the case would read Georgia Composite Medical Board, ex rel. Jones v. Warden. So if I take this correctly, you're suggesting here that residents of the State of Georgia should bring an action against the warden based on what happened at this execution. Is that fair?

MS. CARLSON: Objection. Form.

THE WITNESS: No. That's not what I'm saying.

BY MR. SPILLANE:

Q. Tell me – tell me what you mean.

A. The – what's at issue is the fact that in Georgia, physicians who participate in lethal injection, their identity is kept secret. And medical boards need to know the identity and activity of all physicians within the State. But these particular physicians, if they choose to participate, their identity is protected, and the medical board should demand to know what all physicians in the State do under normal considerations when they are practicing or holding themselves out to be practicing medicine in any form. And that's my point.

[37] Q. So as I understood it, you first of all talked about the State Medical Board refusing to be a plaintiff, and then you talked about the residents may bring an action against the warden. Is that accurate?

A. I don't – I don't understand your question.

Q. All right. You said here, residents may bring a relator action against the warden and may name the board as a defendant. So are you saying that residents should sue the medical board because they're not actively pursuing the physicians who participated in the execution?

MS. CARLSON: Objection. Form.

THE WITNESS: This is an article that I wrote which are my views on – on something of this – in this subject. And I'm not holding myself out as a legal expert or as a national advocate in some way, nor am I representing myself as the beginning of some lawsuit that should be brought against the State. That's not my intention here.

BY MR. SPILLANE:

Q. Okay. I'm going to go next to Exhibit 14, which is titled Florida's Gruesome Execution Theater, in the Washington Post. Did you give an interview for this [38] article?

A. Yes.

Q. What was the point of your interview here, sir? What did you say?

A. I – I don't recall.

Q. Okay. That's fine. Let's – let's move forward. I'm going to go to Exhibit 15, Huffington Post. It's titled Oklahoma Wants to Reinstate the Gas Chamber, and Experts Say it's a Bad Idea.

And then I'm looking at page 2, where we start with Dr. Zivot – Dr. Joel Zivot, assistant professor of anesthesiology. Are we there?

A. Uh-huh (affirmative).

Q. And then it's –

A. Yes.

Q. – (Reading:) Dr. Joel Zivot, assistant professor of anesthesiology and surgery at Emory University School of Medicine, told the Huff Post it is ethically impossible for a doctor to conduct tests and therefore reach conclusions on execution procedures. No physician is an expert in killing, and medicine doesn't itself – doesn't position itself intentionally in taking a life, Zivot said. He added, there's no therapeutic use of nitrogen gas and there's no way to ethically or practically test if nitrogen gas is a humane alternative [39] (end of reading).

So what were you referring to in that second paragraph there, sir, about no physician is an expert in killing?

A. I'd – I'd have to – I – I don't know if I can recall the question that was asked of me at the time. So without knowing the question, I'm – I'm not sure I can accurately –

Q. Well, let me ask you is this is [sic] accurate, where you wrote, there's no way to ethically or practically test if nitrogen gas is a humane alternative. And I assume by that, you mean a humane alternative to lethal injection. Is that accurate?

A. I'm not sure that I used the word humane, frankly. That may have been what they inserted here, because that would not be my word here.

Q. Tell me what your word would be.

A. I would say not cruel.

Q. So there's no way to tell if nitrogen gas would not be cruel, is – is that what you were saying?

A. Yes.

Q. I know you just spoke about nitrogen, and the article talks about gas chambers, so I'm guessing it might be broader. Do you have an opinion if there's any way to know that another gas used in an execution would [40] not be a – would not be cruel?

A. I have no opinion about that.

Q. Well, would the same reasoning that you can't test it, therefore you can't know about nitrogen, apply to other gases?

A. I – I'd have to know the entirety of what you're describing to know how to answer your question.

Q. Well, you said there's no practical way to test if nitrogen gas – and you used the word cruel here, so I'll use the word cruel – is a cruel alternative. Does that statement apply to using other gases besides nitrogen as a replacement for lethal injection?

A. I – I'm not an expert in any technique of killing. If you're asking me to design or describe –

Q. No, I'm not. I'm asking if your statement that your made about nitrogen applies to other gases.

A. I would have to know which gases, and the details, to be able to answer your question.

Q. Okay. Let's move on to document 18, which is your Affidavit in the Gissendaner case. Let me know when you've – you've gotten there.

A. I've got it.

Q. Now, I'm looking at paragraph 11 on it looks like page 4 of 6. And what you wrote there is: (Reading:)

I have been informed that Kelly Gissendaner [41] is a 46-year-old woman with a height of five foot ten inches and a weight of two hundred and ten pounds. This corresponds to a body mass index BMI of 30.1 kilograms per M squared.

A. Meter squared.

Q. Meter squared. Thank you. I didn't – I do not know the term. (Continues reading:) And puts her in the obese category. Intravenous access is very difficult to obtain in obese individuals. Female gender is also a misfactor for difficult intravenous access, as their venous systems tend to be smaller than those of men. As a result of Kelly Gissendaner's diagnosis of obesity and her gender, I anticipate that establishing intravenous access will be extremely difficult. Obesity is also a known risk factor for obstructive sleep apnea (end of reading).

Now, did you know anything about Ms. Gissendaner besides the information that you said in paragraph 10 that you were told – paragraph 11 that you were told?

A. What sort of information do you –

Q. Anything. I mean, you said I was informed, and then before you gave your opinion, you told in paragraph 11 what you were informed about Ms. Gissendaner. Did you know anything else?

[42] A. I don't know if I understand what you're asking, specifically. Anything else, meaning –

Q. Did you examine her medical records?

A. I can't recall.

Q. Did you examine her?

A. No, I did not examine her.

Q. I'm looking at paragraph 18. You said: (Reading:) As a result of these facts, I hold the position that if the State of Georgia proceeds with the execution of Kelly Gissendaner as outlined in the referenced lethal injection procedures, she will suffer an excruciating death (end of reading).

Do you recall making that conclusion?

A. I see it here, yes.

Q. But do you recall making it?

A. Yes.

Q. And your signature's on the Affidavit, is it not?

A. Yes.

Q. Now is there anything in your Affidavit about Ms. Gissendaner's physical condition except that she's female, she's 46 years old, and she's overweight, and overweight people tend to get sleep apnea?

A. I would have to review –

Q. Okay.

[43] A. – the entirety of this.

Q. Okay.

A. And also records that I don't have here, to remind myself.

Q. Well, why don't you read this and tell me if there's anything in there besides she's overweight and she's female, and overweight female people have sleep apnea?

A. So then ask me the question that you want me to answer then.

Q. I wanted to know if there's anything in this Affidavit besides the information in paragraph 11 that

you based your conclusion on about Ms. Gissendaner's condition?

MS. CARLSON: Objection. Form.

THE WITNESS: (Reviewing). All right. So I've looked at this now so, please, again, I'm sorry, ask me your question one more time.

BY MR. SPILLANE:

Q. Is there anything in that Affidavit, besides the information in paragraph 11, that you knew about Ms. Gissendaner's physical condition?

A. No.

Q. So you based your conclusion, at least as far as it went to her physical condition, that she would [44] suffer an excruciating death during an execution, on the fact that she was a female and she was overweight?

MS. CARLSON: Objection. Form.

THE WITNESS: There were two points that I made here.

BY MR. SPILLANE:

Q. Yes.

A. One was difficulty in obtaining IV access and the problem of that.

Q. Yes.

A. And the second was her risk for obstructive sleep apnea based upon her BMI. And then drawing from the experience of the execution of Dennis McGuire. And that was the reason why I came to my conclusions.

Q. But the information you had about her was that she was five foot ten, weighed two hundred and ten

pounds, she was female, and females are prone to sleep apnea?

A. No. No, I didn't say females are prone to sleep apnea.

Q. Well, let me look at what you said.

A. I said females are – have smaller vein aperture, and that her weight is what puts her at risk for sleep apnea.

Q. You're right. Obesity is also a known risk [45] for obstructive sleep apnea.

Now did the United States District Court or the Court of Appeals stay Ms. Gissendaner's execution?

A. Are you asking me if Kelly Gissendaner was executed?

Q. Yes. I'm asking you first, those opinions that I handed you –

A. Yeah. I don't know.

Q. – did either –

A. I can't recall.

Q. Was she executed?

A. Yes, she was.

Q. Did you read any articles about her having suffered an excruciating execution?

A. I didn't read any articles about that.

Q. Did you write any articles about it?

A. No.

Q. You wrote about the Georgia execution where that man, Mr. Clayton Lockett, was executed.

A. That was based upon the narrative of others.

Q. Do you have any reason to believe – well, let me ask you this. If I represent you – to you that there was an NBC article that you can find on the internet that indicates that she sang Amazing Grace [46] during the execution, would that be consistent with her suffering an excruciating execution?

MS. CARLSON: Objection. Form.

THE WITNESS: I think that the – I can't know, nor can anyone know, what Ms. Gissendaner felt or didn't feel. I can't know that. I can only speculate it. She did not, by reports, which are very flawed, generally, of – based upon witnesses.

The reason why I say it is, for example, in the case of the execution that I saw, there was no report of that in the official report that anybody – that any corrections officer fell on the legs of Marcus Wellons. I know that I saw that. That didn't make it into the execution report.

So the fact that she – I think we probably both know that the way that these things are reported, they're reported with perhaps either a certain style or intention. If you're asking me are these reports impartial, I would say –

BY MR. SPILLANE:

Q. No, I'm not asking you if they're impartial. I asked if you read a report that she sang Amazing Grace during the execution?

A. I – I've heard that. I heard that she [47] sang Amazing Grace at some point.

Q. So you were aware of that?

A. Yes.

Q. How were you aware of it?

A. By a report in the media.

Q. You just told me five minutes – a moment ago that you didn't read any reports.

A. No, you asked me if I read any report if

she suffered.

Q. Oh.

A. If I read anything of whether she had suffered. And the answer was I did not read any report that she had – that anyone had written that she had suffered. But that's –

Q. Okay. That's probably a bad question on my part. I should have asked you if you read any reports in the media. My mistake.

Let's see if we can move on to document 21, which will be your testimony in State of Florida v. Davis. I'm going to go to – when you're ready – to page 22.

A. I have it. Okay.

Q. All right. If you'd go ahead and read that page real quick.

A. Just where? The beginning of Q, or just [48] from the top of the page?

Q. Just from the top, please.

A. (Reviewing).

Q Well, I'll stop you. What I'm mainly interested on page 22 is the one that begins with A, well, anesthetics. And when you've read that, let me know. Just that, that answer.

A. (Reviewing). Okay.

Q. When you started there on A, when you were asked, well, it doesn't deaden pain correct, sir, you answered, well, anesthetics, when done correctly, do take away pain. Could you explain to me how that works?

A. Which part? Anesthetics take away pain?

Q. Yes. How do anesthetics take away pain, sir?

A. Well, pain is a – is something that is a response to a stimulus that would be considered to be generally noxious. And certain kinds of medications used in an anesthetic can block the perception of that noxious stimulus.

Q. Does that work for barbiturates such as thiopental and pentobarbital?

A. No.

Q. Okay, you said, well, anesthetics, when done correctly, do take away pain. When you use [49] thiopental, would the people feel pain?

A. Barbiturates, as a class, are not considered to be analgesic.

Q. I understand. When people are unconscious, they're in a coma-like state. Do they – let me – let me – that's a compound question. Do anesthetics, before a surgery is conducted, put a person in a coma-like state?

A. I don't know what you mean when you say coma.

Q. Are they in a – in a place where they cannot feel noxious stimuli – stimuli during surgery?

A. The interior experience under an anesthetic is somewhat variable, but the – the hope is that the

experience that is taking place is not noxious to a degree that it would either cause great distress in the moment or cause distress afterwards.

Q. And is that what you meant when you said anesthetics, when done correctly, do take away pain?

A. Anesthetics, when done correctly, can take away pain, yes. But – I'm sorry.

Q. Go ahead.

A. No.

Q. No, please go ahead. I don't want to cut you off.

[50] A. No, I'm – I'm done.

Q. Okay. And so do anesthetics, and I mean barbiturates such as pentobarbital or sodium thiopental, when done correctly, create a stim – a situation in the patient that takes away pain?

A. Barbiturates are not analgesic.

Q. I understand. That wasn't what I asked you. I asked you if you use thiopental as your surgical anesthetic, do you – do you get a level of depth there where it takes away pain?

A. It's not used in that way.

Q. Using sodium thiopental as a surgical anesthetic?

A. It's not –

Q. Before propofol?

A. It's not – no, sorry.

Q. Before propofol became in, was not sodium thiopental the generally used surgical anesthetic in the United States?

A. I need you to define for me when you say surgical anesthetic, what you mean, or what part of the anesthetic you intend there.

Q. Was it commonly used as an anesthetic for surgeries in the United States?

A. It was used as something called an [51] induction agent, if you're familiar with that term.

Q. Yes.

A. It was used as an induction agent in combination with other agents.

Q. What other agents?

A. Narcotics, benzodiazapenes, maybe analgesics of other classes.

Q. Well, benzodiazapenes are not analgesics, are they?

A. You're correct, they're not.

Q. Okay. What was the thrust of the evidence you gave in the Davis case? What was the opinion that you gave to the Court?

A. I – I don't recall.

Q. Would it refresh your recollection to indicate – if we go to page 24 and 25 of your testimony, which you indicated that he would have an attack of acute porphyria, severe abdominal pain, rashes, neuropathy, burning sensation, heat and cold tolerance, alodemia, which is sensitivity to general touching, confusion and seizures.

Why don't you read through 24 to 26 if you have a second there?

A. (Reviewing). Okay, I've read it.

Q. Is that a fair conclusion that you [52] indicated, that if he would be executed using midazolam, that he would have an attack of acute porphyria, which would result in these symptoms?

A. I don't think this was midazolam. Does it say midazolam?

Q. Yeah, it was midazolam. And you relied on a study of chick embryos.

A. Okay.

Q. So is that consistent with your testimony which you indicated he would have an attack of acute porphyria if he was executed?

A. That was my opinion, yes.

Q. Did you have any knowledge that he had ever had an attack of acute porphyria in his life?

A. I think – no.

Q. Okay.

A. But – no. Ask – whether I knew it or not is not the question, I don't believe. So that was my concern based upon his history.

Q. What history?

A. That he was at risk for an attack of porphyria. But I'd have to look back again. It's been a while, on the medical information. If I made the statement, then I'm certain that I had a reason to make it.

[53] Q. Do you recall relying on a – on a chick embryo study in this case?

A. Well, relying. That may have been one of the things that I reviewed.

Q. Let's go to – now, let me ask you about the study. Did the study that you reviewed on chick embryos also say at its end that triazolam and midazolam are generally listed as safe for use with people that have porphyria?

A. I can't recall it. I'd have to look at it again.

Q. Now, do you recall that the Florida Supreme Court denied the motion for stay of execution that was based at least in part on the claim that he would have an acute attack of porphyria?

A. I believe so.

Q. All right. Do you recall that Mr. Davis was executed?

A. I believe so, yes.

Q. Now I'm going to ask a better question this time. Did you read any news reports about his execution?

A. I don't recall.

Q. So you didn't – and you didn't write any articles about his execution?

A. Not that I recall.

[54] Q. And the answer to this question may be no, but if he had shown symptoms of porphyria during his execution, such as vomiting, nausea, convulsions, that's something that somebody would have written about, isn't it, Doctor?

A. Potentially not.

MS. CARLSON: Objection. Form.

THE WITNESS: I have no idea.

BY MR. SPILLANE:

Q. If I represented to you that there was an article in the Lakeland Florida Ledger, which is, I believe, where the victim was from, that he showed no signs of discomfort during his execution, would you have any reason to disagree with that?

A. What, where the article was written?

Q. The article was written by the Lakeland Florida Ledger. I assume that the author witnessed the execution, as media people do, and he wrote that there were no signs of discomfort. Do you have any reason to disagree with that?

A. Well, I think my answer is, as I've stated before, that there is a difficulty here in what witnesses can see, and witnesses are poor at recalling or describing events. So whether or not that person who wrote that article, what the basis of their opinion was, [55] I cannot know.

Q. Okay. So there might have been nausea and vomiting or seizures and the witnesses might not have reported it?

A. Yes, I would agree.

Q. Let's go on to document 23.

A. In the same way that there was no report of a corrections officer collapsing on the legs of Marcus Wellons.

Q. I'm going to find your Affidavit here, which I think is at the tail end of Exhibit 22. And what I'm looking for here is – let's see. Starting at paragraph 5 on the first page of your Affidavit.

MS. CARLSON: So you said 23 first.

MR. SPILLANE: Oh, I'm sorry. I meant – I have – I have this. Is this what you're looking at, 23?

MS. CARLSON: Yeah. You said 22.

MR. SPILLANE: I apologize. I must have misspoken a second time.

BY MR. SPILLANE:

Q. Have you got the right document in front of you, sir?

A. This is 23, yes?

Q. Yes.

[56] A. Yes.

Q. And then I'm looking at – your Affidavit is at the back of it. It starts with I, Joel Zivot, being first sworn as follows.

A. What page?

Q. It's at the – it's at the – if you go back to the last three pages of the document, because it's attached to a pleading.

A. Yes, I see it.

Q. Okay. I'm looking at paragraph – starting at paragraph 5. (Reading:) I have reviewed the medical records of Mr. Henry, that record of his blood pressure at various times between 1987 and 2014. These records show both systolic and diastolic hypertension on many occasions. It is of note that Mr. Henry's hypertension was present prior to age 35 (end of reading).

And then in paragraph 6, you say: (Reading:) I have reviewed blood work between 2012 and 2014 that demonstrates a marginal HDL in relation to cholesterol relationship (end of reading).

I'm going to stop you there and ask you what you meant by a marginal HDL in relation to cholesterol ratio.

A. In order to make a diagnosis of – of an abnormal lipid profile, the way that it can be calculated [57] is by a ratio of the quantity of cholesterol that's referred to as HDL and cholesterol referred to as LDL.

Q. Uh-huh (affirmative).

A. So it would be the quantity of HDL in comparison to quantity of LDL that would make the diagnosis of an abnormally elevated cholesterol where it would be problematic for the person.

Q. Right. And what I wanted to focus on was what you meant by the word marginal.

A. Marginal, being insufficient.

Q. So all that – it doesn't mean that it's anything more than a yes or no conclusion that the good cholesterol was too low compared to the bad cholesterol?

A. Correct.

Q. Okay. And it says, in the next paragraph: (Reading:) Hypertension is quantitatively the most important risk factor in premature cardiovascular disease and is strongly associated with dislipidemia. Dislipidemia is an independent risk factor for coronary artery disease (end of reading).

What do you mean by risk factor for coronary artery disease?

A. Coronary artery disease is a condition that occurs in – in the population, and there are certain factors that when present make the likelihood of coronary [58] artery disease be more the case. So cholesterol is one of those risk factors. When a person

has elevated cholesterol, it means that the likelihood of coronary artery disease is increased.

Q. Okay. And also, he has high blood pressure, so that's also an independent risk factor that meets the likelihood that he has coronary – the risk that he has coronary artery disease is also increased?

A. Yes.

Q. Okay. Okay. I'm going to go down to paragraph 13, where you say: (Reading:) The design of the Florida lethal injection procedure will very likely cause serious illness and needless suffering to Mr. Henry as a consequence of the acute coronary event (end of reading).

Does that mean a heart attack?

A. I don't know how – how you define a heart attack, so I don't know how to answer your question.

Q. Why don't you define an acute coronary event?

A. An acute coronary event can be where one of the arteries that supply blood to the heart may become obstructed or narrow to the point where there can be some downstream negative effect of the heart muscle.

Q. So as I understand what you wrote earlier, [59] you didn't say that this man necessarily had coronary artery disease, you said he had two risk factors. High blood pressure and low HDL compared to the LDL.

A. That would be – yes, that's correct.

Q. And based on that, you concluded: (Reading:) Mr. Henry – let's see – let's see, will likely – that the injection procedure will very likely cause serious illness and needless suffering to Mr. Henry as a consequence of the acute coronary event (end of reading).

And that acute coronary event is going to happen because he has these two risk factors for coronary disease?

MS. CARLSON: Objection. Form and foundation.

THE WITNESS: His blood pressure will fall, and it's the falling of the blood pressure that will lead – in the setting of narrowed aperture arteries, that would be the mechanism for the acute coronary event.

BY MR. SPILLANE:

Q. But that assumes that he has coronary artery disease?

A. Yes.

Q. And you didn't know that?

[60] A. There would be no way of knowing without a heart catheterization. That was my opinion.

Q. But you still concluded that there would be a substantial risk?

A. Mr. Henry – in my examination of Mr. Henry, Mr. Henry complained to me of angina. And so on the basis of Mr. Henry's complaints of angina, I concluded that he very likely had coronary artery disease.

Q. Oh. What paragraph of your report is the angina in, sir?

A. I don't know. I don't recall it.

Q. Why don't you read it and show me?

A. Where – where does my part begin?

Q. Well, the whole thing is you. It's – you wrote the whole thing.

A. Okay.

Q. Oh, you mean when does your Affidavit begin?

A. Yes.

Q. It begins on the third to the last page.

A. All of that is mine here?

Q. Yes. Where it starts with I, Joel Zivot, being duly sworn.

A. I really don't know if that's in here or [61] not. I can't say.

Q. Well, I'll wait – I'll wait for you to determine.

A. But I – (reviewing). I – I don't see it listed here exactly, but I recall in my examination and in my conversation with him that that's what he complained of to me.

Q. I know this is probably a dumb question, but do you know why you didn't put it in the – in the Affidavit, explaining your opinion?

A. I – I don't recall.

Q. All right, then. If you'd move on to – let's go back to document 2, which is your Supplemental Report, because I have a question about that. I'm sorry for moving you all over the place. Why don't you go to Exhibit D when you get there.

A. What page?

Q. Oh, I don't –

MS. BIMMERLE: The last?

BY MR. SPILLANE:

Q. Yes, I think it's your last exhibit that you attached. See, I'm having trouble finding it too, but I think I've got it memorized well enough to know where it's at.

A. This is the one that is – begins with the [62] MRI?

Q. About the MRI. Look at the bottom of page 2 there.

MR. SPILLANE: Could you hand me document 2, ma'am, because I seem to have lost it.

THE COURT REPORTER: Which one do you need?

MR. SPILLANE: Exhibit 2. I've lost it in my pile.

THE COURT REPORTER: Here we go (presenting).

MR. SPILLANE: Thanks. I'll give it right back to you.

MS. BIMMERLE: By Exhibit D, did you mean Exhibit C?

MR. SPILLANE: I'm talking about the MRI report.

THE COURT REPORTER: Can you say that again? I was looking over here. Just what did you say? I didn't get it.

MS. BIMMERLE: I just wondered if by Exhibit D, he meant Exhibit C?

BY MR. SPILLANE:

Q. I think I probably did. Let me see, because I was working from memory, and I apologize if I got it wrong. It's the MRI report. It starts with 1 of [63] 3, and I'm looking at 2 of 3. And I'm looking at the second – well, it's the last big paragraph on the page. And you said, the left vertebral artery is dominant. No aneurysm is seen –

A. Wait, I'm not seeing what you're seeing. I'm sorry. Oh, I see. So this is the last – the sentence.

Okay. This is not my report, by the way. You said I said.

Q. No. Oh, I'm sorry. I thought – is this not –

A. No, I didn't write this. No.

Q. Oh, right, you just attached it. I apologize.

A. Yes.

Q. But I'm going to ask you about the meaning of something –

A. Okay.

Q. – in it, because you attached it. At the last thing that's said there is no vascular stains supplying the hemangioma. Tell me what that is and what it means.

A. This – in this view –

Q. Uh-huh (affirmative).

A. – they don't see any arterial – I believe it's arterial blood that they're referring to here – [64] that is connected to the hemangioma as they see it in this particular view.

Q. What is the significance of that, if anything?

A. I don't think there's any significance of it.

Q. Now, did you have a chance to read Dr. Antognini's supplemental report?

A. What would you refer to specifically?

Q. Paragraph 1. Well, let's see. Document 5. Let's see, I think it is page 2 of 3.

MS. CARLSON: The document – you said the supplemental, but document 5 is the initial report.

MR. SPILLANE: Then it should be document 4.

MS. CARLSON: Okay.

BY MR. SPILLANE:

Q. In paragraph 5 there, Dr. Antognini talks about rapid onset of unconsciousness. Is it relevant to his – to – to how fast unconsciousness would occur whether or not the hemangioma itself interferes with the normal distribution of the pentobarbital?

A. Ask me the question again.

Q. Is the hemangioma itself – is it relevant [65] to how fast unconsciousness would occur, whether the hemangioma itself, by diverting blood flow, interferes with the normal distribution of pentobarbital that one would expect?

MS. CARLSON: Objection. Form.

BY MR. SPILLANE:

Q. You can answer it if you understand it.

A. I don't think it's relevant.

Q. Did you find any evidence that the hemangioma is the type of formation that interferes with blood flow in the sense that it would interfere with the normal distribution of pentobarbital?

A. Did I find any evidence?

Q. Any evidence that the hemangioma itself is – do you know what the – I mean, are you familiar with the terms of a slow flow system and a fast flow system?

A. Yes.

Q. All right. And a slow flow system would be one where the blood flow does not flow into the hemangioma from the veins at a high rate, and therefore would be less of an obstacle to normal circulation, and a fast

flow would be that it flows faster into the hemangioma, and might interfere with normal circulation. Is that a fair characterization?

A. That's as you characterize it. I'm hearing [66] what you're saying.

Q. Well, you said you were familiar with the terms. Tell me what they mean to you.

A. I'm familiar from the – from the perspective of what is – what Dr. Antognini – how do you pronounce his last name?

Q. Antognini (pronouncing).

A. Antognini is saying. So ask me the question that you want to ask me specifically about this.

Q. Okay. Do you have specific evidence that leads you to believe that the hemangioma is either a fast flow or a slow flow system?

A. I don't know. I have no evidence for it specifically to answer the question.

Q. So that's not part of your opinion as to why the execution would have a substantial risk of unnecessary pain, because you don't know? Your opinion is based on other things. It's not based on the hemangioma being a fast flow system that would interfere with normal distribution?

A. Correct.

Q. That – that's what I was – that's what I was getting at.

A. Yes.

Q. I didn't say it very articulately, so thank [67] you for helping me.

(Off the record 2:00 p.m. - 2:24 p.m.)

BY MR. SPILLANE:

Q. Doctor, I'm going to ask you a question about Exhibit 1, which is the Missouri execution protocol.

A. Uh-huh (affirmative).

Q. I'm looking at the heading which is C, intravenous line, and then paragraph 1. And the sentence that I'm looking at says: (Reading:) Medical personnel may insert the primary IV line as a peripheral line or as a central venous line, e.g., femoral, jugular or subcranial, provided they have appropriate training, education and experience for that procedure (end of reading).

Now, as I understood your testimony earlier, when you were training to be a board-certified anesthesiologist, you did, I think you said, a hundred or more central lines. Is that accurate?

A. Yes.

Q. And I also believe you said that that was normal experience for a person who – before they were certified as an anesthesiologist. Is that true?

A. Let me change my answer there. I think that that was a high number. My own experience, because [68] of my career path, which was to critical care medicine, and I also was working in the field of cardiac anesthesia, I focused more than the average person.

Q. Well, let me ask a follow-up question then.

A person, in order to become a board-certified anesthesiologist, would have to have the appropriate training and experience to be able to insert an IV in a – in a – in a central line or central vein such as the subclavian, jugular or femoral?

A. In a patient.

Q. Yes.

A. In the setting of an operating room.

Q. Yes.

A. Not in an execution chamber.

Q. Well, let's talk about the operating room first. Is the answer yes?

A. If – if a person – I'm sorry, ask me again then.

Q. About the operating room, is the answer to my question yes?

A. And your question was?

Q. Does a person, in order to become a board-certified anesthesiologist, have to have the appropriate training and education and experience to be able to set an IV in a central line in a clinical [69] situation?

A. Yes.

Q. Now explain to me why an execution is different. Well, first of all, you said it was different. Tell me what you meant, because I'm not sure I understood.

A. No doctor is trained to care – to – to lend assistance in an execution chamber for the purpose of execution. So whether the training that a doctor obtains is suitable and can be transferrable to an execution setting, I cannot say. It's not made for that design.

Q. Is there something different, physically, about setting an IV in a central vein in an execution setting as opposed to a clinical setting?

A. This protocol is silent on exactly what would be available, what kind of conditions, what else would be

happening, for me to – to comment. It's not written as a medical document, so I cannot say whether or not it would be suitable and transferrable.

Q. Okay. I'll move on. I – I think you've answered my question. Let's go to document 2, page 8, paragraph 6, at the top.

A. Okay.

Q. You said: (Reading:) I also observed [70] during my examination that Mr. Bucklew has very poor veins in both of his arms. Poor venous visualization suggests that establishing intravenous access in the setting of a lethal injection will be potentially difficult, prolonged and painful for Mr. Bucklew (end of reading).

Did you examine any veins except the peripheral veins in the arms?

A. No.

Q. Why not?

A. What veins do you mean?

Q. The subclavian, the femoral, the jugular. Did you look at any of those?

A. There is no way to look at those veins.

Q. Is there any way to conclude, then, that it would be difficult to set an IV in those, more so than in the ordinary person, in Mr. Bucklew's case? Let me rephrase that. That question is backwards.

Is there any way, in Mr. Bucklew's case, to conclude that setting an IV in his subclavian, jugular or femoral veins would be particularly difficult as it would be particularly difficult in the peripheral veins?

A. I – I can't know, because those veins are not visible. A certain percentage of those veins will not be

where one imags [sic] them to be anatomically. This I [71] know. There's variations of anatomy. I don't believe – the way that those veins would normally be found would be through the assistance of ultrasound. That's how – that would be the standard of care now.

The execution protocol here does not specify or contemplate the use of ultrasound as an assistance. So now, what you're now talking about, is establishing venous access through what's called a blind technique. And blind techniques are going to have a higher failure rate than techniques with ultrasound, most certainly.

Q. Let me ask you this question. You said all – as I understood your answer, you believe the standard of care now is using an ultrasound for all central lines, including the subclavian and the femoral?

A. Yes.

Q. And why do you believe that?

A. I –

Q. Well, I mean, I know the jugular – has it always – it's your view it has always been the standard of care, or was there a time when the jugular required an ultrasound, and the subclavian and the femoral, that wasn't the standard of care?

A. Well, there was a time where ultrasound wasn't available. So at the beginning of my career, [72] ultrasound was not available, and so I learned to do these lines without ultrasound and I had a failure rate.

Q. What was your failure rate?

A. It depends on the circumstance. Sometimes, you know – I mean, each of those different locations that I probably had a different failure rate, honestly. And a

complication rate too. So I don't know if you're asking me a percentage or what are you asking me?

Q. Well, why don't we talk about a percentage on the femoral, if you know?

A. I don't know. It's probably now – my hands are mine, and so I can't speak to other people's failure rate, how facile they may or may not be. I think that in – and I don't know, in this case, how experienced a particular person would be, because when I – when you asked me before about competency or ableness to pass a fellowship, that would be a minimum standard. And so many of those people who go on to their careers don't actually perform these lines except during their training, and may also increasingly lose the ability to do them later on in their career.

Q. Okay. And the question I asked you was what your failure rate was during training without using ultrasound on the femoral vein.

A. Well, I probably would miss them sometimes [73] a third of the time. I would not be able to get them.

Q. And did you get better?

A. I got better, yes.

Q. What was it before ultrasound – before you started using ultrasound all the time, towards the end of the period when you were still doing it without ultrasound, what was your failure rate then?

A. I mean, I have to – it's hard to recall, honestly, but I would say that maybe, I don't know, ten percent of the time I would fail.

Q. And what would you do when you missed that ten percent of the time?

A. Well, I might try to go to the other side. If I failed once, I might go to the other side.

Q. Uh-huh (affirmative).

A. Or I would ask a more experienced person to try.

Q. I'm going to test your memory here. Did you ever miss on both sides?

A. Sure.

Q. What percentage?

A. I don't know. A small percentage, probably.

Q. And – go ahead, I'm sorry.

A. Well, because I would – are you asking me [74] as a trainee?

Q. Well, as you are board cert – well, just how about both. Both before you were board certified, right before you were board certified, and then right before you started using ultrasound.

A. Well, I think that when you're training, really there's an obligation to defer to senior people sooner. So if you fail one time, you know, you may get it on the second or third attempt or fourth attempt, but because you failed, it's really incumbent upon to you to pass it off to a senior person.

So it may be that because you – and it's kind of a – let me be clear about failure. So there's ultimate failure, where no matter how many times you try, you will not succeed. And then there are gradations of failure, so it may take you two, three, five, ten times to ultimately succeed. So those are different kinds of experiences.

I can tell you that once ultrasound became available, I switched to using it, because I recognized that – that success without ultrasound may involve many attempts at cannulation that would be failed, but ultimately I might be able to succeed. So not wanting to subject a patient to multiple pokes, I would use ultrasound instead.

[75] Q. Again, I'm going to test your memory. During your training, when you – if you deferred to an experienced surgeon –

A. Not a surgeon.

Q. Not a surgeon. An anesthesiologist, after one of the one-third of the times that you initially missed the femoral stick, did the surgeon – did the experienced surgeon, in your experience – in your recollection – ever miss?

A. The experienced –

MS. CARLSON: Objection. Form.

BY MR. SPILLANE:

Q. In your recollection.

A. Anesthesiologist.

Q. Anesthesiologist. I keep saying that and I apologize. Did they ever miss? After – after you said, hey, Doctor, you have experience, on this one, can you get this one for me, do you ever remember them missing?

A. Yes.

Q. How many times?

A. I can't – not often.

Q. Not often. Let's talk about total failures. A total failure, I assume, is when you fail to establish a

central line, because you talked about gradations and then total. I assume by total failure, [76] you mean you completely were not able to get a central line.

In your recollection, in your entire practice, both before and after you were certified, about what percentage do you recall being a total failure?

A. In which position?

Q. Let's talk femoral.

A. The problem with lumping people – lumping this as a percentage is that there are certain kinds of patients that I would know would be very likely to have more failure than other kinds. So people who have had catheters in the femoral position before, people who have had surgery, people who have had other kinds of cohesive conditions, people who have abnormalities in the clotting of blood. So there would be one category of people where they would be highly likely to fail.

Then there would be other categories of people that have a likelihood of being less so because they've never had a catheter, because they have no other medical problems. Maybe they're a victim of trauma or something like that and, you know, and they're not obese and they're not – they have on vascular disease. So it's a bit – I worry that by answering your question as you ask it, I'll create a false impression of an overall success or failure rate that really is more patient [77] specific.

Q. Okay. That's fair. And I'm – then I'm going to go back and follow up with something I asked you about Mr. Bucklew. As I understood your answer earlier, is we're unavailable to evaluate whether or not he would have a specific problem with his central veins, because

that's just not the kind of thing you can know with the information you have now. Is that a fair characterization of your earlier answer?

A. Yeah. Yes, I wouldn't be able to know.

Q. So there's no – we don't know if there's a specific risk factor out there like you described, like somebody who had been in – had gotten a central line many times in their femoral or something like that?

A. Well, except again, that now we're talking about a category of a person who is to be executed. So that's a different kind of person. And I – I'm not trained to start intravenouses in people who are going to be executed, and no physician is.

Q. All right. I'm going to go down to – let's see, paragraph 10, where it says: (Reading:) As earlier described, Mr. Bucklew's condition is progressive. Medical records indicate that his – his condition – is it present him with – well, I'm sorry. I'll stop reading until I get to the point. (Reading to [78] self).

Let me back up a little bit and go back to the veins in – in paragraph 6, and then I'll come back to paragraph 10. Is there a likelihood – and I think you discussed this later in your conclusions with Mr. Bucklew. I think it's paragraph E in your conclusions.

A. Paragraph E?

Q. Right.

A. Is it on page 9?

Q. Yeah, page 9 and page 10.

A. Okay.

Q. I think I'll stick with the veins for a minute before I go the next thing. In there, you conclude that

there's a likelihood that Mr. Bucklew could have a blown vein. I think at the end you said, and in patients with veins as poor as Mr. Bucklew's, it is not uncommon for a vein to blow once the fluid begins flowing through the needle.

A. Uh-huh (affirmative).

Q. When you say that, I assume you're talking about the peripheral veins that we discussed earlier in paragraph 6, because you don't really have any knowledge about the other veins he had?

A. Yes, correct.

Q. Okay. Let's go to paragraph C, if we [79] could.

A. On page 9 here?

Q. Yes, sir.

A. Okay.

Q. I'm going to your conclusions here.

A. Uh-huh (affirmative).

Q. It says: (Reading:) Mr. Bucklew's airway is compromised such that his breathing is labored and choking and bleeding occur regularly, even under the least stressful circumstances, and when Mr. Bucklew is fully alerted and capable of taking corrective measures to prevent suffocation (end of reading).

Let's go back to his MRI. I believe you indicated that during his MRI, he took corrective measures by adjusting his breathing pattern when he was required to remain supine for an hour. Is that accurate?

A. He said something to that effect.

Q. And I assume that here, he wouldn't be able to do that if he was supine, because he'd be unconscious. Is that fair?

A. Right.

Q. After he receives – as I assumed it, you said that he would be unable to take remedial measures. (Reading:) As often happens, Mr. Bucklew is able to wake up and take remedial measures to alleviate the feeling of [80] choking and return to normal. When unconscious or reduced consciousness is brought on by sedation, an individual is incapable of becoming fully alert and, therefore, unable to alleviate feelings of air hunger and choking (end of reading).

So, as I understand what you're saying, the difference is that once he is sedated, he would be – not be conscious in the sense that he was during the MRI, so he won't be able to adjust his breathing, and therefore he will have difficulty in breathing that he can't correct like he did during the MRI. Is that fair?

A. Yes.

Q. But that's going to happen after he's sedated and becomes unconscious or, I think you used the word semiconscious, at some point. Is that accurate? Reduced consciousness is the word you used.

A. I'm not sure what you're asking me.

Q. I'm asking, until he becomes unconscious because of sedation, he could make the same adjustments that he made when he was taking the MRI, by adjusting his breathing to compensate for airway difficulties?

A. I'm – I think that the word – I'm going to have to push back on the word consciousness and unconsciousness.

Q. Okay. Tell me what you mean.

[81] A. So I – I think that I'm not sure – I think that those terms have common meanings. And I can tell you that in the anesthetic world, those terms are more vague and more uncertain discriptors. So if you're – at some point when there will be a, you know, decreased brain activity, maybe, that will make it hard for Rusty to make corrective maneuvers for breathing. And I would also say that breathing is a very, and a basic, deep, brain activity, and that shortness of breath is also something that we don't have to cognitively consider.

So at some point, it will be that he will stop breathing before he dies. That – how long that will be, I cannot say, but at some point that will happen. And there will be points before then where he's not dead and he's not – where he's beginning to experience the effects of the pentobarbital, where his ability to control and regulate and adjust his airway will be impaired, although there will still be the experience capable of knowing that he cannot make the adjustment, and will experience it as choking and being – being, you know, very uncomfortable.

Q. All right. And I think this is obvious, but I'm going to ask you a follow-up. When one takes an MRI, one has to keep one's head still or it doesn't work [82] very well, is that fair? Or CAT scan.

A. One has to keep still for periods of time.

Q. Okay.

A. But – but let me say that an MRI goes on repeatedly.

Q. Uh-huh (affirmative).

A. So there can be repeated moments when the image is obtained, and sometimes there's movement and then they say, okay, we're doing it again. And so it goes on like that. So I wasn't there to witness it and it's not recorded as to how difficult it actually was to get the images that they got.

Q. All right. Your paragraphs E, F and G, I would characterize as dealing with the risks of a blown vein. And, again, we're talking about a peripheral vein. Is that fair?

A. Yes.

Q. Okay. And when we were talking about the execution in Oklahoma where you indicated that the Department of Corrections there was wrong as characterizing it as a blown vein, part of your analysis was that the femoral vein is a big vein. Isn't that – that accurate? So that was one of the reasons why you felt they were wrong in saying it was a blown vein?

MS. CARLSON: Objection.

[83] THE WITNESS: Let me say that I did not have the – I was not there.

BY MR. SPILLANE:

Q. Uh-huh (affirmative).

A. At the time, I did not have the autopsy report. I did not know what kind of a needle that they placed. I assumed, as it turned out, wrongly, that they used the right kind of needle in the femoral vein, which would have had a much longer length than they actually used.

And so I thought if you got the – actually got the catheter properly in the vein, that for that vein to blow, is unusual. So either you never got it in there,

which is what I was suggesting, or again, you've just – it got pulled out somehow. But that's not the same thing as a vein blowing.

Q. Right. That's what I wanted to make clear, is they used the wrong catheter and they said that they had a blown vein, but you concluded that was wrong because it was wrong?

A. Well, that was my impression at the time.

Q. Yes. You talked about – a little bit about there being a stage when Mr. Bucklew would not be able to adjust his airway, but wouldn't be fully unconscious in the sense that he would be unaware there [84] was a problem. Were you able to come up with any calculation as to what period of time that would be?

A. Calculation in terms of length of time?

Q. Yes, sir.

A. You know, there's a wide range of time that that could be. You know, that period of when – when the pentobarbital is injected to when there's death. Is that what you're asking?

Q. No. I'm asking, at some point he's going to become unconscious from pentobarbital. With five grams, he's going to become comatose in the sense that he's not aware of breathing, you know, or inability to breathe. And I understood your testimony that before that occurs, there would be a period when he would be unconscious or have reduced consciousness but be still aware of difficulty in breathing. And I was wondering if you had a calculation as to how long that would be?

A. I feel like there are too many parts of it, what you're – what you're saying to me. I mean, are you saying how long it would – maybe just – if you could just break that up, maybe.

Q. All right. Let's start it this way. Dr. Antognini concluded, as you – as you know, that within twenty to thirty seconds, he would be sufficiently reduced in consciousness that he wouldn't be aware of [85] noxious stimuli. Do you remember reading that?

A. I do.

Q. All right. Now let's ask you about that. Do you agree with that analysis? And if so, why, and if not, why?

A. I don't agree with that analysis. That's based upon a dog study from fifty years ago. So I don't think that's a good comparison to what might happen in this case. So I would think that that is a very small number that he's taking there, and my number would be longer than that.

Q. Tell me what your number would be.

A. Well, so it's hard to find literature here. It is, because no one does these as experiments. And so most of the literature is animal based. And so I located a paper recently that was a study on euthanizing horses, from 2015. And in that study, they – what they did is they placed an electroencephalogram, an EEG, on the horse, and they also gave the horse different medications prior to the pentobarbital. They used pentobarbital. So there were other medications. And in their paper, what they looked for is the absence of an electroencephalograph tracing, something called an isoelectric EEG.

Q. And would that be brain death?

[86] A. No.

Q. I mean, would it be indicative – I mean –

A. It's not.

Q. Okay.

A. I think it's a misnomer. They actually call it brain death in this paper, but we understand an isoelectric EEG is not indicative of brain death. But it is indicative of at least electrical silence on the parts of the brain that an electroencephalogram has access to, which is generally kind of surface cortical stuff. So – but in that paper, they record a range of as short as fifty-two seconds and as long as about two hundred and forty seconds before they see isoelectric EEG.

Q. Well, let me stop you there. Isoelectric EEG, that is the complete cessation of the brain making a record that the EEG can – can – can record, is that right?

A. Of what the EEG can see, which is not a lot. So, yes. And – and – so that number is almost twice as long – or more than twice as long as – as the number that you record, which is the short number of twenty seconds.

Q. Twenty to thirty –

A. Yeah.

Q. – as opposed to fifty-two to two forty?

[87] A. Yes.

Q. Okay. Now that was the complete cessation of things that the EEG could measure in the horse. Is there a point where the horse wouldn't be able to feel or recognize pain before that complete cessation?

A. I have no way of knowing. I'm not a horse expert.

Q. Well, how much pentobarbital did the horse get?

A. The dose that they gave the horse was, I think, a hundred milligrams per kilo. And horses are about four hundred kilogram animals. So it would be about forty thousand milligrams of pentobarbital.

Q. So it would be about four milligrams of pentobarbital given to a horse?

A. Yes, close.

Q. Right. And we're going to give five to a human who is probably smaller than a horse.

A. Well, it's the same – it's a similar weight, actually, weight per kilo that would be used in lethal injection.

Q. I'm – I'm sorry, and I probably am just too dense to understand your answer, but how many total grams did the horse get?

A. I don't think you're dense.

[88] Q. Okay.

A. Yeah. So forty thousand milligrams. So that would be forty grams as opposed to five grams.

Q. Oh, you said ten thousand milligrams?

A. Yeah.

Q. I thought I heard four thousand.

A. Yeah, forty thousand.

Q. So around forty thousand? Okay.

A. Forty thousand. It's like on a weight base, it's quite similar to what your – what the Missouri protocol –

Q. I understand now.

A. Yeah.

Q. And you've got a range of fifty-two to forty for complete stoppage of brain activity that could be measured by an EEG? Fifty-two to two forty. I'm sorry, I misspoke.

A. Yeah. Yeah.

Q. And that makes no sense. That would be going backwards.

A. Yeah. And I would add, too, where they had also received two other medications prior to that.

Q. Tell me what those were.

A. Ketamine.

Q. Okay. And that's going to keep him from [89] moving, I think, right? It should.

A. To a certain degree. Not exactly. It does some other things too.

Q. Uh-huh (affirmative).

A. And the other one was something that I don't – I think it was Xylitol or something, which is not something that's used in – in people. It's like it was a veterinary drug that I'm not – might be a benzodiazapene, but I can't swear to it. It's not one that I was familiar with.

Q. All right. I'll just take a second to look at another one of your opinions. I'm going to go to page 9, paragraph B. And there you wrote: (Reading:) Mr. Bucklew's particular medical condition places him at almost certain risk for excruciatingly painful choking complications, including visible hemorrhaging, if he is subjected to execution by means of lethal injection (end of reading).

What did you mean by almost certain risk?

A. A high likelihood. A very, very high likelihood.

Q. Okay. So I took – when you said almost certain risk, I didn't know if certain was my – that it's almost certainly that there's going to be a risk, or it's almost certain that it's going to happen.

[90] A. Almost certain that it's going to happen.

Q. Okay.

A. The risk is certain.

Q. So it's certain that he will have a risk, if he's executed, that he'll have choking and hemorrhaging?

A. Certain that there will be a risk of that, yes.

Q. Okay. That's what I wanted to be sure of. Now earlier, both in paragraph A and when we talked about your article, but specifically in the article, you indicated –

A. Which article? I'm sorry.

Q. The article in the Fordham Law Review.

A. Uh-huh (affirmative).

Q. Where you opined that if he is not executed, he will be strangled by the hemangioma.

A. Okay.

Q. That's certain to happen, right?

A. There's a certain risk of that, yes.

Q. Well, you didn't say in the article it's a certain risk. You said if he wasn't executed, that was going to happen, the hemangioma would eventually strangle him.

A. Well, he may die of some other reason. I [91] don't know.

Q. Assuming he doesn't die of some other reason –

A. Yeah.

Q. – the hemangioma is going to strangle him if we don't execute him?

A. Eventually.

Q. And if we do execute him, there's a risk that he's going to choke because of the hemangioma?

A. Yes.

Q. Okay. At number – excuse me, paragraph H, you talk about lying flat during the execution process increasing the risk to Mr. Bucklew. (Reading:) A second factor that is likely to increase the turbulence of Mr. Bucklew's air flow is the fact that the procedure for execution calls for Mr. Bucklew to lie flat during the execution process (end of reading).

A. Yes.

Q. Why do you conclude that the procedure for execution requires him to lie flat? Protocol to execute is Number 1.

A. If – does it say that they would be – could be in some other position?

Q. I don't think it addresses it, but take a look and see if you see anything there that says he has [92] to lie flat.

A. I – I don't know if it does. I'm not sure that I've – I don't know. Because it's not mentioned here, I don't know if that means it is or it isn't.

Q. Okay. Because –

MS. CARLSON: I would just object in that I don't think this is the complete protocol.

MR. SPILLANE: No, this is the complete OPA –

MS. CARLSON: Correct.

MR. SPILLANE: – protocol that deals with the administration of chemicals.

BY MR. SPILLANE:

Q. And the reason I ask that is you said the procedure calls for Mr. Bucklew to lie flat, in paragraph H, and I was wondering where you got that from.

A. Well, what I have observed in the execution that I observed –

Q. In Georgia?

A. In Georgia. And – and the way that I've seen it depicted in other states, is the gurney is in a position where the inmate is lying flat.

Q. When you conduct a clinical procedure and you administer anesthesiology – anesthesia – have you had cases where it was advantageous to airway management [93] not to have the patient supine?

A. Yes.

Q. What did you do?

A. Well, these were people who couldn't lie flat.

Q. And what did you do?

A. Well, then I used a different technique.

Q. What technique did you use?

A. I would intubate them when they were awake. I wouldn't –

Q. And were they supine when you intubated them?

A. No. I can – sometimes, I've intubated people in a semi-recumbent position. But because they can't receive anesthesia, not because they can.

Q. That's what I'm asking, though. I mean, there's no physical reason why one can't administer an anesthesia to someone that's not supine?

A. It's more difficult when they're sitting up, generally, for induction of an anesthetic. But maybe I should clarify between securing an airway –

Q. Uh-huh (affirmative).

A. – and the induction of an anesthetic.

Q. Yes.

A. So to secure an airway, it's much easier to [94] do it when a person is supine and when you're at the head of the bed. But sometimes, because of co-existing medical conditions, or the constraints of space, it can't be done in that way. But that's certainly the preferred way.

Sometimes patients are so sick and unstable that they can't lie flat because it's too uncomfortable for them, they are short of breath. And so in those situations, too, the general induction agents would cause their blood pressure to dangerously fall and could even, you know, cause other medical problems.

So the safer thing there is to approach it in a different fashion, which would be sometimes from the side, sometimes sitting up, and not anesthetized in a way that one would otherwise do when a person was well and able to be anesthetized in a more conventional body position.

Q. Is there any physical reason why a person has to be supine to receive thiopental or pentobarbital and have it be effective?

A. In an execution?

Q. In any.

A. Is there any particular reason why –

Q. Wouldn't it work just as well if they were sitting up if they were injected with pentobarbital?

[95] A. Will work in what – what are you talking about, work what? What are you trying –

Q. Suppose you had a clinical patient that it was necessary for reasons of – for some reason that could not lay supine, and you were going to use, back in the old days, sodium thiopental, or now, for some particular reason, pentobarbital or another barbiturate on him, would the chemical still have the same effect if the man was sitting up?

A. It wouldn't – I'm trying to answer your question.

Q. Okay.

A. I – I recognize the problem here is that you're now talking about – the reason why a person can't lie flat would be what would be important here. It's not that they just choose not to. It's that they can't because of a medical reason. So in that case, I might not use pentobarbital at all, or something akin to that, because pentobarbital is no longer available, or sodium thiopental, anyway, is no longer available. So I might not use, you know, the equivalent of that in that position because it's a different – it's a different kind of case.

Q. I think that's about the best answer I'm going to get, sir, so I'm going to move on.

[96] A. Okay.

Q. All right. We're going to go to O, which is on page 12. And your final conclusion is: (Reading:) In conclusion, it is my professional, medical opinion that Mr. Bucklew, as a result of his particular medical condition and atypical anatomy of his airway, will suffer excruciating pain and prolonged suffocation if he is executed by lethal injection (end of reading).

Okay. First question, in making that conclusion, does that conclusion assume that peripheral veins are going to be used to infuse the pentobarbital – for setting the line that will be used for the pentobarbital?

A. As opposed to?

Q. As opposed to a femoral?

A. I don't think it's material. That part of it, anyway.

Q. All right. Does the fact that he is – that – your opinion, in paragraph H, assume that the protocol requires him to be supine? If he's not supine, does that change your opinion?

A. No.

Q. So as I understand it, what's left is your opinion – is based on he has a difficult airway, and even if a femoral vein is used, and even if he's not [97] supine, and he's injected with pentobarbital, he will still have choking, excruciating pain and prolonged suffocation?

A. Yes.

Q. Why?

A. Because his airway narrowing is of a fixed nature. And what he tells me is that he experiences

shortness of breath at all times, worse at some times than others. And I think that if they are going to use a femoral vein – we can take this in maybe two parts. If they're going to use a femoral vein, I'm going to surmise that that would not be their first choice.

So they are going to start, first, by trying to start veins in his arms, and they're going to fail. And then they're going to fail on one arm, after poking several times. Then they'll switch to the other arm. Then they'll fail again. And this will go on for a period of time.

Q. Is that what you would do if this was your patient and you were a board-certified anesthesiologist, fail in both arms?

A. This is not a patient.

Q. I'm asking, if this was a – if you had a patient with peripheral veins like this, would you fail in both arms before you went to the femoral?

[98] A. This is not a patient. So I'm just trying to –

Q. If you had a patient, hypothetical, that had peripheral veins the same as Mr. Bucklew had, would you fail in both arms and then go to a femoral?

MS. CARLSON: Objection. Calls for speculation.

THE WITNESS: I don't know how they're going to do it, so I can't compare what they're going to do. But I don't know what decisions they make, unless it says – it seems to say here that they're trying in the arms before they're trying in the femoral.

BY MR. SPILLANE:

Q. Well, let's go back and take a look. I'm looking at B-1 – oh, I'm sorry. I picked up the wrong paper. I'm looking at C-1. (Reading:) Medical personnel may

insert the primary IV line as a peripheral line or as a central venous line (end of reading).

So that doesn't seem to indicate they necessarily have to do a peripheral first.

A. Well, it's not – it's not specified here.

So I would be – I would think that they would start with the peripheral.

Q. Why?

[99] A. It's easier.

Q. Is that what you would do in a patient?

A. Yes. It's easier.

Q. And you would miss in both arms?

A. It depends. Sometimes I have done that. I mean, I can't always know until I try.

Q. Okay.

A. So that's what – that's what I believe that they would do.

Q. I'm going to flip back to the Gissendaner case – Gissendaner case, the Henry case and the Davis case. I'm just asking a question now. You don't need to look at anything.

A. Okay.

Q. Where in each case you gave an opinion that there would be an excruciating death. One of them because of – in the Henry case, because of two risk factors for coronary disease. In the Gissendaner case, because she was female, overweight, and had a high BMI. And in the Davis case, because he would have an acute attack of porphyria. Do you believe that you were right in any of those cases?

MS. CARLSON: Objection to form.

THE WITNESS: Right in what way?

BY MR. SPILLANE:

[100] Q. Right in predicting that those things would happen.

A. That was my opinion, yes.

Q. Those things didn't happen, though, did they?

A. We don't know that.

Q. Well, we know that Mr. Davis didn't convulse and vomit on he [sic] gurney, as far as anybody reported.

A. We don't know what he – well, first of all, as we discussed earlier, the reports are very imperfect. So we don't actually know what happened. So I – I can't comment on whether those things happened or they didn't happen.

Q. And same thing with – with Ms. Gissendaner. As far as we know, she wasn't suffering excruciating pain when she was singing Amazing Grace.

A. Well, I don't know when the singing occurred with respect to when the injections began, or any other part of it, so I don't know.

Q. Okay. And let's go back to Mr. Henry. As far as we know, he didn't have a coronary event, based on his two risk factors, during the execution.

A. How would we know that he didn't?

Q. Well, there's no evidence of it. Do you [101] have any reason to believe that he did?

A. I – he did not have an autopsy. He did not have electrocardiographic monitoring. He was not questioned during – or there was no other way to feed back

to know whether or not he was experiencing those things at all. So I would say that I – that none of these executions refute my – my claims or my concerns.

Q. Let me ask you this. Is there something different about Mr. Bucklew than those three? Or –

A. Different in what way?

Q. In – I mean, here, as far as I can tell, you're – you're saying that because he has a difficult airway, he's going to choke and bleed, and he's going to suffer an excruciating execution. Is – is there some way this is different than those other three cases where you predicted an excruciating execution?

MS. CARLSON: Object. Objection. Form.

THE WITNESS: They're all different. They're all different cases with different kinds of medical problems. So they're all different.

MR. SPILLANE: Okay. That's all I have.

Thank you.

MS. CARLSON: Are you finished?

MR. SPILLANE: Yes, ma'am.

MS. CARLSON: I just have a few questions. [102] I'll be – I'll be relatively brief.

EXAMINATION

BY MS. CARLSON:

Q. So – so, Dr. Zivot, I think you testified that – I'm actually not sure you testified about this, so I'll just ask you. You were trained as an anesthesiologist, correct?

A. Yes.

Q. Did you have a secondary specialty when – during your training?

A. Yes.

Q. And what was that?

A. Critical care medicine.

Q. And during your critical care medicine training, did that give you sort of a reason to do more central lines than you think an average board-certified anesthesiologist might do?

A. Yes.

Q. And do you have colleagues who are board-certified anesthesiologists?

A. Yes.

Q. And have any of those colleagues ever asked you to help them with a – to do a central line?

A. Yes.

Q. And do you have any knowledge of why [103] they've asked you to help them?

A. Because they lacked the experience, or they had done it so long ago that they didn't feel comfortable anymore to be able to do it at the time.

Q. And I understand from the testimony that you've provided affidavits in other cases involving prisoners who are sentenced to death, is that correct?

A. Yes.

Q. And are these – the three cases, I believe, that Mr. Spillane asked you about, are these the only three people who have reached out to you to work on their case –

A. No.

Q. – involving lethal injection?

A. No.

Q. About how many other people could you say have reached out to you to provide an affidavit?

A. Oh, about maybe ten times, fifteen times.

Q. And you've decided not – not to provide an affidavit in those cases?

A. Correct.

Q. And any sort of basic reasoning as to why, in those cases, you decided not to?

A. There was no obvious, you know, medical concern that I could glean from, you know, review and [104] discussion that I thought was germane, you know, to the case, to the – to the type of lethal injection contemplated.

Q. And have you ever – do you have any knowledge of anybody who has been executed who had Mr. Bucklew's condition of cavernous hemangioma?

A. No.

MS. CARLSON: If you can just give us one second, and then I might be done.

(Off the record)

MS. CARLSON: I have no further questions.

MR. SPILLANE: I had a follow-up in light of the cross.

RE-EXAMINATION

BY MR. SPILLANE:

Q. In your earlier testimony, you indicated that all lethal injections are necessarily – are necessarily

unnecessarily cruel. And I hate to use a word with a negative in front of it and a positive in front of it. But in light of that, would it be possible for you ever to give testimony that a – in a particular case that a lethal injection wouldn't be – would not be unnecessarily cruel?

A. I understand that – that the Court has a different view on my view. So, you know, the cases that [105] you cite, I think all those situations were germane and the Court saw otherwise. I've said before that I think that lethal injection by design will be cruel because of the inability to know the things that the State claims that it can know. And that's my opinion.

MR. SPILLANE: Okay. Thank you, Doctor.

MS. CARLSON: Nothing further.

THE COURT REPORTER: And what about signature? Is the doctor going to read and sign?

MS. CARLSON: Yes.

THE COURT REPORTER: Okay. (To Ms. Carlson:) And do I send it to you?

MS. CARLSON: Sure.

THE COURT REPORTER: To send to the doctor.

MS. CARLSON: Yes.

THE COURT REPORTER: And if you don't mind, just where I can record your transcript orders. That would be quicker than filling out a form.

MS. CARLSON: Sure.

THE COURT REPORTER: Yeah, just –

MR. SPILLANE: Yes, I would like a transcript.

THE COURT REPORTER: Okay.

MR. SPILLANE: I would like it in pdf.

THE COURT REPORTER: Okay. Okay. And then [106] it's e-mailed to you?

MR. SPILLANE: E-mailed to me, please.

MS. CARLSON: Yeah, same.

THE COURT REPORTER: The same thing?

MS. CARLSON: Yeah.

(Deposition concluded at 3:30 p.m.)

MISSOURI DEPARTMENT OF CORRECTIONS PREPARATION AND ADMINISTRATION OF CHEMICALS FOR LETHAL INJECTION

A. Execution Team Members

The execution team consists of department employees and contracted medical personnel including a physician, nurse, and pharmacist. The execution team also consists of anyone selected by the department director who provides direct support for the administration of lethal chemicals, including individuals who prescribe, compound, prepare, or otherwise supply the chemicals for use in the lethal injection procedure.

B. Preparation of Chemicals

Medical personnel shall prepare the lethal chemicals. The quantities of these chemicals may not be changed without prior approval of the department director. The chemicals shall be prepared and labeled as follows:

1. Syringes 1 and 2: Five (5) grams of pentobarbital (under whatever name it may be available from a manufacturer, distributor or compounding pharmacy), 100 ml of a 50 mg/mL solution, shall be withdrawn and divided into syringes labeled "1" and "2."
2. Syringe 3: 30 cc of saline solution.
3. Syringes 4 and 5: Five (5) additional grams of pentobarbital (under whatever name it may be available from a manufacturer, distributor or compounding pharmacy), 100 ml of a 50 mg/mL solution, shall be withdrawn into syringes labeled "4" and "5."
4. Syringe 6: 30 cc of saline solution. This syringe is prepared in the event that additional flush is required.

C. Intravenous lines

1. Medical personnel shall determine the most appropriate locations for intravenous (IV) lines. Both a primary IV line and a secondary IV line shall be inserted unless the prisoner's physical condition makes it unduly difficult to insert more than one IV. Medical personnel may insert the primary IV line as a peripheral line or as a central venous line (e.g., femoral, jugular, or subclavian) provided they have appropriate training, education, and experience for that procedure. The secondary IV line is a peripheral line.

2. A sufficient quantity of saline solution shall be injected to confirm that the IV lines have been properly inserted and that the lines are not obstructed.

D. Monitoring of Prisoner

1. The gurney shall be positioned so that medical personnel can observe the prisoner's face directly or with the aid of a mirror.

2. Medical personnel shall monitor the prisoner during the execution.

E. Administration of Chemicals

1. Upon order of the department director, the chemicals shall be injected into the prisoner by the execution team members under the observation of medical personnel. The lights in the execution support room shall be maintained at a sufficient level to permit proper administration of the chemicals.

2. The pentobarbital from syringes 1 and 2 shall be injected.

3. The saline solution from syringe 3 shall be injected.

4. Following a sufficient amount of time for death to occur after the injection of syringe 3, medical personnel shall examine the prisoner to determine if death has occurred. If the prisoner is still breathing, the additional five grams of pentobarbital will [sic] injected from syringes 4 and 5 followed by the saline from syringe 6.

5. At the completion of the process and after a sufficient time for death to have occurred, medical personnel shall evaluate the prisoner to confirm death. In the event that the appropriate medical personnel cannot confirm that death has occurred, the curtain shall be reopened until an appropriate amount of time has passed to reevaluate the prisoner.

F. Documentation of Chemicals

1. Medical personnel shall properly dispose of unused chemicals.

2. Before leaving ERDCC, all members of the execution team present at the execution shall complete and sign the "Sequence of Chemicals" form thereby verifying that the chemicals were given in the order specified in this protocol.

3. Before leaving ERDCC, one of the medical personnel present at the execution shall complete and sign the "Chemical Log" indicating the quantities of the chemicals used and the quantities of the chemicals discarded during the execution.

4. Within three days of the execution, the ERDCC warden shall submit the Sequence of Chemicals

and the Chemical Log to the director of the Division of Adult Institutions (DAI). The DAI division director and the department director shall review the records. If they do not detect any irregularities, they shall approve the two documents. If any irregularities are noted, the DAI division director shall promptly determine whether there were any deviations from this protocol and shall report his findings to the department director.

Missouri Department of Corrections
Revised October 18, 2013

IN THE UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MISSOURI

Case No. 4:14-CV-8000-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE A. LOMBARDI, DAVID A. DORMIRE and TERRY RUSSELL,

Defendants.

RULE 26(a)(2) EXPERT REPORT

SUPPLEMENTAL EXPERT REPORT OF JOEL B. ZIVOT, M.D.

I, JOEL B. ZIVOT, being of sound mind and lawful age, hereby state under penalty of perjury as follows:

I. QUALIFICATIONS

A. Education

1. I received my Doctor of Medicine from the University of Manitoba, Canada, in 1988. From 1989-1993, I was a resident in Anesthesiology at the University of Toronto, Department of Post Graduate Medical Education, and from 1993-1995, I completed an additional residency in Anesthesiology and a Fellowship in Critical Care Medicine at the Cleveland Clinic Foundation, Department of Anesthesiology in Cleveland, Ohio.

B. Professional Licenses, Certifications and Memberships

1. I hold an active medical license from the State of Georgia and have held unrestricted medical licenses in Ohio, the District of Columbia, Michigan, and the Canadian provinces of Ontario and Manitoba. I also hold an active license to prescribe narcotics and other controlled substances from the federal Drug Enforcement Administration (DEA).

2. I hold board certification in Anesthesiology from the Royal College of Physicians and Surgeons of Canada and the American Board of Anesthesiology. I am also board certified in Critical Care Medicine from the American Board of Anesthesiology.

C. Professional Experience

1. I have served as the Medical Director of the Cardio-Thoracic Intensive Care Unit and the Fellowship Director for Critical Care Medicine at Emory University Hospital. I am an Associate Professor of Anesthesiology and Surgery at the Emory University School of Medicine and an adjunct Professor of Law at Emory University Law School. A complete list of my qualifications and publications authored in the last ten years is provided in my curriculum vitae attached as Exhibit A to this report.

2. I have practiced anesthesiology and critical care medicine for 22 years, and, in that capacity, I have personally performed or supervised the care of more than 42,000 patients.

3. In the course of my career, I have regularly performed or supervised the anesthesia care of numerous patients whose airways would be termed "difficult" or "very difficult" according to the Mallampati

Classification. Airway evaluation includes this prediction score on securing the airway, where Mallampati I is predicted to be straightforward and Mallampati IV is predicted to be very difficult.

4. I am, by reason of my experience, training, and education, an expert in the fields of anesthesiology and critical care medicine. The opinions that follow are within my field of expertise, and are stated to a reasonable degree of medical and scientific certainty unless otherwise noted.

5. A complete list of the cases in which I have given expert testimony is attached as Exhibit B to this report.

D. Compensation

1. My compensation in this matter is as follows: (1) expert fee of $400/hour; (2) 15 hours of record and document review, report writing, and consultation with counsel since October 2016; and (3) approximately 12 hours of travel and examination of Mr. Bucklew with an estimated cost of $3000.00.

OPINIONS IN RUSSELL BUCKLEW V. LOMBARDI ET AL., 4:14-CV-8000-BP

II. SUBJECT OF OPINIONS

A. I have been asked by Mr. Bucklew's attorneys in the above-referenced case to render an expert opinion regarding the risks and complications stemming from Mr. Bucklew's deteriorating medical condition—specifically the growing obstruction in Mr. Bucklew's airway—on the execution of Mr. Bucklew by means of lethal injection.

B. As a medical doctor, I am ethically prevented from prescribing or proscribing a method of executing a person. I am bound by these ethics, and am

prohibited from assessing whether a different form of execution would be feasible. Therefore, while I can assess Mr. Bucklew's current medical status and render an expert opinion as to the documented and significant risks associated with executing Mr. Bucklew under Missouri's current Execution Procedure, I cannot advise counsel or the Court on how to execute Mr. Bucklew in a way that would satisfy Constitutional requirements.

C. In developing my opinion, and in addition to the materials I reviewed in connection with my declaration dated May 8, 2014, I have considered the following: (1) The report of medical imaging performed at Barnes-Jewish Hospital dated December 23, 2016 [Exhibit C]; (2) Mr. Bucklew's December 19, 2016 MRI and CT imaging from Barnes-Jewish Hospital at Washington University in St. Louis Missouri [Exhibit D]; (3) my own in-person examinations of Mr. Bucklew conducted on May 12, 2014 and on January 8, 2017; (4) Mr. Bucklew's medical records; (5) the Missouri Department of Corrections Procedure for Execution (the "Execution Procedure"); and (6) the Declaration of Joseph F. Antognini dated November 8, 2016.

III. SUMMARY OF OPINIONS

A. Mr. Bucklew suffers from a debilitating, incurable, and progressive condition known as cavernous hemangioma. This condition occurs sporadically and congenitally in the population and not as a consequence of any action on the part of Mr. Bucklew. This condition has caused large diffuse, vascular (blood-filled) tumors to form and grow in Mr. Bucklew's nasal cavity, face, and throat. Cavernous hemangiomas in the nasal cavity, face, and throat are a medically recognized cause of death by suffocation.

B. As a result of the hemangiomas located in Mr. Bucklew's nasal cavity, face and throat, and to a lesser-degree residual scar tissue from a past tracheostomy procedure, Mr. Bucklew's airway is medically termed a "very difficult" airway. Specifically, on the Mallampati four-point scale, Mr. Bucklew's airway is a Mallampati class IV. It is highly likely that Mr. Bucklew, as a result of having a Mallampati class IV airway, would require a surgical airway (i.e., tracheostomy) in order to safely undergo a surgical procedure requiring a general anesthetic.[1] Mr. Bucklew's airway is so compromised that it is highly unlikely that he could be safely intubated without experiencing a serious hemorrhagic event within his throat.

C. Because of the degree to which Mr. Bucklew's airway is compromised by the hemangiomas, the anatomical mechanics of airflow and breathing, and the particular psychological and physical effects of lethal injection, it is highly likely that Mr. Bucklew would be unable to maintain the integrity of his airway during the time after receiving the lethal injection and before death.

D. Contrary to Dr. Antognini's assertion, the effect of pentobarbital injection as outlined in the Execution Procedure is highly unlikely to be experienced as "rapid unconsciousness followed by death." In my

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[1] Note that while I generally object to Dr. Antognini's comparison between the medical act of general anesthesia and the non-medical act of lethal injection, for the limited purpose of this opinion I refer to the necessity of a tracheotomy in order to undergo general anesthesia only as a frame of reference for the degree to which Mr. Bucklew's airway is compromised. In short, even in a room full of doctors, Mr. Bucklew could not safely lose consciousness by way of sedation without the immediate capability of performing a surgical airway.

professional medical opinion, the effects of such an injection are highly unlikely to be instantaneous and the period of time between receiving the injection and death could range over a few minutes to many minutes. My view here is supported both by my own professional knowledge of how chemicals of this type are likely to exert their effects in the body as well as by the terms of Missouri's Execution Procedure, which calls for a waiting period of five minutes after the first two pentobarbital injections, before examining the inmate to determine whether death has occurred. The Execution Procedure expressly acknowledges that the first two Pentobarbital injections may not have caused death within five minutes, in which case a second round of injections is required.

E. As a result of his inability to maintain the integrity of his airway for the period of time beginning with the injection of the Pentobarbital solution and ending with Mr. Bucklew's death several minutes to as long as many minutes later, Mr. Bucklew would be highly likely to experience feelings of "air hunger" and the excruciating pain of prolonged suffocation resulting from the complete obstruction of his airway by the large vascular tumor.

F. As a result of this prolonged experience of suffocation, it is highly likely that Mr. Bucklew will struggle to breathe [sic] a struggle apparent as convulsive movements—and as a result, given the highly friable and fragile state of the tissue of Mr. Bucklew's mouth and airway, he will likely experience hemorrhaging and/or the possible rupture of the tumor. The resultant hemorrhaging will further impede Mr. Bucklew's airway by filling his mouth and airway with blood, causing him to choke and cough on his own blood during the lethal injection process. It is not

necessary that Mr. Bucklew be fully conscious in order to experience the excruciating pain and feeling of prolonged suffocation. Also, regardless of whether Mr. Bucklew is fully conscious, bleeding in his mouth and throat will cause choking and coughing and the coughed blood will be visible to viewers of the execution procedure.

G. In summary, I conclude with a reasonable degree of medical and scientific certainty that it is highly likely that Mr. Bucklew, given his specific congenital medical condition, cannot undergo lethal injection without experiencing the excruciating pain and suffering of prolonged suffocation, convulsions, and visible hemorrhaging.

IV. OBJECTIVE FACTUAL BASES FOR OPINIONS

A. A patient's airflow during breathing will typically be described as either being laminar or turbulent. Laminar flow is a smooth, orderly, linear flow of air with low resistance and is experienced as "easy" breathing by the patient. Turbulent flow, by contrast, is disorganized, has high resistance, and is experienced by the patient as "difficult" breathing. Four factors impact whether airflow is laminar or turbulent: (1) aperture or diameter of the airway, (2) length of the airway, (3) velocity of the flow, and (4) density of the gas. Of these four factors, the most pertinent in this case is the aperture of the airway. The smaller or more obstructed a patient's airway becomes, the more turbulent the flow of air becomes. This aperture narrowing is experienced by the patient as an inability to easily breathe. When a patient feels as though he cannot take a breath, the usual reaction is to breathe harder and faster to take in more air. This triggers the third factor listed above: "velocity of the flow." The

faster a patient breathes, the more turbulent the flow becomes, particularly through a narrow or obstructed airway.

B. Diameter of the airway, or aperture, can be further understood with reference to the Mallampati classification used to describe how "difficult" it is to secure an airway in the setting of a medical procedure. An airway can be difficult because of anatomical abnormalities, both congenital and acquired. In this case difficulty in maintaining airway patency is a direct consequence of cavernous hemangiomas in Mr. Bucklew's airway.

C. In clinical cases where a patient has a Mallampati IV airway, an anesthesiologist must proceed with extreme caution and implement specialized precautions, such as creating a surgical airway via tracheotomy, to maintain the integrity of the patient's airway in order to safely prepare a patient for any procedure where the patient is sedated and unable to assist in supporting his or her own ventilation. This is supported by Mr. Bucklew's own medical records, referenced by Dr. Antognini, in which it was noted that Mr. Bucklew underwent a tracheotomy in connection with surgical procedures under general anesthesia [Decl. of Antognini; PC486].

D. Cavernous hemangioma is a condition that results in vascular lesions consisting of abnormally dilated blood vessels. These blood vessels form cavern-like pockets, i.e. vascular tumors or hemangiomas, in which blood pools. The pockets then leak, or hemorrhage, as a result of defects in the walls of the blood vessels. The lesions can vary in size, and are linked to varying side effects including seizures, stroke symptoms, hemorrhages, and headaches, depending upon the size and location of the particular lesion, and the relative

strength of the walls of the affected blood vessels. In addition, symptoms may resolve or reappear over time as the vascular tumor changes in size as it leaks and reabsorbs blood.

E. While the vascular tumors are often benign, in certain cases, such as Mr. Bucklew's, the progressive condition is life-threatening as it eventually leads to obstruction of the patient's airway leading to asphyxiation and death.

V. RECORD EVIDENCE SUPPORTING OPINIONS

A. Historic Medical Records

1. Mr. Bucklew's medical records indicate that, since birth, he has suffered from cavernous hemangioma resulting in vascular tumor formations in his face, brain, and throat. [Bates PC202]. The specific hemangioma at issue affects Mr. Bucklew's nasal cavity, face, right eye, and airway—approaching both the base of Mr. Bucklew's skull and his carotid artery. [PC202]. The location of Mr. Bucklew's hemangioma has resulted in a grossly enlarged uvula and narrowing of his airway resulting in generally turbulent air flow, which Mr. Bucklew experiences as shortness of breath or difficulty breathing.

2. Mr. Bucklew's condition is inoperable due to the severe risk of blood loss during surgery. Furthermore, due to the large size of the hemangioma, Mr. Bucklew's condition has been found to no longer be amenable to sclerotherapy [PC2257].

3. As a result of his condition, Mr. Bucklew has experienced "excruciating" pain and numerous hemorrhagic events, including bleeding from the face and mouth, necessitating emergency trips to the medical

unit in which pressure with gauze was applied in order to slow the bleeding. [see e.g. PC2238, PC2227, PC2506].

4. As previously described in my Supplemental Declaration dated December 4, 2015, Mr. Bucklew's tumors are painful, easily bleed, and spontaneously hemorrhage. Mr. Bucklew has described past hemorrhages as sometimes "squirting" blood, while other times presenting as a "slow leak." [PC103].

5. Specifically with respect to Dr. Antognini's discussion of Mr. Bucklew's procedures between 2000 and 2003, Mr. Bucklew's records confirm that he underwent procedures in that time period that required general anesthesia. Records of a procedure that occurred in 2000, however, explicitly state that Mr. Bucklew received a tracheotomy, a procedure undertaken in cases of difficult airways for purposes of maintaining the integrity of the airway while a patient is under anesthesia. [PC486]. Contrary to Dr. Antognini's apparent conclusion that Mr. Bucklew's airway does not warrant any special considerations, Mr. Bucklew's records show that special procedures were undertaken to account for Mr. Bucklew's difficult airway.

B. Findings of In-Person Examinations

1. The tumors obstructing Mr. Bucklew's airway are so large that Mr. Bucklew is no longer able to lie down flat on his back while sleeping without suffocating. On January 8, 2017, Mr. Bucklew explained that in order to breathe while sleeping, he must sleep on his right side with his head elevated at roughly a 45 degree angle. This position allows Mr. Bucklew to sleep without his airway becoming obstructed by the turn in his airway and his grossly enlarged uvula.

2. Even with the above precautions, Mr. Bucklew explained that his uvula occasionally gets "stuck" in his throat while he sleeps, causing him to wake up feeling as though he is choking and unable to breathe. In addition, the above precautions do not prevent Mr. Bucklew's tumors from leaking or hemorrhaging during the night. When asked to describe his typical morning, Mr. Bucklew explained that the first thing he does each morning is to clean off the blood on his face that leaked from his nose and mouth while he slept.

3. During my examination of Mr. Bucklew on January 8, 2017, I noted several large hemangiomas visible in Mr. Bucklew's hard and soft palate, lip, nose, and uvula. Of particular relevance to the aperture of Mr. Bucklew's airway were the grossly enlarged uvula and the easily visible hemangiomas on his hard and soft palates. Mr. Bucklew also has an easily visible hemangioma growing out of his upper lip and over his mouth. This tumor has enlarged in size since my prior examination of Mr. Bucklew.

4. In addition to the hemangiomas compromising Mr. Bucklew's airway, I also observed that Mr. Bucklew has residual scarring over the front of his throat caused by the past tracheostomy procedure. Mr. Bucklew explained that the scar tissue is tethered to his trachea in a way that makes it difficult to breathe and swallow. This scar tissue contributes to the obstruction of Mr. Bucklew's airway and increases the turbulence of the air flow through Mr. Bucklew's airway.

5. I also observed that Mr. Bucklew had residual loss of feeling in the right side of his face, causing him to be unable to completely close his right eye.[2]

6. I also observed during my examination that Mr. Bucklew has very poor veins in both of his arms. Poor venous visualization suggests that establishing intravenous access in the setting of lethal injection will be potentially difficult, prolonged, and painful to Mr. Bucklew.

7. Also during my January 8, 2017 examination of Mr. Bucklew, I asked him to describe his experience during the MRI Procedure on December 19, 2016. He reported experiencing extreme discomfort during the procedure. In order to maintain the integrity of his airway while lying flat, Mr. Bucklew was forced to consciously alter his breathing pattern, and swallow repeatedly to keep his uvula from settling and completely obstructing his airway, in order to avoid choking.

8. Furthermore, as noted in my October 13, 2015 report, the tissue of Mr. Bucklew's airway has become increasingly fragile over time. In fact, Mr. Bucklew's airway is now so fragile that simply touching it causes

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[2] Dr. Antognini asserts, without having examined Mr. Bucklew, that Mr. Bucklew definitively has not suffered a stroke as a result of his condition. He bases his assertion on the fact that Mr. Bucklew "has recently been observed to speak normally and walk without difficulty." In my professional medical opinion, Dr. Antognini's assertion is based upon insufficient medical evidence. The residual effects of a stroke are not limited to speech impairment or decreased ability to walk, and the absence of these residual effects is not definitive proof that an individual has not suffered a stroke. Other symptoms, such as Mr. Bucklew's inability to fully control the muscles of the right side of his face, can be indicative of stroke.

the tissue to bleed. As most recently reported by Mr. Bucklew on January 8, 2017, the tissue bleeds so easily that it even bleeds while he is sleeping.

9. My finding that the tissue of Mr. Bucklew's airway is extremely fragile is not inconsistent with my suggestion that Mr. Bucklew undergo a clinical examination that would call for a bronchoscopy or use of a Glidescope. [Decl. Antognini, para. 17]. These procedures are intended to be minimally invasive, and a skillful physician would endeavor to insert the tube with an attached camera carefully into the airway without touching the fragile tissue. However, given Mr. Bucklew's present condition and its progressive nature, as of this date it is my professional medical opinion that Mr. Bucklew's airway is so compromised, and the tissue so fragile, that even the undertaking of a minimally invasive evaluation of his airway would pose very high likelihood of airway bleeding and subsequent loss of the airway that could be fatal.

10. As already described, Mr. Bucklew's condition is progressive. As of April 2012, Mr. Bucklew's medical records indicate that his condition did not appear to place him at risk of life-threatening hemorrhage [PC2257]. My examination of Mr. Bucklew on January 8, 2017, as well as my review of the recent MRI and CT imaging report forms the basis for my conclusion that at the present time, Mr. Bucklew is at risk of life-threatening hemorrhage, particularly under the conditions imposed by Missouri's Execution Procedure.

C. December 19, 2016 Imaging and Report

1. The report generated in connection with the MRI imaging conducted on December 19, 2016, confirms my findings that Mr. Bucklew has a large hemangioma impacting his hard and soft palate, lip, nose,

uvula, and throat. Specifically, the report describes the relevant portions of the hemangioma as continuing to impact his airway to a significant degree. The hemangioma is reported as smaller by 1/15th of an inch in a region that was not directly within the airway. This difference is without significance and will have no impact in lessening the serious risk to Mr. Bucklew in the setting of his planned execution as outlined above.

2. As already described, Mr. Bucklew's condition is progressive and his airway continues to be compromised. This finding is confirmed both by recent imaging studies and my own personal examination and evaluation of Mr. Bucklew on two separate occasions.

VI. CONCLUSION AND OPINIONS

A. It is my professional opinion that Mr. Bucklew suffers from a severe and life-threatening form of cavernous hemangioma. Given the nature of Mr. Bucklew's condition, it is my medical opinion that the vascular tumors that obstruct Mr. Bucklew's airway will present a permanent threat to his breathing and that life threatening choking episodes will occur on an ongoing basis. When these choking episodes occur, they will be associated with hemorrhaging to a varying degree that will be easily visible by any observer.

B. Mr. Bucklew's particular medical condition places him at almost certain risk for excruciatingly painful choking complications, including visible hemorrhaging, if he is subjected to execution by means of lethal injection.

C. Mr. Bucklew's airway is compromised such that his breathing is labored, and choking and bleeding occur regularly, even under the least stressful circumstances and when Mr. Bucklew is fully alert and

capable of taking corrective measures to prevent suffocation.

D. While it is true that Mr. Bucklew is able to go to sleep after taking certain precautionary measures—including positioning himself to maintain a certain head elevation—without asphyxiating, it is not accurate to compare the experience of sleep with the unconsciousness brought on by sedation. When a person begins to choke while sleeping, as often happens to Mr. Bucklew, he is able to wake up and take remedial measures to alleviate the feeling of choking and return to a normal pattern of breathing. When unconsciousness, or reduced consciousness, is brought on by sedation, an individual is incapable of becoming fully alert and ambulatory and is therefore unable to alleviate the feelings of "air hunger" and choking.

E. The Execution Procedure calls for a minimum of three separate injections, to be administered by "non-medical" personnel. As noted above, Mr. Bucklew is observed to have very poor veins in both of his arms. Mr. Bucklew's veins are so poor that even a qualified and experienced medical professional would have difficulty finding a vein of the proper and necessary quality for large volume intravenous injection as required in the Missouri lethal injection protocol. In these instances, it is frequently necessary to make more than one attempt to place the needle in a viable vein. However, a medical professional will typically start by trying to place the needle in the best available vein. Each subsequent attempt is even less likely to result in the needle being inserted into a suitable vein, because each successive vein will necessarily appear less viable than the one before. The consequences of placing a needle in an inadequate vein can be catastrophic, and in patients with veins as poor as Mr.

Bucklew's, it is not uncommon for a vein to "blow" once the fluid begins flowing through the needle.

F. The risk of a vein blowing is even greater where, as here, the chemical being injected is a very strong "base." Certain chemicals can be characterized as either basic or acidic. Strong bases, just like strong acids, are extremely corrosive. The extremely corrosive properties of the Pentobarbital solution called for in the Execution Procedure make it highly likely that Mr. Bucklew's vein would blow during the injection process.

G. The adequacy of Mr. Bucklew's veins is related to the concerns with respect to his airway. Mr. Bucklew is extremely likely to experience an incremental increase in stress with each unsuccessful attempt to find a vein. A blown vein would also greatly increase Mr. Bucklew's stress: As previously explained, the lethal injection procedure itself is naturally a stressful experience. In an individual with Mr. Bucklew's extremely atypical airway, this increase in stress will manifest as increased difficulty breathing because stress typically causes an individual to breathe harder and faster. The increased velocity of air moving through Mr. Bucklew's airway will result in more turbulent airflow, which Mr. Bucklew will experience as an inability to breathe. Therefore, even prior to receiving the lethal injection, Mr. Bucklew is highly likely to experience greatly increased pain and discomfort and a feeling of "air hunger" greater than that which he experiences in the ordinary course of his day. And contrary to his ordinary experience, Mr. Bucklew will not be able to take remedial measures to normalize his breathing.

H. A second factor that is likely to increase the turbulence of Mr. Bucklew's airflow is the fact that the

procedure for execution calls for Mr. Bucklew to lie flat during the execution process. However, when forced to lie completely flat, the aperture of Mr. Bucklew's airway is further reduced because of the location of the hemangiomas that necessarily shift so that they further obstruct Mr. Bucklew's airway when he lies flat. Thus, in addition to a greatly increased velocity of flow of air through his airway, the aperture of Mr. Bucklew's airway will significantly decrease. Mr. Bucklew will experience this combination as a painful inability to breathe normally, even as compared to his usual labored breathing.

I. In addition to the above, the Execution Procedure calls for the injection of 5g of pentobarbital, contained in two separate syringes, thereby requiring two separate injections which will either be inserted into two separate veins, or through a single vein. The pentobarbital is likely to have the effect of impairing Mr. Bucklew's ability to maintain the integrity of his own airway, particularly given the aforementioned factors that will operate to make Mr. Bucklew's breathing extremely labored. Mr. Bucklew will likely not be fully alert or capable of altering his breathing to accommodate his compromised airway as he does while he is fully alert. Unlike when he is asleep naturally, he will not be able to shift position or wake up fully in order to correct his breathing.

J. I strongly disagree with Dr. Antognini's repeated claim that the pentobarbital injection would result in "rapid unconsciousness" and therefore Mr. Bucklew would not experience any suffocating or choking. [Decl. Antognini, ¶ 15]. In my medical opinion, the injection of pentobarbital called for in the Execution Procedure would not result in instantaneous unconsciousness. Rather, Mr. Bucklew would likely experience

unconsciousness that sets in progressively as the chemical circulates through his system. It is during this in-between twilight stage that Mr. Bucklew is likely to experience prolonged feelings of suffocation and excruciating pain. This opinion finds support in the Execution Procedure that explicitly allows for the possibility that five minutes after receiving the injection, death may not have occurred and a second series of injections may be necessary. In addition, unconsciousness or semi-consciousness does not necessarily negate the feeling of pain; it only prevents the unconscious or semi-conscious individual from verbally manifesting that pain.

K. Any length of time in which an individual is experiencing choking and suffocation, without the ability to take a breath, is painful. Even if death is achieved after the passage of five minutes, five minutes is an excruciatingly long period of time for the individual to experience feelings of choking or suffocation. The passage of seconds and minutes is medically significant, particularly in Mr. Bucklew's case.

L. When Mr. Bucklew begins to experience the increased velocity of air through his airway coupled with the decreased aperture of his compromised airway, further exacerbated by pentobarbital's progressive effect on his mental and physical state, Mr. Bucklew will naturally struggle to take a breathe [sic]. This struggle will likely manifest as convulsive movements regardless of whether Mr. Bucklew is fully conscious. The harder Mr. Bucklew tries to take a breath, the more turbulent the flow of air through his airway will become and Mr. Bucklew will experience this as suffocation.

M. In addition, the increased violence with which Mr. Bucklew attempts to breathe and resultant

convulsive movements, combined with the extremely fragile nature of the tissue of his airway, and the increase in blood pressure resulting from increased stress, are highly likely to result in hemorrhaging from the hemangioma in his throat, mouth, and nasal cavity.

N. Mr. Bucklew's airway would be further obstructed by the blood from the hemorrhaging, causing Mr. Bucklew to choke and cough on his own blood during the execution proceeding.

O. In conclusion, it is my professional medical opinion that Mr. Bucklew, as a result of his particular medical condition and the atypical anatomy of his airway, will suffer excruciating pain and prolonged suffocation if he is executed by lethal injection.

"I declare under penalty of perjury that the foregoing is true and correct."

Executed on January 16, 2017

/s/ Joel B. Zivot
Joel B. Zivot, M.D.

MIR
MALLINCKRODT
INSTITUTE OF RADIOLOGY
WASHINGTON UNIVERSITY
MEDICAL CENTER

BUCKLEW, RUSSELL
DOB: 05/16/1968
PAT CLASS: Outpatient
MRN: 4280226

This exam was performed at Barnes-Jewish Hospital

Attending Physician: ERNIE-PAUL BARRETTE, M.D.

Requesting Physician; Radiologist(s): FRANZ WIPPOLD, M.D. WEI WANG, M.D.

****FINAL REPORT****

The radiology attending physician has personally reviewed this study, and has reviewed and/or edited this written report and agrees with it.

ACC#	Date	Time	Exam
39993297	Dec 19, 2016	14:39:00	70496 CT Angio Head w/o & w cont
39993329	Dec 19, 2016	14:39:00	70498 CT Angio Neck
39993701	Dec 19, 2016	17:00:00	70543 MRI Orb,Face,Nk, wo&w cont
39993703	Dec 19, 2016	17:00:00	70546 MR Angio Head wo&wi cont
39993730	Dec 19, 2016	17:00:00	70549 MR Angio Neck wo&wi cont

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39993730	Dec 19, 2016	17:00:00	70549 MR Angio Neck wo&wi cont

EXAMINATION:

1. Computed tomography angiography (CTA) of the neck.

2. Computed tomography angiography (CTA) of the head without and with contrast.

3. Magnetic resonance imaging (MRI) of the face and neck without and with contrast.

4. Magnetic resonance angiography (MRA) of the head without and with contrast.

5. Magnetic resonance angiography (MRA) of the neck without and with contrast.

HISTORY: 48-year-old male with hemangioma in the right tonsillar region.

TECHNIQUE:

1. Computed tomography of the head was performed without contrast according to standard protocol. Computed tomographic angiography was obtained

from the level of the aortic arch to the vertex following the uneventful administration of intravenous contrast. 3D images were generated on a dedicated workstation. Contrast information: 98 mL Optiray-350

2. Multiplanar multi-weighted MRI of the face and neck was performed without and with intravenous contrast using the standard face and neck protocol. Magnetic resonance angiography of the head was performed using separate data set acquisitions including a non-contrast time-of-flight technique and a post-contrast technique to produce axial thin-slice source images. Magnetic resonance angiography of the neck was performed using a separate data set acquisition non-contrast time-of-flight technique and a post-contrast technique to produce thin-slice source images. These images were then used to generate maximum intensity projection (MIP) images.

Contrast information: 18 mL Dotarem

COMPARISON: MRI of neck dated 06/24/2010.

FINDINGS:

An approximately 4.4 cm (transverse) x 3.9 cm (anteroposterior) soft tissue mass arises in right tonsillar region, corresponding to the patients known hemangioma. It has slightly decreased in size, measuring 4.35 cm in lateromedial dimension on this exam, and it measured 4.72 cm in lateromedial dimension on the MRI in 2010.

The mass extends into the right masticator space (involving the right medial pterygoid muscle, and the buccal fat and the pterygopalatine fossa), the right parapharyngeal space, the right posterior floor of mouth, and the right soft palate and uvula. In the oral cavity, the tumor extends along the roof of the oral

cavity to involve the hard palate and the soft palate, and it extends anteriorly to the soft tissue of the face, as well as upper lip and nose on the right side of the face. This causes narrowing of the oropharynx and the nasopharynx.

On the CTA, this mass is confirmed, also slightly decreased in size. This decrease in size involves predominantly the right posterior nasal component and masticator space component. Punctate densities likely represent calcifications versus prior interventions. The mass splays the right medial and lateral pterygoid plates and encroaches upon the right portion of the retropharyngeal space. The right internal carotid artery is not involved. A lobulated component of this mass involves the posterior nasal septum and right ethmoid paranasal sinus. An approximately 1 cm component involves the medial right extraconal orbit, as well as the right optic nerve at the orbital apex.

There is a gap and dehiscence of the right cribriform plate with an apparent meningocele descending into the region of the right ethmoid sinus. This is unchanged from the MR of 06/24/2010. This cribriform defect and meningocele may be due to involution of the hemangioma following the presumed intervention of several years ago. The remainder of the brain is unremarkable.

Regard the CTA portion of the examination, the origins of the common carotid arteries and vertebral arteries are normal. The common carotid bifurcations are normal. The courses of the internal carotid arteries are normal. There is a slight enlargement of the right facial artery and the right temporal artery. The circle of Willis is unremarkable. The left vertebral artery is dominant. No aneurysm is seen. No vascular stains supplying the hemangioma.

The nasopharyngeal airway is narrowed and displaced to the left. Also noted is a bullet fragment within the posterior left neck.

No other head and neck blood vessel abnormalities are seen.

1. Extensive deformation of the deep spaces of the midface due to known hemangioma.

2. Slight decrease in size of this hemangioma.

Dictated By: WEI WANG, M.D. on Dec 23 2016 1:25P

This document has been electronically signed by: FRANZ WIPPOLD, M.D. on Dec 23 2016 1:49P

SUPPLEMENTAL AFFIDAVIT OF
JOEL B. ZIVOT, M.D.

1. Joel B. Zivot, being of sound mind and lawful age, hereby state under penalty of perjury as follows:

* * *

12. Any increase in Mr. Bucklew's blood pressure – such as from stress – will only aggravate his vascular tumors and thus cause greater threat to his airway. If any secretions enter his airway or he starts breathing hard – because of stress or any other cause – his airway will become even more constricted. This will likely start a dangerous cycle in which more strenuous attempts to breathe by Mr. Bucklew will only increase the degree of his airway obstruction. The typical things that other individuals do to get more air in – like taking a big breath – will only make his obstruction worse, and the harder he tries to breathe, the less air he will get.

* * *

16. The bottom line is that there is no way to proceed with Mr. Bucklew's execution without a substantial risk to Mr. Bucklew of suffering grave adverse events during the execution, including hemorrhaging, suffocating or experiencing excruciating pain.

* * *

IN THE UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MISSOURI

Case No. 4:14-CV-8000-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE A. LOMBARDI, DAVID A. DORMIRE And TERRY RUSSELL,

Defendants.

RULE 26(a)(2) EXPERT REPORT

SUPPLEMENTAL DECLARATION OF JOSEPH F. ANTOGNINI, M.D., M.B.A.

JOSEPH F. ANTOGNINI, acting in accordance with 28 U.S.C. § 1746, Rule 26(a)(2)(B), Fed. R. Civ. P., and Rules 702 and 703, Fed. R. Evid., does hereby declare and say:

1. I am submitting this supplemental report in the aforementioned case. All opinions expressed herein are stated to a reasonable degree of medical and scientific certainty unless otherwise noted.

2. Subsequent to my report of November 8, 2016 I have provided testimony in another case (Case No. 2:11-cv-1016; Plaintiffs Phillips, Tibbetts and Otte).

3. On February 3, 2017 I examined Bucklew at the Potosi Correctional Center in the presence of his attorney and Mr. Spillane. My examination of Bucklew revealed the following pertinent findings:

His blood pressure was 144/100, pulse 79 bpm. He had a hemangioma involving the right side of his face, manifested externally primarily as slight swelling of his face, and involvement of his upper lip; examination of his mouth and oropharynx revealed involvement of the mucosal portion of his upper lip, as well as the buccal oral mucosa on the right-side and his uvula. He had a Mallampati 4 airway. He was able to breathe through both nostrils, although breathing through the right nostril was more difficult than through the left. He had a normal gait, 5/5 strength in all four extremities. His patellar reflexes were decreased; his biceps reflexes were normal. On examination, he was not able to smile, consistent with the diagnosis of bilateral Bell's palsy. He was able to move his tongue from side to side, and he moved his eyes in all directions. His speech was normal. His lungs were clear to auscultation and his heart sounds were normal. Examination of his chest, neck and arms did not show any signs of venous congestion. There were small superficial veins in his hands (right greater than left).

Assessment:

1. Hemangioma involving his face on right side and oropharynx, with potential for difficult airway if the inmate needed to undergo a medical or surgical procedure requiring sedation or anesthesia.

2. Residual effects of bilateral Bell's palsy, but no other neurological signs suggesting a prior stroke.

3. No evidence of superior versa cava syndrome.

> 4. Limited sites for IV access in upper extremities.

4. My assessment of the inmate's airway does not alter my opinion regarding the actions of pentobarbital, that is, a large dose of pentobarbital will cause rapid unconsciousness and respiratory arrest. The resultant unconsciousness and lack of respiratory drive, renders the airway issue irrelevant.

5. The intravenous administration of five (5) grams of pentobarbital would result in rapid unconsciousness, notwithstanding Dr. Zivot's claim that, in my first declaration, I wrote or inferred that pentobarbital would cause instantaneous unconsciousness. (In fact, I never used the word "instantaneous".) I did write (and do so in this declaration) that pentobarbital would result in ". . . rapid onset of unconsciousness followed by death." I clarify that opinion that the rapid onset of unconsciousness would occur within 20-30 sec after the administration of the large dose of pentobarbital. To reiterate and expand on my earlier statements:

> Pentobarbital (5 grams) will cause 1) rapid and deep unconsciousness within 20-30 sec, followed by 2) markedly depressed drive to breathe, followed by 3) absence of breathing, followed by 4) decreased oxygen levels in the body, followed by 5) slowing of the heart beat, followed by 6) the heart stopping, i.e., death. During this period there will also be cardiovascular depression and collapse.

Even if the inmate did have bleeding in his airway after the administration of pentobarbital, the deep unconsciousness produced by the pentobarbital would prevent the inmate from sensing this bleeding.

6. A large dose of pentobarbital, such as the 5 grams, would cause respiratory arrest and cardiovascular collapse, leading to death. (see http://emedicine.medscape.com/article/813155-overview#a5 accessed 2-6-17)

7. Dr. Zivot has written in a publication (*Zivot*, 2016) that:

> "As a consequence of these airway tumors, Bucklew cannot lie flat because gravity tugs on the tumors and blocks his breathing. Execution by administration of lethal injections, for physiological efficacy, requires a prisoner to lie flat. If Bucklew were to be executed, he would have to be sitting up."

Bucklew can, in fact, lie flat— according to the inmate, he did so for about 1 hour while undergoing his recent imaging studies (December 19, 2016). While he stated he was not comfortable, he was nonetheless able to be flat. Secondly, pentobarbital (or any other intravenous drug) does not require the subject to be supine. Many patients are anesthetized in the sitting or semi-sitting position—I have done this many times in my career. Dr. Zivot's statement implies that intravenous drugs will not work properly when a subject is not supine. In any case, if there are concerns about the inmate's ability to be supine, Dr. Zivot has provided the State of Missouri guidance on how to execute Bucklew.

8. Dr. Zivot's conclusions do not fit with the facts and how pentobarbital works. As stated above, pentobarbital (5 grams) causes rapid unconsciousness followed by respiratory arrest, cardiovascular collapse and death. After intravenous injection of 5 grams pentobarbital, concentrations of pentobarbital will far exceed the lethal concentrations (see Table 1, package

insert, and extrapolating from data of *Ehrnebo*, 1974). Once respiratory depression and arrest occurs within 1-2 minutes, the unconscious inmate then begins to use up the oxygen stores in his body, which are estimated to be 1200 ml (*Campbell & Beatty*, 1994). Normal oxygen consumption is about 250-300 ml/min, and virtually all the oxygen in the inmate's body will be used after 4-5 min. In fact, estimates of oxygen saturation after apnea confirm this relationship (*Farmery & Roe*, 1996). Before all the oxygen is used, however, the heart will be affected and will begin to slow, and will then have agonal beats and it likely will take several minutes before the heart stops all together. At that point, death is declared. This process, as described, is irrefutable. It is based on the known actions of pentobarbital, eyewitness statements and sound pharmacological and physiological principles.

9. Dr. Zivot seems to imply that, after administration of a large dose of pentobarbital, the inmate will languish in a zone of being neither awake nor completely unconscious, and will thereby suffer from the sensations he describes (excruciating pain, air hunger, choking, etc.). Such a scenario is incompatible with the known effects of pentobarbital, especially in view of the statements (previously cited) of witnesses to prior Missouri executions using pentobarbital. Furthermore, Dr. Zivot's "Objective Factual Bases For Opinion" (Sections IV.A-E of his January 19, 2017 declaration) are only pertinent to a person who is *breathing*. As previously stated, a large dose of pentobarbital will induce rapid unconsciousness and stop the drive to breathe.

10. The term "air hunger" has been used by Dr. Zivot in an inappropriate, mis-leading and inaccurate manner. Air hunger describes the sensation a

conscious person would have when they are unable to breathe sufficiently. The definition is here:

1: a sensation of not being able to breathe in sufficient air or of needing to breathe in more air that typically results in deep, rapid, labored breathing and occurs especially in those affected with acidosis

2: abnormal deep, rapid, labored breathing : kussmaul breathing https://www.merriam-webster.com/medical/air%20hunger (Accessed 2-2-17)

Sensation is defined:

1a: a mental process (as seeing, hearing, or smelling) resulting from the immediate external stimulation of a sense organ often as distinguised [sic] from a conscious awareness of the sensory process—compare perception b: awareness (as of heat or pain) due to stimulation of a sense organ c: a state of consciousness due to internal bodily changes <a sensation of hunger>

2: something (as a physical stimulus, sense-datum, pain, or afterimage) that causes or is the object of sensation https://www.merriam-webster.com/dictionary/sensation#medicalDictionary (Accessed 2-2-17)

11. The logical interpretation of these definitions is that a person must be awake to perceive air hunger, and clearly the inmate would not be conscious 20-30 sec after administration of the large supra-clinical dose of pentobarbital that is described in the Missouri execution protocol.

12. Respiratory depression is a known consequence of sedative and anesthetic drugs, including barbiturates, such as pentobarbital, and opiates, such as fentanyl, morphine and heroin. Indeed, respiratory depression is the primary cause of death from overdose of these drugs. But it makes no logical sense how, on

the one hand, these drugs (opiates, barbiturates) can stop breathing, and on the other hand, produce the sensation of air hunger. After all, if the person senses air hunger as a result of these drugs, why wouldn't they breathe? Indeed, in the clinical setting, when patients have drug-induced respiratory depression, if conscious, they can he told to breathe, which they do. But, if not continually encouraged, they will fail to breathe on their own. The most logical way to reconcile these two situations (respiratory depression and the purported air hunger) is that the drugs remove the sensation of air hunger.

13. Dr. Zivot seems to claim in his declaration dated January 19, 2017, section V.A.5, that my delineation of the numerous surgical procedures that the inmate has had was provided only as evidence that no special precautions were needed with regard to management of his airway. This is not so. The main reason for my discussion of these procedures was that the inmate reacted normally to the anesthetic drugs, i.e., the inmate's hemangioma did not significantly alter his response to the anesthetic drugs (both intravenous anesthetics and inhaled anesthetics).

14. In the clinical setting many patients have abnormal or difficult airways. For example, obese patients often have redundant tissue in the airway. It makes no sense that, after the administration of pentobarbital, and the onset of unconsciousness within 20-30 see, that this inmate will make attempts to breathe and he will somehow regain consciousness because of it. The analogy Dr. Zivot draws between airway obstruction during sleep and airway obstruction after administration of a large supra-clinical dose of pentobarbital is inappropriate and misleading. A person can be awakened from sleep from various stimuli

(including airway obstruction) but a person cannot be awakened from a large supra-clinical dose pentobarbital. After all, pentobarbital is an anesthetic, and by definition, anesthetics prevent awakening from stimuli, including airway obstruction.

15. This inmate's airway could be difficult to manage in the *clinical* setting (although there was no mention of difficulty with past anesthetics for which endotracheal intubation was used, as I previously cited). There would be increased risk attendant to general anesthesia that would be required for a medical or surgical procedure, specifically, when the intended outcome is that the patient is *alive* at the end of the procedure. But we are not assessing the inmate's risk for that scenario. By definition, the inmate is not undergoing a medical procedure, and the intended outcome of Missouri's execution protocol is *death*, so a discussion of risk in the clinical setting is simply not germane.

16. The opinions and statements in this supplemental declaration and my original declaration dated November 8, 2016 are provided as expert testimony regarding the pharmacological agents discussed herein and their pharmacological and clinical effects. Nothing in these declarations is meant to be, or should be construed as, advice or recommendations to the State of Missouri or any other entity, person or persons on how to conduct a lawful execution, especially with regard to one method of execution being favorable compared to another.

CONCLUSIONS

17. The above Report is based upon facts, documents and circumstances that have been made available to me through and including February 10,

2017. If I become aware of additional facts, documents and circumstances, I may revise, extend and/or supplement this report as may be appropriate under the circumstances and/or include further or amended opinions on issues that may lie within my field of expertise.

In accordance with 28 U.S.C § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 10, 2017.

/s/ Joseph F. Antognini
Joseph F. Antognini, M.D.,M.B.A.

IN THE UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MISSOURI

Case No. 4:14-CV-8000-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE A. LOMBARDI, DAVID A. DORMIRE
And TERRY RUSSELL,

Defendants.

RULE 26(a)(2) EXPERT REPORT

DECLARATION OF
JOSEPH F. ANTOGNINI, M.D., M.B.A.

JOSEPH F. ANTOGNINI, acting in accordance with 28 U.S.C. § 1746, Rule 26(a)(2)(B), Fed. R. Civ. P., and Rules 702 and 703, Fed. R. Evid., does hereby declare and say:

* * *

10. Several facts are relevant to this case. On October 11, 2000, the inmate had an angiogram to delineate the blood flow to his hemangioma. The radiologist's conclusion was ". . . . no true fistula was seen in this angio a very slow flow type of lesion is very likely". Importantly, the inmate's hemangioma was large and symptomatic during this period when he was being evaluated. This finding indicates that the inmate's hemangioma does not have high blood flow, and thus would not alter drug distribution. Furthermore, cavernous hemangiomas, while they can grow

progressively larger, do not change their blood flow characteristics, i.e., the hemangiomas maintain relatively low blood flow. (Note: I do not believe a high flow lesion, even if present, would significantly affect drug distribution, as discussed in section 14).

11. Between December 2000 and November 2003 the inmate underwent at least eight (8) surgical procedures requiring general anesthesia. Of note, on December 6, 2000, Bucklew had a tracheostomy and sclerotherapy for his hemangioma. He had been symptomatic for many months prior to this procedure, including bleeding episodes. His medical record clearly documents that his hemangioma was large and involved his soft palate and hard palate. During this procedure on Dec 6, 2000 he was supine, received a tracheosotomy with local anesthesia (i.e., he was awake for this portion of the procedure), and then he received general anesthetic drugs intravenously. The record indicates that he reacted normally to the drugs, i.e., he was unconscious. He received general anesthesia uneventfully over the next three years for additional sclerotherapy treatments, thoracotomies (chest surgery) and dental extractions. The dental extractions were performed on November 3, 2003, and prior to this surgery the record indicates that his hemangioma was large. These various facts show that the inmate reacted normally to anesthetic drugs during periods when his hemangioma was large, indicating that the hemangioma did not alter his response to general anesthetic drugs.

* * *

13. It is my opinion that Drs. Zivot and Jamroz conflate the anatomical and physiological characteristics of various abnormal vascular growths, including arteriovenous malformations (AVMs) and cavernous hemangiomas. Arteriovenous malformations have a direct connection between the small feeding arteries and the draining veins, so the AVM acts as a low resistance, high flow system. Cavernous hemangiomas (as is present in the inmate), however, have large intervening "caverns" between the arteries and veins, and these caverns act like pools, which limit blood flow. Studies have reported blood flow through AVMs and cavernous hemangiomas, and there is clear documentation that blood flow in the cavernous hemangioma, unlike blood flow in an AVM, is low compared to surrounding tissue (*De Reuck et al., 1994; Little et al., 1990 Xiao et al., 2014*). For this reason, it is my opinion that overall blood flow to this inmate's cavernous hemangioma is relatively low compared to the blood flow to his brain. Furthermore, as noted above, the inmate had an angiogram demonstrating the hemangioma was low-flow. Nevertheless, even if there was a "steal" phenomenon, it is my opinion that it would not materially alter the distribution and action of drugs affecting the brain (see #14, next).

14. The argument by Drs. Zivot and Jamroz goes something like this: the cavernous hemangioma takes blood flow away from the brain or parts of the brain, and thereby alters the drug distribution. Taking their argument to its necessary conclusion, in order that the drug not get to the brain requires that the hemangioma takes all the blood away from the brain.

But this clearly cannot happen without obvious effect. If the hemangioma "steals" more and more blood, it would deprive the brain (or parts of the brain) of blood, which eventually would cause death of those brain areas so deprived. Clearly, this is not happening, as the inmate has not suffered a stroke. He has recently been observed to speak normally and walk without difficulty. Furthermore, following a large pentobarbital dose, brain areas that might have low blood flow would still receive blood with high concentrations of the drug, and thereby depress those brain areas. Finally, if these brain areas have died because of low, or no blood flow, drug action there is immaterial. Thus, the "steal" argument by Drs. Zivot and Jamroz is specious and fundamentally flawed because 1) cavernous hemangiomas do not have high blood flow; 2) this inmate has a low-flow hemangioma documented by angiogram; 3) a "steal" phenomenon would not significantly alter the drug distribution; 4) brain areas with low blood flow would still receive blood with high drug concentrations. And, as noted above, the inmate has indeed reacted normally to anesthetic drugs—as expected.

* * *

16. Inmate Bucklew apparently has breathing difficulty when laying supine and it is not clear from the records what position he favors when sleeping. In some medical notes, he has been observed to sleep on his side while at other times he has been seen to sleep supine. If he were to undergo a medical procedure that required general anesthesia, and laying supine caused him difficulty, then the normal practice would be to induce anesthesia with him in the semi-recumbent or sitting position.

17. Dr. Zivot states that, based on his examination, Bucklew's airway is ". . . . friable, meaning it is weak and could readily tear and rupture. If you touch it, it bleeds" (#9, 10-13-15 declaration). Dr. Zivot uses this observation as evidence that Bucklew could suffer "feelings of suffocation and extreme or excruciating pain" (#10, 10-13-15 declaration). Yet, curiously, further in his declaration, Dr. Zivot recommends that Bucklew undergo a clinical examination that would ". . . include bronchoscopy and the use of a Glidescope" (#18, 10-13-15 declaration). These procedures, especially using a Glidescope, would require airway manipulations that are counter to Dr. Zivot's concerns regarding Bucklew's airway. Brochoscopy involves placing a small plastic tube with a camera into either the nose or mouth and advancing the tube through the upper airway and into the trachea (windpipe), for the purpose of visualizing the airway anatomy. This procedure almost always requires administration of local anesthesia in the nose/mouth and oropharynx, as well as the windpipe. Patients commonly gag and cough during bronchoscopies (*Kajekar et al., 2014*). Furthermore, blood pressure can increase substantially in some patients undergoing bronchoscopy (*Davies et al., 1997*). The Glidescope is a trade name for a brand of videolaryngoscope, a device which is used to visualize the mouth and oropharynx during airway manipulation. As with bronchoscopy, topical local anesthesia is required in an awake patient, and there is risk of gagging and coughing with the use of a Glidescope, or other videolaryngoscopes. It is difficult to reconcile Dr. Zivot's concern about the risk of bleeding as the result of the execution protocol with the real risk of gagging, coughing, increased blood pressure and bleeding from the bronchoscopy and videolaryngoscopic examinations he proposes to do (*Rosenstock et al., 2012;*

Kajecar et al., 2014). Finally, to emphasize the inherent contradiction in his argument, Dr. Zivot states ". . . the placement of any device in the pharynx will cause instant bleeding" (#15, 12-4-15 declaration).

* * *

23. In this inmate the use of lethal gas does not hold any advantage compared to lethal injection with respect to pain and suffering. Both methods would result in minimal pain and suffering. Specifically, the intravenous injection of a large dose of pentobarbital would result in rapid unconsciousness. The inmate claims, through counsel, that execution by a gas would he preferable because ". . . the lethal agent enters the body through the lungs . . ." and it ". . . . bypasses Mr. Bucklew's circulatory system . . ." (Doc 53, 4th amended complaint, at #29). This assertion is incorrect. The use of various gases (hydrogen cyanide, nitrogen, for example) work by the gas entering the lungs, and then being transported by the circulatory system. Whether the effect is the presence of an active poison (hydrogen cyanide) or the displacement of oxygen by an otherwise inert gas (nitrogen) the circulatory system is needed.

* * *

Why I'm for a moratorium on lethal injections: Column

Joel Zivot

5:32 p.m. ET Dec 15, 2013

As an anesthesiologist, my job is to save lives, not to take them.

(Photo 2005 AP photo)

I am an anesthesiologist, and I possess the knowledge on how to render any person unconscious You may call it sleep, but it is nothing of the sort.

I learned my craft with the use of sodium thiopental (http://www.rxlist.com/pentothal-drug.htm), a drug in the barbiturate class. To witness it for the first time, to watch as it raced into a vein, and in a moment, rendered the patient unconscious, was nothing short of astounding. In those moments, my job was to be reassuring and comforting, for I can imagine no greater moment of trust between a doctor and a patient.

Sodium thiopental is no longer in my pharmacology toolbox. Hospira, the last company to manufacture the drug, stopped making it (http://phx.corporate-ir.net/phoenix.zhtml?c=175550&p=irol-newsArticle&ID=1518610&highlight) to protest its use in carrying out the death penalty.

So other drugs have been substituted. One of them will be used Tuesday, when Oklahoma is scheduled

to execute by lethal injection Johnny Dale Black (http://www.ok.gov/doc/Offenders/Death_Row/), who was convicted of murder.

An executioner and the condemned are not the same as a doctor and a patient, though it is easy to see how similarities can be drawn. Had this supposed similarity not been noticed, the death penalty in the U.S. would likely not have survived. Instead, lethal injection created an illusion of humane, professional execution. But the executioners are not doctors, and it's been well established that the executions themselves are not humane.

My right to use sodium thiopental was earned through thousands of hours of the study of pharmacology, anatomy, physiology, training and evaluation. It was earned by the granting of a medical degree. It was granted by state medical boards whose job is to protect the public. It was validated by the granting of hospital privileges based on proof of my sound, safe and sage practice and a license from the Drug Enforcement Administration (http://www.justice.gov/dea/index.shtml).

Rue my silence

As a physician, however, I am ethically prohibited from commenting on the details of lethal injection lest even casual association suggest support or oversight. I now see that my silence has created the opposite effect. My silence has sanctioned it, not prevented it.

States may choose to execute their citizens, but when they employ lethal injection, they are not practicing medicine. They are usurping the tools and arts of the medical trade and propagating a fiction.

When I gave a patient sodium thiopental, it was a medicine whose purpose was to heal. When the state gave sodium thiopental to a prisoner, it was a poisonous chemical whose purpose was to kill.

These days the debate is even more troubling. States are seeking alternatives (http://www.cnn.com/2011/US/02/09/execution.drug.shortage/) to sodium thiopental. They collude with compounding pharmacies to make pentobarbital (http://www.reuters.com/article/2013/10/03/us-usa-executions-texas-idUSBRE9920SG20131003) a cousin of sodium thiopental. When that is not available, they raid the pharmacology toolbox again.

In search of options

Missouri (http://www.washingtonpost.com/politics/missouri-gov-halts-1st-us-execution-by-propofol/2013/10/11/559e6af6-32d9-11e3-8627-c5d7de0a046b_story.html) recently obtained propofol, an exceedingly important anesthetic agent, and threatened to use it for executions. It would have succeeded if not for the threat of sanction by the European Union, which (http://popofol-info.com/risk-eu-sanctions.htm) opposes the death penalty. Because of our broken domestic drug manufacturing market, 90% (http://www.nature.com/news/death-row-incurs-drug-penalty-1_13996?WT.ec_id=N) of our propofol is produced in Europe. EU sanctions would have stopped propofol shipment to the U.S. and left physicians without this critical drug.

Most recently, Florida reported the use of midazolam (http://www.nbcnews.com/health/florida-execute-man-using-untried-lethal-injection-drug-8C11390762), another essential medication, in an execution. Midazolam is in the class referred to as a benzodiazepine (http://www.drugs.com/pro/midazolam-injection.html). These

drugs replaced barbiturates, to a degree, because they were safer. That is, it is harder to kill someone with them. How Florida granted itself expertise in the use of midazolam, now repurposed as a chemical used to kill, is known only to Florida.

Most shockingly, midazolam is in short supply (http://www.theguardian.com/world/2013/oct/02/texas-execution-drugs-pentobarbital). From an ethical perspective, I cannot make the case that a medicine in short supply should preferentially be used to kill rather than to heal. What appears as humane is theater alone.

What we need is a moratorium on the use of all anesthetic agents for lethal injection. If the state is inclined to execute, it might be the time again to take up hanging, the electric chair or the bullet.

Joel Zivot, M.D., is an assistant professor of anesthesiology and also the medical director of the cardio-thoracic and vascular intensive care unit at Emory University School of Medicine in Atlanta.

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Cerebral and Brainstem Electrophysiologic Activity During Euthanasia with Pentobarbital Sodium in Horses

M. Aleman, D.C. Williams, A. Guedes, and J.E. Madigan

* * *

Materials and Methods

Animals

This observational prospective study included 15 horses for which euthanasia was elected based on published guidelines during a study period from 2011 to 2014.[1] Reasons for euthanasia included poor quality of life, intractable pain, progressive and debilitating or incapacitating disease with a poor prognosis. Horses were sourced from a research herd and patients from the William R. Pritchard Veterinary Medical Teaching Hospital.

Sedation and anesthetic protocol

All horses had an intravenous catheter placed in the jugular vein for the administration of sedatives, injectable anesthetics, and euthanasia solution. Sedative and anesthetic protocols before euthanasia were elected according to the horses' condition or disease, temperament, apparent anxiety, clinician preference, and safety concerns for the horse, personnel, and equipment. Accordingly, 3 protocols were used: (1) intravenous sedation (IVS, n = 4

horses), (2) intravenous anesthesia (IVA, n = 4), or (3) inhalation anesthesia (IA, n = 7).

Intravenous sedation consisted of administration of xylazine hydrochloride at a dosage of 0.25 mg/kg to relieve anxiety and facilitate electrode placement. Four horses (#1–4) were included in this group (orthopedic = 2, neurologic = 1, cardiac disease = 1). BAER was not performed in these horses because of equipment safety concerns.

Intravenous anesthesia consisted of administration of xylazine hydrochloride at a dosage of 1 mg/kg IV followed 5 minutes later by administration of ketamine hydrochloride at 2.2 mg/kg IV. Four horses (#5–8) received IA (neurologic = 3, orthopedic disease = 1). The electrodes for the recording of the study were placed once the horses were anesthetized. A BAER was performed in 3 of 4 horses.

In the group of horses euthanized while under inhalation anesthesia, horses were first sedated with xylazine and induced with ketamine as in the IVA group. Seven horses (#9–15) received inhalation anesthesia (neurologic = 6, orthopedic disease = 1). Reasons for undergoing anesthesia included myelography, computed tomography, and magnetic resonance imaging. Inhalation anesthesia was maintained with isoflurane (except one horse [#13] that received desflurane) delivered in 100% oxygen via a large animal anesthesia machine and breathing circuit. In addition, this one horse (#13) received IV propofol at a dosage of 2 mg/kg. Before euthanasia, the anesthetic level was maintained such that the EEG recorded continuous activity (no burst suppression). BAER was performed in 5 of 7 horses because of equipment availability.

Physical and neurologic variables

Physical variables included audible heart rate (beats per minute [bpm]) and rhythm, and the presence and quality of the arterial pulse. The neurologic variables consisted of presence or absence of brainstem reflexes such as direct pupillary light, corneal, and palpebral reflexes. The subcortical dazzle reflex was also monitored. These variables were monitored as follows: before receiving any medication (sedation), after instrumentation (EEG, EOG, ECG, and BAER), within 1 minute immediately before euthanasia solution infusion, within 20 seconds after the initiation of the infusion, immediately after the end of the infusion, and every 30 seconds thereafter until these variables were undetectable. Monitoring at these specific time points were not always possible in horses from the sedation group because of safety concerns. However, once horses from this group collapsed, variables were recorded immediately after collapse and every 30 seconds thereafter. Personnel assistance was used for monitoring physical (1st assistant) and neurologic (2nd assistant) variables. Mean arterial blood pressure (MAP) was continuously recorded in the inhalation anesthesia group.

Electrophysiologic examination

The examination consisted of EEG, EOG, electrocardiography (ECG), and BAER as described elsewhere.[12,13] The equipment used for EEG, EOG, and ECG was a digital EEG system (stationary or wireless),[ab] with integrated video monitoring. Stationary or wireless (telemetry) digital EEG systems were used based upon equipment availability or safety concerns (eg, standing sedation versus anesthesia). Instrumentation for these procedures has been described elsewhere.[12] Needle electrodes were

placed SC in the scalp of the horse for the recording of EEG.[12] Baseline recordings were performed before euthanasia in all horses. When possible, recordings were continuous throughout the procedure.

An evoked potential system[c] was used for the recording of BAER. However, BAER was not evaluated in nonanesthetized horses for equipment safety reasons. One set of baseline tracings (an average of 200 responses using both derivations [vertex to mastoid, and vertex to C2][13] run simultaneously) with a single duplicate recorded for each ear were done before euthanasia. Immediately after this recording, infusion of euthanasia began and recordings were made continuously. Each complete recording took 90 seconds total. These were repeated continuously until BAER was absent (no peaks could be detected). The noise applied to the ear under evaluation was 90 dB normal hearing level (nHL) with a masking noise for the contralateral ear of 60 dB nHL.[13] Identification of visible peaks were labeled from I to V; these were consistent with auditory function.[13]

Euthanasia protocol

Euthanasia consisted of intravenous injection of a combination of both pentobarbital sodium[d] (390 mg/mL) and phenytoin sodium (50 mg/mL) at a dosage of 77–109 mg/kg for a total volume of 100 mL for horses above 400 kg of body weight. This dosage protocol is routinely used by most practicing veterinarians. The study was approved by an institutional animal care and use committee and owner consent was obtained.

Statistical analysis

Mean, standard deviation (SD), median, and range values are presented. No attempts were made to

compare the results from the 3 groups of horses because of the low numbers of horses with different disorders, different euthanasia protocols, and variation in euthanasia solution dosages.

Results

Fifteen horses of Thoroughbred (n = 5), Quarter horse (n = 4), Arabian (n = 2), Morgan (n = 2), Warmblood (n = 1), and Tennessee Walking horse (n = 1) breeds were included in the study. There were 8 males (castrated = 7, intact = 1), and 7 females. The mean age was 10.8 years (median 14, range 20 days to 17 years). Ten horses had neurologic disease as follows: cervical compressive myelopathy (n = 4), progressive multifocal spinal cord disease (n = 3: undetermined etiology, n = 2/3; scoliosis, n = 1/3), occipitoatlantoaxial malformation with compression of the cervical spinal cord (n = 1), equine protozoal myeloencephalitis (n = 1), and meningoencephalomyelitis because of *Halicephalobus gingivalis* (n = 1). Four horses had orthopedic disease: chronic multiple osteoarthritis (n = 2), bilateral femoral osteochondrosis (n = 1), and bilateral pelvic fracture (n = 1). One horse had atrial fibrillation with severe atrioventricular heart block.

The mean infusion time was 46.8 seconds (SD 23.1, median 38, range 28–115 seconds) in adult horses. Two foals received 20 and 30 mL of euthanasia solution infused over 21 and 32 seconds, respectively. The mean infusion time for all horses was 44.1 seconds (SD 22.7, median 37, range 21 to 115 seconds). Heart rate increased during and immediately after the administration of euthanasia solution (before infusion: mean 40.4 bpm, SD 15.4, median 32, range 30–80; immediately after the infusion: mean 54.3, SD 12, median 52, range 36–80 bpm). Visible and audible breaths were not evident by the end of the infusion.

Within 1 minute after euthanasia, heart sounds (mean 43.2, SD 12.1, median 38, range 25–60 seconds) were not audible and arterial pulse was undetectable. The MAP decreased from a mean of 83 mmHg (SD 5.6, median 80, range 75–89 mmHg) before euthanasia to 56.7 mmHg (SD 9.9, median 60, range 58–66 mmHg) after the infusion. Mean arterial pressure (MAP) was undetectable at a mean time of 52.6 seconds (SD 9.3, median 59, range 40–60 seconds) after the end of the infusion. All horses had intact brainstem reflexes before euthanasia.

A 10-minute baseline EEG was recorded in all horses before euthanasia. Interpretable EEG was obtained in standing horses under sedation before infusion of euthanasia solution. However, interpretation was difficult during the infusion because of movement artifact. Based on unpublished isoflurane data from another EEG study in horses (DCW, MA), a minimal alveolar concentration of less than 1.2 was maintained to obtain continuous EEG activity without suppression. Burst suppression,[14] defined as an isoelectric pattern alternating with bursts of high voltage activity, was noted in 2 horses anesthetized with isoflurane after infusion of 20–40 mL of euthanasia solution (Fig 1). Lack of detection of EEG (a continuous isoelectric pattern) occurred at a mean time of 52.6 seconds (SD 26.6, median 41, range 25–111 seconds) from time 0 (defined as the start of the infusion). Undetectable EEG occurred before (Fig 2A) and after (Fig 2B) termination of the infusion in 4 and 9 horses, respectively. In 2 horses (#2 and 3) from the sedation group, electrodes were lost as the horses collapsed. A reduced number of electrodes (9 plus ground) were placed promptly (<15 seconds) after collapse and an isoelectric pattern was noted; making it difficult to determine at what time point the EEG

became isoelectric. In the group of 9 horses, loss of EEG activity occurred from 2 to 52 seconds (mean 23.7, SD 21.3, median 18 seconds) after termination of the infusion. The horse with the longest time to loss of EEG activity had atrial fibrillation and the longest time of infusion (Fig 3). This horse collapsed 17 second [sic] after the termination of the infusion, and lost EEG activity 29 seconds later. A different horse from the sedation group collapsed 5 seconds after the termination of the infusion and lost EEG activity 13 seconds later. Lack of brainstem reflexes occurred at a mean time of 81.1 seconds (SD 39, median 80, range 36–169 seconds) after the end of the infusion. A breath-like movement (perceived as an agonal breath) concurrent with undetectable brainstem reflexes was observed in 3 horses (Fig 4). A baseline BAER was recorded in 8 of 8 horses before euthanasia (Fig 5A). Decreased amplitudes of all waves were noted seconds after the termination of the infusion (Figs 5B,C). Loss of detectable BAER was seen at a mean time of 122.6 seconds (SD 69.6, median 88, range 73–261 seconds) after completion of the infusion (Fig 5D). In one horse, a second breath-like movement was observed and recorded on EEG at approximate [sic] 8 seconds after BAER became absent (not shown).

Despite undetectable heart sounds and the absence of a palpable arterial pulse, ECG monitoring showed ongoing ECG activity until a mean time of 559.1 seconds (SD 217.9, median 501, range 330–979 seconds) from termination of the infusion in all horses of all groups. During this time, brainstem reflexes and brain electrical activity did not return, and MAP was not recordable. In the horse with atrial fibrillation (Fig 3A), the heart rhythm became regular based on ECG (Fig 3B) after euthanasia solution administration. Before the occurrence of undetectable ECG in all

horses, the ECG waves became irregular in shape, size, and rhythm (Fig 6).

Discussion

This study showed that euthanasia with an overdose of pentobarbital sodium administered IV is an effective, fast, and humane method to terminate life in horses. Absence of detectable cortical electrical activity can occur during the administration of an overdose of pentobarbital (4 horses) or within 52 seconds after completion of the infusion (9 horses). The exact time at what 2 horses lost cortical electrical activity was not determined, but thought to be either during or shortly after (<15 seconds) the end of the infusion. This lack of EEG activity appeared to be irreversible based on continuous recording for several minutes with no recovery of EEG activity. Brainstem function was lost second based on absent brainstem reflexes and BAER. Brainstem reflexes were undetectable before loss of the BAER. Agonal breaths were observed concurrently with the loss of brainstem reflexes. Although heart sounds and a palpable arterial pulse were undetectable, ECG activity was the last variable to be lost. Absence and lack of recovery of any detectable brain electrical activity, based on EEG and BAER, supported the diagnosis of brain death in these horses.

Electroencephalography has been used for decades to aid in the determination of brain death in human medicine.[15] Electroencephalography reflects cerebral cortical activity modulated by diencephalic and brainstem influences. An isoelectric pattern on EEG supports the absence of cerebral electrical activity. However, barbiturate administration and hypothermia can preclude proper diagnosis of brain death.[16] Barbiturates can cause burst suppression and

even an isoelectric pattern.[17] Therefore, determining brain death in patients treated with barbiturates can be challenging. Halogenated inhalation anesthetics, such as isoflurane, can also cause burst suppression and isoelectric patterns.[17] Propofol can also cause burst suppression in humans; however, the single horse that received propofol did not demonstrate this pattern.[17] In the present study, only 2 horses displayed burst suppression and both horses were anesthetized with isoflurane. However, burst suppression was not observed until the infusion of pentobarbital sodium. The sedative (xylazine hydrochloride) administered to the horses in this study is not associated with burst suppression or isoelectric patterns.[12] Ketamine hydrochloride, the induction agent, does not induce these EEG patterns.

Brainstem evoked response is used to assess the auditory pathway which includes the cochlear nerve, caudal, and cranial brainstem.[18] Therefore, BAER could be used as a diagnostic aid to evaluate the presence or absence of brainstem function.[18] However, BAER is considered to have a moderate prognostic value and low to moderate validity to confirm brain death depending upon the disease process (eg, severe brain-stem injury).[2,19] To fulfill the criteria of brain death in people with sufficient brainstem damage, BAER waves are absent after wave I or occasionally after wave II.[19] Complete absence of BAER could indicate deafness because of peripheral auditory dysfunction and not brain death exclusively.[19] To avoid misinterpretation of BAER in our study, a baseline BAER was recorded in 8 horses. All BAER waves were present in these 8 horses and considered to be within published reference ranges.[20,21] The amplitude of all waves decreased and interpeak intervals increased within seconds after termination of pentobarbital

infusion. Loss of waves II to V (brainstem, Fig 5C) occurred first, and wave I was the last wave to become undetectable (Fig 5D). Complete absence of BAER is in support of brain death in the absence of severe brainstem disease in these horses (n = 8 of 8). BAER can persist despite high doses of barbiturates in people and animals.[22–25]

Factors that influence EEG and BAER recordings and interpretation such as disease and artifacts were considered. In this study, 3 horses had diseases that could have altered EEG and BAER findings. Two horses had multifocal brain disease with brainstem involvement (altered state of consciousness [stupor], multiple cranial nerve abnormalities). BAER was not performed in these 2 horses. The horse with atrial fibrillation took longer to lose ECG activity but its baseline EEG did not show obvious abnormalities. Artifacts such as those generated by movement, electrical interference, or hospital equipment (eg, ventilator) could interfere with proper EEG interpretation and determination of brain death. Movement artifacts were observed in standing horses resulting in difficulty in interpreting EEG as euthanasia solution was administered. Body temperature should be noted when using BAER as an aid to determine brain death because hypothermia can alter BAER (increased inter-peak latencies) in people.[26] This finding has not been investigated in horses. Body temperature in these horses did not decrease below 36.7°C (98°F), and BAER baseline was within reference ranges at this temperature.

The 2 horses with the longest infusion times (65 and 115 seconds) were the ones who took the longest to lose all ECG activity (962 and 979 seconds) after end of the infusion. The infusion of a smaller volume per time

likely prolonged the time for full effect of pentobarbital solution. However, one of these horses had atrial fibrillation with periods of no ventricular activity (based on recorded ECG) for over 8–9 seconds, which likely impacted the distribution time and effects of euthanasia solution. The mean infusion time of pentobarbital solution for the remaining 13 horses was 37.1 seconds, and the mean time to absent ECG activity was 495.8 seconds postinfusion. As this variable (loss of ECG) is frequently used to determine time of death, administration of an overdose of pentobarbital sodium should be performed quickly. The distribution of an overdose of pentobarbital might be delayed with prolonged infusion, therefore possibly prolonging the effect on the brain (perception). In another euthanasia study using different premedication protocols (detomidine versus no detomidine administration) and variable dosages of pentobarbital sodium (high versus low), the mean time to asystole varied according to the protocol used.[27] In that study, asystole occurred almost 4 minutes earlier in horses that received sedation compared to unsedated horses.[27] Although sedated horses took approximately 8 seconds longer to collapse than unsedated horses, the documentation that asystole occurred earlier, led the authors to conclude that the combination of sedation with high doses of pentobarbital resulted in faster cardiac death.[27] The overall mean infusion time in that study was 17 seconds (range 6–45 seconds).[27]

Pain, anxiety, and distress by a conscious horse could be minimized by administering IV sedation before euthanasia. In horses with standing sedation, 2 horses had isoelectric EEG patterns at the time of electrode replacement (<15 seconds after collapse) and 2 other horses took 18 and 46 seconds postinfusion to reach cerebral silence. The horse that took the longest

time had atrial fibrillation, which likely played a role in the prolongation to effect. A larger number of horses are needed to validate these findings. However, the results of this study are encouraging because an isoelectric pattern on EEG supports a lack of conscious perception of pain and distress as euthanasia is occurring and while brain death and eventually asystole take place. A study by Chalifoux and Dallaire demonstrated that EEG was lost 4 minutes after euthanasia with carbon monoxide in dogs and that cessation of ECG occurred at 19 minutes.[7] The study by Buhl[27] showed that asystole in horses occurred up to 15 minutes later which is similar to our study (up to 16 minutes later in the 2 horses with the longest infusion times which one had atrial fibrillation). Removing these 2 horses, absence of ECG activity occurred up to 12 minutes (mean time 8.3 minutes) postinfusion of euthanasia solution. Respiratory arrest was noted earlier with no observable or auscultable breaths by the end of the infusion. A few breath-like movements occurred at a time where EEG activity and brainstem reflexes were absent; and therefore considered reflexive (agonal breath: not a true breath).

In conclusion, an intravenous overdose of pentobarbital sodium solution is an effective, fast, and humane method of euthanasia. Rapid administration of an intravenous overdose of pentobarbital sodium solution might decrease the time to asystole after the infusion. Respiratory arrest occurs during or around the end of the infusion. Further, cerebral cortical activity becomes undetectable before the end or shortly after (less than 1 minute) the end of the infusion. This might support lack of conscious perception while brain death is happening. Brainstem function is absent next as evidenced by lack of

brainstem reflexes and BAER. Lastly, absence of ECG activity occurs at a time on which brain death has already occurred and there is no cardiac output as evidenced by undetectable heart sounds, arterial pulse, and MAP. It is possible that cardiac death occurs earlier and that the ongoing ECG activity represents ineffective contraction with no cardiac output (electrical mechanical dissociation) as the remaining cardiac muscle ATP is being utilized. Future studies should be directed at assessing brain and cardiac death in horses with severe illnesses on which cardiovascular or metabolic derangements, hypovolemia, and hypotension might compromise and extend the distribution time of euthanasia solution to reach the brain and heart.

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[2] IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI

No. 14-08000-CV-W-BP

RUSSELL BUCKLEW,

Plaintiff,

vs.

GEORGE A. LOMBARDI, DAVID DORMIRE,
and TROY STEELE,

Defendants.

Deposition of DR. JOSEPH F. ANTOGNINI, taken on behalf of Plaintiff, at 555 West 5th Street, Suite 4000, Los Angeles, California, beginning at 9:04 A.M. and ending at 3:27 P.M. on Monday, February 27, 2017, before Amanda J. Kallas, Certified Shorthand Reporter No. 13901.

* * *

DR. JOSEPH F. ANTOGNINI, the witness, having been administered an oath in accordance with CCP Section 2094, testified as follows:

EXAMINATION

BY MR. FOGEL:

Q Good morning.

A Good morning.

Q Dr. Antognini, my name's Larry Fogel, I think you met my colleague, Suzy Notton; we work for the

law firm, Sidley Austin, and represent the plaintiff, Rusty Bucklew, in this matter.

You okay if I call you Dr. Antognini –

A That's fine.

Q – throughout the course of the deposition today?

A That's fine, yes.

Q Excellent. And let's do a little housekeeping matter right off the top, here: You've submitted two reports in this matter; is that right?

A Yes. That's correct.

MR. FOGEL: Go ahead and mark this first report.

[7] (Whereupon Exhibit 1 was marked for identification by the court reporter and is attached hereto.)

MR. FOGEL: And I'll show you both documents.

(Whereupon Exhibit 2 was marked for identification by the court reporter and is attached hereto.)

BY MR. FOGEL:

Q Have you had a chance to look at both documents, Doctor?

A I did. Yeah, they appear to be the documents I submitted, the two reports that I submitted.

Q All right. And the first one, I believe it's marked Exhibit 1.

A Correct.

Q That is your initial declaration for November 2016 that you submitted –

A That's –

Q – in connection with this case?

A That's correct.

Q And does it appear to be a true and correct copy of your report including the exhibits thereto?

A It does appear to be, yes. And not having read [8] through the whole thing –

Q Sure.

A – but it appears to be.

Q Absolutely. And you also submitted a supplemental report, and you submitted that in February of 2016. Is what's been marked as Exhibit 2 appear to be a true and correct copy of that report?

A Yes.

THE REPORTER: And if you could just wait until he's done.

THE WITNESS: Oh, I'm sorry.

THE REPORTER: It's all right.

MR. FOGEL: That's actually a good reminder.

THE WITNESS: Yeah.

MR. FOGEL: So we'll just go over a few basic ground rules.

BY MR. FOGEL:

Q Have you sat for a deposition before, Doctor?

A Yes.

Q So I assume you're generally familiar with the rules, but as the court reporter just reminded us, I ask that you wait until I finish asking my question before you respond –

A Sure.

Q – and I'll, of course, extend to you the same [9] courtesy when you're answering the question. Inevitably, I will probably ask a question that doesn't make much sense, so please feel free to ask me to repeat it, if it's at all confusing to you –

A Inevitably, I'll probably give you an answer that – no, hopefully I'll be very clear, but . . .

Q So at least we're in agreement on that.

And then also feel free to take a break, if you'd like, at any point today. I'd just ask that you ask or complete a question that's pending –

A Sure.

Q – before you leave to take a break.

A Sure.

Q Before we get going, any other questions you might have?

A No. I do tend to – as my wife is so apt to point out, I do tend to interrupt people mid-sentence, so I will try to refrain from doing that.

Q I appreciate that. And that's why we have the court reporter here, to help keep us in line.

A Yeah.

Q So going back to your reports, can you describe your process in preparing them?

A I looked at the material that I was provided to me, and I – off the top of my head, I cannot remember all [10] the material that was provided to me by the attorney general's office, but it included – may I refer to my document here to see?

Q Sure.

A Yeah, I cannot remember exactly what was provided to me, they were some of the declarations by Dr. Zivot, and then the medical records for Russel [sic] Bucklew, and then some letters from some other physicians, including Franz Wippold, and then Larry Sasich, and Dr. Gregory Jamroz. And then a lot of the Court documents that are numbered.

I don't remember specifically what they refer to, I'd have to look at them again. And then there were some judgments from various courts including the Eighth Circuit Court and the Supreme Court and so forth, and then the Missouri – the injection protocol, the witness statements for 19 executions in Missouri.

So I took all those into consideration and reviewed those in preparation of my report –

Q And just to be clear for the record –

A And – excuse me.

Q Go ahead.

A I apologize, I –

Q Go ahead.

A And – and – and also, of course, during my research, I referred to some articles that I cited in my [11] report.

Q Thank you.

And just to be clear for the record, when you were listing those various sources that you consulted, you were reviewing an exhibit to your November 2016 report –

A Correct.

Q – as Exhibit B, your materials reviewed; is that – does that sound correct?

A Yes.

Q Okay. You also reviewed some additional materials that you notated in connection with your supplemental report; is that right?

A That's correct. And do you want me to . . .

Q If you flip to the last page of your report, at the header it says, "Exhibit A, materials reviewed"?

A Yes.

Q Is that the right page?

A Correct.

Q And just to make sure I'm clear on this: Are the materials that you reviewed in connection with your supplemental report the items that are listed –

A Yes.

Q – on this page?

There's no other list of materials that you reviewed?

[12] A No. No. That refers to what was below, which was the reference as cited, and then the studies that I cited there – or papers and then the package insert, and then my interview and examination of the – of Bucklew, and then the medical records of – through February 3rd of 2017, which includes the most recent imaging studies that were performed.

Q The MRI report for –

A Correct.

Q – for 2016?

A Correct.

(Whereupon the reporter requested clarification.)

MR. FOGEL: 2016.

BY MR. FOGEL:

Q And we'll go into more detail on those materials later on. So you consulted these materials and what else did you to – in preparing your reports?

A Well, I thought about the process by which a – as I understand the lethal injection protocol is implemented. To make a determination whether the – this particular inmate, based on the information that I've been provided in terms of his medical findings, whether this inmate would suffer pain, choking sensations, et cetera, as described by Dr. Zivot.

And I applied my understanding of the materials [13] that I reviewed in my scientific and medical background to his condition to make my assessment. Which, as you know, I do not believe that his medical condition is – would materially affect the – the action of the drug, or that it would cause him to have any additional – or any suffering or pain, excruciating pain, as described by Dr. Zivot.

I'm not sure if that answers your question, and you kind of asked the question in a very general way, but for –

Q Yeah, it was intentionally general –

A Yeah.

Q – in order to allow you sufficient space to describe everything that you did.

A Okay.

Q And prior statement, when you were talking about any suffering or pain, you were referring to one of the opinions you rendered in this case; is that right?

A That's correct.

Q Okay. And we'll go into a little bit more detail, but I want to make sure I understood what you said. Is it your opinion that Mr. Bucklew will suffer no pain and suffering?

A No. Can you elaborate about – you mean, no pain and suffering during the lethal injection? Or during the [14] execution process?

Q I just want to make sure I fully captured what you said.

MR. FOGEL: Do you mind going back to when the doctor was testifying about pain and suffering, and repeat what he said?

(Whereupon the record was read.)

BY MR. FOGEL:

Q So that last part is what my question was referring to: So your opinion is that he would not suffer any additional pain and suffering?

A That is correct. I mean, obviously, I think any – I think we all have an understanding, hopefully, that most modes of death do involve pain and suffering in some way. And my understanding of the lethal injection process is, that you have to start an intravenous line, that can be painful. Usually, not too painful, we do it all the time, patients having surgeries, but beyond that, the actual process, of where the drug is injected and so forth, would not cause any pain or suffering to somebody.

So there's always going to be a minimal amount of pain with a lethal injection process as I understand it, because you have to start an intravenous line, but beyond that, I don't see that this inmate would suffer any more than that.

[15] Q Okay. Who did you work with in connection with the preparation of your reports?

A Mr. Spillane.

Q Anybody else?

A No.

Q Do you have any assistants that you work with?

A No.

Q No graduate assistants?

A No.

Q When were you first contacted regarding this matter?

A I'm going to say it was August – I – I can tell you the specific date, because I believe I have the letter somewhere, but I got a letter, by Fedex, from Mr. Spillane. I think it was dated August 27th or somewhere around there, I'm not sure exactly when it was, but it might have been before that, a little bit before that. It was some time in August – or mid-to-late August –

Q Was that –

A – of 2016.

Q Was that your first involvement in this case?

A Yes.

Q Had you – have you worked with the Missouri State Attorney General's office before?

[16] A No.

Q Have you worked with Mr. Spillane before?

A No.

Q What did Mr. Spillane ask you to do?

A He asked me to provide my expert opinion about this particular inmate and whether his – well, may I – just pause for a moment. I cannot specifically – I mean, I'm going to give you my general understanding of what he asked me to do, but there may be some written documentation, where he has some specific questions that I could refer to, but I don't – what would you –

Q To make it easier, and not make this a memory test: How about I direct you to paragraph 3 of Exhibit 1, which is your November 2016 report?

A Okay.

Q And you see paragraph 3 –

A Yes.

Q – inner scope of engagement?

A Yes.

Q Does that help?

A Oh, thank you, yeah.

So I was asked to render my expert opinion, specifically, in general medicine and anesthesiology in regards to the actions and the efficacy of Pentobarbital, especially related to Missouri's lethal injection [17] protocol. And also, the efficacy of Pentobarbital in this particular inmate, Bucklew, who has this cavernous hemangioma.

(Whereupon the reporter requested clarification.)

THE WITNESS: Has a cavernous hemangioma.

BY MR. FOGEL:

Q Doctor –

A Yes.

Q – let me ask you, does paragraph 3, Scope of Engagement, accurately summarize everything that you were asked to do in this matter?

A Yeah. I think it does. I mean, there might be – again, not – not making this a memory test, I believe that captures everything, I mean, there might be something I missed that I provided opinion in, but I think that captures pretty much everything.

Q What is anesthesiology?

A That's a field of medicine that describes – I should – that is involved with the administration of anesthetic to patients who are having surgeries or painful procedures. So we're physicians who specialize and go to residency for that, and render patients unconscious and, in a sense, during surgical procedures. That's part of what we do, but some people are also involved in critical care medicine, pain medicine, sort of, some of the [18] branches off of anesthesiology.

Q Is Pentobarbital a type of anesthetic?

A Yes.

Q Have you worked with Pentobarbital before?

A Yes.

Q What is your experience with Pentobarbital?

A I've used it in settings where patients would require Pentobarbital for induced coma, or to induce – to decrease activity in the brain.

Q So could you help me out here, because I'm not a doctor –

A Yeah.

Q – and no prior education in the area –

A Sure.

Q – of anesthetics, how does Pentobarbital induce whatever you were just –

A Yes.

Q – describing?

A Okay. Well, the – the short answer is, we don't know. We don't know how anesthetics work, how they truly work. We know the Pentobarbital, like other anesthetics, work with what's called a GABA receptor – G-A-B-A – G-A-B-A, GABA receptor.

The GABA receptor is something that we all have. And when the Gaba receptor's active, it allows chloride [19] ions to enter into the cell, and causes the cell to become what we call hyperpolarized, and makes it less likely to fire. And when it's a neuron, like a neuron in the brain, then it's less likely to fire, and that produces the anesthetic effect, it produces unconsciousness, and the other things, immobility and so forth.

But we don't truly know how the [sic] work – we know how they work at a receptor and cellular level, but how they end up resulting in a system – what we call a system effect. That is, how they produce the actual unconsciousness, we really don't know. I mean, nobody knows for sure, that's the simple answer. We have a lot of pieces of the puzzle, but we don't know for sure for any of the anesthetics.

Q Do all anesthetics render a patient unconscious?

A Local anesthetics, obviously, by definition of anesthetics that leaves the term, local anesthetics, that's something we use for when you get a dental procedure done, that numbs up the nerve, so that does not cause unconsciousness in a dose as it's administered, but an anesthetic, when you use the term,

anesthetic in the sense of sort of general anesthesia, then yes, they all produce unconsciousness. Because that is the – that is one of the three essential endpoints of – of anesthesia, which is unconsciousness.

[20] Q What are the other two endpoints?

A Amnesia, and then immobility. So patients don't want to remember their surgery, patients don't want to be awake during the surgery, and physicians, specifically surgeons, do not want a moving patient during surgery. So the three special endpoints, as I described them – now some people would also argue that analgesia is an important endpoint. But analgesia is, in my mind, and I may be a minority in this, but, in my mind, analgesia is not a required endpoint of anesthesia.

Q What is analgesia?

A So analgesia basically means something that – that – or an analgesic, for example, would be a drug or something that – that lessens pain. So, for example, if you were out playing soccer or whatever and you hurt yourself, you might take Ibuprofen or you might take Tylenol, or maybe, if you'd had surgery on your – dental surgery, you might take Tylenol with Codeine, those medications decrease pain, they provide some – they have analgesic properties, they provide that.

But in order to be, again, this sort of gets into the semantics side more than anything else, in order for you to, in my mind, classify a drug as analgesic, the patient has to be awake. The patient has to say, "Oh, yes. I took this drug. My pain is less." But [21] anesthetics, by definition, if given a sufficient dose, makes someone unconscious, so they're not awake to be able to perceive pain. So analgesia is not really important in that setting, from that particular aspect.

Now, some people – oh, I should say, so when you're having surgery and the surgeon makes an incision, your heart rate will go up, your blood pressure will go up. Even though you're unconscious and you may not move and you're not going to remember, but you're going to have these, you know, physiological responses to that. Now, you are a relatively young man –

Q Thank you.

A – and you look in very good health.

Q Thank you.

A And if I were to anesthetize you, and your heart rate and blood pressure were to go up, it's probably not that critical to me or to you that I treat that. I probably would give you something for that, but I – it wouldn't be necessary during the surgery, but most people would anyway.

If your grandmother was having surgery, let's say she's in her 80s, if her heart rate and blood pressure goes up, I'd be more concerned about that because that might be more harmful to her, so I'm more concerned about providing analgesia – or analgesic-type of drug during [22] surgery for her. But it's not – it's a long answer to your question, but it's, in my mind, analgesia is not a critical component or a necessary component of an anesthetic.

Q So let me ask a few follow-up questions based on what you just explained.

A Sure.

Q Which is very helpful, thank you for that. Is the pain irrelevant when someone is unconscious?

A Is pain irrelevant?

Q Irrelevant when someone is unconscious.

A I want to make sure that we have an understanding of the terms: So pain is the conscious awareness of a noxious stimulus.

Q Excuse me, you said of a noxious?

A Noxious stimulus.

Q What's –

A Noxious. So something that causes tissue damage. So if I took a sharp instrument and poked you in the hand with it, that would be noxious, it would be painful to you.

Q But what about choking? Is choking, would you consider that painful?

A Choking, I wouldn't consider it painful, I mean, [23] it certainly is distressing.

Q Well, let's get away from the word "pain."

A Yeah.

Q Self [sic] – is it a type of suffering?

A Yes. Absolutely, yes. Choking would be a suffering, you know, you would have what I would describe as suffering sensation from that.

Q And is choking, or that type of suffering, irrelevant if someone is unconscious?

A In my opinion, yes. They're not going to be conscious and – and aware of that sensation. If they're unconscious from a – from a drug and choking or the lack of breathing, in my opinion, they would not be – they're not aware, so they can't have the suffering component that we think about.

Suffering is a word or term describing sort of the emotional component of all this; right? So – so suffering is an emotional part, and you can't have emotions when you're unconscious. I mean, you don't . . .

Q Doctor, you're – your practice is as an anesthesiologist for some time; is that right?

A Yes. That's correct.

Q And you've administered an anesthetic for a patient who was unconscious during a procedure?

A Yes.

[24] Q If that patient started choking during the procedure, would you say that it was irrelevant, it didn't matter, because they were unaware of the choking?

A Well, that is not – it's not – make sure we understand each other in terms of the question and the answer.

So if somebody was choking during surgery, and I'll use that term because that's the term you're using, but someone who has an airway obstruction during the surgery, that's an emergency; right? One of the things that we have to do as an anesthesiologist, of course, is to maintain breathing during surgery, and that requires an unobstructed airway. And that's a medical emergency. I' not worried that the patient is suffering, but I am worried that the patient may die because they have an obstructed airway. Those are two different things.

Q I appreciate that. And certainly, we want to be very concerned of whether the patient lives or dies, but why are you not concerned whether the patient is suffering or not?

A Because suffering is not – again, it's a – it's a term describing someone's emotional – what's the word I want to use? – basically emotional response to that particular situation. And it requires someone to be awake. So let's, just to – maybe, so I can clarify my [25] answer to this.

Q Well, I – sorry, do you mind if I just have a quick question on this?

A Yeah.

Q But if you want to finish your answer, go ahead.

A Well, let me just finish this to clarify this: So, getting back to you having surgery, if your blood pressure increases and your heart rate increases, I'm not concerned that you're suffering in the sense that if – if you – if we were doing surgery on you, with you awake, we would all agree, I think, you'd be – you'd have suffering. Because you're awake and you have a surgical incision and so forth; you're experiencing pain. I'm not concerned about that – that part of it, when you're unconscious, because you're unconscious. You don't – you don't have that emotional reaction that you would have when you're awake.

Now, you could have – certainly, you could have the physiological responses to that stimulation. That is, your blood pressure would go up, your heart rate would go up, and I would be concerned – potentially concerned about that. But I'm not concerned about the emotional part of it, because you're not having those emotional reactions.

Now, I will be honest with you, there is some [26] indication in the field now, that there may be some imprinting on the brain, so to speak, where people might – even during a normal anesthetic, there might

be some – oh, how should I say this? – that there might be some lasting effect of – of the surgery, and potentially that – I'll just leave it at that: That there might be some lasting effect.

Q Are you referring to anesthetic awareness? Or is that something different?

A That's something different in a sense that that is something that, you know, where, in general, there's a lighter level of anesthetic and so people are awake during their surgery, that's basically where there's insufficient anesthetic. And I'm talking more about even deeper levels of anesthesia. But we've been doing this for over 150 years and people come out of surgery just fine, so I think if anything is going on in terms of anything else, you know, aside from the physiological responses, it's – it's going to be minimal.

And – and – and it happens every day, you know, people having surgery and anesthetic every day, so I don't think that there's anything going on there in terms of any long-lasting effects of what you're getting at as a [sic] potentially suffering. I just don't think suffering has occurred in the sense that you're – we think about [27] suffering.

Q Well, let's make sure we're talking about suffering in the same way, because I've heard you use the term "emotional response." What do you mean when you say emotional response?

A So I'll give you an example of – of this in the literature. So there is a part of your brain called the amygdala, which is near the hippocampus. The hippocampus is important to memory formation. The amygdala is important for the emotional component of memory.

So as an example, I remember where I ate dinner last night, and there's nothing particularly emotional about that. But if I had been mugged after dinner, it'd be a lot of emotions attached to that, you know, the threat and so forth, you would go through a lot of emotions, so there would be an emotional component to that. And that emotional component is – is determined, in some regard, in some – some degree, with the amygdala, so there's two separate – at least two separate parts of our brain – there's more than that, but when I'm talking about the hippocampus and the amygdala – the amygdala's more about the emotional aspect and the hippocampus more is about the factual parts.

So if my amygdala had been destroyed somehow before last night and I had been mugged, I would be able [28] to provide to you the details of the mugging, but it wouldn't trigger any particular emotional response in me. So there is a emotional [sic] response, that – that sort of gut terrible feeling that we get when something bad happens to us. And then there's just sort of the factual part; I remember what I had for dinner last night, it wasn't particularly –

Q So –

A – you know, emotional.

Q Can – can I interrupt you, because I don't – I think I follow your analogy, and what you're explaining here, but I want to get to the more specific point: Is it your opinion that if someone cannot experience an emotional response, that they are not experiencing suffering?

A Yes. I think that – that summarizes, for the most part, what I'm saying, yeah. Suffering is a – a –

I mean, to me, suffering and pain are in the same category; you have to be awake to experience it.

Q So during the procedure, if somebody starts choking, which I think we discussed earlier would be a type of suffering, because they cannot experience an emotional response while they're unconscious, you would not consider that suffering?

A That's correct. So if I could elaborate, though, [29] on that, you might be able to determine some physiological responses to the choking, you know, maybe their heart rate would change and so forth. Just like you could do that with pain – I mean, sorry, with a noxious stimulus during surgery, but you're not forming – having the same type of formation of emotional – the emotional response or the emotional aspect of all that when you're unconscious.

Q Why – why are you focused on the emotional response?

A I'm not. You're – you're – you're asking a question about suffering, and I'm trying to put it in words that you can understand, that suffering is a – a term that I believe is used, maybe in this context is used incorrectly, because you seem to think that suffering is something that can happen when you're unconscious, and I'm saying that it can't.

Because suffering is a – the – the – the – suffering has an emotional part to it, and you don't have that emotional part, and also, you have to be awake for it, to suffer. I mean, how could you – I mean, maybe I should ask you, can you explain to me how you – how you would have suffering in somebody who is unconscious? I don't – I don't see how that can happen based on my understanding of how – how all this works.

Q Well, fortunately the way today works, I'm the [30] one who asks the questions –

A I know.

Q – and you're the one who gives the answers.

A I understand that.

Q You're the expert here. And I'm not opining or offering any of my own opinions –

A Sure.

Q – we're here for your opinions and –

A Got you. I know, I know. I think I've answered as best as I can.

Q And I appreciate that.

Now, we – you talked about an individual's weight, their blood pressure, does that affect the quantity of the anesthetic or the chemical that you administer?

A If it's a drug like Pentobarbital, then the weight does – it does matter.

Q Why does the weight matter?

A Well, I mean, if you're giving – usually, we dose a drug on a per-kilogram basis, per-weight basis. So you take a 3-kilogram baby, and you give an intravenous drug, you would give a lot less to a baby than you would 100-kilogram [sic] man, because 3 kilograms versus 100 kilograms. So for an injectable drug, you would give a small amount. So . . .

[31] Q And does the amount you administer affect how quickly or how long it takes for someone to succumb to the effects of the anesthetic?

A Yes.

Q Meaning how long it takes for them to become unconscious?

A Yes.

Q So what other characteristics, besides someone's weight, would you take into consideration when determining the quantity of the anesthetic to administer?

A Again, we're talking about an injectable drug like Pentobarbital?

Q Sure.

A So besides the weight, you would be concerned about several factors: Actually, one would be their age, one would be other medications that they're receiving, one would be their other conditions, medical conditions.

Q Well, I'll let you complete your list and then we can go back.

A Those are the three that come to the top of my head. I'm probably missing some others, but those are some of the important ones I think.

Q Why is it important to take into consideration the medications that the individual may be taking?

A Well, because there – you can have drug [32] interactions with –

(Whereupon the reporter requested clarification.)

THE WITNESS: You can have drug interactions.

BY MR. FOGEL:

Q C-A-N.

A Yes. C-A-N.

In – in a clinical setting, some of the drugs that we give can interact or maybe either in a positive way or

a negative way. So if somebody's on a – an opiate of some sort, they could be tolerant of that. Or if they're acutely intoxicated from something, then that has to be taken into consideration. So there are a variety of different drug interactions that can occur.

Q And what is the import of the drug interaction? Could it prolong the effect of the anesthetic? Could it diminish the effect of the anesthetic? What are the potential consequences of the drug interaction?

A Could prolong it, could shorten it, potentially.

Q It depends on the type of medication, how frequently –

A Yes.

Q – the individual's been taking it, and those are all things that the person applying the anesthetic would need to take into consideration?

A Yes. That's correct.

[33] Q You also mentioned medical conditions?

A (Inaudible response.)

Q Why is that important?

A Well, if somebody has a serious medical condition, such as they're – have renal disease, that can affect how much drug you give, usually, you're going to give less of it. Especially if they've just had hemodialysis, that's just one example, if somebody has heart problems, congestive heart failure, that could affect the – how much drug that you give. So those are just examples of some of the considerations that you'd take into – you want to think about.

Q And I believe, as you mentioned, it could affect how long it takes before the drug takes effect?

A Some of these – yes – conditions could do that.

Q So it's unique to the individual?

A Yes.

Q Would you have used – when you – let me make sure I have this right first: I – I believe you said you have used Pentobarbital –

A Yes.

Q – in a clinical setting in the past?

A Yes.

Q What quantity of Pentobarbital have you used in those settings?

[34] A I do not remember, and this is a long time ago, I have not used it very – I haven't used it at all, probably, in the last 15 to 20 years. So it was a long time ago, when Pentobarbital was more in vogue in terms of producing a coma. I don't think it's used as much anymore these days. So the doses were probably in the range of several milligrams per kilogram, as my recollection, and usually was given as an infusion after that. So clearly a lot less than the dose that is used in lethal injection. I don't think anybody – well.

Q No. No. Go ahead.

A I was just going to say, I don't think anybody has an experience with that dose, except for the people that use it for lethal injection. It's not used clinically, of course, in that dose.

Q When you used Pentobarbital, I believe you said, 15 to 20 years ago approximately –

A Yeah.

Q – had you used it several times in the period – period that you used it?

A I would say probably not more than two or three times, is my recollection, so very limited use.

Q Is Pentobarbital generally infrequently used as an anesthetic today?

A It is. I know you're thinking frequent is – [35] right, I think it would have to be rare, if, at all. I don't think anybody's using it or I don't think anybody should be using it as an anesthetic in humans.

Q How –

A Because we have such – much better drugs now.

Q How did you familiarize yourself with Pentobarbital and its effects as an anesthetic in order to render an opinion in this case?

A So Pentobarbital –

Q Well, let me ask a – a first question: Did you think it was necessary to familiarize yourself with Pentobarbital in preparation for your reports in this case?

A Yes. In some of these – some of the – the issues that came up, absolutely. And –

Q And so how did you go about doing that?

A I looked at the – I compared, primarily, the effects of Thiopental to Pentobarbital, because Thiopental's a drug that many people in my age and background have used. Because when I was first learning anesthesiology and training, and then after that, we used Thiopental for induction. This is before Propofol came out, so I used Thiopental many, many times. And Pentobarbital is very similar to Thiopental. It's not

obviously the exact same thing, they have some structural [36] differences, but I was mostly concerned about the onset of action of Pentobarbital relative to Thiopental. In terms of determining my report.

And then looked at basically the – yeah, I was primarily concerned with the onset, and then also blood levels of the Pentobarbital relative to its clinical effects. In terms of coma, and lethal amounts, and things like that. So that was sort of the – the – the main area that I focused on. In terms of trying to – to look at what are the effects of Pentobarbital.

And I felt that was important because, obviously, from my report and the reports that we have – reports that we have from Dr. Zivot, there is a disagreement about the onset of action and how deeply someone achieves coma or go [sic] into coma after the injection. And I – it's my opinion that based on kinetics of the drug, and the way the drug happens, is unconscious [sic] will happen within 20 to 30 seconds and I think that the data that's published out there supports that.

Q What sources, specifically, did you rely upon to conclude that Pentobarbital would render somebody unconsciousness [sic] in 20 to 30 seconds?

In the quant- – and I assume your opinion is limited to the quantities that are administered pursuant to the Missouri execution protocol.

[37] A That is correct. Although – and I'll elaborate on this, I think even a much lower dose of Pentobarbital will achieve coma, but they use 5,000 milligrams. So I relied on two –

Q When you say "coma," are you meaning unconscious? Are you using those terms interchangeably?

(Whereupon the reporter requested clarification.)

BY MR. FOGEL:

Q Are you using those terms interchangeably?

A I probably shouldn't use them interchangeably. I think for the purposes of our discussion here, we could do that, but coma and unconscious are not the same thing. So basically, if you think of a – of – of a VIN [sic] diagram, so a VIN [sic] diagram, this would be unconsciousness and coma would be a part of that, so you can be unconscious, but not necessarily in a coma. So if I were to be more precise, I should not use those terms interchangeably. So maybe I – in the future, I will not do that.

Q Sure. So let's focus on your specific opinion in this case, then.

It's your opinion that the quantity of Pentobarbital administered pursuant to Missouri's execution protocol would render the subject unconscious in 20 to 30 seconds; is that right?

A That is correct. That's my assessment.

[38] Q And my question is, what sources did you rely upon in forming that conclusion?

A I looked at the package insert for Pentobarbital, and then I also relied on a paper that was published by Ehrnebo – spelled E-H-R-N-E-B-O – that I referenced in my supplemental report that looks at the pharmacokinetics and distribution of Pentobarbital in humans.

Q Did –

A So the way I did it –

Q Sorry, did you rely upon any other information or sources?

A For this particular report that I have submitted, those are the two that I – I looked at. Now, as I've mentioned to Mr. Spillane, subsequent to writing this report, I did find another study, which I think runs credence to my opinion, but it's not contained in the report, here. And I can provide that report to you or – or . . .

Q Are you relying – relying upon that report in forming your conclusion that it would last – excuse me, that unconscious [sic] would set in within 20 to 30 seconds?

A I would say I – probably, the answer is yes, in the sense – I mean, I feel more confident in my answer – I was very confident in my answer before I saw that report, I'm even more confident now in my answer.

[39] Q Then, yes, we'd – we'd like to be provided with at least the name and title –

A Yes. I can give it to you now –

Q – of that report.

A – if you want?

Or do you want to wait?

Q You can give it to us during the break.

A Okay.

Q So those three sources are the only source- – are the sources –

A Those –

Q – in the entire universe that you relied upon to conclude that 20 to 30 seconds is what –

A I'm sorry, not –

Q – it would take for unconsciousness?

A – not everything. And then, of course, I looked at the witness executions – I'm sorry, the – yeah, the execution witnesses, the 19 reports that were provided to me, where people that talked about – you know, who had observed prior executions, and said that, you know, the inmates seem to be unconscious very quickly and so forth, so that, I also relied upon.

And then, I – I relied upon my – again, my understanding of how these barbiturates work – Thiopental, Pentobarbital – especially when you think [40] about the massive doses that are given to form my opinion.

Q Have you ever participated in any sort of setting, whether it be a clinical or academic setting, where you've administered Pentobarbital in this quantity to some subject?

A No.

Q So you've never observed the effects of Pentobarbital on somebody when it was administered in this quantity?

A No.

Q Did any of the treatises or sources that you previously mentioned specifically state that Pentobarbital would render the subject unconscious in 20 to 30 seconds?

A Lets see here. The third report that I described to you, that – that I will provide to you, has a paragraph in the discussion – so the – the third report that I mentioned is a dog study, but in the discussion section, they talk about the effects of Pentobarbital in man, where they're looking at the electroencephalogram, and my recollection is that they said within I think it was 15 to 30 seconds, I can't remember the

exact number of seconds, that they observed the clinical – the changes in the EEG in man.

Now, obviously, in the dose that was used in that study had to be a very small dose relative to what's used [41] in – in Missouri, because you wouldn't be given [sic] any lethal dose of Pentobarbital to man to study the effects. But again, that sort of added more, I think weight to my argument, that this drug is going to act very quickly, in the 20 to 30 seconds, and make somebody unconscious. I hope that answers your question.

Q I –

A Sometimes my answer's so long, I forget what the question was about.

Q To make sure I'm clear: That report did not state that it takes 20 to 30 seconds in order for a patient to be rendered unconscious?

A It did not. It stated that the changes in the EEG occurred – started to occur within I think 20 to 30 seconds or whatever that – I think it might have been 15 to 30 seconds. So the drug –

Q This – this was the study regarding dogs; is that right?

A Well, yes. But in the discussion section of the paper, they sort of threw in this paragraph, where they said almost, "By the way, we also have given this Pentobarbital to humans," comparing it to Thiopental. And the onset of action of the Thiopental and the Pentobarbital on the EEG was about – it was the same. There was a small delay with the Pentobarbital, in terms [42] of the full effect, so basically, after a minute or – minute, they had the full effect for – for Pentobarbital. They don't really describe what that

full effect is. And they don't say what what the dose was either. But to me, when they talk about the effect on the EEG began the electroencephalogram, is what the EEG is, when Thiopental. and Pentobarbital had the same onset, again, it – it makes me believe that, in this – with this dose of Pentobarbital, you're going to have an onset of 20 to 30 seconds; it's going to be like Thiopental.

I think – I want to make sure we're clear about some of the kinetic issues, here. When you're comparing Thiopental to Pentobarbital if I may . . .

Q Well, let me stop you because I don't want to go too far down. Because we haven't had a chance to review that report.

A Sure. That's fine.

Q So it might be a little premature to probe that.

You did not render an opinion – the opinion I'm referring to, that Mr. Bucklew would be unconscious, as well as any subject would be unconscious, within 20 to 30 seconds after the administration of this quantity of Pentobarbital. Did you render that opinion in your opening report?

A I did not. I said – I used the term rapid onset [43] of unconsciousness followed by death is the term that I used. I did not say instantaneous.

Q I understand. And we're not here to do that. I'm talking specifically about your opinion –

A Yeah.

Q – that it would render him unconsciousness in 20 to 30 seconds.

A That was in my second report, as I remember. Where I got more specific about the timing.

Q And let's – so – so let's turn to your second report.

A Sure.

Q And that's Exhibit 2 before you.

A Yeah.

Q And if you could turn to paragraph 5, which is on page 3.

A Uh-huh.

Yes, I have it here.

Q And it's a paragraph that begins, "the intravenous administration of 5 grams of Pentobarbital –

A Yes.

Q – would result in rapid unconscious [sic]." And then the next sentence starts, (reading):

> "I clarify that opinion, that the rapid onset of unconscious [sic] would [44] occur within 20 to 30 seconds after the administration of the large dose of Pentobarbital. To reiterate and expand on my earlier statements"

And then you –

A Uh-huh.

Q – go on to expand further.

Why did you think it was necessary to expand upon your earlier statements, to specify that unconsciousness would take effect in 20 to 30 seconds?

A Well, it was primarily because Dr. Zivot took issue with my use of the term "rapid onset of unconscious [sic] followed by death." And he basically said, "Well, there's a period between the – when the drug is administered and when death occurs," and that's the period during which the inmate will, in his opinion,

have such sensations of choking, gasping, and so forth. And suffering.

So he seemed to indicate that there – there would be this period, during which the inmate is lingering and languishing in this sort of semiconscious zone, and, again, experiencing these sensations. And this was my way of basically refuting that argument, by providing more detail about what I think is occurring. In terms of the onset of unconscious [sic] and then what would be occurring after that.

[45] I mean, I think we all surely must agree that 5,000 milligrams or 5 grams of Pentobarbital is a lethal dose. It's been demonstrated in other lethal injections. There's no doubt – or should be no doubt in anyone's mind that it causes death.

Q Without –

A So –

Q Without any equivocation, it causes death? 100 percent?

A Pro- – with – with – unless there's issues with administration, which we all also agree, that there has to be a proper functioning IV and all that, you know, 19 executions have, to my knowledge, and the information that I was provided, it caused death within around 8 to 9, 10 minutes, so –

Q Are –

A Are –

Q – you done?

A No, I'm not.

Q Okay. Go ahead.

A So we have to sort of figure out, okay; well, how – how does a drug kill somebody? What are the – what is the physiological and pharmacological ways in which that drug would kill somebody at that dose? And that's why I laid out this – and this is not a complete [46] sort of diagram or – or – or way of looking at it, but this is sort of my understanding of how this drug probably is killing somebody, is producing rapid, deep unconscious [sic], respiratory depression, followed by loss of – or – or complete absence of respiration, decreased oxygen levels, slowing of the heart rate, and then the heart stopping. And then during all of this, we also have cardiovascular collapse because the blood pressure is plummeting.

So that is the mechanism by which the physiological steps, so to speak, by which this drug causes death. And I just wanted to sort of lay it out for people to understand what I think is occurring with this. That's why I went into that detail.

Q Are you relying on any information that someone from the attorney general's office told you regarding the length of time until unconscious [sic] sets in?

A No. No, I have not been provided. I mean, I have the witness statements.

Q But no other information was provided to you to support – from the State – to support your opinion, that Mr. Bucklew or someone else would be rendered unconscious in 20 to 30 seconds?

A No. Uh-uh. Not to my knowledge, no. I – I – I – it was my – it's my opinion, and was then and is now, based on the – the action of that drug, [47] especially when – when comparing it to Thiopental. Remember, I've never given 5,000 milligrams of Pentobarbital

to anyone. And neither has your expert witness, I presume. Or anyone else in –

Q So you have no personal experience to draw upon, in order to support your conclusion that Mr. Bucklew would be unconscious in 20 to 30 seconds?

A I do not have any personal experience with the use of that drug at that dose, no. Which is why I make the comparison between Thiopental and Pentobarbital. I know how Thiopental – quickly Thiopental works.

Q Is Thiopental – say the word one more time, please.

A Thiopental.

Q Thiopental.

It's another type of anesthetic?

A Barbiturate.

Q Barbiturate.

A In fact, the only difference between Thiopental and Pentobarbital is one atom.

Q Is it used on humans?

A Thiopental?

Q Uh-huh.

A Yes. It's not used very often anymore, and it's probably not used – it's not used in the United States [48] anymore, but it's probably used in other parts of the world. And it was used very commonly for a long time.

Q The Thiopental, that was the chemical that was referenced in the study concerning its effect on dogs; is that right?

A That was one of the drugs that was used. There's actually multiple barbiturates that were used.

Q But that's the study that you referenced?

A Yeah.

Q Could it be longer than 20 to 30 seconds?

A At this – at – at the dose of 5,000 milligrams, I don't think so, no.

Q So you can say, with 100 percent certainty, that anybody who was administered that quantity of Pentobarbital would be rendered unconscious in 20 to 30 seconds?

A One of the things I learned in medical school is never say always and never say never. So I – 100 percent certainty, more like 99.99 percent certainty. I mean, I cannot – there may be some very peculiar thing occurring that would prevent someone from being unconscious within 20 to 30 seconds, I can't think of what that might be, I mean, of course we've already talked about making sure the administration is appropriate, they have a well-functioning IV, that certainly would have affected [49] things. If you had a very slow circulation time, very slow circulation time – and that term, I use, is somebody who has a very low blood flow in their body because their heart's not working properly, let's say, or their – their fluid levels is [sic] very, very low, so their – there's not much blood circulating. We call that slow circulation time – that can affect the onset of these drugs. But Mr. Bucklew –

Q What – what about somebody's weight? We – we talked earlier about somebody's weight –

A Yeah.

Q – their medications, their medical condition, those are all things that could affect the onsets of the drug as well; correct?

A Yes. But you have to make sure we're understanding something, here, which is that some of these effects we're discussing may be clinically relevant in the sense of the – a clinical dose, but not with the dose of 5,000 milligrams. Even those conditions are not going to materially affect, save, perhaps the issue of a slow – slow circulation time. That potentially could affect the onset of Pentobarbital even in 5,000 milligrams.

Q The other two reports that you said you relied upon, could you remind me which ones those are in your report?

[50] A It was a study by Ehrnebo – Ehrnebo – Ehrnebo, I'm not sure how it's pronounced, but it's –

Q The pharmacokinetics study?

A And distribution properties of Pentobarbital in humans following oral and intravenous administration. And that was published in the Journal of Pharmaceutical Sciences, I think. I just have it as pharm sciences.

Q I see where you're referring to. And what was the other one?

A It's the package insert.

Q The package insert.

A Of Pentobarbital, yes.

Q Does the package insert specify how long it takes to render someone unconscious?

A It just says immediate. As I recall. May I – if I may refer to it, I think that's the term that is – the word that is used. I have it here, if you want to – unless you have it. I have it here (indicating.)

Although, you're probably going to enter it as an exhibit, so this copy's going to be mine.

Q Here we go.

A Maybe I cannot – I'm not sure –

MR FOGEL: Let's – let's go ahead and just put this in as an exhibit.

(Whereupon Exhibit 3 [51] was marked for identification by the court reporter and is attached hereto.)

THE WITNESS: So I – may I continue?

BY MR. FOGEL:

Q Well, just make sure you – you've just been handed an exhibit that's been marked –

A Yes.

Q – or a document that's been marked as Exhibit 3. Is this, from your review, a true and correct copy of the package insert that you were just referring to?

A Yes. It looks like it is, yes. Yup.

Q Okay. Just wanted to establish that. Go ahead.

A Yup. So I said earlier, just a moment ago, immediate, I –

Q Uh-huh.

A That's my recollection. But there's lot of stuff here, and I'm not sure that's exactly what it says, so I don't want to commit myself to that word until I've found it and then – see if I can. . .

Q Well, you did not point to this in your report. I understand that you reference this report, but you did not point to this specifically for that assertion that –

A No, I did not.

Q – would be rendered in the –

[52] A I don't think so. I mean, I thought I had something like that, but I didn't – I used this primarily because of the table they have there, in which they describe the barbiturate levels relative to the different C-N-S depression.

Q So we can put that to the side –

A Yeah. Okay.

Q – for now.

And then the pharmacokinetics report that you reference, did that specifically state that an individual be rendered unconscious in 20 to 30 seconds?

A No, it did not.

Q And then the other source you relied upon were the witness statements?

A Correct.

Q And is it your recollection that those witness statements asserted that the individual was rendered unconscious in 20 to 30 seconds?

A They did not specify – in some cases, they specified within half a minute to a minute. In other cases, they specified longer. Sometimes they didn't specify at all, just that they were quickly rendered – you know, they seem to be unconscious or whatever term that they used. Obviously, the witness statements, they're not medical professionals, they may not know what [53] they're looking for, so you can't

take it – you have to take that with a grain of salt, which I admit to. But the witness statements are consistent with my impression or my opinion that the drug is going to act within 20 to 30 seconds to – that that's the dose to make somebody unconscious.

Q So I want to make sure we're very precise, here: I believe you said it would act within 20 to 30 seconds to make somebody unconscious. Is the individual unconscious at the end of the 30-second period? Or are you saying that the drug starts to take effect in 20 to 30 seconds, but they might not be unconscious?

A Well, let's see, how do I want to answer that. I'd say that the – they are unconscious after – 20 to 30 seconds after the drug has been administered. Does that answer your question?

Q And in part [sic].

You're – are you defining administered from the moment the Pentobarbital starts to enter into the individual's circulatory system, via the IV line?

A Yes. It starts – it may and – you know, I – one thing – one piece of information that I do not have, and I – and that's how – how fast the drug's injected, that is not something that's – either it's not known or it's not provided to me. I don't know how quickly it's [54] injected, but I – I – my guess would be that it's probably injected – were talking about 100 CCs, 100 MLs of the drug –

Q Are you –

A – is my understanding, so it takes some time to inject it.

Q Do you understand that there are two syringes of 50 CCs?

A Yes. And I believe they use – they use both of them. They're both hooked up, one syringe has 2- – 2.5 grams, the other syringe has 2.5 grams. That's my recollection.

Q Is it your understanding that they're injected simultaneously?

A No. They're – I believe they're injected one after the other.

Q Do you know how long it takes to inject the respective 100 CCs?

A I have not provided – been provided with that information, so I don't know.

Q And when you say – as I just parroted you, the – how quickly the – it – it's injected, what – what do you mean when you say that?

A Well, usually, when you talk about an injection rate, you say 1 – 1 CC or 1 ML per minute – I mean, for [55] a second. So every second, a milliliter of a solution goes in. So if you have to inject 100 milliliters, it could take 100 seconds to inject. I don't know whether these are both hooked up to the IV line or they have to take one off and put the other one on, I don't know how that part works.

Q So if there's one syringe of 100 milliliters, and that could take 100 seconds to be fully injected, and then another syringe of 100 milliliters, which would take another 100 seconds, that's approximately three minutes if – and that's assuming it's 1 millimeter [sic] per second before the Pentobarbital's fully in the individual's system; is that right?

A I believe you might have that a little bit off. I believe that there are two syringes –

Q You're right.

A – of 50 –

Q Of 50 milliliters.

A – each. So it would be 50 and then another 50.

Q Okay.

A So if it was one MLs – one ML per second, then it would take 100 seconds for all the drug to get in. Which would be almost – close to two minutes. Now, if we could certainly talk about while based on my analysis of that study, what blood level do you achieve after just 100 [56] CCs of the drug? I believe that you achieve the sufficient drug level to make somebody unconscious. So, again, that's why I'm thinking about, it's not going to take very long for that first part of the Pentobarbital to get in, to make somebody unconscious. You don't need 5 grams of Pentobarbital to make somebody unconscious; you only need probably – make to use volumes, part of it [sic].

You don't need 100 MLs of that Pentobarbital to make somebody unconscious; you probably only need 10 MLs to make somebody unconscious.

Q Do you – do you – you don't know how quickly the Pentobarbital is injected into the individual, do you?

A No.

Q Was that information provided to you?

A No.

Q If it takes – could – would that affect your opinion in terms of how long it would take for the individual to be rendered unconscious?

A At the extreme, yes. I mean, if somebody was injecting that at 1 ML per hour, then that would affect

the onset. I mean, that's sort of the – that's sort of an extreme example, almost an absurd example of that. You know, absolutely, the speed of injection could affect it. But based on my understanding of how quickly these inmates die after the beginning of the process, again, it sounds [57] like, based on the witness statements and so forth, that death occurs within 8 to 10 – to 10 minutes, after the injection is started or the execution process starts.

I mean, it has to – the – the injection can't – you know, it has to be probably one or two minutes at most, I would imagine. I don't know for sure, but that's just sort of my – my – my – my guess. I – but I have to guess, I think anybody does, because that information has not been provided to me, at least.

Q So you can't say for certain – you don't know for sure how long it could take for the individual to be rendered unconscious?

A I still feel very confident in how long it takes. Because I don't think that the injection – the – the – the length of the time of the injection, how long it takes, it would only be materially important if it was a very, very slow injection. So, again, we're talking about 1 ML, maybe, 30 – per 30 seconds or whatever, I – you know, I – I would have to do the numbers, I guess, to – to – to see what it would be, but. . .

Q If a witness – you relied, at least, in part, on the witness statements; is that right?

A Yes.

Q If a witness had reported that it took several minutes for the drug to take effect, would that change [58] your opinion at all in terms of how long it takes for someone to be rendered unconscious?

A No. Because – and – and, again, I'm looking at this – I'm – I'm interpreting these witness statements, which I know they're not medical people, and I'm interpreting, maybe with my own bias, with my own lens, I'm interpreting some of these comments as ones in which they may be seeing something that they believe is the signs of a conscious individual, which, in fact, it's probably not.

So as an example, gasping, the best example that I could think of would be – and many of us have probably experienced this – when you have an animal that you've had to put to sleep. And you give them the euthanasia drug, and sometimes the animal goes to sleep and then maybe a minute later, they have an agonal breath, they go, huhuhuhuh (phonetic.)

Q Have you spoken to any of the witnesses?

A No.

Q So the entire universe of information you're relying upon is contained within the four corners of the witness statements?

A Yes. I have not spoken to any witnesses about this, no. Absolutely not.

Q Right. And are these statements or observations [59] made by – you mentioned, they're not medical personnel?

A I'm assuming they are. I mean, based on the – the – the titles that they're – that they were provided to me of these individuals, you know, some of them are journalists, some of them are – they – they're called like staff witness I think, things like that. So it's possible some of them – maybe I've been wrong about my assumption, but it's possible that some of them have had medical background, I don't know.

(Whereupon Exhibit 4 was marked for identification by the court reporter and is attached hereto.)

THE WITNESS: So – but I – my assumption is that none of them did, maybe I'm wrong about that.

MR. FOGEL: So I'm handing the court reporter a document and asking if she can mark this as Exhibit 4.

BY MR. FOGEL:

Q Doctor, take a moment just to familiarize yourself with the document.

A Yes. Uh-huh.

Q Does this appear to be a true and accurate copy of the witness statements that you reviewed?

A Yes.

Q And were these documents that were provided to [60] you by the State Attorney General's office?

A Yes, they were.

Q And is it your understanding that these are documents that were prepared by the State Attorney General's Office?

A Yes.

Q Did you take that into consideration at all when rendering your opinion?

A Well, of course. You – obviously, you look at that and say, "Well, these were interviews performed by an investigator for the – for the Attorney General's Office, and, you know, I – I – I have to take them at face-value, I mean, is there a potential bias in how they were collected? I have no idea to know that, one way or the other.

Q Well, do you see many of the names – look at the first page, for example, you see "state witness" next to many of the names?

A Yes. Uh-huh.

Q What is your understanding of state witness?

A My guess is that, if I understand it correctly, that these were witnesses that if – the State has asked to be present for the execution, and, of course, some of these are labeled as being members of the press.

Q How – how did you form that understanding?

[61] A Well, I'd say, for example, the first page, Jessica Machetta, state witness, then it says "press" next to it.

Q So aside from reading that, do you have any other independent knowledge? Or were you otherwise provided with further information to form that understanding?

A No.

Q You see later on, there's some names that have the title "staff witness" next to that name?

A Yes. Uh-huh.

Q Do you – do you have an understanding what staff witness refers to?

A My guess is that, it is somebody who works for the Department of Corrections, but I don't know if that – could be somebody who works for the Attorney General's Office or somebody that's a member of the staff of some state agency for Missouri, is what I – my best guess would be that it's from the Department of Corrections.

Q Did you ask the Attorney General's Office to provide any information or further clarification of who these individuals were?

A I don't think so. I – I don't think I would have asked. If – if – if anything, I would have asked the question, "Do any of these people have a medical background?" And I don't think I asked that question. I [62] don't think I asked that question of anybody. Except asking myself.

Q Would that be important to forming your opinion, whether or not any of these individuals have a medical background?

A Yes. If some of them had a medical background and knew what they were looking for, then I would probably – that would be more – would lead – give it more credence, what they're observing and saying.

Q What if it was determined that most or none of them had a medical background?

A Then, again, I would say that their – some of – some of which they're observing – some of the things they observed may not be accurate, one way or the other. I mean, some of them describe the onset of the drug as being within 15 seconds or so, or whatever, and sometimes, you know, longer period of time. So, again, I – you have to look at this and say, "It's not – I – I don't want to hang my hat on just the witness statements," but I did rely upon them.

Q So if somebody said it took 15 seconds from their naked-eye observation for the drug to take effect, that might not be accurate?

A That's correct. That might not be accurate. Nor maybe, if someone said it was two minutes. Maybe it

took [63] only 30 seconds, but they thought it was two minutes, so it could go either way in my opinion.

Q Are you aware that some witnesses have opined that it took over five minutes for the drug to take effect?

A I believe that in some of – in some of these – somewhere in here, I do believe someone said it took five min- – it was a long time, I mean, I don't know whether it was five minutes or not, and you'd have to point that out to me if it was – if – but I do remember seeing something in here, that it did take that long, you know. . .

Q Did that affect your opinion at all?

A Not particularly, no. Because I – again, I asked myself the question – based on my understanding of how the – how this drug works, and in terms of its kinetics and – and its effects on the brain, is it possible that it could take five minutes for the drug to take effect?

Again, the only possibility that comes to mind – or possibilities that come to mind would be if the IV's not working properly. Or if there's a slow circulation time, which would occur in somebody who has, again, you know, really bad congestive heart failure, let's say, where their heart's not functioning properly. Those are the main reasons why I think that you would have – have [64] that effect.

But, again, you sort of look at what – well – well, when this individual said it took five minutes for the drug to take effect. What is the endpoint that they're looking for? So – so for example, you might be – again, from a non- – nonmedical perspective, you might say that the inmate appeared to be unconscious after 20 to

30 seconds, but at five – at minute five, he took a breath, that's – and then there was no breath after that, so it took five minutes to have its full effect.

Well, that's maybe a different definition than somebody else, who just basically says, "Well, they appeared to be unconscious within 20 to 30 seconds, and – and the rest of it was just these agonal breaths." So I'm not sure what endpoints each of these individuals are using.

And that's part of the – the confusion, let's say, or the lack of clarity around some of these statements. So I certainly do concede that the witness statements do not provide crystal clear guidance to us about how quickly the drug acts. But it does lend support to my contention, that it acts pretty quickly within 20 to 30 seconds.

Q What – what I don't understand is, why you're willing to discount some witness's observations, that it [65] might take several minutes, but you seem to be putting credence in witness statements who say it happened in a matter of seconds.

MR. SPILLANE: I'm going to object to the form of the question. If there's a witness in here that said it took five minutes, I haven't found them; I've found less than five minutes. I was wondering if you could point to one and ask the doctor to explain it.

MR. FOGEL: Well, that's a different question from the question that I asked. Because I said minutes and the doctor acknowledged that there are statements in here that say minutes. And I ham [sic] happy to point the doctor to a statement, but first, I would like him to answer my question:

BY MR. FOGEL:

Q Why, based on his recollection that there are statements in here that do discuss minutes, why he is willing to discount those statements, yet attach credence and significance to those that say seconds?

A Well, there are probably over 150 individual statements in here, from 19 executions. I'm not, you know, I'm not sure how many there are in total, but there – there probably – it's probably more than 150; it might be 200. And if you look at some of these statements about the minute part, you know, it says – so to get to [66] the issue about the five minutes, there is a – on page 6 of 56, Patrick Martin.

Q Uh-huh.

A (Reading):

> "Martin said it was hard to tell, but appeared to take more than five minutes, but less than ten minutes for the drug to take – to fully take effect."

So let's take a look at all these statements, here. And – and one of my faults is, I'm a very quantitative person, one of my strengths is, I'm a very quantitative person; you could take it either way, but let's look at this particular execution, here. There are probably – let's count them: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, (inaudible) – there are 29 statements here – well, there's not 29, because some of these people couldn't be reached.

Priddy, first one, "Seemed to happen quickly."

Powell –

Then the next person basically said wasn't – didn't – didn't return his answers.

Powell said, "He took two deep breaths, and that was it."

Hufford said, "It was over very quickly." [67] Jones said, "Appeared to take a deep breath, and that was it."

Taylor, "Less than two minutes."

Martin, "More than five, but less than ten."

The next person, "Less than two."

Next person, "Less than one."

A lot of these say less than one; one says less than five. So, you know, I have over 20 witness statements, a small minority said five to ten, five or so. But most of them said less than one, so I have to ask myself, "Is that one person that said it was five to ten –

BY MR. FOGEL:

Q Well, I don't think that's a fair characterization, Doctor, I mean, because we – you just read a few that said minutes, there are a few – several more you did not get to that said three to four minutes, there's one that took less than five minutes. I don't want to do number counting with you right now, but my question is, you do acknowledge that there are other witnesses who said it took minutes as opposed to seconds.

A That is true.

Q Yeah.

A There are – there are witnesses – and they have statements saying that it took three, four – five minutes [68] to take. . .

Q And my question for you is, does that affect your opinion in terms of how long it might take to render somebody unconscious?

A No, it does not. If the vast majority of the witnesses said that the inmate – you know, not just in this execution, but in other executions, you know, took five/ten minutes, you know, that they – they – and they specifically said, "The inmate was still breathing, the inmate was still moving, it took five minutes," then I'd say, "Wow. Maybe this drug is not acting as quickly as I think it is."

But the overwhelming – in my mind, the overwhelming evidence here is, that the drug – these witness statements support my contention that the drug acts very quickly, within 20 to 30 seconds. So . . .

And that's just the ones – by the way, the one execution where you can pull out those – I believe, there may be one or two others, I don't know, that you could pull out those kind of numbers, but most of these will say in these executions, it's one, less than one minute. Maybe less than two minutes.

Q Well, let me ask you a question, because you're – now you're talking about that specific execution. It could vary by execution?

[69] A Yes. I would say –

Q Why – why could it vary by execution?

A There may be issues with how fast they can inject the drug. So I don't know what those – what those specific issues are in these cases. Obviously, I wasn't present and that information has not been provided to me, if that information is even known. But for whatever reason, maybe they didn't inject the drug as quickly as they wanted to. Or maybe some of these inmates did have – I don't know their medical history, you know, how much they weigh, but, you know, some

of those issues could have an impact in the time that it takes, as we previously discussed, for the drug to act.

Q And therefore, render the individual unconscious?

A Correct.

Q It's possible that it could affect it?

A Yes.

Q You can put the witness statements aside for the moment.

Have you ever witnessed an execution in the State of Missouri?

A No.

Q Have you ever witnessed an execution period?

A No.

Q Going back to your scope of engagement, which is [70] on paragraph – excuse me, in your November 2016 report, at paragraph 3.

A Yes. Yes. Uh-huh.

Q You said, (Reading):

"I've been asked to render expert opinions in the fields of general medicine and anesthesiology. Especially regarding the use, actions, and efficacy of Pentobarbital."

And then the next sentence – that sentence continues on –

A Right, the –

Q The next sentence that I will focus on, it starts, (Reading continued):

"I have also been asked to render opinions regarding the efficacy of Pentobarbital in the case of Rusty Bucklew."

What do you mean by efficacy?

A Efficacy is used in its, you know, defined term, which is basically the – the ability of the drug to produce the intended effect essentially.

Q The intended effect, here, being . . .

A Death.

Q Death.

[71] A Yeah.

Q Do you understand plaintiff to be challenging whether or not he would die from the administration of Pentobarbital in this quantity?

A Could you ask that again.

Q Sure. Do you understand plaintiff to be asserting or to be challenging whether or not he would die from the administration of Pentobarbital in the quantity set forth in Missouri's execution protocol?

A I don't think – I mean, I – that's news me. I think he was challenging the efficacy of the drug in terms of its ability to – well, let me – let me rephrase that.

My understanding, he's sort of challenging the issue around this method would cause undue suffering, pain, et cetera. I did not think that he was challenging the fact that – that it would cause – it would not cause death.

Q Right. It's a question of whether he would die in violation of –

A Right.

Q – his 8th Amendment rights?

A Correct. I mean, I don't think he's saying, somehow, that the drug, as it would be administered, would not cause his death. I don't think – I don't think I read that anywhere.

[72] Q Do you know what cavernous hemangioma is?

A Yes.

Q What is cavernous hemangioma?

A It's a condition – usually, its congenital, but it's a condition where you have an abnormal growth of blood vessels that produce what's essentially on – if you were to look at the tissue under a microscope, there are these pools of blood or caverns of blood that are part of that hemangioma. And that's where that term cavernous comes from. So basically, the hemangioma has this blood that will enter it slowly and pool there in these caverns, and then that causes the growth of the hemangioma, as, you know, if it's congenital as the child gets older, this – this can sometimes grow larger. And so its definition – or its term is based on, primarily, its finding under microscopy.

Q And how did you form that understanding of cavernous hemangioma?

A I reviewed some of the literature. I – I had a general understanding of that term before this case, but had certainly gained more specific knowledge about the pathology, so to speak, of – of – after reviewing some of the medical literature on it.

Q And did you form that general understanding prior to this case in connection with your treatment of [73] patients? Or otherwise?

A No, not – I don't know, off the top of my head, if I've ever had a patient with a cavernous hemangioma that I've had to anesthetize, I don't know. I mean, and I don't – my – my recollection, I don't recall actually learning that about a cavernous hemangioma during medical school, but my recollection, at the time, when I saw this is, I – when I saw this, I said, "Oh, yes. Okay. I know what that is." And in a very general sense.

Q But you've never treated a patient who had cavernous hemangioma?

A I –

Q Or – sorry, go ahead.

A I don't think so. If I did, I do not recall.

Q The paragraph we were just looking at –

A Yes.

Q – the sentence continues (reading):

> "Rusty Bucklew, a condemned prisoner who has a congenital cavernous hemangioma, and whether that hemangioma would affect the efficacy of Pentobarbital or otherwise inflict the substantial risk of severe pain as a result of Missouri's lethal injection procedure."

[74] Do you see where I was reading?

A Yes. Uh-huh.

Q What – what do you mean by whether that hemangioma would affect the efficacy of Pentobarbital?

A One of the claims that your expert witness made – well, actually, not just Dr. Zivot, but I think it was – was always Dr. Wippold and Jamroz, I believe

was the other one, they made claim that the hemangioma would cause a abnormal distribution of the Pentobarbital, and thereby affect – affect its efficacy, you know, how the drug acts.

And so that's why that statement is in there, so that I can, you know, I wanted to render opinion as to what the effect of the cavernous hemangioma would have on the distribution of Pentobarbital.

Q Sure. And the sentence continues, (reading):

"Or otherwise inflict a substantial risk of severe pain as a result of Missouri's lethal injection procedure."

A Uh-huh.

Q Do you think that there is some risk, due to Mr. Bucklew's condition, that he would suffer severe pain as a result of – let me strike that.

Do you think that there is some risk that Mr. Bucklew would suffer some pain as a result of [75] Missouri's lethal injection procedure?

A As I said earlier, inserting an intravenous line can be painful. Beyond that, if – if the IV was not functioning properly, and the IV infiltrated, then there would be some pain associated with that. When drugs infiltrate, then that could be painful. So especially with something like Pentobarbital.

Q Well, let's pause on that.

Why would it be painful?

A Well, some of the drugs that we use have a the [sic] – the PH, which is the acid level basically –

Q Uh-huh.

A – can either be high or low. And because of that, when it gets into the tissue, it can be painful. It's been described with many drugs, especially drugs we use in anesthesiology, such as Thiopental is a classic example. And I've never said otherwise, about you have to have a properly functioning IV for these – for any drug, really, that you give. Whether it's in this protocol or whether it's for a clinical reason, to work properly. So there is that risk.

Q And what could happen if you don't have a properly functioning IV?

A Well, the drug won't work as quickly as we want it to. Whether it's in a clinical setting or – I'm not [76] putting myself in that weed when it's –

Q Sure.

A – used in the lethal injection process, but from a clinical perspective, the – the drug will not work fast. In fact, it may not work at all. Because it's – it's very slow – once it gets out, in the tissue, it's going to be very, very slowly absorbed, and it won't have its intended effect.

Q And what are some of the factors that affect whether you have a properly functioning IV line?

A Primarily, it's going to be the patency and size of the vein that you put the intravenous – the catheter in. That would be the – not the – that's the main reason from a – from a – sort of a clinical perspective.

Q What does patency mean?

A Whether it's open or not.

Q Yeah.

A Yeah, so . . .

Q And – and that varies by person?

A That is correct.

Q Did you make any observations – well, you previously did examine Rusty Bucklew, didn't you?

A I did.

Q Did you make any observations regarding IV access points?

[77] A I did.

Q And what were your observations?

A So his IV access is – is what I would consider to be limited. So his left hand in particular, and arm, there are very few – there are just a few small veins that I could find. There are some more on his right arm. Sufficient that I – that I believe I, with my expertise – or somebody with the expertise of starting an intravenous line would be about to get an intravenous line in his right hand, but the veins are small.

Q And what happens when the veins are small? What does that mean?

A Well, that gets to the issue of, if you inject – you have to watch how quickly you inject a drug. And you could cause infiltration in the – the vein could – you could – we call blow the IV. Basically, where the – you rupture the vein, so now you're going to get to that drug going out into the tissue instead of into the vein, so . . .

Q And that could be particularly problematic when you have a drug with a PH level like Pentobarbital?

A Correct.

Q Okay. And what happens when a drug like Pentobarbital gets into the tissue?

A Well, it can be painful.

Q Uh-huh.

[78] A And it can destroy the tissue. You can actually get ischemic and gangrenous tissue, where the tissue dies. Almost like a chemical burn in a sense, so . . .

Q Right. When somebody has a small IV line – sorry. Does quantity of the chemical that you're injecting affect the success of the IV line?

A It's more the speed than the quantity. I mean, it's – it's – yeah, it's more the speed. I mean, if you injected you could inject a lot if you did it slowly.

Q Right.

A It's really more about the speed of the injection than the actual quantity.

Q And why does the speed matter?

A Well, because the – the vein – let's see, so imagine that you're – if you had – I'll use an example, if you had a mouthful of water and you're trying to spit it out through a straw. If you spit it out through a large straw, a large diameter straw, you're going to be able to get a lot more water out of that straw, in a certain amount of time, than if it were a small diameter straw. And a straw – I know we're thinking about a typical straw that is made of plastic and can stand high pressure, but if that straw was made of a very thin material, if you really applied a lot of pressure to that, it would blow. And that's essentially what's happening [79] when you're injecting too quickly.

Q So correct me if I don't have this right, but the smaller the IV or the smaller the vein, the slower you want to inject the chemical.

Is that fair to say?

A That would be an accurate assessment, yeah. Because you'd have to be – if you're concerned about blowing the vein, you'd have to be worried about the speed of injection, yes.

Now, I will – if I can elaborate on that.

Q Go ahead. Go ahead. If you have something further to say in response to my question.

A I mean, certainly in the clinical setting, we may have to start IVs in places that we normally wouldn't want to start IVs because of that. So we might start a central line. I mean, and that's certainly happened in my practice many times, and I'm sure Dr. Zivot – and any anesthesiologist is going to say the same thing, where you have to – you have to put in a central line when you have very poor IV access.

Q What is a central line?

A So that's a term that we use for the central circulation. So usually, it's going to be a catheter that we put into a neck vein, it could be in a subclavian vein, or it could be in the femoral vein. I mean, you – you – [80] you're able to access – those veins are very big.

Q Uh-huh.

A And you can put catheters in that. So in a clinical setting, if we were worried about injecting drugs or other substances, then we would put in a central line.

Generally speaking – yeah, that's – that's the way that we would manage that many times.

Q That's in a clinical setting. Do you know how that would be handled in the execution setting?

A I have been told that, I believe, that – that they have inserted central lines in some of the inmates – I don't know whether that's been in Missouri or not, I'm really – I'm not positive about that. So –

Q You've – you've been told it could be done?

A I – that there have been central lines that have been placed in some inmates.

Q You – you just don't know if that's – who – who told you that?

A I'm not sure if that's something that I've read in the newspapers, I'm not sure. Yeah.

And then maybe – maybe, it was something that Mr. Spillane and I discussed. I'm not – I'm not even sure – maybe it was in the – I'm not sure if the Missouri protocol has it in there, I forget. Maybe we can refer to that, I don't know.

[81] Q Would it be helpful to look at the –

A Sure.

Q – open protocol?

(Whereupon Exhibit 5 was marked for identification by the court reporter and is attached hereto.)

THE WITNESS: Oh, yeah. It does say, in C, it says, (reading):

> "Medical personnel may insert the primary IV line as a peripheral line or as a central venous line."

And then it lists femoral, jugular, subclavian.

So that refers to the femoral, which is in the groin area; and the jugular, which is in the neck area; and the subclavian, which is below the clavicle or the collarbone.

BY MR. FOGEL:

Q Right. And do you see the end of that sentence it says, "Provided, they have appropriate training, education, and experience for that procedure"?

A Yes.

Q Does inserting an IV line in – as a central venous line, require additional training or expertise?

A Yes.

Q Why is that?

[82] A Additional – well, for example, a nurse may have a lot of experience in inserting a peripheral IV, but there are very, very few nurses that probably have experience in inserting a central line. The only – there might be some nurse practitioners that have that experience – in the clinical setting, there might be – certainly CRNAs or nurse anesthetists would have that experience. But usually you have to have additional experience, and that's going to be somebody who has, you know, maybe a physician that has experience.

Q All right. So do you know if the medical personnel, that are present as part of the execution team, have that training and experience?

A I believe that there is a [sic] anesthesiologist involved in the Missouri process.

Q Right. But this condition, here, when it says, "provided, they have appropriate training, education, and experience for that procedure," are you assuming that somebody present would have that expertise?

A They would have to have that expertise in order to safely place that – those – those types of lines, yes.

Q Right. And you're assuming that somebody with that expertise would be present –

A Yes.

[83] Q – in order to do this?

A That's my assumption.

Q Okay. And what would be all the alternatives if you could not insert it through a central venous line?

A If you did not have adequate – what you considered an adequate peripheral IV, and you did not have central access –

Q And sorry, what is a peripheral IV?

A So that would be like a [sic] IV –

Q Through the hand?

A – in the hand, or in the arm. This is considered basically the periphery (indicating), it could be in the foot.

Q Uh-huh.

A We often have placed IVs in the feet in a clinical setting. But a central line, so it's usually considered to be peripheral – peripheral versus central. Central line would be something where the catheter's actually in what we call the central circulation. Usually we're talking about a large vein such as a jugular or the subclavian or the femoral, and pretty much everything else is – is – is peripheral.

Q Sorry, I – I think you were answering a question before I interrupted you.

A I – I – I think I –

[84] Q Do you want me to repeat the question?

A Sure.

(Whereupon the record was read.)

THE WITNESS: You wouldn't be able to administer the drug. I mean, you do not have – you do not have a properly functioning peripheral line, you do not have a properly functioning central line, you cannot inject the drug because there's no vein to inject it in.

I mean, I've never said otherwise. You have to have a properly functioning IV somewhere to be able to safely administer any intravenous drug. Just to make that clear.

BY MR. FOGEL:

Q Now, in your report, your supplemental report, Doctor, you state there had were [sic] small superficial veins in his hands?

A Yes.

Q And that – and that is referring to what you said earlier, that he has small veins –

A Yes.

Q – in his hands, which would make it difficult to administer an IV through the hands; is that correct?

A I don't think difficult would be the right word. I mean, it made it more challenging.

Q More challenging. Sure.

[85] A Yeah.

Q And –

A And by way of an example – I know you can't put this in the report, but look at my veins (indicating.) Right? People look at that and they just salivate of over [sic] those veins; they're huge.

Q But Rusty does not have those types of veins?

A No, he does not.

Q He's not as lucky as you to have those veins?

A Right.

Q So –

A Just – just as an aside, and I'm sorry I got to throw this in there: Anesthesiologists, when we're out in the world, we look at veins and we look at the airway of everybody. So I guess it's just what we do, so . . .

Q You – you also stated in your report that there are limited sites for IV access in upper extremities –

A Yes.

Q – is that right?

And when you say "upper extremities," what are you referring to?

A The arms. I didn't examine his feet.

Q Okay. When we talk about peripheral IV access –

A Uh-huh.

Q – are you generally talking – is that what [86] you're referring to when you say the upper extremities in the hands, that's –

A Yes, that's the –

Q – the peripheral IV access.

A – that's the peripheral IV access that I'm talking about, yes.

Q So you did not examine whether – where the potential of a central venous line –

A No, I did not.

(Whereupon the reporter requested clarification.)

BY MR. FOGEL:

Q Is that – is that accurate?

A I did not. I did not examine him.

Q What – what type of – in the clinical setting, what equipment, if any, would you use to identify the central venous line?

A Well, if you are using a – if you're going to insert a catheter in the jugular vein, the standard of care now is to use an ultrasound machine, where you identify the – the jugular vein. If you are inserting a femoral line, you don't need any – I mean, people can use an ultrasound machine, but it's not necessary. It's not – you wouldn't have to use that.

And likewise, with a subclavian vein, you wouldn't have to use an ultrasound machine. I think [87] people do do that, but it's not absolutely necessary. But I think for the purposes of the jugular vein, you'd want to use a ultrasound machine, but for the others, I wouldn't say it's absolutely necessary.

Q Do you know if an ultrasound machine – are there any other pieces of equipment that you would use in order to identify an [sic] central venous line?

A No. I mean, ultrasound would be the – the one that I would use.

Q Do you know if an ultrasound machine is available in the execution setting?

A I do not know.

Q For somebody with veins as poor as Rusty's as you've described them, is there anything to increase

the likelihood of the vein to blow once the fluid begins flowing through it? Through the needle.

A Yes. There is – with poor IV access or limited IV access, small veins, then the risk of an infiltration is higher. I can't give you any numbers, I'm not even sure those people have ever studied that, quite frankly. But just based on my clinical experience and I think, based on general teaching and clinical experience of others, yes, there's an increased risk of a vein blowing when provided with limited IV access. Which he did have.

Q Right.

[88] MR. FOGEL: Why don't we take a – a break.

(Whereupon there was a break in the proceedings.)

MR. FOGEL: We're ready to resume?

BY MR. FOGEL:

Q Doctor, I want to pick up on something we were discussing shortly before we took a break. And that was the – accessing the central venous line.

Now, do any of the veins that you discussed have arteries – well, first of all, what is the difference between a vein and an artery?

A An artery is the term that we use that describes blood that takes a tube, essentially, that takes blood away from the heart. And usually, that's to the systemic circulation. So for example, the left ventricle will have the aorta coming out of it and that will have branches, and those are arteries. Like the carotid artery and so forth.

And then veins we describe as structures that bring blood to the heart. And that's sort of the – that's the basic structure. And usually, for the most part,

arteries have oxygenated blood in it, and veins have deo- – what we call deoxygenated blood it in.

But there are the two main exceptions to that is, that when the blood comes back from the lungs back into the heart, those are called pulmonary veins because they [89] are veins that are bringing blood back into the heart but actually it's oxygenated blood. And likewise, the pulmonary artery takes blood from the heart to the lungs, it's called an artery, but it's got deoxygenated blood.

But in terms of the systemic circulation, which is the typical term we use to describe blood flow through the – through the body. Arteries carry blood from the heart to the various organs and then veins bring that blood back from the periphery or from those organs back into the heart.

Q Can you use an artery instead of a vein –

A For?

Q – for purposes of an IV line?

A You cannot.

Q Why – why not?

A Well, let me just clarify that.

You can use an artery – in fact, that – people do use arteries for an- – what's called angiography, where they are – they are looking at the structure of an artery, and – and the – the blood flow through that artery, so they will inject a contrast through that artery. But for the purposes of giving a drug for, you know, having a systemic effect, you would not use an artery. In fact, you would want to avoid using an artery.

Q Okay.

[90] A Because these drugs can damage arteries. You know, many drugs can damage arteries.

Q Do any of these veins that you would use, as you described as a central line, do any of them have neighboring arteries?

A Yes, they do. And I guess, for purposes of – of making a complete statement about the artery, there is one exception to the – the – what I said about arteries. The pulmonary artery, sometimes will have a catheter, it's called, interestingly enough, a pulmonary artery catheter. And it goes through the heart, into the pulmonary artery. And you can't inject drugs into that, because that's – in that sense, it's like a vein.

Q Yeah.

A But it's – anyway, back to your question:

Do these structures, where the – the central line being placed in a femoral artery, you know, the –

Q And the jugular?

A – jugular and stuff like that.

Q Yes.

A Yes. There are arteries very close to the veins.

Q So the important – based on what you described and why you would use the vein as opposed to an artery – to be very careful that you don't insert the IV into the artery, and not into the vein?

[91] A Correct.

Q So what do doctors use in a clinical setting to make sure they don't put it into the artery instead of the vein?

A Well, we already brought up the issue or the technology of an ultrasound machine.

Q Right.

A And that's one way of more accurately diagnosing where your catheter is. The other things that you do, I mean, there are a variety of different techniques. So for example, I mean, I'm going to go into some detail because I think maybe that's what you want, but . . .

Q Well, do you need an ultrasound in order to –

A No.

Q – access –

A You don't need an ultrasound to –

Q – the central venous line to make sure you do not –

A You do not –

Q – put the IV into the artery?

A You do not need an ultrasound to – we used to do that all the time, for many years.

Q What is preferred practice today?

A For the placement of the central line in the jugular vein, it's going to be the ultrasound. I'm not so [92] sure that it's preferred practice or a standard of care for the other veins. It may be in some settings and some institutions, where they say you should do that, but . . .

Q If you were to insert an IV into the central line, would your practice be to use an ultrasound?

A I think you want to rephrase that question. You said to put my IV in a central line, you mean in a –

Q Central vein.

A – central vein.

I would use it for a jugular – I'm not sure that I would need to use it for the femoral vein or the subclavian. The subclavian vein is a little bit more difficult for the ultrasound to be useful, I think, but I think people can use it.

But it's really primarily for the jugular vein because the concern there, is that, when you puncture the artery, the carotid artery, that's the blood flow to the brain, there's risk of stroke and things like that. There's obviously risks involved in terms of puncturing the other arteries, but not nearly cat- – potentially catastrophic as with the somehow puncturing or having a problem with the carotid artery.

Q Are you familiar with a cutdown procedure?

A Yes.

Q What is it?

[93] A So a cutdown procedure is where you actually have to make an incision into the skin to gain access to a – the structure that you're trying you – and usually, it's going to be a vein that you're trying to cannulate. So we use the term percutaneous – you got that?

THE REPORTER: (Inaudible response.)

THE WITNESS: Okay.

Percutaneous means through the skin, basically. And that's essentially where you use a needle to gain access, like a intravenous line. A cutdown is where you would actually use a scalpel to make an incision in the skin and then you do a dissection to actually – to find the vein.

BY MR. FOGEL:

Q What – when would a doctor use – or some medical professional, use the cutdown procedure?

A If they had difficulty gaining access to the venous system, but the usual methods of, you know, they can't access it peripherally, they can't get a central venous line placed. Most cutdowns are usually done on – I shouldn't say most – most cutdowns, in my experience, in the – in the clinical practice that I was in, most cutdowns were done on the saphenous vein, which is a vein in the ankle. It's usually patients in the – who's been in trauma. So they come into the emergency room and they [94] get a cutdown on the saphenous vein, and they – or they find the saphenous vein and they insert a large bore of tubing or a catheter into that vein.

Q When – have you ever used the cutdown procedure on somebody before?

A I have.

Q What position was the individual lying in when you applied the cutdown procedure?

A Supine.

Q Which means?

A Flat.

Q Lying flat?

A Lying flat, yes.

Q And why were they lying flat?

A Because they are – were trauma patients, and they have injuries, and they were – they had – they'd be lying flat – all – all trauma patients – I shouldn't say all, like I said earlier, never say never, never say

always, but vast majority of the trauma patients are going to be lying flat, so that's why. And that's the best position to be able to get access to the ankle and to do the – to do the other things that need to be done in a trauma patient.

Q Would you agree that for somebody where it is difficult to locate a [sic] IV site through the skin, that it's [95] more likely that they need to have a cutdown procedure?

A Yes. More likely, I mean, that wouldn't be the next step, the next step would be the central line. But failing that, and a cutdown would be needed, I mean, for the most part. I mean, those are sort of the ways in which you could access the venous circulation.

Q Do you have any understanding of whether the cutdown procedure was used under Missouri's execution protocol?

A Say that again.

Q Sorry. Do you have any understanding of whether the cutdown procedure is an option under the Missouri execution protocol?

A I – I don't know if it's in there or not. I don't remember seeing that.

Q Do you know if it's used at all?

A In –

Q The Missouri – in Missouri executions?

A I don't know.

Q Or is it an option?

A I don't know.

Q You mentioned the – was it the saphenous vein?

A Yes.

Q Do I have that right?

A Yes.

[96] Q And it run – starts in the ankle.

Does it run all the way up, into the groin?

A Yes. It's – well, it's not called the saphenous vein, once it gets up to that level. But yes, that's the way the pathway goes up, into the femoral vein.

Q So it's different from the femoral vein?

A Yes. So you could think of the femoral – so there's several veins – there are a lot of veins, let's say – let's take the leg, there are a lot of veins in the – in your leg. Some of them have names, because they're commonly – you know, they have a common location. The others don't. So they all sort of come together – not all of them – but many will come together – not all of them, but many of them will come together [sic] to form the femoral vein? So . . .

Q And where do you access the femoral vein?

A In the groin.

Q In the groin.

And you mentioned that as an option if you were to do a central venous line; correct?

A Yes.

Q If you were to access the femoral vein, would you need to cover it with a sheet, if you were trying to shield someone – if there was somebody observing –

A Yes.

[97] Q – the person who was having the IV inserted, would you recommend them covering it with a sheet because the groin would be otherwise exposed?

A Kind of depends on the clinical setting. So for example – so normally, what we could do the – for the femoral vein, you would use a – a central line kit, basically, and most of these – you know, some of these kits could be used for almost any central line location, whether it's a saph- – I mean, a subclavian or a jugular or a femoral.

And you prep the area, you disinfect it, basically, and then you take a – a large sheet that's sterile, and it has a hole in it, and that's where you put – that's where you're going to be doing your work. So it's – you do cover a large part of the, you know, the lower-torso part, there, including the genitalia. But the actual area where you're working is going to have a hole in that sheet, that you're going to – that's where you're going to be doing your work.

Q Uh-huh.

A I don't know if that's what you were –

Q Well, I suppose it's – it might be a little bit of an unfair question, because you don't know if the cutdown procedure is allowed or used under Missouri execution protocol; is that right?

[98] A I don't know that.

Q And you don't know – and therefore, you wouldn't know how it is employed?

A Yeah. Well, you're talking about central line placement. I thought. A femoral line.

Q Well, I was talking about femoral line, but also the cutdown procedure.

Would you use the cutdown procedure on the femoral line?

A I don't know whether people do that. I've never done that. I've never done a cutdown on a femoral vein because in my experience, the femoral vein is – is easily accessed. Well, I shouldn't – you know, it's – it's easily accessed.

I mean everybody, for the most part, I mean, I should, again, never say never and never say always, but almost everybody has a femoral vein. And the anatomic location is very consistent from one person to the next.

Q Uh-huh.

A So you wouldn't need to do a cutdown in somebody for a femoral vein in the groin. I mean, I don't – I suppose it has happened somewhere, but I've never seen it and I've never done it.

Q Right.

A For the purposes of gaining access.

[99] Q Have you ever had a conversation with any of the execution medical team on –

A Never.

Q – the access of the femoral vein?

A Nope. I've never spoken to anybody for, you know, execution team, not at all. No contact whatsoever.

Q I think you used the word "challenging" when talking about accessing Rusty's IV line. What – what are the consequences, for somebody like Rusty, if the medical team is having challenges accessing an IV line?

A So I will answer that in sort of the setting of what has happened in my clinical experience.

Q Uh-huh.

A You may end up having several attempts, more than several attempts. I've probably seen patients that have had more than, probably, ten attempts to try to get IV access. And sometimes, depending on how the patient's tolerating, you might end up saying, "You know what, we're going to go over to try a central line, you know, we're not going to do – do this anymore."

So that's – that's where, if there was a challenge, you know, I say challenge, if there was a problem, then, after so many attempts – and I don't know what that number would be, it's going to vary from individual to individual. But they would –

[100] Q But for somebody with Rusty's veins, as you've described them, you've acknowledged it could be challenging to access the IV lines. Is that something that you would – is it likely to induce stress on somebody like Rusty?

A It would induce stress on almost anybody. Because you're sticking them with sharp needles, yeah.

Q Would it increase the likelihood of heavy breathing?

A It – yes, it could increase the likelihood of that, because, you know, it's stressful, you're going to be breathing more rapidly potentially.

Q Could it increase the likelihood that Rusty's hemangiomas would start bleeding?

A I'm not so sure about that. I don't know, I'm not sure that I – I know that the – Dr. Zivot and others,

and, you know, the other experts have said – talked about changes in the blood pressure, I'm not sure that the, you know, increase in blood pressure would cause – make it more likely to rupture, I'm not so sure that that's well documented based on the pathology, essentially, of – of these types of hemangiomas. I – I don't think I buy that, that an increase in blood pressure is more likely to do that.

Q To cause the hemangioma to start bleeding?

[101] A Correct. I don't think it's going to be more likely, yeah.

Q What causes Rusty's hemangiomas to bleed in your opinion?

A Well, the histology in the – my, you know, or the basic structure of these hemangiomas is that No. 1, for him, they're superficial. Part of it's superficial, I mean, obviously some of it's gone up, on the inside of his neck, but in – in – into his – into his head. But part of it is actually, you can see it in – in his mouth. And you can see that – and you can always see, of course, some of it on his nose and on his face. And that tissue, if you were to – in terms of Zivot – Dr. Zivot uses his friable.

(Whereupon the reporter requested clarification.)

THE WITNESS: Friable.

I don't know if that's the best term to use, but I do agree that that hemangioma, and that, if you were to traumatize it in some way, that it would be more likely to bleed compared to, if I provided the same type of, quote, "trauma" to you.

And when I use the term, I'm – for example, I'm thinking about if I had to intubate him, put a tube into him, you know, let's say the – the inmate needed to have surgery, then there's – you would normally put a

tube [102] into the windpipe to breathe for them. And use a – what I call when I talk to patients, a metal tongue blade basically, it's called a laryngoscope, and when you insert that into the mouth, even a normal individual, could you, you, or you, or any of us, when we do that, sometimes you get bleeding. Rusty or Mr. Bucklew's going to have increased risk for that because of his tissue. If you were – if you were to manipulate his airway in that way.

BY MR. FOGEL:

Q Through the insertion of the tube?

A Correct.

Q Right. So what – under what other conditions would cause – because Mr. – as you know, and I think you observed Mr. Bucklew has some periodic experience of bleeding from his hemangiomas.

A Yes.

Q Obviously, without the insertion of a tube. To your understanding, what causes those hemangiomas to bleed in those circumstances?

A Well, there're probably parts of that hemangioma that are – again, we have used the term "friable," that are very, very, very thin, and just the normal, you know, maybe when he's eating something and just the act of swallowing can irritate or scrape, basically, the back of – the back of his throat or the pallet, and cause the [103] bleeding. He reported to me that he gets – when he wakes up in the morning, he sometimes has blood on his – on his sheets. So maybe there's some type of spontaneous bleeding, I don't know. Maybe – I don't know what – why that is happening, but he does report that.

Q Any other understanding of why or how his hemangiomas would start bleeding?

A If his airway – if he is – so for example, if he's snoring, on, you know, there's no doubt, of course, that, you know, the hemangioma involves his airway, he's more – he's going to be more prone to snoring, having some sort of the tongue fall back into the back of his throat. Maybe somehow that vibration causes him to have some bleeding potentially. That could be another cause of it.

Q So we're – we're – you're talking about some of your observations from your examination of Rusty; is that right?

A Some of these, yes.

Q And – and you did, in fact, Rust- – examine Rusty –

A Yes, I did.

Q – in person. And you documented that in your supplemental report; is that right?

A Correct

[104] Q So let's take a look at that.

And I'm specifically looking at paragraph 3 of your supplemental report.

A Uh-huh.

Q And it continues on – it starts on page 2 and continues on to page 3, ending with No. 4, limited sites for IV access in upper extremities?

A Yes.

Q Do you see that?

A Yes.

Q And so does that – is that the entirety of your observations from your examination of Mr. Bucklew?

A I think so. I mean, I – doctors never write everything down that they observe. I mean, I'll be honest with you.

Q I – that's fine. I just want to make sure I'm looking at –

A Right.

Q – at everything that's relevant.

A Yeah. I'll – but that's – I put as much down there as I thought. I mean, you know, if – there may be some other things that I saw that I didn't put down there, but that's the vast majority of what I observed.

Q Great. Just want to make sure that we're looking at –

[105] A Yeah. Okay.

Q – all the information.

Why – why did you examine Mr. Bucklew?

A Well, two – I guess, two basic reasons: One was credibility; right? I mean, if – if – how can I make a medical or make an assessment of this guy if I haven't examined him, and Dr. Zivot pointed that out.

And then No. 2, I do want to have a sort of independent – be – be – being able to make an independent judgment of what he looks like and what the airway – what his hemangioma looks like.

So I felt that was likewise important, so . . . that was the – that was the main reason why I wanted to do that.

Q So like Dr. Zivot, you found that Rusty has a hemangioma on the right side of his face; is that right?

A Correct.

Q And – and he has multiple hemangiomas, but you specifically focused on the one on the right side of his face; is that right?

A Well, I think that the hemangiomas, I don't know that they're anatomically completely separate, I don't know that for sure. I'm sort of thinking to call it – call it an all – so there's an – obviously a hemangioma that the – hemangioma's involving his – the outside of [106] his – the exterior, external part of his right face, but of course, it's also internal.

Q Uh-huh.

A And so this hemangioma seems to be all in- – interconnected, so you can call it one hemangioma or several. But . . .

Q Understood.

But you also agree with Dr. Zivot, that this hemangioma or hemangiomas, plural, affect Rusty's airway?

A Yes.

Q And how does it affect his airway?

A So he had a – or he has a hemangioma – the hemangioma involves his pallet –

Q Uh-huh.

A – his uvula, his – basically, his cheek, both in the mucosal side or the internal – oral side, and the external. And it extends – seems to extend down, into his tonsil region a little bit.

Q And the pallet, is that – what does that mean? The roof of the mouth?

A Yeah, the roof of the mouth.

Q Right.

A So we talked about the hard pallet and the soft pallet. So the hard pallet is where it's hard and the soft pallet is further back where the uvula is, you know, [107] that thing that hangs there, and is attached to the soft pallet.

Q So how – I mean, now that you've described kind of the presence of the hemangioma, how does that affect his airway?

A Well, it causes him to have some of the symptoms that he describes, he, being Rusty Bucklew, some of the symptoms that he describes of, you know, sometimes he feels like he can't, you know, he's choking a little bit, or he has the bleeding problem, he has to – he says that sometimes he has to sleep on his side or be in a particular position. And then, those are the primary things that he described to me. And –

Q Go ahead.

A No. No.

Q Do you have any more?

A No. No.

Q Do you know what a Mallampati is?

A Yes.

Q What is a Mallampati?

A It's a scoring system that's used in our specialty to describe a [sic] airway for the purposes of how easy it will be to intubate somebody, to manage their

airway. And Mallampati is actually the name of the person who described it. It's usually, going to be a score of [108] one to four. One, being an airway that's primarily going to be high- – higher likelihood that it's going to be an easy airway, and a four, being a higher likelihood that it's going to be a difficult airway. But it's not absolute. For example, you can have somebody –

THE REPORTER: Can you slow down a bit.

THE WITNESS: – with a Mallampati score of 1, who has a difficult airway. And then you can somebody [sic] who has a 4, that has an easier airway. But in general, it's going to be easier for a 1 and a – a more difficult airway for a 4.

BY MR. FOGEL:

Q Does Rusty have a Mallampati 4?

A Yes.

Q And so that means that Rusty has the most difficult airway to manage?

A Higher risk for that.

Q Higher risk.

A Yeah. Higher risk is probably the way that I would say that.

Q Have you ever anesthestized somebody with a Mallampati 4 airway?

A I have.

Q How many times?

A A lot. I, you know, it's not uncommon in the [109] population, especially, with people that are obese.

Obesity increases your risk for – because you get a lot of redunentation in the back of the – you know, the

mouth and you get, you know, a thick neck and that kind of thing, so . . .

Q When you, quote, "manage the airway," what are you doing as a doctor?

A So, in – in our specialty, you – you have to obviously breathe for the patient. You give these drugs that stop breathing, and you have to breathe for the patient. And most of the time, you're going to do that using some type of air – airway device. So might – might be a mask, you know, we put a mask on you, and when – when you're anesthetized, we can hold that mask on your face and we have a [sic] infuser machine with a circuit and with a bag, and we can actually manually inflate your lungs through that mechanism.

Q So the purpose of that is – I'm sorry.

A If I could continue . . .

Q Yeah, go ahead.

A So sometimes, we put in another airway device, several airway – there's an oral airway device that we use to help lift the tongue up, off the back of the throat and back of the mouth. We use something called an L-M-A to put in the back of the throat and then we use an [110] endotracheal tube to go back into the back of the mouth and back, into the windpipe.

So we use all these different tools to be able to breathe for the patient, and that's called managing the airway, basically, and we use those types of techniques to make sure that we can breathe – breathe for the patient.

Q Because they, otherwise, would not be breathing or would have difficulty breathing?

A Correct.

Q And somebody who has a Mallampati 4, is at the highest risk of having difficulty breathing?

A During that induction process of anesthetic, where you're starting to take over their breathing, yes. In a clinical setting, where the patient's going to be, hopefully, alive at the end of the procedure.

Q Do you consider Rusty's airway irrelevant in the context of your opinions in this matter?

A Yes, I do. I think that it's not – I mean, I – irrelevant, I mean, I do – I do understand the concept that is being proposed here around bleeding in the airway. I don't think that's important in a sense that – could – could he, the inmate, bleed before, you know, during the process when he is getting the IV placed and all that? Well, he's already bleeding now. We know that. So could he bleed at that point? Yes. Is it going to be more than [111] what he bleeds now? I – I have no idea.

But, actually bleeding during – after the injection of the drug, and, you know, these choking, you know, again, choking sensations, he'll be unconscious, so his airway's irrelevant in that sense. Because we're not interested in – I'm sorry – the State of Missouri is not interested in – if I may use that term, I'm sort of putting maybe words in their mouth – but they're not interested in – in this airway issue because the intended outcome is death; it's not to keep someone alive. So airway management is really not that important at all. That's sort of my perspective on that.

Q So you – airway management is, I understand you would say that State of Missouri doesn't think it's relevant because he's going to die, but is airway management not relevant only after he's rendered unconsciousness? Is that your opinion?

A Repeat the question.

(Whereupon the record was read.)

THE WITNESS: I'm hesitating here, I'm thinking why – why would it be relevant before he is unconscious? I – I – I have thought about scenarios. Would – would there be something that would stop – stop the execution? Well, I suppose. I mean, not to – not to put too silly of a point out there, but I'm reminded of what happened [112] last night at the Oscars, where the wrong envelope was presented to Warren Beatty? You know, what if the governor said, "Go ahead and – and in this execution. And oops, I made a mistake and I meant stop," and they've already started, I mean, I'm not – I suppose you could think of scenarios like that, where you – or the, you know, Missouri has to, now, resuscitate an inmate, you know, of course, in that – in that particular case, Rusty Bucklew, with his airway and all that, is going to be more of an issue.

But beyond that, I'm grasping at, you know, reasons why the airway would be an issue beforehand. I mean, it just – I – I – my opinion about what – what the case is being made, here, about Dr. Zivot is, that he – and – and others, perhaps, are applying clinical or they're taking a clinical perspective on this execution when I don't think that applies.

BY MR. FOGEL:

Q Aren't you drawing upon your clinical knowledge and expertise in order to render an opinion here?

A Well, I'm not – I – I – I'm not – maybe I didn't make that clear.

He is – he is basically saying – if I understand what he's written, he's basically saying, you know, this inmate has a – an abnormal airway, and [113]

therefore, he's at higher risk for problems during this execution. Well, I agree with him, that Bucklew has an abnormal airway, but it doesn't affect the intended outcome. It doesn't impact the intended outcome.

If I were anesthetizing Bucklew for a clinical procedure, absolutely, I'd be concerned at his airway, both, before and after he was unconscious. But not for the lethal injection, so . . .

Q Let me make sure I'm following here: Because it doesn't affect the intended outcome, meaning, that he dies?

A Correct.

Q Correct. Do you not understand – do you understand that Dr. Zivot was not addressing whether or not he would die, but whether he would die in violation of the 8th Amendment, meaning intolerably suffering during – during a procedure?

A Well, that's, I think, what he was – he was certainly trying to get at in some of his – in his reports. But I think my interpretation of he was saying in some of his reports, might – again, my interpretation is that he's misapplying – he's sort of conflating, you know, the clinical picture of someone who's going to be, you know, the intention is that they be alive at the end of the procedure with what occurs in an execution. So . . .

[114] Q Sure. But maybe we just need go back to the questions that we were talking about earlier, at the beginning of the deposition.

Do you think Rusty would suffer any pain and suffering as a result of his blocked airway during the course of the execution?

A The answer to that is, I don't think he will suffer or have any pain. Aside from, again, starting the IV,

and, you know, could he have a massive bleeding prior to that? I suppose that's possible.

Q So you don't know if Rusty might – his hemangiomas might start bleeding during the procedure?

A They probably – my guess is that they – you know, I don't know, we don't know. You won't know that until, you know, if – if this – this if the execution occurs, but . . .

Q Could Rusty choke on his blood?

A Well, he would – so he could have bleeding after he's unconscious or before he's unconscious, and he could aspirate that blood. You know, I mean, that's entirely possible because that, you know, his – his hemangioma, we don't know what the – the course of that will be exactly. But, you know, that is a possibility, but that – but it may never happen either. I mean, it's possible that it would never happen. While he was awake, he would have a [115] massive bleeding that would cause him to choke on his blood, so . . .

Q Do you think Rusty's at an increased risk of bleeding from his hemangiomas as a result of execution procedure?

A I'm trying to think of a scenario whereby the – he – he would be at increased risk.

So could an increase in blood pressure cause that? In my opinion, unless it was a massive increase in his blood pressure, I don't think that it would, you know, affect it. I mean, his blood pressure was 144 over 100 when I examined him and I think it was very similar to, if not identical, to when Dr. Zivot examined him. You know, I – is it a [sic] increased risk, I – I think that was your question, yes, it is increased, but I think a small relative increase in his risk during the

execution protocol. Because, you know, he's going to be stressed, like anybody would be, if you're, you know, you have impending death. But I think that risk is – is pretty small.

Q Do you think it's relevant whether Rusty suffers any pain and suffering, notwithstanding the fact that he was going to die at the conclusion – that he would die at the conclusion of the execution process?

A Do I think it's –

[116] Could you repeat that question, please.

(Whereupon the record was read.)

MR. SPILLANE: I'm going to object to the form of the question. Because the doctor probably needs to know relevant to what.

BY MR. FOGEL:

Q Well, it's a very – I mean, we can start with that baseline question: Do you think it's relevant whether he suffers any pain and suffering?

A I think it is, from a – and I'm going to get off into a legal/constitutional area that maybe I don't have the expertise to, but I – any method of execution, for the most part, is going to involve some type of pain and suffering. So, you know, is it – is it relevant? I think it's only relevant if – if you think that it's going to – it's going to be more than what would be legally permissible, I guess.

So I don't want to say it's not relevant at all. But in – you know, in this particular case – and that's, of course, why we're here – I don't see the – the type of suffering, as you say, that we're talking about here, I don't see that as being any more or any less than what, you know, the suffering that he already has. I mean,

he already has symptoms; right? He already talks about, he – he – he has these gasping, choking, bleeding [117] episodes. So – and none of us can do anything about that. I don't see that that's going to be – marked the increase as a result of this execution process. So I'm not sure that answers your question, but – so I don't want to say it's irr- – you know, the suffering is irrelevant, but it's just – you know, I – I –

Q Well, you – you used the term "legally permissible," do you have an understanding, an independent understanding of what is a legally permissible amount of pain and suffering?

A I mean, I have sort of a – I guess, a layperson's understanding of it.

Q Right. And did you apply that in the context of your opinion here? Did you render an opinion on what would be a legally permissible amount of pain and suffering?

A No, I don't think so. I don't think I did that, I mean, I just looked at the amount of pain and suffering that I think that somebody would have in general with – with – with this protocol. Which, again, I mentioned, you know, you're starting an intravenous line, so that is painful or can be painful.

Within the setting of this particular individual, I just don't think that there is a – would be a marked increase in his pain and suffering, you know, preceding [118] the injection of the drug. But does that – I – I don't know what the – again, I have sort of a vague understanding of what would be sort of permissible, but I don't know – I mean, it is a – I guess a judgment call, in regards to, you know, what's permissible and what's not. But I didn't apply that in this particular case. I just sort of looked at the, you know, facts of the

case, you know, my medical and scientific background, determine how the drug's going to work, and would the drug work in – in the – its intended way.

Q So let's focus more specifically on the actual opinion that you rendered.

A Okay.

Q And if you go to paragraph 26 of your November 2016 report, so this will be Exhibit 1.

A Uh-huh. Okay.

Q And the paragraph starts, (reading):

> "It is my opinion, to a reasonable degree of medical and scientific certainty"

And then you list –

A Yes.

Q – five different –

And first, as a threshold matter, are all the opinions that you're rendering captured here, in [119] paragraph 26?

A I wouldn't say all of them. I'm sure I have other opinions in this – in my other report.

Q In your supplemental report?

A Yeah. But I probably – I probably have opinions that are in here that I didn't put in my conclusion, I think these are the main ones that I put in there.

Q Okay. And No. 3 is, (reading continued):

> "Injection of massive doses of barbiturates in this inmate would not inflict mild, moderate, or severe pain."

Did I read that right?

A Yes, I read that.

Q And let me ask you, what are the basis [sic] of this conclusion?

A For No. 3?

Q Uh-huh.

A Well, the injection process of actually injecting the drug, if done the way it should be done, which is with a well-functioning IV, that is not a painful process, to actually inject the drug into a well-functioning IV.

Q So you're assuming that there's a well-functioning IV?

A That's correct.

Q Does the fact that Rusty has a challenging or it [120] could be challenging to access Rusty's IVs, render it more or less likely that the IV would be well-functioning?

MR. SPILLANE: I'm going to object to the form of the question. I think he said it would be challenging to access his IVs, I think he means challenging to access his veins.

MR. FOGEL: Thank you for correcting me.

BY MR. FOGEL:

Q With that clarification, please go ahead.

A Repeat the question now that we've – or maybe you just want to repeat it then.

Q Sure. Because based on your prior – on your observations of Rusty, you concluded that it would be challenging to access his veins, does it make it more or

less likely that you would have a well-functioning IV line?

A It would be less likely that you would have success of get having a well-functioning IV line.

Q Does that at all affect your opinion at No. 3?

A No.

Q Why not?

A Because my understanding of the protocol is, that the drugs would not be injected unless there was a well-functioning IV, either a peripheral or a central line. So maybe some clarification would – was – should [121] have been added to that, but my assumption there, based on what I read in the protocol, is that you have a well-functioning IV. And having a well-functioning IV, either a peripheral one or a central one, the actual injection of the – of the drug would not inflict mild, moderate, or severe pain has [sic] I had written there.

Q Right. You're assuming, though, that there is a well-functioning IV line?

A I am assuming that, yup.

Q Now, at No. 5, you also say, (reading):

> "Any pain and suffering that he risks during an execution using Pentobarbital is not a greater quality or magnitude than a risk of pain and suffering that he currently experiences and the risk would end up a rapid unconsciousness from the injection of Pentobarbital."

A Yes.

Q What were the bases for that opinion?

A Well, he is suffering or, you know, he's having these symptoms as it is. He's having episodes of bleeding, he – he has episodes where he can't – he – he has – I can't remember the exact term that he uses, but airway closure and he gasps, things like that. Choking [122] sensations. And that, you know, those are going to – those will continue, you know, up to his death, probably. Whether it's by natural causes or by execution, I mean, this is a – that's nature of the hemangioma, I mean, his symptoms are not going to get any better. So he carries that risk all the way up to his death, whether it's natural or by execution.

And basically, the only way that he will – that suffering and pain and, you know, symptoms that he has will stop, will be when he, you know, during times when he's asleep; right? He's not going to experience those because, by – by definition he's asleep. Or when he's – achieves or when he's given the Pentobarbital or, you know, if he was – had to have surgery for something else and he was given, you know, those – those episodes, where he'd be unconscious, where he wouldn't have those symptoms. That's essentially what I'm writing there – or what I've written there.

Q Okay. Any other basis you relied upon in order to form that opinion?

A Not that I can recall.

Q And here, at paragraph 26, you also mentioned that you rendered some other opinions that would be set forth in your supplemental report?

A Uh-huh.

[123] Q Is that right?

Can you direct me to where I can find those opinions in your supplemental report?

A Well, opinions about what? Just all – any of my opinions?

Q What – what are the opinions? You said you had rendered some additional opinions in your supplemental report.

A Well, I think all of the paragraph that I've wrote in any supplemental report are opinions. I guess, I'm not sure what, specifically, you're –

Q Are there any conclusions –

A Oh.

Q – similar to how you phrased it –

A Oh, I see.

Q – in your opening report?

A Well, as we've discussed, I gave my opinion and assessment of his – my physical examination, my – my history and physical examination, which are shown on pages 2 and 3.

Q Uh-huh.

A My opinion assessment of his airway – or my assessment of his airway doesn't alter my opinion regarding the actions of the – of the Pentobarbital, which is that you've got rapid unconsciousness and [124] respiratory rest.

I gave an opinion about my – what I wrote regarding the Pentobarbital action in the prior supplement, and then I clarified – or in the prior opinion, and I clarified that in terms of action, adding the timeframe, along with the physiological responses to the Pentobarbital. And then even if there was bleeding in his airway after the Pentobarbital, that the – the inmate would be

unconscious and deeply unconscious, and unable to sense that bleeding.

And then I go on to talk about the –

Q So you're essentially just flipping through your report right now?

A I am.

THE REPORTER: Hang on. One at a time.

BY MR. FOGEL:

Q So you're flipping through your report?

A Yes.

Q All I was asking was, for you to identify if there's another section in your supplemental report –

A I see.

Q – that sets forth your conclusions similar to what you have done in your opening report.

A All right. I – I – I'm sorry, I just don't know how to answer your question. I mean, I'd have to go [125] word through word –

Q No. No, that's fine.

A Yeah.

Q You said you had rendered some additional opinions here –

A Oh, I'm sorry.

Q – in your supplemental report, so I was just asking you to point out what you had meant or what you were referring to.

A Oh, I see.

Q And what you were saying.

A Yeah. I – I talk about, for example, I clarified some issues around the action of the drug, how quickly I think it would work. You know, the physiological effects, why death occurs from the Pentobarbital. I – obviously, I refute some of the things that Dr. Zivot states, so –

Q Sure.

A – I'm not sure I actually –

Q Okay. Sure.

A I'm not sure I actually changed my conclusion –

Q I think we're on the same page.

A Yeah.

Q Okay. I think we're on the same page.

And I think that's probably a good point to – [126] you want to break for lunch at this point?

MR. SPILLANE: Okay.

THE WITNESS: Sure.

(At 11:55 p.m., the deposition adjourned for lunch.)

[127] (At 12:34 p.m., the deposition of Joseph F. Antognini was reconvened.)

BY MR. FOGEL:

Q Dr. Antognini, right before our break, we were talking about the opinions you've offered in this case.

A Uh-huh.

Q Aside from the opinions that are set forth in your two reports, do you intend to offer an opinion on anything else?

A I guess, if I was asked. I'm intending to write another report. If I mean, do you mean in the context

of offering something right now, more opinions? Or in . . .

Q At – at any point, between when you last submitted your supplemental report –

A Uh-huh.

Q – going forward to this moment, do you intend to offer any other opinions?

A There are some details that I think probably are worth explaining, relative to some of the drug-level issues that I talked about and I think are worthwhile understanding, that I don't think have been completely fully elucidated – or not elucidated, but fully described.

Q Right.

A So yes, I guess there are opinions and things [128] that I want to say that I haven't said yet.

Q During the course of today's deposition?

A During the course of today's deposition.

Q But you're – you do not intend to issue another formal opinion, be it, in a report?

A I don't have that intention –

Q Yeah.

A – but sometimes, I don't know what I'm going to be asked to do.

Q That's fine. Just asking about your present intention.

A Yeah. Okay.

Q Are you offering any opinions on the feasibility of lethal gas as an alternative method of execution?

A Do I? Or have I? Or sorry, what was the question?

Q Have you or are you –

A Or have I.

Q – offering any opinions on the feasibility of gas as an alternative of lethal injection?

A On my initial report, first one that is on – the one dated November 8th, I did offer an opinion, that's summary 23 of that report where I – so obviously, we're, not sure, aware of the some of the ethical issues around recommending one method of execution over another, I guess [129] that's an ethical issue for – for me, not so much for anyone else. But I did talk about the use of lethal gas and basically, I don't offer an opinion about one being better than the other, because I just think that – that my understanding of the use of a lethal gas, and obviously, there are many kinds of gases that can be lethal, that that would not affect the risk of an innate [sic], in particular, this inmate, suffering one way or the other, you know, suffering more.

Q Right. Are you aware that the state has taken the position that lethal gas is not that viable alternative to lethal injection?

A I am aware that – again, I'm sorry, I'm going to have to get into some legal terms that I've – I've heard and I think I have an understanding of them, but basically, that it has to be readily available – a readily available alternative, so what – whether you say that it's – I'm sorry, I'm – I'm going off on a tangent.

Q I don't – I don't intend to make this complicated.

I – are you offering any opinions on the viability of lethal gas as an alternative method of execution? I understand you've rendered opinions in terms of

whether it would be more or less painful in relation to lethal injection.

[130] My question is, are you offering any opinions in terms of its viability –

A Oh, I see.

Q – as an option?

A No, I'm not – I have no knowledge, really, about whether lethal gas is readily available or viable in this area or – or not, I have no idea what –

Q That's what I thought.

A Okay. Yeah.

Q Just wanted to be clear.

A Sorry, yeah.

Q No, that's fine.

Are you offering any legal opinions as to whether execution, in the manner as described, by lethal injection, would constitute a violation of Mr. Bucklew's 8th Amendment rights?

A Well, I don't really – I can't – I'm not in a position to offer a legal opinion, but I – I will say that I was – I did review some court cases, like Glossip, and they talk about – and then Baez, they talk about the issue around; you know, substantial risk, so – I mean, I do have that understanding, but I don't think I'm really offering an opinion, one way or the other, on that.

Q Okay. Are you aware of any errors in your reports?

[131] A Any errors?

Q Either, in the original or the supplement?

A Am I aware of any errors in my report?

Q If you're not aware of any –

A I'm not.

Q – right now, I'm not asking you to look.

A Yeah.

Q Just, is there anything that you want to correct?

A Maybe I should have thought about that question being asked, I wasn't – there are probably things that I would have said differently, I guess, to make it clear, but I don't think I have any errors, so to speak, in this report that I'm –

Q Just – just giving you an opportunity –

A Yeah.

Q – if there was something that you already identified that you wanted to correct.

A Okay. Well, I appreciate that.

Q And if the answer's "no," it's no.

Have you been asked by counsel to undertake any additional or supplemental analyses since you've drafted these reports?

A No, I did not. I was not asked of that, but I did – I did do it, I mean, on my own. I – for example, I found that article that I, again, will provide to you, [132] but I wasn't asked by Mr. Spillane or anyone else to –

Q Have you done any other – besides identifying that article, any other supplemental work or additional work beyond your supplemental report?

A Let's see, so I looked at that – let's see, I – I did review – I did look at some news articles on some, you know, art or [sic] executions that occurred in Missouri,

and some of which were actually written by some of the witnesses, and that's not mentioned in my report. So that – now that I think about that, I did look at that.

Q Uh-huh.

A So let's see, other analyses that I – no, I don't think so. I mean, there – my – my approach I'll be, you know, of course, I'm going to – I'm going to be upfront about any approach, I mean, there are certainly articles – for example, articles that – scientific articles, that I've looked at in my search for some information on this, that I didn't include in my report.

Q Uh-huh.

A And I don't think those articles influenced my – my opinion, because they weren't – they turned out not to be something that I could use or I thought was relevant to what – to what I was looking at. So I looked at those.

Q Right.

[133] A I mean, I don't have a list of those because I never used them, you know.

Q That's fine.

A Okay.

Q That's fine.

Did you have to make any assumptions in forming your opinions in this case?

A Yes.

Q We've talked a little bit about some of them already.

A Such as the speed of injection.

Q The speed of injection.

And what did you assume the speed of injection to be?

A My assessment – or my assumption is probably going to be around 1 ML per second, that's my – that's my assumption.

Q And that was based on –

A Just how quickly I inject drugs – or would inject drugs in a – in a human. In fact, quite frankly, I probably inject – if I were to – I inject drugs more quickly than that.

Q Okay.

A I mean, quite frankly, I do inject drugs more quickly than that, but that was sort of on the slow side, [134] I just made an assumption that it be on the slow side.

Q We also talked about having a – I think you called it a functional IV line?

A Yes.

Q A well-functioning IV line?

A That's –

Q You made an assumption that would be true?

A Yes, that's true. I – I assume that an IV has to be functioning, well-functioning.

Q Any other assumptions?

A Well, on – we assume that the individuals that do this are trained –

Q Uh-huh.

A – and that they've, you know, they've done this before. Or – or obviously, may be the first time for somebody, it's got to be the first time for somebody, at some point in their life. But in general, these individuals are going to be trained in the various techniques that need to be used, so make that – I had to make that assumption.

Q For example, when we saw on the open protocol that it referenced –

A Yes.

Q – you know, provided there are, you know, sufficient expertise or trained individuals.

[135] A Yes. That's what I'm referring to.

Q Okay. Anything else – well, let me –

A Well, and the drug has to be effective; right? It has to be Pentobarbital. I mean, you assume it's going to be Pentobarbital, so you have to – I mean, those types of assumptions, you have to make.

Q Uh-huh.

A I mean, there might – I'm probably sure there are others, I just, off the top of my head, those are the ones that come to mind.

Q Have you met the execution medical team?

A No.

Q Are you familiar with –

A I mean, I don't know – I mean, I have not. I mean, to my knowledge. I mean, right? I was in Missouri –

Q Yeah.

A – for – for one reason or another, a couple times recently. Once, to examine the – the – the inmate, and

then to – for other business. I could have met them, but I wouldn't have known it.

Q Are you familiar with their training?

A I understand that one of them is an anesthesiologist, and I believe there's a nurse involved, and there might be a – maybe a paramedic or something, [136] I'm not sure. I'm not sure about the exact competition [sic] of the execution team. Except, I think one's an anesthesiologist, and one's a nurse – and I'm not even sure they're actually involved in the – I mean, I guess you have a question, what does "involved" mean? But I think they are a part of the team.

Q And you assume they had sufficient medical training and experience?

A Yes.

Q As we've discussed?

A Yes.

Q Okay. Are you also assuming that the execution team, including the medical staff as you described, would be familiar with Mr. Bucklew's medical condition being cavernous hemangioma?

A Yes. I – I – I assumed that. And my understanding, I believe Missouri does a pre-check of the inmate beforehand, so they – they review the – the clinical history. I – I think. I may be wrong about that, I don't – that's my recollection. So they certainly would know about it, but that's my assumption as well.

Q When you say "they," you're referring to the execution team? Or the medical members of the execution team?

[137] A I don't know who is reviewing what. But my understanding is, that there was a review of that process.

Q Right.

A But –

Q But you don't know what information is actually provided –

A No.

Q – to the medical team?

A I do not know that, no.

Q So you're assuming that they're given a sufficient level of knowledge needed?

A Yes.

Q Let me ask you: In your personal experience, what information do you deem important regarding a patient before you administer an anestnetic?

A So we do a thorough history and physical, and we look at – I mean, it's focussed in the sense that we do look at particular organ systems, and – and – and review of – of – of systems. So for example, I'd be interested in knowing their exercise tolerance, what medications they're on, I'd be interested in knowing what their prior experience with an anesthetic is.

During the – the physical examination, I'd be looking at their vital signs, their weight, I'd be looking at their airway, listening to their heart and lungs. So [138] those are the things that I would be focusing on, I mean, that's not everything, but that would be a lot of what I would be focusing on.

Q You, personally as the –

A As –

Q – as the individual administering the anesthetic; correct?

A Correct.

Q And why would it be important for you to become familiar or knowledgeable with that information?

A Well, it impacts what type of anesthetic we use, what the risk would be to the patient. You know, managing the airway, it's just good practice to – to – to do that, because I – you know, another example – or another thing we look for is, a drug allergy; right? You might be allergic to some of the drugs that I want to use, so I have to get that information as well.

Q Are you assuming that all the information that you just described would be available to the medical execution team?

A Yes. I – based on my understanding, I assume they – they would – they would have that information. Or somebody on the team would have that information.

Q Somebody present for the –

A Present, yeah.

[139] Q – execution?

A That's why, in my assumption. I'm not sure that it makes a big difference, though, but that's my assumption in terms of how the execution is carried out.

Q Do you know what a gurney is?

A Yes.

Q What is a gurney?

A It is a – basically, a – a bed with wheels – a small bed with wheels, with a mattress on it, that a – a patient would lay on. If they're waiting to have a procedure done, they're waiting in the preop area before surgery, things like that, yeah. And it has wheels on it so you can wheel them around.

Q What is your understanding of the use of a gurney in the context of Missouri's execution protocol?

A I don't know what they use, if they have a gurney, if they have an OR table. I've – I've seen a picture of it from the internet, I think. I don't know whether – I don't think it's a gurney, but I'm not – I'm not sure. I thought it might be an OR table, but I'm not positive, or a procedural table, I don't really know, I don't recall.

Q Whatever device or sorry, not device –

A Yeah.

Q – whatever structure, whether it be an OR table [140] or a gurney –

A Yeah.

Q – that an inmate would be lying on during the course of the execution, did you make any assumptions regarding whether that gurney or OR table is adjustable?

A I did assume that it could be adjusted so that someone could use it in the sitting position or semi-recumbent, semisitting position. Again, based on my understanding of and experience with gurneys, I mean, almost all gurneys are going to have the ability to sit somebody up, and all OR tables, likewise, have that. So I did assume that would be the case in – in – in Missouri.

Q You – you don't know for sure?

A But I don't know for sure.

Q You don't know for sure; right?

A I don't know for sure.

Q If you found out the gurney was not adjustable, would that affect the opinions that you've rendered in this case?

A No, I don't think so. You wouldn't have to have an adjustable table. I mean, if you needed to sit somebody up, you could do it in other ways besides having a gurney that didn't sit up. You could use a lot of pillows or you – you could use other devices like that.

For that matter, you could use a chair, quite [141] frankly. I didn't see any reason why a chair wouldn't, you know . . . if you wanted to anesthetize somebody, you could do it in – in a chair. I mean, we wouldn't do that clinically. Again, I'm not sort of rendering an opinion about what Missouri should do, but, you know, certainly, in the clinical setting, you could anesthetize people in a sitting position.

Q Is somebody in a clinical setting, when they're anesthetized in a sitting position, are they strapped into the chair?

A Well, we wouldn't use – I – I said chair, and you could do that, but you never would do that clinically. Except, I guess, in – if it's in a dentist chair. I mean, that's not really a chair like I'm sitting in right now, but you could anesthetize somebody in a chair like that. And I apologize, I'm not sure I – what was the question?

Q Do you have an understanding – let me ask a different question: Do you have an understanding of whether the inmate is to be strapped down during the course of the execution?

A I believe – or I assume that they are strapped down, because I've seen straps on these things, on these gurneys or tables or whatever they are, based on the pictures I've seen, and there are straps. So my guess is, [142] that they are strapped down for the, I guess, obvious reason that, they would pull the IV out if they, I mean, almost anybody would that [sic] if they knew they were going to get a lethal injection.

Q If it was determined or if you determined that the individual was required to be in a supine position, so a flat position, would that affect your opinion that you rendered in this matter?

A If – if the – Bucklew was required to be in the supine position, and he does state he has worsening symptoms – his symptoms are worse when he's lying supine, you know, than when he's awake, then if – and he says that his symptoms are worse when he's awake, when he's lying supine, then, yeah, laying supine would be potentially a problem for him.

Now, having said that, he was able to tolerate an MRI, he was supine for more than an hour, he said. So he is able to – to lie supine.

Q Who said that he was able to tolerate lying in a supine position for the MRI?

A He did, when I examined him. I didn't say that in my report I don't think, but there it is, he did say that. I'm not sure if I said that or not. I think it's somewhere in –

Q So we talked earlier and now we're looking, to [143] state for the record, we're looking at Exhibit 2, your supplemental report. And this contains your summary of your examination of Mr. Bucklew, can you point to me where –

A Yes.

Q – in your summary he told you –

A So –

Q – that he was lying –

A – in paragraph 7, it says – I – I quote Dr. Zivot in his publication, and I write, (reading):

> "Bucklew can, in fact, lie flat, according to the inmate, he did so for about one hour while undergoing his recent imaging studies. While he stated he was not comfortable, he was nonetheless able to be flat."

Q So when you say "the inmate," are you referring to Mr. Bucklew there?

A Yes.

Q Well, of course, when Mr. Bucklew was undergoing the MRI, he was conscious; correct?

A Yes.

Q Is that – did you take that into consideration when considering whether Mr. Bucklew could make certain accommodations to handle lying in a flat position?

[144] A Yes. I mean, obviously, if he needs to adjust – and he said that, he needs he needs to be able to adjust his breathing pattern, when – I – that's my – kind of my term that I use, I'm not sure exact words

that he used, but to adjust his breathing pattern essentially to be able to tolerate that.

Q Adjust his breathing pattern, how so?

A Well, if – if he felt as though he was – maybe his uvula, which, of course, is involved with a hemangioma, was getting stuck in the back of his throat, he might be able to position that in some way that he would be able to minimize that. However, with the MRI that was performed on the – the imaging studies that he – that are performed, obviously, of his head, his head has to be pretty motionless, you know, he has to keep still, so it didn't require much – I mean, he couldn't be moving a lot to be able to do that, because you wouldn't be able to get a good image study.

So I just don't see – I mean, again, if he said, "I was able to – to lie flat, and it wasn't comfortable, but I was able to do it," then I have to imagine, if – if this – if he was suffering – had incredible amount of suffering from lying flat, he would not be able to – to do it. And they would not have been able to do the MRI study or the other imaging studies as well.

[145] Q You did not, personally, observe Rusty lie flat during the – during the MRI; is that right?

A No, I did not.

Q Do you have any other basis for your conclusion aside from what Rusty – you said Rusty told you during the examination?

A Yeah. I – I thought Dr. Zivot said the same thing, but I'd have to refer to his report to see maybe I mis- – maybe I don't know that. You know, but I thought he said essentially the same thing.

If we have Dr. Zivot's report somewhere, I could –

Q We do.

A – look at that.

MR. FOGEL: We're at 6.

(Whereupon Exhibit 6 was marked for identification by the court reporter and is attached hereto.)

THE WITNESS: And this would be his supplemental report.

BY MR. FOGEL:

Q Is that right?

A Right. I could be wrong about that, but I thought I might have seen –

[146] Q That's why we gave you the report.

A Yeah. Too bad we didn't have this as a – I know we have it as a PDF, you could search for the word, it would be a lot faster. Okay. So – all right. Let me go back this way.

Q And doctor?

A Yes.

Q Is your recollection or what you might be looking for, that Dr. Zivot said that he – Rusty lied flat during the MRI, is that what you're saying?

A That he lied –

Q And –

A That – that – my – my recollection was that he made a statement, similar to mine, which is that, yeah, he was able to lie flat, but he wasn't comfortable. He probably didn't use those words, but my recollection may be wrong, maybe he didn't say that at all. I mean, he just – I'm trying to find the spot where he

talks about the – the MRI was – showed that the mass was smaller.

Okay. He reported, (reading):

> "Experiencing extreme discomfort during the procedure. In order to maintain the integrity of his airway while lying flat, Mr. Bucklew was forced to consciously alter his breathing [147] pattern and swallow repeatedly to keep his uvula from settling and completely obstructing his airway in order to avoid checking."

Bucklew did not report to me or say extreme discomfort. So –

Q That last sentence you just said, are you reading from Dr. Zivot's report? Or are you just –

A From – sorry. So I read from No. 7, on page 8. Where – where Dr. Zivot asked Bucklew to describe his experience during the MRI procedure. So –

Q Do you think Mr. Bucklew would be capable of doing, as he told – excuse me, Dr. Zivot during the execution process? Meaning, consciously alter his breathing pattern and swallow repeatedly to keep his uvula from settling and completely obstructing his airway in order to avoid choking?

A He would be able to do that when he's awake. But once he's received Pentobarbital and he's unconscious, he's – he's not capable of doing anything. But it wouldn't be necessary for him to be able to clear his airway because he's not going to sense any type of blockage.

Q Sure.

A Yeah.

[148] Q And I understand that's another part of your opinion, which well get to later, but –

A Right.

Q – just, there is a distinction, do you agree, between when Mr. Bucklew is conscious during an MRI procedure versus the execution protocol – under the execution protocol, when he's administered Pentobarbital? In terms of his ability to manage his airway.

A There is a difference in a sense that, obviously, an individual who's about ready to die is probably going to be stressed. But I don't know what other difference there would be, I mean, I don't know how to address that issue about him having an MRI or having, you know, lying flat for – for an execution in terms of, you know, the difference between his ability to maintain his airway.

Q Well, you were drawing a comparison. Because we were talking about whether the gurney –

A Right.

Q Assuming it's a gurney. Whether he's lying flat and what that might mean in terms of his ability to manage his airway, and what pain and suffering he might suffer or endure. And you said, drawing upon your examination, that because he was lying on an MRI table for an hour, you thought it would not be an issue?

A That is correct. That he – so –

[149] Q And – and – sorry.

A So the question that I'm thinking in my mind or to answer your – your question about this is that, can Bucklew lie flat for an extended period of time? And in this case, we'll make it an hour, because that's

apparently how long he had to lie flat for these exams. And, yes, he could do that. Was it comfortable for him? No, it wasn't.

He described it not being comfortable, but he was able to do it. So could he do that on an execution table, would he do it on an execution table? I don't know. I mean, my guess is that – my opinion is that he could do it if he wanted to. On the execution table, he could maintain his airways, just like he did in the MRI scanner.

Now, the question is, would he want to? I don't know. I mean, his alternative is that he's going to choke while he's awake, but that's something he's going to be doing on his own. But clearly, he's able to – to maintain his airway lying flat, because he did so on the MRI exam.

Q Under extreme discomfort, do you dispute that he experienced it under extreme discomfort?

A I dispute the term "extreme," that's not the way he described it to me. He, being Bucklew.

Q Do you agree that lying in that position causes [150] stress?

A For him, lying – lying flat, yes. That would increase his stress level, because he has to focus on his airway management basically.

Q Does it make it more difficult for him to breathe, lying in the supine position?

A Compared to a semirecumbent or sitting position, yes.

Q Okay. Do you consider an execution a medical act?

A No.

Q How is a physician's practice applicable to the execution setting?

A A physician's – say that? A physician's –

Q Well, we've – you – you've referenced the clinical setting –

A Yeah.

Q – a handful of times today. How is that different than an execution setting?

A Well, obviously, many things that are done in an execution setting are things that we've done in a clinical setting, so start an intravenous line, if we have to start – if they have to start a – a central line, those are things that we do clinically. Clinically injecting the drugs.

[151] But some of those things we would do in a clinical setting, you wouldn't do, I guess, based on my understanding, in the execution setting. So you wouldn't – you'd give a much larger dose of the drug, you wouldn't resuscitate them and so forth. You wouldn't breathe for them, that kind of thing.

Q So there are some things that happen in the clinical setting that are not applicable to the execution setting and vice versa?

A Correct.

Q Can you look at Exhibit A to your November 2016 report? It's Exhibit 1.

A Uh-huh.

Yeah.

Q And is Exhibit 1 your curriculum vitae?

A It is.

Q Or your CV?

A Yes. Uh-huh.

Q Is this accurate? Are there any changes that need to be made?

A To my knowledge, it's all accurate. I am still, to my knowledge, a – a voluntary clinical professor of anesthesiology at UC Davis. I haven't been told otherwise. I currently work part-time for the joint commission . . .

[152] Q So you did not include a CV with your supplemental report?

A Yeah.

Q So this is –

A That's correct.

Q – the true and correct version?

A Yes, that's correct. It has not changed since then, so . . .

Q Now, it says from September 16 – excuse me, September 2016 through present, and I'm looking under professional positions –

A Yes.

Q – on the first page of your CV, you're a physician's surveyor –

A Correct.

Q – is that right?

A Yes.

Q What – what is – is that?

A So the joint commission – what the joint commission does is, they survey hospitals. So they go

to hospitals and they look at different processes, and there's usually a group of three to four to five people that do that, and usually it's a physician that's in – at least one of the individuals is a physician. And they might look at certain things that would only apply to his [153] sort of physician-involved activities, and so that's what I – I do. I might survey parts of a hospital that a nurse would survey, but there are some specific areas where only the physicians survey. So they hire physicians to do that.

Q And what exactly are you surveying?

A As a physician?

Q Yeah.

A So I might go in to the operating room and watch their processes of how they manage their instruments, how they – there's something that's called a timeout, where you're supposed to take a time out and you identify the patient before the procedure, you know, the right – is it the right patient having the right procedure, that kind of thing.

So you make observations of their practice, doing things like that. It's – you make observation [sic] of how patients are taken care of in the intensive care unit, so you might look at some orders and say, "Well, the physician ordered such and such, did the nurses follow those orders?" So it's really more around looking at processes, some of these clinical and operational processes –

Q Sure. You, yourself, though, are not operating –

[154] A No, I am not.

Q – on a patient?

A No, I am not.

Q Got it.

A No.

Q Are you operating – or currently –

A I am not.

Q – practicing as an anesthesiologist in any capacity?

A I have not anesthetized anybody since December of 2015, so it's been over a year. So I'm not clinically active right now.

Q Are you retired?

A From the clinical practice of anesthesiology, I retired. I'm not doing it. Will I return to it? Never know, but right now, I'm not doing it.

Q Why did you retire?

A Mostly personal reasons. So we have a son that moved down to Escondido area, we wanted to be closer to him, there was a time in my life where I could do that, so I just – financially, I can do it, so I just decided to stop practicing.

Q Is there a – do you have a medical license?

A I do.

Q Is your license currently active?

[155] A Yes.

Q Ever been suspended?

A No.

Q Are you currently a professor of anesthesiology?

A My title is voluntary clinical – where is my CV here. Have to pull it up. I believe that's the accurate title: Clinical Professor of Anesthesiology and Pain

Medicine. And it's a voluntary clinical faculty appointment.

To my knowledge, that's still active, I haven't been told otherwise by UC Davis. When I was there the last couple of years, that was the title – the – I had the clinical professor part, but the volunteer part was only made once I – I retired and became a volunteer, basically. So I think that's an accurate statement. And the reason why I may be a little bit equivocated on that is, because, you know, if you were to call UC Davis and say, "What's Dr. Antognini's title?" Sometimes the – it might be professor of clinical anesthesiology and pain medicine, not clinical professor. And some of these series are a little bit confusing about that, so I think I have that correct.

Q Are you compensated for –

A No.

Q – for your position at UC Davis?

[156] A I am not.

Q Are you compensated for your work as a physician's surveyor?

A Yes.

Q Aside from that, do you receive any other – what are your other current sources of income aside from, perhaps, passive investments?

A I have done work, obviously, for the State of Missouri. I've worked on other cases, which I described. Which, for example, the case in Ohio. And then I did some work for the State of Mississippi about a year ago. Similar lethal – lethal injection issues, and then I also did some – a – legal work or expert witness work for the – for a hospital in California that was

being – it wasn't being sued by a patient, but it was – it was being basically fined by the State of California because of something that happened, and I represented – I was the expert witness for the hospital in that – in defending that.

Q Was that an administrative proceeding?

A Yes.

Q Before the N-L-R-B?

A No, I don't think it was that. I'm not sure, it was a State of California administrative hearing of some sort.

[157] Q It was an administrate [sic] hearing?

A Yeah. It wasn't –

Q You said work you've done for the State of Missouri, have you have done work for the State of Missouri outside of this expert retainment?

A No, I don't – no. No.

Q I just wanted to clarify what you said.

A No, I have not.

Q Okay. So let's talk about the work you've done in connection with the Ohio matter.

A Yeah. Uh-huh.

Q And did you serve as an expert witness –

A I did.

Q – in that case?

A I did, yes.

Q And what opinions were you asked to – or what opinions did you render in that case?

A Basically, the – the – there are a lot of opinions that I did render through the course of that work, but essentially, the – the main opinion that I rendered was whether the dose of Midazolam that they were going to use, which is 500 milligrams, was sufficient to produce unconsciousness to the extent that the inmate would not experience or be – be conscious of the other two drugs that are administered, which are a paralytic, [158] and then potassium chloride. That was basically what I was asked to – to render an opinion on.

Q And what was your opinion?

A My opinion was that the – that dose of Midazolam was sufficient to render an inmate unconscious, to the extent that they would not be aware and – and have the sensations of the two drugs, that is the pain associated with potassium chloride, and then also, the paralytic drug.

Q You said the pain that's associated with potassium chloride?

A Yes.

Q That chemical can cause pain in an individual when it's administered via an IV line?

A That's correct.

Q And so your opinion was, because the patient is unconscious at that point, they would not experience any pain?

A Yes. The inmate. The inmate would be unconscious and would not experience any pain. Which, as I said earlier, pain is a conscious awareness of a noxious stimulus.

Q How long, in that context, would it take to render the patient unconscious from the administration of Midazolam?

[159] A Midazolam?

Q Midazolam.

A M-I-D-A-Z-O-L-A-M.

Q How long did it take to render the patient unconscious after the administration of Midazolam?

A We did not – I do not recall if I made any opinion about how long that took, quite frankly. I – I'm not sure I rendered an opinion on that. I'd have to review my testimony and all that.

Q You just rendered an opinion of whether or not they would be unconscious?

A I did. I could have said also, how quickly it would happen, but I don't – I'm not sure that I actually asked made a statement in regards to how long it – it would take. I'd have to review my testimony and my – my report there.

Q Is Midazolam a barbiturate?

A No, it is not.

Q Are there any similar characteristics between Midazolam and Pentobarbital?

A They both work with the GABA receptor; although, their actions at the GABA receptor, they work at different sites of the GABA receptor, based on my understanding. So even though they both work at the GABA receptor, doesn't mean they both function in the same way. In fact, they do [160] have – they are dissimilar in terms of the effects that they do produce, because of that. What was – there's more – I'm going

to answer more, but I want to make sure that I've got the question. What was the question?

Q I was asking if there were any similarities between the two drugs. And I think you probably have gotten to that question.

A So yeah, there — so there's that similarity. I – as I said earlier, I believe they can both produce unconsciousness. Now, can you get deeper levels with Pentobarbital than you can with Midazolam? The answer is, yes. But I – my opinion is that the level that you achieve with Midazolam is sufficient for what its intended use in that setting.

Q So explain that to me.

Deeper levels, are you referring to deeper levels of unconsciousness?

A Yes.

Q So –

A And it's –

Q Are there various levels of unconsciousness?

A Yes.

Q What does that mean? Or tell me about these various levels.

A So you could think of consciousness as being on a [161] spectrum. So we're all awake right here; although, I can see some of you may be nodding off a little bit. But I'm not a charismatic and energetic kind of person, but anyway, that's why I'm an anesthesiologist; I put people to sleep.

But there's a spectrum. So we're all awake. And then you have basically on the other end of the spectrum, deep coma, where someone could be brain dead,

basically. So there's different levels of consciousness across the spectrum. So what do I mean by that? So for example, someone may be fallen asleep, and you may say, "Larry, wake up." And you don't wake up, but then I nudge you and you wake up. As you get into deeper sleep, even a nudge may not wake you up, I have to really shake you; right?

With drug-induced unconsciousness, there's a spectrum and you get into levels where even shaking and noxious stimulation, you don't get any response. So you can assign consciousness according to that scale, and most people would define unconsciousness as occurring when they fail to be aroused from a non-noxious stimulus.

Now, that's arbitrary, which I think came out in the – I'm not – I think that's, you know, some people might say it's, you know, you have to – if – if they arouse with a noxious stimulus, that would be sort of the line between conscious and unconscious, so there's some [162] arbitrariness in that. But it's a spectrum, so when people throw this term around, of unconsciousness, it's not an all or none thing. It's not like you're conscious and you're unconscious, it's really a spectrum. And I think that's where a lot of the issues come up about how we apply these issues – this type of knowledge to this setting of lethal injection.

Q Did you specify where, on this spectrum, Mr. Bucklew would be, when you state that he would experience rapid unconsciousness?

A I did not specify. I may have used the term coma somewhere in there, I don't remember if I did or not, but . . .

Q I – after reviewing your report, I don't recall seeing the word coma?

A And you don't want me to go through it again.

Q Well, I guess the more fundamental question is, do you know where Mr. Bucklew would be on the spectrum of unconsciousness?

A He would be at the far end, basically brain dead. I mean, he wouldn't – at that dose of – of Pentobarbital, you would – I – I'm going to backtrack a little bit here, just to – to clarify one thing:

So when you give a huge dose of Pentobarbital like this, again, based on my understanding of how it's [163] given and all that, and I've never done it myself, but one of the, you know, bar – barbiturates do decrease the blood pressure, so you're going to have a huge decrease in the blood pressure in somebody. That's sort of separate in a way from the unconsciousness that occurs from a drug.

If you could maintain their blood pressure at this large dose, you still have deep coma, like a brain-death type of coma, where the brain is silent, neurons are not firing, the EEG has flat lined. So Pentobarbital at this dose would – I mean, even at a fraction of the dose would cause that type of picture. So Pentobarbital, you'd be at the far end of the spectrum. No question about it. Where there would be deeply unconscious comatose brain-dead type of picture.

Q Do you know how much Pentobarbital would need to be administered in order reach that level of unconsciousness?

A Probably my guess – so – so – I'm – again, I am – I have never used Pentobarbital as an induction agent. To my – my recollection, I've never used it as an induction agent. When I use that term, I mean if I were to take you and you were going to have surgery,

and I'm going to induce anesthesia, I – I would not use Pentobarbital.

The closest I've ever come is Thiopental. But [164] Pentobarbital and Thiopental are very similar in terms of their doses for that purpose. So when I, you know, if I give 500 milligrams of Thiopental to somebody, you can achieve these – at least transiently, you can achieve that deep level that I'm talking about. So I think with Pentobarbital, 500 milligrams, you can do that as well. But of course, they're – they're giving 5,000 milligrams, so that's why I say a fraction of the drug would – would get you to that endpoint.

Q Right. But you don't know when or how much or how long it would take?

A I don't know – I don't have any firsthand knowledge, no. I have had to – as I – I said earlier, I've had to piece together some information that I pulled from the literature.

Q So you're – these most recent questions have focused on, I suppose, the far-end of the spectrum, when we're talking about this deep level of unconsciousness. And it's your opinion that the individual does not experience any pain or suffering at that level of the spectrum because they cannot experience an emotional response.

Do I have that right?

A That's correct, yes.

Q And what about closer to the other end of the [165] spectrum? Can individuals still experience pain and suffering under your definition?

A Well, it depends on where you want to put them on that spectrum. So yes, it could be, you know, if you have awake on one end of the spectrum and a coma,

deep, deep coma, brain death on the other end of the spectrum, somewhere – somewhere along that continuum, people are going to be able to experience suffering and pain.

Q Yeah, sure.

A I don't know where that is exactly, and it kind of depends on your definition.

Q So if Mr. Bucklew was not in this deep level of unconsciousness, yet was somewhere else on the spectrum, it's possible he could still –

A Yes.

Q – be experiencing some pain and suffering?

A Yes. But as I pointed – yes, that's true.

But as I pointed out, he's not going to be on this end of the spectrum, he's going to be on the very far end. That's my opinion.

Q Understood.

A Yeah.

Q Now, on this – closer to the awake end of the spectrum, would a person who – appear unconscious to someone, even though they're not, in this deep level of [166] unconsciousness?

A They could appear to be unconscious, yes. Because unconsciousness, you know, you – you look at consciousness – if you're going to take a strict medical scientific approach to it, you just don't look at the person, you'd have to do other things to, you know – you know, you might nudge them and that kind of thing and see if they wake up or not.

Q Right. So just the naked-eye observer wouldn't be able to determine whether the drug had taken full effect simply from just observing?

A Right.

Q Okay.

A So just an example: If you were to close your eyes right now, I have no idea whether you've closed your eyes and you're awake, or whether you've fallen asleep. I mean, I don't know.

Q Would you say the same is true for a nonmedical person, who is observing somebody during the execution process?

A Yes.

Q Okay. Have you ever witnessed an execution ever?

A No.

Q Have you ever worked for the Missouri Department of Corrections?

[167] A No. I mean, I don't know what this relationship –

Q Outside of this current –

A Yeah. No, I have not.

Q – working relationship?

A No.

Q Have you ever been consulted or ever worked for any states' department of corrections?

A No.

Q Ever consulted on the drafting of an execution protocol?

A No.

Q The use of chemicals for lethal injection?

A No.

Q Feasibility of an execution method?

A No.

Q Do you have any views on capital punishment that were germane to the opinions you rendered in this matter?

A I have ambivalence about it. So my ambivalence, there's three – I think, I'm balanced; I'm against the capital punishment and it's primarily – so I have three basic prongs of my approach to this: Two are religious and one is a sense of fairness.

So on a religious perspective, yeah, the Old Testament, which basically – if I may paraphrase, an eye [168] for an eye, and a tooth for a tooth; and then you have the New Testament, where Jesus says, you know, "Be forgiving," so I – I do struggle with that morally and as a Catholic.

And then, from a sense of fairness, I know that there probably have been individuals that have been – that are on death row that may be innocent. So I think that's the most – the strongest feeling I have about my feeling on capital punishment that – I think that's the – fundamentally, the most unfair thing that a government can do is, to take the life of an innocent person. So those are sort of my – that's my perspective on capital punishment, but . . .

Q And it – sorry, go ahead. I was going say, I don't intend to probe –

A Yeah.

Q – the – your personal –

A Okay.

Q – perspectives here, but I'm just curious to the extent that they were germane to the opinions you rendered in this case.

A No, they weren't – they weren't germane. I mean, I think that one of the main – the main things that has driven me to, you know, to – to testify in these cases is, that the – basically that, you know, you're – you're representing the – the defendant, or, I guess, the [169] plaintiff in this case, and – and I represent the – am an expert witness for the defendant –

Q Huh-uh.

A – which is the State of Missouri.

Q Yeah.

A So I – out of a sense of fairness, I mean, if I were to ask the question of somebody, and I sort of played with this in my mind about, you know, do you believe that a defendant has the right to adequate counsel? And do you believe that a defendant has the right to expert witnesses? I think we'd all say yes.

Well, in this particular case, the defendant is the State of Missouri, so I feel that they need have some type of expert represent- – representation to be able to make their case. So that's the other thing that drives me – why I would – I would do something like this.

Q Aside from the Ohio case and this present matter –

A Right.

Q – you also mentioned the Mississippi case?

A Yes.

Q What opinion did you render in the Mississippi case?

A Basically, the same as I did in Ohio. It's essentially the same type of information – or the same [170] type of questions. You know, does Midazolam render somebody unconscious to the extent that they would not be able to perceive the effects of the other two drugs. It's been a long – it's been over a year since I was involved with that case, so I – you know, I can't remember exactly everything I said, but that's the gist of it.

Q And what was your opinion?

A Well, that Midazolam would produce a level of unconsciousness that would render the inmate incapable of sensing the effects of the other two drugs, sensing in – in the sense of –

Q Experiencing pain?

A – experiencing pain and so forth, yeah.

Q So very similar to the opinion that you rendered in the Ohio matter.

Are there any other cases that you rendered an expert opinion on, that relate to capital punishment?

A I don't – no, it's been Mississippi, it's been Ohio, and then now Missouri, so I don't – no.

Q Have you ever rendered an opinion where you concluded that the inmate would not ex – would experience pain?

A In – in those three cases – those three? Or any?

Q Either in those three cases or in some other [171] matter.

A Do you mean in a legal setting? Or just in general about discussions around capital punishment?

Q Let's start, first, with the legal setting.

A No. I've not been provided any opportunity – I've never had – you know, it's only been in those three cases about –

Q What about outside of the legal setting?

A Well, I guess, you know, there's – we – I've had discussions in – in various social settings about capital punishment, but I don't remember anything specific about that, and I didn't – so . . .

Q Have you ever had your opinions challenged as being inadmissible under Daubert or a related doctrine?

A I'm – I'm not familiar with that, so I don't know whether anything I've admitted or anything that I've said has been inadmissible. Do you want to –

Q Do you know what the Daubert motion is?

A No, I don't think – I might, but I – I can't tell you off the top of my head.

Q Are you familiar with the concept of challenging an expert's report as inadmissible?

A Yes. Yeah.

Q Are you aware of a report – a judge ruling that any opinion that you've submitted in a matter was [172] inadmissible?

A My specific opinion in a case?

Q Uh-huh.

A No. I mean, I know that I – certainly, with the Ohio case that I just testified at, there – there was

a challenge by – well, I'm not sure – I'm not sure challenge is the right word. But, you know, we went through the usual thing, where I was asked questions about my background, and – and the attorney for the State of Ohio said, "I'd like to stipulate," or whatever word that was used, I forgot what words that you guys use, but admit Dr. Antognini as an expert witness, and there was no from – from the other side. And then I gave my testimony.

And then when I was being – under cross-examination, they brought up the issue about my CV, I'm retired, and, you know, walked through that issue about how they – you know, obviously, they were getting at the issue of can I give expert testimony when I'm retired, which I think I can. But you'll have to decide for yourself, and the Court will have to decide that.

Q But are you telling me that no court has ever ruled –

A As far as I know.

Q – your opinion as –

[173] A As far as I know.

Q Okay. So going back to your materials reviewed and your November 2015 report, Exhibit B.

A Okay.

Q Let me know when you're there.

A Yes.

Q Who's – who selected the documents for you to review?

A These were documents sent to me by Mr. Spillane.

Q Did you ask for anything beyond what's listed here as well as under your materials reviewed in your supplemental report?

A I – I – I don't know, I mean, I probably did ask for some things. But off the top of my head, I'm trying to think what – what they might be. Well, for example, I mean, one thing that comes to mind, is that I was – I was asked to – I shouldn't say – Dr. Zivot refers to a scan that was done in 2005 on this inmate, and I don't think that I was ever sent the results of that scan, but he apparently had access to it, and I was never about to find that – the results of that scan.

And I asked Mr. Spillane about that and I don't think he's been able to find it either. Now, there are over 5,000 pages of medical records that were sent to me. So, again, I told you I was a numbers person, I'm [174] thinking, "My God. There's a lot of these," so I counted – I mean, I didn't count them, but you do it in PDF, so there's over 5,000 pages of medical records, so I guess it could be in there, but I didn't see it and he couldn't find it. So that was one thing that I – I –

Q Anything else?

A Let's see here, so I was interested in what happens during the execution, itself, is there any medical – not medical. Is there any information about the execution, itself, that would provide guidance to – to me, but I was not provided that information, you know, I don't know whether they – what they do in terms of taking records.

I mean, sometimes I think my understanding is, that they – I don't know what happens in Missouri. But I do remember, I think, seeing from the other cases they had or someone provided me with some notes on Florida executions, and I – I – I'm sorry, I

don't remember if it's from Ohio, from Missouri, or where it was, but that made me think, you know, is that a type of information available, and I was not provided any information. So I, you know, maybe you don't take that information, I don't know.

Q You – you did receive and review Missouri's open protocol; correct?

[175] A Yes.

Q Are you aware that Missouri also has a closed protocol?

A Yes. I did not know until I think you used that term this morning, about open versus closed. I know that there's more to the protocol than what I was provided, but I've not been provided the protocol – the – the closed protocol.

Q Did you ask to review the closed protocol?

A No, I didn't actually. I did not ask for the closed protocol, as far as I – I recall. And I think primarily because I had sufficient information with the open protocol to render my – my opinion. Although, maybe the closed protocol has some information, like the rate of injection, that would have been useful to me. But anyway, I was not provided that information.

Q So is your awareness or understanding of the execution process that Missouri limited to what is in the open protocol?

A I'm trying to think, is there anything – any other information that I received about the process. I think so, I mean, I'm thinking, maybe, there might have been something that Dr. Zivot would have put in his report that might have – I suspect it would be the same thing. And, you know, he – he would have gotten to the open [176] protocol. So I – I guess, yes, it's limited to

the open protocol. I can't think of where – where else I would have gotten any other information about it.

Q Is your understanding of the execution process at all informed from conversations with the State Attorney General's Office?

A No. It's not, no. I mean, obviously Mr. Spillane and I have had discussions about, you know, alot of these issues, but nothing that he said is – has really informed me about – it might – doesn't make my opinions.

Q What did you confer with – confer about with Mr. Spillane or somebody else from the Attorney General's Office that you relied on in forming your opinions?

MR. SPILLANE: I'm going to object to the form of the question, because I think he just said that I didn't tell him anything or anybody else told him anything that formed his opinions.

But you can answer.

MR. FOGEL: Perhaps, I misheard or misunderstand what the witness said, but if that's true, then you can state as much.

THE WITNESS: Well, nothing that Mr. Spillane said to me, helped me to form my – my opinion. I mean, there's nothing that he said that I used to rely upon my [177] opinion. To form my opinion.

BY MR. FOGEL:

Q I'm thinking, in particular, about a statement you put in your materials reviewed. And you say, (reading):

> "I reviewed the pleadings in this case to gain a general familiarity with the matters at issue and

a contentions of the parties. I have conferred with the attorneys for defendants."

So just to be clear, anything that you conferred about with the attorneys for defendants, is there anything that you took into consideration when forming your opinions?

A No. No. I'm – I'm – no.

Q We talked a little bit earlier about the Pentobarbital package insert.

A Yes.

Q Was that provided to you by the State?

A No. No.

Q Sorry?

A No. I got that off the internet.

Q Okay. Is it your understanding that – well, does the package insert refer to a specific type of Pentobarbital? A commercially –

[178] A It does.

Q – manufactured?

A This particular – this particular package insert refers to the Akorn brand. But that was just – that was one that I grabbed off the internet.

Q Is it your understanding that it's the same type of Pentobarbital that would be used in Missouri's execution?

MR. SPILLANE: Well, I'm going to object to that question. That's – that's state secret of what we use, whether it's compounded or manufactured, because it could lead to the identities of the suppliers. So I'm

going to direct him not to answer anything that might lead to whether we use compounded or manufactured.

(Whereupon the witness was instructed not to answer.)

THE WITNESS: I don't know what they use.

BY MR. FOGEL:

Q Okay.

A I'm – I'm told it's Pentobarbital. I just Googled Pentobarbital package insert, and this is the – one of the first ones that comes up.

Q That's – to answer my question, the purpose of the question is not to try to get at the origin of the type of Pentobarbital uses [sic], but why Dr. Antognini used that information and how we relied upon it.

[179] A Yeah.

MR. FOGEL: Okay.

THE WITNESS: That's basically, I guess, if you Google those two, I think that's one of the first things that comes up, so that's what I grabbed.

So – and for the most part, I don't want to say 100 percent, but for the most part, package inserts are very similar, from one manufacturer to the other. I'm not sure how many people manufacture Pentobarbital, but for most drugs, it's going to be the same.

BY MR. FOGEL:

Q I'm looking at your supplemental report now.

A Uh-huh. Uh-huh.

Q At paragraph 6, it talks about large dose [sic] of Pentobarbital, such as the 5 grams, would cause

respiratory arrest and cardiovascular collapse, leading to death. What was your basis for that understanding?

A So if you look – if you go to that website, as I recall that's – what I wrote there, in No. 6, is basically a summary, a synopsis, of what the effects of Pentobarbital are. So obviously, we know that people do not use that dose in a clinical setting.

So this particular website doesn't state that, you know, if you get 5 grams of Pentobarbital, this is what's going to happen. It basically states that if you [180] use Pentobarbital, these are the risks involved, basically respiratory arrest and cardiovascular collapse. And if you don't resuscitate somebody, you know, if you give somebody sort of a – I don't want to say a clinical dose, but if you gave them a low dose in a clinical setting, these are the things that can occur. So obviously, if you gave a large dose in an execution setting, you're going to get the same thing.

Q So that understanding that you just explained, is that based on your review of the website article –

A That –

Q – that you got off the Internet?

A That particular statement is supported by that particular reference; although, you know, I've made claims like that in other parts of my reports and they may be supported in the same way, but from different sources, you know, this is not the only source that would support that particular statement. So for example, if you look at the package insert, basically, you would read the same thing.

Q Are you aware that the open protocol contemplates the use of Pentobarbital beyond the 5 grams – the original 5 grams that are administered?

A Yes.

Q Why do you think it contemplates the use of additional Pentobarbital?

[181] A So my guess is that it's out of abundance of caution; although, it may seem like a paradox when you're talking about the lethal injection process, but it's basically to ensure that, if there were any issues of with [sic] the delivery of the first dose of Pentobarbital, you know, you have a protocol that says you can give another dose. But 5 grams, if, again, properly administered through a functioning IV, would be sufficient. But the – probably – I don't know why they put that in there, you'd have to ask them, but my guess is, because you want to have that capability.

Q In the event that an inmate did not die from the original administration of 5 grams?

A That's correct. That's my assumption, sure. Yeah.

Q What did you do today to prepare – or what did you do to prepare for today's deposition?

A I had a nice breakfast with Mr. Spillane, and then we spent a few minutes just going over some of the points that – the major points that would probably be brought up in the deposition. In terms of the action of the drug, and its ability to produce unconsciousness, how fast it would work. You know, basically telling him this is – this is – if I were asked these questions, which I suspect I will be, this is how I would reply to them.

[182] Q Did you review any documents?

A I looked at the reports. I looked Zivot's reports [sic], and I looked at my own reports. I looked at the – I have a copy of the – that pharmacokinetics paper –

the one that I cited, not the other one that I did not cite, but I mentioned this morning. I think I looked at that.

Q Aside from that one article, and I think you said it was a dog study –

A Yes.

Q – do I have that right?

A Yes, correct.

Q And by the way, did it study humans as well? Or just dogs?

A Well, as I said, there is a paragraph – it's a penultimate paragraph in the paper, and a discussion that they said – they basically gave Pentobarbital to humans, looking at the EEG and the onset of the – the change of the EEG with Thiopental and Pentobarbital is about the same time. So I think it's 15 to 30 seconds. They don't state what the dose was in that – in that paragraph. And then they say that the – it took Pentobarbital a little bit longer to have – I think they used the term "full effect." Not sure if that's what it was.

And then – but within one or two minutes, it [183] said that it had it – its full effect. And that was presumably at a dose of – I don't know what the dose was, but my guess is, it's probably going to be similar to the dose they used for Thiopental, 500 milligrams, 400/300 milligrams, it's not clear because they don't state what that dose is.

Q Well, full effect, meaning death?

A No. Full effect, I think, in terms of consciousness. Now –

Q So it took a minute – it said it –

A If you want –

Q – took a –

A – I can pull it up on my computer.

(Whereupon there was unreportable crosstalk.)

BY MR. FOGEL:

Q We can look at it later.

A All right.

Q I just wanted to make sure I understood what they were studying.

A Yeah, I cannot –

Q And what they were not studying.

A I cannot remember the specific language – you know, the words that they used, but that's my recollection of, you know, the verbiage basically.

Q Got it. Aside from that one report or study –

[184] A Yeah.

Q – were there any other documents that you reviewed, in preparation for your deposition, that you did not review in connection with your reports?

A Well, I told you – I mean, there – like I said, there are some papers that I looked at, that I said these don't really apply, and I don't remember what they are, but there's nothing – and there may have been some papers out there that I – I – I reviewed that basically – so there might have been, let's say, three papers that I reviewed and supported a particular point that I wanted to make, but I only cited one of those papers, so there might be some papers like that out there that I – that I looked at.

But I, you know, there's nothing out there that I – that I reviewed that supports my opinion, basically, that – that I didn't include in here. Again, I mean, I – again, except for the situation, where there may be three papers, as an example, and I only cited one of them.

Q Has your review of any of these materials that you looked at informally/formally caused you to change your – or modify your opinions in any way?

A No. No.

Q In your opening report, under your materials reviewed –

[185] A Uh-huh.

Q – is a document 263.

A Yes.

Q Do you know what that is?

A I'd have to – I – I don't remember what that is. These are all – these – these were documents that were sent to me, and they – they were numbered, and that's how I put them in there. Is there not a Document 263?

Q Well, there – there is at least some confusion on our end and perhaps –

MR. SPILLANE: If we could go off for a minute.

MR. FOGEL: Yeah. Okay.

(Whereupon there was a break in the proceedings.)

BY MR. FOGEL:

Q So I want to go back to the opinions we were talking about earlier, that you've rendered regarding whether Mr. Bucklew would experience any pain.

A Yes.

Q And again, I just want to make sure we have this established as the baseline: It's not your opinion that Mr. Bucklew would not ex- – strike that.

Are you opining that Mr. Bucklew would experience no pain?

A During?

[186] Q During the execution process.

A It is not — I – it is my opinion that he would not experience pain except for the insertion of the IV, which I said earlier, but that the injection of the Pentobarbital through a properly functioning IV, would not cause, in and of itself, pain to Mr. Bucklew.

Q So let's talk through the execution process, drawing, of course, upon your understanding of how it works.

And we've talked about Mr. Bucklew being in – strapped to a gurney or an OR table, some sort of surface. Do you know how long Mr. Bucklew would be positioned in that – let's call it a gurney for now?

A I do not know specifically. I can — I have a guess in my mind, but I don't know specifically how long that would be.

Q Does it depend, in part, on how long it could take to find a strong – a good IV line?

A Yes, it would.

Q And you mentioned that somebody – I think you used the example, in your clinical practice, you've had patients where you've had to try ten different IV locations; is that right?

A Some patients have gotten that many, yes, maybe – yeah. I mean, I – I – I use that number, [187] I – I suspect that some patients that I've – hopefully I – not my personal patients, but others that I've seen have had that many IV sticks, so it could be up that high.

Q And that, of course, takes time.

A Correct.

Q Each attempt.

A Correct.

Q And we've established already, that when Mr. Bucklew was lying in a supine position, it's uncomfortable for him to lie in that position; is that correct?

A It is uncomfortable for him, that is – that is what he reports, yes.

Q Is it your understanding that when Mr. Bucklew describes it as uncomfortable, he is experiencing pain when he's lying in a supine position?

A When – he – he states he's got pain all the time, no matter what position he is; and he's got pain in his face. And I – maybe I didn't say that in my report, but he has pain in his face and in that area, so he's – he has that as a baseline. So . . .

Q But I'm – I'm talking specifically when he's lying in a supine position.

A No, I don't think he describes it as being painful, he just describes it as being uncomfortable. I [188] mean, the inability – or having problems with – with breathing, we've all experienced that for one reason or another, it's not really painful, but it's uncomfortable.

Q Sure. So let me substitute – or remove pain, and say, when Mr. Bucklew was lying in a supine position for extended periods of time, it creates difficulty for him to breathe?

A Yes. He's going to have more difficulty, absolutely, than somebody else would.

Q Do you know how long it takes to strap him into the gurney? Again, assuming we're having – using a gurney?

A Just strapping him in, I mean, if he's cooperative or if an inmate's cooperative, it shouldn't take more than – again, it depends on how many people are doing it. But if they're – let's say four individuals, I'm just picking four out of a hat because there are four extremities, shouldn't take more than 30 seconds, at most, to actually put those straps on. I – I – I think. I mean, based on what I see in terms of those straps that I've seen from the internet, so . . .

Q After Mr. Bucklew is strapped in, what is your understanding of what happens next?

A My understanding would be that they – an attempt is made to start an intravenous line.

[189] Q And that's what we were just discussing, looking for a good IV line?

A Correct.

Q Do you know if the State of Missouri uses one or two IV lines?

A I believe the protocol uses two. There's a primary and a secondary, I think is the wording that they use. I think they use two.

Q What is the purpose of using two IV lines to your understanding?

A It's basically to have a backup IV. Where if you have a problem with one IV, you can use the other IV.

Q So when there's two syringes – I mean, we – we recall, we've established that there are two syringes containing 50 milliliters of Pentobarbital. And then there's a third syringe of the saline solution; correct?

A That's my understanding, yes.

Q Right. Do all three of those – and not simultaneously of course, but are all three of those syringes injected into the same IV line?

A I do not know. I – I'm – I'd have to review the protocol. I don't remember if they state it goes into the primary line, but I think the saline would go in – I – I – I don't know for sure, but my guess is they all go in through the same line, because if you have the [190] Pentobarbital go in, and then next syringe of Pentobarbital, and then you have the saline – you're using the saline to clear the line, so you'd probably be doing it all through – all through the same IV, is my guess. But I don't know specifically what it states in the protocol and what they do.

Q Well, do you have the open protocol in front of you, which we previously marked as an exhibit?

A I have had it in front of me, and there it is.

Q So looking at section C, under intravenous lines, it says the second sentence [sic], (reading):

> "Both, a primary IV line and a secondary IV line shall be inserted, unless the prisoner's physical condition makes it unduly difficult to insert more than one IV."

Do you see where I was reading?

A Yes.

Q So would you agree that that indicates that it is preferable to have two IV lines?

A Well, I think as I interpret that whole section, there, they – they say that, if there is difficulty, then you would have a central line. And in the secondary line, is the peripheral line. If you read further down.

So I think what they're saying here is, that, you [191] know, if there's difficulty placing the IV, and you get one IV in, a peripheral IV in, then the – the other IV can be a central line. But the central line in that case becomes the primary IV line, because it says the secondary – secondary IV line is the peripheral line.

So I think what they're essentially saying, here, is that, if we have a central line, that's the one we're going to use because that's going to be the most reliable one.

Q Well, all it says is medical – you're looking at the next sentence. (Reading):

> "Medical personnel may insert the primary IV line as a peripheral line or as a central venous line."

A Correct.

Q So one or the other.

And then the secondary IV line is a peripheral line?

A Correct.

Q That's the final sentence?

A Yes.

Q So it still contemplates two IV lines?

A Yes. That's correct, yes.

Q Right.

A I'm sorry.

[192] Q So my question is, why would you want to have two IV lines?

A If there was a – if there was a problem with one of the intravenous lines, then you could use – and when I say "problem," if you started to make an injection, it could be – let's see, hold on just a moment.

So under C2 it says, (reading):

> "A sufficient quantity of saline solution shall be injected to confirm that the IV lines have been properly inserted and that the lines are not obstructed."

So, you know, if they had – if they were concerned about the – the flow of fluid through that, let's say, the peripheral – through one of the lines on the peripheral lines, then, you know, obviously, they would use the central line in that case. I guess. I mean, that's – I – I – I'm not trying to provide any – any input to anybody about how to manage this, but I'm just trying to interpret what they – what they wrote here, but . . .

Q Do you think it's more or less likely than Mr. Bucklew – strike that.

Do you think taking into consideration the state of Mr. Bucklew's – or the access to Mr. Bucklew's veins, [193] that it's less likely the state would be able to identify two IV lines?

A It'd be less likely, yes, to identify two peripheral IVs. Yes. I think that's true.

Q When you say "two peripheral IVs," you mean that the state would then need to identify a peripheral IV as well as the central IV line?

A That scenario would be more likely with someone like Mr. Bucklew, compared to an individual – an

individual who had no problems with their with their – with their veins. Now, when I say more likely, I – I can't really give you number on that.

So – but I would say in my experience, yeah, you'd be more likely to have problems getting two IVs – peripheral IVs in someone like him than, you know, someone else.

Q Once the IV lines are inserted into Mr. Bucklew's vein or veins, depending on how many IV lines the state is able to identify, do you know where the Pentobarbital is administered from?

A In – in – in – in the tubing, itself.

Q Into the tubing, itself.

A No, I don't. I mean, there's most intravenous lines have what are called ports, and sometimes – usually, there are several ports in the line, and one's [194] going to be close – usually, it's close to the IV insertion site and there's going to be another one farther up. I have no idea where they inject it.

Q So do you have any idea how long it would take for the Pentobarbital to run the length of the IV line into Rusty's vein?

A So those – the volume of that tubing is probably, even at the most distal part, you know, maybe it's – I don't know, could be 5 MLs, I'm not – I – actually, I should probably know that, but I can't remember off the top of my head, it depends upon the size of the IV tubing, but it's probably going to be a relatively small amount.

So I don't know the answer to your question of how much – how much dead space, is what we call that, in the line because I don't know where the ports are.

Q Right. So you don't know the length of the tubing?

A Yeah. I do not know that.

Q Right. And we've always talked about, you've made an assumption in terms of the speed in which the Pentobarbital is run into Mr. Bucklew's vein; is that right?

A I did. But I do believe that it's important to point out that the, you know, when you give a drug, [195] especially when you've given a large bolus of the drug, so you have this tubing going along and it goes into the arm, so all of a sudden you start to inject the drugs and you have sort of this bolus of the drug moving along, and so the injection has started, but it actually hasn't gone into the – into the patient or, in this case, the inmate.

So it might take five seconds, let's say, for that Pentobarbital to start actually getting into the vein. So if you were to say to me, "Precisely, when did the Pentobarbital actually enter into the inmate?" If I started the injection at 12:00-noon and zero seconds, and maybe it actually didn't enter the inmate until 12:00-noon and five seconds, because it took five seconds for me to put sufficient volume in to get it into him. So – but we're not talking about minutes. I mean, again, I don't know how fast the infusion –

Q That's all I'm asking.

A Yeah.

Q If you know, one way or the other.

A I don't, sorry.

Q Yeah. Okay.

Once the Pentobarbital starts running into Mr. Bucklew's veins, explain to me what happens.

A The drug will go through the – the veins and – and get into the larger veins – let's say that he [196] has peripheral IV – enter the larger veins of his arm, and go in, through the subclavian vein, and then it would go into the superior vena cava and then it goes into the heart. And then it could go through the right side of the heart, through the lungs, and then back into the left side of the heart, and then it's ejected by the left side of the heart, the ventricle, and it is then distributed to the rest of the body, so it'd go to the brain and other organs. So that's basically how that drug would be –

Q Uh-huh.

A – distributed.

Q At some point after the Pentobarbital is running through Mr. Bucklew's veins, it's your opinion that he's rendered unconscious?

A Yes. That's correct.

Q And it's your opinion that this would occur – approximately 20 to 30 seconds from when?

A It would be about 20 to 30 seconds after the – my guess would be, the first 10CCs of the drug actually entered into his venous system. So from when it actually gets injected into the – into the vein, this's [sic] – that's my estimate.

Q Do you have an estimate of how long it would take for Mr. Bucklew to die from the point that the Pentobarbital enters his veins?

[197] A My – my estimate is – is basically around 8, 9, or 10 minutes. Because as I said to you earlier,

one of the things that I did look at, were some of the press reports of – of some of these executions, and they almost always give the time, between the injection and when the inmate is declared dead.

Q And you said approximately eight to ten minutes?

A Yeah.

Q Okay.

A I think that's what most of the reports said.

And my understanding is that's public information. I mean, obviously, it is now, because it's in these news reports. So I'm assuming that that's accurate.

Q We've talked a little bit about this already: But it's your opinion that, once Mr. Bucklew becomes or an inmate becomes unconscious, that inmate no longer experiences pain and suffering; is that correct?

A That is my opinion, yes.

Q Okay. And just to make sure I have a good understanding, what is your basis for that opinion?

A So Pentobarbital is an anesthetic that is capable of producing deep unconsciousness and coma, as we discussed before. And you can actually do surgery with Pentobarbital. And with – just like with any – any other anesthetic, patients do not report pain and [198] suffering during – when they have a normal, properly administered anesthetic. They don't report pain and suffering after the operation – that they experienced during the operation.

Obviously, they may have pain and suffering afterwards, because they have an incision, and they're painful from that. But during the operation, itself, they don't report anything like that because they're

unconscious. So that is the important thing to consider about, would somebody be suffering during the effects of Pentobarbital? And I think that's the primary thing that I'm looking at.

The other thing to consider is that the Pentobarbital is being given in a very large dose, so you're going to achieve that endpoint more quickly. The third thing to remember is that, in addition to the anesthetic effect of the Pentobarbital, you're going to get essentially cardiovascular collapse. It's my – I don't – I don't, I mean, just based on the action of a drug and what we see with – with Thiopental, for example, you're going to get a really low blood pressure. And then as I described in my report, hypoxia, and then the heart starts to slow. So, I don't see how you could – how anybody could – could have suffering and pain during that process.

[199] I mean, once you become unconscious, the rest of it is downhill, I mean, I'm not trying to make light of it, but that's basically everything's going down hill. The blood pressures going down, the neurofunction is going down, and it's irretrievable or just irreversible, I should say.

Q What is your –

A It's irreversible. You couldn't – I just don't think it'd be possible to resuscitate somebody out of that – out of 5 grams of Pentobarbital.

Q Understood. But isn't that a separate question from whether they're experiencing pain before they enter – declared dead?

A Yeah. Maybe you're right, maybe I went off a little bit more information than was needed to answer the question, but I'm kind of looking at the overall

process. And I think, maybe, part of that is – is – is – is informed by Dr. Zivot's opinion, which I think – again, I'm sort of paraphrasing, but – or interpreting what he's saying is that, somehow Mr. Bucklew is going to be in this sort of zone where he's semi-awake and semiconscious. And he talks about – he, being Zivot – that, this could be anywhere from, you know, sev- – it could be anywhere from several minutes, because Missouri has it in their protocol that they're going to have five – they're going to give [200] another 5 grams in their protocol if they need to, but my question really about that is, how – how – well, how can you explain or support that statement? How – how is Pentobarbital and the doses given going to keep an innate [sic] in this sort of semi-awake zone for several minutes?

It just – if you look at the action of the drug, if you look at the kinetics of the drug, if you look at how it affects the brain and its – and the cardiovascular system, I just don't see how you can make that statement.

I mean, this – this drug will cause a rapid onset of unconsciousness, 20 to 30 seconds is my opinion, could it be a minute? Maybe. And then it's going to – it's going to – just going to be a deepening and deepening unconsciousness, to the point of coma and brain – or electrical silence. Cardiovascular collapse.

I don't see how he, Dr. Zivot, can put together this picture, where it's going to be this prolonged period, where the inmate is going to be in this state of semiconsciousness and – and experiencing these symptoms of pain, and suffering, and choking. I just cannot piece it together with the information that I've been provided and the information that I pulled from these articles and so forth.

Q Is there any medical equipment that could be used to determine whether or not the individual is experiencing [201] pain?

A Not in the current clinical use. There have been attempts in the past to try to determine whether people are experience – if anesthetized individuals are responding to a noxious stimulus in the way that would indicate to you – to the inclination that they are – well, they're not – not really, they're experiencing pain, but they are – but that the body is responding physiologically to the – to that stimulus.

We don't have that right now, I think there is some companies working on it, but we don't currently have that. As far as I know.

Q Could Mr. Bucklew experience feelings of suffocation and choking after the administration of Pentobarbital?

A Only during the period, where he's still conscious. But after he becomes unconscious, no. I mean, he, you know, once that injection starts, as – as I've already said and you've asked about, it does take some time for the patient – for the inmate to become unconscious, and I'm seeing it's 20 to 30 seconds after that first, say, dose of 500 milligrams or so, thereabouts, gets into the – into the inmate. But after that, no, he's – he's not going to experience any sensation of suffocation or choking. It's my opinion.

[202] Q From the point of unconsciousness? Therefore –

A Correct. Once he becomes unconscious.

Q What if Mr. Bucklew started bleeding from his hemangioma?

A He – he would not – if he's unconscious, he would not experience suffering from pain from that bleeding, no.

Q Could he start bleeding from the mouth, where the hemangioma's located?

A He could. But if he was unconscious, he wouldn't – in my opinion, he wouldn't be suffering or be feeling it.

Q How do you know that he would not be suffering or experiencing it?

A Because he's unconscious, so you don't – as I – as I mentioned earlier, you – in – in my opinion, suffering is a something [sic] that you have as a conscious experience. You don't have suffering and pain as a [sic] unconscious experience.

But I've also been very clear that you can certainly have physiological responses to various stimulation – various stimuli of when you're unconscious. So as an example, brain-dead humans, if you do – obviously, brain-dead humans are – are organ donors. And by definition, you wouldn't necessarily need to give an [203] anesthetic because they're brain-dead. But in fact, you do need to give some anesthesias and some drugs because they have physiological responses to the noxious stimulation to the surgery, their blood pressure goes up, their heart rate goes up, that's a – a reflex that they – that the brain-dead humans retain.

So yes, you can have these physiological responses to these different types of stimulation, but that doesn't mean that they're suffering or have pain. I mean, obviously, example of the brain-dead, but by definition, they can't because they're brain-dead.

Q So what – what information are you relying upon?

A For what?

Q To – to say what you just asserted.

A I – based on my clinical experience, because I have provided care for brain-dead humans, who are organ donors. And then also, based on my review of literature and some of the research that I have done over the years. Some of my research is related to where the anesthetics work in the body, so that was part of my – my review of that area.

Q Are you familiar with anesthesia awareness?

A Yes.

Q What is it?

A That's a term that usually is used to describe [204] somebody who is aware, awake, conscious during a surgical procedure, usually because of insufficient anesthesia that was provided, that – sometimes it's because it's – it's an error or an oversight, sometimes it's because we just can't give enough anesthetic to a person, so if it's a patient that's been in trauma and they've lost a lot of blood, then you can't, you know, you can't provide anesthesia to them – or as much anesthesia to them. And in my own practice, although, as I've mentioned to you, I don't practice clinically anymore, but in some trauma patients, there have been times where I've whispered in their ears during surgery, and I've said to them, "Mr. Jones, I know that you might be awake, and I know that you might be experiencing this, but I cannot give you much anesthesia because you are so sick right now. And I'm going to do the best that I can."

And I did that and I taught residents to do that, because when you – when you review the literature on this, patients who have suffered anesthesia awareness said – a lot of them just said, "I wish they knew that I was awake," and this is one way – you don't know for sure that they're awake, and we have monitors now that – not entirely accurate, but, you don't know whether they're awake or not. So you can do it to everybody and – and hopefully they are not awake, but that was my practice at [205] least. So yes, I'm very familiar with anesthesia awareness.

Q Is it possible that Mr. Bucklew could experience anesthesia awareness? Taking into consideration, of course, that he would not be alive at the end of the experience to recount it?

A I don't think that's a possibility. If something wrong happened with the administration of the drug, and as we already discussed, I do not, especially with the dose that is used, I do not think that he would experience anesthesia awareness, no.

Q You talked about, I think there was three end goals in the context of anesthesia?

A Yes.

Q One of them was amnesia?

A Yes.

Q Do I have that right?

And you – there was an amnesia agent. What is the purpose of the amnesia agent?

A The purpose is to block memory. And an anesthetic, by definition – and when I say "an anesthetic," I mean, one drug that produces the state of general anesthesia. So that drug has to have – has to be

capable of producing those three end points to be called a general anesthetic, and that's my medical and scientific [206] opinion based on many years of thinking about this and doing research on that. As opposed to a drug that may cause amnesia, but it wouldn't produce necessarily the other end points of –

Q I – I – I understand.

A Okay.

Q But why do you want there to be an amnesia component to the anesthetic?

A Because patients don't want to remember their surgery.

Q Why do they not want to remember their surgery?

A Because it would be an unpleasant experience.

Q Because there would be some sort of suffering or some sort of painful –

A That's – that's true.

Q – component to it?

A Yeah.

Q So how do you – so if you want to suppress that by making it so they can't remember, so doesn't that suggest that there is, in fact, some pain and suffering while the patient is under an anesthetic?

A No, it doesn't. You're – you're trying there – there would be pain and suffering if they were awake. But you're giving them a drug that makes them not awake and – and removes that –

[207] Q But also a drug that helps them forget it.

A That is – that is – that is true. Yes, it does because – because the – let's see – so not, you know, we wish you could do this 100 percent of the time, but some patients, of course, we have difficulty with. And the trauma patient, I'm going to, again, give the example. You know, we have some choices, I guess, and I'm not saying necessarily in a clinical sense, but just in terms of how these drugs work and why they're chosen, but, you know, I guess – I guess the – the – the first goal would be: I don't want the patients to – to remember this. I mean, there may be patients that are, quote, "awake," but I don't want them to remember that –

Q Okay.

A – part.

Q Why do you not want the patient to remember it?

A Because that's – who would want to remember their surgery? Or their – that – that experience. I mean, that's – that's the first –

Q And my follow-up question to that was, is it because there's a pain and – component to the procedure?

A Yes. Absolutely.

Q Okay.

A Absolutely.

Q So why – how do you reconcile that with your [208] opinion that somebody who is unconscious does not experience any pain and suffering?

A Because as – yeah, we're not – we're sort of going in circles, here, on this. I can tell.

As you give an anesthetic, one of the first – so of the three components that I described, blocking memory formation is one of the first ones to occur. And then very soon after, you – patients become unconscious. Very soon after. But they're very close.

And then farther [sic], higher doses, you finally block the movement response. So if – if – if I am saying to myself, well, all I want to do is, I – I just want to block the memory, well, unfortunately, our drugs are not – the drugs that we use do not provide me much wiggle room in that regard. So that is, if I provide just enough to block memory, then [sic] may not be enough to – to produce unconsciousness. And I want to get past that. So I have to give a larger dose.

I'm not sure I have answered your question, but pain, I – I – I don't deny the fact, and I admit it freely, that pain and suffering can occur in awake individuals. No doubt about it. And that could be pain and suffering from surgery, it could be pain and suffering from other experiences. Whatever.

But in – on my – in my sort of opinion, as I'm [209] a scientist and a physician, pain and suffering are words that we use to describe experiences that awake individuals have relative to these different types of situations or stimuli. So once somebody becomes unconscious, I don't consider them to be in the situation where they are – or a state where they can have pain and suffering because you have to be awake in order to have that. I can't – I'm not sure I can make it any more clear to you.

Q So once – you're – you're assuming entirely that a patient – or, in this context, the inmate is unconscious?

A (Inaudible response.)

Q So when we're asking specifically regarding any pain and suffering that an inmate may experience during the execution process, as soon as the patient becomes unconscious, the period thereafter is irrelevant.

Is that your opinion?

A That is my opinion, yes.

Q So the length of the execution process, the endpoint being when the inmate is declared dead, is a moot question – or moot point for you; is that right?

A As long as you're maintaining the unconscious in a continuous basis, which, they are, based on my understanding of, again, how the drug works and how, you know, the timing and all that, yes.

[210] Q So if Mr. Bucklew's hemangiomas continue to bleed when he was lying in the supine or whatever position he may be in – as long as he's – and blood is coming out of his mouth, as long as he is unconscious, he's not experiencing any pain or suffering in your opinion?

A That is correct.

Q And is it your opinion that as a medical fact, he would not be choking or he could not suffocate – experience suffocation because he is unconscious at that point?

A That is correct.

Q And is this all based on the assumption that Mr. Bucklew is, in fact, what you're define- – on what you're defining the far end of the unconsciousness spectrum?

A That is correct. And again, I base this opinion on – I mean, we're – I – I realize, we're kind of focusing

on – and as we should – on this particular inmate and the issues around choking and sensation. But remember, Pentobarbital is an anesthetic. And what kind of procedures can we do on patients with an anesthetic? I'll use myself on the example: I had heart surgery. They split my chest open, spread my chest, replaced my heart valve. Okay? Patients have had abdominal surgery where their incision, from stern to stern, for trauma [211] patients, from here to here. In orthopedic surgeries. These types of procedures that go on for hours, are infinitely – maybe that's little bit of a hyperbole – but are much more capable of inducing suffering and pain than, you know, the choking and gasping and so forth sensations that we are discussing here.

And why are we able to do those types of procedures? Because this drug, like many of the other general anesthetic drugs, they're anesthetics. So if we're capable of doing those types of procedures on individuals, and I think that – that the consensus is that those individuals are not suffering or having pain during those procedures, in the sense that we're talking about, which is that they're awake, then yeah, I think that you're – once this Pentobarbital begins to occur, choking or the blood in the airway, that kind of thing, it's not that – I mean, it's stimulating, we all have experienced stuff in our airway, but it's not stimulating to the extent that these other procedures are. And, again, large dose of an anesthetic, I just – it's – I don't see it happening.

Q Do you agree that any length of any time in which an individual is choking is painful?

A If they're awake, would – yes. They would be in pain or – or suffering. I'm not sure, again, we've [212]

already talked about this, I'm not sure pain is the right word, but they would be suffering.

Q Do you agree Mr. Bucklew, as a result of his condition being cavernous hemangioma, the difficulty or the challenge in accessing his IV lines, the uncomfort – or discomfort he experiences when lying in a supine position, again, assuming he would be in the supine position, do you agree that Mr. Bucklew is more likely to experience a more compacted airway during the execution process?

A More likely compared to what? Just his normal state? Or just a normal individual?

Q Either one. Certainly his –

A Yeah.

Q His –

A It's more likely – I think it's more likely that he would have those symptoms compared to a normal individual, because he already has those symptoms. And lying flat is more of problem for him, and – and he says that and I don't disagree with that. Now, can he tolerate – as I said earlier, can he tolerate that? Yes, he has been able to do that.

Q But lying in a supine position for an extended period of time would introduce additional stress or difficulty in his ability to breathe. Do you agree with [213] that?

A Yes. That would be increasing his risk for that or – or that possibility, yes.

Q And the challenge in finding an IV line, would introduce – has a potential to introduce additional stress into Mr. Bucklew as well?

A Yes. I would agree with that.

Q And that additional stress has the potential to make it even more difficult for Mr. Bucklew to breathe?

A Yes. That could happen. Yes, I agree with that.

Q And as a result of these factors that we've discussed, it's possible Mr. Bucklew could experience a sensation of choking or suffocation?

A While he was awake, yes, that would be – that would be possible.

Q So there's an increased risk of pain and suffering that you acknowledge exists up until the point of unconsciousness. Is that your opinion?

A I would agree with that. So – and you – you're probably not going to be willing to – to – to assign a numerical value to that, but – because you're just saying increased risk, and so increased risk would be – mean, going from 1 in 1,000 to 1 in 100 chance. I don't know what the number would be, but just because it's increased, doesn't mean it's substantial or likely.

[214] Q Well, Mr. Bucklew has an increased risk of this, certainly in comparison to other individuals who do not suffer from cavernous hemangioma?

A That is true, yes. He has increased risk compared to a normal individuals [sic].

Q And increased risk compared to individuals who don't have a Mallampati 4 airway?

A Yes. That's true.

Q If you were to able to determine that it takes significantly longer than 20 to 30 seconds for Mr.

Bucklew to become unconscious from the administration of Pentobarbital, would that affect the opinions you've rendered in this case?

A I don't think so. I would say however, that – so if – if it took longer, than 20 to 30 seconds, it would certainly increase the amount of time that he – there is a potential for him to – to have, you know, the sensations of choking and so forth that he described.

But I have to leave it to the Court to decide whether that's a substantial – substantial risk or not, or an increase in the risk, I just don't know. I don't have any – I can't really give you an opinion about that, because I don't know what that – from I guess a legal perspective, and I know that's a term that's used, I don't – I'm not sure if that's substantial or not. I [215] really don't.

Q A substantial amount . . .

A Of risk. That it would be a substantial increase in the risk for him or a substantial risk for him, compared to, you know, if it went – if, instead of it taking 20 to 30 seconds, it took two minutes, is that a substantial risk or an increase? I don't know. Because a [sic] substantial is a – is a term that – that's open to interpretation.

Q Right. And – and – and maybe I should rephrase the question, so we can move away from the substantial risk. But if it appeared, in fact, was two minutes as opposed to 20 to 30 seconds, then that period of time in which Mr. Bucklew would be experiencing suffocation and/or choking?

A Well, that risk would be there. But you're – I think you're assuming that he — he will have, you know, if he does have choking sensations as the drug

is being administered, and it takes two minutes for the drug to work, then yeah, I mean, it's going to be two minutes instead of the 20 to 30 seconds that I described.

Q Uh-huh. Right. And I'm not asking you to make a legal determination –

A Uh-huh.

Q – of 20 to 30 seconds versus two minutes –

[216] A Yeah.

Q – in terms of what is an acceptable level of risk?

A Right.

Q My question is more focused on your medical assessment. In terms of his – during that additional minute-and-a-half or two minutes, would Mr. Bucklew be experiencing or there be an increased likelihood that Mr. Bucklew would be experiencing suffocation or choking?

A There would be an increased likelihood because of the reasons that I've already provided to you: Because he already has those symptoms, and, you know, we're going to – if you're going to make it longer then there's an increased risk just because of the length.

Q I believe you stated in your report that if Mr. Bucklew started bleeding from his hemangioma, he would not notice; is that right?

A If he was unconscious.

Q Right.

A Yes.

Q So again, we're assuming he's unconscious.

A Yes. Right.

Q Is it possible that he could bleed to an extent that it would be coming out of his orifices?

A Yes, that is possible.

[217] Q Are you aware that Mr. Bucklew takes certain nervous system depressants?

A I – in review – yes, in review of his records, I – I saw that he is taking several different types of CNS drugs. Although, quite frankly, off the top of my head, I know that they've changed over time so I don't know specifically what he's taking right now, as of today.

Q What were the drugs, as of the time – or what drugs are you familiar with that he's take [sic] in the past?

A I have to look at the medical records, I don't recall specifically off the top of my head.

Q Does Clonazepam sound familiar to you?

A That sounds like one of them, yes.

Q What about Tramadol?

A I think he took that, but I – again, I –

Q Right. Sorry. I'm not trying –

A I know.

Q – give you a memory test.

A I just don't remember exactly what drugs he's been on in the past, and that's now off of, and what he's on now, so . . .

Q Is it your opinion that – again, assuming Mr. Bucklew is taking these depressants, that any interaction between these depressants and the Pentobarbital would be inconsequential?

[218] A Yes. And that's based on my – you know, the dose that's used, it's just going to be overwhelming. The, you know, the dose is overwhelming compared to any effects that they might have between the – those drugs and the Pentobarbital.

Q What effects could the drugs have at a lower dosage of Pentobarbital?

A So basically, you could have what are called additive or synergistic effects where the two drug [sic] act together to produce more of an effect than the drugs acting separately.

Q Uh-huh.

A Or they could just be additive, where they just add – you know, work together in the same amount, so they produce more unconsciousness or whatever effect that you're looking at. Those – those are some of the interactions that you would have.

I know that – well, that – that's just, you know, that's the main – I think the main effect. Which, again, when I – in my report, I said basically, it's – it's essentially going to be an additive effect anyway. I mean, you're using such a large dose that it's not – it's not important. It's irrelevant more or less.

Q Can you turn to Paragraph 14 of your supplemental report.

[219] A Uh-huh.

Q And I believe you state here that Pentobarbital is an anesthetic?

A Yes.

Q And by definition, anesthetics prevent awakening from stimuli including airway obstruction?

A Yes.

Q So by medical definition, Mr. Bucklew, if he was starting to choke, would – that would not inhibit him from succumbing to the effects of the Pentobarbital?

A No. Not in – not in this – not in the dose of that's being used. So if – if you could give a dose of Pentobarbital or whatever anesthetic you're using, and you could get into that fine, fine line, that level where, you know, somebody would respond to a type of stimulus, such as airway obstruction, then, yes, that – that type of stimulus could wake somebody up. If you're at that very, very narrow window of – of concentrations.

But that's a very low concentration of the drug, and – and, of course, the Pentobarbital, in this setting, is at a much higher level. So they're not in that period for more than probably a second or two is my guess.

Q Could – if a patient –

A Or a couple – you know, maybe more than that, maybe ten seconds.

[220] Q If an inmate is experiencing suffocation and/or choking, could it affect the distribution of the Pentobarbital?

A No. No. No. No. No. No. It wouldn't.

Q What if the suffocation or the choking was to such an extent that the inmate started convulsing?

A Convulsions, I don't know why you want to use that term, because you're not going to get convulsions in this type of setting because Pentobarbital is one of the drugs that you would use to prevent convulsions and so maybe you can clarify about why you think obstruction would cause convulsions.

Q Well, if the patient – excuse me. If the inmate is experiencing some sort of a choking reaction or a gasping for air before the Pentobarbital has presumably taken full effect, as you've defined it, could that lead into some physical reaction or physical movement of the body?

A It could, but that's not what convulsion is. We don't use that term for that type of movement.

Q Maybe I was using that imprecisely.

A That's why I got thrown off base by your –

Q Well, that's why you're the expert, to keep me in line. I appreciate that.

So could the physical reaction, through the [221] experience of choking, affect the distribution of the Pentobarbital?

A Well, I guess if the inmate was moving to sufficiently where it interfered with the flow of the IV, right? So, you know, I don't know where these straps are located, and it's obviously relative to where the IV is located, but I suppose if the individual was moving around or – or – or basically pushing against the – the strap where an IV was placed, then you could obstruct the flow of the fluid going through that. So that would be – that would affect the distribution of the drug.

Q Is it possible that it could dislodge the IV?

A Yeah. I mean, if somebody's moving around, absolutely. If it's – especially if it's a tenuous IV, so…

Q And then, of course, if the IV is dislodged –

(Whereupon there was a telephonic interruption.)

MR. FOGEL: Pardon me. If I'm not – sorry.

THE WITNESS: It's okay.

BY MR. FOGEL:

Q If the IV is dislodged, that would necessarily impact the distribution of the Pentobarbital?

A That is correct.

Q Is the anesthetic the same thing as an – and I'm probably going to mispronounce this – anesthesia?

[222] A No.

Q What is anesthesia?

A So anesthesia is a term that would be used to describe the – the – the state or condition that is produced by an anesthetic. So for example, Pentobarbital is an anesthetic, it produces anesthesia. And what is anesthesia? Again, going back to my three end points, its immobility, it's unconsciousness, it's amnesia. The ability to – to – to do surgery procedures and have those end points, that's sort of what anesthesia would be.

Q Are you familiar with analgesics?

A Analgesics.

Q Analgesics, thank you.

And those are designed to prevent pain, I think we talked about earlier?

A That is correct.

Q And we've also talked about that anesthesia is also designed to cause amnesia.

Do I have that right?

A That is correct.

Q And it's your opinion that Pentobarbital would achieve all of these results? Unconsciousness, lack of pain reception, and amnesia?

A And immobility.

Q And immobility.

[223] A Yes.

Q And how do you know this?

A The Pentobarbital would do that?

Q Uh-huh.

A Because Pentobarbital is an anesthetic, and you can give it in sufficient doses to produce that type of picture or that – that state. Pentobarbital's used – I don't think it's used – as I said earlier, it's not used at all, clinically, for that particular, you know, in that setting. It could be used in animal studies or animal experiments or animal surgery; although, even now, veterinarians don't do it because it's such a long-action drug. At the dose that you need to give, it would last too long.

Q Understood.

A Yeah.

Q Understood.

So to what extent did you rely upon Mr. Bucklew's medical – excuse me, the records from his prior surgeries from 2000 and 2003?

A I relied – I think it was an important part of my analysis because one of the issues that came up initially, and maybe it's still – it will be a factor, I don't know, but it has to do with distribution of the drug. That – that there is a contention that this [224] hemangioma would affect the distribution of the Pentobarbital. And so my – the process that I went I through to refute that is that well, he had that hemangioma back in 2000 and 2003, and it was a low-

flow hemangioma, and he reacted normally to the anesthetics. And that is – the that the [sic] documentation was that he was unconscious, he did surgery, he reacted normally. So I think that was an important piece of information to show that he doesn't rea- – he would not react abnormally to anesthetics.

Q Did you take into consideration the fact that those procedures were 13 and 17 years, respectively – 17 – 13 and 17 years ago, respectively?

A I did and I thought about, well, how – how much larger has the hemangioma gotten, has it changed its characteristics? And it has not, based on my review of his medical records. So, for example, the hemangioma was slightly smaller when comparing 2010 to 20- – 17 – '16, slightly smaller. The – he had an angiogram done in – I'd have to review the records, I forget exactly when the angiogram was done, but it was done at some point, and it showed that it was a low-flow hemangioma, so it showed there wasn't much blood flow it to.

The image study that he had done in 2016 used a – what's called CTA or computer – computer demographic [225] angiography, I think I got that right, I may have it a little bit off, but CFT for short. They can use that technique to look at the blood flow of the hemangioma, there was low blood flow to the hemangioma. So the characteristics of that hemangioma, in that regard, have not changed over the years, so I don't see how it could have . . .

Q But aren't those procedures different because they were affirmatively trying to control for Mr. Bucklew's blocked airway? I – I – I can't recall, perhaps, if there was a kaleidoscope or some sort of tool that was used to control for his breathing?

A During?

Q The 2000 and 2003 procedures.

A No, I don't think so. I think they just used direct laryngoscopy.

Q Well, they used some sort of device to control for his blocked airway.

A But it's just the device that they normally use.

Q But that device would not be used in the context of an execution.

A There would be no reason to do so.

Q Right. So aren't there fundamental differences between how Mr. Bucklew reacted during those procedures in 2000 and 2003, as he would during an execution?

[226] A No, I think you're – you – you, and perhaps, Dr. Zivot, are – are – are conflating and – and putting together the issues around the airway management with his reaction to the anesthetic drugs, themselves.

Q And you're saying that he would react the same?

A Correct. Because as you well know, Dr. Zivot and – and Dr. Wippold, and Jamroz, but primarily Dr. Zivot said, at least in some of the initial reports that I read, that there would be an abnormal distribution of the drug. And that's just not true. And it doesn't make any sense to me in terms of the anatomy or physiology of this hemangioma.

Based on my understanding of how these hemangiomas are – their structure, and just to prove my point, the inmate had surgeries in 2000 and 2003, when the hemangioma was quite large. I don't know what it was compared to what it is now, but it was large enough

that he was having treatment for it, and in – reacted normally. So that is separate from the airway issue.

Q Right. Okay. And so that's the distinction, I think we're – we're just talking past each other. His procedures in 2000 and 2003 do not tell you anything in terms of how he may or may not have experienced feelings of suffocation or be choking during an execution process?

A I wouldn't say they don't tell me anything, [227] because he did have a large hemangioma then. Unfortunately, I don't know how large compared to what size it is now. But it was described in the records as being, again, large. I mean, that's sort of one of the terms that was used.

Q Right. But they controlled for his airway –

A That's correct.

Q – during the course of the procedures, which, of course, they would not do during the course of the execution?

A That is – that is correct. But it's – but it's controlling – they were controlling for his airway when he was unconscious, and, again, it just doesn't matter to me what's happening because he's unconscious in terms of the lethal injection process.

Q One of your conclusions –

THE REPORTER: Are you moving on to a new subject? I need a break.

MR. FOGEL: Okay.

(Whereupon there was a break in the proceedings.)

BY MR FOGEL:

Q Dr. Antognini, we were talking about the fact that choking may have under [sic] the distribution of the Pentobarbital. What about the bleeding from Mr. Bucklew's hemangiomas? Could that have an effect?

[228] A No, I don't think so.

Q Even if the blood with was coming out of his orifices?

A No. It wouldn't affect the circulation of the drug. Well, so I'm – I'm going to make sure, it has been – it's getting – been a long day, I may not be as focused as I should be. Can you repeat the question.

(Whereupon the record was read.)

THE WITNESS: Could the bleeding have an effect on the distribution of the drug, was the question –

BY MR. FOGEL:

Q Correct.

A – I believe.

Okay. No. If – I mean, if he had – if somebody had massive bleeding from something, and by massive, I mean, we're talking about hundreds of MLs or thousands of MLs, that kind of setting, that of course affects the distribution of drugs. Because it's distributed by the bloodstream, so if you're bleeding – but even bleeding from a hemangioma of this type, you know, wouldn't affect that because it's a low-flow hemangioma. The blood flow to it is low, relatively speaking. So you're not – so there's not going to be a lot of blood actually going through that. Of course, it's in a sensitive area, I admit and agree with Dr. Zivot that [229] in the awake condition, Bucklew could have

choking conditions from the bleeding, but it's not enough to affect distribution of the drug.

I'm trying to think of a scenario whether either the choking sensations or the bleeding, itself – I mean, there is a – and I'm, you know, I don't mind saying this, you know, you might think it's pertinent or not, I mean, it's not because, again, we're talking about a massive dose of drug. But if somebody is choking, it could affect the mechanics of blood flow through the – through the thorax, basically. But that's, again, sort of small compared to the overwhelming effect of it in terms of the dose of the drug that's being given.

And the main thing that's going to affect distribution of this drug, in my opinion, is the rapid onset of hypo- – severe hypotension. And that doesn't actually help in your case in any way whatsoever. Because when that blood pressure drops from that Pentobarbital, it – the one thing that – that keeps – that brings the blood concentration down of a drug – I shouldn't say the one thing – but the main thing in this particular time period, the one thing that brings the concentration of the drug down, is that it gets redistributed to other organs, so the brain is what we call a high-flow organ, the heart is a high-flow organ, it gets a lot of blood flow.

[230] So the drug starts to go there first, but then, you know, there's blood flow to other tissues, so the drug gets – we call it redistributed to other tissues. But that's not going to happen in this setting, because that severe hypotension that happens, the circulation is essentially going down, close to zero, and you're not going to redistribute that drug. So the drug that's in the brain now, normally if it was a low dose, it would be sort of washed away, and it's not going to happen in

this setting. So it goes into the brain, and it stays there.

Q So going back to my original question –

A Yeah.

Q – which is just –

A Yes. Yes.

Q – regarding the blood – the bleeding from Mr. Bucklew's hemangioma, which you've acknowledged is a possibility that could happen as a result of the execution, the answer to my question is, you do not think it could affect distribution of the Pentobarbital?

A Right. Correct.

Q You've also rendered an opinion regarding lethal gas?

A I did say something about that, yes.

Q And it's – I'll read it directly from your opening report. And it's at paragraph 26.

[231] A Yes, I see it.

Q You said, (reading):

> "The use of lethal gas would not significantly lessen any suffering or be any less painful than lethal injection in this inmate."

Why does lethal gas not hold any advantage compared to lethal injection?

A Well, essentially, because I think that the – I use the term lethal gas but there are several – several types of gases – maybe more than several, there are a lot of types of gases that could be used for – for – to kill somebody, I guess. They're not necessarily ones that will be used or have been used in executions.

You know, the one that comes to mind is cyanide gas, and, you know, I – I don't know if anyone's used nitrogen in an execution, I don't know the answer to that question. I – I think somebody has, some state has done that, but I'm not positive about that. And those have effects that may not be pleasant either, but it would be short-lived, just like it is with the Pentobarbital.

So that's why – I mean, I do – I – I, you know, drew a conclusion and I said I didn't think in my opinion that it would – you know, using gas would not significantly lessen any suffering or be less painful. [232] Because, again, their onset of action is going to be relatively fast, just like Pentobarbital's onset – onset of action. So that's why I – I drew that conclusion.

Q That's it? Simply because it would happen quickly?

A Correct.

Q You think there would be no difference?

A That's –

Q Did you take into consideration what position the individual might be sitting or lying in?

A No. I did not, no.

Q Did you consider the fact that using lethal gas would not require the use of accessing an IV line?

A I did not. I mean, I – obviously, I know that. But I don't think that the – inserting an IV line is, as I said, significantly increasing the – the – the amount of pain.

Q Right. I mean, we've – we've –

A Yeah.

Q – talked plenty –

A Right.

Q – about your opinions –

A Yeah.

Q – and understandings regarding accessing Mr. Bucklew's IV lines.

[233] But what – what are you relying upon, in terms of how a lethal gas execution operates, to form this conclusion?

A Let's see. Again, I – I referred to I believe examples of nitrogen and of cyanide. Because I know – of course, we all know cyanide has been used in the past, that was used in California and elsewhere. I don't know whether other gases that have been used in executions –

Q Sure. Putting aside –

A Okay. I know –

Q Okay. Okay.

A I just – I want you to know I'm trying to answer your question in giving you the background of why it formed my opinion.

So I thought in mind, okay, well, how does cyanide work and how quickly does that work and what kind of suffering may be occurring? And I'm, quite frankly, thinking about, you know, maybe – as I look back in my review of this, at this – at that point, I did probably look at reports of cyanide, you know, using cyanide as a lethal injection, and – and I think that those could be – to – to use a rather – not – maybe not the best term, but it could be kind of messy. In the sense that, you know, inmates can be – can have convulsions from the – from the cyanide, and that might be true for the [234] nitrogen, so I'm – I'm looking at, you know, the –

the pain and suffering that might occur from Pentobarbital compared to what my understanding of lethal gas would be and that's why I formed that opinion.

Q Right. And my – my question is, what informed your understanding of a lethal gas?

A So for the cyanide one, I guess it'd have to be, I might have reviewed – I – I really don't remember. But I'm not trying to be evasive about this.

Q Is there anything in your materials reviewed that you could point to?

A No. I didn't put that in there. No, I did not. Now, as far the nitrogen part, just based on my – my experience, my scientific experience – not the right word. My scientific knowledge of – of using nitrogen, when you go from, you know, air is 80 percent – 79 percent nitrogen. When you go from 79 percent nitrogen, now to 100 percent nitrogen, you know, you quickly achieve hypoxia and somebody would be unconscious very quickly and, you know, it depends on how quickly the gas is introduced and all of that.

So I – again, I'm just saying sort of based on what I know, that's why –

Q And how do you know how quickly a gas is introduced?

[235] A Well, I don't know that. I mean, it could be introduced very slowly and cause a lot of suffering, I guess. You know, you get – you can get suffering from hypoxia, you know, because somebody can be awake and realize that they're not getting enough oxygen. So depending on – on how it's used, you might get more suffering from nitrogen gas than you would have Pentobarbital. Or you might get less suffering, you

know, it depends on how you would use it, I guess. And I'm not making any recommendations to anyone about how –

Q Understood.

A Yeah.

Q I'm just still trying to get at my first question, which is, how you – what you are basing your conclusion on, that lethal gas would cause significantly less – excuse me, strike that.

What you're basing your conclusion on, that the use of lethal gas would not significantly lessen any suffering or be less painful than lethal injection?

A Well, I already said to you, I looked at – my recollection is, I suspect I looked at some information on – on the use of – of cyanide as a lethal gas, and then I just looked at – or had my – my understanding of what happens with hypoxia based on over the years. I mean, obviously, as an anesthesiologist, we're very [236] concerned about hypoxia and we study hypoxia and all of that, and that's how I came to that conclusion. But it's not – I – I will admit that it's not perhaps as well founded as some of my other conclusions.

Q Are you relying upon any information that you were given by the Attorney General's Office –

A No.

Q – in forming that conclusion?

A No.

Q Dr. Antognini, are you being compensated for your time today?

A Yes.

Q Are you being compensated for the time you spent in preparing your reports?

A I am.

Q How much are you being compensated an hour? Do you charge an hourly rate?

A I do. It's – well, for the deposition, I think it's a – it's a flat rate, I can't remember what it was, it's in my – I think it's in my report. I believe, in the first one. I think it's $2,000 for a deposition appearance.

Q It's a flat rate?

A Yeah.

Q Okay.

[237] MR. FOGEL: We don't have anything further at this time.

MR. SPILLANE: All right. I'll try and move quickly.

EXAMINATION

BY MR. SPILLANE:

Q You're a board-certified anesthesiologist; is that right, sir?

A Yes.

Q Do all board-certified anesthesiologists have expertise in setting central lines, such as subclavian or femoral vein lines?

A No. I wouldn't say that all of them do. I would say that – that is part of their training, but if – you know, just because they've trained – been trained to do that, does not mean that they continue to do that in their particular practice, so I wouldn't say that all board-certified anesthesiologists would be experts in . . .

Q Well, I probably asked a bad question. I'll start out with this: Every board-certified anesthesiologist is trained how to do that or he wouldn't be a board-certified anesthesiologist?

A That's correct. That is part – that's a part of training. But, you know, some people, their – their [238] practice may be that they're doing outpatient surgery – or anesthesia for outpatient surgery, so they may not place central lines ever.

Q What type of surgeries does one use a central line?

A It would be heart surgery. It could be somebody who's having a major abdominal surgery. It could be some type of orthopedic procedure, where there's going to be a lot of blood-loss, I guess. Or a spine surgery. And then somebody who's particularly sick, and you can't get – you don't have good IV access, and you wanted to, you know – if you're having problems with that, which we've already discussed, then – then, you know, you would put a – a central line in that kind of patient.

Q When you examined Mr. Bucklew, were you able to physically view his uvula?

A I did see his uvula, just the very top of – of it. But I – I did sort of waffle, whether it was a Mallampati 4 or 3, because I was able to see part of his uvula. And generally speaking, when you have a Mallampati 4, you don't see any of the uvula. But I still have nevertheless called it a 4, because the Mallampati score – and maybe, I mean, I – I think clinicians use that scoring system in maybe not the most consistent way. So for example, if I had somebody who's thin, but just has [239] an abnormal, maybe have [sic] a very small chin or whatever, they may

have a – I look at them and I say, "Oh, they have a Mallampati 3 because I can – I can see just a part of their uvula," but if I have somebody like with this inmate, I mean, it's – it's not just a question of being able to see, I mean, he has a large mass there, I would say maybe sort of maybe fib – fib, I shouldn't say that in a deposition – but I would move more toward saying a Mallampati 4, just so show people, "Hey. This is a potentially difficult airway." Which I don't deny, he's got a, you know, from a clinical perspective, it could be a challenging airway.

So to answer your question, I know it was more – it was a "yes" or "no" question, but I wanted to provide some feedback, I did see part of his uvula.

Q Okay. And – and as I understand it, and correct me if I'm wrong, if you see part of the uvula, it's generally not a 4; is that fair?

A That is – that is correct.

Q Okay.

A But I did not say that in my report.

Q All right. That's what I –

A That was my recollection – yeah, that was my recollection, that I did see part of his uvula.

Q Let me ask you about your conclusion of – on [240] pain and suffering. Those are two different things; is that fair according to your testimony?

MR. FOGEL: Objection.

BY MR. SPILLANE:

Q If you understand my question, you may answer.

A Yeah.

Q And if I stated it wrong, tell me.

A Yeah. I would say that they are two different things. So basically, pain is a – suffering can occur from a variety of different types of situations or – or stimuli, and pain is part of that. Pain, generally speaking, will cause suffering. But you have suffering from some – some – from something else that's not painful. So, you know, with all suffering, we have emotional suffering from things that happen in our family and all of that, but that's different than the suffering that occurs from a painful stimulus.

Q As I understood your testimony on direct, you testified that there would be no pain 20 to 30 seconds after the chemical entered the bloodstream in the IV; is that accurate?

MR. FOGEL: Objection. Misstates the witness's testimony.

BY MR. SPILLANE:

Q You may answer, if I got it right. If not, tell [241] me.

A That is correct. That – that 20 to 30 seconds after the injection started to enter into the – actually into the bloodstream.

Q When you –

MR. FOGEL: Hold – hold – hold on. That's not even close to what you testified about. I mean, fine. I can redirect, but . . .

MR. SPILLANE: The record will reflect.

MR. FOGEL: Fine. That's fine.

THE WITNESS: Well, I don't remember what I said, I mean, we can read it back, I'm happy to – I'm trying to be consistent, but that's –

MR. FOGEL: Understood.

THE WITNESS: Maybe I'm not using the right words.

MR. FOGEL: For 20 to 30 seconds from entering the bloodstream; right? We've been talking about unconscious [sic] the entire day, but it's different. But Mike, go ahead and ask your question.

BY MR. SPILLANE:

Q I asked about pain. You indicated, as I understood your direct testimony, that when the person is unconscious with this dose of Pentobarbital, they would not feel pain.

[242] Did I get that correct?

A That is correct. That is my opinion.

Q So they would not feel pain 20 to 30 seconds after the chemical entered the bloodstream from the IV; is that accurate?

A That is my testimony, yes.

Q Let me ask you a little bit of how you got there. Did you think about blood concentrations when you made that conclusion?

A Yes.

Q Tell me what you thought.

A So I looked at – as I said, I quoted that study in my supplemental report from Ehrnebo. And basically, what they – what he did in that study is, he took humans and he gave 100 milligrams of Pentobarbital

intravenously, and then he measured the blood levels of that drug. And typically, what happens when you do that kind of study, you give the drug, and then you start taking blood samples and measuring the concentration of the Pentobarbital in the blood. And if you look at their – his figure, which is figure 1, I think, it shows a typical high level and then it just starts to fall off and go down and decrease.

So one thing that you can do, as an approximation is, that you can look at those blood levels and say, "Well, if this is the concentration that you achieve with [243] 100 milligrams of Pentobarbital, what concentration would you achieve with 5,000 milligrams?" Which is – is 50 times 100.

Let me make sure I got that right. So as a first approximation, you could just say – look at the peak level there, and say, "All right. Well, if they achieved – or I should say, if you look at the blood levels, if they achieved in that study the average – at six minutes after the injection, the average was about 2.9 micrograms per ML, you just multiply that by 50, and say, "Well, it would be about 145 micrograms per ML at six minutes."

Now, mind you, in that – in that particular study, that was the first time that they had taken a blood sample. If they had taken a blood sample earlier on, it would have been higher because that's what happens with these drugs, their concentration falls off as the blood is redistributed.

Now, I will admit to that – that analysis is an approximation and, in fact, he might – you can go on and claim that there's an error there, that I'm wrong. But I'm not wrong in the direction that would aid you, as I mentioned earlier. Because when you get that

incredibly fast – well, I shouldn't say – when you get that rapid onset of hypotension, sudden or severe hypotension, that [244] drug is not going to redistribute. So if you were to able – if you were able to measure the blood levels on that setting instead of falling off like that study showed, it would – it would be de-elevated. Because the blood pressure is so low that the drug is not being redistributed so the blood levels are staying very high.

Q How many micrograms per milliliter of Pentobarbital in the blood are necessary to achieve the high level of unconsciousness that you spoke about, near comatose?

MR. FOGEL: Object to form.

THE WITNESS: So I – can I answer? Or . . .

BY MR. SPILLANE:

Q If you understand my question, you can.

A So I – I relied on the package insert that has a table in it that I referred to in my report, and they have some drugs listed there. And the first drug listed is Pentobarbital, and there – there're five degrees of depression listed there. And No. 3 says, "Comatose, difficult to arouse, significant depression and respiration." And then No. 4 is, "Compatible with death an [sic] aged or ill persons, and then – or in the presence of obstructed airway." And then No. 5, "The usual lethal level."

So just taking No. 3 as an example of comatose, [245] No. 3 says you need 10 to 15 micrograms per ML; No. 4 is 12 to 25; and No. 5 is 15 to 40. Obviously, they – they've given a range because it's going to be sort of individualized. And at six minutes, based on that study, just looking at the average, it would be about

145 I think is what I calculated. 50 times – about 2.9. So that's ten times the amount that would be needed to achieve level 3.

Now, mind you, that was the concentration that – that – that calculation I just did, of 50 times 2.9, that was the using [sic] the concentration of Pentobarbital at six minutes. But the concentration of Pentobarbital in those individuals at, maybe, one or two minutes was probably, you know, I don't know for sure, I – I did some calculations and I – I can't remember off the top of my head, but it's higher. So if you, now, take that factor of 50 and multiply that, at that point in time, one or two minutes after the drug's been injected, now we're talking – could be 200 or 250 micrograms per ML of the Pentobarbital. From this massive dose of the Pentobarbital.

All right. So we're at this very high level, and then, as I said, this sudden and/or this rapid severe hypotension and that drug is not going to get redistributed, so it's not going to fall off. So it [246] starts out very high, and it stays very high. That's why this drug is a lethal – is a lethal agent administered in the way that it does.

Q Is that calculation you just told me about part of the reason you concluded that this person would be deeply unconscious and not feel pain at 20 to 30 seconds?

A That is part of the reason.

Q Tell me the other reasons.

A Well, the hypotension is going to make somebody unconscious. So if you take a normal individual and you make them hypotensive, I mean, they can main- – people can maintain unconsciousness – sorry. People

can maintain consciousness when they're hypotense, you know, when nothing else is being given. But when you give an anesthetic like this and it causes the hypotension, and it's going to act synergistically, because you need blood flow to the brain to be able to maintain consciousness, and this drug – and in addition to the effect it's having on the brain, it's decreasing blood pressure, so the blood flow to the brain is going to be decreased as well. So that's going to exacerbate the problem of maintaining consciousness.

And then finally, the inmate is going to stop breathing, their oxygen source is going to go down and they will become hypoxic, and then you can't maintain [247] consciousness when you're hypoxic, so those factors all combine to produce death, and, you know, unconsciousness and death. So that – that's how I envisioned what was happening in this scenario.

Q I want to clarify something we talked about earlier.

As I understood the earlier testimony, there might be a period when the person had some level of unconsciousness, where he could still experience pain or some level of – perhaps, I'm using the term wrong, semi-unconsciousness, did you reach an opinion of how long that would last?

A I have an opinion about it, I – but it's – it's more based on my – my understanding of the – the drug and the kinetics, and not so much about the, you know, having done a calculation. Because in order to be able to – to answer that question, first, we have to decide, okay. Well, what – what is the period during which –

MR FOGEL; Objection. The question was, did you reach an opinion? I think it's –

MR. SPILLANE: I think he said "yes," and then kind of . . .

THE WITNESS; Okay. Yes, I did reach an – I have reached an opinion.

[248] BY MR. SPILLANE:

Q Okay. Let me ask you this: What – what opinion did you reach?

A That it would occur rapidly. And by rapid, I'm – I'm – I'm going to estimate that it's probably going to be in the range of maybe ten seconds. I mean, that's just a – a – a – I'm – based on my working with these figures and how quickly this drug is getting in and so forth, that this period, as I think Dr. Zivot is describing, where, you know, the – the inmate would be in this period where he would be able to maintain – or sense that choking sensation, it's going to be ten seconds. But I think that's going to be within that 20 to 30 seconds that I described. It's not going to be in addition to the 20 to 30 seconds. It's a ten second, let's say, a ten second window within that 20 to 30 seconds.

Q So I'm going to ask you the question, just a different way:

During the 20 to 30 seconds you described earlier, is there a period of ten seconds where he might feel something; is that what you're saying?

A Sorry, within that 20 to 30 –

Q Yeah, is it before? Or is it within? I didn't –

A Within. It's within.

[249] Q It's within.

So in the 20- to 30-second period, there might be ten seconds where he could feel something; is that what you're testifying to?

A That is correct. But just to clarify, I mean, he could also experience before that ten seconds – I mean, obviously when he's awake, he can experience as I've testified.

Q Right. Thank you.

I don't have think I have any further questions, Doctor.

FURTHER EXAMINATION

BY MR. FOGEL:

Q Clarify quickly: On that last question, matter of clarification, states lawyer asked you if you had reached an opinion on how long this state of mild unconsciousness, somewhere else on the spectrum besides this total unconsciousness, whether you had reached an opinion; is that opinion set forth anywhere in any of your reports?

A No.

Q And you also – also talked about there might, be some ten seconds, where he would experience this level of mild unconsciousness, some level of unconsciousness, [250] somewhere away from the far end of the spectrum. Is this ten-second period identified anywhere in any of your reports?

A No. Not – not a – a [sic] actual quantitative number is not.

Q Okay.

MR. FOGEL: No further questions.

MR. SPILLANE: All right. That's all I have. Thank you.

(Whereupon the deposition of Joseph F. Antognini was concluded at 3:27 p.m.)

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