AFFIDAVIT OF DR. JANICE OPHOVEN

STATE OF MINNESOTA

COUNTY OF Washington

I, Janice Ophoven, being duly sworn, state as follows:

1. My name is Janice Ophoven, M.D. My address is 6494 Crackleberry Trail, Woodbury, MN 55129. I am a pediatric forensic pathologist with over 30 years of clinical, administrative and quality improvement experience. I trained in pediatrics and am board certified in pathology and forensic pathology. My practice is focused on understanding child abuse and injury to children. My CV is attached.

2. I have been asked to provide my opinion on the death of Chloe Britt (DOB 8/19/01; DOD 2/21/02) and have been provided with the following documents: (1) birth records; (2) pediatric records from Dr. Ayesha Dar; (3) medical records from Natchez Community Hospital (2/21/02); (4) autopsy report completed by Dr. Stephen Hayne; (5) trial testimony of Drs. Dar, Hayne and Patterson; and (6) eight autopsy photos. I do not have any histology (microscopic) slides or a complete set of autopsy photos, and have been told that these are not presently available.

3. Since infants die from natural, accidental and/or abusive causes, with multiple factors often playing a role, it is critical in reaching an opinion on the cause and manner of death to review the clinical history as well as the autopsy results. Some sense of the type of review now required in child abuse cases was provided in a 2011 presentation by Dr. Carole Jenny, a child abuse pediatrician at Brown University Medical School who is a primary proponent of shaken baby/shaken impact syndrome. As this presentation indicates, there has been a substantial shift in the literature in the decade since Chloe's death, when a small number of findings (typically subdural hemorrhage, retinal hemorrhage and cerebral edema, or brain swelling) were widely viewed as diagnostic or even pathognomonic of a shaking type injury. Today, the "triad" is acknowledged to be a myth, and it is understood that it is necessary to examine a long list of factors and possibilities in determining the cause and manner of any infant death. Carole Jenny, Presentation on *The Mechanics: Distinguishing AHT/SBS from Accidents and Other Medical Conditions*, slide 33, 2011New York City Abusive Head Trauma/Shaken Baby Syndrome Training Conference (Sept. 23, 2011) (powerpoint available at http://www.queensda.org/SBS_Conference/SBC2011.html).

EXHIBIT "C"

4. After briefly summarizing my conclusions, I summarize the available clinical information, including the trial testimony, with comments as appropriate. In this case, the anal findings are particularly important since the misdiagnosis of anal abuse at the hospital distorted the entire investigation and trial. Finally, I address the differential diagnosis (causes) for the child's death based on the autopsy findings and clinical history, including the history provided by Mr. Havard.

Conclusions

5. There is no evidence of sexual abuse in the autopsy findings or photograph. The rectal area in the photographs is within the range of normal in a deceased infant. These findings were misinterpreted by hospital personnel who did not have experience or expertise in post-mortem changes in infants.

6. Based on presently available information, the child's collapse was most likely triggered by the short fall described by Mr. Havard; however, other predisposing factors may have contributed to the outcome.

7. The fact that Mr. Havard did not have an expert to help his attorney understand the medical issues virtually guaranteed his conviction, irrespective of guilt or innocence, particularly given the incorrect and inflammatory information provided by the emergency room personnel on the anal findings.

8. To ensure that justice is done, the autopsy findings, including the autopsy slides and complete set of photographs, should be reviewed in their entirety, with emphasis on the neuropathology.

Medical history

9. In any death investigation, the autopsy findings must be correlated with the medical history. I therefore briefly summarize the available information, which may not be complete and is in some instances not particularly legible.

Prenatal records

10. Chloe's mother, Rebecca Britt, was 21 years old at her first prenatal appointment (3/9/01) and had one prior induced abortion. The mother was 5'11" in height. Her pre-pregnancy weight is recorded as 171 pounds though she weighed 157 at her first prenatal appointment. There is no family history on the parents and the records are sparse.

11. The estimated delivery date was 8/28/01 based on last menstrual period and 9/13/01 based on ultrasound.

12. A pediatrician note (below) indicates that the mother took antibiotics during the pregnancy. There are no notes in the prenatal records confirming this or indicating the cause.

Birth records

13. The mother was admitted to the hospital for induction of labor at 5:03 a.m. on 8/29/01. The admission note indicates that the mother smoked ½ pack of cigarettes a day, with her last cigarette on the day of admission. She was allergic to codeine.

14. The delivery was induced with oxytocin, with complete dilation reached at 10:45 a.m. Chloe was born at 11 a.m. with vacuum assistance. She weighed 7 lbs 6 oz (25^{th}-50^{th} percentile), length 19 inches (approximately 25^{th} percentile). Her head circumference was 34 cm (25^{th} percentile). Her apgars were 8/9/9.

15. Chloe had head molding (distortion) from delivery with a cephalohematoma on the right side of the head and a smaller cephalohematoma on the left, confirming that this was a traumatic delivery.

Comment. A relatively recent study (Rooks 2008) found that 46% of asymptomatic newborns with normal deliveries have subdural hemorrhages at birth based on magnetic resonance imaging. In that study, the subdural hemorrhages in the small number of infants who had follow up radiology had resolved by 3 months. However, some proportion of birth hemorrhages go on to become chronic. Since Chloe had a traumatic delivery, it is likely that she had a subdural hemorrhage at birth. Since no radiology or histology is available, we do not know whether she had a chronic subdural hemorrhage at the time of her death.

16. Chloe had two prominent auricular/tubercular/preauricular skin tags on her left ear (developmental anomalies sometimes associated with other birth defects). Renal and hearing tests were conducted to rule out related abnormalities. The results were normal, and she was discharged on 8/31 to be followed up in 2 weeks.

Pediatric records (Dr. Ayesha Dar).

17. *9/7-9/10 records.* Newborn screening was normal. The mother and child lived with the grandparents (mother's parents). The father was unnamed and the child was Medicaid eligible. The notes indicate that the mother had stopped smoking at 5½ months of pregnancy.

18. *Growth charts.* Growth charts show that the child was around the 25^{th} percentile for weight, length and head circumference at birth. At one month, her length and head circumference remained in the 25^{th} percentile but her weight had increased to the 75^{th} percentile. At 4 months her weight and length were over the 97^{th} percentile and her head circumference was in the 90^{th} percentile. At 6 months her

weight and length were above the 97th percentile and her head circumference was well above the 95th percentile.

Comment. This child was growing very rapidly in her first six months. Since her mother was also large, this may be a normal development, or it may reflect catch-up growth from poor uterine development, possibly associated with smoking. (The mother apparently gave the pediatrician incorrect information on her smoking during pregnancy.) While the increase in head circumference is consistent with the increase in weight and length, increases in head circumference that cross two percentile lines are generally viewed as concerning since they may reflect intracranial abnormalities, including birth subdurals that have not resolved, potentially increasing vulnerability to illness or minor impact. In this case the head circumference crossed four percentile lines, which is unusual.

19. *9/11 checkup.* At her 2 week well baby checkup, Chloe weighed 7 lbs 4 oz, which was 3 oz less than her birth weight. Her height was unchanged and her head circumference was essentially unchanged (13.5 inches or 34.3 cm). Constipation is noted, as were the ear anomalies.

20. *9/14 weight recheck.* Chloe was feeding better and her weight had increased to 7 lbs 14 oz. However, she still required stimulation for bowel movements.

21. *10/25 checkup.* At her two month checkup, Chloe had oral candidiasis and diflucan (an antifungal medication) was prescribed. She also received vaccines.

22. *11/27 follow up visit.* Chloe weighed 16 pounds 2 oz, and her temperature was 95.5. She had gas and constipation, and the daycare had reported that she was not eating much. Her left TM (middle ear) was hyperemic, and she was prescribed an antibiotic (likely septa; hard to read). She still had oral candida (thrush) and diflucan was again prescribed. Followup was scheduled for 1/21/02.

Comment: Although this noted as a follow up visit, no preceding visit is noted. Chloe's problems with constipation and thrush continue, and she has an ear infection.

23. *1/15/02 sick visit.* Chloe's weight has increased to 19 lbs 5 oz, height 26 inches (discussed above). No head circumference was taken. She has nasal congestion and candidiasis and appears to have an ear infection, with possible concern with lungs.

24. *1/21 vaccinations.* Chloe was given her 4 month vaccines at this visit. She weighed 19 lbs 10 oz. and her temperature was 97.3. The rest of the report is not legible.

25. *1/31 sick visit.* Chloe weighed 20 pounds; temperature 98. She had "bad congestion" and cough. There are references to oral candida (resolved?) and bronchitis. She is prescribed medications, including an antibiotic (augmentin).

26. *2/19 well baby checkup.* At her six month checkup, Chloe weighed 20 lbs 11 oz; height 28½ inches; temperatures 98.3. Her right ear was slightly hyperemic and she was prescribed antibiotics (septa). She was also given vaccines. She may also have been prescribed a vitamin supplement. Follow up in three months.

Comment. The pediatric records show dramatic growth in weight, length and head circumference but also indicate that Chloe was unwell even at regular checkups. It is unclear whether she improved between visits or was never well. Oral candidiasis (thrush) is common in infants and usually benign; however, it may indicate an underlying problem if it continues for months even with treatment, as was apparently the case here.

Natchez Community Hospital (2/21/02)

27. Per records, Chloe arrived in her mother's arms at 9:40 p.m. on 2/21/02. The mother said she had given the child her meds for an ear infection and had gone to the store. The boyfriend said he had given the child a bath and put her to bed.

28. There were no spontaneous respirations and the child was cyanotic (blue in face). She was asytole (no heart beat) from 9:40–10:06. Chest compressions were given in this period along with multiple doses of epinephrine and atropine (9:50-9:57).

29. IV access was secured at 9:45. Intubation attempts at 9:44 and 9:48 p.m. were unsuccessful. Dr. Caudle successfully intubated the child at 9:59. A pulse was regained at 10:06 p.m.

30. After resuscitation, the E.D. notes indicates that respirations are normal but that there was bruising on the chest, presumably from chest compressions.

31. Interdisciplinary notes indicate that a rectal temperature was taken at 10:06 p.m. (93.7 degrees). A large dilated rectum with perianal bruising/redness/edema was noted with the appearance of a tear at the upper portion of the rectum.

32. A urinary catheter (French feeding tube 5) was inserted at 10:09 p.m. The vaginal area was clear and the tube passed easily, with no complications. No abnormal findings are noted in the GU (genitourinary) section of the ED record.

33. An NG tube (French feeding tube 9) was passed through the left nostril without complications. There were initially no gastric contents. Subsequent drainage into a cup was given to the police department.

34. A chest x-ray indicated that the lung fields were clear but there was a hyperlucency, possibly from overaeration or asthma.

35. Labs showed a slightly high white blood cell count with a shift to the left (low neutrophils, high lymphs). Hemoglobin, hematocrit and red blood cell counts were low.

36. It appears that the police and possibly social workers or child protective services were in the ER by 10:16 p.m.

37. *Notes (Dr. Dar).* Dr. Dar, the child's regular pediatrician, arrived at the hospital around the time that Dr. Caudle intubated the child. Chest compressions were being performed. Dr. Dar noted bilateral fixed dilated pupils with retinal hemorrhages. Approximately 15 minutes after being placed on the ventilator, the baby went into bradycardic rhythm with severe facial swelling. Dr. Dar noted that the anus was distended with severe perianal bruising and a torn anal sphincter. Dr. Dar diagnosed shaken baby syndrome and sexual assault.

38. *Notes (Dr. Patterson).* On initial exam, there were no heart sounds, pulse or spontaneous respirations. The child was cyanotic with blue color in her face and around her mouth. Mouth to mouth resuscitation was conducted until the child could be bagged. On exam, Dr. Patterson noted bruising on the forehead, thighs and chest, and a torn frenulum [tissue attaching the upper lip to the upper jaw]. The pupils were fixed and dilated with retinal hemorrhages. The anus was dilated to approximately the size of a quarter with tearing of the perianal tissue, including the anal sphincter muscle.

39. At 10:31 the child's temperature was 90.4. Retinal hemorrhages were observed at 10:35, at which time the pupils were fixed and dilated.

40. *Collapse.* At 10:45 the child became bradycardic (heart rate in the 40s) and her blood pressure increased (117/52). Dr. Patterson and others describe the child's face and entire head beginning to swell, with bulging fontanels. There was clear fluid running from her nose (glucose 424). Cushings triad is noted.

41. At the time of the bradycardic episode the infant was having spontaneous bowel movement, with feces (liquid, yellow green) oozing out of the rectal opening.

42. A code was called and compressions and epinephrine were given. The child entered into agonal rhythms at 10:49 p.m. and was pronounced dead at 10:50 p.m. The Coroner was notified at 10:55, and airway support was continued secondary to the family's request for organ donation.

43. The Coroner was present by 11:15 p.m. After discussion with Drs. Hancock and Patterson, it was determined that the child was not a candidate for organ harvest due to the prolonged downtime. At 11:30, the Coroner was in the room, which was closed. Life support was discontinued at 11:40. At 11:58 the sheriff was in the exam room with the Coroner and deputies. The Coroner left at 12:20 a.m.

Comments: There was very vigorous and active resuscitation with many medical participants. The anal examination was also conducted/seen by many participants, possibly including law enforcement personnel. These factors may make it difficult to distinguish at autopsy between findings that were present on admission and those arising from hospital intervention. For example, the torn frenulum may have occurred during the multiple attempts at intubation, the discoloration on the

back of the head may have occurred during chest compressions, and the contusions on the thighs and near the anus may have represented efforts to hold the child during resuscitation or examination. The presence of a loose bowel movement during the anal examination (with well formed stool not yet passed through the rectum found at autopsy) would have made it particularly difficult for the hospital staff or law enforcement personnel to observe or interpret the rectal findings.

Preliminary reports

44. A permit for autopsy signed by the coroner, James E. Lee, states that the type of death is violent (homicide) with suspected shaking baby syndrome and sexual assault (anal tearing and oral). The narrative states that a 6 month old baby was left at home with the mother's boyfriend of two months. When she returned the baby was blue and not breathing with unexplained marks. The child was rushed to the E.R. but all efforts to sustain life were unsuccessful. The medicolegal autopsy is to include a rape kit and DNA sampling as required to determine the cause and manner of death.

45. The autopsy was performed at 6:50 p.m. on 2/22/02. A provisional report of autopsy (fax line 2/26/02) indicates violent or unnatural death. The child's weight is 9.15 kg; length 66.2 cm; pupils 0.4 on the right and left. The cause of death is "consistent with shaken baby syndrome" and the manner of death is "consistent with homicide." The pathologic findings are subdural hemorrhage consistent with bilateral retinal hemorrhage.

46. A death certificate dated 2/25/02 states that the cause of death was subdural hemorrhage consistent with shaken baby syndrome and child abuse and that the manner of death was homicide. It states that the injury occurred at 9 p.m. on 2/21. The line for "how injury occurred" states "infant was shaken."

Final autopsy report

47. A receipt indicates that Dr. Dar received a copy of the report from the Coroner on 4/21/01. The Coroner also received a copy of Dr. Dar's progress note at that time.

48. The autopsy report concluded that the cause of death was "consistent with shaken baby syndrome" and that the manner of death was "consistent with homicide."

49. *External exam.* There were contusions (bruises or areas of discoloration) to the back of the head (6 cm), forehead (2 cm), right anterior thigh (up to 2 cm) and left anterior thigh (4 cm). There were facial contusions on the forehead (2 cm) and over the upper lip (1 cm), and a tear in the frenulum (.5 cm). There were no contusions to the back, chest or abdomen.

50. *Internal exam.* The lungs contained a large amount of serosanguinous fluid on both sides. There was a 1 cm contusion in the area of the anus, and a section was taken for microscopic examination. The bowel contained well formed stool.

51. There was diffuse bilateral subarachnoid hemorrhage, subdural hemorrhage (30 cc) and multifocal cephalohematoma up to 3 cm. There were changes in the eyes consistent with bilateral retinal and perioptical nerve hemorrhage. No injury to the neck is noted.

52. *Autopsy slides.* The microscopic review of the slides showed pulmonary vascular congestion with focal atelectasis. The mesenteric lymph node showed reactive lymphoid hyperplasia. The anus showed submucosal hemorrhage. The central nervous system showed subarachnoid hemorrhage and mild cerebral edema.

53. There was bilateral retinal and perioptic bilateral nerve hemorrhage.

54. *Conclusions.* The cause and manner of death was consistent with shaken baby syndrome and closed head injuries. The discussion states "noted to succumb secondary to combination of closed head injury and change consistent with shaken baby syndrome". The manner of death was ruled homicide.

55. The list of acute traumatic injuries included cephalohematoma; subdural hemorrhage; subarachnoid hemorrhage; bilateral retinal hemorrhage; and contusions (above).

56. *Autopsy photos.* Facial photographs show bruising on the upper right forehead. There appears to be a torn or damaged frenulum. The back of the head shows a reddened area. The rectum is normal with possible mild discoloration on one side and no tears. The brain shows hemorrhage. Given the discrepancies in the autopsy report and trial testimony, I recommend that all brain photographs and slides be reviewed by a neuropathologist.

57. *Rape kit.* The crime lab reports were negative for semen on oral, vulvar, vaginal and rectal swabs.

58. *Toxicology report.* The toxicology report found lidocaine and trimethoprim.

Comments: There are several confounding factors in this child's death. The lab reports and slides (reactive lymphoid hyperplasia) confirm that the child was ill at the time of death, consistent with her history, and that she was taking an antibiotic that included trimethoprim, whose side effects include unusual bruising or bleeding. Such factors do not explain the death but may explain some of the findings that were misinterpreted as abuse. The unusual swelling observed in the hospital may also have distorted the autopsy findings.

Havard videotaped statement.

59. Havard said that the mother had fed Chloe and given her medicine because she was sick (flu-like symptoms and/or ear infection). The mother left around 8:05 or 8:10 to buy groceries and pick up DVD's. The baby was in a baby swing.

60. After about five minutes, the baby started crying. Her diaper was dry but she spit up and her nose was running, so he gave her a bath in the infant tub in the large bathtub. He had never given her a bath before but had seen her mother bathe her countless times and had bathed his brother when he was an infant. When he picked her up out of the tub to dry her off and stood up, she was slippery and slipped out of his hands. Her leg hit the lid on the toilet bowl and her head made contact with the tank.

61. The baby gasped for air as if scared, dazed or in shock, and he shook her back and forth sideways. He states that he didn't shake her hard and demonstrated how he held her (supporting her head). There was some blood from her nose and perhaps a little on her cheek.

62. When she started crying again, he thought she was all right. He changed her diaper and she spit up on the bed. He did not see any blood in her mouth or on the bed though there might have been a little red in the vomit. He cleaned her up, rubbed her with bedtime lotion and laid her down. He said he put the baby to sleep on her stomach, which is how he always put her as the mother was afraid of SIDS.

63. The mother came back a minute or two later. He didn't tell the mother he had dropped the baby. The mother checked on the baby and everything seemed all right. The mother left again for about 20 minutes as she hadn't picked up DVDs. When he checked on the baby, she had scooted down in the bed so he assumed she was okay.

64. When the mother returned, he was in the bathroom. Almost immediately after that, he heard the mother screaming that the child wasn't breathing. He thought immediately that he had hurt her. They drove to Community Hospital as fast as they could.

65. In response to questions, he said it was possible he may have wiped her a little too hard or shook her too hard or went in too far when he was cleaning her, he didn't know. She didn't cry when he was cleaning her, she just kicked and moved her arms around, squirming. He said he couldn't explain the damage to her rear end and that he "honestly and truly" did not know how it occurred. He said he didn't tell the mother, the doctors and nurses at the hospital or the police that he had dropped or shook the baby because he was scared and afraid that maybe he had caused her condition. He asked to talk to the police today.

Trial and deposition testimony

Dr. Hayne

66. Dr. Hayne testified to the autopsy findings, including the contusions on the forehead, left thigh (two inches) and right thigh (one inch), and in the area of the rectum (approximately 10 to 11 o'clock). [Note: the hospital records report the contusions on the thighs as linear; they are not visible or barely visible in the photographs provided.] There was also a frenulum tear and a bruise (reddened area) on the back of the head. He testified that the bruise to the rectum would be consistent with the penetration of the rectum.

67. Dr. Hayne testified that there were significant internal injuries to the head, including approximately 30 cc of subdural blood (several tablespoons), indicating that trauma had occurred. He attributed this to the tearing of bridging veins occurring when the brain oscillated back and forth. There was also subarachnoid hemorrhage.

68. There was bleeding in multiple layers of the retina and around the optic nerve, confirmed on microscopic review. Since the eye is part of the brain, it is included in the examination of the brain.

69. Dr. Hayne considered that the hemorrhages were lethal.

70. There were no fractures and no contusions or tears in the brain itself. Injuries on the body other than the head injuries were not participatory in the death.

71. Dr. Hayne concluded that the cause of death was consistent with shaken baby syndrome and that the manner of death was consistent with homicide. He described the classic triad for shaken baby syndrome as subdural hemorrhage, retinal hemorrhage, and the absence of other potentially lethal causes of death. He testified that the first two were present and that he did not find any other cause of death. He testified that this was very violent shaking with injuries parallel to those seen in motor vehicle crashes, falls from significant heights and the like.

72. Dr. Hayne testified that the injury to the mouth and frenulum could be caused by insertion of an object in the mouth, pulling of the loop, even pushing down on the upper part of the jaw.

73. Dr. Hayne confirmed that he did not see a laceration or tear in the anal area. He testified that the contusion in the anal area implied force or injury to the mucosal surface, tearing the small vessels beneath the surface. He testified that they might not see a small tear after they washed the body and rigor had set in. There might have been alterations in the body so that the emergency room doctors might have seen something he did not see or vice versa.

Dr. Patterson

74. Dr. Patterson, the emergency room doctor, testified that the baby was not breathing and had no heart rate on arrival. She described the resuscitation.

75. Dr. Patterson noticed some bruises on the baby's forehead and a torn frenulum, which is unusual in a child this age. This is more usual in toddlers who hit a coffee table or fall. It often scares parents as this is a vascular area that bleeds a great deal.

76. A nurse who was taking a rectal temperature drew her attention to the anal opening, which was open about the size of a quarter. The anus opens for a bowel movement but otherwise stays puckered shut. In this case, it was flaccid, as if it had no tone. There was thin liquid oozing from the rectum and a little tear.

77. Dr. Patterson testified that the photograph did not do the findings justice since the rectum had become more elongated. She could still see the small tear. She testified that what she saw was not normal and suggested penetration (sexual or otherwise). The dilation of the rectum would not be life threatening unless something penetrated it so far that it caused internal damage to the abdominal cavity (not present here). She testified that she would be surprised if the medical examiner found a contusion rather than a tear.

78. Dr. Patterson testified that the injuries to the baby's mouth were caused by penetration and/or something that caused a pushing type effect to the mouth. A fall from three feet onto a hard surface could cause the frenulum to burst or bleed. This could occur from a porcelain toilet if she fell on it with her mouth.

79. When asked what led to the child's death, Dr. Patterson stated that retinal hemorrhages are indicative of a "shaken baby type thing" where so much force is used that the vessels tear, causing pools of blood deep in the eyes. Trauma of some sort is the cause of retinal hemorrhages in a baby most of the time.

80. Dr. Patterson testified that, after resuscitation, they hoped to take the child for a CT scan to see what was going on in her head, but her head suddenly started to visually swell, and they pronounced her dead.

Dr. Dar

81. Dr. Dar testified that the baby was being intubated when she arrived. Since others were working on the baby, she looked at the pupils, which were fixed and dilated, which she described as a sign of brain death. She also saw retinal hemorrhages which she described as being very specific of being a shaken baby. She testified that nothing else causes retinal hemorrhage.

82. Dr. Dar testified that the baby was bleeding from her rectum and that the opening was dilated. She could see a tear around the twelve o'clock position, which she pointed to in the autopsy photo. She testified that, apart from the fact that this

area was cleaned up, the autopsy picture fairly and accurately represented what she saw. She testified that the tears and condition of the rectal area indicated sexual abuse and that a foreign object was inserted forcibly in the rectum.

83. When they took the diaper off, they noticed some long linear bruises on the thighs as if somebody was holding the baby there. However, this was a guess.

84. After discussing the retinal hemorrhages and injury to the genitalia, which she described as "bad," Drs. Patterson, Caudle and Dar called the police, and ordered that nobody leave the emergency room. They then went back to resuscitating the baby. They were able to get her stable with rhythmic heart beat and were arranging for helicopter transfer when the nurses advised that she was asytole (flatlined).

85. Dr. Dar testified that the baby had bled so much that her brain herniated, which she described as dropping down through a small hole at the base of the skull and exploding. She also had cerebral spinal fluid (CSF) leaking from her ears and nose. There was no point saving the child at that point, and they declared her dead within five minutes.

Comment: Much of the information provided by the emergency room personnel was found to be incorrect at autopsy. The autopsy confirmed that the rectal tear did not exist and there are no indications that the brain was herniated. Since the emergency room personnel were not familiar with postmortem changes, they misinterpreted normal changes. They may also have affected the findings through what appear to have been multiple examinations of the anal area, including by law enforcement personnel.

Other witnesses (from summaries)

86. *Katie Thompson, daycare caregiver.* Ms. Thompson testified that Chloe had a diaper rash at daycare on 2/21 but there was otherwise nothing unusual about her anus.

87. *E.R. nurses.* Various nurses testified to the resuscitative efforts and swelling of the head. One of the nurses, Ms. Murphy, testified that the photograph did not accurately represent the child's anus, which was gaped open when she saw it. Ms. Murphy testified that there was bruising around the rectum, bruising around the vaginal area, and bruising on the forehead and each thigh. She testified that a frenulum injury occurs in older children who fall or have a blow to the lip but that injury in a non-walking baby would usually be caused by something large being shoved into the mouth. She testified that the death was consistent with subdural hematoma or major head injury, better known as shaken baby syndrome. On further questioning, she agreed that there were no injuries to the vaginal area.

88. *Police testimony.* At least one police officer testified that the rectum was larger than normal, that he observed what appeared to be a tear in the rectum, and that it was his conclusion that the baby had been sexually assaulted. He testified that Dr. Patterson told him that something had been inserted in the rectum.

Other issues

89. It is my understanding that the Court did not authorize funds for a medical expert to assist the defense in understanding the medical evidence or to testify at trial. The Court found no need for this since the defense was able to talk to Dr. Hayne.

90. It is also my understanding that the State's theory, as argued at trial, was that the baby was sexually abused by Mr. Havard and was killed by shaking during the course of the sexual assault or shortly thereafter.

Dr. Hayne (November 23, 2010 deposition)

91. In a deposition eight years later, Dr. Hayne testified that he is certified in forensic medicine and qualified in child sexual abuse investigation and diagnosis.

92. When he conducted the autopsy, Dr. Hayne knew from the paperwork and telephonic communication with the Coroner and medical examiner investigator that sexual assault was an issue. He did not mention sexual battery in his report since he could not come to a final conclusion on this.

93. Dr. Hayne found one injury that would be consistent with penetration of the anal area but this was not in and of itself enough to conclude that there was a sexual assault. He was not able to find any tearing of the anal area. Had he been able to do so, he would have noted it in his report and photographs would have been taken.

94. He repeated that he did not see any evidence of sexual assault or battery at autopsy. He did find a 1 cm contusion of the anal area. He did not list this as a traumatic finding in his report (though he believed he dictated it) but it is identified in the body of the report and the body diagram.

95. Dr. Hayne confirmed that no tearing is seen in the photographs, and no tearing, lacerations or abrasions are identified in the autopsy report. There were no tears to the rectum, anus, anal sphincter or perineum. It is not possible that such tears would have healed between the emergency room and autopsy.

96. Dr. Hayne testified that the delicate tissue lining of the rectum can be damaged easily in a child of this size and that the records show that the child's temperature was taken by rectal thermometer on multiple occasions while in the emergency room. Damage could be caused by an application of the rectal thermometer but it would be highly unlikely to see an injury of this size secondary to placement of a thermometer.

97. There were no spermatozoa in the oral, anal or vaginal swabs.

98. Dr. Hayne testified that brain death is followed by flaccidness, unconsciousness and muscle relaxation. Dilated pupils, fixed pupils, lack of muscle tone and asytole (heart no longer functioning) are signs of brain death. Given these symptoms and the reported downtime of 45 minutes to an hour, it is reasonable to assume that Chloe Britt was brain dead when the dilation was seen. It is possible to survive for a few minutes with total oxygen deprivation but death will intervene within two to three minutes.

99. Dilated anal sphincters can occur during postmortem examination. This is a recognized finding in the postmortem period but is not as common as people think. It is possible that children who have died of brain injuries have an increased likelihood of having a dilated anus postmortem. The 1997 journal article provided included only a handful of children less than one year of age, of whom only one suffered a violent death. The anus was not dilated in that case.

100. Dr. Hayne did not believe that the death was immediate in this case and that there was a period of time in which cardiovascular activity was diminishing and blood would have had a tendency to pool in different organs. [Note: this would increase the difficulty of interpreting particular findings, including hemorrhage.]

101. Dr. Hayne did not think that the E.R. physicians would have mistaken congestion for an anal injury since a contusion is usually fairly well circumcised and outlined. He agreed that a flaccid or limp muscle condition could contribute to anal dilation and that a dilated anal sphincter is not on its own evidence of anal sexual abuse. To determine that sexual abuse is a probability, he would like to see more evidence on traumatic injuries, clinical history and, hopefully, laboratory testing.

102. In this case, there was a contusion, which is a traumatic injury, but no abrasions, lacerations, presence of seminal fluid, spermatozoa or other evidence of sexual assault. He therefore could not come to a final conclusion that the child had been sexual assaulted. At trial, he said that the contusion would be consistent with sexual abuse but that he couldn't say that there was sexual abuse.

103. He could not say that the child was sexually assaulted to a reasonable degree of medical certainty when he wrote the report, when he discussed the case with the coroner, at the trial or at this time. At trial, he deferred to the clinical examination conducted at the hospital. He was not familiar with the expertise of the doctors and nurses who examined the child at the hospital or their experience with treating sexually abused children.

104. Dr. Hayne knew that sexual battery was going to be an issue before he testified. All he could tell the district attorney before trial was that there was a contusion that would be consistent with sexual abuse but that he would like to see more evidence before he made a more significant evaluation and conclusion.

105. Dr. Hayne would have testified to all of this at trial had he been asked. He does not recall meeting with the defense attorneys but would have done so and would have answered their questions in the same way as in his deposition. Specifically, he cannot say that the child was sexually penetrated to a reasonable degree of medical certainty. The injury would be consistent with that but this is not a definitive diagnosis.

106. Dr. Hayne testified that while there was more pronounced dilation at 12 o'clock, there was no tear. A contusion is a tearing of blood vessels underneath the skin or mucosa with a collection of blood at that site manifested by an area of discoloration. In a microscopic section, one sees bleeding outside the vessels into the soft tissue, which is different than congestion.

Discussion

107. As even a brief records review makes clear, the evidence in this case was inflammatory and internally contradictory. It also dealt with highly controversial issues that have been the subject of major changes in the literature over the past decade. I am focusing primarily on the anal findings since it is my opinion that the introduction of evidence on sexual assault that was not present at autopsy Deborah Tuerkheimer, *The Next Innocence Project: Shaken Baby Syndrome and the Criminal Courts,* 87 WASH. UNIV. L. REV. 1, 5, 18 (2011) precluded any possibility of a fair trial.

Anal findings

108. The photographs of the anus show a classic presentation of the rectal area of a dead baby. Over the years, the findings of postmortem relaxation of the anus have been misinterpreted on multiple occasions as traumatic or penetrating injury by emergency room personnel or other clinicians.

109. Since it is rare for hospital staff or other clinicians to examine a sufficiently large number of deceased infants to reliably interpret anal findings, it is critical for any findings to be carefully photographed and measured. This is usually done at autopsy though it can also be done by hospital staff using a colposcope or similar instrument. This case provides an excellent example of the critical need for objective documentation.

110. The hospital staff based the diagnosis of sexual assault on a dilated anus and an anal tear that was not present at autopsy. The autopsy photograph (which is not of optimal quality but is sufficient for this purpose) confirms that there was no tear. I agree with Dr. Hayne that it is impossible for a tear to have healed in the very short time (less than an hour) between the hospital examination and death.

111. The hospital staff testified that the baby was oozing stool from the rectum during the period in which they thought they saw the anal tear. It is difficult to see how they could have seen a tear under these circumstances. It is of further concern that numerous medical staff and at least one police officer reported seeing these

findings. For this to occur, someone must have been holding the child's legs, cleaning the child, etc., introducing the possibility of artifact in a dead and/or dying child.

112. The autopsy is the gold standard in determining the existence of tears or lacerations, and I do not understand why the hospital staff was permitted to testify to something that did not exist. Nor do I understand why Dr. Hayne stated in his deposition that he would defer to the hospital staff since this would defeat the purpose of the autopsy, which is to make objective medical findings. In this case, the objective medical findings, including the photographs, establish that there was no tear yet the hospital staff was permitted to testify that it existed, a physiological impossibility. This lack of objectivity casts doubt on the reliability of other clinical observations made by the hospital staff.

113. Dr. Hayne made clear that he was well advised of the allegations of sexual assault before the autopsy and that he and his staff looked carefully for any possible supporting evidence. The only evidence that he was able to identify was a small contusion in the anal area. This is a nonspecific finding. Since this contusion was not seen by the hospital staff, it likely results venous congestion, which is typical in dead infants; pressure in this area as numerous hospital staff and police officers viewed the anal findings; or a coagulopathy (bleeding/clotting disorder) caused by the child's critical condition and medications. I agree with Dr. Hayne that this finding does not indicate sexual assault and that no other evidence of sexual assault (sexual assault kit, widespread bruising, etc.) is present.

114. The misinterpretation of genital and anal findings led to false accusations of sexual abuse in the daycare, Bakersfield and Wenatchee scandals in this country and the Cleveland scandal in the U.K., and was addressed in one of the lead cases in the Goudge Inquiry in Ontario, Canada. The specific finding of postmortem perianal findings in children was addressed in an article by McCann *et al* that examined anal findings at autopsy in 65 children (birth to 17 years). This article was published in the official journal of the National Association of Medical Examiners (NAME) in 1996. In this study, 52% of the children died of natural causes, 40% from accidental injuries, 5% from other causes and 6% from homicide. Of these, 74% had some dilation of the anus and 48% had venous congestion, venous pooling, erythema or increased pigmentation. The study found that children who died of central nervous injury or were severely brain damaged had an increased likelihood of having a dilated anus and that postmortem perianal findings must be interpreted with caution since standards of normal are not yet firmly established. The article concluded that "anal dilation alone cannot be used as a marker for prior sexual abuse and that exposure of the pectinate line should not be confused with tears or fissures of the anal verge." McCann *et al, Postmortem Perianal Findings in Children,* Am J For Med & Pathol, 17(4):289-298 (1996).

115. In addition to misinterpretations of the medical evidence, the accusation of sexual violence in the absence of verification influences the investigation and distorts the entire process, beginning with the hospital records and continuing through trial and subsequent court proceedings. Based on my 30 years of experience in this field, it is my opinion that any jury would have been improperly and irrevocably prejudiced by the claims of the emergency personnel that the medical findings established sexual assault, irrespective of the fact that these findings did not exist at autopsy. If such evidence was presented at trial, it is not possible that Mr. Havard could have received a fair trial. This was exacerbated by the failure of the Court to allow the attorneys to retain a medical expert to advise them and/or testify at trial.

Shaken baby syndrome

116. For the past decade, the theoretical underpinnings of shaken baby syndrome (SBS) have been severely criticized, and it is now recognized that there are many natural causes for subdural and retinal hemorrhages. It is also now understood that short falls can be fatal, albeit rarely, and that the forces of impact far exceed the forces of shaking. As reflected in the testimony of Dr. Hayne and the treating physicians, however, this case was diagnosed and tried in 2001-2002, essentially at the height of the SBS hypothesis.

117. In 2001, the National Association of Medical Examiners (NAME) published a privately-written position paper on head injuries in children that essentially endorsed the shaken baby hypothesis. This paper did not pass peer review, was never endorsed by the membership, and many leading forensic pathologists voiced their opposition to its content. A paper published in the same journal in 2003 made clear that the shaken baby hypothesis was not supported by reliable evidence, and the paper was withdrawn in 2006 following presentations at the NAME conference with titles such as "Use of the Triad of Scant Subdural Hemorrhage, Brain Swelling, and Retinal Hemorrhages to Diagnose Non-Accidental Injury is Not Scientifically Valid" and "'Where's the Shaking?' Dragons, Elves, the Shaking Baby Syndrome and Other Mythical Entities." Some of the issues in this area are addressed in two relatively recent medicolegal articles, Findley et al and Tuerkheimer, which review the shifts in the literature in this field in some detail. Findley et al, *Shaken Baby Syndrome, Abusive Head Trauma and Actual Innocence: Getting It Right,* Houston J. of Health and Policy (2012 forthcoming) (http://ssrn.com/abstract2048374); Deborah Tuerkheimer, *The Next Innocence Project: Shaken Baby Syndrome and the Criminal Courts,* 87 WASH. UNIV. L. REV. 1 (2011).

118. As a result of the changes in the literature, it is now rare to hear the type of testimony given in this case, which suggested subdural hemorrhage and retinal hemorrhage indicate forces comparable to those in motor vehicle accidents or falls from great heights. There is no medical or scientific support for this claim.

119. Despite the fact that this case was diagnosed at the peak of the popularity of SBS, Dr. Hayne did not conclude in his report or testimony that the death was "due to" shaking or that the manner of death was homicide but rather stated that the findings were "consistent with" shaken baby syndrome and homicide. This wording is revealing. Since in medicine most findings are "consistent with" a wide array of diagnoses, this wording indicates that he did not reach a clear or definitive diagnosis that would support a finding of shaking or homicide beyond a reasonable doubt or even by a preponderance of the evidence. Such distinctions are unlikely to be noted by a jury unless the defense attorney understands these nuances, most likely through consultation with a medical expert.

120. Perhaps the most notable aspect of this case is that the evidence of impact (facial bruising combined with a described impact) was ignored in favor of hypotheses (shaking and sexual assault) for which there was no medical or evidentiary support. These preliminary conclusions by hospital personnel prejudiced the subsequent investigation, which attempted to find evidence to support these claims rather than conducting an open-ended investigation. Even in this context, the evidence obtained was insufficient to reach any definitive conclusions on sexual assault or the cause or manner of death.

121. In closing, this case bears marked similarities to one of the Canadian cases that resulted in the Goudge Inquiry, which led to a reevaluation of all shaken baby cases in Ontario. In this case, the main issue on post-conviction review was that postmortem anal dilation and postmortem hypostatic hemorrhages of the neck were misinterpreted as injuries. After review of the autopsy findings, the prosecution agreed that a miscarriage of justice had occurred and the conviction was quashed. As the article, which is written by Michael Pollanen, Chief Forensic Pathologist for the Province of Ontario, notes, "if flawed or controversial medical evidence enters a trial, the outcome may be that justice is miscarried." In that case, postmortem anal dilation was misinterpreted as evidence of anal abuse and preparative artefacts in the microscopic section of the perianal tissues were similarly over interpreted. As Dr. Pollanen noted:

> This case is a paradigm example of the 'patulous' anus' that was historically associated with antemortem anal interference, but now is recognized to represent benign postmortem dilation of the anus. Additional analysis of the postmortem appearance of the anus has extended the list of findings that may be seen including prominent anal columns, perianal lividity, and visibility of the dentate lie. This interpretive error is now rare, since this pitfall has been well publicized in the textbooks of forensic pathology.

Pollanen, M, *Forensic pathology and the miscarriage of justice,* For Sci Med Pathol (2011).

Conclusion

122. There is no evidence to support a finding of sexual assault in this case. Instead, the misinterpretation of the anal findings by emergency room personnel who were unfamiliar with postmortem findings in infants precluded the possibility of a fair trial and led to a miscarriage of justice.

123. There was no evidence to support a finding of shaking in this case; instead, the evidence is of impact. There may also have been contributing factors, including illness. A complete review of the autopsy slides and photographs is required in order to reach more definitive conclusions.

124. I am very concerned that this case represents a serious miscarriage of justice, particularly given the capital nature of the case, and an urgent remedy and review of the evidence is required. I would personally agree to participate in such an investigation on a *pro bono* basis until a proper analysis, including review of the autopsy slides and complete set of autopsy photographs, has been completed.

Further affiant sayeth not.

This the 12th day of November, 2013.

Janice Ophoven M.D.

Sworn to and subscribed before me on this the 12th day of November 2013.

NOTARY PUBLIC

DARLA C CZECH
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31, 2016

Janice Jean Ophoven, M.D.
Curriculum Vitae

Date and Place of Birth: January 21, 1947, Minneapolis, MN

Education:

Undergraduate Education:

1960-1964	Alexander Ramsey High School, Roseville, MN
1964-1969	BS - University of Minnesota, Minneapolis, MN

Medical Education:

1967-1971	MD - University of Minnesota, Minneapolis, MN

Post Graduate Education:

6/71-6/72	Internship, Department of Pediatrics, University of Minnesota, Minneapolis, MN
7/75-6/76	Residency, Pediatrics, Department of Pediatrics, University of Minnesota, Minneapolis MN
7/75-12/79	Residency, Anatomic Pathology, Department of Laboratory Medicine and Pathology, Specialty Training – Pediatric Pathology, University of Minnesota, Minneapolis, MN
1978-1979	Fellowship in Pediatric Pathology, University of Minnesota, and Minneapolis Children's Medical Center, Minneapolis, MN
1/80-12/80	Fellowship in Forensic Pathology, Hennepin County Medical Examiner's Office, Minneapolis, MN

Medical School Honors:

1971	Upjohn Award - Student most likely to make an important contribution to medicine, awarded by faculty upon graduation.
1970-1971	Member of Disadvantaged Student Selection Committee.
1970-1971	Medical School Class Vice President.

Additional Training:

General Pediatrics internship and residency training, University of Minnesota

Medical Licensure:

Minnesota - 1974 to Present

Missouri - 1973 - 1974

Board Certification:

American Board of Pathology - 1981

American Board of Forensic Pathology - 1981

American Board of Quality Assurance and Utilization Review - 1988

Professional Experience:

1/81-present	Independent Consultation in Pediatric Forensic Pathology
09/03-3/10	Forensic Pathologist, St. Louis County Medical Examiner's Office Assistant Coroner / Medical Examiner
5/03-present	Contract Forensic Pathologist, Minnesota Regional Coroner's Office Assistant Coroner / Medical Examiner for the Counties of: Houston, Carver, Chisago, Dakota, Fillmore, Goodhue, and Scott
6/91-2003	Principal consultant and owner, The Crackleberry Group (Healthcare Consulting)
1/02-11/03	Forensic Pathologist, Midwest Forensic Pathology Assistant Coroner for the Counties of: Anoka, Crow Wing, Meeker, Mille Lacs and Wright
8/94-3/97	Vice President for Medical Policy, Allina Health Care
1/89-6/96	Medical Director of Quality Management, St. Paul Children's Hospital
5/89-1992	Deputy Medical Examiner, Hennepin County Medical Examiner's Office, Minneapolis, MN
1/88-10/88	Director of Medical Review, Health Risk Management, Inc. (Managed Health Care), Minneapolis, MN
4/85-6/88	Director, St. Paul Children's Hospital Laboratories, St. Paul, MN
1/81-3/85	Associate Director, St. Paul Children's Hospital Laboratories, St. Paul, MN
1/80-12/80	Forensic Pathology Fellowship, Hennepin County Medical Examiner's Office, Minneapolis, MN
7/75-12/79	Anatomic Pathology Residency, Department of Laboratory Medicine and Pathology, Specialty Training - Pediatric Pathology, University of Minnesota, Minneapolis, MN
7/75-6/76	Residency, Department of Pediatrics, University of Minnesota, Minneapolis, MN
1/75-6/75	Private Practice, Group Health (Health Maintenance Organization) Minneapolis/St. Paul, MN
1/73-9/74	Private Practice in Pediatrics, Sedalia, Missouri; also consultant for Rural Health Care Delivery Program funded by American Academy of Pediatrics

Memberships:

- Pediatric Pathology Society
- Ramsey County Medical Society
- Minnesota Medical Association
- American College of Physician Executives
- American Medical Association
- National Association of Medical Examiners
- American Academy of Forensic Sciences

Areas of Special Interest:

- Pediatric Forensic Pathology.
- Special areas of interest: MSBP, infanticide, infant apnea and suffocation, head injury / shaken infant.
- Changing Environment of Medical Care with Emphasis on Clinical Quality, Health Care Systems Analysis and Policy.
- Developmental and Gestational Pathology.
- Pediatric Laboratory Medicine.
- Pediatric Hematopathology.
- Pediatric Pulmonary Disease.

Appointments:

- Committee Member, MN Department of Health, Division of Family Health - *Infant Death Investigation Guidelines: To Investigate Sudden, Unexplained Deaths of Infants 0 – 24 months of Age. A Guide for Emergency Medical Services, Law Enforcement and Medical Examiners/Coroners.* Fall 2002
- Child Mortality Review Panel, Minnesota Department of Human Services. 1987 to 1999
- Co-chairman Guidelines Subcommittee Governor's Task on Violence. 1996
- Forensic Consultant to Midwest Resource Center for Child Abuse. 1987 to 1995
- Quality Assurance Director, St. Paul Children's Hospital, St. Paul, MN. 1982 to 1995
- Peer Review and Quality of Care Standards & Guidelines, Senior Consultant, Medicolegal Management, Morrison, CO. 1989 to 1994
- Pediatric Forensic Consultant and Deputy, Hennepin County Medical Examiner's Office, Minneapolis, MN. 1986 to 1994
- Executive Committee, Medical Staff, St. Paul Children's Hospital, St. Paul, MN. 1982 to 1994
- Invited member: Physician Advisor - PMDRG's National Association of Children's Hospitals and Related Institutions, Alexandria, Virginia. 1991 to 1992
- Ramsey County Medical Society Board of Trustees, Hospital Based Physician Representative. 1990 to 1992

- Physician Advisor Board and Physician Advisory Council on Quality. Health One (Hospital Management Corporation) Minneapolis, Minnesota. 1989 to 1991
- Invited member: Task Force on Quality Care and Invited member: Council on Research and Information, National Association of Children's Hospitals and Related Institutions, Alexandria, Virginia. 1989 to 1991
- Invited workshop participant: Special Issues of Child Abuse. Invited presentation: Identification of the Perpetrator in Child Abuse: The Medical Perspective. American Association of Forensic Scientists, National Meeting. Cincinnati, Ohio. February 1990
- Chair - Medical Services Committee, Ramsey County Medical Society. 1986 to 1988
- Board of Directors, Ramsey County Medical Society, St. Paul, MN. 1986 to 1988
- Practice Committee, Pediatric Pathology Society. 1986 to 1988
- Physician Coordinating Committee, Blue Cross and Blue Shield. 1986 to 1988
- Small Area Variations Advisory Committee, Blue Cross and Blue Shield. 1986 to 1988
- Medical Practices and Planning Committee, Minnesota Medical Association, 1984 to 1988
- Clinical Medical Director, St. Paul Children's Hospital, St. Paul, MN. 1982 to 1988
- Consultant and speaker for KTCA (public television) educational production, Newton's Apple. 1982 to 1988
- Clinical Assistant Professor, University of Minnesota, Department of Laboratory Medicine and Pathology. 1986
- Secretary and Board of Trustees Member, Minnesota Medical Association. 1986
- SGCPC Perinatal Protocol Contributor. 1985 to 1986
- Regional Forensic Pathologist Representative to National Center for Missing and Exploited Children. 1984 to 1986
- Minnesota Society of Clinical Pathologists - Professional Relations Committee. 1984 to 1986
- Chairman of Minnesota Medical Association Subcommittee on Organ Transplantation. 1984 to 1986
- Consultant with Dr. Jocelyn Hicks for District of Columbia Hospital Re: Laboratory consolidation project with St. Christopher's Hospital, Philadelphia, PA. Spring 1985
- Executive Committee Member, Study Group of Complications of Perinatal Care, Pittsburgh, PA. 1984 to 1985
- Visiting Faculty to Mayo Clinic, Lectureship on Issues in Pediatric Laboratory Medicine. September, 1984

Research:

- Investigation of childhood injury and child abuse
- Physician Engagement and Participation in Health Care Redesign/Medical Reengineering. 1987 to present
- Nutritional Assessment of the Neonate. 1984 to 1989
- Histopathologic alterations of tracheobronchial respiratory epithelium in high frequency jet ventilation. 1983 to 1989
- Burroughs-Wellcome Exosurf project group: Tracheobronchiopulmonary Morphometric Analysis - Study Pulmonary Pathologist for 10 institutional protocol. 1987 to 1988
- Multifactorial computer analysis of histopathologic classification of lung tumors. Veterans Administration Hospital, Minneapolis, MN. Abstract presented IAP meetings February 1980. 1978 to 1980.
- Bile Acid Research, Gastroenterology Laboratory, University of Minnesota, Minneapolis, MN. June – September 1967; June – September 1968

Past Responsibilities:

- Principal and Chief Medical Officer of the Crackleberry Group. Independent consultants in Health Care: Credentialing, External Peer Review Design, Clinical Guidelines Development, Medical Staff Transformation, Process Reengineering, Conflict Management
- Vice President for Medical Policy, Allina Health Care System. Includes system wide health care policy strategies, credentialing, outcomes, guidelines, clinical process improvement, and physician participation in quality initiatives.
- Medical Director of Quality Management Department. Includes the development, coordination and management of quality assessment, utilization review and risk management of the Medical Services at St. Paul Children's Hospital.
- Management of laboratory services, consultation in pediatric laboratory medicine and pathology in private practice at a teaching pediatric hospital.
- Multiple hospital and organized medicine committee responsibilities with special interest in quality assessment and improvement.
- 24-hour hospital and Midwest Resource Center responsibilities for coordinating laboratory evaluation and directing documentation of child abuse and neglect.
- Teaching responsibilities including Phase D students and pediatric residents - a formal extension of the Hennepin County Medical Center Pathology, Ramsey County Medical Center Pathology and University of Minnesota Laboratory Medicine and Pathology training programs.
- Director of Medical Review at Health Risk Management, a full service company specializing in managing health care costs. Duties included: Recruiting, managing and training medical staff; criteria development; case management program development; Quality Assurance Development and Implementation; medical information resource development and dissemination.
- Assistant Coroner / Medical Examiner at Minnesota Regional Coroner’s Office

Current Responsibilities:

- Consultation service in Forensic Pathology with emphasis on child abuse and neglect.
- Research and education in child abuse and neglect. Audiences to include physicians, clinical staff, local law enforcement, medical and legal groups.

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3. Ophoven J. Childhood Head Trauma: The Clinical Approach. In: Forensic Sciences (Cyril Wecht ed., Bender & Co. Inc.) Publication 313;46:25F-1-25G-81. Published November, 2008
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13. Velasco A, Ophoven J, Priest J, Brennom W: Paratesticular Malignant Mesothelioma Associated with Abdominoscrotal Hydrocele. Journal of Pediatric Surgery 23:11 (1988) 1065-1067
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Abstracts & Presentation:

1. OCDLA Seminar, “Child Maltreatment in SBS Cases and the Medical Examiner’s Perspective,” Norman, OK., June 23, 2011
2. CHU National Conference, “Infant Death Investigation-The Forensic Pathologist’s Perspective,” April 7, 2011
3. California Death Penalty Seminar, “Child Victims in Homicide and Sexual Assaults,” Monterey, CA., February 19, 2010
4. New Jersey Public Defenders, “How to Review Forensic Evidence in a Child Case,” Trenton, NJ., June 3, 2010
5. Alabama Criminal Defense Lawyers Association, “New Developments in SBS and Head Trauma,” Birmingham, AL., January 30, 2009
6. CPDA Seminar, “Medical Evidence and Child Sexual Misuse,” Palm Springs, CA, December 5, 2008
7. Sixth Annual Crown Defense Conference, “Child Abuse Investigations: A Pathologist’s Approach” September 18, 2008

8. Alabama Criminal Defense Lawyer's Association, "Child Sex Abuse: Pediatric Forensics" June 21, 2008
9. California Public Defender's Association, "Medical Examinations/Medical Evidence in Sexual Assault" December 01, 2007
10. National Criminal Defense Lawyer's Association. "Issues in Child Sexual Misuse" August 03, 2007
11. Annual EBMS Meeting. "Forensic Pediatric Pathology – Case Review in Traumatic Brain Injury" May 11, 2007
12. Texas Criminal Defense Lawyer's Association. "Understanding the Scientific Evidence in Sexual Homicides" September 20, 2006
13. Public Defenders of Dakota County. "The Forensic Autopsy Report – A Navigator's Perspective." August 04, 2006
14. CACJ/CPDA Capital Case Defense Seminar. "Scientific Evidence in Sexual Homicides" February 19, 2006
15. University of San Diego School of Law. "Investigate your Case; CSI for Lawyers…Childhood Injuries" January 28, 2006
16. Iowa Public Defender Agency. "An Approach to Sexual Injury Physiology" June 22,2005
17. Iowa Public Defender Agency. "Head Injuries in Childhood; An Evolving Challenge" June 22, 2005
18. North Memorial Hospital: Long Hot Summer Conference. "Unexpected Child and Infant Death: Is It Always Abuse?" March 5, 2005.
19. CACJ/CPDA Capital Case Defense Seminar. "Scientific Evidence in Sexual Crimes." February 20, 2005.
20. CACJ/CPDA Capital Case Defense Seminar. "Head Injuries in Childhood: An Involving Challenge." February 19, 2005.
21. Minnesota Bureau of Criminal Apprehension Training and Development – Death Scene Investigation. "Basics of Child Abuse and Infant Deaths." February 3, 2005.
22. California Public Defender Agency Sexual Crimes Seminar. "Understanding Child-Victim Physiology." October 23, 2004.
23. Minnesota Division International Association for Identification. "Childhood Death Investigation: Unexpected/Unexplained Childhood Deaths." September 16, 2004.
24. St. Louis County Medical Examiner's Office. "Childhood Death Investigation: Unexpected/Unexplained Childhood Deaths." March 8, 2004.
25. CACJ/CPDA Capital Case Defense Seminar. "Head Injuries in Childhood: An Evolving Challenge." February 14, 2004.
26. MN Women Physicians' Retreat. "The Child and Forensic Medicine: A reflection on children in crisis." Co-presented with Susan Roe, MD. October 4, 2003.
27. MN Bureau of Criminal Apprehension. Child Abuse Investigation. "Forensic Pathology of Child Abuse." April 16, 2003
28. 6th Annual LaCrosse Children Maltreatment Conference. "Trauma and the Abused Child" and "Munchausen Syndrome by Proxy." April 4, 2003.
29. Chippewa Valley Technical College Investigators' Annual In-service. "Child Abuse and Neglect" presented by Janice Ophoven, MD and Susan Roe, MD. December 12, 2002.

30. South Carolina State Child Fatality Advisory Committee. Child Fatality Conference - Investigating and Prosecuting Fatal Child Maltreatment. "Forensic Pediatric Autopsy." September 25, 2002
31. Midwest Forensic Pathology. Forensic Nursing III. "Overview of Child Abuse, Vulnerable Adult Abuse, and Domestic Violence." February 28, 2002; May 24, 2002
32. MN Bureau of Criminal Apprehension. Child Abuse Investigation. "Forensic Pathology of Child Abuse." April 17, 2002
33. MN Forensic Pathology, PA. 3rd Annual All Deputy Coroner Meeting. "Munchausen Syndrome by Proxy." April 6, 2002
34. MN Bureau of Criminal Apprehension. Death Scene Investigation Training and Development. "Identifying the Details: Shaken Baby Syndrome and Munchausen Syndrome by Proxy." February 5, 2002
35. Stearns Benton County Child Protection Agency. "Shaken Baby Syndrome - Challenges and Implications." April 27, 2001
36. St. Cloud Hospital. Physicians' Forum. "Shaken Baby Syndrome." March 2, 2001
37. Partners Healthcare Consulting. "Moving into the Driver's Seat – Physician's Guide to Controlling their Future." Invited speaker: "Navigating the Road to Effective Care Management." October 5, 2000
38. MN Bureau of Criminal Apprehension and Ramsey County Medical Examiners' Office. Midwest Homicide Investigative Conference. "A Practical Approach to the Investigation of Child Abuse Homicide." September 7, 2000
39. Niagara County Child Fatality Team Training. Keynote Presentation. "The Investigation of Fatal Child Abuse from the Medical Perspective." June 20, 2000
40. The Alaska Academy of Trial Lawyers 4th Annual Litigators' Conference. "Science and the Law – Out of the 'Frye'ing Pan." April 2000
41. South Carolina Law Enforcement Division. "The Investigation of Fatal Child Abuse from the Medical Perspective." October 1999.
42. Minnesota Bureau of Criminal Apprehension, Child Abuse II Seminar, May 1999.
43. Invited Speaker *Health Care Forum*, Managing Change October 1997.
44. Invited Speaker *Masters 7 Conference for Advanced Death Investigation,* Munchausen's Syndrome by Proxy, St. Louis, MO. July 1997.
45. IHI Workshop with B. Bushick MD, Measurement and Integrated Health Care Systems, workshop presentation, December 1995.
46. The Investigation of Infant Deaths: An Interdisciplinary Symposium, "Coroners / Medical Examiners and Pathologists: Bridging the Roles", June, September 1994
47. Women in Medicine: Finding a Balance - invited keynote speaker and workshop presentations, Breckenridge Colorado, August 1994
48. BCA Law Enforcement Training Seminar, Forensic Issues in Child Abuse, Spring 1994, St. Cloud, MN
49. Development and presentation of three-day workshop with focus on responsibilities in data management and credentialing. Medical Staff Transformation, Middletown Regional Hospital, Middletown, Ohio, March 1994
50. Design and Focus External Peer Review with Medical-Legal Management Inc. 1985-to 1994

    Evansville, Indiana

Jacksonville, Florida
Boston, Mass.
Amarillo, Austin, Fort Worth, Texas
St. Jose, California

51. Invited Participant, Minnesota Bar Association Annual Trial Lawyer Course, Expert Witness. Bemidji, MN. 1986, 1987, 1988, 1992, 1993, 1994
52. ATLA National Conference - The Catastrophically Injured Infant, Nov 13-14, 1993, Reframing the Causation Issue into a Forensic Context, Atlanta, GA
53. California Ambulatory Surgery Association Research Group, Model for Clinical Guidelines - Best of Practice Model, Lake Tahoe, Fall 1993
54. Colorado Medical Society Woman's Section, The Role of Fear in Health Care Politics, Fall 1993, Snowmass, CO
55. Alaska Trial Lawyers Association, Annual Meeting, full day workshop on Medical Legal issues in Child Abuse, Fall 1993, Anchorage Alaska
56. APQC [American Productivity and Quality Center] "Achieving Results Through Benchmarking" - Benchmarking Week - May 19, 1993, Washington, DC. *Developing "State of the Art" Guidelines for Pediatric Care*
57. Sixth Annual John I. Coe Symposium, Placental and Perinatal Pathology, April 16, 1993, Forensic Issues in Perinatal Medicine Minneapolis, MN
58. Quality Challenge Award Recipients on behalf of the Children's Hospital of St. Paul, MedisGroups National Meeting, April 1993, Washington, DC
59. MediQual National Symposium "Insight", Spring 1993, Washington DC, 2 workshops *MedisGroups and Clinical Guidelines The National Pediatric Network*
60. Development and Implementation - 2 day Clinical Guidelines Exercise, Presbyterian St. Luke's Hospital, Denver Colorado, 1993
61. Multiple Medical Staff Seminars / Presentations on MedisGroups and Health Care Quality including Alliant Health Care Systems, Louisville, KY 1993
62. National Association of Medical Examiners Annual Conference, Milwaukee, WI, Forensic issues in Child Abuse, A Review, Fall 1992
63. Wisconsin Children's Hospital, Annual Retreat, Full day workshop on Medical Staff Transformation, Fall 1992
64. MediQual National Symposium, April 1992, Workshop, Recruiting Physician Participation in Data Management and Clinical Guidelines, Spring 1992, Saddlebrook, Florida
65. Quality Assurance in Anatomic Pathology, Lab Medicine and Pathology Grand Rounds, University of Minnesota, 1992
66. MediQual National Symposium, Spring 1991, Data and Peer Review, Hilton Head, SC
67. Invited Workshop Presentation: Pediatric Forensic Pathology: Wisconsin State Death Investigators Course. Sponsored by the Milwaukee County Medical Examiner, Milwaukee, Wisconsin. Fall 1990
68. Invited Workshop Presentation: Pediatric Forensic Pathology Issues. Sponsored by LCM Laboratories. Sioux Falls, SD. April 1990
69. Invited workshop participant: Special Issues of Child Abuse. Invited presentation: Identification of the Perpetrator in Child Abuse: The Medical Perspective. American Association of Forensic Scientists, National Meeting. Cincinnati, Ohio. February 13, 1990.

70. Invited Workshop Presentation. Pediatric Forensic Pathology at the American Academy of Pediatrics, Orlando, Florida, March 14, 1989.
71. Invited Workshop Presentation, Pediatric Forensic Pathology at the Society for Pediatric Pathology, San Francisco, California, March 5, 1989.
72. Invited Workshop Presentation, Pediatric Forensic Pathology at the Society for Pediatric Pathology, Washington, D.C., February 1988.
73. Georgieff M, Amarnath U, Landon M, Mills M, Ophoven J: Newborn Iron Status of Infants of Diabetic Mothers (IDMS). Ped Res. Submitted and Accepted, December 1987.
74. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Transferrin (TF) and Ferritin (FE) as Markers of Uteroplacental Insufficiency (UPI) in Newborn Infants. Ped Res Submitted Nov 1986. Published April 1987.
75. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Decreased Iron Status in Symptomatic Large-for-Gestational Age (LGA) Infants. Ped Res Submitted Nov 1986. Published April 1987.
76. Georgieff M, Chockalingam U, Murphy E, Ophoven J: Effects of Short and Long-term Prenatal Steroids on Nutritional Proteins in Premature Neonates. Accepted for presentation and published, April 1987.
77. Chockalingam U, Murphy E, Ophoven J, Georgieff M: The Influence of Perinatal Asphyxia on Rapid-turnover Proteins in Newborn Infants. Ped Res Submitted Nov 1986. Published April 1987.
78. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Effects of Short and Long-term Prenatal Steroids on Nutritional Proteins in Premature Neonates. AACC Submitted and Accepted, January, 1987.
79. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Cord Transferrin (TF) and Ferritin (FE) as Markers of Uteroplacental Insufficiency (UPI) in Newborn Infants. AACC Submitted and Accepted, January 1987.
80. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Rapid-Turnover Serum Proteins (RTP) to Evaluate Protein Status of Preterm Infants. AACC Submitted and Accepted, January, 1987.
81. Chockalingam U, Murphy E, Ophoven J, Georgieff M: Association of Decreased Ferritin Levels to Hypoglycemia in Large-for-Gestational Age Infants. American College of Nutrition 28th Annual Meeting. Submitted to Blood, 1987.
82. Mammel M, Ophoven J, Gordon M, TaylorS, Boros S: Tracheal Injury Following High-frequency Oscillation in Laboratory Animals. Ped Res Submitted November 1986.
83. Chockalingam, Murphy, Ophoven, Georgieff: The Affect of Gestation Age Size for Dates and Prenatal Steroids on Cord Transferrin Levels in Preterm and Term Infants. Submitted to the 27th Annual American Nutritional College Meeting, September 1986. Accepted.
84. Chockalingam, Murphy, Ophoven, Georgieff: Influence of Preneonatal Steroids on Nutritional Markers in Premature Infants: Submitted to the 27th Annual American Nutritional College Meeting September 1986. Accepted.
85. Invited Course Participant. University of Indiana: Issues in Child Abuse and Neglect. Indianapolis, Indiana 1986.
86. Georgieff, Sasanow, Mammel, Ophoven, Periera: Prenatal Steroids and Lung Maturity and Size for Dates Affect Neonatal Prealbumin Levels. Ped Res 20; 4(1986) 138A.
87. Georgieff, Sasanow, Mammel, Ophoven, Periera: Prenatal Steroid Administration Enhances Liver Protein Synthesis in Preterm Neonates. Clin res 3; 1(1986) 138A.

88. Invited Speaker, American Academy of Forensic Sciences Workshop on Sexual Abuse in Children, 1986.

89. Mammel M, Ophoven J, Gordon M, Sutton M, Boros S: Proximal Tracheal Inflammation with Three Different High-frequency Ventilators. Clin Res 1985; 33:148A.

90. Lewallen P, Boros S, Mammel M, Coleman M, Ophoven J: Neonatal High-frequency Jet Ventilation: Benefits and Risks. Clin Res 1985; 33:148A.

91. Ophoven J, Tilelli J: Abstract: Hyponatremic Seizures as a Presenting Symptom of Child Abuse. Presented to Conference on Forensic Pediatric Pathology. June, 1985.

92. Ophoven J, Leverone J, Moen T: Abstract: Congenital Idiopathic Subglottic Stenosis Presenting as Sudden Infant Death Syndrome. Presented to Conference on Forensic Pediatric Pathology. June 1985.

93. Invited Workshop Participant. American Academy of Forensic Sciences; Child Sexual Abuse. New Orleans, 1985.

94. Ophoven J, Mammel M, Coleman M, Boros S: Necrotizing Tracheobronchitis; A New Complication of Neonatal Mechanical Ventilation. Laboratory Investigations vol. 52, 49A 1985. Presentation at IAP Meetings, 1985.

95. Lectureship on Issues in Pediatric Laboratory Medicine. Mayo Clinic September, 1984

96. Lewallen P, Boros S, Mammel M, Coleman M, Ophoven J: Neonatal High-frequency Jet Ventilation: Four Years Experience. Clin Res 1984; 32:814A.

97. Mammel M, Ophoven J, Gordon M, Sutton M, Boros S: High-frequency Ventilation Produces Inflammatory Injuries in the Proximal Trachea. Clin Res 1984; 32:815A.

98. Dehner, Ophoven, et. al.: Unusual Presentation of Childhood Rhabdomyosarcoma. Presented at Pediatric Pathology Meetings. February 1983.

99. Ophoven J, Mammel M, Gordon M, Boros S: High-frequency Jet Ventilation: Tracheobronchial Histopathology. Clin Res 1983; 31: 142A.

100. Ophoven J, Mammel M, Gordon M, Boros S: High-frequency Jet Ventilation: Tracheobronchial Histopathology. Pediatr Res 1983; 17: 386A.