

STATE OF INDIANA	)	IN THE PULASKI CIRCUIT COURT
	)	
COUNTY OF PULASKI	)	CALENDAR TERM 2006-2007
	)	
IN THE MATTER OF	)	
TABITHA SALYER	)	Cause No. 66C01-0611-JC-0121
	)	
IN THE MATTER OF	)	
KATELYNN SALYER	)	Cause No. 66C01-0611-JC-0122

**DECLARATION OF DR. BRUCE LAMBERT**

1. My name is Bruce Lambert. I am Professor, Department of Pharmacy Administration, and Clinical Professor, Department of Pharmacy Practice, at the University of Illinois at Chicago in Chicago, Illinois.
2. My research focuses on pharmacoepidemiology, medication errors, patient safety, and health outcomes associated with provider-patient communication. I have received a Best Published Paper award from the American Pharmaceutical Association in 1997, a Cheers Award from the Institute for Safe Medication Practices, and a Center Director's Special Citation award from the U.S. Food and Drug Administration (FDA). I have served as a special government employee for the FDA, as a member of the U.S. Pharmacopeia's Consumer Interest and Health Education Advisory Panel, and currently serve on the Research Committee of the National Patient Safety Foundation as well as the Medication Safety Advisory Board of the Joint Commission on Accreditation of Healthcare Organizations.
3. I have reviewed some of the pharmaceutical information in the death of Jessica Salyer, age 14. These materials include a printout of the medications provided by the Fegan Pharmacy in Francesville, Indiana, for the period June 15 through November 8, 2006. Att. A.
4. The pharmaceutical printout shows that from June 15 through September 2006, Jessica was taking warfarin (brand name Coumadin), Digitek (digoxin) and phenytoin (dilantin). Warfarin is an anticoagulant used to prevent clotting, Digitek is a heart medication used to control the rate and rhythm of the heartbeat, and phenytoin is an anticonvulsant used to control seizures.
5. The prescription record shows that, in June to September 2, Jessica was prescribed 2.5 mg of warfarin, 0.125 mg Digitek, and 100 mg phenytoin. On September 16, the warfarin was increased to 3 mg. It is my understanding that this change was made by Jessica's cardiologist in response to a relatively low INR of 1.18 (target 2). The INR is an internationally accepted measure of the anticoagulant effect of warfarin in particular patients. It is my understanding that


on October 4, 2005, Jessica's INR increased to 1.7, which was closer to her target INR of 2.

6. On October 13, the prescription records indicate that Jessica's warfarin was increased from 3 to 7 mg and that her phenytoin was discontinued. According to the pharmacy records, the October 12 two separate prescriptions for warfarin were written by Dr. Bartush for 5 mg and 2 mg (total 7 mg). Att. B.
7. It is my understanding that the October prescription changes were not approved by Jessica's cardiologist and do not appear in Jessica's medical records. It is unlikely that an increase from 3 mg to 7 mg would have been deliberate since increases in warfarin should be done slowly and only in response to recent laboratory tests (e.g., PT/INR). Since individual reactions to changes in warfarin dose vary widely, even relatively minimal changes in doses must be carefully monitored. It does not appear that this warfarin dose increase, more than doubling the dose, was prompted by any specific laboratory test result.
8. Based on presently available information, it appears that the increase in warfarin and possibly the omission of phenytoin may have been the result of prescribing errors, with potentially fatal consequences. Prescribing errors such as this are not uncommon.<sup>1-5</sup> The increase in warfarin would have caused an increased tendency to bleed (i.e., an inability to clot normally), while the elimination of phenytoin would have increased the possibility of seizures.
8. While warfarin can save lives by preventing blood clots, it has a very narrow therapeutic range and is known to be dangerous, even fatal, in overdose.<sup>3,4</sup> Even in proper doses, bleeding complications are common and sometimes fatal. Warfarin users must therefore be monitored carefully, particularly after changes in dose. Monitoring is done by measuring the PT/INR (a measure of clotting time) rather than the level of warfarin in the blood since individual responses to particular doses and/or levels of warfarin in the blood vary widely. The failure to monitor the response to warfarin in patients is a major cause of unintentional overdose.
9. There is a substantial body of research literature on warfarin, and its risks are well-known in the pharmaceutical and medical communities.<sup>6-10</sup> For example, the October 18, 2006 Journal of the American Medical Association (JAMA) had a feature article on emergency room visits caused by adverse reactions to prescription drugs.<sup>8</sup> The three drugs commonly associated with emergency room visits were warfarin, digoxin and insulin, with warfarin hospitalizations most often associated with bleeding events. Due to a heart condition, Jessica was taking two of these potentially dangerous drugs, one seemingly in overdose, at the time of her death.
10. Because of the danger of adverse warfarin consequences, in October 2006, the FDA required all warfarin manufacturers to reissue their products with a black

box warning label for bleeding risk. This warning begins: “**WARNING: BLEEDING RISK.** Warfarin sodium can cause major or fatal bleeding. Bleeding is more likely to occur during the starting period and with a higher dose (resulting in a higher INR).” Att. C.

10. In this case, it appears that a prescription error may have led to an unintentional warfarin overdose. Given the magnitude of the error (which resulted in more than doubling the warfarin dosage), bleeding due to unintentional warfarin overdose should be considered as a cause of death.
11. Given the unexplained increase in Jessica’s warfarin dose and the discontinuation of phenytoin, serious consideration should be given to the possibility that Jessica’s death was caused by one or more prescribing errors, combined with her underlying heart condition and reported illness in the days before her death.

I declare under penalty of perjury that the foregoing is true and correct.

  
Bruce Lambert, Ph.D.

Date: January 4, 2007

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