14-2200

IN THE COUNTY COURT OF LINCOLN COUNTY, NEBRASKA

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| IN THE MATTER OF THE INTEREST<br><br>OF<br><br>[redacted] HUGHES,<br>A minor Child Under 18 years of age. | ) | CASE NO: JV16-282<br><br>ORDER |

Now on this 9th day of November, 2017, the matter comes on for decision having been taken under advisement.

The Court, during the past year has listened to a variety of imaginative explanations from parents on how or why the parent tested positive for methamphetamine while wearing a (PharmChem) sweat patch. The justifications for this positive sweat patch test have ranged from accidental inhalation, cross contamination by prescription medication, and even a claim that a positive test was due to the exchange of bodily fluids during an intimate act. Moreover, up until recently, parents who have made such claims have later recanted and confessed to actual use of the drug. However, as of late, several parents, on their own or beguiled by the counsel of others, have claimed that their positive (methamphetamine) sweat patch test has been as a result of environmental contamination. The drug being transferred into their system after absorption through the sweat patch affixed to their body, or in other words through the skin. The Court has consistently expressed to each parent that such an occurrence is not likely or possible. Nevertheless, the Court admonishments have gone unheeded, as parents have hidden behind the whispered opinions of professionals, claiming drug absorption through the patch is a documented reality and sweat patch testing is inaccurate and unreliable.

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The Court, tiring of such commentary in open court, set the matter for hearing to settle the matter once and for all as to the reliability and accuracy of sweat patch testing. The State called one witness, Dr. Leo J. Kadehjian.

The Court having heard the testimony of Dr. Kadehjian, is convinced that any claim by a parent that their positive drug patch test is due to environmental contamination (drug absorption through the sweat patch and into their skin) is spurious and without merit in any real life or real world scenarios.

The Court need not detail Dr. Kadehjian testimony for any of the parties as they were present during his testimony and to try to do so would be futile due to the power of his presentation. Suffice to say, the good doctor knows what he is talking about. It is not often that the Court gets the opportunity to hear from expert witnesses with a resume like Dr. Kadehjian. Harvard, M.I.T., and Stanford educated, his curriculum vitae reveals a reliable, if not impressive, history in various fields or vocations. See: Exhibit 11. He has appeared in various courts throughout the world and in the United States, including the Eighth Circuit District Court of Northern Iowa, where Dr. Kadehjian testified that sweat patch testing is reliable and accurate. It is of note that the Eighth Circuit Court of Appeals specially cited Dr. Kadehjian's testimony on the reliability and accuracy of sweat patch testing when affirming the District Court's Order revoking a Defendant's probation for a positive sweat patch. See. *U. S. v. Meyer, 483 F. 3d 865 (2007).*

In the case at bar, the parent (mother) tested positive for methamphetamine on numerous occasions, claiming that each positive test was a result of drug absorption into her skin through the sweat patch or in other words environmental contamination. See: Exhibits12-15.

The State's expert witness Dr. Kadehjian, having reviewed the evidence, testified that in his opinion the mother's positive test results for methamphetamine were from ingesting the drug and not by absorption through the sweat patch and into the skin. Dr. Kadehjian meticulously detailed PharmChem Inc.'s clinical reference lab's testing procedures used to ensure the integrity of testing. The lab, upon receiving the sweat patch package; checks to make sure the package is sealed and that it contains the proper accompanying identification and chain of custody. The lab then assigns that specimen an internal identification number which follows that specimen throughout its journey in the lab. The inner sweat patch pad is then soaked in a solution that is subjected to the lab's screening test and then to a highly sensitive confirmation test known as LCMS or liquid chromatography-mass spectrometry. A process by which, from the Court's prospective (layperson) is one by which a substance with multiple components is separated and then with a high degree of accuracy, an identification is made of that component's molecular structure. Dr. Kadehjian noted that mass spectrometry is an absolute and definitive method of drug identification at the molecular level. Additionally, the lab has a scientist review the results of the confirmation test and the lab's internal documentation used to ensure the integrity of the test results.

Dr. Kadehjian testified, given the bulk of scientific literature and regulatory and case law recognition, that the consensus viewpoint is that sweat patches are a reliable and accurate drug collection device and further that the processes employed by labs to test the collected substances are accurate and reliable.

Dr. Kadehjian testified that there are a handful of papers that argue that environmental contamination can occur when using the sweat patch. One such study was conducted by Dr. Kidwell out of the Naval Research Laboratory. The lab placed methamphetamine in a solution at

the top of the sweat patch and soaked its inner pad with a variety of solutions. The sweat patch was then sealed in a petrie dish at a certain temperature creating a humid environment. The data showed that methamphetamine solution on the outside membrane of the patch was absorbed into the patch. However, as Dr. Kadehjian, points out, this test was conducted without live hosts and restricted to a specifically controlled environment that would not exit in the real world. Moreover, no metabolites (amphetamine) of methamphetamine were found. Additionally, in a separate field study, sweat patches were placed on live subjects. The data indicated that there were positive cocaine tests and negative urine test. Dr. Kadehjian, again points out, that the test subjects were not sufficiently supervised to ensure no drug usage during testing and the lab used a cutoff point when reporting negative urine tests which does not mean there wasn't cocaine in the body. In fact, lab reports showed a metabolite for cocaine. Additionally, studies challenging the reliability of the sweat patch are more than a decade old while later studies have consistently held that sweat patch testing is reliable and accurate.

Dr. Kadehjian's deconstruction of the Kidwell studies is further amplified when one understands the importance of metabolites found during sweat patch testing. The Court's understanding is that a metabolite is a substance produced through a metabolic process or more to the point; the liver breaks down the chemical composition of methamphetamine, producing the metabolite of amphetamine. According to Dr. Kadehjian, the presence of a metabolite guarantees that the drug that produces that metabolite must have been ingested and not absorbed. In the real world, one cannot produce the metabolite amphetamine by absorbing methamphetamine through the sweat patch. The drug must be ingested. Dr. Kadahjian's hyperbolic example of how a person may absorb methamphetamine (present six days in a meth cook and then lick the walls) was instructive in the absurdity of the claim of environmental contamination.

In the case at bar, Dr. Kadehjian noted that the collection of the mother's sweat patches and the procedures employed by the lab to test the mother's sweat patches were proper and in order. The reporting of a metabolite for methamphetamine is also documented in each lab report that reported a positive test for methamphetamine. Dr. Kadeahjian, after examination of all documentation is convinced that the mother ingested methamphetamine while wearing a PharmChem sweat patch. Moreover, Dr. Kadahjian was even able to estimate the amounts of methamphetamine used by the parent based upon the reported results contained within each lab report. Dr. Kadahjian further testified that each prescription medications taken separately or in combination by the mother would never be confused for methamphetamine. According to Dr. Kadahijan, drugs maintain their molecular identity and do not morph into another molecular structure when metabolized and, therefore, can be accurately identified by gas spectrometry. In other words, drugs with different molecular structures cannot give false positives for methamphetamine. Incidentally, from the Court's prospective, driving one big fat nail into the coffin of positive patch testing due to cross contamination by prescription medications.

Therefore, based upon the above, the Court finds that (PharmChem) sweat patch testing is reliable and accurate. Additionally, the Court finds that the evidence overwhelmingly supports the conclusion that the mother consumed methamphetamine that produced the positive sweat patch tests results as reported in Exhibits 12 through 15.

SO ORDERED:

COUNTY COURT Seal LINCOLN COUNTY, NEBRASKA

Lincoln County Judge, Kent D. Turnbull