

STATE OF MICHIGAN
IN THE 79TH DISTRICT COURT FOR THE COUNTY OF MASON

PEOPLE OF THE STATE OF MICHIGAN,

vs

FILE NO. 08-5461-FD

JEFFREY JAMES JABROCKI,

Defendant.

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OPINION

This matter is on remand from the circuit court. The prosecution sought a bind over at the preliminary examination on the alternate theories of operating while under the influence of alcohol, third offense and operating with an unlawful blood alcohol level, third offense.

This court previously ruled that the prosecution had failed to present sufficient evidence for the admissibility of the blood test at the preliminary examination stage. The prosecution then withdrew the blood test evidence and asked the Court for a bind over on the charge of operating while intoxicated, third offense. The Court bound the Defendant over on the prosecution's motion.

In the circuit court the prosecution moved to add to the charge of operating while intoxicated, third offense, by having a blood alcohol level in excess of .08 grams per 100 milliliters of blood. The defense opposed and the circuit court

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heard arguments on the matter. The circuit court granted the motion and then remanded the matter to the district court for completion of the hearing on admissibility of the blood test results, so that the circuit court would have the benefit of the district court's analysis and opinion on the admissibility of the blood test. Further hearings were held in the district court and the briefs were filed. The Court has reviewed the briefs, the arguments in this matter and the extensive documentary evidence submitted by the parties.

The sole issue in this matter is whether or not the blood test results from the state police crime lab should be admitted into evidence. The Court is guided by the rules of evidence and the supreme court decisions regarding admissibility of scientific evidence. The Court notes that it has not found any published decision that has definitively looked at the scientific methodology involved in this case.

LAW

In order to admit the blood test results the Court needs to determine that the evidence proffered is relevant and reliable. MRE 402 guides the Court as to relevancy and states as follows:

"All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, the Constitution of the State of Michigan, these rules, or other rules adopted by the supreme court. Evidence which is not relevant is not admissible."

Relevant evidence is defined by MRE 401 which states:

"'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."

In this case the Defendant is charged with operating while intoxicated, third offense. Michigan law provides, as one of the definitions for operating while intoxicated, that the person has a blood alcohol content of .08 grams or more per 100 milliliters of blood. MCL 257.625. Thus, the prosecution needs to introduce the blood test results as evidence that the Defendant had within his blood, a sufficient alcohol content to come within the definition of operating while intoxicated.

The blood test results, if reliable, would have the tendency to make a fact of consequence to the determination of the action more probable than it would be without the evidence, that is, the fact that the Defendant had a blood alcohol level equal to or in excess of the statutory level of .08g/100ml. The issue is whether the blood test evidence is reliable and thus relevant.

The reliability inquiry is governed by the U.S. Supreme Court decision in Daubert vs. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993). In Daubert the court indicated that the trial court should consider (1) whether the theory or technique can be and has been tested, (2) whether the theory or technique has been subjected to peer review and publication, (3) what the known or potential error rate is, (4) the existence and maintenance of standards controlling the techniques operation and (5) general acceptance in the scientific community. These are not exhaustive and the Court may consider other factors in considering the reliability question.

SCIENTIFIC METHODOLOGY

The prosecution witnesses testified to the collection of Mr. Jabrocki's blood, to the evidentiary handling of that blood sample and its transmission to the

state crime lab. While the defense attempted to attack the collection process during the evidentiary hearings, this Court is satisfied that there were no flaws exposed in the collection of the defendant's blood and its transport to the state police crime lab to warrant its exclusion from evidence.

Next the prosecution produced testimony regarding the process followed by the state crime lab in analyzing the blood sample. Rachel Perez, a state police crime lab technician, analyzed the blood and testified as to the blood test results. She testified as to the manner in which blood is typically handled for testing and the protocols followed in testing for blood alcohol levels. After collection, the blood is shipped to the state police crime lab. A technician in the crime lab retrieves the sample from a receiving area in the lab building. The technician checks for an integrity seal on the box containing the sample, to be sure that the box has not been tampered with. If it has, the technician records that the seal has been broken. The technician then opens the sealed kit, records it in inventory, assigns a unique laboratory number, and places it in a locked cold storage area for the analyst to retrieve it as a prelude to an analysis of the blood sample.

The analyst (in this case, Ms. Perez) then removes the sample to be tested from the cold storage, notes that it has been properly logged in, and takes a sample back to the work area for analysis. There, the blood sample is analyzed on two separate gas chromatographs. A small portion of the blood is placed in two separate vials. Each vial, containing the person's blood to be

tested, is placed on separate gas chromatographs and run on the chromatograph along with control samples.¹

Each gas chromatograph is calibrated once per week and the calibration curve is checked against the internal control samples prepared by Dr. Felix Adatsi (head of the State Police crime lab section responsible for the analysis of blood for alcohol content), and against control samples purchased from an external source.

When testing an unknown sample, the analyst starts with a control sample to show that the instrument is working correctly and then he or she analyzes other control samples in between different unknown samples as a continuous method of assuring the analyst that the gas chromatograph is working correctly. To recap, the control sample is run on the gas chromatograph, and is then followed by an unknown sample, followed by a control sample, followed by an unknown sample, etc., until all of the samples for a batch or for an entire day are run. If the control samples return results within the acceptable administrative limits set by the lab, the lab assumes that the results of the unknown samples are accurate.²

¹ The control samples are samples with a known quantity of alcohol or a sample without alcohol, run in the same batch with the blood samples being analyzed. Each gas chromatograph gives an independent number based on the sample it's presented with. The unknown samples are the blood samples being tested for alcohol content. The results for each unknown sample pair, tested on separate chromatographs, are compared with each other to ensure that the results are within .01 grams per 100 milliliters of blood, the lab's range of administrative acceptability. The known samples are checked to be sure that the result returned is also within the range of administrative acceptability.

² Accurate means the degree of closeness of a measurement of a quantity to its true value. The control samples value is known by reason of its manufacture in the lab by Dr. Adatsi, or by its certification by the manufacturer if from an outside source. A test of the control sample will not likely return the same result each time it is tested. The results of every test contain an element of uncertainty. Repetitive analysis of a known blood alcohol sample, e.g. .10 grams, will not produce the same result of .10 grams on repetitive testing. To be accurate, the result must be sufficiently close to .10 grams to be considered statistically acceptable.

Finally, Ms. Perez testified to analyzing the defendant's blood on gas chromatograph 5 (GC 5) and obtaining a result of .303, and on gas chromatograph 6 (GC 6) and obtaining a result of .298. Ms. Perez, following established laboratory protocols, dropped the last digit and reported the lower result to two decimal places: .29 g/100ml of blood.

Ms. Perez was asked if there was an error rate calculated by the lab or considered by the lab. She testified that there was none. She said there is variability but the lab does not calculate an error rate. Furthermore, though there is variability she did not know what the variability was.

Dr. Felix Adatsi testified for the prosecution and was qualified by the prosecution as an expert in toxicology. He described the laboratory protocols followed by the State Police Crime Lab and explained the reasons for the methods used.

Dr. Adatsi testified that he wrote the protocols for the Michigan State Police lab. He has worked in the state police crime lab for a little over 16 years and to testing blood for alcohol levels over that entire period of time. He has a bachelor's of science degree in chemistry and his curriculum vitae demonstrating his professional achievements related to his field of work was admitted. He has testified as an expert in toxicology and been qualified as an expert in over 400 cases. The Court accepted him as an expert in the field of toxicology as it applies to the testing of blood samples for alcohol content.

Dr. Adatsi was taken through a lengthy examination and cross-examination of the laboratory protocols and the science of testing blood using

gas chromatography, as used in the Michigan State Police crime lab. He was further quizzed in great detail about the operation of the two gas chromatographs, GC5 and GC6, used to test Mr. Jabrocki's blood. He was further examined about the literature he has reviewed and relied upon in establishing the protocols, and parts of the literature that he has reviewed and ignored or rejected.³

The essence of his testimony is that the laboratory protocols are designed to provide a reliable system of testing. The use of control samples assures that the results obtained are consistently accurate. If the results returned for the controls are within the lab's range of administrative acceptability, the assumption is that the unknown sample results are similarly accurate. The use of two chromatographs to test each sample assures that the tests are duplicated - provided the result for each sample is within lab's range of administrative acceptability. This is a form of repeatability, where the same item is tested by the same person under the same or nearly same conditions.⁴ As part of the protocols, analysts are sub-

³ In particular, in creating the laboratory protocols, Dr. Adatsi acknowledged that he relied in part on a paper by Dr. Y. Seto. In a portion of the same paper, Dr. Seto raised an issue about the use of butyl rubber septa and the possibility that that introduces error in chromatographic analysis. Dr. Adatsi has rejected the concerns raised in the Seto paper. Dr. Adatsi indicated that if butyl rubber septa affected the results it would show up in the chromatographic testing. He testified that no anomaly showed up in the results and therefore the butyl rubber septa did not affect the testing. Other than the Seto paper, Dr. Adatsi's opinion was not contradicted. Dr. Seto's concern was based on research performed over 30 years ago and this Court would have expected there to have been subsequent review of Dr. Seto's concern and that it would have been put to rest long before the date Mr. Jabrocki's blood was tested. Without more, the issue raised by Defense is discounted by this Court and the opinion of Dr. Adatsi is accepted.

⁴ This test is not actually repeatability as defined by the Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results from the National Institute for Standards and Technology (NIST), U.S. Department of Commerce. Nor is it reproducibility as that term requires the test to be performed by a different analyst attempting to replicate the test and its results. Dr. Adatsi used the term "confirmatory" at one point and "duplication" at another point in his testimony, referring to the two tests. The test of the defendant's blood on one chromatograph is used, apparently, as a confirmatory test of the results obtained on the other chromatograph. This approach appears to be approved by the SOFT/AAFS Forensic Laboratory Guidelines - 2006. (ex. 32, July 16, 2010 testimony).

ject to regular (at least annual) proficiency testing to assure consistent performance in analyzing samples, reducing variability.

Dr. Adatsi was asked if the crime lab calculated an error rate. He testified that it did not. He resisted use of the term "error rate" during his testimony. Ultimately, and of import to this Court's findings, he acknowledged that the lab could construct an error budget⁵ that accounted for elements of systemic error, but such efforts would be time consuming and difficult.

Dr. Adatsi testified that the state police crime lab is certified by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). In 2003, ASCLD approved implementation of an ISO/IEC 17025 program. This is an international standard for testing and calibration of laboratories. This standard requires the labs to develop an uncertainty budget for laboratory tests for blood alcohol analysis. Dr. Adatsi testified that his lab was informed following its last audit in June, 2007 that it will have to be in compliance with this standard at the next audit. The last audit was in June, 2007 but as of the date of testing Mr. Jabrocki's blood, November, 2008, eighteen months later, to the date of the last hearing conducted in this matter, July 16, 2010, the state police crime lab had not come into compliance with the requirement. He testified that he was hoping an alternative approach could be devised.

The determination of error rate or error budget attempts to mathematically address the sources of systemic error to insure the results reported account for the uncertainty in measurement. When the state police crime lab reports its re-

⁵ Error rate, error budget and uncertainty budget were used essentially interchangeably during these hearings.

sults, it provides the lower of the two test results only. Without an error rate, the lab leaves an inference that the test result is an absolute or the true result. In fact, as noted above, if the blood were tested 10 times, or 100 times, each result would likely be different. This uncertainty needs to be accounted for. All test results of a defendant's blood should be reported by the crime lab with the uncertainty or error rate.

Creating and reporting error rate or error budget is an element of scientific methodology. Dr. Adatsi acknowledged that Garriot's Medicolegal Aspects of Alcohol is an authoritative text he relies upon in the lab. In Statistical Applications in Forensic Toxicology, by Rod G. Gullberg, (ex 11, July 16, 2010 hearing: chapter 18 of Garriot's), the author states:

"Modern analytical systems must be shown to have sufficient accuracy, precision, uncertainty estimates, statistical control, and fitness-for-purpose – all of which entail a statistical framework." (emphasis added)

In Quality Assurance, by Jones and Liddicoat (Garriot's, supra, Chapter 9) the authors discussed quality assurance programs and noted that "increasingly 'uncertainty of measurement' is required to be estimated and recorded. Uncertainty of Measurement is defined by ISO/IEC ('Guide to the Expression of Uncertainty in Measurement' – often referred to as 'the GUM') and further interpreted by NIST (Technical Note 1297 'Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results'). It is recognized that any scientific measurement has some error associated with it. Most measurements have multiple sources of potential error that may affect the precision and accuracy of an analytical determination."(ex 25, July 16, 2010 hearing)

Congress directed the National Academy of Sciences to study improvements needed in forensic science. It issued its report in 2009, Strengthening Forensic Science in the United State: A Path Forward. In the report it addressed the lack of reporting of results taking into account the uncertainty of measurement. It said:

"Few forensic science methods have developed adequate measures of the accuracy of inferences made by forensic scientists. All results for every forensic science method should indicate the uncertainty in the measurements that are made, and studies must be conducted that enable the estimation of those values." (ex 4, July 16, 2010 testimony: Report, page 184)

The Defense introduced an approach for mathematically constructing an uncertainty budget (also referred to as an error budget) for measuring alcohol in blood using headspace gas chromatography, the technique under scrutiny here. (ex 2, "An uncertainty Budget for the Measurement of Ethanol in Blood by Headspace Gas Chromatography," by Kristiansen and Petersen, Journal of Analytical Toxicology, September, 2004). Dr. Adatsi acknowledged that he was aware of the article and that the approach in the article was "to some extent ... what ASCLD is expecting us to do when we move over to the ISO 17025."

Finally, two trial court decisions in the state of Washington, addressed the need to measure and report an uncertainty budget, and opined that so long as the lab did not do so, the results were not generally accepted in the scientific community. (ex 1, July 16, 2010 hearing:, Washington v Weimer, #7036A-09D: considering gas chromatography; and Washington v Fausto, et al, Case No. C076949 and 9Y6231062, opinion filed as a supplement to Defendant's briefing, filed on September 24, 2010: The opinion considered breath alcohol testing).

The opinions addressed the shortfall in the analytical process that does not account for uncertainty in measurement.

CONCLUSION

Distilled to its simplest, the prosecution's proffered blood alcohol test is reported, initially, as a single number – that the defendant's blood alcohol content was .29 g/100ml of blood. In the absence of these proceedings, the court and the defendant would be unaware that another test of defendant's blood had been run or that two different results were obtained. Thus the initial inference is that the reported result of .298 g/100ml of blood was a true and absolute indication of defendant's blood alcohol content. The other test result, .303 g/100ml highlights the uncertainty in measurement that has not been accounted for by the crime lab.

Uncertainty in measurement can be accounted for. The defense has pointed out that the methodology for accounting for measurement uncertainty, or an error budget or error rate, is not new, but has been recommended and discussed at least as early as 1993. (see Guide to the Expression of Uncertainty in Measurement, referenced in An Uncertainty Budget for the Measurement of Ethanol in Blood by Headspace Gas Chromatography, supra. September 2004 and in Quality Assurance, Chapter 9 of Garriots, supra). The state police crime lab is required to calculate and report on the uncertainty in measurement by ASCLD/LAB, its accreditation body, as an accreditation requirement. Notification was given to the lab in June, 2007, but no effort has been made to meet the requirement. Finally, it is one of the primary shortcomings in forensic lab work, according to the National Academy of Sciences.

This Court therefore finds that the blood test results are not reliable until the state police crime lab calculates an uncertainty budget or error rate and reports that calculation along with the blood test results. This Court specifically finds that calculation of an uncertainty budget or error rate and the reporting of the same is an essential element of the scientific methodology for analyzing blood alcohol content using gas chromatography. This requirement is determined to be part of the scientific methodology generally accepted by the scientific community for this particular test. It is one of the essential foundational requirements referred to in Daubert, supra, to assure that tests are reliable.

The prosecution's Motion to Admit the blood test results is denied and the prosecution's request to bind over on the charge of an operating while intoxicated, by operating with an unlawful blood alcohol content is denied. This matter is re-referred to the Circuit Court, which has retained jurisdiction.

IT IS SO ORDERED

May 6, 2011


Peter J. Wadel, District Judge