STATE OF MICHIGAN
IN THE 67TH DISTRICT COURT, GENESEE COUNTY

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff, No. 17T-01355-FY

vs. Hon. David J. Goggins

NICOLAS LEONARD LYON,

Defendant.

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DEFENDANT'S MEMORANDUM IN SUPPORT OF MOTION TO STRIKE TESTIMONY OF JOEL K. KAHN, M.D.

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Statutes

Court Rules

Other Authorities

INTRODUCTION

The prosecutor cannot sustain its manslaughter charge against MDHHS Director Nick Lyon absent proof that Mr. Robert C. Skidmore or Mr. John P. Snyder died from Legionnaires' disease.[1] That is a considerable obstacle, because the death certificates for Messrs. Skidmore and Snyder indicate that the gentlemen died from end-stage congestive heart failure and unspecified healthcare associated with pneumonia, respectively. The certificates say nothing about Legionnaires'. These certificates, which were never amended or corrected, are *prima facie* evidence of the cause of death as a matter of Michigan law. MCL 333.2886, 333.2871; PX 62, 75.

The only contrary evidence the prosecutor proffers is the testimony of Dr. Joel Kahn. But Dr. Kahn's testimony is inadmissible under MRE 702 for two independent reasons. First, Dr. Kahn agrees that the standard of care for a cardiologist treating a patient with Legionnaires' disease requires a consultation with an expert in infectious disease or pulmonology. Yet Dr. Kahn, a cardiologist, did not follow that standard in giving his testimony here. Second, Dr. Kahn is not qualified to opine regarding Legionnaires'. Dr. Kahn has no training in infectious disease or pulmonology, and he is not familiar with Legionnaires' disease, the *Mycobacterium kansasii*, the urinary antigen test (UAT), or the stages of sepsis. Accordingly, the Court should strike Dr. Kahn's testimony and conclusions under MRE 702.

[1]The prosecutor must also prove that (1) Mr. Lyon had a clear legal duty to communicate information about a Legionnaires' outbreak, (2) Mr. Lyon knew of the facts giving rise to that duty, (3) Mr. Lyon willfully neglected or refused to perform that duty in a manner that was grossly negligent to human life, and (4) Mr. Lyon's actions "directly caused" the deaths. The prosecutor's failure on each of these four elements will be addressed in the post-hearing argument and briefing.

FACTS

A. *Legionella* and Legionnaires' Disease

Legionella pneumophila is a group of gram-negative bacteria that grow in freshwater and can cause infection when inhaled by a susceptible host. Vol 16 at 18; Vol 19 at 27. The most common of these infections is known as Legionnaires' disease. Symptoms of Legionnaires' disease are typically a cough, fever, chills, and an elevated white blood cell count. *Id* at 118; Vol 19 at 19-20.

Legionnaires' disease is diagnosed by a number of tests, including a UAT, a sputum culture, and a blood test. *Id* at 23; Vol 19 at 103. The UAT measures the amount of *Legionella* antigen present in a urine sample, and a high level of the antigen can indicate an infection. Vol 6 at 106-08. The UAT only detects infections caused by *Legionella* Serogroup 1, a subset of *Legionella pneumophila* that causes 80% to 90% of all cases of Legionnaires' disease. Vol 19 at 103. The test occasionally produces false positive result, especially in patients suffering from rheumatoid arthritis. Vol 6 at 107-08; Vol 19 at 19; Vol 21 at 112. A sputum culture grows bacteria from a sputum sample taken from a patient; infection is indicated by the presence of *Legionella* bacteria. Vol 6 at 43-44, 106-08; Vol 19 at 26-27.

As with most infections, Legionnaires' disease is treated with antibiotics. Vol 15 at 19; Vol 19 at 45-46. Erythromycin was for some time the recommended treatment, but a group of antibiotics known as fluoroquinolones, such as Azithromycin, is now used as standard treatment. Vol 19 at 149. Universal treatment of suspected pneumonia patients with fluoroquinolones has been enforced by federal funding since the early 2000's. *Id* at 46-47.

B. *Mycobacterium Kansasii*

M. kansasii is an environmental bacterium that primarily originates in soil. Vol 19 at 131. Like *Legionella*, it "is acquired inhalationally," *id*, and it can cause potentially-lethal infection in the lungs that may also infect other organs. *Id* at 23.

C. Mr. Skidmore

Robert Skidmore suffered from multiple chronic conditions before he was diagnosed with Legionnaires' disease. He had been treated for atrial fibrillation, transient ischemic attacks, coronary artery disease, and pulmonary hypertension as early as 2011. Vol 15 at 52-53, 88-89. He was also described as having chronic kidney disease since 2012. *Id* at 52. Since 2014, Mr. Skidmore had been treated for chronic congestive heart failure and other cardiac conditions. *Id* at 52-53. These resulted in pleural effusions – the accumulation of fluid outside of the lung which can cause difficulty breathing. *Id*; Vol 19 at 15. The pleural effusions and shortness of breath were treated at various times with thoracenteses, drawing fluid from around the lung. In fact, Mr. Skidmore had thoracenteses performed in September 2014 and May, July, August, September, October, and November of 2015. PX 66 at 2053, 1574, 1415, 715, and 1; DX AAA at 187.

On May 13, 2015, Mr. Skidmore was admitted to McLaren hospital with hypoxia, respiratory failure, congestive heart failure, and various cardiac symptoms. PX 66 at 3050. He was treated with a thoracentesis and discharged on May 19. *Id*.

On June 1, Mr. Skidmore was admitted to McLaren hospital with fever, chills, and shortness of breath. Vol 15 at 23-24. He was diagnosed with Legionnaires' disease through a UAT *and treated with appropriate antibiotics*. *Id*; Vol 19 at 14. His

symptoms subsided within a few days, and he was discharged on June 9. *Id* at 105; Vol 19 at 14. Mr. Skidmore was readmitted to McLaren hospital five more times after he was cured of Legionnaires' disease, mostly due to signs of weakness, shortness of breath, and other symptoms of congestive heart failure. PX 66 at 2053, 1574, 1415, 715, and 1. He was typically treated with thoracenteses. *Id*.

Mr. Skidmore died on December 1, 2015. His death certificate lists the cause of death as end stage congestive heart failure. PX 62. No autopsy was performed and Mr. Skidmore's lungs were never biopsied. Vol 15 at 100; Vol 19 at 22.

D. Mr. Snyder

Mr. Snyder's medical history included extensive cardiac problems, including reduced left ventricular ejection fraction and atrial fibrillation. Vol 15 at 112-13. He had at least one bypass surgery and had a biventricular ICD implanted in April of 2015. *Id* at 116, Vol 16 at 32. He also had a history of coronary artery disease, rheumatoid arthritis, and chronic lymphocytic leukemia. *Id* at 112-13.

On June 16, 2015, Mr. Snyder was admitted to McLaren hospital with complaints of shoulder pain and swelling which was the result of a burn. Vol 15 at 26. A sample of joint fluid was taken from the shoulder and cultured. Vol 16 at 17-19; Vol 19 at 22-23. The culture was eventually identified by genetic probe as *M. kansasii*. *Id*; Vol 15 at 34. Cultures also revealed the presence of *Propionibacterium acnes*, bacteria mostly commonly seen as a skin contaminant, but that Dr. Kahn noted could, under certain circumstances, become pathogenic. Vol 16 at 13-14.

During the same admission, x-rays showed evidence of erosion of the bones in the shoulder. *Id* at 15; Vol 19 at 22. This erosion is indicative of osteomyelitis, an

infection of the bone. *Id*.

Mr. Snyder returned to McLaren on June 30 with difficulty breathing and hypoxia. Vol 15 at 26; Vol 19 at 17-20. He did *not* display the classic symptoms of Legionnaires' disease, such as fever, chills, or an elevated white blood cell count. Vol 15 at 118; Vol 19 19-20. And a sputum sample was collected and did *not* indicate the presence of *Legionella*. Vol 16 at 22-23; Vol 19 at 19-20. A UAT was performed and indicated the presence of *Legionella* Serogroup 1. *Id* at 23; Vol 19 at 19.

Mr. Snyder died within 24 hours of admission. *Id* at 25. His death certificate lists healthcare-associated pneumonia as a cause of death. PX 75. No mention is made of Legionnaires' disease. *Id*.

DR. KAHN

On June 14, 2017, the prosecutor filed his criminal complaint against the defendant, Nicolas L. Lyon. The following month he contacted Dr. Kahn seeking expert testimony and later sent him some of the medical records of the patients at issue. Vol 15 at 40-42. Dr. Kahn testified at the preliminary examination on February 7 and 16, 2018.

A. Dr. Kahn's Qualifications

Training and Education. Dr. Kahn is a cardiologist. He has never been board-certified in infectious disease, pulmonology, or epidemiology, and he is not a microbiologist. *Id* at 14. He would never hold himself out as an infectious disease specialist or pulmonologist. *Id* at 18. His only board certifications are internal medicine and cardiovascular disease. *Id*. To be sure, Dr. Kahn appears competent in cardiology. He graduated *summa cum laude* from the University of Michigan medical

school and completed a residency in internal medicine at the University's hospital. *Id* at 4. He completed a fellowship in Cardiology and Angioplasty Catheterization Lab work and moved back to Michigan in 1990. *Id*.

Experience. Dr. Kahn has never once treated a patient for Legionnaires' disease, and he could not "recall an instance" of asking an infectious disease specialist to treat a patient suspected of suffering from Legionnaires' disease. *Id* at 16-17. His only involvement in treating a patient with the disease was as a "[c]ardiology consultant" helping with at least one "differential diagnosis of shortness of breath" in hospital intensive care units or emergency rooms. *Id* at 16. Over his 30-year career, Dr. Kahn could only recall treating 12 to 15 patients for cardiac conditions who at the same time were infected with Legionnaires' disease. *Id* at 17.

Publications and Academic Appointments. Dr. Kahn has never published an article or book chapter about Legionnaires' disease or pulmonology. *Id* at 15-16. The only bacterial infection he has ever published about is endocarditis, an infection of the heart valves, and his articles in pulmonology journals have been about "the cardiac aspects of case reports or series." *Id*.

Standard of Care. Dr. Kahn admitted that the standard of care requires a cardiologist to consult with an *expert* in infectious disease or pulmonology when the cardiologist's patient has a "serious infection or a specific[ ] pneumonia." *Id*. Marc S. Brodsky, M.D., the only other cardiologist to testify during the preliminary examination, confirmed this requirement. Vol 21 at 115. Despite his lack of formal education and clinical experience treating Legionnaires' disease patients, Dr. Kahn never consulted with an infectious disease specialist or pulmonologist to learn more

about the disease before testifying here. Vol 15 at 47.

"*Knowledge*" *of Legionnaires'*. To prepare for his testimony, Dr. Kahn read "medical literature on long term lung consequences of a Legionella pneumonia episode after what might be considered the treatment." *Id* at 21. But the literature was "largely old[] pulmonary and pathology literature from the 1980's." *Id*. Dr. Kahn also produced eight pieces of literature which are labeled Exhibits 1 to 8. His position on how these articles played into his analysis shifted throughout his testimony. Initially, Dr. Kahn claimed that he was "not relying on any literature," and no article "assisted [him] in coming to conclusions." *Id*. In other places he suggested that he might have relied on this literature. *Id* at 100-01.

Because of his lack of expertise, Dr. Kahn misunderstood or simply did not know many critical characteristics of *Legionella* and Legionnaires' disease:

> *Necrotizing nature of Legionnaires' disease*. Dr. Kahn characterized Legionnaires' disease as a "pneumonia syndrome, which can be a necrotizing cavity-forming, fibrosis-forming Pneumonia." *Id* at 18. Jeffrey D. Band, M.D., the only infectious disease expert who testified as to the death of Messrs. Skidmore and Snyder, disagreed. "Legionnaire's Disease macroscopically is a <u>*non*</u>-necrotizing pneumonia" in which "destruction of lung tissue and lung abscesses [are] uncommonly seen and almost always when found it is an association with a co-existing bacteria that has also invaded the lung." Vol 19 at 52 (emphasis added).
>
> *Prevalence of Legionnaires' disease*. Dr. Kahn also said that Legionnaires' disease was "[c]ommon amongst hospital-acquired pneumonia, if not the number one most common." Vol 16 at 34. He thought it was as "high as, you know, a majority." *Id*. But "healthcare-associated pneumonia due to *Legionella pneumophila* is no *higher than five percent*." Vol 19 at 51 (emphasis added). If Dr. Kahn's estimate were correct, "every single hospital would be under current investigation for a major outbreak." *Id*.
>
> *Urinary Antigen Test (UAT)*. Dr. Kahn testified that the UAT is a "[r]apid, high sensitivity screening test," but was unaware of any chance that the test can result in false positives, particularly in patients with rheumatoid arthritis. Vol

16 at 23, 28. Despite his acknowledged ignorance on the subject, Dr. Kahn opined that Mr. Snyder's UAT was not a false positive. Vol 16 at 28.

Stages of Sepsis. Dr. Kahn relied on severe sepsis in rendering some of his opinions, yet he was unfamiliar with the stages of sepsis and their characteristics. Vol 15 at 93-96. As Dr. Band explained, there are different stages – sepsis, severe sepsis, and septic shock, all with distinct characteristics. Sepsis is the body's natural reaction to infection marked by elevated or depressed temperature, elevated heart rate, and elevated white blood cell count. Severe sepsis involves organ dysfunction (other than one primarily involved) that persists due to presence of overwhelming infection. Septic shock is characterized by organ dysfunction to such a degree and based on inadequate profusion of that organ. Vol 19 at 56-57.

Mycobacterium kansasii. Dr. Kahn testified that part of Mr. Snyder's treatment involved a genetic probe which identified *M. kansasii* isolated from the shoulder joint fluid. Vol 15 at 34. But he acknowledged that he did not know whether he had ever treated anyone with *M. kansasii*, and he did not know the classic treatment for the infection. *Id* at 18, 20. Despite his unfamiliarity with the infectious process and its treatment, he did not believe it was disseminated and discounted it as irrelevant to his analysis. *Id* at 34. Dr. Band explained that in the case of Mr. Snyder it was disseminated by definition. It originates in the lungs, and it was found in the soft tissue, bursa, and bone of the shoulder, causing osteomyelitis. Vol 19 at 23-24.

Osteomyelitis. Even though there was radiograph concern regarding another infectious process in Mr. Snyder—osteomyelitis—Dr. Kahn did not research or investigate the possibility. And he was unaware that another contaminant found in the shoulder, *Propionibacterium acnes*, can become pathogenic, and he did not research that possibility of infection. Dr. Kahn acknowledged that it was beyond his expertise to say whether it can become pathogenic in persons suffering from osteomyelitis. Vol 16 at 14.

B. Opinions as to Mr. Skidmore

Dr. Kahn initially opined that Legionnaires' disease caused "a severe septic episode as demonstrated by pneumonia, ICU care, renal dysfunction, lung pathology documented on chest X-ray and CT," and this "septic episode… and its impact on his organs including his heart was a cause of [Mr. Skidmore's] death approximately six months later." Vol 15 at 25. The sepsis "triggered continual, repeated spiraling

downhill manifesting as congestive heart failure." *Id* at 31. But on cross examination, Dr. Kahn's opinion changed. He testified that it is "unknown" if the sepsis caused damage to Mr. Skidmore's heart. *Id* at 98-99. He testified that sepsis did not cause liver damage. *Id* at 98. He testified that the sepsis did not cause kidney damage. *Id*. He testified that there "was no anatomic brain damage we can point to," and there was no "acute and permanent deterioration" in brain function. *Id* at 97-98.

The only organ damage upon which Dr. Kahn relied was supposedly to the lungs. Dr. Kahn believed that Legionnaires' disease caused inflammation in Mr. Skidmore's lungs, which caused scarring, known as fibrosis, as it healed. *Id* at 99-100. The fibrosis, in turn, "began the cycle of recurrent. . .need for lung taps, thoracentesis and the associated deterioration in [Mr. Skidmore's] overall health." *Id* at 100. This lung damage was evidenced by chest x-rays and a CAT scan on June 1, 2015. *Id*. Dr. Kahn did not compare any earlier or later CAT scans with the June 1, 2015 scan because he lacks the training to " interpret CAT scans." *Id* at 101-02. And <u>none</u> of the physicians who did interpret the CAT scans noted signs of fibrosis. Critically, Dr. Kahn never testified that the radiological reports showed any evidence of fibrosis *after* June 1. Moreover, he acknowledged that there is no other objective evidence of fibrosis, because neither a biopsy or autopsy was performed. *Id* at 100.

The absence of a foundation for Dr. Kahn's opinion is underscored by Dr. Band's description of the objective evidence *after* June 1. He explained that "we know that it did not cause permanent damage because we have further radiographs after, immediately after all fluid was removed," and that "X-ray shows that. . .there was *no active nor permanent scaring of any kind*. The lung space itself was clear." Vol 19 at

55 (emphasis added). X-rays taken "months later" similarly failed to show signs of scarring. *Id.*

C. Opinions as to Mr. Snyder

Dr. Kahn opined that Legionnaires' disease was "the" cause of Mr. Snyder's death. He again claimed that Legionnaires' disease caused sepsis and that Mr. Snyder died within 24 hours of contracting the disease. Vol 15 at 27. But on cross-exam, Dr. Kahn conceded that, "in terms of microbiology," the "only indicator of Legionnaires' Disease" in Mr. Snyder was the positive UAT test. Vol 16 at 20. The other bases for his opinion were Mr. Snyder's "clinical presentation and the epidemiology occurring in the city of Flint at the time." *Id.* Dr. Kahn so opined even though Mr. Snyder presented with <u>none</u> of the classic symptoms of Legionnaires' disease and there was evidence of other infectious processes. Yet Dr. Kahn did not even research the possibility of the other infectious processes. He simply said, despite objective evidence to the contrary, that there was no shoulder infection. Vol 16 at 4.

ARGUMENT

Rule 702 of the Michigan Rules of Evidence "establishes preconditions for the admission of expert opinion." *Gilbert v DaimlerChrysler Corp*, 470 Mich 749, 789; 685 NW2d 391 (2004). The witness must be "qualified as an expert by knowledge, skill, experience, training, or education," MRE 702, and the opinion itself must meet "the standards of reliability that the United States Supreme Court articulated in *Daubert v Merrell Dow Pharm, Inc.*, [509 US 579 (1993)]." *Elher v Misra*, 499 Mich 11, 22; 878 NW2d 790 (2016).

This Court's MRE 702 "obligation" is "'to ensure that any expert testimony'" is

"reliable." *People v Dobek*, 274 Mich App 58, 94; 732 NW2d 546 (2007) (quoting *Gilbert,* 470 Mich at 780). "MRE 702 mandates a searching inquiry, not just of the data underlying expert testimony, but also the manner in which the expert interprets and extrapolates from those data." *Id* (quoting *Gilbert*, 470 Mich at 782). "Thus, it is insufficient for the proponent of expert opinion merely to show that the opinion rests on data viewed as legitimate in the context of a particular area of expertise (such as medicine). The proponent must also show that any opinion based on those data expresses conclusions reached through reliable principles and methodology." *Id.*

Here, Dr. Kahn admitted that the standard of care requires a cardiologist to consult with an expert in infectious disease or pulmonology when the cardiologist's patient has a "serious infection or a specific[] pneumonia." *Id*. Marc S. Brodsky, M.D., the only other cardiologist to testify during the preliminary examination, confirmed this requirement. Vol 21 at 115. Despite his lack of formal education and clinical experience treating Legionnaires' disease patients, Dr. Kahn never consulted with an infectious disease specialist or pulmonologist to learn more about the disease before testifying here. Vol 15 at 47. Dr. Kahn was not qualified to offer an opinion as to the cause of death of Messrs. Skidmore and Snyder. And the opinions he gave are otherwise unreliable.

A. Dr. Kahn was not qualified to offer an opinion on the cause of death because he lacked knowledge, experience, training and education in infectious disease.

"[E]xpert testimony must be limited to opinions falling within the scope of the witness's knowledge, skill, experience, training, or education," and "an expert may not opine on matters outside his or her area of expertise." *People v Unger*, 278 Mich

App 210, 251; 749 NW2d 272 (2008). The court must determine that the "witness's expertise fits the nature of the witness's proposed testimony." *Gay v Select Specialty Hosp*, 295 Mich App 284, 291, 813 NW2d 354 (2012) (citation omitted).

By this standard, physicians are generally qualified to testify on a medical issue if they regularly treat an illness or perform a procedure, have authored an article on the subject, or have lectured about the same. *Albro v Drayer*, 303 Mich App 758, 762; 846 NW2d 70 (2014) (citing *Gilbert*, 470 Mich at 789). Dr. Kahn falls flat on every measure. He has never treated a patient for Legionnaires' disease, has never authored a journal article or lectured on the illness, and he has only ever authored articles on endocarditis, an infection not at issue in the case.

Dr. Kahn was qualified in cardiology and internal medicine. But his testimony as to Mr. Skidmore concerned alleged long-term lung damage, not cardiac issues. Vol 15 at 100-02. And his testimony as to Mr. Snyder was based on Mr. Snyder's clinical presentation, the positive UAT, and "the epidemiology occurring in the city of Flint at the time." Vol 16 at 20. Dr. Kahn failed to demonstrate even a basic understanding of the UAT, *M. Kansasii*, osteomyelitis, or epidemiology. This inability to perform a proper differential diagnosis or identify etiology makes Dr. Kahn unqualified to opine as to the cause of death. *Dengler v State Farm Mutual Ins Co*, 135 Mich App 645, 649-50; 354 NW2d 294, 296 (1984) (diagnosis properly excluded where medical expert lacked expertise in neurology that was necessary to perform a complete diagnosis); *see also People v Dixon-Bey*, 321 Mich App 490, 500-05; 909 NW2d 458 (2017) (detective properly admitted as expert in interpreting evidence lacked the psychological or behavioral-science expertise and the practical experience necessary

to opine as to whether the defendant was acting in self-defense); *Filiatrault v Perkins*, 2017 WL 3043835 (Mich Ct App Jul 18, 2017) (reversing trial court and holding that plaintiffs' experts in fields of family medicine and otolaryngology were not qualified to render opinions regarding CAT scan and their opinions on that subject were inadmissible) (Exh 9).

Dr. Kahn admits that the standard of care requires a cardiologist like himself to consult with an expert in infectious disease or pulmonology when the cardiologist's patient has a "serious infection or a specific[] pneumonia." Vol 16 at 15-16; accord Vol 21 at 115. Yet, despite his lack of formal education and clinical experience treating Legionnaires' disease patients, Dr. Kahn never consulted with an infectious disease specialist or pulmonologist to learn more about the disease before testifying here. Vol 15 at 47. And while his opinion regarding Mr. Skidmore's cause of death relies completely upon his proffered interpretation of a June 1, 2015 CAT scan, Dr. Kahn later acknowledged that he lacks the training to interpret CAT scans. Accordingly, Dr. Kahn testified outside of his area of expertise and was unqualified to give these opinions by his own admission.

B. Dr. Kahn's opinions are inadmissible because they fail to meet the reliability standard of Rule 702.

"[T]he proponent of expert testimony must establish that the testimony is reliable." *Unger*, 278 Mich App 210 at 217. This requires proof that the testimony "'is based on sufficient facts or data,' that it 'is the product of reliable principles and methods,' and that the proposed expert witness 'has applied the principles and methods reliably to the facts of the case.'" *Id.* (quoting MRE 702). Dr. Kahn's opinions

fail to satisfy MRE 702 because they are based on assumptions that are contrary to established facts, unsupported by scientific literature, and unsubstantiated by any professionally-accepted methodology.

1. Dr. Kahn's opinions are not based on established facts.

Courts should exclude expert testimony "based on assumptions that do not comport with the established facts or when it is derived from unreliable and untrustworthy scientific data." *Dobek*, 274 Mich App at 94 (citations omitted). Dr. Kahn's opinions here assume facts contrary to the record.

For example, Dr. Kahn's opinion as to Legionnaires' disease being "a cause" of Mr. Skidmore's death was based on his claim that there was evidence of fibrosis in Mr. Skidmore's lungs. Vol 15 at 97-100. "We don't have a biopsy or autopsy, but we also have no other explanation for his clinical deterioration precipitated June 1 until his death other than the long-term consequences of *Legionella pneumophila* which are supported by the literature since the 1980's." *Id* at 100-01. But Dr. Kahn did not examine radiographic or other evidence after June 1, all of which showed the absence of any permanent damage. Vol 19 at 55. X-rays taken "months later" failed to show signs of scarring. *Id*.

Similarly, Dr. Kahn's opinion as to Legionnaires' disease being "the cause" of Mr. Snyder's death was premised on a positive UAT and Dr. Kahn's belief that Legionnaires' disease represents "a majority" of hospital-acquired pneumonia. Vol 16 at 34. But Dr. Kahn was completely unaware that the UAT can result in false positives, particularly in patients with rheumatoid arthritis. Vol 16 at 23, 28. And "healthcare-associated pneumonia due to *Legionella pneumophila* is no higher than

five percent." Vol 19 at 51. With no evidence of fibrosis in Mr. Skidmore's lungs after June 1st and flat-out contradictions of the assumptions underlying Mr. Snyder's diagnosis, Dr. Kahn's opinions should be excluded.

2. Dr. Kahn's opinions are impermissibly based on facts and data not in evidence.

While his testimony changed during the course of the examination, Dr. Kahn eventually acknowledged that he reviewed literature from medical journals that informed his opinion regarding the cause of Mr. Skidmore's death. Vol 15 at 100-01. Specifically, Dr. Kahn testified that his review of literature about the long-term consequences of Legionnaires' on pulmonary function, combined with his review of Mr. Skidmore's June 1, 2015, CAT scan, led him to conclude that Legionnaires' caused a long-term decline that resulted in Mr. Skidmore's death. To be clear, the articles provided the only basis for this opinion. Without the foundation of the articles in question, Dr. Kahn, who has no education, background, or experience in pulmonology, the treatment of Legionnaires', or its long-term consequences, would have no basis to render his opinion regarding Mr. Skidmore. However, because this opinion admittedly relies upon facts not in evidence, it fails to comply with MRE 703 and must be stricken from evidence.

As the Michigan Supreme Court noted in *People v Fackelman*, 489 Mich 515, 534 (2011), "[t]he facts or data in the particular case upon which an expert bases an opinion or inference shall be in evidence." (quoting MRE 703) (emphasis in original). Thus, the Rule permits an expert's opinion "only if that opinion is based exclusively on evidence that has been introduced into evidence in some way other than through

the expert's hearsay testimony." *Id* (quoting staff comment to the 2003 amendment of MRE 703); see also *Collier v Liberty Mut Ins Co*, 2014 WL 1233720 (Mich Ct App Mar 25, 2014) (affirming trial court's ruling prohibiting expert testimony based on medical journals, as journals were not admissible and MRE 703 prohibited testimony about facts not evidence) (Exh 10).

Here, the articles that informed Dr. Kahn's opinion and gave him the basis to (incorrectly) interpret the June 1, 2015 CAT scan were not admitted into evidence. Thus, Dr. Kahn's opinion is not based "exclusively" on facts in evidence, and it violates MRE 703 and must be stricken.

3. The scientific literature Dr. Kahn provided does not support his opinions.

A "lack of supporting literature" is another "important factor" to determine expert-witness admissibility. *Edry v Adelman*, 486 Mich 634, 640; 786 NW2d 567 (2010) (citing *Craig ex rel Craig v Oakwood Hosp*, 471 Mich 67, 83-84; 684 NW2d 307 (2004)). Here, Dr. Kahn initially claimed not to rely on any literature, then later produced eight papers purportedly supported his analysis regarding Mr. Skidmore. Even if they could be considered in this case, which they cannot, none of the articles support Dr. Kahn's opinions.

Three of the papers – Suzuki, *et al*, JOURNAL OF CARDIOLOGY CASES (2011), Stine, *et al*, JOURNAL OF INFECTIOUS DISEASE & IMMUNOLOGY (2011), and Nelson, *et al*, CHEST (1984) – address patients with cardiac complications due to Legionnaires' disease. See Exh 1-3. But Dr. Kahn admits that it is "unknown" if the infection caused any damage to Mr. Skidmore's heart. Vol 15 at 98-99. The articles are simply

irrelevant.

Two of the papers – Kariman *et al*, CHEST (1979) and Winn & Myerowitz, HUMAN PATHOLOGY (1981) – are reports describing permanent lung damage in a Legionnaires' disease patient whose radiological reports continued to show abnormalities months after the patient was discharged. See Exh 4, 5. But Dr. Kahn never testified that any studies showed "pathologies" beyond Mr. Skidmore's June 1 x-rays and CAT scan because the exact opposite is true. Vol 19 at 55. The articles also note that the patients were treated with erythromycin rather than the modern and more effective antibiotics with which Mr. Skidmore was treated. See Exh 4, 5.

Edelstein, *et al* (1981),[3] includes two case reports of Legionnaires' disease patients whose lungs showed signs of cavitation. See Exh 6. The damage was evidenced by autopsy, and the authors explicitly acknowledge that Legionnaires' disease was not the sole infecting agent found in the patients' lungs. Similarly, Chastre, *et al*, CHEST (1987), reports on several patients who suffered from long-term consequences of Legionnaires' disease where pulmonary fibrosis was seen on x-rays and autopsies. See Exh 7. Dr. Kahn never testified that radiographic imaging showed any permanent damage, and again, the post-June 1 x-rays and CAT scan show no such damage. Vol 19 at 55. Again, unlike Mr. Skidmore, the patients from these studies were treated with Erythromycin rather than modern antibiotics. See Exh 6, 7.

Finally, VanLoenhout, *et al*, JOURNAL OF INFECTION (2014), is a longitudinal

[3]The title of the publication in which this article appeared cannot be determined from the extract provided by Dr. Kahn.

study that compares the long-term effects of patients with Q-Fever and patients with Legionnaires' disease. The study finds that a number of patients with both diseases suffer from various symptoms after recovering from the acute illness, and that Q-Fever patients suffer from more severe symptoms. See Exh 8. But the study, says nothing relevant about *how* to determine if Legionnaires' disease actually causes these symptoms and is consistently useless to the diagnoses required here.

Absent any support in medical or other scientific literature, Dr. Kahn's testimony is inadmissible.

4. Dr. Kahn's opinions are not products of reliable principles and methods.

When multiple potential causes are at issue, courts require a physician perform a differential diagnosis or etiology as a method of proving medical causation. *Lowery v Enbridge Energy Ltd Pship*, 500 Mich 1034; 898 NW2d 906 (2017); *Dengler*, 135 Mich App at 649-50; accord *Tamraz v Lincoln Elec Co*, 620 F3d 665 (CA 6, 2010). And an expert, regardless of his particular expertise, must always "employ[ ] in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co v Carmichael*, 526 US 137, 152 (1999). Dr. Kahn's opinions fail in both respects.

Dr. Kahn's opinions lack a differential diagnosis. He did not formally start with a hypothesis; rather, his methodology was simply use of his training, experience, and knowledge of some literature. Vol 15 at 20. The failing of this approach is best illustrated in the case of Mr. Snyder. As noted above, Dr. Kahn failed to research the possibility of the other infectious processes in the shoulder and osteomyelitis. He

simply claimed—despite objective evidence to the contrary—that there was no shoulder infection. Vol 16 at 4. Not only was he unfamiliar with *M. Kansasii* and *P. Acnes*, he did not even consider them as a possibility of the cause of death, research it, and exclude it.

As Chief Justice Markman recently noted, failure to perform a differential diagnosis or "differential etiology" is fatal to causation:

> In order to demonstrate specific causation, a plaintiff's evidence must exclude other reasonable hypotheses with a fair amount of certainty. One common method for excluding reasonably relevant potential causes of a plaintiff's injury may be a differential etiology, sometimes characterized as a differential diagnosis.
>
> * * *
>
> Without the performance of a differential etiology, there may be 2 or more plausible explanations as to how an event happened or what produced it; yet, if the evidence is without selective application to any 1 of them, they remain conjectures only [and are insufficient to establish causation]. *Lowery*, 898 NW2d at 916 (internal quotations and citations omitted).

However, instead of properly engaging in differential etiology, Dr. Kahn failed to consider and rule out two of the three potential pathogens as causes of Mr. Snyder's infection. As a result, his opinion is not based on reliable principles or methods, and the prosecutor's theory of causation, which depends upon Dr Kahn's testimony, is insufficient as a matter of law.

Dr. Kahn's close-minded approach is also highlighted by his testimony regarding autopsies. With respect to both patients, he claimed that autopsies would not change his opinions in any respect. Vol 15 at 48. He made this assertion even while conceding in the case of Mr. Skidmore an autopsy would have revealed whether the fluid on the lungs was from infectious or cardiac causes. *Id* at 49. And when

pressed about his conclusions, Dr. Kahn defended his subjective position based on the lack of objective data! Vol 15 at 100-01 ("We don't have a biopsy. We don't have an autopsy." and "We don't have tissue as in a biopsy.").

As noted above, Dr. Kahn also did not employ the "same level of intellectual rigor" as a physician in the field. He admitted that the standard of care requires an infectious disease or pulmonary consultation, which he simply did not do. Vol 15 at 47. And the prosecution offered no testimony from an infectious-disease or pulmonology expert as to the death of Messrs. Skidmore and Snyder. The importance of this requirement is amply illustrated by taking into account Dr. Band's testimony, which is, in fact, undeniably authoritative.[4]

Dr. Kahn started and finished with one hypothesis – his personal opinion or best guess in fields of medicine and particularly diseases with which he has no meaningful experience and concededly no expertise. The opinions are therefore inadmissible.

CONCLUSION

Under MRE 702, the proponent of expert testimony has the burden to show that (1) the expert is qualified as to the particular subject matter on which he is going to opine, and (2) the expert's opinions are based on sufficient facts, reliable scientific principles, and the application of those principles to the facts. Here, Dr. Kahn is a qualified cardiologist, but he is not qualified to give opinions about Legionnaires' or any subject related to infectious diseases or pulmonology. And Dr. Kahn's conclusions

[4]The prosecution did not question Dr. Band's stellar credentials, and it did not even examine him on issues of medicine.

are (a) based on assumed facts that have no basis in the preliminary-hearing record, (b) unsupported by any relevant medical literature, and (c) lacking the necessary differential diagnosis required wherever multiple different medical conditions could have resulted in an adverse outcome. These flaws do not merely go to the weight of Dr. Kahn's testimony; they are absolute bars to the testimony's admissibility. Accordingly, the Court should strike Dr. Kahn's testimony.

Respectfully Submitted,

Dated: July 3, 2018

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STATE OF MICHIGAN
IN THE 67TH JUDICIAL DISTRICT COURT

THE PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff,

v.

Case No. 17T-01355-FY
Hon. David J. Goggins

NICOLAS LEONARD LYON,

Defendant.

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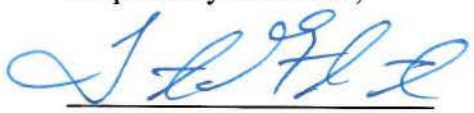
PEOPLE'S RESPONSE TO DEFENDANT LYON'S MOTION TO STRIKE TESTIMONY OF JOEL K. KAHN, M.D.

NOW COME THE PEOPLE, by and through their attorneys, TODD FLOOD and the MICHIGAN DEPARTMENT OF THE ATTORNEY GENERAL, and for the reasons discussed in the attached brief, respectfully request that this Honorable Court deny defendant's motion to strike the testimony of expert witness Joel K. Kahn, M.D. and consider the substance of Dr. Kahn's testimony when rendering its determination of probable cause.

Respectfully Submitted,



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BRIEF IN SUPPORT OF PEOPLE'S RESPONSE TO DEFENDANT LYON'S MOTION TO STRIKE TESTIMONY OF JOEL K. KAHN, M.D.

Defendant brings this untimely motion to strike the preliminary examination testimony of expert witness Joel K. Kahn, M.D., arguing that Dr. Kahn is not qualified to offer an opinion on the victims' causes of death because (1) he lacks knowledge, skills, experience, training and education in the field of infectious disease, and (2) his opinions do not meet the reliability standard set forth in MRE 702. For the reasons set forth herein, defendant's arguments lack both factual and legal merit, and his motion to strike should be denied.

I. DEFENDANT LYON FORFEITED ANY CLAIM OF ERROR WHEN HE FAILED TO OBJECT DURING DR. KAHN'S TESTIMONY

At the outset, it should be noted that defendant's failure to object, and, in several instances, defendant's express approval of Dr. Kahn's testimony constitutes forfeiture of the issue defendant now raises in his untimely motion. This Court qualified Dr. Kahn as an expert in the fields of internal medicine and cardiovascular disease on February 7, 2018. Vol 15 at 22. Dr. Kahn opined that Legionnaires' Disease was a cause of Robert Skidmore's death and the cause of John Snyder's death. Vol 15 at 25, 27. Dr. Kahn based his opinions on the medical records of Mr. Skidmore and Mr. Snyder. Both of the victims' medical records were admitted as evidence, as PEX #66 and PEX #73, respectively.

The People delivered a copy of Dr. Kahn's report regarding Mr. Skidmore to defendant on September 18, 2017. This report included Dr. Kahn's opinion that Legionnaires' Disease was a cause of Mr. Skidmore's death. The People also provided defendant with a copy of Dr. Kahn's report regarding Mr. Snyder on November 14, 2017. This report included Dr. Kahn's opinion that Legionnaires' Disease was the cause of Mr. Snyder's death. Defendant was given adequate notice of Dr. Kahn's opinions regarding the deaths of Mr. Skidmore and Mr. Snyder. Prior to this Court's decision to qualify Dr. Kahn as an expert, defendant inquired into Dr. Kahn's expertise through voir dire. Defendant asked Dr. Kahn about his board certifications, the nature of his medical practice and academic work, his publications, and the length of time he has practiced medicine. Vol 15 at 14-16. Additionally, defendant asked Dr. Kahn about his experience treating patients diagnosed with Legionnaires' Disease, his familiarity with Legionnaires' Disease, and a number of other questions related to the disease itself: its bacteria-type, its usual pathogenic presentation, and how it is treated. Vol 15 at 16, 19. Defendant also asked Dr. Kahn about the

methodology used to reach the conclusions related to Mr. Skidmore's and Mr. Snyder's deaths. Vol 15 at 20. Upon completion of voir dire, Defendant stated:

> With respect to [Dr. Kahn's] qualifications and scope of his testimony I don't dispute his qualifications but we believe it should be confined to cardiology. He's not Board certified nor has much practice in the area of pulmonary medicine and infectious disease. In particular, one of these patients did suffer from a disease process disseminated *M Kansasii*. He has no experience in that field as well. We have no objection to testimony regarding cardiology. Beyond that we do object. Thank you [Vol 15 at 22.]

The People moved to have Dr. Kahn qualified as an expert in the fields of internal medicine and cardiology, and this Court granted the motion with no further objection from defendant. Vol 15 at 22. Dr. Kahn testified for the remainder of the day on February 7, 2018, and returned to complete his testimony on February 16, 2018. Defendant raised no objections to any of Dr. Kahn's testimony, even when Dr. Kahn was directly asked about his opinions concerning the cause of Mr. Snyder's and Mr. Skidmore's deaths.

Defendant was provided an ample opportunity to voir dire, cross examine, and re-cross examine Dr. Kahn over two days, and an 11-day break between the two days of testimony to contemplate Dr. Kahn's credentials and prepare for cross-examination. Of the 154 total transcript pages comprising Dr. Kahn's testimony, 114 consist of defendant's voir dire, cross examination, and re-cross examination. At the conclusion of Dr. Kahn's testimony, Defendant did not object to Dr. Kahn's qualifications generally or any testimony specifically.

Throughout the ten-month preliminary examination, defendant never requested a *Daubert* hearing to challenge Dr. Kahn's qualifications. Instead, defendant waited until the eleventh hour (more than 1 month after the close of witness testimony) to bring this meritless motion to strike.

Had Defendant raised his concerns in a timely manner—either during defendant's voir dire of Dr. Kahn or when Dr. Kahn was testifying to opinions defendant found objectionable—

Dr. Kahn would have been able to provide additional information and explain why his testimony was well-within the scope of his expertise. Instead, defendant chose to sandbag and object to Dr. Kahn's undisputed expertise *after* the close of testimony.

Michigan courts have long looked unkindly upon such gamesmanship. More than 100 years ago, the Michigan Supreme Court ruled on a similar issue, and denied the plaintiff's request to preclude the testimony of defendant's expert:

> [Defense's expert witness's] testimony was received without objection by plaintiff's counsel, who cross-examined him fully. At the close of the case, counsel moved to strike out the testimony of the witness. . . . Not only was the testimony on direct examination admitted without objection, but counsel fully cross-examined the witness, defendant re-examined him, and plaintiff again cross-examined him, and not until after other witnesses had been called and examined and both sides had rested was the motion to strike out the testimony made. Under these circumstances, plaintiff had no right to the exclusion of the testimony. [*BF Goodrich Rubber Co v Sewell Cushion Wheel Co*, 196 Mich 600, 603; 163 NW 5 (1917).]

The Court's use-it-or-lose-it forfeiture rule continues to govern untimely objections and motions to strike. In *Cox v Board of Hosp Managers for City of Flint*, 243 Mich App 72; 620 NW2d 859 (2000), rev'd on other grnds, 467 Mich 1; 651 NW2d 356 (2002), the plaintiff's expert was erroneously qualified during a pretrial hearing, and the defendant was aware of the error "at least five months" prior to trial. *Id.* at 80. Instead of raising the issue in a timely manner, the defendant delayed and sought to challenge the expert's qualification as an expert at trial. The trial court ruled that the defendant had forfeited the issue by his delay. *Id*; see also *Mueller v Brannigan Brothers Restaurants and Taverns LLC*,____Mich App___;___NW2d___(2018) (Docket No. 335501). Here, defendant attempts the same maneuver, albeit during a preliminary examination rather than a trial. Defendant made the decision *not* to object to any of Dr. Kahn's testimony when it was proffered. Instead, he chose to wait until the eleventh hour before moving to strike the testimony.

This Court is not obligated to reopen testimony to allow defendant to challenge Dr. Kahn's qualifications or testimony. MCR 6.110(D)(2) provides:

> If, during the preliminary examination, the court determines that evidence being offered is excludable, it must, on motion or objection, exclude the evidence. **If, however, there has been a preliminary showing that the evidence is admissible, the court need not hold a separate evidentiary hearing on the question of whether the evidence should be excluded.** The decision to admit or exclude evidence, with or without an evidentiary hearing, does not preclude a party from moving for and obtaining a determination of the question in the trial court....[Emphasis added]

Here, there has been a preliminary showing that Dr. Kahn is an expert in the fields of internal medicine and cardiology and that his opinions are reliable. Defendant intentionally waited to bring his challenge to this Court until the last possible moment rather than adjudicate the matters in a timely fashion—likely because he knows that Dr. Kahn is highly-qualified and any challenge to his expertise or testimony lacks merit. Due to Defendant's unreasonable delay in bringing this motion, he has forfeited the claim of error and his request should be denied.

II. DEFENDANT LYON'S ARGUMENTS RELY ON INCORRECT LEGAL STANDARDS.

Defendant's arguments regarding Dr. Kahn's qualification to opine on matters within his expertise are premised on legal rules that have no applicability in criminal proceedings.

A. Defendant erroneously relies on medical malpractice law.

In his first argument, defendant relies on a number of cases that relate to the qualification of expert witnesses in medical malpractice cases. To be clear, this is not an area of law that can be applied across different legal landscapes—it is specific for qualifying doctors as expert witnesses when they are providing testimony regarding the standard of care in medical malpractice cases, codified at MCL 600.2169.

Defendant uses this inapplicable standard to then create a new rule out of thin air: "physicians are generally qualified to testify on a medical issue if they regularly treat an illness or perform a procedure, have authored an article on the subject, or have lectured about the same," citing *Albro* v *Drayer*, 303 Mich App 758, 762 (2014).[1] Here, defendant is not only relying on the wrong legal standard for a criminal proceeding, but completely mischaracterizing *Albro*. It does not take an especially close reading to discover that *Albro* in no way creates, or even recognizes, such requirements, even in the specific context of medical malpractice law governed by MCL 600.2169. *Albro* does not purport to create any list of criteria by which a physician will "generally" be qualified to testify on a medical issue. Indeed, the Court's reasoning in *Albro* cuts directly against Defendant's assertion of a clear "legal standard":

> Where the subject of the proffered testimony is far beyond the scope of an individual's expertise—for example, where a party offers an expert in economics to testify about biochemistry—that testimony is inadmissible under MRE 702. In such cases, it would be inaccurate to say that the expert's lack of expertise or experience merely relates to the weight of her testimony. An expert who lacks 'knowledge' in the field at issue cannot 'assist the trier of fact.' However, in some circumstances, an expert's qualifications pertain to weight rather than to the admissibility of the expert's opinion. *Indeed, were it not for the dictates of MCL 600.2169(1), formal qualifications may not even be technically required as long as the proffered witness can establish actual expertise on a topic.* In general, [g]aps or weaknesses in the witness' expertise are a fit subject for cross-examination, and go to the weight of his testimony, not its admissibility. [*Id.* at 762 (quotation marks and citations omitted; emphasis added).]

[1] Defendant Lyon's Memorandum in Support of Motion to Strike Testimony of Joel K. Kahn, M.D., p. 12.

The Court therefore explicitly recognizes that the standard for admissibility under MRE 702 requires no formal qualifications.

B. Defendant erroneously relies on an inapplicable "standard of care" rule

Defendant also attempts to use the medical malpractice statute to transplant a "standard of care" requirement on Dr. Lyons. In his brief, defendant asserts that "Dr. Kahn admitted that the standard of care requires a cardiologist to consult with an expert in infectious disease or pulmonology when the cardiologist's patient has a 'serious infection or a specific [ ] pneumonia."[2] A physician's "standard of care" for any particular procedure in any particular field of medicine, however, is not a requirement for assessing a physician's qualifications under MRE 702, nor is it a requirement for assessing whether an expert's opinion is reliable. Here, defendant seems to argue that a standard of care in treating a patient is a requirement in determining qualification under MRE 702, but fails to support this assertion with any relevant legal authority.

Defendant cites no legal authority providing support for his assertion that a cardiologist must consult with a pulmonologist in order to opine on a particular matter. As an expert qualified in the fields of internal medicine and cardiology, Dr. Kahn is clearly qualified to offer an opinion on whether someone died because of congestive heart failure, pneumonia, or Legionnaires' Disease.

C. Defendant erroneously relies on "cause-in-fact" law related to toxic torts

Defendant asserts that Dr. Kahn's opinions were not the products of reliable principles and methods, but then relies on a toxic tort case that addressed "causation," not the qualification of experts or expert opinions in support of his argument. The case defendant relies on in support

[2] Defendant Lyon's Memorandum in Support of Motion to Strike, p. 6.

of his argument, *Lowery v Enbridge Energy Ltd Partnership*, 500 Mich 1034; 898 NW2d 906 (2017), is not applicable to the qualifications of an expert or expert opinions, and it does not create the rule that defendant asserts.

Nowhere in the *Lowery* order does the Court announce or affirm a requirement that expert opinion testimony on causation requires a differential diagnosis. Addressing the issue of *causation*, the *Lowery* Court held only that "[a] plaintiff may show 'cause in fact' through circumstantial evidence and 'reasonable inferences' therefrom, but not through 'mere speculation' or 'conjecture,' such as reasoning *post hoc ergo propter hoc*."

In a concurring opinion, quoted at length by defendant in his motion (though not cited as a concurring opinion), Chief Justice Markman notes that "[o]ne common method for excluding reasonably relevant potential causes of a plaintiff's injury *may* be a differential etiology, sometimes characterized as a differential diagnosis," before suggesting that "[w]ithout the performance of a differential etiology, there may be 2 or more plausible explanations as to how an event happened or what produced it." *Id.* at 916 (MARKMAN, J., concurring). Chief Justice Markman explicitly states that he writes separately "to provide counsel to the bench and bar concerning toxic tort litigation" due to the "uncertainty" that "continues to characterize our toxic tort jurisprudence. . . ." *Lowery*, 500 Mich at 907 (MARKMAN, J., concurring). Chief Justice Markman did not pen his concurrence in an effort to create rules for the qualification of experts or expert testimony; he was specifically providing instruction for the bench and bar on proving causation in toxic tort cases.

Any failure by Dr. Kahn to perform a differential diagnosis would not render his opinion inadmissible, or indicate that his opinion was not otherwise based on reliable principles or methods.

III. DEFENDANT LYON HAS FAILED TO SHOW THAT DR. KAHN'S OPINIONS DID NOT MEET THE RELIABILITY STANDARD OF MRE 702.

The admissibility of Dr. Kahn's testimony is governed by MRE 702. See also *People v Dixon-Bey*, 321 Mich App 490, 497; 909 NW2d 458 (2017) ("MRE 702 governs the admissibility of expert testimony[.]") In pertinent part, MRE 702 provides that "a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." "MRE 702 'requires the [court] to ensure that each aspect of an expert witness's testimony, including the underlying data and methodology, is reliable,' and it 'incorporates the standards of reliability that the United States Supreme Court articulated in *Daubert v Merrell Dow Pharm, Inc*,' 509 US 579; 113 S Ct 2786; 125 L Ed 2d 469 (1993)." *Johnson v VanderKooi*, 319 Mich App 589, 629; 903 NW2d 843 (2017) (citation omitted). The critical inquiry is whether the testimony will aid the fact finder in making the ultimate decision in the case. *People v Ray*, 191 Mich App 706, 707; 479 NW2d 1 (1991).

Here, Dr. Kahn was qualified as an expert, his testimony will aid the fact finder in understanding the facts in issue of this case, and his expertise is in internal medicine and cardiology—each of which is a well-recognized discipline. Accordingly, his testimony is admissible, and defendant's request to strike it should be denied.

In his second argument, defendant argues that Dr. Kahn's opinions are inadmissible because they fail to meet the reliability standard of MRE 702. Defendant's argument lacks factual and legal merit.

A. Dr. Kahn has sufficient knowledge, skill, experience, training, and education to be qualified as an expert.

Dr. Kahn has sufficient medical education and training to opine as a medical doctor about diagnosis and treatment for disease and other bodily ailments. Dr. Kahn graduated Summa Cum Laude in 1983 from medical school at the University of Michigan. PE Vol. 15, p. 4. He then completed his residency in internal medicine, followed by a cardiology fellowship, and an additional year of advanced training in angioplasty and catheterization lab work. *Id.* Furthermore, Dr. Kahn is board certified in internal medicine and cardiovascular disease. PE Vol. 15, p. 5.

Internal medicine is "a branch of medicine that deals with the diagnosis and treatment of diseases not requiring surgery." *Merriam-Webster's Collegiate Dictionary* (2018). To diagnose and treat a patient, a physician must often interpret medical records and conduct and interpret laboratory and clinical tests to test organ function. Particularly as a practicing physician, Dr. Kahn must regularly review medical records, interpret laboratory test results, and make clinical observations. Dr. Kahn has extensive experience using his medical knowledge, training, education, and experience to diagnose and treat his patients because Dr. Kahn has been a practicing physician for 25 years, and still spends about 80-90% of his time caring for patients. PE Vol. 15, pp. 5, 14.

Specifically, Dr. Kahn is quite familiar with Legionnaires' Disease, Vol. 15, p. 18, and has experience treating patients diagnosed with Legionnaires' Disease, including as a consulting cardiologist to hospital-based intensive care unit ("ICU") patients, PE Vol. 15, p. 16. A typical case on which Dr. Kahn would consult, is a relatively sick patient experiencing shortness of breath, with cardiac pulmonary infectious conditions as the consideration, manifesting as congestive heart failure. *Id.* at 16. Dr. Kahn would conduct a differential diagnosis to determine

if the shortness of breath was caused by pneumonia, and if so, which type, or a result of congestive heart failure. *Id.* at 16-17. This typical scenario described by Dr. Kahn is exactly the differential diagnosis Dr. Kahn performs in the present case—Mr. Skidmore's and Mr. Synder's symptoms include shortness of breath and congestive heart failure, with infectious disease as the consideration. *Id.* at 23-24. Additionally, 12 to 15 of Dr. Kahn's cardiology patients have suffered from Legionnaires' Disease while he was treating them. Vol. 15 at 17.

B. Dr. Kahn's opinions regarding Mr. Skidmore's and Mr. Snyder's causes of deaths is within the scope of Dr. Kahn's medical knowledge and expertise.

Defendant argues that Dr. Kahn is not qualified to testify that Legionnaires' Disease was a cause of death of Mr. Skidmore and the cause of death of Mr. Snyder because he was not an expert in pulmonology or infectious disease. But, one of the death certificates lists congestive heart failure as the cause of death, and the other death certificate lists healthcare-associated pneumonia as the cause of death. Vol 15 at 30-31. Because he is a cardiologist, expert in internal medicine, and practicing physician, Dr. Kahn is qualified to opine about the cause of death more specifically.

As a cardiologist, Dr. Kahn was qualified to testify that the cause of death listed on Mr. Skidmore's death certificate, end stage congestive heart failure, which was a cardiology cause of death, was consistent with Legionnaires' Disease as a cause of death. *Id.* at 31. He opined that "the septic episode June 1 through June 9 hospitalization and its impact on his [Mr. Skidmore's] organs including his heart was a cause of his death approximately six months later, that being December 13, 2015." *Id.* at 25. For example, Dr. Kahn opined that the decrease in the ejection fraction seen on Mr. Skidmore's echocardiograms from 2011 to 2015 was a result of Mr. Skidmore's heart's enlarging right side, and can cause worsening heart failure. *Id.* at 79-80.

> [A]s of May of 2015 for the first time on an Echo his right atrium and right ventricle are described as being enlarged. Literally there's only so much space in the thorax and that can start to encroach on the performance of the left ventricle without there being any actual pathology of the left ventricle . . . . You see it only in more advanced lung, well primarily lung patients.

Vol 16 at80.

Instead, Dr. Kahn opined that Legionnaires' Disease was a cause of Mr. Skidmore's death. Because the issue is whether Legionnaires' Disease contributed to Mr. Skidmore's death, and Mr. Skidmore tested positive for Legionella before his death an expert in cardiology and internal medicine is qualified to conduct a differential diagnosis to determine whether Legionella pneumonia contributed to Mr. Skidmore's congestive heart failure, lung damage, and rapidly worsening health. In fact, Mr. Kahn testified that although Mr. Skidmore's ejection faction was on the low side within normal limits, it should have been enough to keep him out of congestive heart failure if the other parts of his cardiopulmonary system were working correctly. Vol. 16 at 50.

Regarding Mr. Snyder's cause of death, Dr. Kahn was qualified to opine as a medical doctor, that healthcare-associated pneumonia can mean Legionnaires' Disease, because this is common knowledge among physicians. Vol 15 at 30. As a practicing physician and expert in internal medicine, Dr. Kahn was qualified to perform a differential diagnosis of Mr. Snyder's medical records to determine the cause of death. For example, Dr. Kahn opined that it was unlikely Mycobacterium kansasii was the cause of death rather than Legionella bacterium because:

> the density of [Mycobacterium kansasii] bacteria [in Mr. Snyder's shoulder wound] would not be high as none were seen on stain. Again, I would interpret this through my medical knowledge as a slow growing organism because it took more than three weeks to appear in a final report. It certainly wasn't identified anywhere else on any other tissues other than a fluid sample from a shoulder join and I think it's unlikely compared to the other suspect [Legionella bacterium] that

> it was the pathogenesis of [Mr. Snyder's] sepsis syndrome that he died from on June 30, 2015.

Vol 15 at 35.

Dr. Kahn relies on his expertise as a medical doctor, trained in cardiology and internal medicine, to rule out alternative possible causes of death, such as pre-existing heart problems in Mr. Skidmore's case, and an infection caused by Mycobacterium kansasii or osteomyelitis in Mr. Snyder's case. Conversely, there is objective evidence that both victims had Legionnaires' Disease—they both testified positive for the bacteria. Dr. Kahn knew the incubation period for Legionnaries' Disease and testified that this is common knowledge among physicians. Drawing on this knowledge, he opined that both victims likely contracted the Legionella bacteria while admitted at McLaren hospital and became sick thereafter within the timeframe consistent with Legionnella.

C. Dr. Kahn's opinions are based on sufficient facts or data.

Dr. Kahn testified that he based his opinions on his review of approximately 4,000 pages of medical records related to Robert Skidmore's hospital admissions throughout 2015, as well as more than 1,000 pages of medical records related to John Snyder's hospital admission in June 2015. PE 9. The medical records of Mr. Skidmore and Mr. Snyder were admitted as PEX #66 and PEX #73, respectively. PE 10. The medical records include clinical assessments, laboratory test results, treating physicians' notes and diagnosis, and consulting physicians' opinions.

Dr. Kahn summarized his review of Mr. Skidmore's medical records and explained the basis for his conclusions, ultimately opining that Legionnaires' Disease was a cause of Mr. Skidmore's death. PE 22-25. Dr. Kahn based his opinion on Mr. Skidmore's medical records for his admissions to McLaren hospital in 2015. [check]. Defense presented Dr. Kahn with additional medical records during cross examination, which Dr. Kahn reviewed and integrated

into his analysis of Mr. Skidmore's causes of death. Additionally, in between his two days of testimony, Dr. Kahn was provided with additional medical records, and integrated those into his analysis, as well.

Specifically, Dr. Kahn relied on Mr. Skidmore's urinary antigen that tested positive for Legionella, a chest x-ray and CT scan from which Mr. Skidmore was diagnosed with pneumonia, Dr. Kahn's clinical knowledge that when pneumonia heals it leaves fibrosis, and Mr. Skidmore's clinical deterioration after June 1, 2015 until his death. Additionally, Dr. Kahn testified that the cause of death listed on Mr. Skidmore's death certificate was "end stage congestive heart failure, which is a cardiology cause of death," and consistent with Legionnaires' Disease as a cause of death. Vol 15 at 31.

Dr. Kahn summarized his review of Mr. Snyder's medical records and explained the basis for his findings, concluding that Mr. Snyder died of Legionella. Dr. Kahn explained his opinion regarding Mr. Snyder's death as follows: "[i]t was my opinion that he, again, had a syndrome we call sepsis or overwhelming infection and that the date that existed indicated he had pneumonia and Legionella. Pneumonia was the pathogen so he died of Legionella rather rapidly within 24 hours of presentation." Vol 15 at 25-27. Dr. Kahn based his opinion on Mr. Snyder's urinary antigen test that returned positive for Legionnella, Mr. Snyder's chart, which indicated multiple times that hospital-acquired pneumonia was the cause of death and the clinical setting of a man who had been discharged with expected long-term survival, evidenced by a recently implanted expensive and top-of-the-line defibrillator, coming into the ER with low oxygen levels and dying within less than 24 hours. *Id.* at 25-27. Dr. Kahn also relied on the timeline of Mr. Snyder's illness, which aligned with the commonly-known incubation period for Legionnaires' Disease and his general knowledge that Legionnaires' Disease impairs heart

function. Vol 16 at 26. He then explained that the cause of death provided on Mr. Snyder's death certificate, "healthcare-associated pneumonia," could be Legionnaires' Disease and that it was common knowledge that the two terms could be used "simultaneously or in place of one another." Vol 15 at 30.

Despite this testimony, Defendant attempts to show that Dr. Kahn's opinions are "assumptions that do not comport with the established facts" by misrepresenting his testimony. With respect to Dr. Kahn's opinion on the death of Mr. Skidmore, Defendant asserts that Dr. Kahn's opinion was "based on his claim that there was evidence of fibrosis in Mr. Skidmore's lungs." *Id.* at 25. In fact, Dr. Kahn explained the basis of his opinion as follows:

> You know, he was eighty-four at the time he was admitted, June 1st. He did have a list of chronic medical problems but those also existed in 2014 and the beginning of 2015. There were none that was new. What was new was the septic episode attributed to positive testing for Legionella ultimately by sputum also after discharge, ICU care, renal dysfunction, lung pathology documented on chest X-ray and CT. In my opinion all could, you know, "take the steam" out of Mr. Skidmore's otherwise stable, chronically ill status prior to June 1st admission....It is my opinion that the septic episode June 1st through June 9th hospitalization and its impact on his organs including his heart was a cause of his death approximately six months later, that being December 13, 2015.

Id. at 25. In addition, Mr. Skidmore's medical records included objective evidence of lung damage that could be attributed to Legionella, including pneumonia and vasculitis. Dr. Kahn based this opinion on his review of Mr. Skidmore's medical records, while considering other disease processes as being potential causes of death as indicated in the clinical notes and discharge summaries. Vol 15 at 21.

D. It is irrelevant that the scientific literature Dr. Kahn provided does not support his conclusions and Dr. Kahn's opinions are based on facts and data in evidence.

Defendant claims that Dr. Kahn's opinion regarding the victims' cause of death was based exclusively on a small number of articles he reviewed from the 1980s when he first received the medical records of Mr. Skidmore and Mr. Snyder. This claim is patently false. Dr. Kahn recalled that he reviewed some articles from back in the 1980's when he first received the case files for Mr. Skidmore and Mr. Snyder and then provided those articles to Defendant Lyon after he testified. Defendant's review of those articles and determination that some are irrelevant and others do not offer support to Dr. Kahn's testimony in some way or another is immaterial and does nothing to show that there is no support for his opinions in medical or other scientific literature.

More importantly, defendant's assertion that "[a]bsent any support in medical or other scientific literature, Dr. Kahn's testimony is inadmissible" is legally unsupported. It is irrelevant that the few articles Dr. Kahn provided, on defendant's request, do not provide direct support for his preliminary examination testimony. In *People v Unger*, 278 Mich App 210, 219; 749 NW2d 272 (2008), the Court of Appeals explained:

> We note that Dr. Dragovic's [an expert witness] inability to specifically identify any medical or scientific literature to support his conclusions in this case does not necessarily imply that his opinions were unreliable, inadmissible, or based on "junk science." Indeed, it is obvious that not every particular factual circumstance can be the subject of peer-reviewed writing. . . . Nor was Dr. Dragovic's testimony rendered inadmissible merely because certain experts disagreed with it. We readily acknowledge that there was disagreement among the expert witnesses concerning the victim's cause of death, but as the circuit court correctly observed, "[defense counsel] can cross-examine [Dr. Dragovic]. . . . They can impeach him." When expert witnesses offer conflicting opinions, it is solely for the jury to determine which expert is more credible.

Unger, at 220, citing *People v. Ross*, 145 Mich App 483, 493 (1985). Additionally, defendant's suggestion that Dr. Kahn's opinions rely exclusively on these few articles completely ignores Dr. Kahn's impeccable credentials in cardiology and internal medicine. As previously discussed, Dr. Kahn's opinions were based on his review of more than 5,000 medical records related to the hospital admissions of Mr. Skidmore and Mr. Snyder in 2015. Both of those medical records were admitted into evidence and provided the basis for Dr. Kahn's opinions. PE 10. Dr. Kahn relied on his education and experience, as well as the evidence admitted, to form his expert opinion, and it was not required, as defendant suggests, that the People admit into evidence every piece of literature that has contributed to Dr. Kahn's expertise.

E. Defendant has failed to show that Dr. Kahn's opinions are not the products of reliable principles and methods

The Michigan Supreme Court has established a clear rule dating back decades which has been repeated with emphasis:

> We once again caution reviewing courts that the prosecutor need not negate every reasonable theory consistent with innocence. Instead, the prosecution is bound to prove the elements of the crime beyond a reasonable doubt. It is not obligated to disprove every reasonable theory consistent with innocence to discharge its responsibility; it need only convince the jury "in the face of whatever contradictory evidence the defendant may provide." [*People v Nowack*, 462 Mich 392, 400 (2000) (citation omitted).]

Additionally, in the context of criminal cases, it is only required that the prosecution prove that a defendant's actions are a cause of harm:

> In assessing criminal liability for some harm, it is not necessary that the party convicted of a crime be the sole cause of that harm, only that he be a contributory cause that was a substantial factor in producing the harm. The criminal law does not require that there be but one proximate cause of harm found. Quite the contrary, all acts that proximately cause the harm are recognized by the law. [*People v Bailey*, 451 Mich 657, 676; 549 NW2d 32 (1996), amended 453 Mich 1204 (1996).]

Thus, the fact that Legionnaires' Disease is but one of several causes of death does not render Dr. Kahn's causation testimony inadmissible.

Defendant incorrectly asserts that Dr. Kahn's statement that, "then there is the full pneumonia syndrome, which can be a necrotizing cavity-forming, fibrosis-forming pneumonia" conflicts with Dr. Band's testimony that " 'Legionnaire's Disease macroscopically is a non-necrotizing pneumonia[,]' in which 'destruction of lung tissue and lung abscesses [are] uncommonly seen and almost always when found it is an association with a co-existing bacteria that has also invaded the lung.' " Defendant's own expert, Dr. Band, defined necrotizing as "destruction of lung tissue." Vol 19 at 51.

Defendant vehemently argues that Dr. Kahn was not qualified to testify regarding the victims' cause of death, but nowhere explains why a board-certified cardiologist and expert in internal medicine would not have the education and experience necessary to recognize a death caused by Legionnaire's disease. Because defendant failed to object to specific testimony at the appropriate stage of these proceedings, and has now failed to show that this Court erred in permitting the causation testimony of a qualified medical expert, Defendant Lyon's motion must be denied.

IV. CONCLUSION

IV. CONCLUSION

WHEREFORE, the People respectfully request that this Honorable Court deny Defendant's Motion to Strike the testimony of expert witness Joel K. Kahn, M.D. and consider the substance of Dr. Kahn's testimony when rendering its determination of probable cause.

Respectfully Submitted,

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Dated: July 10, 2018

STATE OF MICHIGAN
IN THE 67TH JUDICIAL DISTRICT COURT

THE PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff,

v.

Case No. 17T-01355-FY
Hon. David J. Goggins

NICOLAS LEONARD LYON,

Defendant.

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PROOF OF SERVICE

The undersigned hereby states that on Tuesday, July 10, 2018, he served the People's Response to Defendant's Motion to Dismiss Count 4 of First Amended Complaint, the People's Response to Defendant's Motion to Strike Testimony of Joel K. Kahn, M.D., briefs in support, and Proof of Service on the following:

1. COURTNEY LAROSE
   Judicial Clerk to Hon. David J. Goggins
   Via electronic submission

2. JOHN J. BURSCH
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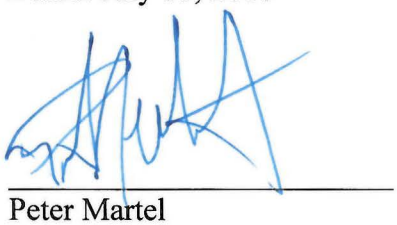
Dated: July 10, 2018



Peter Martel
Law Clerk