

IN THE COURT OF APPEALS OF THE
STATE OF OREGON

In the Matter of the Compensation of
Maurice Stadel, DCD, Claimant.

CITY OF SALEM,
Petitioner,

v.

Maurice STADELI, Deceased,
Respondent.

Workers' Compensation Board
2000008; A177746

Argued and submitted April 20, 2023.

Rebecca A. Watkins argued the cause for petitioner. Also on the briefs were Jaime M. Carlton and SBH Legal.

Nelson Robert Hall argued the cause for respondent. Also on the brief was Bennett Hartman, LLP.

Before Aoyagi, Presiding Judge, and Joyce, Judge, and Jacquot, Judge.

JOYCE, J.

Affirmed.

JOYCE, J.

After working as a firefighter paramedic for employer City of Salem for many years, claimant Maurice Stadeli was diagnosed with tonsillar cancer. He underwent treatment but died about six months later. This case requires us to assess whether the Workers' Compensation Board ("board") properly construed and permissibly applied the so-called "firefighters' presumption" when it reversed employer's denial of claimant's occupational disease claim. Under that presumption, when a firefighter contracts a specified disease, including cancer of the throat and mouth (and meets other criteria, undisputed here), the firefighter need not satisfy the usual occupational disease standard: that work was the major contributing cause of the disease. ORS 656.802(2)(a). Instead, the disease is an occupational disease presumed to be caused by the firefighter's employment. ORS 656.802(4), (5). As applicable here, the employer may rebut the presumption—and may deny a claim for a condition or health impairment caused by the disease—only "on the basis of clear and convincing medical evidence that the condition or impairment was not caused or contributed to in material part by the firefighter's employment." ORS 656.802(5)(b).¹

We state the facts supported by substantial evidence consistently with the board's order. ORS 656.298(7); ORS 183.482(8)(c). Claimant worked as a firefighter for over 25 years. He also chewed tobacco for "many years." In 2018, a biopsy of claimant's right tonsil revealed an invasive squamous cell carcinoma that was positive for the human papillomavirus 16 (HPV-16).

All four physician experts who offered evidence in this case agreed that HPV is a cause of tonsillar cancer generally, and all three who evaluated claimant's situation agreed that HPV was a probable cause of claimant's cancer specifically. The three experts on whom the board relied in reaching its decision—Drs. Pierce, Orwoll, and Beer—also

¹ As we discuss below, 327 Or App at ___ (so at 11-13), a slightly different standard applies to employers attempting to rebut the presumption for another group of diseases. ORS 656.802(4)(a).

agreed that HPV was the most significant probable cause of claimant's cancer.

Those experts were also asked about the probability that either claimant's habit of chewing tobacco or his work as a firefighter were causally connected to his cancer. As to both, no expert was able to cite studies in medical literature supporting a connection between either tobacco or firefighting and tonsillar cancer, but neither were they able to definitively state that either had no connection to claimant's cancer.

Pierce, Orwoll, and Beer all had varying opinions regarding whether tobacco contributed to claimant's cancer: (1) Pierce viewed it as a "probable" or "possibly minor" cause. Although he admitted that the medical literature tended to support a connection only to front-of-mouth cancers, nonetheless "it's not good to have carcinogens in your mouth. You're going to swallow them past your base of tongue and tonsil." (2) Orwoll could not "disagree that [claimant's] use of smokeless tobacco might have contributed to his cancer[.]" She found "ample" data to connect smoking and non-HPV oropharyngeal cancer, as well as data connecting snuff with head and neck cancer. "Data in reference to chewing tobacco for a posterior pharynx cancer are not readily available. I have been able to determine nothing which would suggest that there was a significant causal relationship in this claimant's case." (3) Beer concluded that "tobacco use [was] not a clear contributor in [claimant's] case." He noted:

"Tobacco use is a well-recognized risk factor for oropharyngeal cancer in general. The strongest and most extensive evidence supports a strong relationship between smoking and oropharyngeal cancer. The risk for smokers is as high as 10-fold higher than in non-smokers. The data for chewing tobacco is less extensive. Chewing tobacco is a risk factor for oral cancers overall, but most of the impact appears to be on cancers of the front of the mouth (lips, cheeks, and gums). The impact of chewing tobacco products on tonsillar cancer is not as well established and is certainly smaller than smoking."

Pierce, Orwoll, and Beer also had slightly varying opinions regarding whether firefighting contributed to

claimant's cancer: (1) Although Pierce acknowledged that firefighting "can't be excluded" as contributing to claimant's cancer, "the way we understand it[,] it's not thought to" materially contribute. He noted that a number of studies show correlations between carcinogen exposure that can occur with firefighting and "certain types of cancer"—such as lymphoma, mesothelioma, and kidney cancer, as well as "laryngeal cancers but not other head and neck cancers"—but no study addressed tonsillar cancer: "[I]t's really hard to find anything specific on tonsillar cancer in firefighting. I couldn't find it, actually." When asked whether certain "known or probable human carcinogens" to which firefighters are exposed play a "contributing role" in tonsillar cancer, Pierce responded: "Any known human carcinogen would have the potential to contribute to any individual's development of cancer. *** [C]ertainly no one would argue that any of the known carcinogens couldn't contribute to the development of cancer."

(2) Orwoll believed that it was "extremely unlikely that [claimant's] occupational exposure materially contributed to cause his cancer." Similar to Pierce, Orwoll acknowledged that "[o]ne could certainly never say that there is absolutely no chance that any [of claimant's firefighting activities] could have any effect whatsoever on cancer development." In Orwoll's view, the medical literature shows "inconsistent and inconstant association" between firefighting and all types of head and neck cancer, and found "no reliable medical evidence that paramedic/firefighting activities create an elevated risk for tonsillar cancer[.]"

(3) Beer concluded that, "to a reasonable degree of medical probability, [claimant's] work as a paramedic/firefighter was not a fact of consequence in causing or contributing to his cancer." Like Pierce and Orwoll, in the context of his opinion regarding the lack of connection between firefighting and tonsillar cancer, Beer acknowledged that "it is never possible in medicine to reach 100% confidence with regard to causation of cancer" and admitted that "no specific test or marker *** can prove that [claimant's] work as a firefighter didn't contribute to his tonsillar cancer in some minor way." However, Beer observed that "[n]umerous studies have examined potential relationships between

firefighting and cancer risk.” Existing research inconclusively “posits that firefighters may have an increased risk of certain types of cancer due to carcinogen exposure” but that research “does not demonstrate an increase in risk of oropharyngeal cancer or specifically tonsillar cancer among firefighters.”

Notably, the experts differed in their opinions about whether HPV alone caused claimant’s cancer. Pierce maintained that HPV alone was insufficient, identified tobacco as the most likely cofactor in claimant’s case, but admitted that anything else could be a cofactor. By contrast, Orwoll and Beer were of the view that HPV was the sole cause of claimant’s cancer.

As noted above, in Pierce’s opinion, claimant’s cancer was likely caused by HPV and tobacco use. He further opined that HPV alone was insufficient to cause tonsillar cancer. He specifically explained that HPV infection is common, while throat cancer is not. “HPV is a very important [factor in tonsillar cancer], but there are other factors, certainly.” Given the state of current medical science, Pierce indicated that it is (1) uncertain or “all to be worked out” what those other factors are, which could include other carcinogens or the biology of the host, and (2) impossible to exclude *anything* as a possible contributing cause:

“we know that having HPV increases your risk of getting tonsillar or base of tongue cancer by 1,400 percent. But for a given patient sitting in front of us, with all their genetics and individual exposures, there’s no way for us to exclude anything, to be honest. Nothing. No way ever.”

Orwoll concluded that claimant’s cancer “was caused by the HPV virus ***, which is known to be the cause of this sort of cancer.” Her opinions reiterate several times that HPV was “the” cause of claimant’s cancer. Orwoll was not asked about, nor did she address, Pierce’s theory that the low rate of tonsillar cancer among the HPV-infected implies that other cofactors must be at play.

In his initial opinion, Beer stated that HPV “alone was the most likely cause.” When Beer was asked to respond to Pierce’s testimony that “medical science is incapable of excluding all possible causes of cancer, particularly in the

case of an individual patient,” Beer agreed with Pierce’s statement. As to the point that few HPV infected people develop cancer, Beer agreed:

“Claimant’s counsel has tried to minimize the likely impact of HPV, pointing out that not everyone who has HPV goes on to develop cancer. It is true that not everyone who has HPV will develop cancer. Likewise, not everyone who smokes develops lung cancer; not every life-guard unwilling to lather themselves in sunscreen will develop skin cancer; nor will every person who has worked with asbestos develop mesothelioma. However, scientific research informs that tobacco use does cause lung, mouth and throat cancer; sun exposure does cause skin cancer; and exposure to certain chemicals, like asbestos does cause mesothelioma. The same is true of HPV and weighing the totality of the facts, it is the most probable explanation for [claimant’s] cancer.”

Beer stood by his view that claimant’s “cancer likely resulted from his underlying HPV.”

A fourth physician, Holland, also provided evidence, which we summarize separately because the board did not rely on it. Unlike the other experts, Holland did not examine claimant or his records. His evidence consisted of an opinion he had provided regarding another firefighter, Matt Laas, who also contracted tonsillar cancer, and a letter in which he agreed that his analysis, opinions, and conclusions in the Lass matter also applied to claimant’s matter. Like the other physicians, Holland agreed that tonsillar cancer is associated with HPV; he opined that HPV had “played a causative role in the development of Mr. Laas’ tonsil cancer.” In Holland’s view, “[o]ther carcinogens almost certainly play a role in the development of HPV-associated squamous cell carcinoma.” In particular, he cited studies supporting a causal connection between smoking and the development of cancer in HPV-positive individuals. As to firefighting, Holland stated:

“I am not an expert on the carcinogens that firefighters are exposed to in their work. Still, ORS 656.802 acknowledges that firefighters with at least five years

employment have an increased risk of cancer of the throat. Just as tobacco smoke has been shown to play a role in the carcinogenesis of a distinct form of HPV-associated oropharyngeal cancer, I believe that the carcinogens that Mr. Laas has been exposed to as a firefighter likely played a role in the development of his tonsil cancer.”

The administrative law judge (ALJ) weighed all the evidence, including the opinions of all four physicians, and the presumption itself, and found that the evidence “preponderates in the employer’s favor because there is clear and convincing medical evidence from Drs. Beer, Orwoll, and Pierce that claimant’s squamous cell carcinoma of the right tonsil was not caused or contributed to in material part by claimant’s employment.” Accordingly, the ALJ upheld employer’s denial of claimant’s occupational disease claim.

On review, the board reversed the ALJ’s order and set aside employer’s denial of claimant’s occupational disease claim. As explained in more detail below, the board was “not persuaded that [the opinions of Drs. Pierce, Orwoll, and Beer] establish by clear and convincing medical evidence that the decedent’s cancer was not caused or contributed to in material part by his employment.”

On judicial review, the parties’ arguments center on whether the board permissibly determined that employer had not rebutted the presumption. Although the parties and the board generally agreed about the standard the board should apply in evaluating whether employers have rebutted the firefighters’ presumption, construing ORS 656.802(5)(b)—the standard for rebutting the presumption that applies here—is an issue of first impression. For that reason, we address the parameters of the standard before turning to the board’s decision.

I. THE APPLICABLE STANDARD

We first consider whether the board correctly construed the standard for rebutting the firefighters’ presumption in ORS 656.802(5)(b). We review the board’s interpretation of statutes for errors of law. ORS 656.298(7); ORS 183.482(8)(a).

The firefighters’ presumption is set out in two subsections of the occupational disease statute, ORS 656.802(4) and (5).² The subsections share certain similarities: they afford the firefighters’ presumption (1) to firefighters with five or more years of employment (2) when death, disability, or impairment is from a specified disease. Neither of those two facets of the statutory scheme is disputed in this case. The subsections differ in several ways, two of which are germane to our analysis: the specified diseases and the standards for rebutting the presumption. We briefly describe the two subsections, highlighting those two differences.

ORS 656.802(4), enacted in 1961, specifies “any disease of the lungs or respiratory tract, hypertension or cardiovascular-renal disease.” Or Laws 1961, ch 583, § 1. As the Supreme Court has observed, “[p]roponents of the

² ORS 656.802 provides, in part:

“(4)(a) Death, disability or impairment of health of firefighters of any political division who have completed five or more years of employment as firefighters, caused by any disease of the lungs or respiratory tract, hypertension or cardiovascular-renal disease, and resulting from their employment as firefighters is an ‘occupational disease.’ Any condition or impairment of health arising under this subsection shall be presumed to result from a firefighter’s employment. However, any such firefighter must have taken a physical examination upon becoming a firefighter, or subsequently thereto, which failed to reveal any evidence of such condition or impairment of health which preexisted employment. Denial of a claim for any condition or impairment of health arising under this subsection must be on the basis of clear and convincing medical evidence that the cause of the condition or impairment is unrelated to the firefighter’s employment.

“* * * * *

“(5)(a) Death, disability or impairment of health of a nonvolunteer firefighter employed by a political division or subdivision who has completed five or more years of employment as a nonvolunteer firefighter is an occupational disease if the death, disability or impairment of health:

“(A) Is caused by brain cancer, colon cancer, stomach cancer, testicular cancer, prostate cancer, multiple myeloma, non-Hodgkin’s lymphoma, cancer of the throat or mouth, rectal cancer, breast cancer [or] leukemia * * *;

“(B) Results from the firefighter’s employment as a nonvolunteer firefighter; and

“(C) Is first diagnosed by a physician after July 1, 2009.

“(b) Any condition or impairment of health arising under this subsection is presumed to result from the firefighter’s employment. Denial of a claim for any condition or impairment of health arising under this subsection must be on the basis of clear and convincing medical evidence that the condition or impairment was not caused or contributed to in material part by the firefighter’s employment.”

bill explained that, according to statistical studies, firefighters are more likely than other occupations to develop heart and lung diseases, due to smoke and gas exposure in strenuous conditions, and that firefighters should not bear the burden of demonstrating that a disease or condition was caused by firefighting.” *SAIF v. Thompson*, 360 Or 155, 158, 379 P3d 494 (2016) (citing Minutes, Senate Labor and Industries Committee, HB 1018, Mar 8, 1961). Although the presumption was always “disputable,” the legislature amended the provision several times to clarify the scope of both the presumption and the standard for rebutting it. See *Thompson*, 360 Or at 158-60. Under the current version of ORS 656.802(4):

“if the claimant prove[s] certain predicate facts, it [is] presumed that the claimant’s condition resulted from *** employment as a firefighter. Employers [may] deny a claim only ‘on the basis of clear and convincing medical evidence that *the cause of the condition or impairment is unrelated to the firefighter’s employment.*’”

Thompson, 360 Or at 160 (emphasis added; citation and some internal punctuation omitted).

ORS 656.802(5), enacted in 2009, specifies a different, longer list of diseases and, as pertinent here, includes “cancer of the throat or mouth.” Or Laws 2009, ch 24, § 1; ORS 656.802(5)(a)(A). The standard for rebutting the firefighter’s presumption is also worded slightly differently:

“Denial of a claim for any condition or impairment of health arising under this subsection must be on the basis of clear and convincing medical evidence that *the condition or impairment was not caused or contributed to in material part by the firefighter’s employment.*”

ORS 656.802(5)(b) (emphasis added).

The board and the parties concur that the phrase “in material part” in ORS 656.802(5)(b) should have the same meaning as the identical phrase in ORS 656.245(1)(a).³

³ ORS 656.245(1)(a) provides:

“For every compensable injury, the insurer or the self-insured employer shall cause to be provided medical services for conditions caused in material part by the injury for such period as the nature of the injury or the process of the recovery requires, subject to the limitations in ORS 656.225, including

In *Mize v. Comcast Corp-AT & T Broadband*, 208 Or App 563, 569-70, 145 P3d 315 (2006), we concluded that “the words ‘in material part’ [in ORS 656.245(1)(a)] refer to a fact of ‘consequence’” and explained that “*any* contribution by a work-related injury to a claimant’s current condition could be a ‘material’ factor *** without regard to the amount of its contribution so long as the injury is a fact of consequence regarding the claimant’s condition.” (Emphasis in original; footnote omitted). We applied standard methods of statutory construction to reach that construction. Nothing we consulted in that interpretational endeavor has since changed: the statutory and dictionary definitions remain the same, as do the related statutes within ORS Chapter 656. *See id.* at 569-70. Notably, in *Mize*, we were construing a phrase within the same statutory scheme as the statute at issue here. And, as we noted in *Mize*, “[i]f the same term is used throughout a statutory scheme, it is presumed that the legislature intended the term to have the same meaning.” *Id.* at 569.

We perceive no reason to construe “in material part” differently now in ORS 656.802(5)(b) than we did in *Mize* in ORS 656.245(1)(a). Therefore, in ORS 656.802(5)(b), “in material part” refers to a fact of consequence, without regard to the amount of causation or contribution beyond being a fact of consequence. For that reason, rebutting the firefighter’s presumption under ORS 656.802(5)(a) requires clear and convincing medical evidence that the firefighter’s employment was not a fact of consequence of any amount in causing or contributing to a claimant’s condition or impairment. The board correctly construed “in material part” in ORS 656.802(5)(b) to refer to a “fact of consequence.”

II. THE BOARD’S DECISION

We next consider whether the board permissibly applied the standard in ORS 656.802(5)(b) in deciding that employer failed to rebut the presumption in this case. Critically, our review of the board’s action in that regard is

such medical services as may be required after a determination of permanent disability. In addition, for consequential and combined conditions described in ORS 656.005(7), the insurer or the self-insured employer shall cause to be provided only those medical services directed to medical conditions caused in major part by the injury.”

limited to assessing whether the board reasonably found, on the evidence before it, that employer had failed to satisfy its burden of persuasion. *Thompson*, 360 Or at 157-58. Because the answer turns on our standard of review as illuminated by the Supreme Court in *Thompson* in connection with the original firefighters' presumption provision, ORS 656.802(4), we begin by reviewing that opinion and explaining how it applies in this case, which involves the later-enacted ORS 656.802(5).

First, *Thompson* instructs that, once a claimant establishes predicate facts, the employer must meet both the burden of production and the burden of persuasion to rebut the presumption. In *Thompson*, the Supreme Court explained that, since the legislature added the phrase "on the basis of clear and convincing medical evidence" to the standard for rebutting the firefighters' presumption in ORS 656.802(4)(a), once a claimant proves the predicate facts, both the burden of production and persuasion shift to the employer. 360 Or at 160-61. ORS 656.802(5)(b) also employs the phrase "on the basis of clear and convincing medical evidence." Accordingly, once claimant in this case proved the predicate facts to support the presumption, which no one disputes, then both the burden of production and the burden of persuasion shifted to employer.

Second, *Thompson* makes clear that, even if an employer meets its burden of production, the board may evaluate the evidence favoring the employer and reasonably find it lacking in persuasive value—that is, an employer may meet its burden of production and yet fail to meet its burden of persuasion. *See Thompson*, 360 Or at 166, 169. As we explain below, the board in this case evaluated the evidence favoring employer and permissibly found that employer had not met its burden of persuasion.

In *Thompson*, the claimant firefighter suffered a heart attack caused by atherosclerosis (a blocked artery due to coronary artery disease). 360 Or at 161. It was undisputed, as here, that the claimant had proved the predicate facts to give rise to the firefighters' presumption. *Id.* at 157, 162. The claimant offered no medical evidence to prove that his work caused his atherosclerosis; he relied entirely on the

firefighters’ presumption. *Id.* at 162. To attempt to rebut the presumption, SAIF offered evidence from Dr. Semler, who had examined the claimant and reviewed his medical records. *Id.* at 162-64.

Responding to the ultimate question that he understood that SAIF had asked him to address, Semler concluded that “it is highly probable that [claimant’s] work as a firefighter is not the major contributing cause of his cardiac condition.” *Thompson*, 360 Or at 162 (brackets in original; internal quotation marks omitted). As the Supreme Court explained, Semler’s evidence “reduced to three propositions”: (1) The causes of atherosclerosis are unknown; (2) the claimant exhibited none of the known risk factors for atherosclerosis; and (3) atherosclerosis is unrelated to firefighting (a conclusion Semler based on the dearth of medical literature linking firefighting to atherosclerosis). *Id.* at 163-64, 167-68.

In concluding that SAIF had not rebutted the presumption, the board reasoned:

“We are not persuaded *** that Dr. Semler’s opinion satisfies SAIF’s ‘clear and convincing’ burden to overcome the statutory presumption. Dr. Semler conceded that the cause of atherosclerosis is unknown. Despite that concession, Dr. Semler ruled out any contribution from claimant’s employment as a firefighter. Dr. Semler did not persuasively explain, however, how he was able to make such a categorical exclusion, given that the causes of that condition were unknown. The lack of such a persuasive explanation is particularly significant, given that the record does not establish that claimant had any identified ‘risk factors’ for atherosclerosis.”

Thompson, 360 Or at 164.

On judicial review, this court reversed the board’s order. *SAIF v. Thompson*, 267 Or App 356, 340 P3d 163 (2014), *rev’d*, 360 Or 155, 379 P3d 494 (2016). The Supreme Court accepted review, reversed our decision, and affirmed the board’s order. *Thompson*, 360 Or at 157-58.

The Supreme Court observed that the board had done “what ORS 656.802(4) directed it to do once claimant

established, by means of the firefighters' presumption, that his atherosclerosis 'result[ed]' from his employment as a firefighter: The board asked whether SAIF had persuaded it by clear and convincing medical evidence that claimant's atherosclerosis was 'unrelated' to his employment." *Thompson*, 360 Or at 166 (brackets in original). And, in the end, "the board reasonably could (and did) find that Semler's report and his testimony were not persuasive[.]" *Id.* at 167.

The steps the court took to reach that conclusion inform our analysis here, and so we review each step and apply it to this case in turn, beginning with the standard that the experts were asked to address and moving through the evidence the experts proffered. Our goal is to discern whether the evidence was such that the board could reasonably be unpersuaded that firefighting was not a fact of consequence of any amount in causing or contributing to claimant's cancer.

To begin, we quote the board's reasoning in this case:

"Dr. Pierce's opinion does not support the employer's burden. Specifically, he opined that although HPV-16 was an important contributor to the decedent's cancer, other contributors, including firefighting, could not be ruled out. He explained that HPV alone is not sufficient to cause cancer, but that something in addition to HPV contributed to the decedent's cancer. Under such circumstances, Dr. Pierce's opinion does not support a conclusion, on a 'clear and convincing' basis, that the decedent's cancer was not caused or contributed to in material part by his employment. See 656.802(5)(b).

"Further, we are unpersuaded by the opinions of Drs. Orwoll and Beer. Although these physicians opined that HPV was the most likely cause of the decedent's cancer, they did not persuasively explain how that conclusion ruled out firefighting as a fact of consequence. In light of Dr. Pierce's opinion that something *in addition to* HPV contributed to the decedent's cancer, the opinions of Drs. Orwoll and Beer are conclusory and not well explained.

"Moreover, Dr. Orwoll's and Dr. Beer's opinions are internally inconsistent. Specifically, Dr. Orwoll stated that the medical literature regarding firefighting and tonsillar

cancer was inconclusive; yet, she affirmatively eliminated firefighting as a fact of consequence in the decedent's case. In addition, Dr. Orwoll stated that although HPV was 'the presumed cause' and she did not know of any data correlating oropharynx cancer and chewing tobacco, she could not rule out the decedent's tobacco use as a contributing factor. However, in contrast to her tobacco conclusion, Dr. Orwoll eliminated firefighting as a fact of consequence based on those very same factors (*i.e.*, because HPV was the most likely cause and the medical literature regarding firefighting and head and neck cancer was inconclusive).

"Similarly, Dr. Beer stated that there was no test to prove that the decedent's employment did not contribute to his tonsillar cancer in some minor way. Yet, he eliminated the decedent's firefighting as fact of consequence, which, as set forth above, includes even a 'minor cause.' [S]ee *Mize*, 208 Or App at 571.

"Without further explanation for the foregoing inconsistencies, we are unpersuaded by the opinions of Drs. Orwoll and Beer on a 'clear and convincing' standard."

(Emphasis in original; some citations omitted.)

The first proposition that the Supreme Court discussed in *Thompson* was Semler's testimony that the causes of atherosclerosis are unknown. 360 Or at 167-68. The court observed that the board was entitled to find that that testimony provided no persuasive evidence that claimant's condition was unrelated to the claimant's employment. *Id.* That kind of testimony is merely a "confession of an inability to identify a cause" of a claimant's condition, "rather than evidence that [the] claimant's condition or impairment is *unrelated to*" employment. *Id.* at 168 (brackets and emphasis in original; internal quotation marks omitted).

Here, unlike in *Thompson*, all three physicians agreed that one cause of tonsillar cancer is known: HPV infection. Their opinions diverged, however, as to whether it is known that HPV *alone* can cause tonsillar cancer. Even assuming that both Orwoll and Beer were of the view that HPV alone could cause tonsillar cancer, each also acknowledged that other causes could not be excluded. Moreover, Pierce testified that HPV alone was insufficient to cause tonsillar cancer, pointing to the fact that few HPV-infected

individuals go on to develop tonsillar cancer, and that the exact nature of possible cofactors is presently unknown. Beer responded to Pierce's testimony by emphasizing that HPV is definitively linked to tonsillar cancer. However clear that link is, that clarity does not bear on whether other causes exist. The board reasonably could have found itself more persuaded by Pierce's testimony that something other than HPV is likely at play in developing tonsillar cancer, given that the population of the HPV-infected is so much larger than the population of those with tonsillar cancer. And it also reasonably could have found that Beer's remonstrance, based only on the close connection between HPV and tonsillar cancer, did not detract from the persuasiveness of Pierce's testimony.

In *Thompson*, the Supreme Court next addressed Semler's testimony that the claimant had none of the known risk factors for atherosclerosis. 360 Or at 168. The court explained that that testimony only ruled out the known risk factors, it did not bear on the possibility that the claimant's work was a cause of his condition, and so the board reasonably could have ascribed no persuasive value to that evidence. *Id.*

Here, the evidence was unanimous that claimant had the primary known risk factor for tonsillar cancer: HPV. As to whether other risk factors were known, the experts agreed that being male and over 40, claimant was in the demographic group that is most likely to develop tonsillar cancer. As to tobacco use and firefighting, the experts were generally consistent: No compelling evidence of causal connection currently exists between either tobacco use or firefighting and the particular kind of cancer claimant suffered from; however, neither can be excluded as a possible cause of tonsillar cancer. The board was entitled to find that that level of uncertainty did not persuade it that claimant's employment was not a fact of consequence in causing or contributing to his condition.⁴

Finally, in *Thompson*, the Supreme Court addressed Semler's opinion that the claimant's atherosclerosis was

⁴ See also *Thompson*, 360 Or at 163 n 6 (observing that the board could reasonably find equivocal testimony about causation unpersuasive).

unrelated to firefighting, based on his inability to find in the medical literature a proven connection between firefighting and atherosclerosis. *Thompson*, 360 Or at 168. The board had observed that Semler had also testified that the causes of atherosclerosis are unknown, and that the claimant had no known risk factors for atherosclerosis. *Id.* In light of that other testimony, the board found that the basis for Semler’s opinion that the claimant’s atherosclerosis was unrelated to firefighting was not apparent and accordingly not sufficiently persuasive to meet SAIF’s burden of persuasion. *Id.* In the eyes of the Supreme Court, the board acted permissibly:

“As we read the board’s opinion, the board evaluated the persuasive value of Semler’s opinion and found it lacking. As the board explained, Semler’s opinion that atherosclerosis is unrelated to firefighting was at odds with his testimony that the causes of atherosclerosis are unknown. The latter testimony undercut the former, or so the board reasonably could find.”

Id. at 169.

Here, the experts similarly and unanimously reported that no medical literature showed an association between firefighting and tonsillar cancer, and that lack of empirical data led each to give the opinion that firefighting was unlikely to have been materially related to causing or contributing to claimant’s condition.

As to Pierce’s opinion, the board reasoned that it did “not support a conclusion *** that [claimant’s] cancer was not caused or contributed to in material part by his employment.” To the extent that Pierce also responded that it was “completely unknown” whether there were no other contributors other than HPV to claimant’s cancer, the board was entitled to weigh that evidence against employer’s burden.

As to Orwoll’s and Beer’s opinions, the board explained that they were unpersuasive for several reasons. Again, the board was entitled to find those opinions unpersuasive. One reason the board gave was that Orwoll and Beer “did not persuasively explain how [the strong link between HPV and tonsillar cancer] ruled out firefighting as a fact of consequence.” To the extent that Orwoll and Pierce

gave opinions that firefighting was unlikely to be a fact of consequence in causing or contributing to claimant's condition, the board could reasonably see the opinions as not establishing that it was highly probable that firefighting was not a fact of consequence.

The board gave two other reasons for finding the opinions of Orwoll and Beer to be unpersuasive. First, the board observed that “[i]n light of Dr. Pierce’s opinion that something *in addition to* HPV contributed to [claimant’s] cancer, the opinions of Drs. Orwoll and Beer are conclusory and not well explained.” On this record, the board could reasonably find Pierce’s opinion more persuasive—that is, the board could find compelling Pierce’s reasoning that it was likely that other factors contribute to tonsillar cancer, given that so few HPV-infected persons develop cancer—and that Orwoll’s and Beer’s opinions did not undercut the persuasive value of Pierce’s opinion. But the primary reason that the board was entitled to find persuasive the testimony of all three of the experts is that all the opinions indicate that the state of medical science is presently uncertain as to the causation of tonsillar cancer, not that Orwoll and Beer were overly confident that science is certain in eliminating firefighting as a cause.

For the above reasons, (1) the board did not err as a matter of law in construing the standard to rebut the firefighters’ presumption in ORS 656.802(5)(b), and (2) the board permissibly could find that the record did not meet employer’s burden of persuasion under that standard.

Affirmed.