

WorkComp Strategies H.B. 617 Report: Appendix

Expanding Coverage of the Virginia workers’ compensation system to include injuries caused by repetitive motion

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Appendix A: Disability Benefits in Virginia

In this appendix we examine the potential impacts from expanding coverage for RSI on Virginia's workers' compensation disability benefits system. Virginia is an "award state," meaning that disability benefits, once awarded, continue until the employer can establish that they should be stopped. Benefits can be stopped, absent circumstances such as an employee's refusal of treatment or to accept return to work accommodations by the employer, only when an employee's disability ceases, which means (in Virginia) that the employee has no actual loss of earnings.¹ Thus we will assess whether Virginia's being an "award state" serves to affect the overall fiscal impact of expanding coverage to include repetitive stress injuries. There is wide variation among states on how disability benefits are quantified, but it is more common that an employee is considered disabled until the employee's maximum medical improvement or impairment rating is established, meaning the employee has medically recovered, not necessarily to their pre-injury state, but to the point of medical stability.²

States that use the impairment approach will typically "rate the employee's impairment (if any) and close the claim." In Virginia (and some other states that base disability on loss of earnings), however, the claim stays open if there is wage loss, regardless of medical stability. Virginia has an overall cap of 500 weeks,³ in addition to a cap on the weekly amount payable based on the average weekly wage of the Commonwealth.⁴ The difference between the two approaches – impairment approach vs. wage-loss approach – essentially becomes a question of when a claim closes.⁵ The longer a claim is open, the more costly it becomes. Thus, stakeholders assert that Virginia claims stay open longer due to increased difficulty in effectively closing them. The length of time a claim is "open" is referred to as claim "duration."

WCRI asserts, however, that the Virginia system has features that contribute to shorter claim durations:

- Stronger employer tools
 - Unilateral suspension of benefits permitted under many circumstances (pending a probable cause determination)
- Obligation on worker to minimize wage loss
 - Worker must seek/accept employment if released to light duty (if not on open award)

¹ This can also be established by showing that the employee is fully able to perform all aspects of pre-injury work. In other words, the employee is in the same position as immediately before the injury occurred.

² Medical stability does not necessarily mean full recovery, but instead that the employee has healed as much as medically possible from the effects of the injury and their medical condition has stabilized and no further treatment is required. Virginia and most states use the term "maximum medical improvement" to indicate that the claim has reached this status.

³ The 500-week cap does not apply to permanent and total conditions, such as loss of both hands, arms, feet, legs, eyes, or a combination of the two; total paralysis; and severe brain injuries. See Va. Code § 65.2-503(C).

⁴ This is based on information reported to the Virginia Employment Commission. In 2020 the maximum weekly compensation rate was \$1,137. (<http://workcomp.virginia.gov/documents/rates-min-max-benefits-cola-mileage>)

⁵ This is relevant to indemnity benefits only. Virginia, like most states, awards lifetime medical benefits.

- Worker must make reasonable effort to market remaining capacity to work even if partial return to work (if not on open award)⁶

Virginia compares favorably with other states in terms of overall claim costs and claim durations. The WCRI CompScope™ report on Virginia shows Virginia to be slightly above the median for claim durations among the 18 states included in the report. The WCRI report also compared Virginia with other wage-loss states, noting as follows: “Under a wage-loss benefit system, workers typically continue to receive temporary disability benefits so long as they experience wage loss because of the work-related injury. We expect states with a wage-loss benefit structure to have longer duration of temporary disability because most indemnity benefits are paid as temporary disability benefits.” The study (which uses only claims with 7 or more days of disability) shows Virginia was significantly lower than three of the other wage-loss states in the WCRI study.⁷

Claim severity is another source of information about the nature of workers’ compensation claim costs. The average severity of indemnity claims in Virginia is higher than the national average. NCCI reported that in 2017, average indemnity severity nationally was \$23,900 compared to \$27,900 in Virginia, a difference of 16.7%.⁸ But indemnity severity is based on multiple factors, including the rate of benefits and method of calculation (permanent benefits are calculated in several unique methods depending on the state). Temporary indemnity is based on weekly benefits paid multiplied by duration of TTD disability. The weekly benefit is typically calculated as a percentage of an employee’s pre-injury average weekly wage; most states (including Virginia) pay two-thirds of the employee’s average weekly wage. But states also apply caps that serve to limit the maximum weekly amount. These caps vary widely across states. As of July 1, 2020, Virginia’s maximum was \$1,137 per week vs. a range between \$505 per week in Mississippi and \$1,686 in New Hampshire. The best way to compare Virginia’s relative outcome in compensating temporary is to compare average length of temporary disability across all states. NCCI research published in 2013 showed that average temporary disability claim duration in Virginia was slightly below the national average.⁹ Thus, the relatively high average indemnity paid in Virginia is not attributable to longer claim durations, but more likely to higher benefit amounts and higher average weekly wages of employees.

Switching to medical cost, Virginia medical costs per claim historically have been among the highest in the U.S. A 2018 report from WCRI, however, showed a 13 percent decrease in medical payments per claim between 2017-18, after adoption of a medical fee schedule in

⁶ Quoted from WCRI, *CompScope™ Benchmarks for Virginia* (20th ed. Apr. 2020), at 22/slide 30.

⁷ *Id.* at 22/slide 29

⁸ NCCI, *State Advisory Forums 2019 (Virginia)* at 18 & 25. This includes all types of indemnity (temporary, permanent partial, permanent total, and fatal).

⁹ NCCI, *Research Brief: Workers Compensation Temporary Total Disability Benefit Indemnity Benefit Duration – 2013 Update* (Aug. 2013) at 17 (measuring 2009 accident year claims at 36 months of development).

2018.¹⁰ It should be noted that the number of treatments per claim and the sophistication (expense) of treatments also control average medical cost per claim. There is reason to believe that Virginia average medical costs are converging on the national average. Despite this positive development, average medical cost nationally has gone up around 10% between 2014-17.¹¹ In summary, cost and duration data is mixed, with some results showing Virginia being more costly per claim, while others show lower costs.

Insurance premiums in Virginia are lower than the national median. This is shown by the State of Oregon's biennial report on workers' compensation composite rates across the U.S. The October 2018 report had Virginia ranked as the 41st lowest state using standardized insurance rates (called the "index rate"), which was 75% of the median of all states plus the District of Columbia.¹² Thus, while data on claim costs in Virginia is mixed, the overall insurance costs are low.

A final note on the disability benefit structure in Virginia and its impact on system costs: In a 2000 report on permanent impairment approaches, Virginia was noted as a "wage loss" or "award" state, but the cost impacts from this structure were observed to be not significantly different from states using other approaches.¹³ The report concludes its discussion on this issue as follows:

Claims people unfamiliar with the wage-loss approach look at the possibility that the worker could receive benefits for many years or for life and assume it is a very costly system. In fact, it is ordinarily no more costly than other systems. This is because most claims are terminated with a lump sum settlement. . . . These lump sum payments frequently look very much like the permanent partial benefits paid in other states.¹⁴

With respect to lump-sum settlements, however, one important consideration is that Virginia does not pay permanent impairment benefits for neck or back impairment, except insofar as such an impairment results in a residual loss to an arm or leg. The practical effect of this is that chronic back claims would appear to be more difficult to close, or to require higher amounts offered in settlement, compared to other states. This same argument might be made for repetitive stress injuries, in that they share some common features with back conditions and could result in difficult-to-manage claims. Given that such conditions often involve an extremity (arm, leg, etc.), however, there should be fewer impediments to managing such claims to closure, as these would be subject to permanent impairment ratings and benefits.

¹⁰ WCRI, *CompScope™ Benchmarks for Virginia, 20th Edition (2020)* (<https://www.wcrinet.org/news/press-releases/medical-payments-per-workers-compensation-claim-in-virginia-decreased-13-percent-after-fee-schedule-introduced-wcri-study-finds>).

¹¹ NCCI, *State of the Line Guide 2018* (available at: <https://www.ncci.com/Articles/Documents/AIS2018-SOTL-Guide.pdf>).

¹² The October 2018 report is available at <https://www.oregon.gov/dcb/reports/Documents/general/prem-sum/18-2082.pdf>.

¹³ Welch, Edward M., *Permanent Partial Disability Benefits*, Mich. State Univ. (2008). Welch uses the phrase "wage loss approach" to describe the Virginia system of being an "award state."

¹⁴ *Id.* at 14.

In conclusion, in analyzing potential impacts for adding coverage for RSI to the Virginia system we have reviewed the basic structure disability benefits in Virginia and the associated cost results. As this analysis demonstrates, multiple factors are involved in profiling a state's workers' compensation benefits system: compensation rate; medical costs; and manner of compensating permanent loss. While Virginia's approach to disability benefits is somewhat unique, research indicates that this does not operate to contribute to making Virginia's system more costly. Adding RSI would definitely add claims and the costs for such claims to the system, but it does not appear that Virginia's structure as an "award state" would compound or increase the cost impacts from such a step.

Appendix B: Impacts on Claim Handling in Virginia

In this appendix we assess how expanding coverage for RSI would impact how claims are handled. As a general characterization, workers' compensation claims involve several basic steps, which are common across all systems: 1) report the injury; 2) evaluate coverage; and 3) provide appropriate benefits. Changing the Virginia Workers' Compensation Act to allow coverage for injuries caused by repetitive motion would affect each of these steps.

Injury Reporting

In Virginia, a workers' compensation "injury" includes both an "injury by accident" and an "occupational disease." Virginia law requires that an injury be reported to an employer "immediately on the occurrence of an accident or as soon thereafter as practicable." Va. Code § 65.2-600(A). For diseases, the employee must provide notice to the employer within 60 days "after diagnosis of an occupational disease is first communicated to the employee." Id. § 65.2-405(A). For repetitive stress injuries, amending the statute to allow coverage involves either amending the "injury" definition or amending the "occupational disease" provisions. If using the "injury" approach to cover RSI, the employee would need to notify their employer when they first become aware that an injury had occurred. This can present difficulties of proof, because such injuries may slowly develop, and it is difficult to know when it is in fact an injury. States who provide coverage using the injury approach solve for this issue by triggering the notice requirement based on when there was a diagnosis of an injury or when the condition became disabling.

For the "occupational disease" approach Virginia law provides an established mechanism for establishing the date of injury: "First communication of the diagnosis of an occupational disease to the employee . . . shall be treated as the happening of an injury by accident." Id. § 65.2-403(A). This requires a medical diagnosis of a condition caused by the employee's work. In other words, the date is not simply when the employee received a diagnosis of a condition, but the date when the condition was reported to be caused by work. For a repetitive stress injury, this would mean treatment for and diagnosis of a condition coupled with communication that it was believed to be occupational.

Another issue related to reporting is the statute of limitations. If a claimant delays reporting the known injury to his or her employer longer than 30 days after the injury, the claim could be barred. RSI injuries are somewhat longer to emerge and be diagnosed as work injuries than would be typical in traumatic injuries. Thus, there may be some push back from employers caused by late reporting.

Evaluating Coverage

Next, a workers' compensation claim is evaluated by a claims manager (employed either by a third-party administrator, insurance company, or self-insured employer) to assess whether the condition is covered. Many different issues are involved in this evaluation. One that is of importance here whether there was an injury by accident arising out of an in the course of the employment. This determination is much harder than what it might appear to a lay person.

There are a great number of statutory references and case law decisions that define what arising out of employment means in different fact situations. As outlined in this report, in Virginia repetitive stress injuries do not currently meet this definition because they are not the result of a single, identifiable incident. Thus, a claims manager will typically deny coverage for a repetitive stress injury because it is not a single, identifiable incident

Additionally, RSI are a condition the evaluation of which is made difficult, as it is somewhere between a traumatic injury and a disease. Virginia courts have taken a fairly strict approach, requiring an either-or determination; in other words, the injury is legally either a traumatic injury or a disease. Whether the Act is amended to include RSI as a covered traumatic injury, or if the change is to include RSI as a covered occupational disease, the General Assembly should be clear that despite previous court rulings to the contrary, RSI are now covered conditions. This would provide a signal to claims managers to not flatly deny RSI because they “have never been covered.” We point out that, under current law, “any condition of the neck, back or spinal column” is not covered as an occupational disease. Most medical definitions of repetitive stress injuries include neck, back, and spine conditions.¹⁵ Thus, depending on how repetitive stress injuries are defined by the Act, claims adjusters may have an unfamiliar, new type of claim to evaluate and manage.

Providing Benefits

The third area to analyze impact is on the provision of benefits. Covering RSI would increase the frequency and cost of claims to Virginia policyholders and self-insurers. But, at the same time, employees injured at work would benefit from compensation for plausible work injuries. In the report we have provided alternative estimates of the cost of broadening coverage taking into consideration uncertainty over the prevalence of RSI in Virginia and how effective the statute might be in limiting the scope of claims. In analyzing potential cost impacts we look at frequency and average cost per claim under alternative scenarios. These scenarios are our attempt to place reasonable upper and lower levels of benefit costs resulting from expanded coverage. In part the range of uncertainty for our cost estimates is a function of how narrowly or broadly the new statutory language defines coverage, e.g., burden of proof for causation, excluding coverage for injury primarily caused by aging, and extending coverage for back and neck injuries. Clearly, there are tradeoffs involved in employer cost versus compensation for injuries not currently covered. It will be up to policymakers to establish an equitable balance.

¹⁵ See generally Kirkhorn, S. and Earle-Richardson, G., *Repetitive Motion Injuries* (2006) (available at <http://eknygos.lsmuni.lt/springer/23/324-338.pdf>).

Appendix C: Medical Causation

Requiring that an injury or disease be caused by, or primarily caused by, employment is a widely accepted tenet for covering many types of workers' compensation claims. Traumatic injury, such as a car crash, laceration, or broken bone is usually tied to work even without a physician attesting to this. In other circumstances the connection of injury to work may be murky.

Establishing causation as part of broadened coverage for repetitive stress injuries ("RSI")¹⁶ lies at the heart of this study. If an employer could be assured that the injury they are being asked to compensate is primarily due to their workplace, they would presumably be more disposed to support coverage for RSI. Moreover, if the array of contributing factors were identified and their relative contribution assessed, the medical treatment of the diagnosed condition will be improved.

This appendix discusses expert evidence on causation, which must always be supplied by a physician. First, it reviews weakness in current practice for determining causation. It then describes a well-established standard for causation determination. Next, it reviews practical barriers to rigorous causation analysis and how claims administrators deal with reports they find incomplete or inadequate; this includes the treating physician's first reports of injury and opinions on causation. It concludes with some steps that the Commission might follow to improve causation determination and thereby reduce litigation.

States vary on what evidence needs to be shown for work relatedness of RSI. Often, the evidence reduces to checking a box on a form that attests to the statutory standard for an accepted injury. Virginia uses the "Attending Physician's Report" (Form 6) to assist with gathering information that is relevant to a workers' compensation injury; Form 6 is somewhat more demanding than a simple "check the box" type of form. It asks for a description of diagnostic testing and findings. It also asks for the patient's account of how injury or exposure to occupational disease occurred. The form does utilize check boxes (Yes, No, Unknown) for the physician to opine on the work relatedness of the diagnosed condition; this checkbox approach is common among states but leaves a lot to be desired in rigorously assessing work relatedness of injury. The information on Form 6, if **fully** supplied by the physician, would go a long way in assisting claims administrators in determining how they will handle the claim and administration of benefits.

Tennessee is a good case study of what might happen if coverage is expanded for RSI and the determination of causation is left open to the judgment of treating physicians without any criteria to guide their opinions. The Assistant Medical Director for the Tennessee workers' compensation system, Dr. Jim Talmage, asserts that the following single sentence opinion is all too common in the reports of treating physicians: "There is a GREATER than 50% Probability that Mr. X's condition was caused by the work exposure at Company "Z." In Tennessee, the

¹⁶ As in the main body of the report we refer generally to injuries caused by repetitive motion as "repetitive stress injuries" or "RSI."

presumption regarding causation afforded to authorized treating physicians makes such a determination difficult to rebut. Specifically, this statute provides, “[t]he opinion of the treating physician, selected by the employee from the employer’s designated panel of physicians pursuant to § 50-6-204(a)(3), shall be presumed correct on the issue of causation but this presumption shall be rebuttable by a preponderance of the evidence.”¹⁷

Fortunately, there is a well-established methodology for making detailed, medically-sound determinations of causation. This methodology was first published by the National Institute for Occupational Health and Safety (NIOSH) in 1979 (citation in the source of the table below). As can be seen by re-publication of the methodology by the American College of Environmental Occupational Medicine (ACOEM) and the American Medical Association (AMA), this standard is well recognized and accepted by occupational medicine specialists. The following table from the ACOEM/AMA lists the recommended six-step methodology for establishing causation in workers’ compensation cases. We have included the table focused on disease cases as it is more relevant to RSI causation assessments.

Figure 1: Six-Step Causation Test

<i>National Institute for Occupational Safety and Health/American College of Occupational and Environmental Medicine Steps for the Determination of Work-Relatedness of a Disease</i>
1. Identify evidence of disease
2. Review and assess the available epidemiological evidence for a causal relationship
3. Obtain and assess the evidence of exposure
4. Consider other relevant factors
5. Judge the validity of testimony
6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation

Source: Excerpted from Melhorn, J.M. et al., *AMA Guides to the Evaluation of Disease and Injury Causation*, (2d ed.) (Table 3-2) (citing NIOSH Pub. No. PB298-561 (1979) and ACOEM Guidelines 2004, 2008, & 2011).

The above method is echoed in a “Best Practices” guide for determining causation published by the Texas Department of Insurance, specifically the need to diagnose the condition objectively and thoroughly, use best medical evidence when appropriate, identify the specific connection between the condition and work activities, and the importance of stating the factors that went into the medical judgment regarding causation.¹⁸

¹⁷ Tenn. Code Ann. § 50-6-102(14(E)).

¹⁸ See: <https://www.tdi.texas.gov/wc/hcprovider/documents/bestpractices.pdf>

Dr. Talmage, mentioned previously, is a co-author of the ACOEM/AMA definitive guide on causation assessments and advocate of the six-step causation methodology. Dr. Talmage asserts, however, that this rigorous methodology does not appear to be widely adopted by general practitioners. Information from interviews with occupational medicine specialists confirmed that it is not always clear from reviewing sample reports of treating physicians whether their determinations of causation are founded on all, or any, of the steps in this process.

In practice, there are degrees of compliance with the above six step process. For example:

- Step 1: “Identify evidence of disease.” This involves gathering all evidence of disease from patient encounter, medical records, and new diagnostic testing. The physician may have identified a diagnosis but did not give evidence for how this was supported or show that other possible diagnoses were considered and ruled out.
- Step 2: “Review and assess the available epidemiological evidence for a causal relationship.” This involves consideration of the best available medical evidence showing a connection between work and the diagnosis, including the statistical association of personal risk factors and the diagnosis. The requirement to consider the medical literature is very seldom done by non-occupational medicine specialists. The most extreme departure from the six-step process is probably a complete failure to cite the best epidemiological evidence of a causal relationship between work and the injury in question.
- Step 3: “Obtain and assess the evidence of exposure.” This requires investigation into the specific nature of the job of the patient and what exposure it creates for RSI. The glaring defect on many reports is an unrealistic or incomplete assessment of the patient’s job risks. Too often the physician accepts a general description of the job from the patient without confirming descriptions of the work from the employer or claims adjuster.
- Step 4: “Consider other relevant factors.” Here, the physician assesses other factors that may contribute to the diagnosis, such as preexisting conditions and personal risk factors. This is particularly important if the law requires the doctor to opine on whether the job was the “primary” or “predominant” cause of injury, considering all other contributors.
- Step 5: “Judge the validity of testimony.” This step involves the physician considering the history in light of the result of other investigations and judging the validity and relative weight of all the evidence.
- Step 6: “Form conclusions about the work-relatedness of the disease in the person undergoing evaluation.” This final step is the critical report on findings and considered judgements. The treating physician’s thoughts on how the evidence was considered is often not spelled out in a generic report. Just rendering a yes or no on occupational causation without a full statement of the basis for this is akin to a judge issuing a decision with no justification.

The information gleaned from these steps would greatly assist claim adjusters in evaluating coverage in a workers’ compensation case involving RSI. An item of particular interest is whether the physician truly understood the work performed by the claimant and how their representations matched the formal job description (AMA step 3). This is not only important for a causation determination but also needed for duty restrictions for return to work.

Once the job of the claimant is accurately understood by the treating doctor, there remains the question of how that job could have caused the diagnosed injury. In Saskatchewan, Canada, claim adjusters utilize an established policy in evaluating the relationship between required job activities and RSI causation, focusing on the force and repetition required by the job. The following matrix is established by policy to provide guidance on these factors.

Figure 2: Evaluating Force and Repetition Involved in Job Activities

<p>HIGH FORCE/LOW REPETITION</p> <ul style="list-style-type: none"> • Medium to high probability of employment relationship. • Probability increased with poor ergonomics. • Job examples: <ul style="list-style-type: none"> ○ Grinder operator. ○ Electricians. 	<p>HIGH FORCE/HIGH REPETITION</p> <ul style="list-style-type: none"> • High probability of employment relationship. • Probability increased with poor ergonomics. • Job examples: <ul style="list-style-type: none"> ○ Meat cutters. ○ Carpenters. ○ Jack hammer operator.
<p>LOW FORCE/LOW REPETITION</p> <ul style="list-style-type: none"> • Low probability of employment relationship. 	<p>LOW FORCE/HIGH REPETITION</p> <ul style="list-style-type: none"> • Medium to high probability of employment relationship. • Probability increased with poor ergonomics. • Job examples: <ul style="list-style-type: none"> ○ Typists. ○ Cashiers. ○ Painters.

Source: Excerpted from Saskatchewan Workers’ Compensation Board, *Policy and Procedure Manual, Appendix G: Repetitive Strain Injuries* (May 1, 2020) at 145 (available at <http://www.wcsask.com/wp-content/uploads/2016/02/SK-WCB-Policy-Procedure-Manual-May-1-2020.pdf>).

Claim adjusters also would be very interested in evidence of other health issues in evaluating RSI. They need to know if the physician had inquired into non-work activities and health issues that might also have caused the symptoms of injury (AMA step 4). Concerns about other health or personal risk factors is frequently brought up by stakeholders as a drawback to expanding coverage for RSI, as the symptoms can mirror symptoms of common ailments. Given that in workers’ compensation, the employer “takes the employee as they find them,” there is concern that common, everyday health issues will become the employer’s responsibility. A frequently noted concern involves injury to older workers, particularly with economic shifts where the

average age of the workforce is increasing. Age is medically established to predispose a person to many types of injury, e.g., shoulder injuries increase with age regardless of the inherent hazards of the job. States have handled these issues in various ways, for example by requiring a certain length of employment before providing coverage for such conditions; by increasing the burden of proof, similar to how Virginia currently handles “ordinary diseases of life”; and by enhancing the causation standard, for example requiring work to be a “major contributing cause” or the “primary cause.” Kentucky excludes injuries caused by the “effects of the natural aging process.”¹⁹ Such issues are involved in *any* case, however, and not just one involving repetitive stress injuries. Thus, the more thorough a causation opinion from a treating physician, the less concern there is that non-occupational conditions will insinuate themselves into the workers’ compensation system.

According to the AMA, the information needed by the doctor to make a sound analysis of causation may be available at the time of the first visit. However, obtaining additional information (previous medical records, additional diagnostic testing, and detailed job description) is almost always necessary. The minimum initial assessment of causality may be based on a thorough initial assessment. But, the degree of uncertainty should be clearly communicated to the patient and employer. The adjuster can then follow up and ask for additional information or call for an IME examination.

In the interest of speed and efficiency an adjuster might be satisfied with a report that shows a reasonable understanding of the job in question and the mechanism of injury. Willingness to accept flawed reports where the doctor did not completely understand the nature of the work and its level of risk can become a source of friction between employers and claims adjusters. Employers expect the adjuster to “cover all the bases.” Note that the workers’ compensation system in Virginia utilizes “employer panels” meaning that, prior to injury, employers, working with their insurer or third-party administrator, establish physician panels from which injured employee make a selection of treating physician. This provides an opportunity for assembling a cadre of providers who have familiarity with relevant job tasks and activities and thereby make the causation process more efficient.

The AMA guidelines (following in the heritage of NIOSH and ACOEM) attempt to elevate causation decisions from being based solely on generalities such as: ‘in my many years of experience I find. . . .’ Rather, they seek to add medical evidence on “the statistical connection between certain symptoms and types of work.” With respect to causation, “scientifically referenced reports are preferred. . . . [T]he evidence-based report will discuss the available medical literature on causation, the presence or absence of other risk factors or injuries, and the mathematical likelihood that the exposure is related to the illness or injury in question.”²⁰ What the guidelines seek is to identify injury hazards strongly associated to the occupation in which the employee was known to have engaged. It may be difficult for a non-occupational specialist to have a working knowledge of the massive literature on occupational injuries.

¹⁹ Ky. Rev. Stat. 342.0011(1). Other states, e.g., Kansas and Missouri, have similar exclusions.

²⁰ Melhorn, J.M. et al., *AMA Guides to the Evaluation of Disease and Injury Causation*, (2d ed.).

However, it is common practice for a claims adjuster to call to the attention of the treating physician specific medical evidence that statistically relates the injury in question with job duties. For example, there is strong evidence that occasional key entry does not cause carpal tunnel syndrome, whereas meat cutting is strongly associated with CTS. Familiarity with such evidence equips the physician in making insightful investigation and drawing conclusions therefrom.²¹

The validity and credibility of the treating physician's reports would be enhanced if the six-step causation process was established as the normative process for credibly determining causation. In an ideal world, the physician's initial report and follow up investigation would document the above process. But a more practical option is for the claims adjuster to follow up with the physician to ask for evidence on issues of concern. For example, the adjuster might send the employee's job description or a video of the required work process. Giving the adjuster such medical evidence that work was indeed the primary cause of injury should help prevent litigation.

It may be an uphill struggle, however, to persuade general practitioners to spend the time learning and following the ACOEM/AMA six-step process. In particular, the medical literature quantifying risk factors is daunting for an untrained doctor. The following table from the ACOEM/AMA guide presents a methodology for evaluating epidemiological studies in assessing factors relevant to causation.

²¹ The use of evidence to prove causation and determine the course of treatment is widely accepted within the medical community. A report by the US DOL reinforces the need for medical evidence, recommending that: "Identification of evidence-based approaches to improve the effectiveness of workers' compensation systems." ACOEM consistently promotes evidence based medical practice.

Figure 3: Evaluating Causal Relationship

Steps for Concluding a Causal Association Exists
1. Collect all epidemiological literature on the disorder
2. Identify the design of each study, giving stronger consideration to superior study designs, provided each study has sound methodology
3. Assess the methods of each study, including the existence and degree of:
a. Exposure assessment methods and potential biases
b. Disease ascertainment methods and potential biases
c. Absence of significant uncontrolled confounders; consideration of residual confounding
d. Addressing of other potential biases or fatal flaws
e. Adequacy of biostatistical methods and analytical techniques
4. Ascertain statistical significance and the degree to which chance may have produced the results
5. Assess the studies using the Updated Hill Criteria; apply the criteria to individual studies (especially 5a-5c) and to the studies as a whole (5a-5l):
a. Temporality
b. Strength of association
c. Dose-response relationship
d. Consistency
e. Coherence
f. Specificity
g. Plausibility
h. Reversibility
i. Prevention/elimination
j. Experiment
k. Analogy
l. Predictive performance
6. Conclusion about the degree to which a causal association is or is not present

Source: Excerpted from Melhorn, J.M. et al., *AMA Guides to the Evaluation of Disease and Injury Causation*, (2d ed.) (Table 3-1).

Only a small number of providers are likely to have working familiarity with these guides. According to ACOEM, 10-20 thousand physicians identify as practicing occupational medicine, but only about 4500 are ACOEM members.²² This is a tiny fraction of the roughly 113,000 family medicine and 115,000 internal medicine doctors in active practice nationally. Focusing on Virginia, one statewide physician directory showed only, 87 medical doctors that listed their

²² Presentation of Lesoski, D., M.D., Michigan Occupational Health Conference (Oct. 2017) (available at http://www.moema.org/files/ACOEM_Update.pdf).

specialty as “occupational medicine.”²³ This presents a challenge to employers in the selection of designated panel physicians as primary providers to treat their injured workers.

Interviews with Virginia adjusters (and other states WCS has worked in) confirmed that placing qualified physicians on panels, with experience with occupational medicine, is critical in successful worker recovery and safe return to work. The six-step process outlined above could be part of the panel “management” process to ensure that causation questions are fully and predictably addressed. Persistent failure to offer rigorous injury and causation reports could be a reason for changing the panel.

Workplace safety is another area where standard loss-prevention practices can help prevent RSI. Employers that implement such practices will be better equipped to defend themselves against the alleged connection between work and RSI (step 3 in the six-step process). More importantly, such injuries can be avoided in the first place. In summary, developing a mechanism for employees, employers, physicians, and adjusters to assess causation and prevent injury in the first place fosters predictability in the system.

We now turn to explaining why incomplete or cursory medical reports on causation might overly favor work relatedness, followed by a discussion of possible remedies. Doctors are most certainly intelligent and well trained in some aspect of medicine. They routinely deal with recording their decision process on medical records and writing reports to payers to justify treatment. This begs the question, then, as to why causation options of treating physicians can be lacking in needed specificity, completeness, and rigor? We offer these possible explanations for why causation reports are vague or incomplete.

- Unless they are trained in occupational medicine, treating physicians may not be aware of the reasoning behind the best practices among occupational medicine specialists for diagnosing and treating the condition of the injured worker.
- Applying more thorough clinical procedures in recording personal activities and doing diagnostic testing add to the time of a visit. After the initial visit, extra-clinical data gathering about job exposures is time consuming. Referencing epidemiological studies requires time. For these reasons, it may be more efficient for a doctor’s practice and more acceptable to busy adjusters to make a quick “best judgment” determination on causation from the initial encounter.
- There may be financial considerations involved in simply giving the situation the benefit of the doubt and declaring a patient’s condition to be caused by work rather than by non-work cause(s). If they determine it is non-work related, they may not get paid at all if the patient has no health insurance.

²³ This count only includes MDs that labelled their practice “occupational medicine.” Doubtlessly, other doctors have a great deal of experience treating work injuries, without singling out their practice as occupational medicine. See directory at:
<https://www.healthgrades.com/usearch?what=Occupational%20Medicine&entityCode=PS581&where=VA&pageNum=1&sort.provider=bestmatch&state=VA>

- Telling a patient that their claim of work injury is medically unjustified will often create a poor reaction from the patient, especially if they do not have health insurance to cover non-occupational injuries, or if they wanted time off from work.

There are ways to overcome or mitigate poor medical reports on causation. For example, as discussed above, employers can be more selective in choosing doctors that have a good record of outcomes in treating work injuries for employers in the area. In Virginia, adjusters can work with employers to establish physician “panels” to provide treatment in workers’ compensation cases. The chief difficulty with this is the paucity of occupational specialists, but a second-best solution would be to select doctors with frequent experience treating work injuries and who have a track record of giving detailed medical reports.

Another possible mitigation is to have the treating physician’s opinion on causation presumed correct, provided they performed a rigorous causation analysis such as the one described above. Tennessee utilizes this approach of a statutory presumption, and in most states, including Virginia, there is a strong evidentiary preference for an opinion from a treating physician. Importantly, guaranteeing payment to the physician for providing the opinion, regardless of whether the doctor cites work or non-work as the cause, is also an important aspect to compliance. Occupational medicine specialists have said that this would go a long way to overcoming resistance to rigorous medical reports on causation.

Employers are also a key player in improving causation determinations. Adjusters could work with employers and providers to quickly supply key information, e.g., job description with videos or careful descriptions of the types of tasks actually done, witness reports, and medical evidence pertinent to the condition at hand. We have seen evidence in other states that establishing a respectful professional relationship between employers, doctors, and claims adjusters set the tone for good medical reports.

The ACOEM/AMA six-step process could be adopted by rule as the best practice in making causation determinations. Input from medical providers and claims specialists in structuring the format of such reports to ensure broad acceptance. Different requirements could be placed on using the standard. For example, failing to adhere to these standards could be weighed as failure to meet the burden of proof on a claim. Allowing for an addition to the fee schedule for medical providers who provide this documentation would also support compliance. Such a process resulting in a rule would support consistent and thorough causation opinions and go a long way in preventing unnecessary doctors’ depositions and use of ad-hoc questionnaires to arrive at the same result.

In conclusion, how medical providers respond to broadened coverage in determining causation will have a major effect on the frequency of claims, claim cost, and other outcomes of the system. This risk factor interacts with the other factors that impact overall cost of this change: litigation, coverage of non-occupational conditions, and exclusion of legitimate occupational conditions. In an ideal world, doctors will apply the best techniques and use the best medical evidence available. This applies not only to the initial causation determination, but to additional

causation decisions in the case once compensability is established, such as justifying a treatment due to the injury or the connection between the initial injury and any sequela conditions. An essential component of broadening coverage for RSI should be establishing a clear, accepted causal connection between the condition diagnosed by the doctor and that patient's job duties.

Appendix D: Repetitive Stress Injuries as a Cost Driver

All things being equal, one should be able to simply look at the RSI costs in a sample of other states to determine how much RSI coverage costs the system. All things are not equal, however, and some states, although allowing RSI, have other aspects impacting their respective systems that make controlling for such variables difficult if not impossible. For example, a state may have a high maximum compensation rate, a short waiting period, and high average medical costs. This state should have higher overall costs compared to a state with a lower maximum compensation rate, a longer waiting period, and lower average medical costs. Additionally, “allowing” RSI does not place a state on a level playing field with other states that allow RSI. As discussed in the Appendix comparing state laws, states vary in the standards used to evaluate causation; what this means is that a state may allow RSI but have a relatively strict causation standard. This might mean that while RSI claims are covered, claims in general are likely reduced. For example, the rate of claims for carpal tunnel syndrome in Virginia, which is currently a covered condition, is significantly lower than regional and national rates.²⁴

This type of variation suggests that one should drill down into the laws of a particular state to see how they drive RSI claims. North Carolina shares many common with demographics, economy, and industry with Virginia. The maximum compensation rate and waiting period are similar to Virginia’s. Also similar to Virginia, North Carolina pays temporary total disability benefits up to 500 weeks. This can be terminated by a permanency award, but in North Carolina the employee can choose whether to accept the award or continue on temporary disability. In this way North Carolina and Virginia have similar “award state” features. Unlike Virginia, North Carolina does provide for permanency ratings of the back. As for RSI, North Carolina provides for these in the occupational disease section, but has a schedule that includes bursitis, synovitis, and tenosynovitis. There is also a catch-all for other conditions, but these exclude any condition “to which the general public is equally exposed outside of the employment.”

Another feature of the North Carolina system relevant to this analysis is the prohibition against coverage of injuries suffered by employees performing their “normal job.” In other words, there must be an unexpected accident, such as a slip, trip, or fall. An arm injury incurred while performing a motion expected in the employment would not be unexpected. This does not apply to certain back injuries. Thus, North Carolina and Virginia appear to both have relatively strict treatment of RSI in statute and court interpretations. Another point in favor of using North Carolina as a model for how many RSI claims might emerge in Virginia is the fact that the mix of employment in the two states is relatively similar. Specifically, both states have lower levels of employment than the nation as a whole in high risk jobs, e.g., assembly line manufacturing and food processing.

Tennessee provides another model of what could happen in Virginia under broadened coverage. Tennessee covers RSI by statute and has a seemingly strict statutory standard for the

²⁴ Virginia’s rate of 0.09% is over 4 times lower than the national rate (0.4%) and three times lower than the regional rate (0.3%). See *infra*, Figure 6.

nature of compensable injuries generally, including RSI. Tennessee also has strong preference for reports by treating physicians, providing that the opinion regarding causation is presumptively correct, though subject to rebuttal by the employer. Given the fact that employers select the panel of treating physicians, one would think that the physicians would be rigorous about causation. These two factors would lead one to think that Tennessee would have a low rate of compensable RSI claims. However, in practice treating physician opinions often lack sufficient depth on the topic of causation. Since most states (like Virginia) tend to offer general deference to treating physician reports, the incidence of RSI in a state may be heavily influenced by how carefully employers select doctors with occupational injury experience to include on a physician panel.

Other features to note about the Tennessee system: Similar to North Carolina and unlike Virginia, permanent impairment can be paid for back and neck conditions in Tennessee. Tennessee is not an “award state” for permanency, meaning that once an employee reaches maximum medical improvement, their impairment is rated, the permanency benefit is paid, and the claim is closed. The Tennessee statute does utilize other factors in determining permanency, however, such as education and unemployment rates, which in effect adjusts a permanency award (higher) if circumstances warrant such adjustment. The Tennessee statutory maximum for weekly benefits (\$1,093) is similar to Virginia’s (\$1,137).

In effect, the rate of RSI in North Carolina is very limited, while the frequency in Tennessee is more in line with national results. This is confirmed by BLS data, which show the following incidence rates: 1.2% (NC) and 2.0% (TN) of all reported lost time claims in 2018, compared with 3.4% nationwide (1.0% in Virginia). Note that BLS data is reported injuries, not paid claims. Data from paid claims show frequency nationwide at 2.1% (NCCI 2014-18) and 2.2% in Tennessee (EDI data 2017; NC paid claim data not available). The somewhat higher relative rates of RSI in Tennessee may be due to Tennessee’s higher share of employment in industries prone to RSI injuries, e.g., manufacturing (8.9% TN versus 4.7% VA) and Transport and Material Moving (11.3% TN versus 7.7% VA).

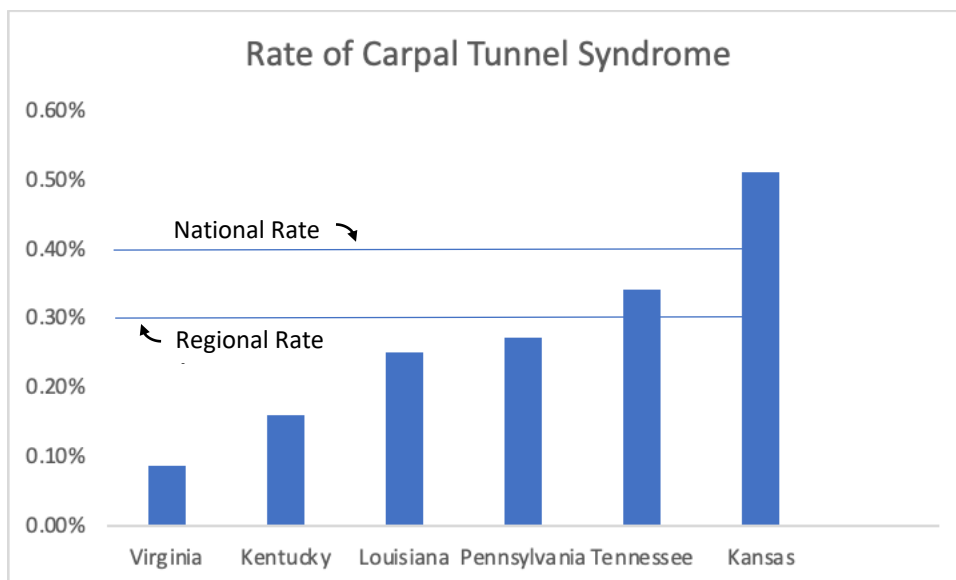
In summary, North Carolina and Tennessee might serve as templates for how RSI coverage might expand in Virginia. The North Carolina system appears to mirror Virginia’s current approach of a strict causation standard, and incidence rates are similarly very low. In Tennessee RSI are more generally accepted, although the causation standard is crafted specifically to minimize allowance for non-occupational causes of injuries. The results in Tennessee are in line with national results. In conclusion, these two state comparisons demonstrate the range of results that Virginia might experience in expanding coverage for RSI, and in particular demonstrate the potential impact from statutory approaches to limiting coverage in particular cases.

Appendix E. Comparison of Other State Laws

Introduction

Workers' compensation is a state-based system, and thus each state develops its own respective programs. Certain program elements, however, tend to converge across states. Of particular interest in this comparison are the following: 1) identifiable similarities or dissimilarities in current Virginia law, including contrasting the accident approach with the disease approach; 2) causation and burden of proof standards; and 3) particular language in limiting or defining the scope of coverage. Some of the states provided data concerning coverage of repetitive motion injuries. The following figure shows reported claims (EDI data; 2017 AY) using the nature of injury code for carpal tunnel syndrome. The horizontal lines showing regional and national percentages are from NCCI reported data on paid claims cumulated over AY 2014-18; the regional data included Maryland, D.C., and Kentucky; the national data includes NCCI states (36 out of 51 states plus D.C.)

Figure 4: Comparison of Carpal Tunnel Syndrome Rates



This indicates that Virginia's rate of carpal tunnel syndrome, a covered repetitive stress injury, is well below that in other selected states providing EDI data and regional and national rates. This is an excellent illustration of how the outcome of a law can be influenced strongly by a host of factors, such as how the law is administered, case law on interpreting statutes, the claims environment in a state and the quality of medical care. The sharply lower rates of CTS in Virginia might be explained by the rigorous burden of proof in Virginia and to an industry mix in Virginia that has relatively few high-risk jobs for CTS.

The following states (presented alphabetically) were selected for comparison because they were identified as providing examples of how injuries by repetitive motion are covered elsewhere; the list is not exhaustive.

State Comparisons

Florida

Florida treats causation of occupational disease similarly to accidental injuries, requiring proof that “the nature of the employment was the major contributing cause of the disease.” Fla. Stat. 440.151. The statute further defines “nature of the employment” to mean that in the occupation engaged in, “there is attached a particular hazard of such disease that distinguishes it from the usual run of occupation, or the incidence of such disease is substantially higher in the occupation in which the employee was so engaged than in the usual run of occupations.” The statute also requires proof by “clear and convincing evidence,” which is a heavier burden of proof than for other injuries.

Illinois

Illinois uses a “six-part test” in covering occupational diseases, which is similar to Virginia’s test for occupational diseases. One major distinction is that the statute specifically allows “aggravations.” In other words, an occupational disease is one arising out of an in the course of the employment, or a disease that has “become aggravated and rendered disabling as a result of the exposure of the employment. Such aggravation shall arise out of a risk peculiar to or increased by the employment and not common to the general public.” 820 ILCS 310/1. The disease must either have its “origin” in the employment or it must have been aggravated by the employment. 820 ILCS 310/1. The Illinois statute also makes clear what “common to the general public” means in describing that exposure means that “for any length of time however short, he or she is employed in an occupation or process in which the hazard of the disease exists.”

Indiana

The standard for an “injury” is “injury by accident arising out of and in the course of the employment.” Ind. Code 22-3-2-2(a). Historically, Indiana used an “accident” focus with respect to cumulative trauma injuries, meaning that the courts looked for a sudden and unexpected event. Indiana then shifted to examining whether the injury itself was unexpected. In other words, the inquiry changed from “was the untoward event unexpected” to “was the untoward result of the event unexpected.” This shift occurred by case law in 1986. *Evans v. Yankeetown Dock. Corp.*, 491 N.E.2d 969 (Ind. 1986). In 1991, this shifted further to making compensable the aggregation of smaller traumatic events. *Union City Body Co. v. Lambdin*, 569 N.E.2d 373 (Ind. Ct. App. 1991). The movement to a liberal interpretation of accident is shown in a 1994 case, in which an employee developed a degenerative condition as a result of work, but the condition only manifested itself through a lifting event outside of work, yet this condition was held compensable. *Four Star Fabricators, Inc. v. Barrett*, 638 N.E.2d 792 (Ind. Ct. App. 1994).

Kansas

In Kansas an injury by accident is considered to arise out of the employment only if “the accident is the prevailing factor causing the injury.” Kan. Stat. 44-508. Specifically excluded are injuries from “the natural aging process or by the normal activities of day-to-day living.” A “prevailing” factor is defined as the “primary factor, in relation to any other factor.” Injuries from repetitive motion are covered, not as an accident or disease, but by special definition:

‘Repetitive trauma’ refers to cases where an injury occurs as a result of repetitive use, cumulative traumas or microtraumas. The repetitive nature of the injury must be

demonstrated by diagnostic or clinical tests. The repetitive trauma must be the prevailing factor in causing the injury.

Kan. Stat. 44-508. The statute further requires that the employment must have exposed the employee to “an increased risk or hazard which the worker would not have been exposed in normal non-employment life.”

Kentucky

Kentucky defines an injury as a “traumatic event or series of traumatic events, including cumulative trauma.” Specifically excluded, however, are the “effects of the natural aging process.” Ky. Rev. Stat. 342.0011(1). Occupational diseases are defined in a similar manner to Virginia, but, unlike Virginia, Kentucky does not generally prohibit coverage for ordinary diseases of life. For occupational diseases Kentucky uses the conventional causation standard “arising out of and in the course of the employment.” Ky. Rev. Stat. 342.0011(2).

Louisiana

The Louisiana statute excludes as an injury any “gradual deterioration or progressive degeneration.” LA Rev. Stat. 23:1021(1). The statute covers repetitive stress injuries as a disease, however, and specifically includes “work-related carpal tunnel syndrome.” An occupational disease is a “disease of illness which is due to causes and conditions characteristic of and peculiar to the particular trade, occupation, process, or employment in which the employee is exposed to such disease.” LA Rev. Stat. 23:1031.1. The statute specifically includes carpal tunnel syndrome and specifically excludes “degenerative disc disease, spinal stenosis, [and] arthritis of any type.” The statute also establishes a presumption that a disease was not contracted in employment that has a duration shorter than 12 months, but this can eventually be established by evidence that the disease was contracted “during the course of the prior twelve months’ employment.”

Missouri

Missouri uses the “prevailing factor” standard for all injuries. The employee must show that the work injury is the “prevailing factor in causing both the resulting medical condition and disability.” “Prevailing factor” is defined as “the primary factor, in relation to any other factor, causing both the resulting medical condition and disability.” Mo. Rev. Stat. 287.020(3). Repetitive motion injuries are covered as an occupational disease, but only if the “occupational exposure was the prevailing factor in causing both the resulting medical condition and disability.” Mo. Rev. Stat. 287.067(3). The condition “must appear to have had its origin in a risk connected with the employment and to have flowed from that source as a rational consequence.” Missouri excludes conditions that are caused by “ordinary, gradual deterioration, or progressive degeneration of the body caused by aging or by the normal activities of day-to-day living.”

Nevada

Nevada uses a list of scheduled conditions as covered occupational diseases. Included on the list are the conditions of “tenosynovitis and prepatellar bursitis.” Nevada has a 90-day Nevada residency or continuous employment requirement for compensability of these conditions, however. Nev. Rev. Stat. 617.430(2). Other, non-listed conditions may be covered as occupational diseases if they do not arise from “a hazard to which workers would have been equally exposed outside of the employment.” An “aggravation” of a pre-existing condition that

does not have its origin in the employment is compensable, unless the employer proves that employment was not “a substantial contributing cause” of the aggravated condition. Nev. Rev. Stat. 617.366.

North Carolina

In North Carolina an “accident” is defined as excluding a “series of events in employment, of a similar or like nature, occurring regularly, continuously or at frequent intervals in the course of such employment, over extended periods of time.” N.C. Stat. 97-52. However, diseases attributable to such causes are compensable, if they are on a scheduled list of diseases; included on the list are “bursitis, due to intermittent pressure in the employment,” “Synovitis, caused by trauma in employment,” and “tenosynovitis, caused by trauma in employment.” N.C. Stat. 97-53. There is a “catch all” condition covering diseases “due to causes and conditions which are characteristic of and peculiar to a particular trade, occupation or employment” but any condition “to which the general public is equally exposed out of the employment” is excluded.

Oregon

In Oregon, an occupational disease is compensable if caused by “substances or activities to which an employee is not ordinarily subjected or exposed other than during a period of regular actual employment.” OR Rev Stat 656.802. Specifically included are injuries caused by “any series of traumatic events or occurrences which requires medical services or results in physical disability or death.” Proof that employment activities were the “major contributing cause” is required. Oregon uses the “major contributing cause” standard for both traumatic injuries and occupational diseases. Oregon specifically allows aggravations of pre-existing conditions, but again requires proof that the injury was the “major contributing cause” of the condition. The statute further requires that a compensable injury must be established by “medical evidence supported by objective findings” Or. Rev. Stat. 656.005(7)(A). More stringent requirements apply to “mental disorders.” This “major contributing cause” standard was enacted in 1990, and further refined in 1995, by the Oregon Legislature to constrain coverage of certain injuries and better control system costs. A good summary of the impact from these changes on costs can be found in: Welch, Edward M., *Oregon Major Contributing Cause Study* (Oct. 5, 2000) (available at <https://www.oregon.gov/dCBS/reports/Documents/archive/arc-general/finalmcc.pdf>).

Pennsylvania

In Pennsylvania, an occupational disease is defined as “diseases (1) to which the claimant is exposed by reason of his employment, (2) which are causally related the industry or occupation, and (3) the incidence of which is substantially greater in that industry or occupation than the general population.” 77 Penn. Stat. § 27.1. Injuries from repetitive motion are not specified in the statute but are considered compensable. Aggravations of pre-existing diseases or conditions are covered. See <https://www.dli.pa.gov/Businesses/swif/claims/Pages/What-is-Work-Related-Injury-and-Occupational-Disease.aspx>

South Carolina

South Carolina excludes injuries from repetitive motion as an accidental injury but covers them either as a defined “repetitive trauma injury” or an occupational disease. SC Code § 42-1-160(F). The statute defines a “repetitive trauma injury” as “an injury which is gradual in onset and caused by the cumulative effects of repetitive traumatic events.” SC Code § 42-1-172. The

section goes on to require medical evidence establishing a causal connection between the “repetitive activities that occurred while the employee was engaged in the regular duties of his employment and the injury.” The evidentiary standard is “preponderance of the evidence.” An occupational disease is covered if it is “due to hazards in excess of those ordinarily incident to employment and is peculiar to the occupation in which the employee is engaged.” S.C. Code 42-11-10. The evidentiary standard is “preponderance of the evidence.” The disease must be “recognized as peculiar to a particular trade, process, occupation, or employment.” The statute also requires proof of cause “from a hazard to which the workman would have been equally exposed outside of his employment.” It allows for “ordinary” diseases “to which the general public is equally exposed” if there is proof of “continuous exposure peculiar to the occupation itself which makes such disease a hazard inherent in such occupation.” South Carolina does exclude “any chronic disease of the skeletal joints.”

Tennessee

Tennessee covers “cumulative trauma conditions” including “hearing loss, carpal tunnel syndrome or any other repetitive motion conditions” so long as the condition arose “primarily out of and in the course and scope of employment.” Tenn. Code Ann. 50-6-102(14). This standard similarly applies to “the aggravation of a preexisting disease, condition or ailment.” The “primarily” standard is defined as requiring that the “employment contributed more than 50 percent (50%) in causing the injury, considering all causes.” The effect of this definition is that it is mathematically impossible to have more than one “primary cause” in that by definition, a primary cause is more than 50% of all causes. The employee’s treating physician’s opinion is presumed correct on the issue of causation, but this presumption is rebuttable by a preponderance of the evidence.²⁵ Prior to 2015, Tennessee used a six-part test similar to Virginia’s. The statute was amended effective 2015 to treat occupational diseases like any other injury. The six-part test used prior to 2015 did not have a higher burden of proof and did not exclude neck and back injuries, but excluded conditions from a “hazard to which workers would have been equally exposed outside of the employment.”

Summary and Conclusions

This selection of states is not comprehensive but provides a fair representation of various approaches to covering RSI. More of the states above define coverage of RSI as an occupational disease, with a fair number providing a special definition. Some include them as a traumatic injury, and others simply include them through case law. Each state covers occupational diseases generally, and some utilize a list of qualifying diseases but allow for other non-listed diseases. Several of the states include aggravations of diseases as covered conditions, with some requiring increased evidence of a causal connection, e.g., Nevada requires that the employment be a “substantial contributing cause” to an aggravation.

²⁵ Note that WorkComp Strategies participated in an analysis of the Tennessee workers’ compensation system in 2012 and made recommendations to clarify the causation standard due to inconsistent interpretations of the standard and concerns over courts covering conditions based on a “could have been caused” standard. In 2013, Tennessee enacted reforms that, among other things, tightened the causation standard; the “arising primarily” standard for repetitive motion conditions, however, was in place *prior* to the analysis or reforms.

A few of the states surveyed utilize a causation standard for workers' compensation injuries generally, which would appear to be more strict than a simple "more likely than not" standard. The standards range from "primary cause" to "major contributing cause" to "prevailing" cause. Most of the states call for specific proof of a causal connection with work when it comes to an occupational disease. Most states share the following elements in defining what qualifies as an occupational disease:

- A work exposure to a risk of the disease
- A risk that is peculiar to a specific employment
- Employment activities that involve an elevated risk of the disease in question

A few of the states deal with "complex" cases where causation is particularly difficult by excluding certain conditions (degenerative disc disease; spinal stenosis; arthritis; chronic disease of the skeletal joints) or by excluding certain causes (natural aging process; normal activities of day-to-day living). Nevada and Louisiana provide for "waiting periods" before holding employers responsible for covering these complex cases.

As noted in the main body of the report, Virginia uses a general "preponderance of the evidence" standard for traumatic injuries but excludes RSI as a covered traumatic injury. This is not uncommon among states, to exclude RSI as a covered traumatic injury. What is unusual is that Virginia also excludes RSI as a covered occupational disease (other than carpal tunnel syndrome and hearing loss). Where other states exclude RSI as a covered traumatic injury, they specifically allow them either by special definition or as an occupational disease. Even if RSI is allowed as an occupational disease Virginia's approach to disease coverage is fairly strict compared to other states, although as noted above it is not uncommon for states to impose unique or heightened coverage standards.

Appendix F: Methodology

Introduction

The central question raised from this analysis is: how many new compensable claims are likely for Virginia and what will those claims cost if typical coverage for RSI is enacted? In this appendix we provide additional detail concerning the methodology used to analyze the frequency and cost of repetitive stress injuries and estimate Virginia's experience in broadening coverage for such claims. Cost is broken into two components: indemnity cost (due to time away from work) and medical cost. Virginia indemnity costs are fairly stable and track well with typical indicators. Medical costs, however, historically quite high in Virginia, have experienced some recent downward effect as brought about by adoption in 2018 of a medical fee schedule. To briefly illustrate the methodology concerning medical cost, we have computed total medical cost from the incidence of claims by multiplying the projected number of claims by the average medical cost estimate for treatment of RSI across the country, after making certain adjustments. Our medical cost estimate is our reasoned analysis and not an actuarial projection. The estimate reflects historically higher medical costs but makes allowance for future cost reduction from the fee schedule, such that Virginia's experience will over time more reflect nationwide medical costs.

A related question is will claims for RSI as a percentage of overall claims increase or decrease in the coming years? We have no means of statistically determining if there is a trend in yearly claims that should apply to our extrapolation from 2014 to 2020 and beyond. Given the long trend in reduction of compensable injuries overall in both Virginia and nationally, however, it seems reasonably safe to conclude that the incidence level in recent years produces a higher estimate of claims cost than might develop in 2020 and beyond.

Data Sources

In addition to stakeholder interviews, analysis of other relevant research and studies, and statutory and case-law research, we built a database of information about RSI from three sources: U.S. Bureau of Labor Statistics (BLS); insurer claim payment data; and electronic data interchange (EDI) reports to various state workers' compensation agencies. For BLS data we used the "Nonfatal cases involving days away from work: selected characteristics," which is part of the Survey of Occupational Injuries and Illnesses. This annual survey of approximately 200,000 employers across the U.S. captures information from both private industry and state and local government employment. Characteristics relevant to this analysis are captured, including details about the event leading to the injury and the nature of the condition. For example, one of the categories of "events" includes "overexertion and bodily reaction" and within that is the event "overexertion in lifting – multiple episodes." Similar taxonomy regarding lowering, pushing, pulling, turning, holding, carrying, wielding, throwing, and catching are included. Other relevant categories include repetitive motions involving microtasks, as well as "repetitive or prolonged" exertions including bending, crawling, reaching, twisting, climbing, stepping up or down, kneeling, sitting, standing, walking, running, boarding, and alighting. These categories do not overlap. As for the nature of condition category, carpal tunnel syndrome and the conditions of bursitis, tenosynovitis, epicondylitis are included. When

reviewing results regarding the nature of condition, we understand that these conditions may be caused by a single traumatic event as opposed to repetitive motion, but we are able to control for this by also selecting an appropriate repetitive event. It is important to emphasize that the BLS data is based on employer responses to the survey, which means that the injuries may or may not be completely reported and may not be compensable for workers' compensation. BLS also uses its own methodology for classifying injuries. Thus, these data were used in conjunction with other sources for confirmatory purposes.

Insurer claim payment data was sourced primarily from the National Council on Compensation Insurance (NCCI) as well as the Minnesota Workers' Compensation Insurers Association (MWCIA). NCCI collects data from insurers in the capacity of their licensed statistical agent for workers' compensation data in 36 states, including Virginia. NCCI also has access to other states' data in certain circumstances. MWCIA is an independent rating bureau, and provides services similar to NCCI, but solely for the state of Minnesota.

Insurers report to NCCI "unit data" concerning claims, based on the policy year. These units are updated each year, and thus an injury can be "developed" over several years to provide a fuller picture of the cost of a claim when all losses are finally paid and claims closed. NCCI also collects detailed medical data from insurers. Unit data reports use coding standards from the Workers' Compensation Insurance Organizations (WCIO). WCIO code sets include the "Nature of Injury," the "Cause of Injury," and the "Body Part." For Nature of Injury, we used the general "sprain" and "strain" codes, limited by the cause of injury codes relevant to repetitive motion: strain or injury by repetitive motion, rubbed or abraded by repetitive motion, and cumulative/not otherwise classified. We also looked at the nature of injury codes for carpal tunnel syndrome and hearing loss as well as the miscellaneous catch-all "All other cumulative/not otherwise classified."

Some caveats on this data include: 1) the codes are reported with the initial unit report, and whether they are updated as the claim develops is not certain; this could be important with RSI, because at the initial report there may be insufficient information about the claim to code it with complete accuracy; and 2) classifying injuries with these codes is subject to some misclassification error by insurers when the code assigned by insurer is inappropriate to describe the actual injury. Despite these caveats, it is our belief that NCCI has established rigorous reporting standards and has programs in place to enforce compliance. An additional caveat on NCCI data is that it involves insured claims only. In other words, creating estimates based on insured data may not be reflective of Virginia self-insured employers. Importantly, however, we have used national results from NCCI, which would include a broad range of industries found among Virginia self-insured employers. We have also reviewed reported job classifications of Virginia self-insured employers, to ensure that in the aggregate there are not factors that would skew estimates, either to result in more RSI claims than expected among Virginia self-insured employers, or fewer.

Based on reported payroll groupings from 2019, slightly over two-thirds of Virginia self-insured employment (68%) was in the government sector (state and local government). There is wide

variety of employment among the government sector, although it is heavily weighted in office and administrative support and education occupations. National BLS data from 2019 show that the incidence of injuries from repetitive motion resulting in lost time was lower among state and local government employers than private employers, at 1.54% versus 2.87%. Another major segment of employment among Virginia self-insured employers involves healthcare related occupations, which also have a lower RSI incidence rate than all private industry. Other industries among Virginia self-insured employers, for example transportation, construction, and manufacturing, as well as other occupation types, for example office and administrative support, are at relatively higher risk of RSI. Incidence rates of RSI among office and administrative support occupations are almost double the overall private employer rate at 4.74%. Other industries and occupations among Virginia self-insureds are more neutral in terms of risk of RSI. On balance, given the relatively lower risk of RSI among government employment generally, and the high proportion of government employment among Virginia self-insured employers, we estimate that the RSI frequency would be at or below the overall national frequency.

Medical data from NCCI contains insurer reports of paid claims and amounts based on primary ICD10 diagnostic codes and procedure codes. (Secondary ICD10 codes also show cause but there were insufficient counts for the secondary codes to be meaningful.) We used paid share for certain diagnoses relevant to RSI (e.g., carpal tunnel syndrome, synovitis, tenosynovitis) to compare Virginia's paid share with regional and national data. We have confidence that the medical data is of very good quality and accurately records the amounts paid for various treatments as of a given date.

Insurers and self-insureds also report injuries to states via electronic data interchange (EDI) standards licensed by the International Association of Industrial Accident Boards and Commissions. These reports are for both accepted and denied claims. Reports include nature of injury and cause of injury codes based on WCIO, which is the same standard as used in unit data reports described above. Thus, it is subject to the same qualifications and potential for coding errors as unit data. Importantly, the NCCI unit data shows paid claims, whereas EDI includes both paid and denied claims, similar to BLS data. We used EDI data from the following states: Virginia, Kansas, Kentucky, Louisiana, Pennsylvania, and Tennessee. The EDI data standards are rigorous, but NCCI data is more comprehensive as it involves all paid claims, whereas EDI reporting requirements may exclude certain classes of claims, such as medical-only claims. NCCI was our primary source of data to make consistent estimates of medical and indemnity cost for RSI claims broken down for Virginia, the region around Virginia, and a national scope. No other industry wide source combines reasonably reliable coding on the nature of injury with claim payment data. Using these data, we were able to construct the two building blocks for our cost estimates: 1) claims that are coded RSI as a percentage of total claims; and 2) the average indemnity and average medical payments over a sample of years associated with those claims. The sample years were from accident years (AY) 2014 through 2018. The cumulative payments to date for each year were extracted September 2020.

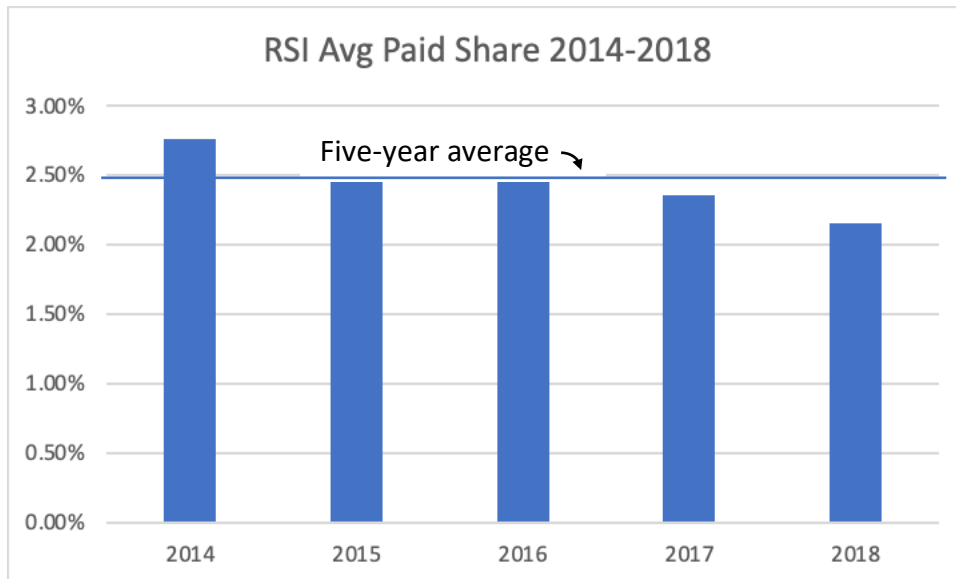
The number of RSI claims we project for Virginia under broadened coverage is derived from the frequency of such claims in two groups of states. The first is the region around Virginia (D.C., Kentucky, and Maryland) and the second is a countrywide group of 36 states plus D.C. We believe that the frequency of RSI claims in a sample of states is the best analogy of loss experience in Virginia. We relied primarily on the national sample in forming estimates. The regional sample was used as a “sanity check” to confirm no unusual outlier situations should be factored into the estimates. The region in which Virginia is grouped is a rather arbitrary collection of states that were not specifically chosen for commonality in their workers’ compensation systems or composition of their economies. Having some contiguous border with Virginia seems to be the major selection criteria; putting Tennessee, North Carolina, and West Virginia in other regions illustrates the arbitrary nature of the region in which Virginia is grouped. For the share of total claims reported as RSI, the regional results for RSI (1.9%) were a little lower than national results (2.1%). For the share of total cost from RSI, we relied on paid share, with regional (2.47%) and national (2.49%) results very close.

We also estimated cost per RSI claim using the NCCI unit data and relied on national results. We compared the national results with the region as a test of reasonableness. For cost per claim we used 2014 AY claim costs (pulled as of September 2020), added a factor based on cost trends to adjust to a baseline year of 2020, and applied a “development factor” (discussed further below). Before adjustment, regional results per claim for RSI were \$12,441 vs. national results of \$13,769. Thus, similar to the rate of RSI among claims, regional results were a little lower than national results. In summary, using national results provides somewhat more conservative estimates based on a larger sample of state experience.

Claim Development

Insurance is unlike most other products in that the seller (insurer) really doesn’t know for sure what the cost of selling policies will be until many years after they are sold. Workers’ compensation is one of the hardest insurance products to forecast what policy benefits for claims will ultimately cost. Our task of estimating cost similarly shares this uncertainty over how cost will develop over many years. To estimate the average recent share of RSI costs in proportion to total costs, we averaged the paid-to-date indemnity and medical costs for the five cumulative years 2014 through 2018. The cumulative costs in any accident year will develop (usually grow) from one year to the next. If the RSI claims ultimately develop to be more costly or less costly than other (non RSI) claims, then their share of total claim costs would also be greater or reduced, respectively. We have no evidence, however, that RSI will experience average ultimate development that is significantly different from other workers’ compensation claims. The 2014 AY claims, which would have approximately 6 years of development as of September 2020, had a paid share of 2.76% which was very close to the five-year average of 2.49%. The figure below shows average paid share for RSI for claims in AY 2014-18, as of September 2020. Note that the share of RSI to total claim cost is declining, which suggests that RSI costs are growing more slowly than non-RSI claims. An important caveat: the five years are at different periods of development so the declining share is a preliminary finding.

Figure 5: Average Share of RSI to All Claims



Cost per claim requires additional analysis to estimate the ultimate total cost of an RSI claim. This estimation is important in understanding total impact of the change to add RSI coverage: the number of estimated additional claims multiplied by the estimated average cost for such claims provides a total cost estimate for the change.

The actuarial process for developing historic paid data for an accident year to its ultimate level is quite refined and requires copious data. It was beyond the scope of this study to do a full loss development study. Instead, we used a judgmental loss development based on our studies of workers' compensation costs. Thus, we used the average cost of indemnity and medical payments per claim for AY2014 as of September 2020. To this average paid cost we added an additional amount to reflect "development" in costs over the next few years.²⁶ We then applied a factor to this developed cost to account for the trend in average indemnity and medical cost from 2014 to 2020. This is analogous to bringing 2014 home prices or wage rates up to the same nominal dollar levels as 2020. We based this adjustment on medical and indemnity cost growth from 2014-2018. To get a bearing on average cost trends we examined NCCI State Advisory Forum reports for Virginia, which reported average indemnity and medical severity for several years. The 2020 report showed average indemnity severity increased from 2014 to 2018 by approximately 10% and average medical severity was more or less "flat" over the same

²⁶ We note that claims can be late reported if the injury or disease is slow to materialize in a diagnosis. Some states allow disease claims to be first reported as long as five years after last injurious exposure. Thus, in our 2014 sample year there is probably some "Incurred but Not Reported" claim liability. We anticipate that many RSI involving musculoskeletal injury, like bursitis and tendinitis, would likely become symptomatic and involve treatment and diagnosis during the period when the employee is engaged in repetitive work activities, and for this reason would not likely be latent like some other occupational disease conditions involving exposure to particles or carcinogens. Regardless, there may be incurred-but-not-reported liability in our 2014 census of claims, but likely not an amount that would significantly affect our findings.

period, which further confirms the recent downward trend in Virginia in medical severity mentioned earlier.

To reiterate some of the key assumptions used in this methodology over and above the data caveats listed above:

- *We assume that Virginia will be typical in how stringently it allows claims for RSI, as compared to other states.* The cost impact is controlled by the scope of coverage permitted by the new law and the way claims managers and the VWCC and courts adjudicate disputes. Given identical statutes, two states will have substantial cost differences depending on how liberal or strict adjudicators are in deciding standards for meeting the burden of proof.
- *We assume that Virginia will continue to provide current claim management tools.* In particular, the use of employer physician panels has been frequently cited as a key cost control mechanism.
- *We use loss experience in other states as the vehicle for estimating anticipated cost in Virginia.* This can be misleading if one does not take into consideration the particular mix of employment in Virginia relative to the “benchmark” states. Virginia does have some relatively unique aspects of its employment mix (e.g., high shares of employment in Business and Financial Operations and Office and Administrative Support), but overall its mix of employment by major industry groups does not suggest that Virginia is unusually laden with jobs at high risk of RSI (e.g., manufacturing and transportation).
- *We assume Virginia’s average medical costs for treating RSI injuries will be equivalent to the experience of other states after a baseline adjustment to reflect Virginia’s higher medical costs.* Virginia’s medical costs historically have been relatively high compared to most other states. However, Virginia’s relative costs appear to be moving in the direction of the central tendency of average state costs. This is attributed to the Virginia medical fee schedule, first implemented in 2018. Thus, we consider how the average treatment cost for typical RSI in other states, adjusted at baseline to match Virginia’s higher pre-fee schedule medical costs, might be used as an estimate for what could apply to such claims in Virginia with the new fee schedule in place.
- *We assume the experience of self-insurers will be comparable to the insured experience in terms of the fraction of claims that are caused by RSI.* This does not mean that we are equating the incidence rates of RSI claims for self-insurers with that for insured employers. To test this assumption we looked at the mix of job types among Virginia self-insured employers, and found that the share of industries and occupations at higher risk of RSI was low compared to the industries and occupations are lower risk of RSI. Finally, this analysis does not take into account the potentially better results in loss prevention typically experienced by self-insured employers.²⁷

²⁷ If hypothetically Virginia self-insured employers were proportionally more involved in the type of work activities more prone to RSI, then they would bear a larger share of the overall increase from expanding coverage. Distributing estimated results across industry types is beyond the scope of this report, however.

- *We assume that frequency trends in RSI will be stable in coming years. We have not assumed any growth or reduction in the frequency of RSI injuries compared to the years sampled to the year of our cost estimate (2020). We note that recent results from BLS might indicate a downward trend in reported RSI; between 2011 and 2018, national reported RSI involving lost time showed an average annual decrease of approximately 7%. The BLS trend closely tracks NCCI frequency data. In Virginia, the frequency of workers' compensation lost-time claims declined in 10 of the last 14 years, and the national average annual decrease from 1999 to 2018 was 3.8%.²⁸ Decreases in claim frequency are consistently seen across industry groups as well as among nature of injury groups; lost time claims due to occupational disease/cumulative injuries have shown consistent frequency decreases since 2006, and dropped an average of roughly 8-9% over the five-year period from 2013 to 2018.²⁹*

Summary

The best available workers' compensation data has limitations, described earlier. Our estimates of the potential level of repetitive stress injuries and their cost in Virginia are based on inferences made from several data sources, and testing results through secondary research and stakeholder interviews. We have in the report indicated the uncertainties of these projections. What becomes clear, even within this range of possibilities, is that the cost to payers in the workers' compensation system is relatively small. Moreover, as we have said previously, the number of compensable RSI injuries is a direct function of how well the new statute is crafted, how consistently the new statute is interpreted in litigation, and how employers respond with preventative measures against RSI.

²⁸ See NCCI, *State Advisory Forums 2019 (Virginia)* at 24 & NCCI, *State of the Line Report (2020)* (available at <https://www.ncci.com/Articles/Documents/AIS2020-SOTL-Presentation.pdf>).

²⁹ See NCCI, *Workers Compensation Claim Frequency – 2012 Update* at 31; NCCI, *Workers Compensation Claim Frequency – 2014 Update*, at 8; & NCCI, *State of the Line Report (2020)* (Note that the 2020 report from NCCI also indicates that occupational disease/cumulative injury conditions represent a relatively small percentage of lost time claims over that period since 2013).