

FORUM INSIGHT

# From Injury Data to Earlier Action

*The productivity and cost case for improving how physical work is assessed*

The Canadian Forum on Workplace Innovation · September 2026

Claims and incident systems count harm after it occurs. A stronger prevention model adds earlier, task-level evidence—while keeping worker participation and work redesign at the centre.

## THE CENTRAL QUESTION

Can earlier information about how work is performed help organizations prevent harm, remove operational friction and use limited prevention capacity more effectively?

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**~88,000<sup>1</sup>**

accepted MSI time-loss claims in British Columbia, 2020–2024

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**\$2.35B+<sup>1</sup>**

associated B.C. claim costs over the same five-year period

*Source: WorkSafeBC. Figures are provincial and should not be interpreted as a national estimate.*

## EXECUTIVE OVERVIEW

## The business case begins with better information

Musculoskeletal injuries (MSIs) remain a persistent workplace challenge. Canadian compensation systems continue to identify them as a major prevention priority. Compensation data show the consequences after an injury has been recognized: accepted claims, lost time and claim costs. These measures are essential, but they cannot by themselves show which current tasks deserve attention, which conditions are changing or whether a proposed control will work in practice.<sup>1,2</sup>

The practical case for earlier assessment is therefore broader than injury prevention alone. The way a task is designed can influence physical demands, cycle time, unnecessary handling, fatigue, quality, staffing resilience and the amount of time required to investigate and document concerns. Safety and productivity are not always aligned, but they often share the same starting point: understanding the work as it is actually performed.

**CORE PROPOSITION**

Organizations should supplement claims and incident data with earlier, task-level evidence — then test whether resulting changes improve worker protection, operational performance and the prevention process itself.

### Five messages for decision-makers

- 1 The burden is material.** In British Columbia alone, WorkSafeBC accepted approximately 88,000 MSI time-loss claims from 2020 through 2024, with claim costs exceeding \$2.35 billion.<sup>1</sup>
- 2 Claims are necessary but late.** They reveal where harm has been recognized; they do not provide a live map of exposure across changing tasks, equipment, pace or staffing.
- 3 Work design connects safety and performance.** Awkward posture, repetition, force, unnecessary travel and poor placement can affect both physical demand and operational flow.<sup>3,4</sup>
- 4 A business case should be measured, not assumed.** Generic return-on-investment claims are rarely transferable across workplaces. Each organization should establish its own baseline, implementation cost and outcome measures.
- 5 Worker participation is a design requirement.** Workers understand task variation, workarounds and practical constraints that may not be visible during a short observation. Canadian guidance and implementation research both emphasize their involvement.<sup>5,6</sup>

Scope and evidence standard

This Forum Insight synthesizes publicly available Canadian prevention guidance, compensation-system information and selected international evidence. It is not a systematic review, a legal interpretation or a national estimate of MSI costs. Cost categories are presented as a measurement framework: organizations should validate which costs apply in their own setting and avoid attributing every operational problem to physical work design.

01 | THE COST QUESTION

01 The claim is only the most visible part of the cost

Workers bear the primary human consequences of pain, reduced function, time away from work and disruption to life. Employers and compensation systems see other parts of the burden through treatment, benefits, accommodation and return-to-work activity. Public Health Agency of Canada cost-of-injury work distinguishes direct costs from productivity losses, illustrating why a claim payment is not a complete measure of economic impact.<sup>7</sup>

For an individual workplace, the relevant question is not ‘What is the average cost of an MSI?’ It is ‘Where does this task create cost or instability here, and what changes after intervention?’ That requires a local baseline.

A four-part cost lens

| COST LENS                | WHAT MAY BE AFFECTED                                                                                | USEFUL LOCAL MEASURES                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Human                    | Pain, fatigue, functional limitation, worker confidence and participation.                          | Worker-reported discomfort or fatigue; ability to perform the task; acceptability of changes. |
| Direct and claim-related | Treatment, benefits, investigation, accommodation and return-to-work activity.                      | Claims, days lost, modified-duty days and case-management effort.                             |
| Operational              | Overtime, replacement labour, interruptions, rework, unnecessary handling and schedule instability. | Cycle time, handoffs, travel distance, overtime, defects or delays.                           |
| Prevention process       | Observation, assessment, documentation, reporting, review and follow-up.                            | Staff time by step; elapsed time to action; completeness and consistency of records.          |

The categories overlap. They are intended to support a workplace-specific baseline, not to produce a universal multiplier for indirect costs.

Avoiding the easy return-on-investment story

Prevention guidance indicates that fitting work to people can lessen fatigue, increase productivity and reduce the number and severity of work-related MSDs.<sup>8</sup> But benefits depend on the task, the control selected, implementation quality and whether the change is sustained. A credible business case should therefore:

- separate observed results from estimated or avoided costs;
- include implementation, training and change-management costs;
- avoid treating a short-term risk score as proof of fewer future injuries; and
- report where productivity, safety or worker experience moved in different directions.

02 | SEEING THE WORK EARLIER

02 Move upstream without abandoning claims data

Claims, incidents and discomfort reports help identify patterns and priorities. Their limitation is timing and resolution: a claim records an outcome, while prevention decisions require information about the task, its variation and the conditions under which exposure occurs.

CCOHS identifies awkward and static posture, repetition and pace, forceful movements and heavy loads, vibration and temperature among relevant physical risk factors. It also identifies work demands, control, communication and support as factors that can contribute to work-related musculoskeletal disorders.<sup>3</sup> This means an assessment must look beyond a single body angle or a staged lift.

A balanced evidence chain

|                                                  |                                          |                                               |                                       |                                           |
|--------------------------------------------------|------------------------------------------|-----------------------------------------------|---------------------------------------|-------------------------------------------|
| 1                                                | 2                                        | 3                                             | 4                                     | 5                                         |
| Signal                                           | Observe                                  | Understand                                    | Change                                | Verify                                    |
| Claims, reports, discomfort, operational concern | Representative task and normal variation | Worker input, context, demand and constraints | Controls, redesign and implementation | Safety, operational and adoption outcomes |

Earlier information complements lagging indicators; it does not replace injury reporting, professional judgment or regulatory obligations.

## Where safety and productivity can share a diagnosis

A poorly positioned item may require a worker to reach farther while also adding seconds to every cycle. An unnecessary transfer may increase handling exposure while creating another opportunity for delay or damage. Inconsistent layout may require repeated searching while increasing variation in posture. These are examples of a shared work-design problem, not proof that every productivity improvement is safer.

The direction of change matters. Faster pace, reduced staffing or fewer pauses may improve a narrow output measure while increasing physical demand. Conversely, a lift assist may reduce demand but introduce maintenance, space or workflow constraints. The objective is not maximum speed. It is a workable design that protects people and performs reliably.

### DECISION RULE

Treat productivity as a co-outcome, not as a substitute for safety. A change should be evaluated for physical demand, worker experience, operational performance and unintended consequences.

## 03 | A PRACTICAL ASSESSMENT MODEL

### 03 Five steps from observation to verified change

- 1 Choose a meaningful task.** Use claims, discomfort reports, operational concerns and worker input to select a task where improvement would matter. Avoid choosing only the easiest task to film or observe.
- 2 Capture normal variation.** Include relevant loads, tools, heights, pace, worker approaches, shifts and environmental conditions. A short sample is useful only if its limits are understood.
- 3 Assess demands in context.** Consider posture, force, repetition, duration, recovery, workflow and organizational factors. Tools can structure observation, but they do not replace contextual judgment.
- 4 Design and implement controls.** Prioritize elimination, engineering controls and work-design changes where feasible. Involve workers in testing practicality and unintended effects. <sup>4,5,6</sup>
- 5 Verify and learn.** Repeat relevant measures after implementation. Record whether the control was actually used, what changed and what still requires attention.

The potential role of video-supported analysis

Short task videos can provide a replayable record for structuring observations, communicating findings and comparing a task before and after change. A pilot can test whether digital tools reduce the time required to extract observations or prepare documentation without compromising quality. Those potential benefits should be tested rather than presumed.

| POTENTIAL CONTRIBUTION                        | BOUNDARY OR RISK TO MANAGE                                                                     |
|-----------------------------------------------|------------------------------------------------------------------------------------------------|
| Replayable record of a representative task    | A clip may miss variation, force, load characteristics or environmental context.               |
| More consistent observation and documentation | A score can appear more precise than the underlying information warrants.                      |
| Easier discussion of task design across roles | Video can create privacy, trust or surveillance concerns if purpose and retention are unclear. |
| Before-and-after comparison of a changed task | Visible movement change does not by itself prove fewer injuries or economic benefit.           |

Worker trust is part of the method

Any video-supported approach should define the purpose before recording, minimize the information collected, establish access and retention rules, prohibit incompatible secondary uses, and provide a clear way for workers and representatives to raise concerns. Applicable privacy and employment requirements vary by jurisdiction. The unit of analysis should be the task and its design — not a judgment about the individual worker.<sup>10</sup>

## 04 | TESTING PRACTICAL VALUE

**04 A pilot should answer more than 'Did the tool work?'**

A useful pilot tests the full pathway from task selection to implemented change. Technical output matters, but so do worker participation, the quality of decisions, implementation effort and whether the resulting information is useful to people responsible for prevention and operations.

**Minimum pilot scorecard**

| OUTCOME AREA                   | CANDIDATE MEASURES                                                                             | QUESTION ANSWERED                                                               |
|--------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Task exposure</b>           | Relevant posture, force, repetition, duration and recovery indicators before and after change. | Did the selected control alter the physical demands it was intended to address? |
| <b>Operational performance</b> | Cycle time, handling steps, travel, delays, rework or interruptions relevant to the task.      | Did performance improve, decline or remain unchanged?                           |
| <b>Prevention process</b>      | Staff time and elapsed time for observation, analysis, documentation, review and follow-up.    | Did the approach reduce burden or move it elsewhere?                            |
| <b>Implementation</b>          | Controls proposed, accepted, implemented and sustained; reasons for non-implementation.        | Did information lead to feasible workplace action?                              |
| <b>Worker experience</b>       | Perceived usefulness, comfort, fatigue, trust and acceptability of the process and change.     | Did the people performing the work see value and feel appropriately involved?   |

*A short pilot should not be judged solely by whether injury rates change. Injury counts are lagging indicators; a pilot can also track leading indicators such as worker participation, hazards identified, response time, timely completion of corrective actions and worker experience.<sup>9</sup>*

**Six questions before launch**

- 1 Why this task?** Is it connected to a meaningful safety or operational concern?
- 2 What is the baseline?** Which conditions and costs will be measured before intervention?
- 3 Who participates?** How will workers, supervisors, prevention staff and representatives shape decisions?
- 4 What changes are possible?** Is there authority, budget and operational capacity to implement a control?
- 5 What counts as success?** Which safety, operational, process and trust outcomes are predetermined?
- 6 What happens afterward?** How will findings, limitations and follow-up responsibilities be documented?

## IMPLICATIONS

## Earlier action is a management capability

The case for earlier task-level evidence is not that every workplace needs more technology or more assessment. It is that organizations need a practical way to identify and address meaningful physical demands before harm results in a claim, connect those demands to work design, implement controls and verify whether conditions improved.

For employers, the opportunity is to build a business case that reflects the full workplace rather than claim costs alone. For compensation and prevention organizations, the opportunity is to help workplaces develop leading indicators and implementation capability. For workers, the test is whether the process results in meaningful participation and changes to the work — not simply more observation.

A well-designed pilot can determine whether a particular approach makes that process more useful, timely and scalable. It should be judged by evidence generated in the workplace, not by broad promises about injury reduction, productivity or return on investment.

**FORUM PERSPECTIVE**

The next step is disciplined experimentation: select real tasks, establish a baseline, involve workers, test feasible changes and publish what was learned — including where an approach did not add value.

## Sources and notes

1. WorkSafeBC, [Musculoskeletal injuries remain the most common workplace injury in B.C.: WorkSafeBC](#). February 26, 2026.
2. Workers' Compensation Board of Nova Scotia, [Musculoskeletal Injuries \(MSIs\)](#).
3. Canadian Centre for Occupational Health and Safety, [Work-related Musculoskeletal Disorders \(WMSDs\) — Risk Factors](#).
4. Canadian Centre for Occupational Health and Safety, [Work-related Musculoskeletal Disorders \(WMSDs\)](#).
5. Employment and Social Development Canada, [Guide on the Prevention of Musculoskeletal Injury \(MSI\)](#).
6. Institute for Work & Health, [Reducing MSD hazards in the workplace: A guide to successful participatory ergonomics programs](#).
7. Public Health Agency of Canada, [The Cost of Injury in Canada](#).
8. United States Occupational Safety and Health Administration, [Ergonomics: Overview](#).
9. United States Occupational Safety and Health Administration, [Program Evaluation and Improvement](#).
10. Office of the Privacy Commissioner of Canada, [PIPEDA fair information principles](#).

*Terminology varies across jurisdictions and sources. This brief uses 'musculoskeletal injury' (MSI) broadly while preserving source terminology where relevant. All online sources were accessed September 2026.*

### ABOUT THE FORUM

The Canadian Forum on Workplace Innovation connects evidence, collaboration and applied learning to help organizations respond to changing workforce and workplace challenges.

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