Honda of Canada Manufacturing understands that recognizing and applying leading indicators are strategic keys to unlock significant and lasting improvements in ergonomics and overall safety. As an engineering company that expects the highest quality, it understands that spotting potential problems at an early stage is critical. It realizes that the hallmark of a quality approach mind-set is that what it does not see can be harmful, that errors that slip cannot be changed, and that small issues can germinate into major ones.

Tom Peters writes, “Everything I’ve learned about organizational change can be boiled down into five words: ‘Attention is all there is.’” What you pay attention to is what you get, what you do not is what can blindside you. Leading indicators are a prime mechanism of spotting potential problems as well as discerning potential powerful breakthroughs.

For example, ergonomic soft-tissue injuries trouble many companies, including heavy manufacturing and assembly operations. Honda of Canada is not an exception and has worked to reduce these injuries for some time. After applying engineering expertise to implement cutting-edge modifications, ergonomists Matt Clarke and Dave Catallo observed that while these efforts helped, the company was still stuck on in a cumulative trauma injury plateau. But Clarke, Catallo and Honda of Canada were not willing to settle for this. They knew that achieving better ergonomic performance required watching what was really happening, then applying that information to improve structure and take actions to reduce strains and sprains.

Even after incorporating all general forms of design changes (e.g., reducing distance to loads, suspending weights, adjusting controls, padding tool grips and surfaces), they understood that next-level ergonomic safety also relied on upgrading the actions and skills of their associates.

They incorporated ergonomic leading indicators into their plans and implementations because measuring direct attention to getting things done. They created metrics for how many peer-to-peer ergonomic champions they trained and how many ergonomic conversations (i.e., 8,619) these people engaged in with other associates. They defined and measured the number of ergonomic risk reduction activities (i.e., 1,372).

Clark, Catallo and Honda of Canada’s trailing indicator results included a 36% reduction in ergonomic injuries in 1 year, with high levels of associate engagement, which they planned for and measured as another leading indicator. Honda of Canada has won many awards and garnered significant positive attention for its leading approach.

**Four-Step Strategic Process**

Leaders recognize that it takes four steps to develop ergonomic leading indicators.

1) **Set expectations.** Decide on and monitor early signs of change, both negative (moving away from desired outcomes) and positive (moving toward improvement). This process entails defining ergonomics as more than just design and as incorporating any approach that improves the fit between people and their tasks. It means pointing to specific ergonomic injuries (in Honda of Canada’s case, musculoskeletal problems) to manage then reduce. It also includes changing mind-sets about the need for and potential use of leading indicators to reduce the incidence and severity of related injuries.

2) **Plan with input.** It is essential to create a plan with the advice and ideas of many people, from managers to OSH professionals to associates. The plan should specify what to measure and how to measure as effortlessly and efficiently as possible. What are prevalent concerns about ergonomics and about potential leading indicators? What are possible blocks to monitoring results? Are potential metrics valid (do they measure what they are purporting to measure)?

For example, does charting how often workers blink their eyes indicate potential ergonomic problems? The blinking may be an unrelated action or it could indicate that too much dust or other substances in the air disrupt visually spotting and working around some ergonomic risks.

Reliability is another important measure of ergonomic leading indicators. Do the indicators give consistent results? Consider eliciting the input of specialists with experience in validity and reliability.

Overall, it is essential to agree about which indicators to arrive at and how to note these. This process itself heightens attention, communications and culture.

3) **Generate and assess data.** This involves gathering then interpreting the metrics. Next comes sharing results with as many people as possible so that results are comprehensible and lead to actions to prevent underlying problems.

4) **Make adjustments.** Evaluate the leading indicators. Are they helpful? Can they lead to a...
call for action that might prevent future ergonomic problems? Do they reveal unknown information? What must change in the ergonomic leading indicator process?

Success Story
U.S. Steel’s Gary Works plant is another ergonomic success story. John Pasko, who has been spearheading peer-to-peer ergonomic training at that plant since 2008, noticed an early indicator that many coworkers were highly skeptical about training; they thought it was theoretical or impractical. Pasko and his team, along with active support from United Steelworkers Local 1066, determined from interviews and other leading data that building muscle memory was critical to steelworkers replacing daily strenuous actions with ergonomically safer ones.

Heeding this early information, the team developed props to simulate equipment that could not be brought into a training environment (e.g., 100,000-lb coil). This proved extremely successful, and excitement about the positive results spread. “Our strength is our ability to work off of feedback,” Pasko says. “Early indicators provide us with that information.”

The lagging results included 40% to 55% fewer strains and sprains in different departments at a plant with older equipment and an aging workforce. Pasko is happy to report, “With this approach, real change has happened. Real lives have been improved.”

Accountability
Ergonomic leading indicators should account for various factors.
• Small changes that make large differences. Move from acute to cumulative thinking by charting small actions/improvements/buildup (e.g., bending at the waist to tie shoes, picking up packages from a pallet, over-reaching to flip a switch).

On the plus side, do workers take small actions to unload tensions before these accumulate into breakdowns, creating weak spots that can lead to ongoing pain or reduce future range of motion? Improve monitoring of seemingly insignificant actions that may cause a soft-tissue injury that results in a disabling problem.
• Invisibles. Go beyond just noting repetition or other motions to noting workers not moving, holding static positions, clamping/holding tools, arms working overhead or reaching out for extended periods. Also watch for indicators that workers are feeling physical tension, such as arching back, stretching neck or standing on one leg. These can be signs that they feel the need to relieve strain (of course, it is better to prevent these in the first place).
• Personal fixes. At times, workers make fixes to reduce forces that otherwise enter their bodies or to make a task easier or a workstation more comfortable (e.g., padding sharp or cold surfaces, individual mats, gloves, layering antifatigue mats, using other scavenged materials as mats). In addition to being admirable self-protection, these actions indicate problem areas that other workers may not take the initiative to fix; these are cues of ergonomic risks to address.
### Ergonomic Leading Indicator Examples

**Implementations**
- Widespread input is solicited for forming ergonomic leading indicators.
- An increase in ergonomic-related messaging (e.g., signs, training) targets specifics rather than those that are general (e.g., “lift safely” or “pay attention”).
- Purchasing/contracting departments better understand the cumulative issues of buying cheaper equipment/tools.
- New ergonomic training is delivered, applied and adjusted.
- Supervisors decrease blaming/stigmatizing workers for having soft-tissue injuries.
- Supervisors increase support for freeing associates for training, coaching, involvement in layout improvements, job rotation and equipment changes.
- Safety committees are trained to conduct job assessments, coach ergonomic principles and applications (e.g., design, skill improvement, how to communicate ergonomics more persuasively).
- Select workers train and support peers to improve ergonomic skills and actions (Honda of Canada).
- Safety investigations ask whether injured or close-call workers are left- or right-handed without stigma.
- Funding for ergonomic projects increases.
- Number of mock-ups of equipment for ergonomic training increases (U.S. Steel).
- The amount of time each department allocates to ergonomic training increases (U.S. Steel).

**Actions**
- Workers are involved/consulted on new designs/purchases in advance.
- Increase in useful ergonomic suggestions for improving tools and processes.
- More ergonomic conversations/month (Jason Trease, Kinross Gold).
- More workers engaged in some kind of ergonomic activity (Kinross Gold).
- More one-to-one ergonomic coaching/month.
- Modifications made/tools purchased to accommodate left-handed workers.
- Designs/purchases accommodate routine and nonroutine personal factors.
- Managers exhibit longer-term perspective.
- Managers and workers use more ergonomic language, emphasizing cumulative, rather than acute, use “contributed to” rather than “caused” in safety investigations and elsewhere.
- Increase in adjustments made with tools, machines.
- Fewer workers voluntarily quit from being worn down or worn out.
- Associates routinely reposition for tasks before exerting force.
- Associates brace when reaching.
- Associates reposition tasks closer and more toward sagittal plane.
- Associates reposition feet before tasks to maximize leverage and balance.
- Increase in requests for ergonomic training (U.S. Steel).
- Workers accept and utilize ergonomic changes or modifications.

**Observations & Reports**
- More mentions of ergonomic-related interventions.
- Fewer wear points on clothing or on equipment.
- An increase in reports and observations of new ergonomic actions attempted and continued, from workers, peers or family members.
- Associates request to receive ergonomic training, consultation or coaching.
- Associates request to take home ergonomic information to their families (U.S. Steel).
- Workers report greater benefits, more comfort/energy, less fatigue, easier tasks, less tension/discomfort at the end of work day.
- Workers and managers report improvement in ability to appropriately shift ergonomic attention.
- Fewer expressed negative comments/reactions to machines/tools.
- Increase in different types of ergonomic involvement on all levels.
- Workers and managers report they value and apply ergonomic tools and training provided.
- Workers report training and/or ergonomic information is immediately applicable.
- Workers voluntarily report ergonomic training has had positive effects on them and their family (U.S. Steel).
- Number of interviews of workers for what they have done to improve personal ergonomic safety (U.S. Steel).
- Increase in useful ergonomic suggestions for improving tools or processes (U.S. Steel).

**Changes in informal talk or labels.** For example, workers in one plant nicknamed a machine “Soul Crusher.” Do they stop using such terms after modifications are made?

### Sample Ergonomic Leading Indicators

When forming ergonomic leading indicators, be sure to distinguish between implementations and actions. Implementations are attempts or offerings of what an organization tries to do (e.g., install a scissors lift, provide PPE in different sizes, offer training). Actions, on the other hand, are what actually occurs (e.g., workers use the scissors lift, select and wear correct fitting PPE, employ skills that were demonstrated during training).

It is important to have a variety of leading indicators. While actions may seem more valuable to note than implementations, it is critical to measure and reinforce attempts by managers and workers to offer tools and to transfer skills that can potentially avert ergonomic-related injuries.

The sample indicators in the “Ergonomic Leading Indicators” sidebar offer a range of examples. The best leading indicators are those that are most meaningful, appropriate and have the buy-in of company members (e.g., OSH professionals, safety committee members, bargaining unit leadership where applicable, supervisors, executives). Companies that have spearheaded these leading indicators are also listed in some of the examples.

Ergonomic leading indicators can reveal forces and actions that may be hidden from view. If they are well designed and employed, they can be powerful tools to develop actions, and craft procedures and structures that result in significant and lasting ergonomic safety improvements with a notable upsurge in leadership, engagement and culture.