

STRENGTHENING THE SAFETY CHAIN High-Level Injury Prevention in Warehousing & Distribution

By Robert Pater

David Bowie almost certainly wasn't thinking of warehousing, distribution and fulfillment center operations when he sang, "Under Pressure." But his lyrics, "These are the days it never rains but it pours," couldn't have been more spot on for what's increasingly affecting this sector.

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It's common knowledge that these businesses have seemingly been perpetually ultra-time-driven, with many companies subscribing to warehouse management systems designed to "optimize" every possible drop of productivity and throughput, relentlessly winching any slack out of their workflow. But in so doing, many workers report feeling squeezed. And recent pandemic and other forces have further ratcheted up pressures on production and safety.

On top of injuries' dreadful toll on people, these typically disrupt business and often frustrate leaders. And, especially in any fast-paced business, injuries invariably impact staff coverage and absenteeism, leading to increased turnover or situations where employees work with limited productivity. All of this has been the norm, but especially during these times: more so in logistics, warehousing, fulfillment and distribution centers. It's no secret that, while the surge and continuance of a global pandemic has impacted numerous businesses, it has dramatically upped the demand for faster throughput and delivery, particularly stressing the entire supply chain. Understandably, when any chain is under increased tension, the weakest link usually shows it first. Bear in mind that previously, in more "normal" times, many distribution centers and logistics operations were already working thin—some, not all, by design. However, now multiplying employee shortfalls with ramped-up difficulties in hiring enough staff to cover the work led to many companies resorting to aggressive job advertising or even dangling cash incentives for new hires. Or basically requiring overtime from their currently stretched workforce, which can further impact reaction and safe performance.

Then there's workforce composition. For example, National DCP is "a global provider of innovative supply chain solutions to the food service industry." Nick McAfee, a National DCP warehouse safety manager, oversees nine distribution centers. He talks about growing up working warehouse jobs. So he speaks from a wealth of experience when he says, "Warehouse industry jobs have always been very demanding." Nick has seen a disproportionate number of incidents among less-than-a-year new hires, thrown into a high-paced environment, who may not know the most efficient ways to work while protecting themselves, and can be overconfident to boot. Combine turnover, a pandemic, hands-on jobs that can't be done remotely, and injuries with increasing demand, and businesses have increasing numbers of new hires.

It's more than direct injury costs that can beleaguer warehouse operations, it's very much having workers unavailable during peaking demands that don't seem to sufficiently ebb to allow taking a breath; and for those employees still coming into work but not being able to function at a high level, hampered by nagging pains and injuries that aren't seen as serious enough to "turn in" (perhaps resulting in fewer low-level problems and incidents, but greater and more impacting severe issues). Further, in thinly staffed, time-driven operations, there are cascading effects on others as well. Nick says, "Injuries put a lot of stress on the other people who are working" (to take up the slack of those who are out or not holding up their expected workload).

All while employment in this sector has swelled. The U.S. Bureau of Labor Statistics (BLS, 2020) reveals that, in 10 years, the number of warehouse, distribution and fulfillment center employees more than doubled from 645,200 in 2010 to more than 1.3 million in 2020. And as of May 2021, there were 1.08 million people employed in the warehousing and storage industry, a 13.5% increase in just 1 year (compared to May 2020). Further, BLS (2021) estimates that the number of warehouse workers will further increase to almost 2 million by 2030.

As they're ultimately high-level problem solvers, the strongest strategic leaders carefully note such trends, then plan to get ahead of oncoming waves. A strong leader's mindset? The best time to take care of issues is at the lowest possible level, before situations expand or explode.

Cultural Distribution Forces

Did you know that every human is populated by millions of microorganisms, both internally and on our skin? Astoundingly, Nundhini Thukkani, chief of gastroenterology at Kaiser Pacific Northwest, says, "You take one square inch of anybody's colon, and you'll see more bacteria than there are humans on the earth." These microorganisms can either be protective or pathogenic (disease-causing). While it's true that each person is an individual with unique characteristics, many of us still host remarkably similar microorganisms by body site. National Institutes of Health lead researcher Julia Segre reported that different parts of our skin have different mixtures of bacteria; further, that "different people tend to have the same kinds of bacteria in the same body sites (DeNoon, 2009). We found the bacteria in my underarm are more similar to the bacteria in your underarm than my underarm bacteria are to my forearm bacteria."

And this also reflects what we've seen in working with the distribution sides of many companies: The safety cultures in such operations are more similar to those in other companies' logistics and warehousing operations than they are to the cultures within their own company's other business units (e.g., manufacturing, sales, administration).

The first common thread is, of course, the previously mentioned high-speed pacing needed to fulfill customer orders, where significant time and efficiency expectations dominate, emphasizing "get it in, get it on the racks, get it into the cart, get it onto the truck, get it out." Additionally, machine pacing, where workers have to adjust their working speed to that of a conveyor, may also contribute to back pain or poor postures, overreaching, twisting and more related to workers responding to the conveyor's demand, rather than monitoring and adjusting to signs of accumulating physical tensions.

But leaders can indeed make significant improvements. MSC Industrial Supply is a Fortune 1000 company in the distribution business. In a pilot project, the company's Atlanta fulfillment center reported "a 57% reduction in material handling injuries overall (not just recordables)" within a year of implementing the methods discussed below. And the company was able to reduce strains and sprains injury rate by 78% over a 2-year period.

Overall, logistics centers are "a separate world," according to one safety professional. Generally, they have relatively closer supervision compared to many manufacturing operations, with pay rates that aren't the highest, and are located in self-enclosed, often noisy environments. Many times, these centers have "ergonomics issues with old and obsolete equipment (conveyors, unitizers, packing stations)," according to one fulfillment center manager. A senior warehouse manager categorizes what he called the "distribution mindset" as "We don't have to stop for stop signs. And it's 'Got to get it done' or 'Get the truck out.'"

Second, a biggie, many distribution centers can house leadership mindsets that are overweighted toward driving throughput or productivity over worker safety, well-being or engagement. One warehouse manager states, "In distribution centers, people are the machine; you speed them up to speed up the line." Unsurprisingly, this site was plagued by injuries and excessive turnover. And we've consistently seen many variations of this theme, with worker morale and motivation generally being lower in warehousing, distribution and fulfillment operations than in many other business units. Comments from workers we've repeatedly heard have included "we're taken for granted"; "it only gets harder and worse"; "I'm singled out"; "feel separated"; "isolated from rest of the company"; and "don't feel valued for what we do."

I contrast this to global-class companies where I've consistently seen an emphasis on high-level and long-term overall organizational performance based on simultaneously strengthening a critical triangle

(see Pater, 2019c), not attempting to trade off efficiency at the expense of safety, nor engagement at the cost of productivity. All of these are "number one" in such high performers. To move toward this strategic mindset, I recommend that in all planning and strategic decision-making leaders apply "simultaneous thinking" by initially asking themselves (and others) "How will this potential strategy/procedure/rule/promotion/hire affect productivity? Safety and health? Employee engagement and morale?" Highest-level strategies must simultaneously propel each crucial element in this critical triangle, rather than "robbing Peter to pay Paul." By considering, then planning around these questions, leaders can better frame and delineate optimal solutions that strengthen the company overall.

Third, tasks, and therefore risk exposures, are alike across many distribution and fulfillment centers. In addition to those mentioned, these often include moving heavy carts (in some cases weighing up to 650 lb when loaded), case stacking, unloading and loading trucks, working fatigued or standing on their feet. Combine this with work conditions where warehouse employees are standing for long periods with no time to sit and rest or long shifts (ever longer when expected to work overtime due to coverage shortfalls), reaching into bins/picking/retrieving, break-in work when conveyers are down, wrapping bundles, being machine/conveyor-paced, using difficult-to-control pallet jacks, manually shrink wrapping smaller loads, twisting when driving forklifts or loading (which can over-stress the lower back), lots of bending and lifting, up and down stairs, onto and off of forklifts, and more.

Fourth, similar injuries. As go task exposures, so also go the likelihood of predictable injuries. Of course, forklift-related concerns are always prevalent (perhaps prompting one longstanding distribution safety manager to refer to his "perpetual search for the holy grail of safest forklifts"). Such impact-related injuries are frequently and rightly foremost in leaders' minds, where pedestrian walkthroughs share space with quick-moving vehicles. While fatalities can occur in warehouse operations [there were 24 in 2019 with about half related to forklifts overturning, according to BLS (2020) statistics], by far the most prevalent safety problem resulting in lost-time injury are soft-tissue/sprains/strains.

It's not even close. Soft-tissue injuries dominate lost-time injuries in warehouse, distribution and fulfillment centers. According to BLS (2020), "overexertion and bodily reaction (lifting, lowering, repetitive motion including microtasks)" resulted in 9,830 lost-time injuries, almost triple the second highest category, slips/trips/falls (3,350 lost-time injuries). And while such recordables aren't considered serious injuries and fatalities, these "personal" injuries can be debilitating. And pervasive. And severely affect operations on a daily and weekly basis.

Slips/trips/falls: There's always the risk of slips, trips and falls from going up and down stairs, from rushing and stepping onto or over pallets or from

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just walking the floor. This can occur from combining walking while also looking up or around (checking for traffic or rack/bin labels). Either looking in a different direction other than where one is walking or tilting the head up while on the move directly affects balance and makes it harder to see and thereby adjust to any object or slippery substance on the surface. Just getting onto and off a forklift may risk the loss of balance, resulting in slips, trips or falls, or impact onto the forklift. Most people working at a high pace tend to default toward their preexisting movement patterns; and we've found, time and again, these are often less than ideal. Even relatively slight injuries over time can build overleaning or gait imbalances, which can then lead to falls or bodily reaction injuries (often a loss of balance without impacting a vertical or horizontal surface), and cumulative sprains and strains, all in the context of a fast-moving environment.

Why strains and sprains? Refer back to across-the-board warehouse tasks. Handling materials is pretty much the core of warehouse work. While in some centers workers contend with heavy loads, most engage in multiple motions that can build cumulative trauma into damaging sprains and strains, akin to "the straw that broke the camel's back." Such as picking and retrieving (reaching out to drag or lift and carry products), palletizing (loading, too often associated with bending and stooping or twisting, pushing, pulling and reaching, and other material handling). And many warehouse workers stand on their feet for protracted periods (compounding shearing forces) without being able to "take a load off." Fatigue is common and can lead to diminished attention control (which requires energy), which can, in turn, morph into impulsively settling into lower quality safety decisions.

Many warehouses have some mix of younger and older workers. This can lead to complacency among some "job survivors" who assume they perfectly know how to do their job and don't want to be told anything about working safely even though plant/equipment/procedure/process conditions and their age and personal condition change. Bear in mind that older workers are more physiologically prone to soft-tissue wear down (due to years of cumulative trauma, collagen breaking down, sarcopenia/age-related muscle loss, brain changes that affect attention control and much more). This doesn't mean they're doomed to get hurt, just that they must make small adjustments to reduce cumulative trauma "invisibly" building, going beyond performing tasks the same ways they did when 30 years younger.

Strengthening the Safety Chain

We know that safety in distribution centers can be challenging. But several companies have applied practical strategies that have considerably stemmed the tide while increasing employee retention and elevating safety culture, achieving significant results with a strategic approach that melds traditional design and policies (which only go so far) combined

with stronger adaptive leadership, plus transferring the motivation and tangible skills that place workers more in charge and control of their own high-level safety.

I already indicated some of MSC's stellar results. Nick McAfee's National DCP reported making major impacts on their safety culture even in the first year of implementation of such strategies, with soft-tissue injuries decreasing by 56% in their warehouses.

A caveat: smart leaders have found that, sadly, there's no magic bullet. Despite wishing things were different, numerous distribution center professionals have sought a perfect solution, one that requires zero throughput slowing or downtime, at no cost, that will result in almost-total compliance, yielding near-zero injuries. If such perfect strategies existed, leaders would have already found them. What I can offer is an approach and methods that have actually been proven to work. And, yes, I understand many of these require some initial (minimal) slowing of throughput.

To realistically garner supply chain managers' active support, safety leaders can't position any proposed implementations undercutting productivity. That being said, the strongest leaders aim to find a balance. This mindset is critical when crafting an approach; I suggest that safety professionals firmly keep in mind, then communicate to leadership that short-term implementations be kept as time efficient as possible (while still getting the job done) and should last. Remember, and remind others, that the highest form of leverage is positively affecting many people over an extended period. This is how to maximize return on investment, critical in the hearts and minds of many warehouse/distribution/fulfillment center managers.

Seven strategies to consider:

1. Start by helping managers and supervisors tune their perceptions and mindset: acknowledging the unique aspects of warehouse exposures and culture. Whenever you find that traditional plant-based approaches to safety and cultural change don't work at a high level, remind yourself and them to assess those forces that drive as well as those that restrain safety performance improvement. Do not assume that distribution implementation approaches must be customized to the task and cultural environment, not lumped together with those of other business units without adaptation.

Management must be a central part of the solution. To overcome tensions between management and workers, develop a set of specific, easy-to-accomplish-with-minimal-time actions that leaders can take to enhance management-worker communications. These might include acknowledging even small accomplishments, blame-free incident investigations and messages, safety motivation that is positive rather than scare-based or punitive, reduction of frustration-laden communications, and more. Or as Nick McAfee states, "We have to go beyond just thinking about 'the metrics of cases out.'"

Thinking simultaneously helps once again. Help leaders run the parallel tracks of preventing serious injuries and fatalities but also a strong focus on “tenacious” (common, seemingly ongoing) distribution injuries: soft-tissue and slips/trips/falls. The key: Place workers as much in control of their own safety as possible. More on this below.

Other distribution safety professionals have spoken about the importance of seamlessly weaving safety into operations: “I love to collaborate with others on integrating safety into everything, such as into lean six sigma training.”

Continue to ask sincere questions. Nick McAfee is responsible for nine warehouse locations. He visits each of them monthly at a minimum to check in on “What can we do to improve? Where are the gaps in our safety initiatives and approach? How can we better train them? What kind of examples are we setting?”

2. Apply ergonomics that actually suits people to work with less strain. A major aim of ergonomics is preventing potentially damaging forces from entering the body. While this should go without saying, many warehouses still have bins with heavy materials positioned too low or too high off the ground for most workers to lift into or out of safely and comfortably, especially when done repetitively. And push bars on carts can be modified from the horizontal to an inverted open “V” shape. Further, picking stations should be adapted to allow workers to place one foot forward, rather than stand with feet parallel (to reduce forces pooling in the lower lumbar). Distributing shock- or force-absorbing shoe inserts to reduce cumulative forces in the knees and lower back from standing and traversing hard warehouse surfaces. And much more (see some of my articles on ergonomics and soft-tissue injury reduction).

3. Keep warehouse workers refreshed, mentally and physically. Avoid the (understandable) draw to attempt to squeeze the juice out of these people by expecting and pushing for interminably extreme standards. Fatigue can be a real issue in distribution. One safety professional indicates, “They may have to pick so many lines, while fatigue or even not feeling well can erode their efficiency. But they don’t want to lose their baseline and then be written up, so many push themselves past what they should be doing.”

•Remind leaders that people aren’t machines. Most machines thrive on repetition and thereby can ongoingly continue at a high pace without significant rest. Whereas most people do better with mental and physical variation and need breaks from the action (for variation and to recover). Even superstar athletes who come out of the game for periods aren’t expected to perform at their peak every play. How does this transfer?

•Treat workers as mental as well as physical beings, not as mindless moving pieces of equipment. Many warehouse professionals realize that when a worker comes in frustrated with a spouse or finances or anything else, this can lead to incidents. Nick McAfee

agrees, “They’ve got to be in a good mental as well as physical state. Our culture has to support this.”

•Build in rest breaks that are long enough to refresh, recover and rehydrate. Consider expanding from 10 to 15 minutes (or, as Ron Bowles suggests, adding a 5-minute “in place” break at some point between formal breaks and mealtime). Abraham Lincoln reportedly related a parable about two woodcutters, one who worked continuously while the other interspersed working hard with taking breaks. That at the end of each day, the one who took some time out cut more wood, he was sharpening his axe while not cutting. The moral: The right kinds of breaks (and these can readily be safety reinforcement times) can help refocus and raise overall safe productivity.

•Provide a sufficient number of restrooms that are conveniently sited so they can actually be used during breaks.

•Keep workers hydrated even with the understanding that they’ll need to access said restrooms more frequently.

•Encourage but don’t require warmups and other activities that physically refresh (these might include offerings of “take a breath” breaks).

•Consider providing access to refreshing activities (e.g., perhaps those that encourage exercise, health, relaxation, connection to coworkers).

•I’ve heard some warehouse workers suggest conveyor speed should optimally be slower at the beginning of their shift when they’re not fully warmed up, faster during the bulk of the middle part and then slower again as work fatigue encroaches. One facility found that productivity increased and injuries decreased by incorporating this strategy.

•Supervisors can watch for those who are clearly mentally preoccupied and take them aside for “a mental reboot” (not to act as a counselor). Nick McAfee says, “You’d be surprised how many people come to work frustrated with their spouse and then an incident happens.”

Energize your safety training and communications (with practical methods, not hype). Show applications to their home and favorite off-work activities. And how they can help those they care about be more effective and safer.

4. Find ways to let distribution workers know they’re valued. A paycheck is not enough, nor, for many, is just a raise in pay. When time is a most precious resource, leaders can apply this to thanking workers when appropriate, showing interest in their personal hobbies they’re willing to share, taking even a few moments to engage in “small talk” that can have large impacts in respect conveyed.

5. Heighten opportunities for engaging warehouse workers. Such mental vehicles might include:

•A stellar safety professional in distribution actively encourages workers to extend their safety awareness: “We want them to identify hazards, to see risks, make these visible, then reduce them. Our motto is to make everyone inside the facility a ‘safety leader.’ That safety professionals are there to

support and back them up but to solve a safety issue, they should first remember it's their facility and they are responsible for their safety."

- Actively participating in rotating safety committees.
- Forming equipment try-out teams to advise on new purchases that they will ultimately have to use (e.g., to pilot new forklifts and other items the company is considering).

- Developing active suggestion systems including eliciting concerns and ideas for improvement both one-on-one and in very small groups.

- Holding safety toolbox meetings that are led by employees or, at very least, that incorporate workers sharing personal success stories.

- Perception or attention training such as how to plan out in advance. Nick McAfee notes "the importance of setting up a pick path."

- Nick McAfee emphasizes the importance of warehouse workers "being thoughtful," to mindfully think through what they're doing. One way that some companies have addressed this and woven home safety in with work applications has been by holding "pre-shift talking points." One example asked of workers: "What are some activities you do at work or at home where the manual materials handling techniques you've learned can help?" Prompts for discussion leaders listed include holding totes/boxes/laundry, picking up grocery bags or 5-gallon pails, and pushing pallet jacks, carts or lawn mowers.

- Help workers reduce the stress that can otherwise eat at them, become distracting or possibly mentally wear them down. I define stress as "the feeling of being out of control." The more workers can learn how to become more in control of themselves, the better they will be able to overcome stressors in their lives.

- We've seen great success in training distribution center workers to become peer instructors, coaches and change catalysts. They then become an ongoing impetus for coworkers' incorporating desired behaviors, skills and attitudes into a wide range of activities, both at work and home.

Physical engagement:

- Transfer skill sets for moving and accomplishing tasks in the most efficient-while-relaxed manner. How? Transfer practical safety skills for mastering their work, heading off the most common pitfalls of soft-tissue injuries and slips/trips/falls. Such skills should convey how to control their balance, position, transfer of forces, usable strength and better direct their attention.

Go beyond just external design (which is certainly important) to, again, place people more in control of their personal safety. There's a lot to this but we've found a significant key to reducing soft-tissue injuries is to reduce the concentration of forces that otherwise pool in smaller, more vulnerable body parts. And a secret for preventing slips/trips/falls is for people to learn how to improve their vertical alignment (so their upper body aligns over their hips, legs and feet, rather than leaning even slightly forward or back when on the move).

- Overall, offer methods for "how to take better care of their body," Nick McAfee says. This might include improving sleep efficiency, nutrition and other off-work, personal strategies.

- Another distribution company has instituted "touch base audits," where workers first made physical contact with any material that they were planning to move in order to determine whether it was OK to lift for them (which could change daily, based on their condition).

Nick McAfee suggests that in some situations, managers' and supervisors' lack of experience can lead to an overemphasis on the short-term (just looking at "cases out" metrics). "It's up to us as leaders to set the tone," he says.

6. Improve onboarding for new hires. Nick McAfee says, "Onboarding has to be better." Tune up practical orientation training for new hires. Resist the temptation to be "penny wise and pound foolish" by throwing raw workers into a high-demand, high-paced work without strong, practical preparation. Nick has found success in "before a new employee steps into the warehouse, we give them safety training on how to move and perform tasks with minimal effort and maximum effectiveness."

In a similar vein, another company makes it their practice to train all new hires in overall movement safety before they receive their actual work training. They've found this has helped workers be more attentive and helped create habits to incorporate the safest and best movements when performing a range of tasks.

7. Anchor safety skills in practical, daily applications. For example, distribution workers can learn methods for boosting leverage while palletizing and case stacking, how to best control pallet jacks, safest ways for getting onto and off lift trucks, how to reach, grab or carry parts with maximum control, using joysticks while minimizing forces concentrating on the controlling hand, how to best turn while reducing pressure on the back and neck, and, as important, skills for directing, sustaining and switching their attention with shifting workload demands.

The key is to place workers more in control of their own safety. As Nick McAfee has found, "If taught and transferred correctly, best safety methods can also maximize your rate. With the proper training, they actually don't have to work as hard, making every step count."

The characteristics of such skills: Make these quick and easy to apply. A small amount of effort for significant gains: improved balance, reduced concentration of forces in smaller parts of the body to head off soft-tissue injuries, how to maximize available strength while reducing fatigue, using physical leverage in the most efficient ways possible, how to make small changes in attention that readily maintain focus without sacrificing broader perception of surroundings. And are self-reinforcing, as workers experience their own

internal paybacks by feeling more capable, stronger, sharper, more energized. All readily and easily learned skills.

Consider incorporating microlearning to reinforce already introduced safety methods. Rather than not dumping too many safety messages (which could overwhelm, be difficult to remember or where the most important ones get lost), communicating just a 1-minute message to think about such as, “When you’re pulling a loaded cart, what can you do to reduce tension buildup and maximize your strength to make this as easy as possible?”

Nick McAfee suggests that leaders ask themselves, “What kind of culture are we trying to have here? It’s not just our workers; it takes everybody being accountable.” He’s seen improvements over a relatively short time that then last. And that maintaining an improved safety culture requires proportionately less effort and time than initially making needed changes. And National DCP is far from the only supply chain company moving safety performance and culture to higher levels.

A Fulfilling Safety Summary

Distribution centers are tasked with disseminating a world of products to an ever increasingly demanding populace; the pace can seem unrelenting. Not surprisingly, warehousing operations tend to be predominantly designed to maximize throughput and not necessarily for ergonomics nor employee safety.

There’s a lot to this, and it’s critical to customize any approach to your specific tasks and culture (management and workers). But I suggest you keep these focal points in mind. For sizably elevating warehouse/distribution/fulfillment center safety performance and culture:

- Set realistic and positive management expectations of return on investment. Safety must be communicated to them as enhancing, never detracting from productivity over the mid- and long-term.
- Upgrade both safety skills and culture simultaneously. Worker skills include highest-level manual material handling methods and ways to solidify balance when on the move (prevent slips/trips/falls). Management skills include perceiving, communicating and persuading workers in a positive manner, rather than just with brute force or intimidation. All skills must place people more in control of their safety, at work and at home.
- Make it as easy and quick as possible for everyone to upgrade their skills and strategies. Go beyond just theory. Yes, convey overall principles for greater effectiveness while also offering practical, at-work applications of all skills.

Even with the real demands and pressures on warehousing, distribution and fulfillment centers, many companies have still found ways to balance efficiency with injury reductions, cultural improve-

ments with heightened throughput, worker engagement with productivity. Real and significant results happen even in these challenging environments. I’m not saying it’s effortless. Just that if others can accomplish great results, so can you. **PSJ**

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