



## SPHERE OF



Are you worried that your ergonomics program is not going to survive the economic downturn of 2009? Focus instead on how to make it thrive.

One of the challenges with the field of ergonomics is that not all businesses consider ergonomics to be a “core” component of business operations. Tucked into the fold of health and safety, ergonomic issues are typically addressed in a reactive manner – after the worker has reported pain or discomfort or even after the injury or illness has been reported and recorded. In today’s cost-cutting environment, the key to ergonomics program survival and sustainability lies in moving to a more proactive approach. In order to thrive, it must embrace a continuous improvement mentality, integrating ergonomics into

existing systems and publicizing how doing so can actually save your company money.

Before you can move forward, you must first determine how ergonomics is viewed within your organization. That view may depend on multiple factors, including where ergonomics is housed within the organization, funding and resources, visibility, leadership priorities and personalities, areas of influence and how ergonomic issues are approached. Does the culture of the organization view incidents as a “part of doing business,” or do they expect an injury to be the rare exception? Many companies stress a goal of zero injuries, but their actions and processes do not enable employees to make that goal a realistic one. Instead, injuries may have low visibility



## SAFETY

BY JULIA GREENWALD

### *Moving ergonomics programs forward*

or treatment postponed until the damage is done. An honest look in the mirror is important to help establish a starting point in moving forward.

Of the many factors that may influence how ergonomics is viewed in your organization, the one that you have the most control over is how your ergonomics program is structured and how ergonomic issues are identified and approached. Purely reactive programs address the issues identified once a problem has already occurred. Some believe that being proactive means reviewing near misses or first aid cases within the work environment and conducting ergonomic assessments on existing jobs prior to the actual occurrence of an incident. While this does help, in order to be truly proactive, the risk

factors that can lead to potential injuries should be identified and addressed in product, process and equipment design, reducing or eliminating any exposures in the first place.

Many companies implement a reactive program in response to injury or illness trends or growing insurance costs – both lagging indicators of a problem. The ergonomics program becomes the responsibility of the health and safety department, which is usually in fire-fighting mode, addressing the highest risk problems first. Since ergonomic issues are usually not life-threatening, the program becomes a lower priority once the current problem is addressed, and the cycle continues into the future. In addition, changes made to address ergonomic problems are usually justified with workers' compensation



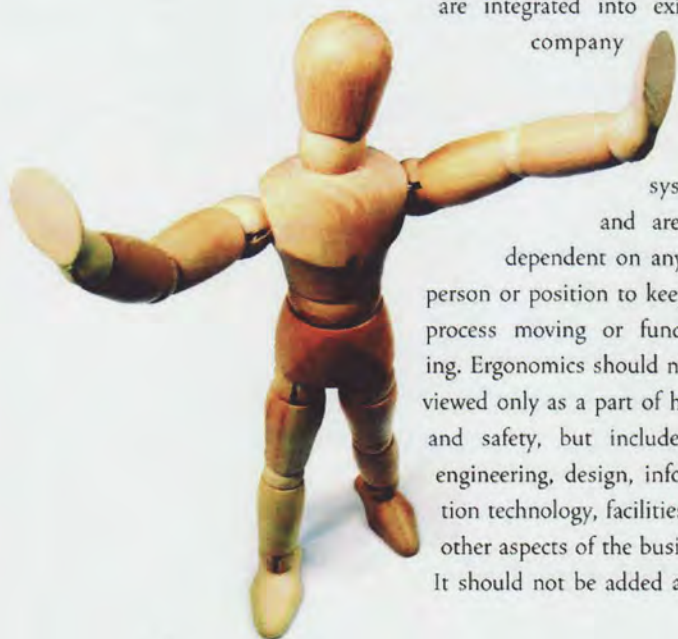
data. This method of justification does not lend itself well to a proactive approach, and the opportunity costs associated with injury avoidance do not sell well with management. Given this perspective, is it surprising that ergonomics is not always viewed as a key component of a company's business model?

Companies with a limited number of professional resources for ergonomics may have a completely proactive process, where resources are often best utilized by working with design engineers on future products and the processes and equipment used to generate the product. By working in design, they are able to make modifications to drawings and prototypes, which is easier and more cost-effective than waiting until equipment is completed. The difficulty with the purely proactive approach is that benefits are seen in the long term and, therefore, not always measured and tracked. Management support is hard to come by if the case is not made well or is not positively impacting the current financial reporting period. In addition, if the system is entirely expert-driven, once the expert changes or moves on, the ergonomics effort falls apart because it has not been integrated into the company's business systems.

So how can you help your program not only survive, but thrive? By integrating the best of both approaches, you will start to see results that will set your program up for success.

### Step 1: Integrate.

Strong ergonomics programs are integrated into existing company



systems and are not dependent on any one person or position to keep the process moving or functioning. Ergonomics should not be viewed only as a part of health and safety, but included in engineering, design, information technology, facilities and other aspects of the business. It should not be added at the

end of a project as an afterthought, but threaded throughout as one of the key building blocks of the project.

If your company is embracing the concepts of lean manufacturing, then join them! Ergonomic concepts go hand in hand with the principles of lean manufacturing. One of the goals of lean manufacturing is reducing waste in a system. People touch each of the seven types of waste, or muda, that lean manufacturing highlights: processing, correction, overproduction, motion, material movement, waiting and inventory. When wasted motion is addressed and the resulting change reduces an operator's reach distance and brings the work closer to them, both lean and ergonomics benefit. Educate yourself on the concepts of lean manufacturing and work with lean teams to add a component of ergonomics to their processes, including kaizen (or continuous improvement) events. You can also take the lean concepts and processes and integrate them into your ergonomics program.

When everyone in the facility is speaking the same language, barriers come down and positive change occurs.

In order for ergonomic concepts to become second nature, knowledge and tools are needed, and systems must be used to support the process. With a consistent process, mura can be avoided. Mura, or unevenness, is another lean manufacturing principle. It could describe the inconsistency in results when there is no standard method, which can also apply the use of ergonomic principles in an organization. Without training and direction, engineers and designers do not know how to look for risk, when to look or how much risk is acceptable. By providing guidelines and adding checks for ergonomic risk factors at key design reviews for new products and equipment, the variation or mura can be removed from the system. Incorporating ergonomic concerns into reviews already taking place, where sign-offs are required from engineers, designers and key personnel, also ensures accountability. Consideration for ergonomic risk factors becomes one of the basic requirements for new designs instead of an additional last hurdle once the project nears completion.

### Step 2: Prioritize.

Use the data you have as a starting point to get out of the completely reactive, fire-fighting mode with existing



systems. Review injury trends, conduct baseline ergonomic screenings of key areas and use the data to prioritize areas of focus in existing systems. Why is prioritization important? It shows employees and management you have a logical methodology when deciding which job or area needs attention. Without taking the time to prioritize your problems, the squeaky wheel will continue to get the oil, while the leaking tire slowly goes flat.

Something to be leery of when using only injury data for prioritization: garbage in equals garbage out. Discerning the root cause of an injury is a skill hard to master. Many companies track their incidents on the standard OSHA 200/300 logs, which simply state: "Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill." The statement alone takes more space than what is given for the actual injury description. A typical response to an incident might be, "Pain in right wrist from xyz assembly." You may have to dig a little deeper to find the true root cause. What was it about the xyz assembly that caused the incident? Was it the layout, the weight of the part, the pace of the line or a new employee?

Try using the Five Why methodology; ask "Why?" at least five times. Why did xyz assembly hurt the employee? The parts were difficult to assemble. Why? The snaps would not close. Why? The snaps were out of tolerance. Why? There was extra material (flash) on the molded snap. Why? The tooling that created the part was damaged. Good data will take you in the right direction to make significant improvements.

### Step 3: Educate.

Educate employees at all levels with the appropriate information on ergonomics so they become their own initial resource. Give office employees tips on working at their desks in the proper postures. Train employees on the plant floor about safer work methods and how ergonomics concepts can help them. If you have an ergonomics team, teach them not only the basics about ergonomics, but also analysis, problem solving and cost justification methods so they can back their work with data. Talk numbers with engineers and designers and show them how to apply the tools and concepts of ergonomics to their work. And with management, speak in terms of key measures: costs, efficiency, quality, safety and profit.

### Step 4: Cost justify.

Justifying changes purely because a problem is a safety hazard or injury risk is no longer acceptable in today's economy. Showing management that you have the business as a whole in mind and not just safety "tunnel vision," will earn crucial respect and buy-in. Whenever possible, provide low- and high-cost solution alternatives, using key measures other than injuries (productivity/efficiency savings and quality savings) to justify your solutions. Basic ergonomics concepts such as reach and access can be tied directly to common time study equations to show efficiency gains. Quality problems can usually be followed back to high insertion forces, alignment issues or other root causes that cause ergonomic issues. If there are no other benefits to your solutions, then chances are it's not the best option. Keep looking, involving employees and engineers as needed.

If you don't know how to cost-justify your project, talk to your financial representative. There are several approaches to take including the following three, depending on how your company operates:

- *Cost-benefit ratio*: Used mostly on a reactive or post-injury basis, the cost-benefit ratio compares the cost of the problem or injury to the cost of the solution. There is an assumption that the solution will eliminate any future injuries.
- *Payback period/return on investment (ROI)*: Return on investment calculates the length of time it will take to recover the costs of the improvements. Benefits are calculated using potential savings through injury avoidance (reactive) and improvements to other key measures such as productivity, quality delivery, tooling and materials. Most companies look for an ROI of less than one year.
- *Equivalent revenue*: Reflects the amount of revenue, or profit, that needs to be generated to cover incurred costs of the problem. This method works well when costs are put in terms of product profit margins. In essence, how much of the company's profits are going to pay for the problem?

Training costs are harder to capture and justify, although it can be done. Say that you save an average of x dollars on reactive projects in your facility. If you train 10 engineers



or designers to use ergonomic guidelines and analysis so they can avoid sending similar issues into future facilities, then the cost of that initial training could be outweighed by 10 times that amount. Ergonomics teams can also justify training needs by showing the value they add to the facility through cost justification of their projects. Subjective measures such as employee morale, while hard to quantify, can also be of value.

### Step 5: Communicate.

Communication with both employees and management is critical. If the ergonomics program operates in a bubble, others will not be aware of the success stories and therefore less likely to view it as a value-added activity. During a project, involve employees and communicate progress to all parties involved. Lessons learned from unsuccessful implementations should also be shared so others understand when a control is delayed or must go through the revision process. As projects are completed, document the results and cost savings. Be sure to include pictures of the problem areas before and after changes, as well as input from personnel affected by the changes. Report that information to upper management and the visibility of the program will increase in a positive light. Let them know how you are making a positive difference to the bottom line.

### Step 6: Document results.

Verifying the results of your efforts is important; however, this key step is often skipped. How do you know the effect that you are having if you fail to track issues and follow up to make sure the results you expected happen? How can you make improvements to your process if you don't know where the improvements need to be made? More importantly, how can you prove, with data, the positive influence your ergonomics program is having on the business? Documenting your results gives you proof of the positive impact you are having on the business. Auditing yourself also shows that you are in the kaizen mindset and looking for ways to improve your process continuously.

What should you be tracking? Most companies use only injury data to track the results of their efforts. OSHA recordable incident rates, days away from work rates and job transfer/restricted work rates are all good measures to track in order to determine the frequency and severity of injuries that

have already occurred. However, once again, these are lagging indicators. Relying only on these metrics means your program is purely reactive. Leading indicators need to be used if the program is to become more proactive. Metrics for existing facilities and processes could include first aid cases, near misses or employee-generated concerns. Becoming proactive in design could lead to metrics such as the number of high-risk issues identified and corrected in design or cost savings identified through ergonomic design improvements.

The best way to audit your program is to add an element for ergonomics to an existing audit process, especially if your company holds some type of International Organization for Standardization (ISO) or Quality Operating System (QOS) certification. Make sure the expectations are documented in a formal program document or contained within existing procedures for engineering, manufacturing or other processes.

In order to survive in today's cost-cutting environment, your program must be integrated into the organization's systems in a manner that is sustainable. If you aim for more than just survival, prove that your ergonomics program is bringing value to both the organization as a whole and the individual employees by becoming more proactive in addressing higher risk areas before they incur the expenses of an injury or illness. With a little time and effort, you can improve the way your ergonomics program is perceived and add to your company's bottom line.

The steps outlined above are not new, nor are they expensive or complicated to implement. By integrating into existing systems, including lean manufacturing, educating and communicating, you will be speaking management's language and you will be heard. Ergonomics can become a term associated not just with safety and injuries, but with a proactive effort that ultimately leads to increased organizational competitiveness. Keeping employees healthy while increasing the bottom line is possible, and if you can demonstrate that within your program, ergonomics will become a cultural characteristic of your organization. ❖

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