

The World is Not Flat...Controlling Workplace Risk

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Introduction

Over the past decade I have been intimately involved in the development and implementation of a fully integrated ergonomics program for one of the nation's largest avionics companies, Rockwell Collins (NYSE: COL). The evolution and learning that has taken place is just short of remarkable as are the year over year metrics of improvement. As our process has evolved it has become abundantly clear that "Ergonomics", though the centerpiece of our program, is not the sole strategy to reducing risk in the workplace. This paper and subsequent presentation will explore and define adjunct strategies, that when combined with a solid ergonomics program will reap significant outcomes.

Our interventional model relates to the transfer of data over the course of time; from the onset of employment to a mature employment status. As we proceed upward through the variety of strategies we encounter fewer employees; i.e., essentially all employees will be affected by the establishment of "Essential Function Profiles" yet very few will actually require "Case Management" of injury going forward.

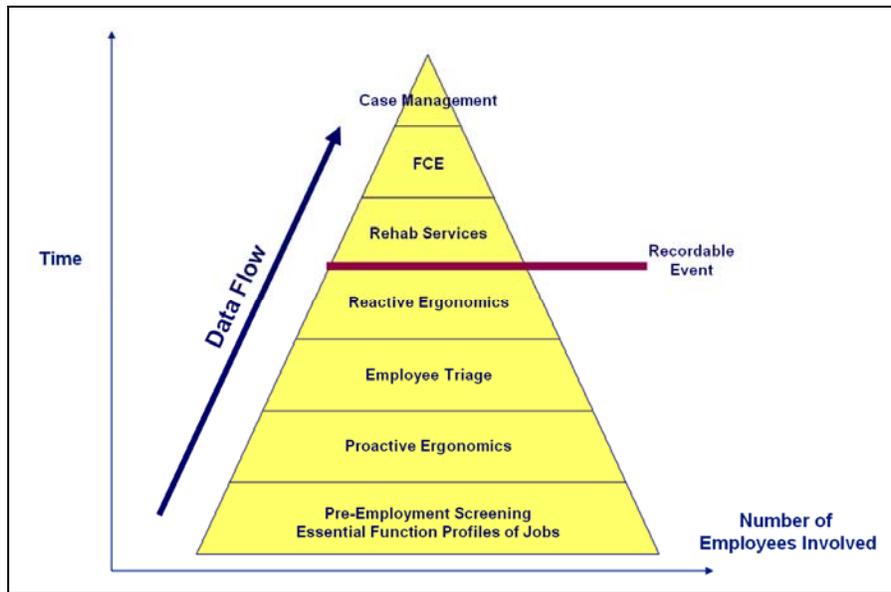


Exhibit 1.

With this construct in place, this paper will explore The What, The Why and The How of these interventional strategies. In addition, understanding the relationship of these interventions and their building block approach may assist your organization in further developing your programs.

Essential Function Profiles

What: Essential functions are the fundamental job duties performed in a position. The term “essential functions” does not include the marginal functions of the position. A function may be essential because:

- The position exists to perform that function.
- There are a limited number of employees available who could perform that function.
- The function is highly specialized.

For example: an essential function of a Data Entry Clerk might be the ability to accurately enter information into a computer, while that ability may only be a marginal function for a Manager.

Why: Determining essential functions is important because State and Federal Law protect individuals with disabilities who are qualified - meaning that they possess the requisite skill, experience, education, and other job-related requirements of a position and can perform the essential functions of the job with or without a reasonable accommodation. Also, identifying essential functions help set expectations and define a job. Thus, identifying essential functions from the onset is critical to avoid inconsistent or unfair hiring decisions and to ensure that each incumbent or employee is treated equally and understands the job and expectations.

How: Essential Function Profiles are developed on-sites in conjunction with both the employer and the employees. Profile development is a hands-on evaluation of the physical requirements of employees. This analysis may be as simple as weighing objects and measuring the distances workers handle them, to as sophisticated as filming the activity, and using high tech computer analysis to calculate acceptable and unsafe work limits to all body motions involved in the job.

The process of data collection provides content validity thereby establishing valid job descriptions. Such evaluations are required by ADA law in order to perform post offer / pre-work screens.

Pre-Work Screening

What: A Pre-Work Screen (PWS) is a test of a job applicant's functional ability to safely perform the physical requirements of a specific job. Functional testing may include lifting, force testing, postural tolerances, grip, push and pull, ambulation, climbing & balance abilities and job simulations. PWS allows the employer to make hiring decisions in a legal, fair and non-discriminatory way, and promotes a more positive relationship between employer and employee.

Why: Pre-Work Screens allows the employer to make hiring decisions in a legal, fair and non-discriminatory way, and promotes a more positive relationship between employer and employee.

How: A Pre-Work Screen is administered to an employee prior to beginning work in a new job. Testing protocols will vary by job requirements but are designed to evaluate an applicant's true and safe functional capabilities relative to the requirements of the job. The Pre-Work Screen ensures that employers hire capable employees the first time. Testing protocols need to be in full compliance with the A.D.A., E.E.O.C. and Affirmative Action Guidelines.

Pro-Active Ergonomics

What: A "Proactive Model" of ergonomics seeks to identify potential problems within the work environment before they present as an event or recordable injury. Consider the 1-10-100 principle, a staple of quality analysis: it costs \$1 to prevent a failure, \$10 to find it in the factory, and \$100 to correct it in the field, with the customer. Clearly, a single dollar spent early in the equation is a better investment.



Exhibit 2.

The question lies in the identification of the single individual or the group of individuals within the organization who are the most probable to become the next workplace injury. How can we create strategies which consistently and cost-effectively identify these high risk individuals prior to the inevitable event, a reportable injury? And finally, once identified, how can we monitor these individuals into the future to make certain that our interventions are appropriate and successful?

Why: Exposures (Postures, Force, Repetition, Time) have the potential to lead us down the road toward a Recordable Injury, yet understand that the road to a Recordable Event has been found to be very predictable: Exposure → Discomfort → Pain → Reportable Event. The exposure is a function of the essential physical requirement of the task or job. If the task or job demands exceed our physical capabilities, the level of discomfort / pain will begin to grow. As you are aware, that level of tolerance (discomfort and pain) can vary dramatically amongst us, but once the level is exceeded the response is fairly consistent... I need help.

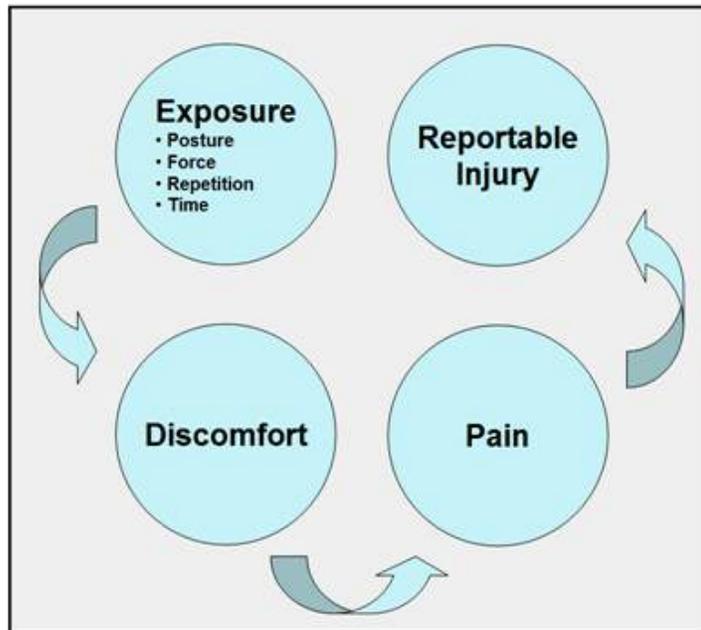


Exhibit 3.

How: Given the paradigm of “Exposure → Discomfort → Pain → Reportable Event”, it is incumbent on us to develop cost effective strategies to intervene on the driving forces of the paradigm. If we want to work below the level of a Reportable Event, these strategies need to focus on 1) the issues of exposure and 2) the issues of discomfort and pain.

Audit Tools

We utilize a matrix of Audit Tools to analyze Exposure Issues. These tools range in complexity from the very simplest of tool (Level 1 Audits) to complex, sophisticated analysis of total environments (Level 3 Audits).

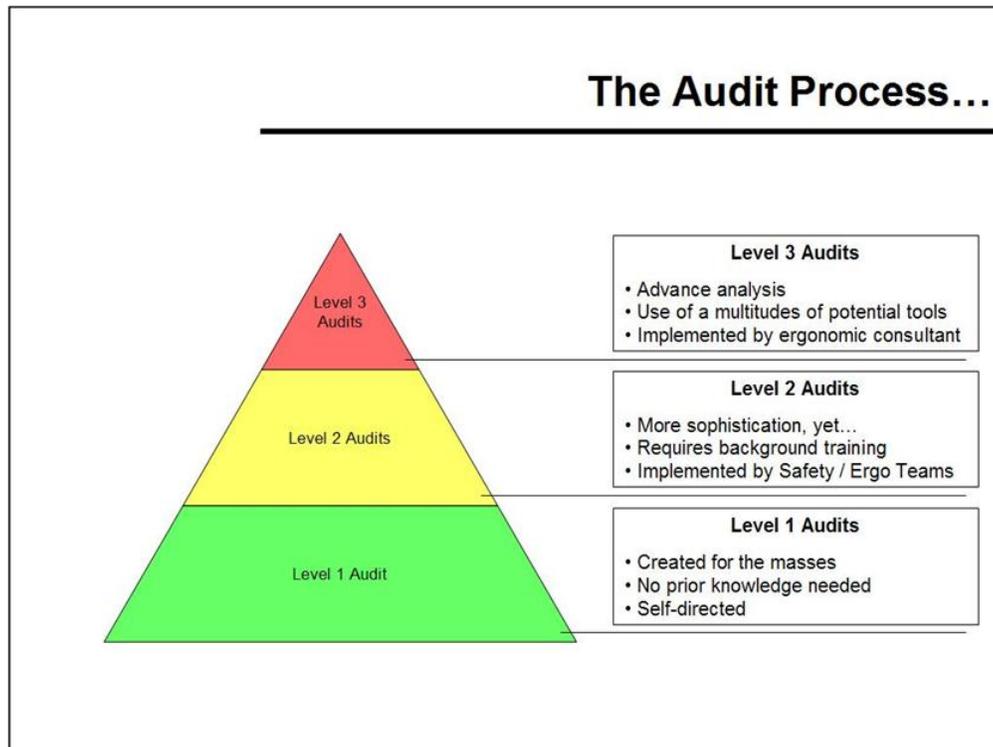


Exhibit 4.

The main thrust of a Level 1 Audit is to provide a simple, self-directed tool to assess the exposure issues of a given environment. The tool itself is a series of Yes / No responses related to the associated environment. We have created successful audits for the office environment, seated bench work, hand tools, material handling, etc. They are administered in a consistent proactive fashion throughout the course of a year. In essence we administer a simple tool to a large population, say 500 people, and use the tool to filter the population. The output of the tool provides a smaller, discrete subset of the population with identified problems.

Following the identification of this smaller subset of the population, we place appropriate resources against the identified issues. This process allows an organization to utilize their resources against their associated risk.

Level 2 and Level 3 Audits utilize a more sophisticated approach with focused training to analyzing the exposure issues of force, repetition, posture, time exposure, etc., within a specific environment.

Discomfort Surveys

If we agree upon the paradigm of “Exposure → Discomfort → Pain → Reportable Event”, an alternative approach to identifying “the issues at hand” is to administer ongoing Discomfort Surveys to the employee population. These tools are typically very similar in nature, 1) identifying the work related discomfort by Body Part and 2) relating the frequency of the

discomfort and the related severity of the discomfort via a visual analog scale. This multiple, (Frequency X Severity), provides a benchmark of discomfort for the employee prior to any level of intervention.

Location of Work Related Discomfort

Please indicate the location of your "Work Related" discomfort.

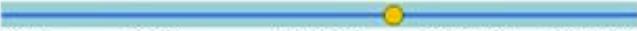


- Eyestrain
- Head & Neck
- Shoulders
- Elbows
- Wrists/Hands
- Upper Back
- Lower Back
- Hips/Thighs
- Knees
- Ankles/Feet

Exhibit 5.

Frequency/Severity of Shoulder Discomfort

Please rate the **frequency** of your **shoulder** discomfort by clicking the appropriate spot on the blue line below.



Never Rarely Occasional Frequently Continuous

Please rate the **severity** of your **shoulder** discomfort by clicking the appropriate spot on the blue line below.



None Minimal Moderate Significant Intolerable

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Exhibit 6.

It is critical to conduct ongoing Discomfort Surveys within the population following intervention to measure the success of the interventions and the aggregate progress of the organization.

Which Tool Should I Use?

When one becomes engaged in seeking the relative risk of the environment, eventually you need to make a decision as to which approach to take: Exposure vs. Discomfort. I would consider the following parameter in making that decision.

Homogenous Environments

Consider the homogenous environment of the office. Within every office you will observe a standard set of work-tools, including a chair, the work-surface or a keyboard tray, a keyboard, a mouse, a monitor, etc. These work-tools are the interface for the employee to perform the tasks within the office environment. The standard nature of this environment provides an opportunity to measure the issues of exposure within the environment. A standard, Level 1 Audit Tool, can be deployed across a large population fairly easily. Upon filtering of the results, you will be able to target your interventions to the population with the greatest risk.

In addition, we often analyze these homogenous environments by cross referencing a Level 1 Audit Tool with a Discomfort Survey. This provides us a higher level of reference when making an interventional decision.

Non-Homogenous Environments

As you aware, many manufacturing environments have a variety of tasks taking place in close proximity. It is often impossible to segregate job tasks due to the nature and variety of physical demands required. Hence, analyzing the issue of risk via “Exposure” when the environment is not consistent is cumbersome. In those cases, I would recommend moving toward a Discomfort Survey approach to assessing the risk of the population. The data can be manipulated to provide a macro-ergonomic overview of the organization by location, supervisor and / or specific task application. In addition, the data will provide micro-ergonomic overview for each specific employee. The net result is that you don’t know what the specific exposure driving the complaint, but at least you have a “marker” within the environment, as to where to start looking.

Employee Triage

What: “Employee Triage” is based upon the old adage; “Know when to call a duck a duck.” In the realm of the workplace it equates the identification of true injures. All too often an employer will immediately send an employee to see the doctor following a report of a musculo-skeletal discomfort. In most instances, time is on your side and the need for immediate care is limited. The key is establishing specific criteria for knowing how to manage these issues effectively.

Why: The truth be known, the majority of musculo-skeletal complaints made by employees do not need be managed as a “Recordable Injury”. OSHA has provided specific guidelines which outline the criteria for establishing when an employee complaint needs to be documented as a “Recordable Injury”. All too often these criteria are not understood, nor are the individuals from within the company trained to make appropriate distinctions surrounding the issue of “Recordability”.

How: Work with your established providers to develop a practical model for making decisions within your organization. Those individuals who fall below the threshold of “Immediate Care”,

can be managed effectively either on-site or via the established provider. Interventions that fall below the threshold of “Recordability” include hot/cold packs, OTC NSAID, soft splints, and stretching.

At all times it is critical to do the right thing for the right reasons. It is never appropriate to use the concept of Employee Triage to avoid or dodge the potential of a Recordable Injury. However, the implementation of this strategy can significantly reduce the exposure of recordable injuries and their associated costs. Once this strategy is deployed, a stringent monitoring process must take place. If a complaint is not resolving, it is time to send it on for further evaluation.

Reactive Ergonomics

What: Whereas Pro-Active Ergonomics looks at the organization as a whole, Reactive Ergonomics looks at individuals; specifically the individuals who have presented themselves for Injury Triage.

Why: The prior strategies of Pre-employment Screening and Proactive Ergonomics are solid approach to reducing the risk within the environment however they are not particularly sensitive to single individuals. People fall through the cracks and eventually present with higher levels of discomfort. Once identified, it is incumbent on us to perform a job specific risk analysis to identify risk factors and resolution options.

How: A variety of risk analysis tools exist based upon the specific work environment: Office, Material Handling, or Manufacturing. One needs to be familiar with these tools, their advantages and limitations.

Rehab Services

What: Physical Therapy is a key component in restoring the function of the injured worker. Be it strength, flexibility, or restoration of functional movement, physical therapy can expedite the return to work process. The key is finding a provider that is in alignment with your organizational philosophy and goals.

Why: Restoration of function is key for a successful return to work. No other medical specialty places their focus on function, particularly as it relates to work activities. A physical therapist can be an important resource to your organization.

How: Seek out a partnering organization which is functionally based – understanding of relationship between the pathology and the relationship to work. The organization should advocate for a dual Patient / Client responsibility. And finally they need to have a program philosophy aimed toward the rehabilitation of the total body / person; Specific Program Components of:

- Exercise
- Stabilization training

- Aerobic conditioning
- Balance / coordination
- Strengthening
- Mobility/ stretching
- Education

Functional Capacity Evaluation (FCE)

What: A Functional Capacity Evaluation (FCE) is testing protocol (general or job specific) which is most often used to determine the physical capabilities of an individual. Testing may include a person's ability to lift, push, pull, carrying, as well as identifying specific tolerances for sitting, standing and walking. FCE's are used to also identify endurances for non-weighted activities such as bending, squatting, crawling and kneeling.

Why: The key to this strategy is to make certain that the return to work is successful and without further sequela or complicating factors. An FCE is utilized to determine a worker's safe working levels for returning to work following injury. Other purposes include job placement, injury prevention programs and rehabilitation decisions.

How: These testing protocols are typically administered by Physical Therapists and/or Occupational Therapists on a consultative basis. Undoubtedly local providers exist within your area.

Case Management

What: Advocating appropriate care and improving access to the healthcare system is at the heart of case management; linking patients, protocols, and providers to ensure the best possible outcome for all. The goal is to coordinate and guide treatment while advocating for the patient throughout an episode of care, recovery and early return to employment.

Why: From an employers perspective, TIME is the most costly and wasted element in the workers' compensation event. It is critical that you understand this perspective and tailor your delivery systems to reduce the frictional costs between appointments, speed the dissemination of information, and return the injured worker to an appropriate work setting - as quickly as possible.

How: Having worked on the inside of the delivery system, I understand the short-comings and the frustrations that employers experience when dealing with healthcare providers, carriers and third-party administrators.

In contrast, consider a delivery system which communicates openly at all levels (employer, employee, physicians, therapist, and case management). The key is to focus on the desired outcome from the onset of the injury to the successful "Return to Work" of the injured worker. From initial injury management, through the maze of medical management, consider tracking and reporting on the probable outcome of the event. This is accomplished in a collaborative effort with partnering entities.

Consider the following strategies:

- Employee triage of all initial reports
- Monthly conferences on all current injures and near-misses; based upon outcomes and actions.
- Identification of the premier providers; providers who first and foremost, do the right things for the right reasons. At the end of the day, one must provide the best care possible for the injured party under the construct of a systematic approach to injury management.
- Finally, monitor providers and track outcomes which will allow for systems improvement.

In Closing

Over the years numerous strategies have been have influenced the issue of work-place risk. The key to success lies not in a single interventional strategy but in a series of overlapping and redundant strategies. Where one strategy may fail the next will pick up the slack. The integration of such programming can have a profound effect on your organizational risk, injury rates and associated costs.