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Oregon OSHA

BUILDING BLOCKS OF SAFETY & HEALTH MANAGEMENT

Course Objectives

- Gain a greater understanding of safety management systems
- Be familiar with Oregon OSHA's 7 core elements of safety management
- Be able to apply the key processes within each element
- Understand critical pitfalls and how to avoid them

The Safety Management System

All systems have structure, inputs, process and outputs.

Structure – Whether formal or informal
Inputs – Resources
Processes – System Design/Features
Outputs – Performance/Results

Evaluating the System

- What are the most immediate and observable outputs of a safety management system?
- Where do we look to evaluate how well the safety management system is working?

Evaluating the System

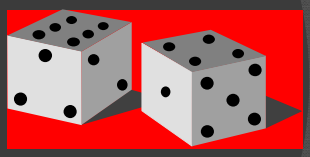
- What are the long-term outputs and results of a safety management system?
- How do we know whether a safety management system has achieved its long-term goals?

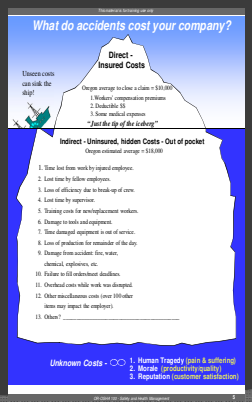
Typical Safety Systems

Values/Beliefs	Attitude	Culture/Impact
Accidents happen People are careless Employees de-valued	**Safety happens, it is not managed. "Beyond my control"**	Mistrust / Blame No accountability Safety not planned
Strict policies Discipline Mandated safety	**Safety is required "OSHA Proof ME"**	Reactive Company policies Written rules
Safety is a shared responsibility. Personal responsibility Employee ownership	**Safe is how we do it. "Voluntary Safety Culture"**	Safety is Integrated, Proactive Collaborative Self-correcting

Price of Rolling the Dice

- Monetary
- Personal
- Hidden





We can calculate the cost of workplace injuries to employers.

It is nearly impossible to measure the pain and suffering of injured employees and their families.

Why Manage Safety & Health

Money spent on safety and health is an investment, not an expense.

To recover $40,000 in injury costs with a 4% profit margin would require $1 million in additional gross revenue.

Two Basic Approaches

A reactive approach emphasizes doing everything management can do to limit losses after an accident occurs.

A proactive approach emphasizes doing everything management can do to anticipate and prevent accidents.

7 critical components

- Management Commitment
- Accountability
- Employee Involvement
- Hazard Identification and Control
- Incident/Accident Analysis
- Training
- Program/System Evaluation

1: Management Commitment

ORS 654.010 Employers to furnish safe place of employment. Every employer shall…

- Furnish employment and a place of employment which are safe and healthful for employees . . .
- Adopt and use such practices, means, methods, operations and processes as are reasonably necessary . . . ;
- Do every other thing reasonably necessary to protect the life, safety and health of such employees.

It takes a little "TMC"

Top Management Commitment

Time, Money, and Concern

What moves management to commit?

- To fulfill the legal obligation
  Stay out of trouble, do what we have to
- To fulfill the fiscal obligation
  Save money, do what we have to do
- To fulfill the social obligation
  Save lives, do whatever we can do

Commitment shapes culture

- Positive Reinforcement
  When effective, increases required and voluntary behavior
- Negative Reinforcement
  When effective, increases required behavior
- Extinction
  Without acknowledgement, required and voluntary behaviors are extinguished

2: Accountability

ORS 654.022 Duty to comply with safety and health orders, decisions and rules. Every employer, owner, employee and other person shall…

- Obey and comply with every requirement…
- Do everything necessary or proper in order to secure compliance….

Achieving Accountability

- Formal standards and expectations
- Resources to meet expectations
- Process to evaluate performance
- Effective consequences
- Appropriate consequences
- Evaluation of accountability system

Formal Standards & Expectations

- Clear safety policies, plans, etc.?
- Safety policies available to employees in their primary language?
- Safety policies clearly communicated?
- Discussion of reasons for following safety policies?

Resources to Meet Expectations

- Physical resources (tools, equipment, etc.) adequate for safety?
- Social support (training, orientation, example, etc.) reinforce safety?

True or False . . . And why?

- "If management does not provide the resources and support, employees cannot be held accountable for failing to follow safety policies."

Process to evaluate performance

- Is a process to observe work practices carried out effectively?
- Are compliant behaviors evaluated instead of individual injury histories?
- Are the results tracked to improve the safety system?
- Do formal (and informal) appraisals address safety performance?

True or False . . . And why?

- "When an employee is disciplined for violating safety policies, the question of whether an accident occurred is irrelevant."

Effective Consequences

- Is discipline expected?
- Does discipline occur quickly?
- Do employees know why discipline occurs?
- Is discipline seen as helpful?
- Does discipline change behavior?
- Is progressive discipline used for repeated violations?

True or False . . . And why?

- "All effective discipline must be progressive."

Appropriate Consequences

- Does management first make sure its obligations have been met?
- Does discipline occur for failure to comply rather than having an accident?
- Are employees still eligible for safety recognition if they have an accident?
- Is recognition occurring more often than discipline?
- Is discipline appropriation to the conduct?

Key Questions *Before* Discipline

Have I ensured the employee…

- Is adequately TRAINED,
- Is provided adequate RESOURCES,
- Has received needed SUPERVISION?

And have I demonstrated safety LEADERSHIP?

Evaluation of accountability system

- Is the safety committee evaluating the system periodically?
- Does the evaluation include all its processes?
- Does the safety committee develop recommendations for improvement?
- Does management respond to those recommendations?

Evaluation Process

- Identify. Review the various elements to determine what is present.
- Analyze. Thoroughly study each policy, system and process to understand how they are being performed.
- Evaluate. Compare and contrast the overall design and performance against best practices to judge the effectiveness of the system.

3: Employee Involvement

654.176 Safety committee or safety meeting required. To promote health and safety in places of employment in this state, every public or private employer shall . . . establish and administer a safety committee or hold safety meetings.

Employee Involvement

Doesn't stop with the safety committee and safety meetings.

Involve all employees, every day, in identifying hazards, ways to address them, and other safety-related suggestions.

Is this a good incentive policy?

Every employee who works accident-free for a year will receive a $1,000 bonus on December 15th?

Is this one better?

If all employees work accident-free for a year, each employees will will receive a $1,000 bonus on December 15th?

5 Secrets to Effective Recognition

- Soon. As soon as you can after it occurs.
- Sure. Employees need to know what gets recognition.
- Significant. This is defined by the receiver.
- Simple. Informal often works best.
- Sincere. Genuine approval for the right reasons.

Are formal incentive programs a good idea?

Some say "yes."

Some say "no."

Most say "be careful."

A 1978 NIOSH study of successful safety programs suggested industry safety leaders did not rely upon them, and thought many programs and contests simply do not work.

4: Hazard Identification & Control

A workplace hazard is an unsafe condition or practice (or combination of the two) that could result in employee injury, illness or death.

Some hazards to think about

- Acceleration
- Vibration/Noise
- Toxics
- Radiation
- Repetitive Stress
- Material Handling
- Pressure
- Mechanical
- Extreme Temperature
- Fire
- Explosion
- Electricity
- Chemical Reaction
- Biological Infection
- Workplace Violence

Hazard Identification Processes

- Walk-around Inspection. A physical survey of workplace conditions
- Observations. Informal and formal (can be included in walk-arounds).
- Job Hazard Analysis. Breaks tasks down to steps to identify needed safety procedures.
- Incident/Accident Analysis. Identify what occurred to control hazards.

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Controlling Hazards -- Hierarchy of Controls

The priorities for selecting controls are:

- Eliminate the hazard
- Reduce the hazard level
- Provide safety devices
- Provide warnings
- Provide safety procedures (and protective equipment).

Roger Brauer, Safety and Health for Engineers, p. 83

Hierarchy of Controls (2)

For the "greatest effectiveness" . . . .

- Top Priority: Design for Minimum Risk…
- 2nd Priority: Incorporate Safety Devices…
- 3rd Priority: Providing Warning Devices…
- 4th Priority: Procedures and Training…

Fred Manuele, On the Practice of Safety, 3rd edition, p. 309-310

Hierarchy of Controls (3)

"Management controls are only as effective as the…system that supports them. It's always better to eliminate the hazard so that you don't have to rely on management controls that tend to work only as long as employees behave….Any system that relies on human behavior is inherently unreliable."

Oregon OSHA Online Course 104, Module 5 (Controlling Hazards)

Hierarchy of Controls (4)

To the extent a control makes errors impossible, it is preferred.

To the extent a control relies less upon the behavior of individual employees, it is preferred.

To the extent a control that relies upon behavior relies upon "natural" rather than "forced" behavior, it is preferred.

Everyday Examples of Hierarchy of Controls

- Fan Covers
- Car Transmissions
- File Drawers
- Antilock Brakes
- Air Bags
- Others?

Workplace Examples Of Hierarchy of Controls (6)

- Roof and Floor Holes in Construction
- Ladders in the Orchard
- Wind Turbine Collapse
- Interlocks on Guards

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5: Incident/Accident Analysis

OAR 437, Div 001, Rule 0760(3)(a) Each employer shall investigate or cause to be investigated every lost time injury that workers suffer in connection with their employment, to determine the means that should be taken to prevent recurrence. . . .

True of false . . . And why?

Investigating all lost-time accidents is sufficient for a good safety and health management system.

True of false . . . And why?

Investigating all documented injuries is enough for a good safety and health management system.

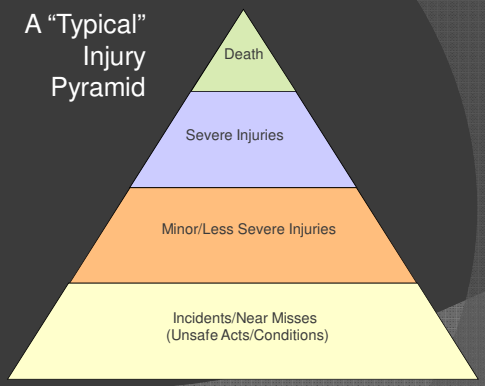
Injury Pyramid

- Review of Pyramid Theory
- Potential Problems with Pyramid Theory
- Review of Washington Fatality Data
- Conclusions . . . and Cautions

Pyramid Theory

- Safety Triangle, Safety Pyramid, Accident Pyramid, Injury Pyramid, etc.
- Originated in 1931 by H.W. Heinrich
- The theory proposes that for every 300 unsafe acts there are 29 minor injuries and one major injury.

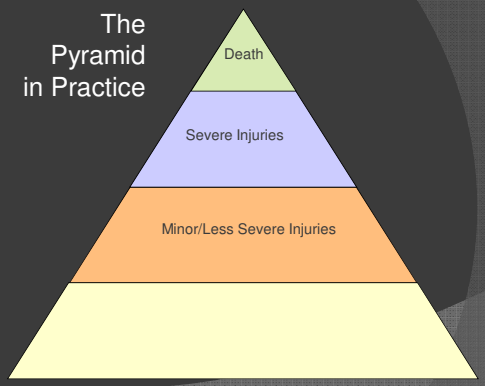
A "Typical" Injury Pyramid



Pyramid Application in Practice

- "Small" events used to focus risk prevention efforts
- "Incidents" difficult to track – minor injuries used to predict greatest risks
- "Near miss" used in some systems, but open to interpretation

The Pyramid in Practice



Potential Pyramid Problems

- It works only as a general construct
- It does not appear to predict hazard types
- Larger accumulations of accident data suggest that the safety culture may focus on one portion of the pyramid to the exclusion of others.

Pryamid Theory Doesn't Fit…

- Lock-out/Tag-out
- Confined Space
- Electrocution
- Workplace Violence
- Motor Vehicle Accidents
- Falls from Height
- Trench Cave-Ins
- Tractor Roll-Overs
- Machine Guarding
- Repetitive Stress
- Objects in Eyes
- Trips & Slips
- Abrasions

Pyramid Theory

A Tool

Not *the* Tool

Purpose of Accident Investigation

The employer should conduct an accident investigation primarily to

…determine what happened.

…evaluate safety management system factors to determine the degree to which they may have contributed

Six-Step Process

1. Secure the scene
2. Collect facts about the event
3. Determine the sequence of events
4. Determine the causes
5. Identify recommended improvements
6. Write the report

6: Training

- Education (tells why)
- Training (shows how)
- Experience & Practice (improves skills)
- Consequences (sustain behavior/reinforce training)

Training Pitfalls

- Use as real or perceived punishment
- No clear sense of objectives
- No evaluation of learning
- No evaluation of use in practice

7: Program Evaluation

- If changes are needed
  Plan (carefully plan the change and *how* it will be evaluated)
  Do (make the change on a small scale)
  Check (see if desired results were achieved)
- Act (adopt the change, abandon the change, or revise the change)

Lessons for Today's Safety Advocate

- Who is a safety advocate?
- How to be a safety leader
- Safety by design
- Connecting with the hierarchy of controls
- Cautions about behavior-based safety
- Tackling the question of "common sense"
- Making your efforts effective
- Staying in the game

Safety Advocacy

- Not limited by position
- Everyone has a role
- What is the most important element in an effective safety program?

Safety Leadership

- It all starts here
- A moment's hypocrisy kills a year's effort
- Don't invent a special "safety" wheel

Safety by Design

- Planning matters
- Paperwork may be a roadmap to reality
- Assess the hazards
- Define the controls
- Planning matters

Behavior-Based Safety

Definition:

"…a proactive approach to injury prevention that either focuses on at-risk behaviors that can lead to an injury, or on safe behaviors that can contribute to injury prevention."

Behavior-Based Safety Benefits

- Recognizes that it is impossible to remove risk
- Understands positive motivational techniques
- Recognizes dangers of injury/illness tracking
- Recognizes importance of worker buy-in

Behavior-Based Safety Pitfalls

- Reinforces belief that problem is employee
- Undermines hierarchy of controls
- Techniques may be at odds with culture
- May not distinguish between severe and minor hazards
- Tends (in practice) to neglect "why?"
- Perpetuates belief that "unsafe act" and "unsafe condition" distinction is valid

Unsafe Acts vs. Conditions

- HW Heinrich: 88:10:12
- Repeated since
- Invalid distinction
- Accidents caused by multiple factors
- Obscures solution (either way, it's the hierarchy)

Common Sense

- Truly not common (shared)
- What tells us the world is flat
- No odor, no danger
- Strong enough to hurt self
- An excuse for inadequate investigation

Barriers to Real Safety Success

- Don't believe there is a problem.
- Don't believe it can be fixed.
- Have bad habits.
- Don't believe it's my job.
- Don't see distant or uncertain results.

Based upon list in Scott Geller's "Safety and Sustainability" article in January 2009 Industrial Safety & Hygiene News

The Optimist and the Pessimist

- What's our "World View"?
- The Pessimist – Always Tells You What Can Go Wrong . . . . And Believes It Will
- The Optimist – Believes That Harm is Not Inevitable . . . . Believes We Can Do Better

Ultimately, it's about focus

- Pessimist says nothing can be done. And is right.
- Optimist says everything will be fine, no matter what we do. And is wrong.
- So what do we do in these uncertain times?