MIOSHA Training Institute

MIOSHA Michigan Occupational Safety and Health Administration

Macomb Community College

Continuous Safety and Health Improvement

Student Materials
Level Two MTI Course
Consultation Education and Training Division
Michigan Occupational Safety and Health Administration
Michigan Department of Labor and Economic Opportunity
www.michigan.gov/miosha
517-284-7720

MICHIGAN DEPARTMENT OF LABOR & ECONOMIC OPPORTUNITY

(Revised 06/23)

MIOSHA Michigan Occupational Safety and Health Administration

CSHI = Continuous Safety and Health Improvement

Presented By:
Consultation Education and Training (CET) Division
Michigan Occupational Safety and Health Administration
Michigan Department of Labor and Economic Opportunity
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MIOSHA
Michigan Occupational Safety and Health Administration

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Seminar Objectives

- Recognize continuous improvement strategies for a SHMS system.
- Identify strategies to increase management commitment using continuous improvement methods.
- Identify strategies to increase employee involvement using continuous improvement methods.

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Why do this?

- Why improve your safety and health management system?
  - It's the right thing to do
  - Legal obligation
  - It pays

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What kind of buyer ?

When selling an idea, product or service, there are three (3) main types of buyers:

1. **Concept Buyer** **1 %**
   Is the concept sound and verifiable?

2. **Feasibility Buyer** **29 %**
   Will it work in the real work world?

3. **Economic Buyer** **70 %**
   What is the return on investment (ROI)?

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Selling It

- Most business owners are Economic Buyers
- Selling a strong SHMS that embraces Continuous Improvement is about ROI

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Accident Costs

Direct Costs - Medical, Indemnity (payments to employee)

Indirect Costs - Plant Down Time, Chilling Effect on workforce, Spoiled/Damaged Product, Damaged Equipment, Cleanup Time, Investigation Time, Training of Replacements

Legal Fees, Increased Insurance Costs, Liability Suits, Unhappy Customers, Damaged Company Image/Public Confidence

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Accident Costs and Impact on Sales

Type of Injury	Avg. Direct $	Avg. Indirect $	Total $	Total Sales Needed 3%	Total Sales Needed 5%
Amputation	$77,995	$85,794	$163,789	$5,459,633	$3,275,780
Burn	$40,188	$44,206	$84,394	$2,813,133	$1,687,880
Carpal Tunnel	$30,509	$33,559	$64,068	$2,135,600	$1,281,360
Foreign Body	$19,886	$21,874	$41,760	$1,392,000	$835,200
Laceration	$19,713	$21,684	$41,397	$1,379,900	$827,940

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Why Continuous Improvement

You have established a SHMS at your facility. Why use continuous improvement to achieve a safe work environment?

To break the Accident Cycle

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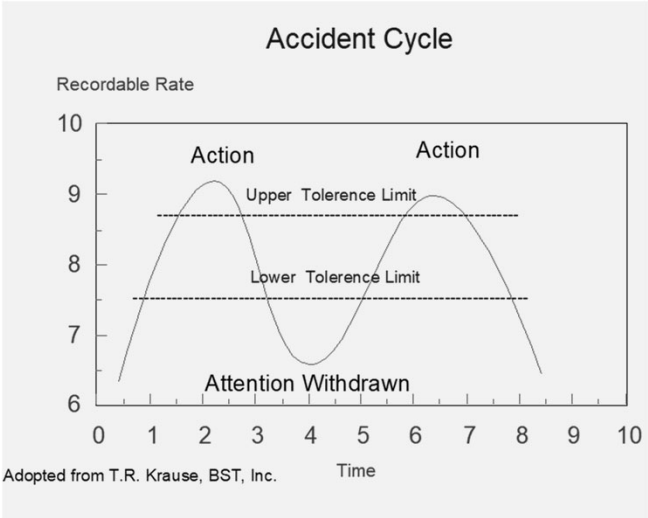
Accident Cycle



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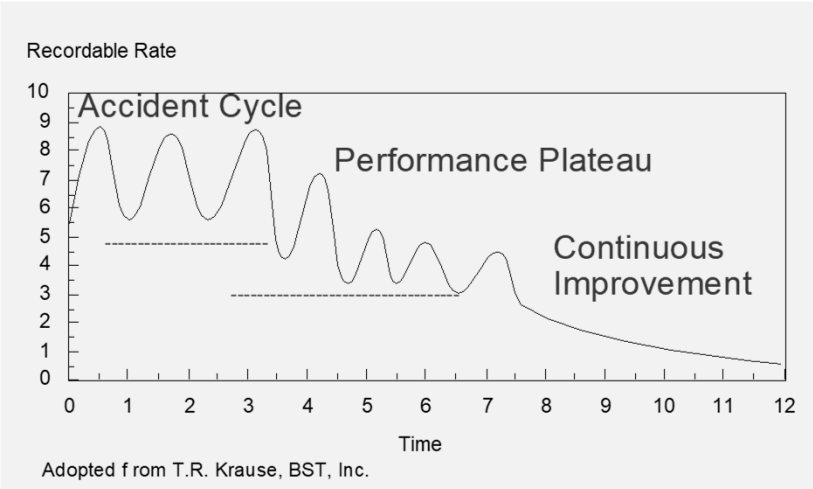
Moving to CSHI



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Moving to CSHI

- Creating a strong safety culture is the key. Management Involvement & Leadership and Employee Participation are the pillars that a strong safety culture is built on.

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Characteristics of a Strong Safety Culture

- **Top Management is Involved with Safety and Provides Appropriate Leadership**
- **Safety Moves from a Priority to a Value**
- **Management Not Only Expects Reporting of Hazards but Values and Rewards the Behavior**
- **Incident Investigations are Based on Fact Finding Not Fault Finding**

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Characteristics of a Strong Safety Culture

- **Everyone Feels Responsible & Pursues Safety on a Continual Basis**
- **Employees go Beyond the Call of Duty in Identifying Hazards and Feel Comfortable Reporting Them**
- **Incentive Programs Foster Safe Behaviors & do not Encourage Non-Reporting. All Levels of the Organization are Held Accountable**
- **Employees Intervene/Coach One Another**

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MIOSHA's Guidelines for Management Commitment

MIOSHA guidelines outline several factors that demonstrate management commitment and employee involvement.

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Check the items you feel your company does well.

- ❑Top management is involved in all aspects of safety and health management.
- ❑Worksite policy provides clear understanding of management's commitment to and expectation of having a safe and healthful work environment.

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Check the items you feel your company does well.

- ❑Worksite policy ensures that managers, supervisors and employees understand the priority of safety and health.
- ❑There are clear safety and health goals and objectives for every manager, supervisor and employee.

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Check the items you feel your company does well.

- ❑Employees give input into decisions that affect their safety and health.
- ❑The organization believes that employees have insight and knowledge regarding how to make their jobs safe.

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Check the items you feel your company does well.

- ❑Managers, supervisors, and employees are all assigned roles and responsibilities for implementing the safety and health system along with the authority to carry out their roles.

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Check the items you feel your company does well.

- ❑Managers, supervisors, and employees are held accountable for carrying out their roles and responsibilities in the safety and health system.

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Check the items you feel your company does well.

- ❑The organization conducts annual reviews to evaluate its progress in implementing the safety and health system, to address areas of concern, and to set new goals and objectives.

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MVPP

- **What is MVPP?**

  The Michigan Voluntary Protection Programs (MVPP) promotes effective worksite-based safety and health. In the MVPP, management, labor, and MIOSHA establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system. Approval into MVPP is MIOSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health.

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MVPP

- **How Does MVPP Work?**

  In practice, MVPP sets performance-based criteria for a managed safety and health system, invites sites to apply, and then assesses applicants against these criteria. MIOSHA's verification includes an application review and a rigorous onsite evaluation by a team of MIOSHA safety and health experts.

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MVPP

MIOSHA approves qualified sites to one of two programs:

- The **Michigan Star** designation is the most rigorous of the MVPP. Its purpose is to recognize "the best of the best" in safety and health.
- The **Rising Star** program provides the "steppingstone" for those establishments that have the desire and the potential to achieve Star Status within three years.

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VPP

- The Federal VPP has a ***40-year history***, and the average VPP worksite has a Days Away Restricted or Transferred (DART) case rate that is 52% below the average for its industry.

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How Has MVPP Improved Worker Safety and Health?

- These sites typically do not start out with such low rates. Reductions in injuries and illnesses begin when the site commits to the MVPP approach to safety and health management and the challenging MVPP application process.

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How Does MVPP Benefit Employers?

- Fewer injuries and illnesses mean greater profits as workers' compensation premiums and other costs plummet. Entire industries benefit as MVPP sites evolve into models of excellence and influence practices industry-wide.

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Sherwin Williams 2001-2006 Journey to MVPP

- 63% improvement in incident rates
- 46% improvement in productivity
- 12% cost reduction
- 37% reduction in hazardous waste
- 68% improvement in cost of poor quality
- Customer service levels over 99%
- Significant reduced absenteeism and turnover at all levels

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Measuring the Impact of Organizational Behaviors on Work Disability Prevention and Management – The Hunt Study

- The Hunt Study was completed in 1991 by researchers Habeck, Leahy, Hunt, the Upjohn Foundation, and MSU. It demonstrated the importance of employer organizational factors in preventing and resolving work disability
- Data from three different studies was included, two studies from Michigan, one from Maine
- The first Michigan Study was designed to find strategies that would reduce the incidence of workplace injuries and lower worker's compensation costs

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The Hunt Study

- Worker's Compensation claims records were analyzed and revealed 10-fold difference in claims rate between the best performing and the worst performing companies in each of 29 industries examined
- Four industries (Food Production, Fabricated Metals, Transportation equipment, and health care services) were selected to further analyze and investigate why
- A self-administered mailed questionnaire was sent out that asked about organizational characteristics, disability management and corporate climate

The Hunt Study

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Hunt Study continued

- The results of the studies supported the hypothesis that organizational policies and practices correlate with workplace disability incidence
- Example data from the study:
  - 10% better self-rating on *Safety Diligence* translates into 17% fewer lost workdays
  - *Safety Diligence* - companies that act on their stated safety goals and put their safety measures into practice.
  - *Safety Diligence is evident when Management Commitment and Employee Involvement rate high.*

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Striking Similarities of Low-Claims Firms Mirror *MOSHA's Safety and Health Management System (SHMS)* Model

- Management Commitment and Leadership
- Employee Participation
- Hazard Identification and Assessment
- Hazard Prevention and Control
- Education and Training
- Program Evaluation and Improvement
- Communication and Coordination for Host Employers, Contractors, And Staffing Agencies

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The Hunt Study

- The intent of the study was to find ways for companies to reduces the financial costs of worker disability claims
- We consider this study to demonstrate that the results of the study - focus on management commitment, employee involvement & training and worksite hazard analysis, prevention and control mirror the MIOSHA model for an effective Safety and Health Management System
- MIOSHA's SHMS focus is <u>not</u> on Disability Management

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Great Ideas

- As we progress through the course, use the HO-1 Great Ideas: CSHI worksheet to write down notes on ideas you learn from the course and best practices of your classmates.
- Write the best practice in the left column and a corresponding action plan in the right column on how you could implement in your facility.

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Module 1
Creating Accountability
Objectives:

- Define “accountability.”
- Discuss factors that motivate and sustain behavior in the workplace.

This clip designates a group activity

This clip designates an individual activity

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Creating Accountability

- What gets measured and rewarded gets done!

"The Buck Stops Here!"
Harry Truman

- Accountability measures performance

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Defining Accountability

- Accountability = performance evaluated in relation to standards or goals that result in certain positive or negative consequences

Accountability=Responsibility + Evaluation → Consequences

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Defining Performance

- Effective performance occurs when:
  - Tasks are clearly defined
  - People know how to do the tasks
  - Valid measures are used
  - People are rewarded for achievements

Why do we do what we do in the workplace?

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Warehouse Rodeo

An injury occurred while two forklift drivers were engaging in horseplay. It was routine for employees to play "warehouse rodeo" during lunch.

When confronted, the warehouse supervisor complained that he had tried to stop it, but the plant superintendent told him to lay off and let them have a little fun.

The supervisor had safety rules regarding the use of forklifts but could not identify any rules about consequences for breaking safety rules or that they were ever enforced.

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Five Components of an Effective Accountability System

1. Establish formal standards
   - Communicate performance expectations
   - Programs, policies, plans, processes, procedures, practices, etc.
   - Formal, in writing
2. Provide adequate resources
   - Physical – tools, equipment, materials, workstations, facilities
   - Psychosocial – workload, schedules, training, relationships, leadership

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Effective Accountability System

3. Evaluate employee performance
   - Behaviors observed and quantified
   - Informal and formal observation
4. Apply effective consequences
   - Goal is to increase frequency of desired actions
   - Applied only if management has met its obligations
   - Consistent throughout the organization
   - Appropriate to severity of incident and impact on organization
5. Include evaluation of the accountability system
   - Continuous improvement

The Five R's

"If you **R**egularly **R**ecognize and **R**eward, you'll **R**arely have to **R**eprimand!"

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Creating Accountability
Management Commitment

Performance Measurement Framework

Three Levels of Objectives:

1. Mission and Vision
   - Upper Management Actions
2. Proactive Performance Measures of Activity
   - Everyone else
3. Reactive Safety and Health Measures of Activity
   - Everyone

   (Historically number 2 and 3 are reversed)

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Management Commitment:
Mission and Vision

Mission and Vision

Common Characteristics:

- Broad Statements
  - Safety and Health, Environmental, Customer Service…
  - Mission statements, vision statements, slogans
- Inspirational and motivational
- Easy to remember – catchy words/phrases
- Describe organizational commitment
- Establishes what the organization expects
- Sets priorities and direction

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Management Commitment: Mission and Vision

Activity:

- Share your organization's slogan, mission, or vision statement
- What makes Mission and Vision statements effective (or not)?

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Best Practice in Construction

CHRISTMAN
SINCE 1894

The Christman Way

Our Purpose: (Mission)
To unite great people in great achievement

Our Values:
Honor all commitments with integrity
Build lasting relationships
Have passion for your work and a competitive spirit
Be a great place to work

Our People:
Experts. Leaders. Partners.

Our Goal: (Vision)
To be the most sought after in the markets we serve.

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Best Practice in Construction

CHRISTMAN
SINCE 1894

"***Safety: It's How We Live"***

- Corporate wide contest
- Employees voted to select winner
- Site Signs
- Orientation Materials
- Sticker to all trades

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Management Commitment:
Proactive Performance Measures

- "Leading" Indicators
- A measurable factor that changes before a pattern or trend can be established
- Used to predict changes that are in the process of taking place
- Leading indicators include trending (increases, decreases)
- A sign of what is to come

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Management Commitment:
Proactive Performance Measures

Examples of a Measureable Factor:

- Number of hazards identified during monthly walk arounds
- Number of employees participating in safety training this quarter
- Number of toolbox safety meetings held at the beginning of every shift
- Action taken on near miss reports

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Management Commitment:
Proactive Performance Measures

- Communicate and monitor
- Measure activities needed to reach the mission and values
- Reflect specific safety/health activity
- Proactive activities designed to improve the system

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Management Commitment:
Proactive Performance Measures

- Measure activities to improve the system:
  - Increase safety and health communication
  - Expand opportunity for employee input and involvement
  - Survey employees for input before policies and rules are implemented
  - Pilot new strategies before full implementation
- Create accountability for all

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Management Commitment:
Proactive Performance Measures

- How to select?
  - Directly relate to opportunities to improve
  - Look at the gap between where you are versus where you want to be
  - Prioritized by how serious and/or how common a hazard is
  - Review analysis tools: near miss reports, hazard surveys, suggestions, quality reports, customer feedback

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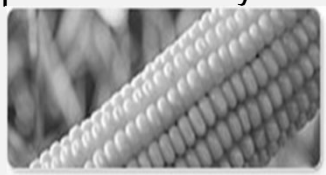
Best Practice: Monsanto

- Constantine, Michigan.
  - Process/deliver 1.5 million bags of seed corn annually
  - 54 permanent and about 300 seasonal employees
- MVPP Star
- Every employee must participate in a safety activity each year



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Create Accountability:
Proactive Performance Measures

- Communicate – to all employees
- Establish Standards – for every level
- Provide Resources- budget, resources
- Create a Measurement System – build it in
- Establish Consequences (positive/negative)
- Apply to all Levels of the Organization

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Creating Effective Performance Measures

SMART

- **S** - specific
- **M** - measurable
- **A** - achievable
- **R** - realistic
- **T** - time-based

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SMART Measures

- **Specific**
  - Well defined
  - Clear to anyone that has a basic knowledge of the issue
- **Measurable**
  - Know if the goal is obtainable and how far away completion is
  - Know when it has been achieved
- **Achievable**
  - Agreement with all the stakeholders what the goals should be
- **Realistic**
  - Within the availability of resources, knowledge and time
- **Time Based**
  - Enough time to achieve the goal
  - Not too much time, which can affect project performance

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Activity

ABC company wants to increase employee involvement in the safety and health system. Develop one SMART proactive performance measure for:

- SH Manager
- Production Supervisor
- Purchasing Agent
- Employee

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Management Commitment:
Reactive Safety and Health Measures

- Lagging/Trailing indicators
- Measure final results of the safety system
- Traditional measures such as those quoted in benchmark studies
  - Lost workday case rate
  - TCIR
  - Miles driven w/o accident

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Management Commitment:
Reactive Safety and Health Measures

Class Discussion

- What are benefits/limitations of reactive safety and health objectives?
  - How can reactive safety and health objectives be useful (benefits)?
  - What are they lacking (limitations)?

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"Great Ideas" Update

Take a few minutes to update your "great ideas" sheet.

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Module 2
Management Commitment
Objectives:

- Recognize the role of management commitment in creating accountability
- List common strategies to demonstrate management commitment

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Management Commitment: Critical to Success

Management commitment creates impressive results:

- On average, rates for site-based non-construction VPP participants are **55 percent below the Bureau of Labor and Statistics (BLS) Total Case Incident Rate (TCIR)** and 53 percent below the BLS Days Away from Work, Restricted Work Activity, or Job Transfer (DART) rate for their respective industries.

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Management Commitment = Results

Examples:

- A 1,000-employee chemical company kept lost-workday injury rates 93% below the average for its industry for 15 years.
  - 400 injuries prevented, $10 million estimated savings.
- A 600-employee manufacturer with lost-workday case rates 73% below average for 15 years.
  - 600 injuries prevented and annual savings of more than $1 million per year in direct and indirect costs.
- A 74-employee manufacturer Michigan Challenge Program participant:
  2006 – IR - 43.5, Est. Cost of Injuries - $177,747
  2008 – IR – 21.6, Est. Cost of Injuries - $107,237

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Management Commitment: Common Strategies

Class Discussion:

What are some common ways that you see management commitment demonstrated?

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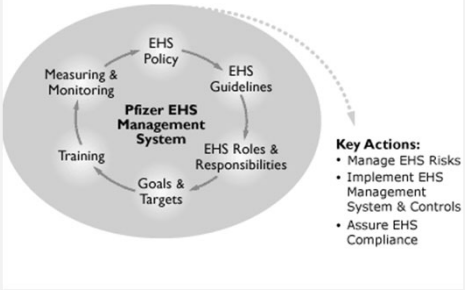
Management Commitment: Critical to Success

- Pfizer Corporation - SHMS Model
- MVPP Star Award, May 2008



Listen for Nat Ricciardi's comments about:

•Management's commitment
•How employees are involved
•Examples of accountability
•How information is communicated.

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Pfizer Corporation MVPP Star Award Ceremony, May 2008

Pfizer MICHIGAN STAR WORKSITE MVPP Partnering with MIOSHA

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Management Commitment: Key Components

- Budget
- Resources
- Personnel
- Communication

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Budget

- **Good**
  - Expenditures reviewed and supported on case-by-case basis
  - SH Director has authority to approve
- **Better**
  - Annual SH budget established with input from employees and committees
- **Best**
  - Budget established and authority delegated to SH committee to develop activities/spending plan
  - SH committee and SH Director make joint decisions

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Resources (Time, Money, Personnel)

- **Good**
  - Safety committee makes recommendations to management
  - Management must review and respond
- **Better**
  - Joint labor-management work in cooperation, but still need approval when making decisions and authority to act
- **Best**
  - Self-directed employee group makes decisions and has authority to act
  - Associates work independently to solve problems and share solutions willingly

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Personnel

- **Good**
  - Person designated with Safety & Health (SH) Responsibilities
- **Better**
  - Person designated to oversee SH; and
  - Accountability extended to supervision and management
- **Best**
  - Person designated to oversee SH; and
  - Accountability extended to every person (management, supervisors, and employees)
  - Employees feel comfortable sharing concerns with upper management

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Communication

- **Good**
  - Post Safety and Health policy in prominent location
  - Provide written safety information/bulletins
- **Better**
  - Supervisors announce new Safety and Health policy
  - Periodic meetings to share Safety and Health information
- **Best**
  - Organization wide involvement in developing Safety and Health policy
  - Regular scheduled SH meetings (start of each shift have meeting to include safety and health, quality, and production numbers
  - Variety of methods to share/distribute information (posters, newsletter, special flyers)
  - CEO has face-to-face kick off of new Safety and Health policy with questions encouraged

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Management Commitment: Update "Great Ideas"

- Identify strategies for your workplace
- Record your ideas

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Dan Peterson Video

- He is arguably the best-known safety professional in the U.S. He has written 17 books and appeared in ten videotapes on a variety of safety-related topics.
- He is a past president of the National Safety Management Society and a former vice president of the American Society of Safety Engineers.

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Module 3
Continuous Improvement for Employee Involvement
Objectives:

1. Recognize the role of employee involvement in a successful workplace safety and health management system.
2. List common strategies to cultivate employee involvement, empowerment, and accountability for continuous improvement of a safety and health workplace system.

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Chinese Proverb

Tell me and I will forget
Show me and I will remember
Involve me and I will understand

Are employees involved in Safety at your workplace? In what ways?

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Benefits of Employee Involvement

- More knowledgeable about Safety and Health Management System
- Closest to the work and have valuable information to contribute
- More likely to buy-in and become involved

What other benefits are possible?

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Employee Involvement
Key Components

1. Communication
2. Committee
3. Problem Solving
4. Team

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1. Communication

- **Good**
  - Post information for employees to read
  - Watch DVDs
- **Better**
  - Announce to employees that new information is posted
  - Interactive videos that test knowledge
- **Best**
  - Train employees on job-specific hazards and safeguards
  - Use employees to develop and conduct training/presentations for new and current employees

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2. Committee

- **Good**
  - Assign committee members
  - Meets infrequently and makes recommendations
- **Better**
  - Volunteer
  - Regular meetings
- **Best**
  - Cross-section of volunteers and top management presence
  - Regular meetings with agenda, facilitator, minutes
  - Authority to implement pilot programs and make decisions

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3. Problem Solving

- **Good**
  - Suggestion box/hazard reporting
  - Tell your supervisor
- **Better**
  - Suggestion box/hazard reporting with accountability for timely response
  - Fill out form and give to your supervisor
- **Best**
  - Employee involvement in the problem-solving process
  - Conducting self inspections
  - Conduct accident/incident investigations
  - Fixing hazard within your control
  - Participate in a pre-use or change analysis

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4. Team

- **Good**
  - Do what they are told
  - Get along
- **Better**
  - Make suggestions for improvement
  - Create their own ground rules
- **Best**
  - Self-directed work group with authority to take action
  - Mutually respectful and supportive

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A Word About Incentives

- Government Accountability Office (GAO) report recently cautioned employers about incentive programs based on reporting injury, illnesses, and near misses.
- More than three-quarters of health practitioners said they believed workers sometimes avoid reporting work-related injuries and illnesses as a result of incentive programs.

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US Gypsum
Platinum Award

- Involved all 80 employees and went 8 years without a lost time injury
- Gave decision authority to safety committee
- Gave work time to participate in contest
- Incentives were not based on accidents or incidents; instead it was based on creativity and participation
- Created safety Olympics

U.S. Gypsum Company's River Rouge Plant Receives State Award for Outstanding Safety and Health Record

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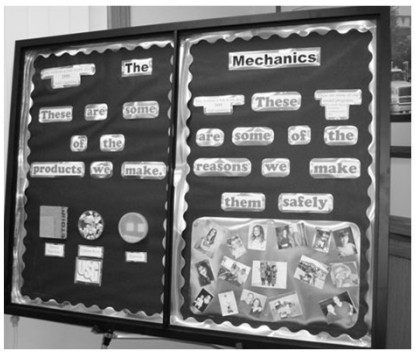
US Gypsum



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Tools to Evaluate Your Safety and Health System

- Audits
- Perception Surveys
- Interviews with Employees
- Focus groups
- Observation

What tools have you used to evaluate your safety and health system?

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Module 4
Root Cause Analysis
Objectives:

- Review root cause analysis tools.
- Apply a root cause analysis tool to the “safety glasses problem” that is coming up soon.

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When to use Root Cause Analysis?

- Root Cause Analysis is used to determine the underlying reason that an incident is allowed to happen. Use the information to make system improvements to assure another incident will not occur in the future.
- There are several tools to help identify the root cause.

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"Employee Should Have Been More Careful"

Does this solution improve the system?

To reduce variation, find the root-cause

- Five Whys
- Fishbone Diagram
- Nominal Group Technique

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Continuous Improvement Tool: 5 Whys

The Problem and Levels of Cause	Corresponding Countermeasure
Employee tripped on debris	
1st Why - Debris on floor	Sweep floor
2nd Why? - Scrap accumulates next to machine	Put scrap container next to machine
3rd Why? - Someone took the scrap container to dump waste	Obtain extra containers
4th Why? - Because the dumpster is on other end of shop	Add second dumpster closer to production area
5th Why? - Was trying to save cost on waste removal	Evaluate options for two smaller ones for the same price may have to switch vendors, secondary containers throughout the plant

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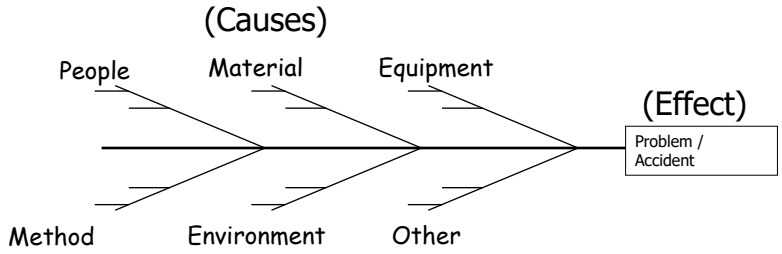
Continuous Improvement Tool: The Fishbone (Cause and Effect) Diagram



- The Cause and Effect, or Fishbone Diagram, was first used in 1943. This diagram is used to identify all of the contributing root causes likely to be causing a problem. This methodology can be used on any type of problem and can be tailored by the use to fit the circumstances. Use of this tool has several benefits to process improvement teams.
- Straightforward and easy to learn visual tool
- Involves the workforce in problem resolution-preparation of the fishbone diagram provides an education to the whole team
- Organizes discussion to stay focused on the current issues
- Promotes "System Thinking" through visual linkages
- Prioritizes further analysis and corrective actions

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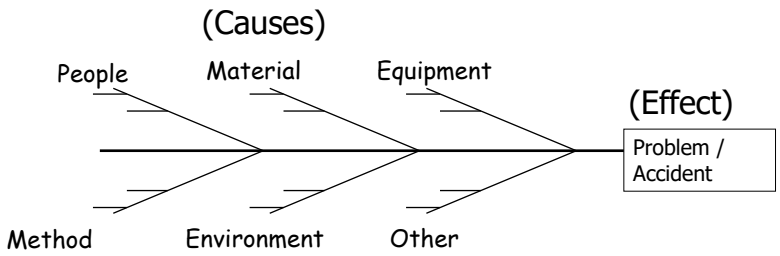
The Fishbone Diagram-Class Activity

is used to problem solve the root causes.

John Adams was instructed by his supervisor to retrieve a box from Aisle K, Bin 200 in the general warehouse. At that time, John reported that he was having trouble operating the mast on his fork truck. His supervisor told him to, "worry about that later" since they were short of production supplies. John, consequently, drove his truck to Aisle K, which was dark due to several burned-out lights. When attempting to pick up the box in Bin 200, John speared it with the fork from his truck. He noticed an odd smell, dismounted his truck, and examined the box for damage. The box was leaking liquid, he fell to the floor unconscious. It turned out the box contained diethyl ether, which is not only toxic but highly flammable. No MSDS was on file.



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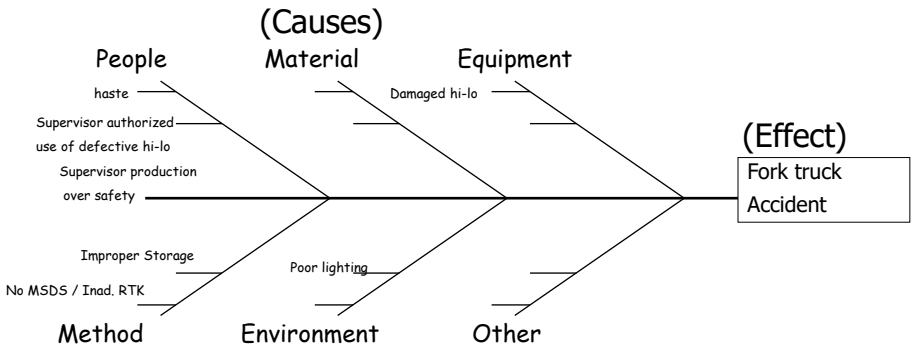
Sample completed Fishbone Diagram from previous slide:



Root Causes	Solutions
1.Spvsr – use defective hi-lo	1.Spvsr. Training and/or accountability
2.Haste	2.Safety as priority
3.Damaged hi-lo	3.Regular PM
4.Poor lighting	4.Inadequate maintenance
5.Production over safety	5.Safety not priority

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Continuous Improvement Tool: Nominal Group Technique (NGT)

Nominal Group Technique is an effective technique to solve problems that come up. It's a systematic approach that promotes creativity and objectivity

BENEFITS:

- Balances participation across members
- Balances influence of individuals
- Produces more *creative ideas* and *greater number of ideas* than interacting groups
- Results in greater satisfaction of participants
- Reduces conforming
- Confront issues rather than persons
- Greater sense of closure and accomplishment

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Nominal Group Technique Review

1. Define the Issue (1 minute)
   Why are employees not wearing their safety glasses
2. Brainstorm Ideas– silently (3 min.)
3. Record the Ideas (a. b. c. not 1. 2. 3.) (10 min.)
4. Refine the List – Clarify and Combine (3 min.)
5. Determine the Importance (NGT scorecard) (3 min.)
6. Record the Ratings (3 min.)
7. Total the Points (3 min.)
8. Assign a Priority Number (1. 2. 3.) (3 min.)

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Nominal Group Technique Example

What are the problems that cause unsuccessful safety committee meetings?

a. no goals/objectives 3, 2 = 5
b. lack of management support 4, 5, 4, 2, 1 = 16 #1
c. no buy in
d. no communication between members and employees
e. no management representation 5, 4, 3, 1 = 13 #2
f. all talk, no walk
g. not enough time 2, 1 = 3
h. attitude of employees
i. poor facilitation
j. meetings get cancelled
k. no follow through 3, 5, 3 = 11 #3

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Group Activity!

Case Study – DLM Industries-Safety Glass Problem

- Use any root cause analysis tool – Fishbone, NGT, Five Whys to analyze a problem, reveal the root causes, and identify solutions
- Use flip charts
- Report out to class

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Great Ideas

- Record best practices and any plans for action on the “Great Ideas” sheet.

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Module 5
Plan-Do-Study-Act
Objectives:

- Recognize the steps in the plan-do-study act change model
- Apply the plan-do-study-act change model to implement solutions for the “safety glasses problem”

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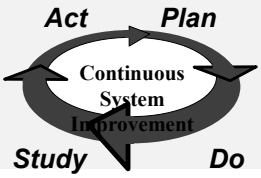
Continuous Improvement Using PDSA

- One change model that we will be using today is the Plan-Do-Study-Act change model



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Continuous Improvement

A set of activities designed to bring gradual, but continual improvement to a process through constant review.

- Root-cause analysis tool
  - 5 Whys
  - Fishbone Diagram (Cause and Effect Diagram)
  - Nominal Group Technique
- Plan/Do/Study/Act – PDSA change model

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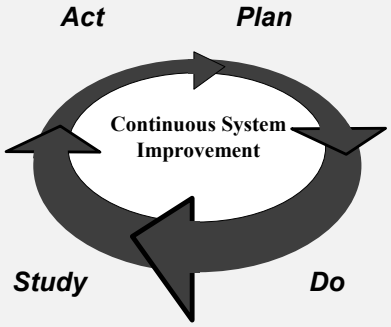
Plan–Do–Study–Act (PDSA) cycle

- We **PLAN** what we want to accomplish over a period of time and what we will do to get there.
- We **DO** something that furthers the strategies and goals developed in our plan.
- We **STUDY** (check) the results of our actions to make sure we achieve what we plan.
- We **ACT** by developing procedures to ensure our plans continue to be successful and by changing what is needed to achieve the initial goals.



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PDSA Change Model

- **Plan**. Recognize an opportunity and plan a change or select the problem to be addressed

  Purpose: Take time to thoroughly plan the proposed change before it's implemented

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PDSA Change Model

- **Do**. Test the change

  Purpose: Implement the change or test it on a small scale (pilot the change)

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PDSA Change Model

- **Study**. Review the test, analyze the results and identify what you've learned

  Purpose: To determine what was learned; what went right or wrong

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PDSA Change Model

- **Act**. Adopt, abandon, or repeat the cycle. Use what you learned to plan new improvements, beginning the cycle again

  Purpose: Incorporate what works into the system

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When to Use PDSA

- To address a problem
- For continuous improvement
- Developing a new or improved design of a process, product or service
- To implement a significant change

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Workplace Systems

- When you do your plan-do-study-act it is important to remember that everything is inter-related and affects each other
- A system is an established arrangement of components that work together to attain a certain objective, such as:
  - Eliminate waste
  - Satisfied customers
  - Prevent injuries and illnesses in the workplace
- Remember! **Every system is designed perfectly to produce what it's producing**

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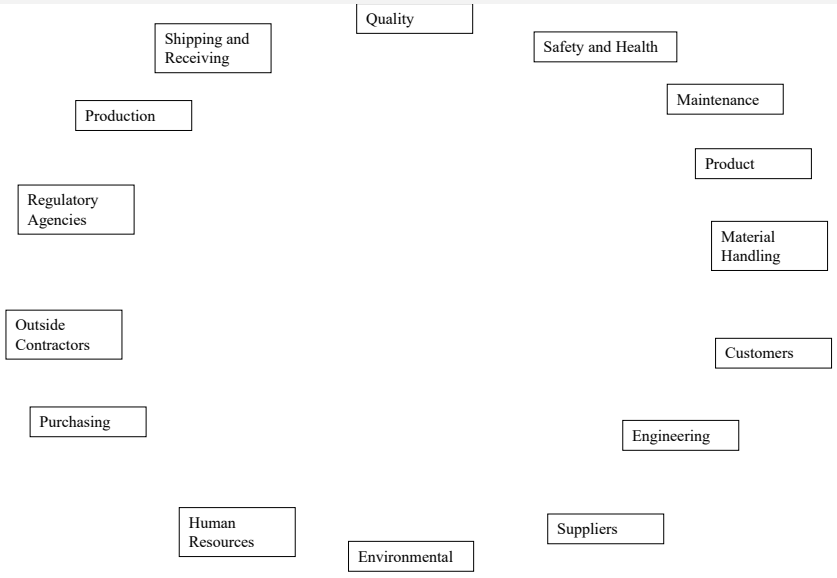
No System is an Island



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When Systems are not in Alignment Variations Occur

- If all systems are functioning optimally, variations (poor quality, waste, accidents) will not occur. According to Dr. E. Deming:
  - Common Cause variation - 95%
    Fix the system
  - Special Cause variation – 5%
    Fix the person

If a variation does occur, it is because of imperfect, lacking, or conflicting systems – fix the system.

If systems conflict, the effectiveness of all impacted systems will be compromised – fix the system.

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Hierarchy of Controls

1. Engineering controls –
   reduce or remove the hazard
2. Administrative Controls -
   remove or reduce the exposure
3. PPE -
   equipment for personal use that presents a barrier between worker and hazard(s)

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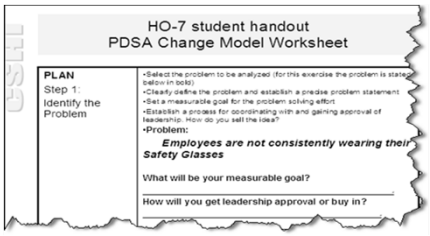
PDSA Problem Solving Worksheet
Step 1 - Plan

Step 1 – Based on the Safety Glasses 'Problem' come up with some *Measurable Goals* and methods for *Leadership Approval/ Buy-in.*


HO-7 student handout
PDSA Change Model Worksheet

PLAN
Step 1:
Identify the Problem

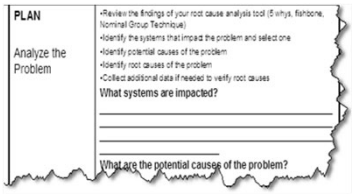
- Select the problem to be analyzed (for this exercise the problem is stated below in bold)
- Clearly define the problem and establish a precise problem statement
- Set a measurable goal for the problem solving effort
- Establish a process for coordinating with and gaining approval of leadership. How do you sell the idea?
- **Problem:**

Employees are not consistently wearing their Safety Glasses

What will be your measurable goal?

How will you get leadership approval or buy in?

Analyze the problem using the information from your root cause analysis tool.


PLAN

Analyze the Problem

- Review the findings of your root cause analysis tool (5 whys, fishbone, Nominal Group Technique)
- Identify the systems that impact the problem and select one
- Identify potential causes of the problem
- Identify root causes of the problem
- Collect additional data if needed to verify root causes

What systems are impacted?

What are the potential causes of the problem?

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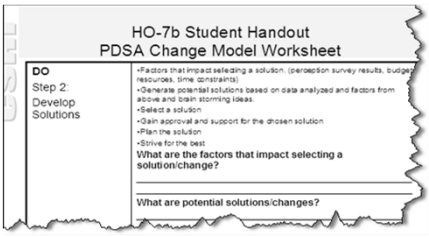
PDSA Problem Solving Worksheet
Step 2 - Do

Step 2 – Develop Solutions and Implement a Solution/Change.


HO-7b Student Handout
PDSA Change Model Worksheet

DO
Step 2:
Develop Solutions

- Factors that impact selecting a solution. (perception survey results, budget, resources, time constraints)
- Generate potential solutions based on data analyzed and factors from above and brain storming ideas.
- Select a solution
- Gain approval and support for the chosen solution
- Plan the solution
- Strive for the best

What are the factors that impact selecting a solution/change?

What are potential solutions/changes?

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Class discussion

- Each group share one to two answers from steps 1 and 2 of your PDSA Change Model worksheet.

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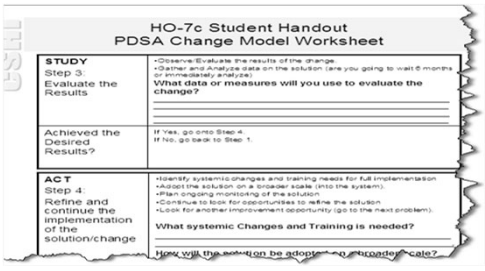
PDSA Problem Solving Worksheet Step 3 –Study and Step 4 - Act

Step 3 – Evaluate the results.

Decide if you've achieved the desired results. If yes, fully implement - Step 4. If no, go back to Step 1.



HO-7c Student Handout
PDSA Change Model Worksheet

STUDY Step 3: Evaluate the Results	•Observe/Evaluate the results of the change. •Gather and Analyze data on the solution (are you going to wait 6 months or immediately analyze). **What data or measures will you use to evaluate the change?**
Achieved the Desired Results?	If Yes, go onto Step 4. If No, go back to Step 1.
ACT Step 4: Refine and continue the implementation of the solution/change	•Identify systemic changes and training needs for full implementation •Adopt the solution on a broader scale (into the system). •Plan ongoing monitoring of the solution •Continue to look for opportunities to refine the solution •Look for another improvement opportunity (go to the next problem). **What systemic Changes and Training is needed?** How will the solution be adopted on a broader scale?

Step 4 – Refine and continue to implement the solution/change.

HO-7 Instructor Version

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Class discussion

- Share plans to evaluate the change and plans to adopt on a broader scale.

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Individual Activity

- Individually brainstorm ideas on how to use the root cause analysis tools and the PDSA change model in your organization.

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Final ~ “Great Ideas” Update

Take a few minutes to update your “great ideas” sheet and come up with a game plan to fit your organization.

Share one example with your table.

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Assessment

- The purpose of this assessment is to validate the knowledge learned in class.
- Passing score of 70% correct is required.
- Class reference materials/books are not allowed to be used during the test.
- Collaboration/discussion with others is not allowed during the test.
- Answers will be reviewed after everyone completes and submits their test.

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Thank You For Attending This Presentation

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