



National Conference on Weights and Measures  
"That Equity May Prevail"

# 2016 NCWM Safety Survey

Professional Development Committee Report  
Item 420-1 Safety Awareness



# Goals of this Presentation

By the end of this slide you should know:

- What the NCWM Safety Survey is and how your organization can participate in it
- How to calculate different types of incident rates for your organization and why these numbers are important
- What the results of the 2016 NCWM survey were so that you can compare your program to regional and national results
- How to assess, prioritize and mitigate safety hazards using this information



# 2016 NCWM Safety Survey

## Purpose of Survey:

- Help Weights & Measures programs assess risks in the work place

## Goals from data collected:

- Set safety priorities
- Set benchmarks to measure improvement

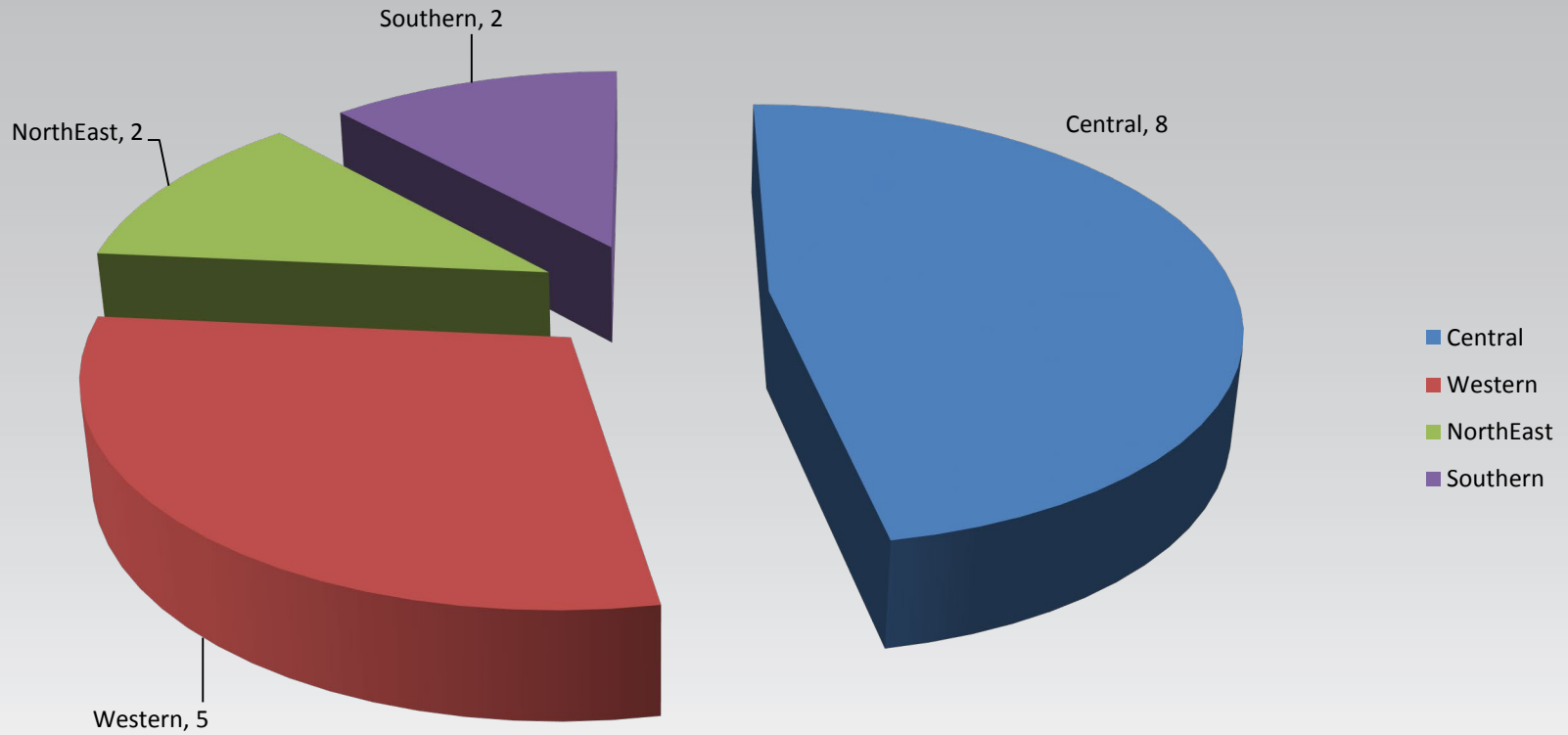
## Participation:

- 22 states responded
- 17 completed injury information



# Completed Surveys by Region

## Complete





# Info Needed for Survey

## How many FT employees in last calendar year

- Count FT and PT employees but calculate PTE to FTE

## How many hours employees actually worked

- Request this information from HR
- Do not include vacation/sick/holiday
- Approximate (Employees x 40 hours/week x 50 weeks) assuming 2 weeks off for each employee

## How many incidents that cost money, had Days Away, Restricted Time (DART)

- The Activities that led to DART injuries
- The Types of DART injuries



# Barrier to Completion

OSHA Forms 300 and 300A may combine with other agencies - making it difficult to parse out specific agency's data

## Possible solutions:

- Ask HR to provide data on specific agency
- Review OSHA form 300 and pick out incidents related to specific agency
- Keep own records, which allows the additional capture of non-reportable incidents



# Reportable vs Recordable

## Non-recordable incident: (nearmiss = still reportable)

- No cost in dollars on or after day of incident
- No cost in time after day of incident
- Example: employee falls; no injury; stays at work or goes home

## Recordable incident:

- Some cost in dollars or lost time
- Example: employee falls; hits head; sees a doctor on day of injury; returns to work next day

## Days Away/Restricted Time (DART) Incident:

- Injury or illness results in full day(s) away or work restrictions
- Example: employee falls, hits head, stays at work, sees doctor a week later for dizzy spells, misses 3 days and has a week when prohibited from driving.



# Calculating Injury Rates

**Allows organizations in the same field to compare safety - regardless of size**

OSHA formula equates to company with 100 people working 40 hours/week for 50 weeks/year

$$\text{IR} = \frac{\text{Number of OSHA Recordable Cases X 200,000}}{\text{Number of Employee labor hours worked}}$$





# Calculating Injury Rates

## Rate Calculation Example:

A company has 17 full-time employees and 3 part-time employees that each work 20 hours per week. This equates to 28,400 labor hours each year. If the company experienced 2 recordable injuries, then the formula works like this

$$\text{IR} = \frac{2 \times 200,000}{28,400}$$

$$\text{IR} = \frac{400,000}{28,400}$$

$$\text{IR} = 14.08$$



# Statistic

1 out of 10,000 unsafe actions results in hospitalization or death

- Will the hospitalization or death be the 10,000 time someone encounters a hazard or the first time?
- Every incident without an injury is an opportunity to address the hazard and prevent a future injury
- Must know about the incident in order to respond to the hazard



# Best Program Practices

- Reward employees for reporting near misses and unsafe conditions
- Don't encourage "sucking it up"
- Calculate injury rates to find out if the programs are managing incidents properly or just lucky no one as been hurt



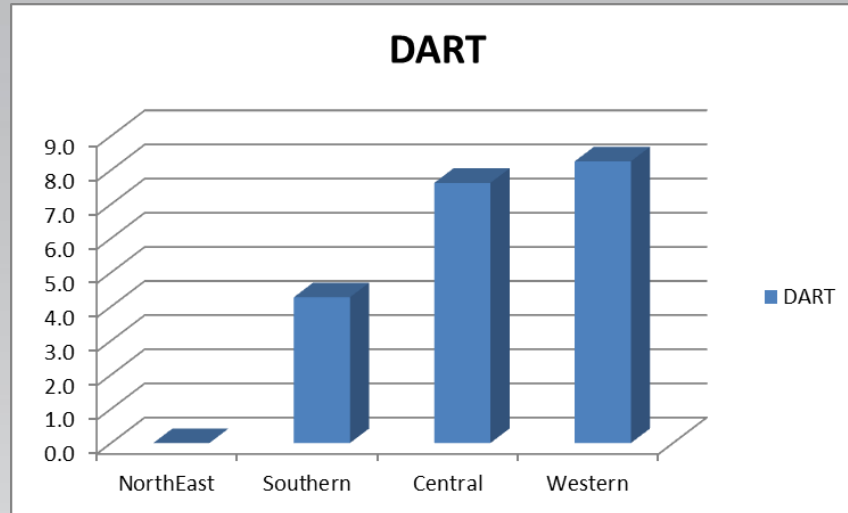
# Are You Good or Are You Lucky?



- Low non-recordables + Low recordables + High (or Low) DART = Poor safety culture relying on luck
- Low non-recordables + High recordables + Low DART = Lucky that nothing REALLY bad happened
- High non-recordables + Low recordables + Low DART = Good safety culture



# DART Results by Region



No.	Region	Employees	Hours	Lost	Restricted	LRT	Total	DART
2	NorthEast	222	155000.0	0	0	0	0	0.0
2	Southern	140	281020.0	5	0	1	6	4.3
8	Central	185	341089.1	7	1	5	13	7.6
5	Western	114	193822.5	3	2	3	8	8.3
17	Total	661	970931.6	15	3	9	27	5.6



# What Should Incident Rate Be?

- Minnesota Governor's Safety Award Criteria for Law Enforcement Agencies
  - TRC = Total Recordable Cases  $\leq 6.1$  for three consecutive years
  - DART = Days Away/Restricted Time  $\leq 3.3$  for three consecutive years
- For MN W&M (30 FTE) means one or fewer recordables and zero DART injuries per year
- NCWM can set own criteria once enough data collected



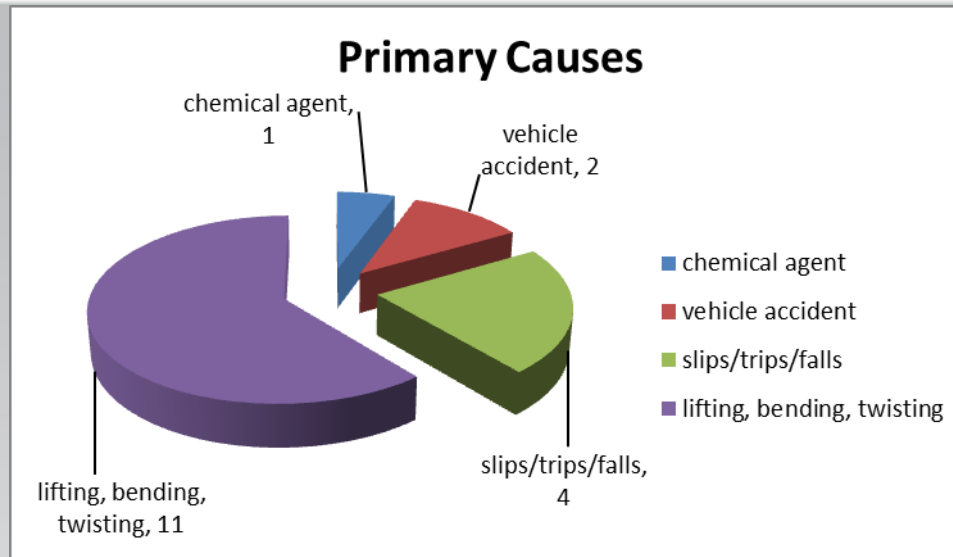
# Focus on the Causes

- Survey data proves even the smallest types of accidents can cause severe injuries
- Easier to prevent accidents than to control degree of injury once an accident happens





# Primary Causes of DART Injuries



Cause	Central	Southern	Western	Total
chemical agent	0	1	0	1
vehicle accident	2	0	0	2
slips/trips/falls	1	1	2	4
lifting, bending, twisting	5	3	3	11
Total	8	5	5	18

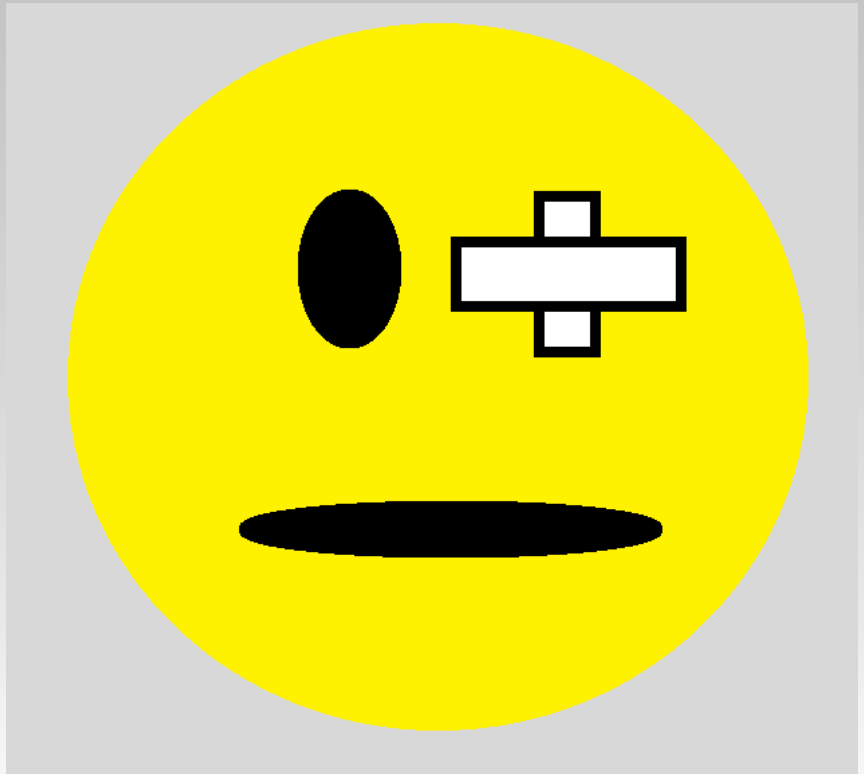




# Impact – Chemical Agents

1 reported DART injury to an eye

- Less than one day lost
- No Restrictions

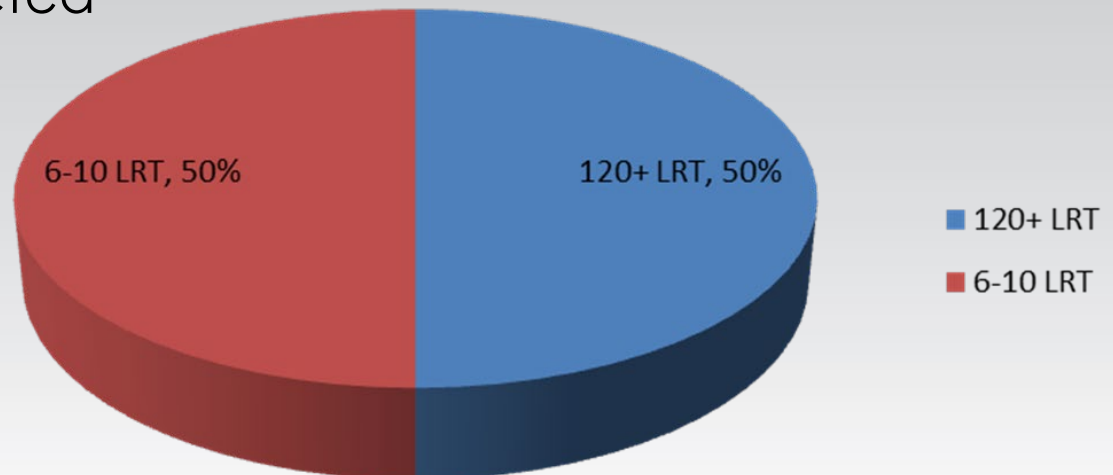




# Impact – Vehicle Accidents

## 2 reported DART vehicle accidents

- Rolled a 1 ton truck resulting in soft tissue injury
  - 6-10 days lost time
- No event description but resulted in back/neck injury
  - 60+ days lost
  - 60+ days restricted

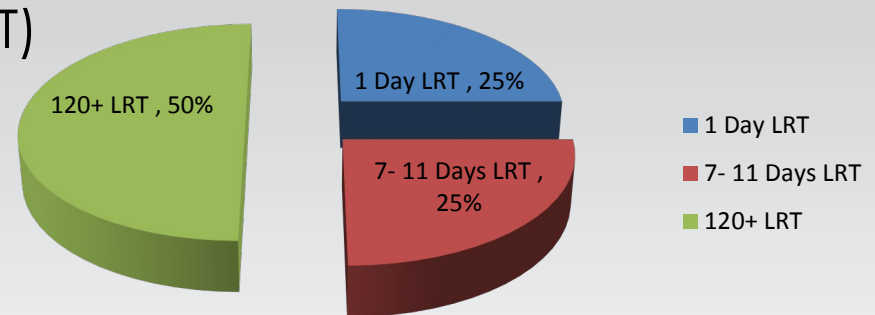




# Impact – Slips/Trips/Falls

## 4 reported DART slip/trip/fall accidents

- 1 back injury in metrology, standing on prover trailer when it tipped (7-11 DART)
- 1 broken ankle inspecting fuel pumps (120+ DART)
- 2 no event description
  - Soft tissue injury (1 DART)
  - Broken bones (120+ DART)

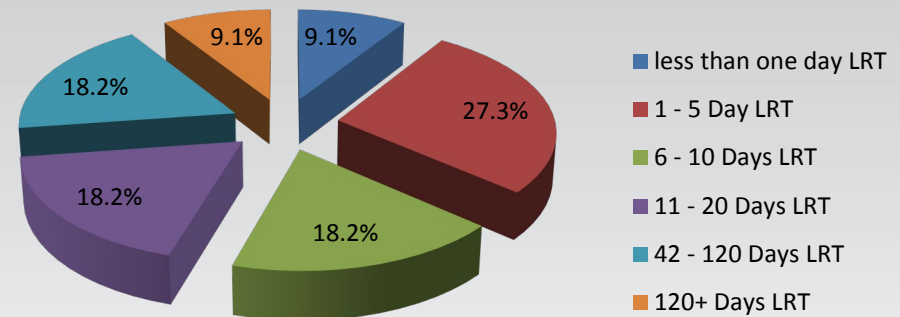




# Impact – Lifting/Bending/Twisting

11 reported DART lifting/bending/twisting accidents

- 5 involved lifting, loading or pushing weights
- 1 involved climbing onto a prover
- 1 less than a day
- 3 with 1-5 days
- 2 with 6-10 days
- 2 with 11-20 days
- 2 with 42-120 days
- 1 with 120+ days





# Create a Risk Assessment Grid

Likelihood x Severity = Risk Rating

- Use NIST training on risk assessment grids
- Include numbers from non-recordables (reportable near-misses)

Cause	Percent	% Most Lost Days	Most Lost Days	Rank
chemical agent	5.6%	100.0%	1	0.1
vehicle accident	11.1%	50.0%	120	6.7
lifting, bending, twisting	61.1%	9.1%	120	6.7
slips/trips/falls	22.2%	50.0%	120	13.3



# Special OSHA Standards - Rare But With Very High Risk

## Overhead Hoists and Cranes

- Includes hoists on trucks and in metrology labs

## Motorized Trucks

- Includes motorized pallet jacks and weight trucks for vehicle scale inspections

## Confined Space

- Includes scales pits unless they are designed for normal occupancy including air quality controls, climate controls, easy entrance and egress

## Chemical Hazard Communication

- Includes how to read labels and safety data sheets for safe handling, safe storage, clean-up, and first aid.



# Prioritize Based on Risk

## Use data from NCWM

- <http://www.ncwm.net/resource/safety> has links to
  - NCWM Safety Survey Results
  - Past Safety Articles
  - OSHA guides and standards

## Use data for your region

- Regional differences may emerge from survey data
  - Central had 5 of the 11 lifting/bending/twisting accidents

## Calculate agency data

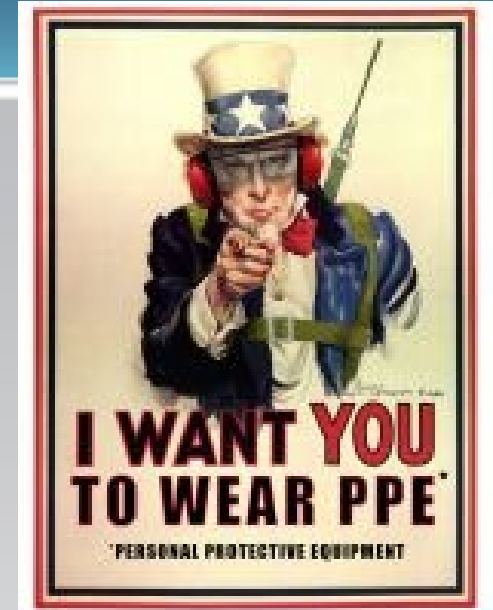
- Remember to include risks identified in non-recordable incidents!



# Address the Identified Hazards

## Hierarchy of Controls

- Eliminate (most effective)
- Engineer (most effective)
- Educate/Communicate
- PPE (less effective)
- Policies (least effective)



Communication determines success of PPE/Policies

PPE only works once an accident has happened and only if employees wear the PPE correctly

Policies only work if employees remember and follow the policies





# Take-Aways

## **Participate in the survey annually**

- The greater the participation, the more useful the data

## **Calculate your incident rates and determine if your program is good or if it is lucky**

- Calculate incident rates for non-recordables, recordables, and DART incidents –
- $(\# \text{incidents} \times 200,000) / \# \text{hours worked}$

## **Assess risk for each identified hazard (Likelihood x Severity)**

- Include NCWM Survey information when considering risks
- Remember to consider OSHA standards when assessing hazards

## **Use knowledge gained to eliminate or mitigate safety hazards**

- Allocate resources based on risk to address hazards
- Address causes to limit injuries



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Questions?