



Six Sigma DMAIC Improvement Story

Green Belt Project Objective:
To Reduce Workers' Compensation Injury Costs

Last Updated: 06-18-2013

Team: ***Risk Adverse***

Belkis Clodfelter (Co-Team Leader)

Chris Kong (Co-Team Leader)

Kelly Castellar

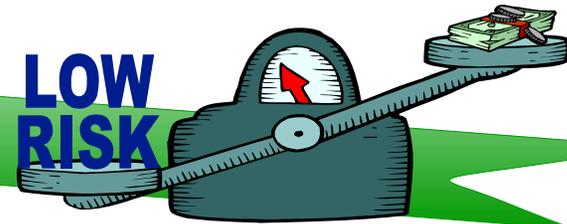
Arleene Cuellar

Daniel Cullen

Lupe Seco

Maria Reyes

Lester Sola (Sponsor)



Identify Project Charter

The team developed a team Project Charter.

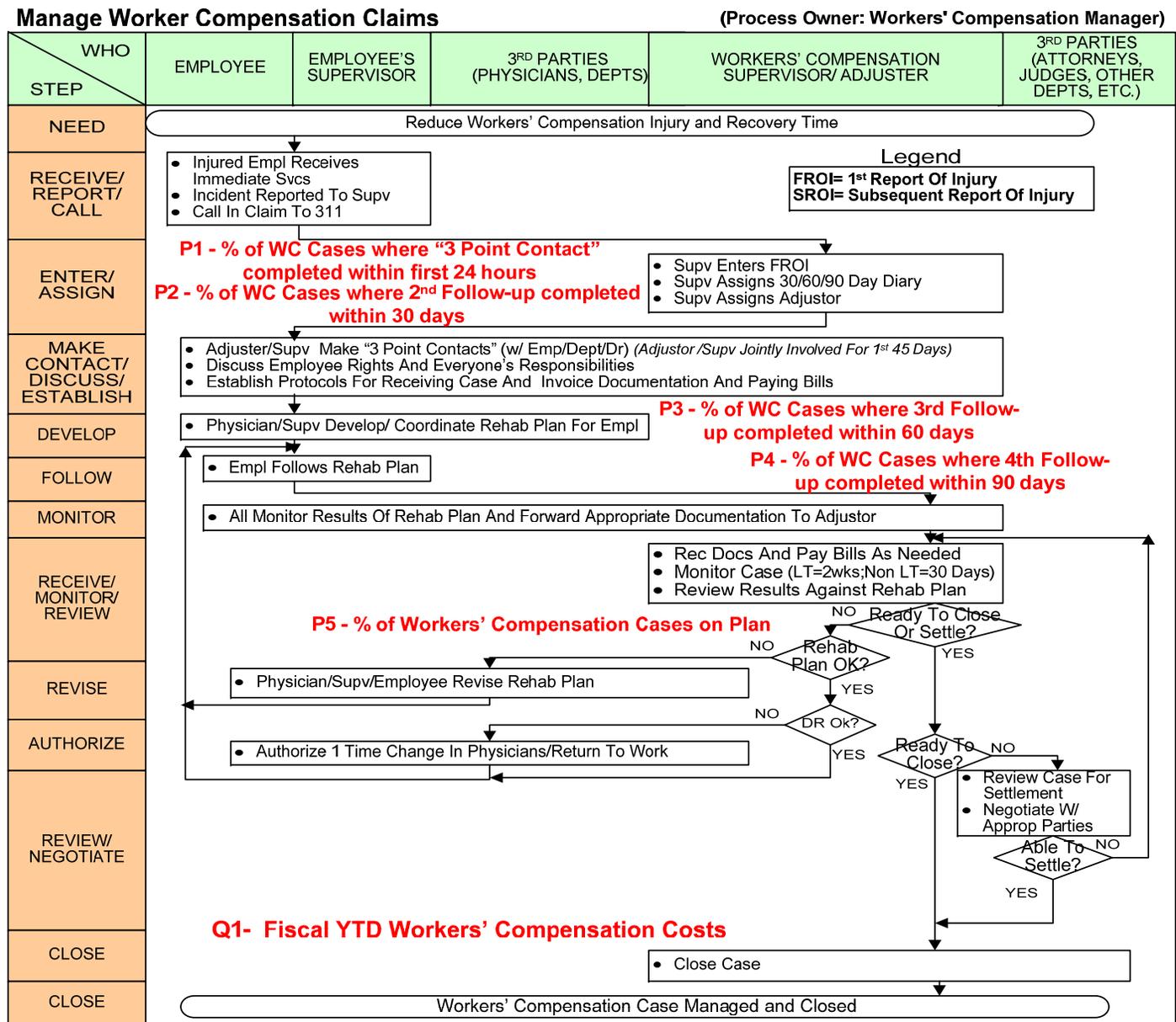
| Project Charter | |
|-----------------|---|
| Business Case | Project Name: To Reduce Workers' Compensation Injury Costs 2. ✓ |
| | Problem/Impact: Employees are the biggest investment for Miami-Dade. Employee injuries are a huge financial impact (\$46.7 Million Paid FY11/12) and adversely affect the efficiencies of the employee's dept. 1. ✓ |
| | Expected Benefits: Reduced # of claims and costs; improve safety within the depts.; better educate employees on how to prevent injuries; |
| Objectives | Outcome Indicator(s) Q1- Fiscal YTD Workers' Compensation Costs |
| | Proposed Target(s) Target= 10% reduction over previous Fiscal Year |
| | Time Frame: February 2013 thru June 2013 |
| | Strategic Alignment: Supports the County's Business Plan |
| Scope | In Scope: Miami-Dade Workers Compensation Claims |
| | Out-of-Scope: Other Complaints/claims |
| | Authorized by: Lester Sola |
| Team | Sponsor: Lester Sola |
| | Team Leader: Belkis Clodfelter and Chris Kong |
| | Team Members: Kelly Castellar, Arleene Cuellar, Daniel Cullen, Lupe Seco, Maria Reyes |
| | Process Owner(s): Dan Cullen |
| | Mgmt. Review Team: Ray Scher; Chris Rose; Kathleen Woods-Richardson, Lester Sola |
| Schedule | Completion Date: 30-Jun-13 |
| | Review Dates: Monthly and Final Review in June 2013 |
| | Key Milestone Dates: See Action Plan |



Review Process Flow Chart

The team constructed a Process flow chart describing the Process.

The team next looked closer how to capture indicator data.



DMAIC_Story_Miami Dade_Reduce WC Injury Costs_Flowchart_6-11-13.vsd 6/18/13



Hidden Costs of Employee Injuries

The team identified information on the hidden costs of employee injuries.

| | <u>County Staff Minutes</u> |
|--|-----------------------------|
| 1. Respond to Employee Injury Event | |
| a. Two staff response, assess & assist employee (Dept.) | 50 Minutes |
| b. Report Injury – External - 311 | 30 Minutes |
| c. Report Injury – External – Risk Intake | 40 Minutes |
| 2. Assess Employee for Injuries... (1 out of 3 injuries result in Medical treatment) (180/3) | |
| a. Medical Assessment and Treatment for employee (External) | 60 Minutes |
| 3. Document event and record claim (WC- Risk Division) | 120 Minutes |
| 4. Workers' Compensation (WC & CAO staff if litigated) | 960 Minutes |
| 5. Safety Investigation (Department + Risk) | |
| a. Safety Review and Assessment (Risk) | 180 Minutes |
| 6. Coverage –Department response to Missing staff | 60 Minutes |
| a. Supervisor schedule/work | 1500 Minutes |
| Total Staff Minutes per Employee Injury | 1500 Minutes |

Annual Admin Cost for Employee Injuries = (25 Hours) X (2526 Employee Injuries Annually) X (\$30 loaded cost per staff Hour) =

\$1,894,500*

* Does not include the cost of tests, treatment or equipment as a result of an injury.



Identify Data Collection Needs

The team developed a data collection spreadsheet...

Miami-Dade Workers' Compensation Injury Summary

| Line # | DEMOGRAPHICS | | | | | | | | | | | | | |
|--------|--------------|---------------|-------------|--------|-----|---------------------|---------------|---------------|---------------------|--------------|----------------|-----------|----------------|----------|
| | WHAT | WHO | | | | | | | WHAT | WHERE | WHO | | | |
| | B | C | D | E | F | G | H | I | J | K | L | M | N | T |
| | Claim # | Employee Name | SS # | Gender | Age | # Yrs Exper. In Job | Employee Dept | Employee Supv | Empl Classification | Injury Cause | Type of Injury | Body Part | Locn of Injury | Adjuster |
| | % Tele | | %F | Avg | Avg | | | | | | | | | |
| | 0.0 | | 66.7 | 36.7 | 2.2 | | | | | | | | | |
| 1 | 231 | Russel Sprou | 263-90-2111 | Female | 44 | 0.5 | Personnel | Sue Smith | Technician | Slipped | Strain | Knee | Stairs | Smith |
| 2 | 321 | Jim Nasium | 432-34-2344 | Male | 37 | 1 | Roads & Br | James Bro | Clerk | Fell off | Sprain | Ankle | Office | Jones |
| 3 | 342 | Jim Shorts | 231-23-1234 | Female | 29 | 5 | ISD | Mike Jacks | Director | Picked | Strain | Back | Vehicle | White |

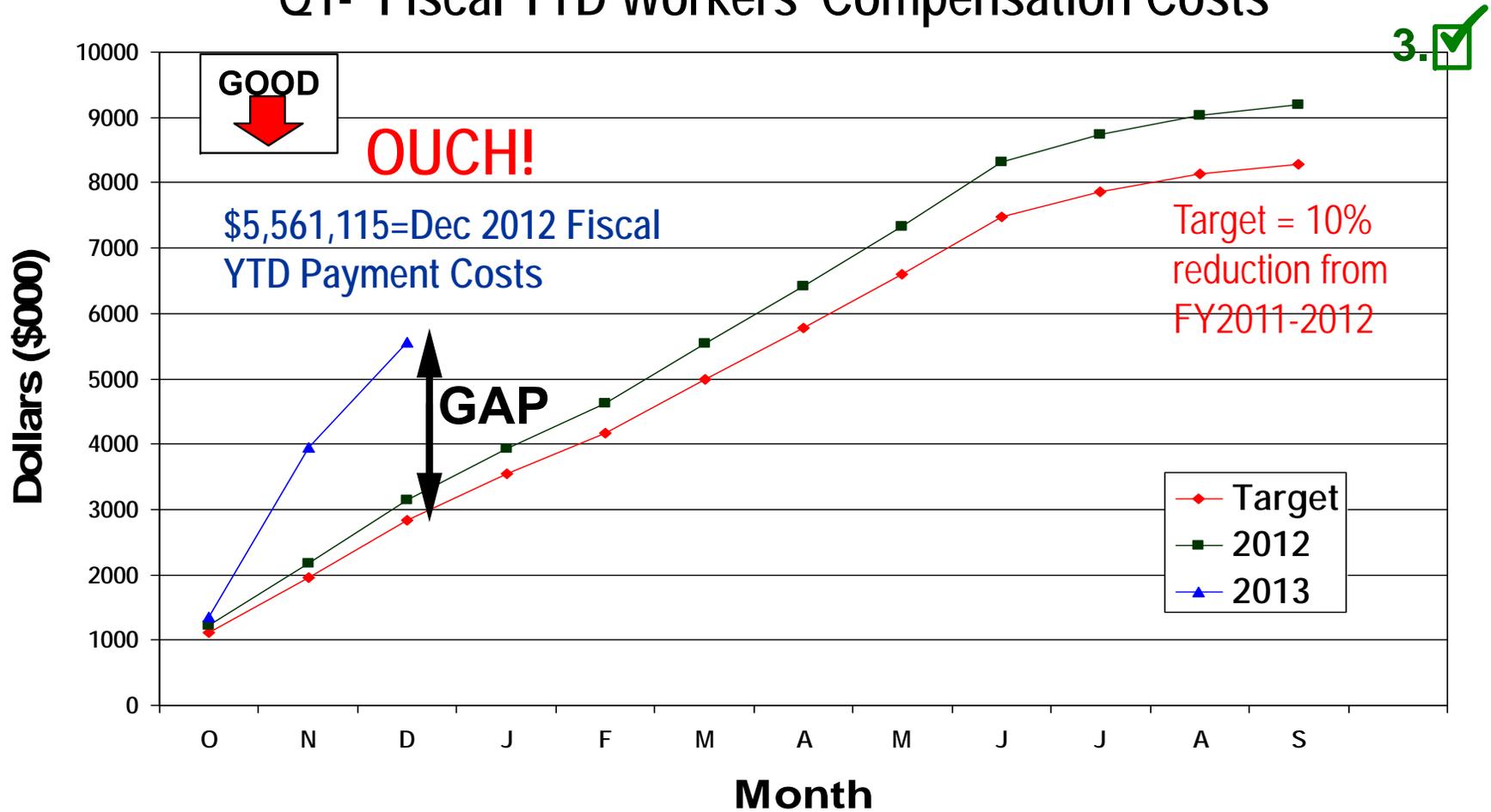
| MILESTONE DATES | | | | | | Duration | | | OUTCOMES | | | | | | | | BA | BB | | |
|-----------------|----------|----------------------------|-----|------------------|---------------------|------------------------|--------------------------|--------------------------|-----------------------|---------------------|---------------------------------|----------------|---------------------------------|-----------|------|----|-----------------|-----------------------------------|----------------------------------|--|
| U | V | W | X | Y | Z | AB= | AC= | AD= | Case Cost Information | | | | | | | | AY | AZ | BA | BB |
| Date of Injury | | Date Empl Returned to Work | | Date Case Closed | # of Work Days Lost | # of Wk TO Case Closed | # of Months Since Injury | AP | AQ | AT | AU | AV | AW= | AY | AZ | BA | | | | |
| Date | Time | Military Hr | Day | Returned to Work | Date Case Closed | # of Work Days Lost | # of Wk TO Case Closed | # of Months Since Injury | Payment Type | Reserve \$ (Needed) | Total Expenses Incurred to Date | Indemnity Paid | Lost Work Wage Cost (\$200/day) | | | | Est. Total Cost | Could Injury Have Been Prevented? | Could Injury Have Been Lessoned? | Actions that could have Prevented or Lessoned Injury |
| | | Avg | %Mo | | | Avg Days | Avg Mo | Average | | | | | | | | %Y | | | | |
| | | 14.3 | 0.0 | | | 158.7 | 60.0 | 27.0 | \$26,667 | \$12,807 | \$10,000 | \$31,733 | \$47,874 | 66.7 | 66.7 | | | | | |
| | | | | P1 | P2 | P3 | | | Q1 | Q2 | Q3 | Q4 | | | | | | | | |
| 2/2/12 | 9:40 PM | 21 | Th | 2/22/12 | | 20 | | 13.1 | A | \$20,000 | \$10,000 | \$10,000 | \$4,000 | \$24,000 | N | Y | | | | |
| 8/31/10 | 10:00 AM | 10 | Tu | 11/30/11 | 12/31/11 | 456 | 31 | 30.5 | B | \$50,000 | \$25,000 | | \$91,200 | \$116,200 | N | N | Other | | | |
| 2/5/10 | 12:10 PM | 12 | Fr | 2/5/10 | 5/5/10 | 0 | 89 | 37.4 | C | \$10,000 | \$3,421 | | \$0 | \$3,421 | | Y | | | | |



Review Selected Indicator

The team collected Q1 indicator data and reviewed performance trends:

Q1- Fiscal YTD Workers' Compensation Costs



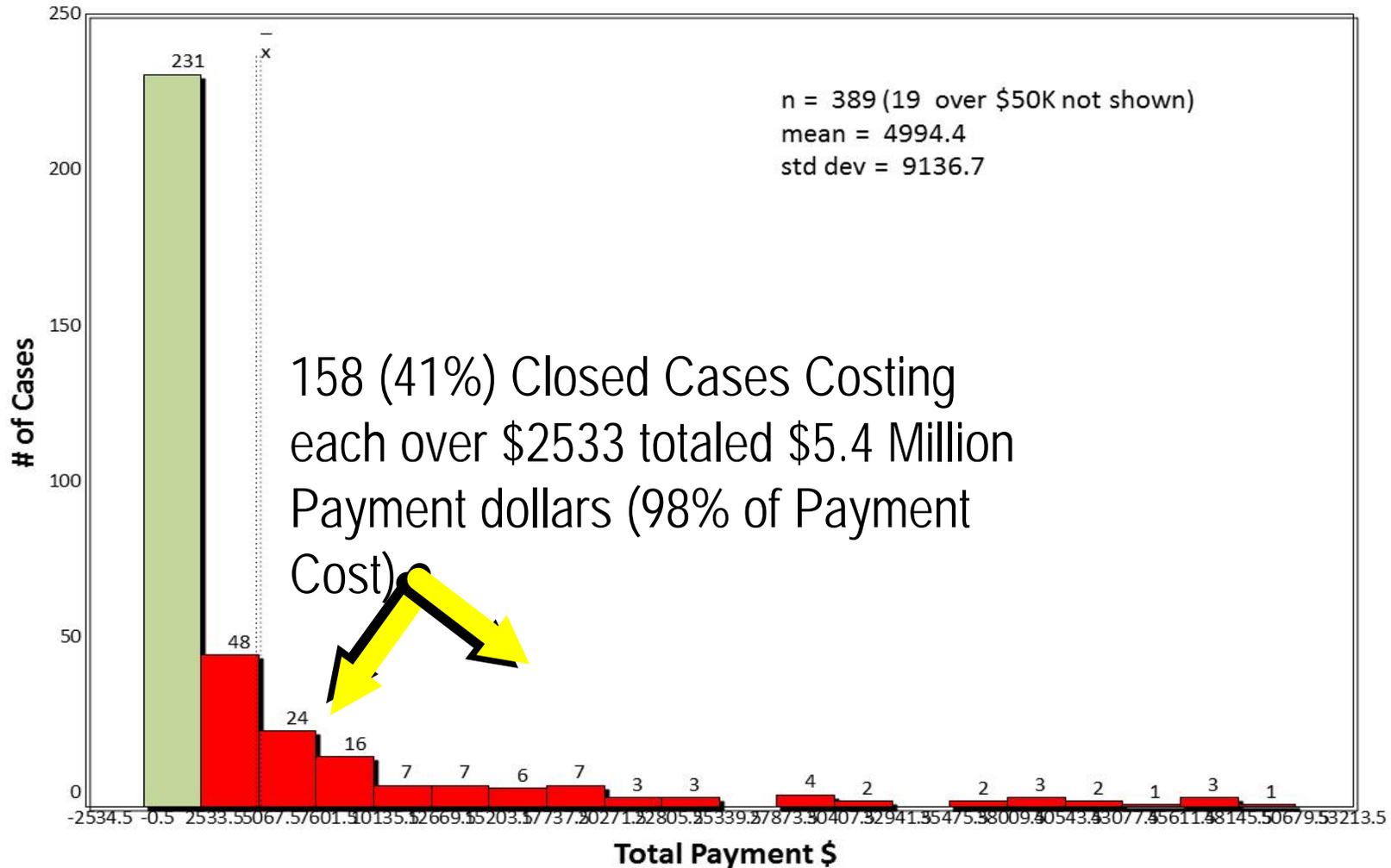
The team next looked closer at the recent closed WC Cases.



Stratify the Problem

The team stratified the 408 WC Closed Cases many ways and found...

Closed WC Cases From Oct 1 through Dec 28, 2012



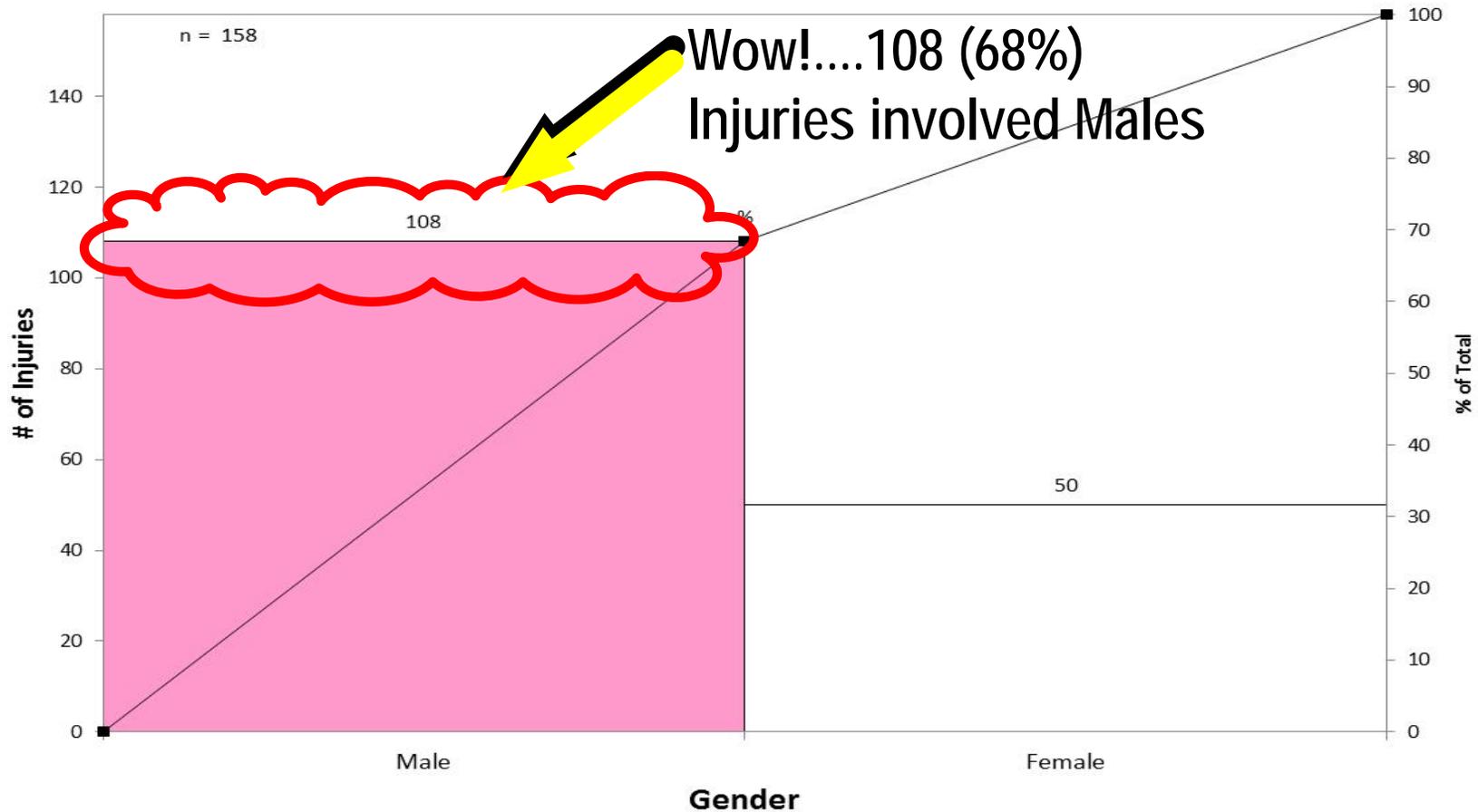
The team looked closer at these 158 Male Injuries.



Stratify the Problem

The team stratified the 158 WC Closed Cases many ways and found...

Closed WC Cases with Payment Costs exceeding \$2533
From Oct 1 through Dec 28, 2012

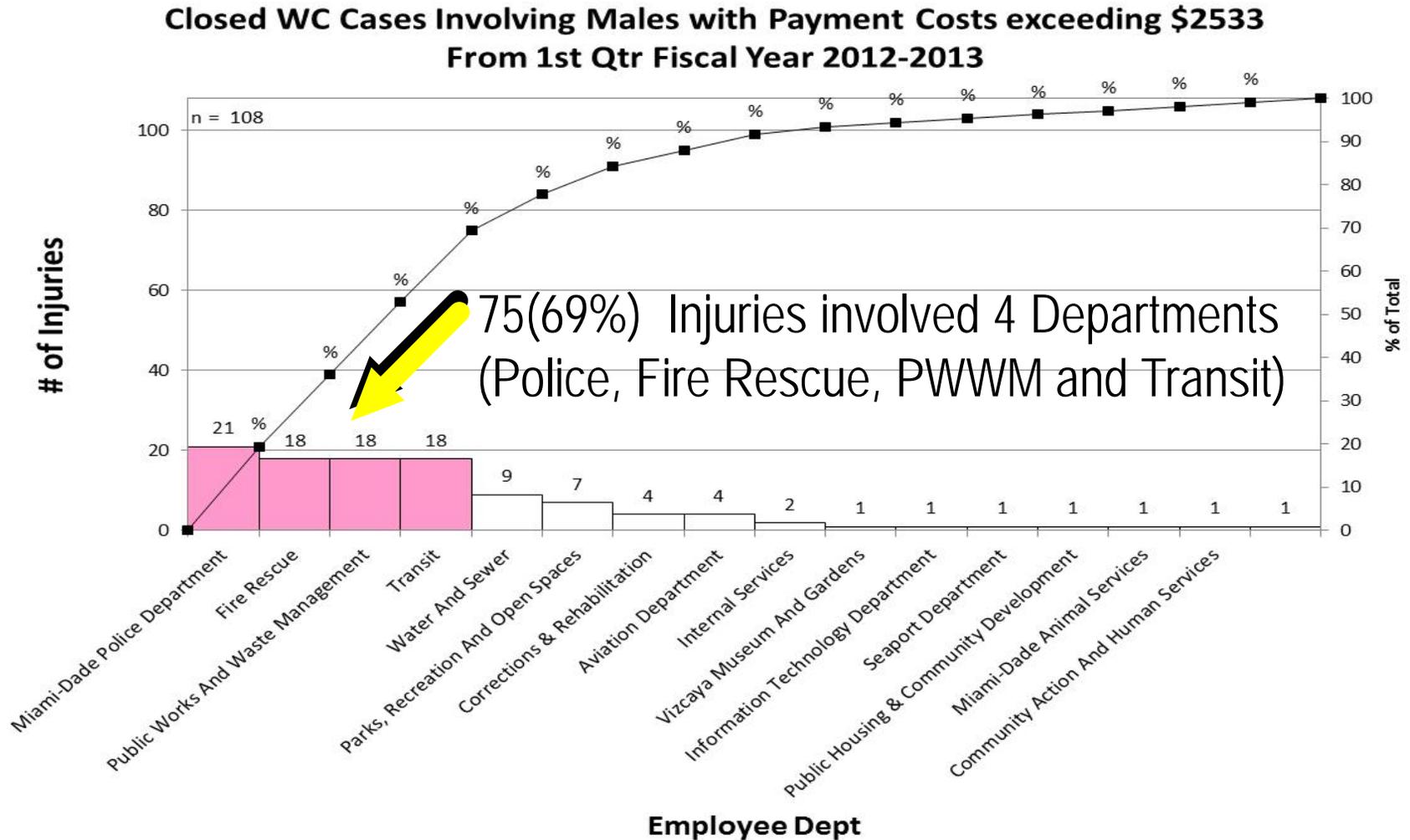


The team looked closer at these 108 Male Injuries.



Stratify the Problem

The team stratified the 108 Male Injuries many ways and found...



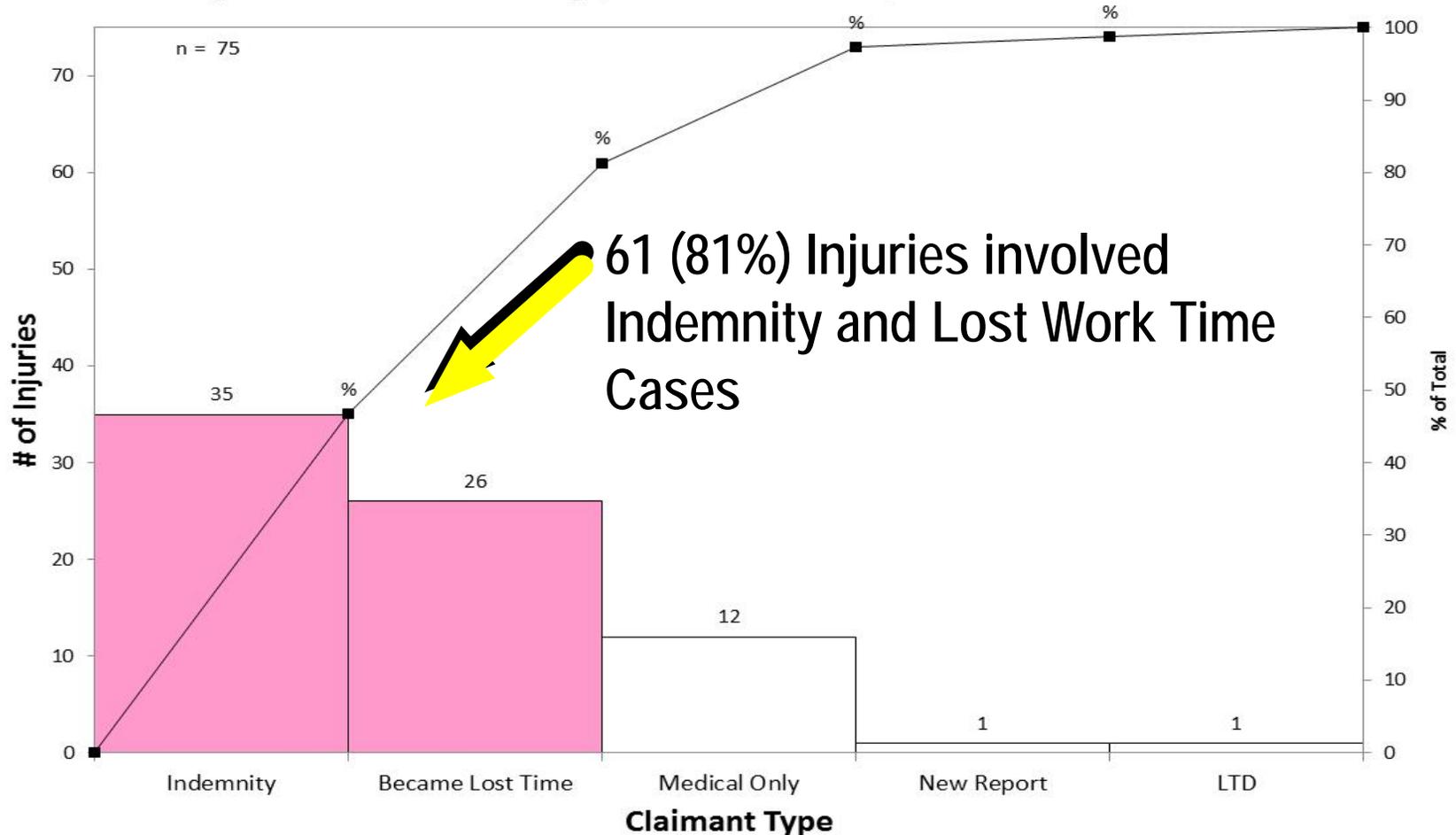
The team looked closer at these 75 Injuries.



Stratify the Problem

The team stratified the 75 Injuries many ways and found...

Closed WC Cases Involving Males in PD, Fire, Transit, PWWM with Payment Costs exceeding \$2533 From 1st Qtr Fiscal Year 2012-2013



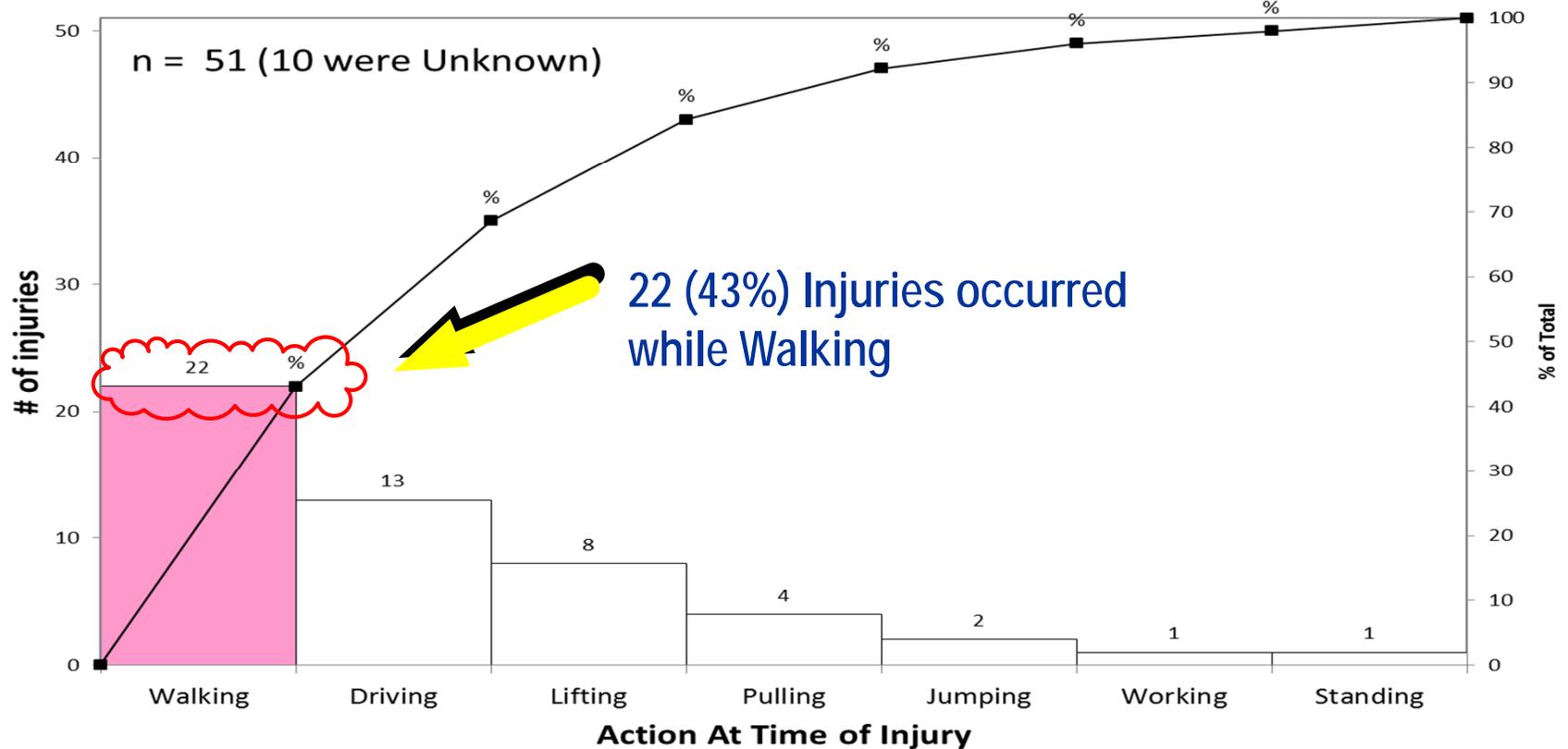
The team looked closer at these 61 Injuries.



Stratify the Problem

The team stratified the 61 Indemnity/ Lost Work Time Cases many ways and found...

Closed Indemnity & Work Lost Time Cases Involving Males in PD, Fire, Transit, PWWM with Payment Costs exceeding \$2533 From 1st Qtr Fiscal Year 2012-2013



Problem Statement: *"22 WC Indemnity and Work Lost Time Cases(>\$2533 Payments Cost) that were Closed during the 1st Qtr. Fiscal Year 2012-2013 Involved Males from PD, Fire Rescue, Transit, PWWM who were Injured while Walking "*



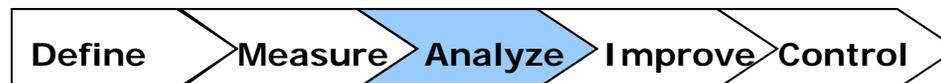
Identify Potential Root Causes

The team reviewed 22 cases and conducted Single Case Bore Analysis.

Problem Statement: "22 WC Indemnity and Work Lost Time Cases(>\$2533 Payments Cost) that were Closed during the 1st Qtr Fiscal Year 2012-2013 Involved Males from PD, Fire Rescue, Transit, PWWM who were Injured while Walking "

| Reasons or Factors <i>(That possibly contributed to Employee Injury)</i> | 22 Injuries | | | | | | | | | | | | | | | | | | | | | | Total | Percent |
|---|-------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|---------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | | |
| A 1) Not Paying Attention | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 22 | 100% |
| 2) Unstable Platform | | X | | | | X | | | | | | | | | | X | | | X | | | | 9 | 41% |
| B 3) Not Following Safety Protocol | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 22 | 100% |
| C 4) Insufficient Lighting | | | | | X | | X | X | X | | X | X | X | X | | | | | X | | | | 9 | 41% |
| 5) Oil spill on Floor | | | X | | | | | | | | X | | | | | X | | | | | | | 3 | 14% |
| 6) Uneven Gravel | | | | | | X | | | | | | | | | X | | | | | X | | | 3 | 14% |
| A 7) Did not see surface | | | X | X | | | | X | | | X | X | | X | | X | X | X | | | | | 10 | 45% |
| 8) Getting into Vehicle | | | | | X | | | | | | | | | | | | | | | | | | 1 | 5% |
| 9) Stepping off Truck between curb | | | | | | X | X | | | | | X | | | | | | | | | | | 4 | 18% |
| 10) Chasing Dog | | | | | | | | X | | | | | | | | | | | | | | | 2 | 9% |
| 11) Training Run | | | | | | | | | | X | | | | | | | | | | | X | | 2 | 9% |
| 12) Removing Signs from back of truck | | | | | | | | | | | X | | | | | | | | | | | | 1 | 5% |
| D 13) Getting off Bus/Truck | X | | | | | | X | | | | | X | X | | | | | | X | X | | | 6 | 27% |
| 14) Climbing Stairs with tools and greaser | | | X | | | | | | | | | | | | | | | | | | | | 1 | 5% |
| 15) Improper Stretching Techniques | | | | | | | | | | X | | | | | X | | | | | | X | | 3 | 14% |
| 16) Improper hydration | | | | | | | | | | X | | | | | X | | | | | | X | | 3 | 14% |
| 17) Climbing Stairs | | | | | | | | | | | | | | X | | | | | X | | | | 2 | 9% |
| 18) Carrying a Vacuum | | | | | | | | | | | | | | | | | | | X | | | | 1 | 5% |
| 19) Training Defensive Techniques | | | | | | | | | | | | | | | | | | | | | X | | 1 | 5% |
| 20) Wet Surface | | | | | | | | | | | | | | | | | | X | | | | | 2 | 9% |

The team next looked closer at these 4 factors.



Identify Potential Root Causes

The team completed Cause and Effect Analysis and found...

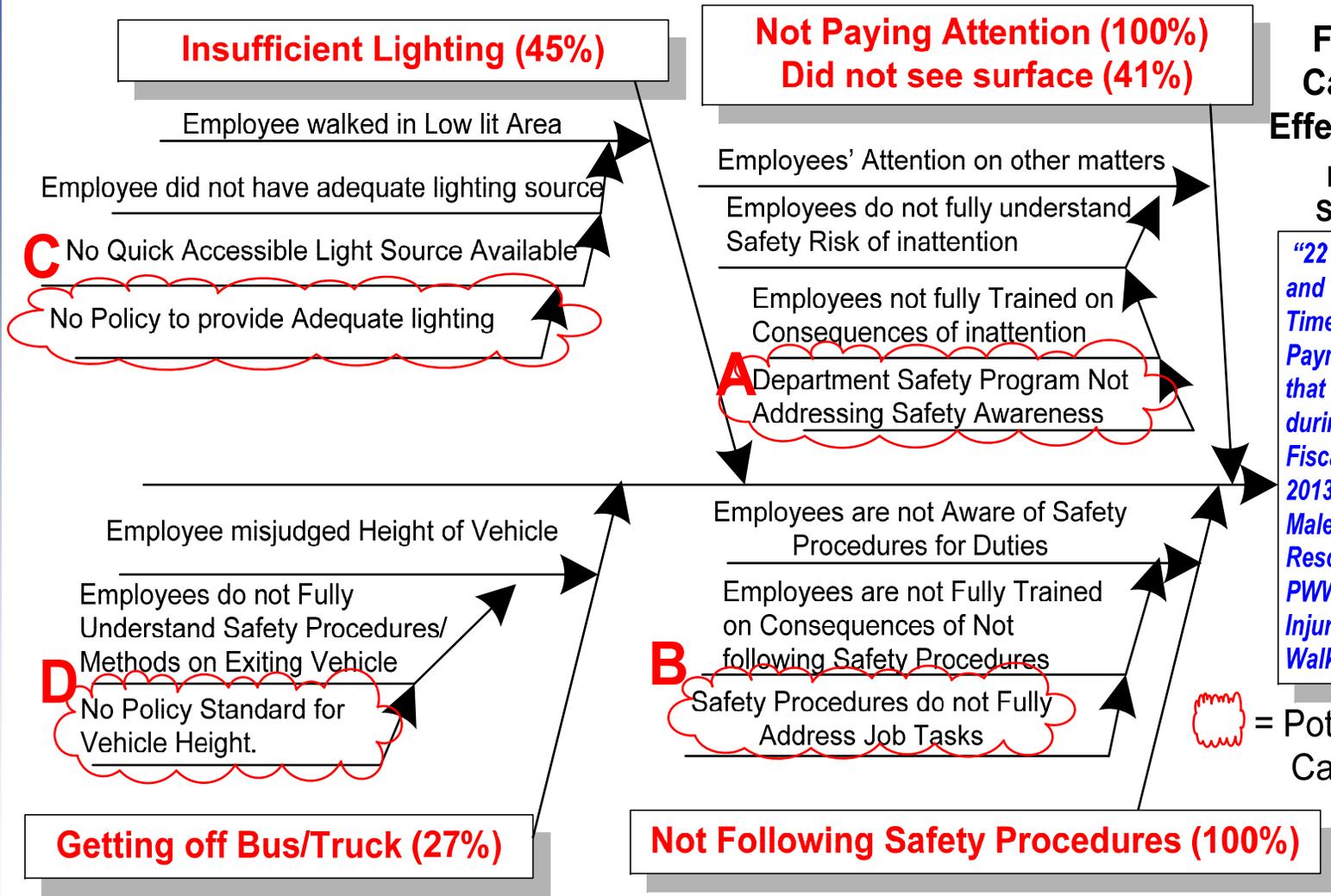
9.,10.

Fishbone Cause and Effect Diagram

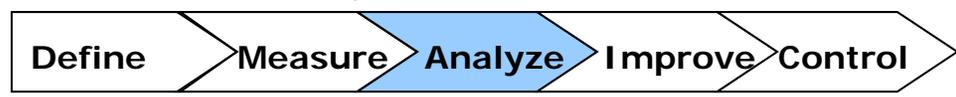
Problem Statement

"22 WC Indemnity and Work Lost Time Cases(>\$2533 Payments Cost) that were Closed during the 1st Qtr Fiscal Year 2012-2013 Involved Males from PD, Fire Rescue, Transit, PWWM who were Injured while Walking"

= Potential Root Cause



The team next looked to verify these four (4) Potential Root Causes.



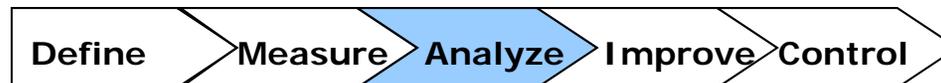
Verify Root Causes

The team collected data to verify the root causes and found.... 11.,12. 

Root Cause Verification Matrix

| Potential Root Cause | How Verified? | Root Cause or Symptom |
|---|---|-----------------------|
| A Department Safety Program Not Addressing Safety Awareness. | Team reviewed Supervisory Incident reports and identified that Department Safety Programs have limited measures for providing Safety information or training to employees. | Root Cause |
| B Department Safety Procedures do not Fully Address potential hazardous tasks. | Team reviewed general Department Safety Procedures and identified that some safety procedures have yet to be established or outdated. | Root Cause |
| C No Policy to provide Adequate Lighting. | Team reviewed County and Division Safety Policies and found Lighting standards were determined according to building specifications. Supplemental task lighting is to be used whenever necessary. | Root Cause |
| D No Policy Standard for Vehicle Height. | Team reviewed County Safety Policies for vehicle height and found no set guidelines. Vehicle height requirements are determined by specification for operational requirements. | Root Cause |

...all four (4) were validated as root causes.



Identify and Select Countermeasures

The team brainstormed many countermeasures and narrowed them down to these for evaluation:

Countermeasures Matrix

| Problem Statement | Verified Root Causes | Countermeasures | Legend: 3=Moderately | | | |
|--|--|---|----------------------|---|------------------|---|
| | | | 5=Extremely | | 2=Somewhat | |
| | | | 4=Very | | 1=Little or None | |
| Ratings | | | | | | |
| Effectiveness | Feasibility | Overall | Take Action? | | | |
| | | | Yes/No | | | |
| "22 WC Indemnity and Work Lost Time Cases(>\$2533 Payments Cost) that were Closed during the 1st Qtr Fiscal Year 2012-2013 Involved Males from PD, Fire Rescue, Transit, PWWM who were Injured while Walking " | A - Safety Training does not fully Address Employee Safety Awareness | A1- Incorporate "Safe Work Practices" during work activities into safety training | 4 | 5 | 20 | Y |
| | | A2- Include a "Safe Work Practice" statement to be signed off by employee in BLUE Book | 3 | 5 | 15 | Y |
| | B - Safety Protocols not Fully Addressed in Job Duties | B1- Identify and Incorporate Safety Procedures for Potentially Hazardous Job Tasks. | 3 | 3 | 9 | N |
| | C - No Policy in place to Provide or Stage Light Source | C1- Provide Supplemental Lighting to Targeted Employees (Flashlights, Head Bands, Mobile Light Units) to Employees that work in Low Lit areas | 5 | 4 | 20 | Y |
| | | C2- Establish Outside Lighting Requirements for County Areas, equipment and specific Job Duties | 4 | 3 | 12 | Y |
| | | C3 Provide Vehicle Spotlights | 3 | 2 | 6 | N |
| | D - No Policy on Appropriate Height of Vehicles | D1- Determine Height Specifications for vehicles | 4 | 3 | 12 | Y |
| | | D2- Evaluate Supplemental vehicle specific hand hold needs | 4 | 4 | 16 | Y |
| | | D3- Identify Vehicle Aids/Equipment that could be added to vehicle | 4 | 3 | 12 | Y |

The team selected seven (7) countermeasures for implementation.



Identify Barriers and Aids

The team performed Barriers and Aids analysis on the selected Countermeasures.

Countermeasure(s): Implement 7 Countermeasures to Reduce WC Injuries

| Barriers | | Aids |
|------------------|--|--|
| Impact (H, M, L) | Forces against Implementation | Forces For Implementation |
| M | 1) Hard to Justify Additional Expenditure for Safety Equipment & Training. <i>(Supported by Aid: A,B,C,D)</i> | A) Provide Departments with Loss Ratio Analysis. (Yearly) |
| L | 2) Union(s) resistance to additional employee(s) accountability. <i>(Supported by Aid: B, C)</i> | B) Executive Level Support of Cost Saving Methodology. |
| M | 3) Supervisors not focusing on safety protocols because of additional job duties. <i>(Supported by Aid: A,B,C,D)</i> | C) Supvs/ Employees/Union could Support employee safety efforts D) Utilize an Insurance Tool that will hold Departments responsible for losses. |

The team next sought to incorporate this analysis into the team's Action Plan.



Develop and Implement Action Plan

Legend:
 = Actual
 = Proposed

The team implemented an Action Plan for the team's Countermeasures.

16. 

WHAT: Implement 6 Countermeasures to Reduce WC Employee Injuries

| HOW | WHEN | | | | | | | | | |
|--|------|--------------------------|---------|--------------------------|---------|-----|--------------------------|--------------------------|----------|--------------------------|
| | 2013 | | | | | | | | | |
| | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| 1. Develop Countermeasures: | | | | | | | | | | |
| A1- Incorporate "Safe Work Practices" during work activities and include in safety training. | | <input type="checkbox"/> | 5/15/13 | | | | | | | |
| A2- Include a "Safe Work Practices" awareness statement in the employee BLUE Book. | | <input type="checkbox"/> | | 5/15/13 | | | | | | |
| C1- Provide Supplemental lighting to Targeted Employees (Flashlights, Head Bands, Mobile Light Units) who work in Low Lit areas. | | <input type="checkbox"/> | 5/15/13 | | | | | | | |
| C2- Establish Supplemental Lighting for County Areas, equipment and specific Job Duties. | | | | | | | | <input type="checkbox"/> | 10/15/13 | |
| D1- Identify and Determine Height Specifications for vehicles. | | | | | | | | <input type="checkbox"/> | 10/15/13 | |
| D2- Enhance 3-point Safety training for entering and exiting vehicles | | <input type="checkbox"/> | 5/15/13 | | | | | | | |
| D3- Identify and Evaluate Supplemental hand holds that could be added to vehicle. | | | | | | | | <input type="checkbox"/> | 09/15/13 | |
| 2. Secure Management Approval of Countermeasures (share benefits and cost savings) | | | | <input type="checkbox"/> | 7/15/13 | | | | | |
| 3. Communicate/Train Staff in Countermeasures and related policies/procedures (share benefits, reduced injuries and cost savings) | | | | | | | <input type="checkbox"/> | 8/15/13 | | |
| 4. Implement Countermeasures and Pilot Countermeasures | | | | | | | <input type="checkbox"/> | Pilot | 9/30/13 | |
| 5. Review Pilot and determine Benefits and adjust as necessary and present results to management | | | | | | | | <input type="checkbox"/> | 10/15/13 | |
| 6. Establish On-going responsibilities and standardize countermeasures into operations | | | | | | | | | | <input type="checkbox"/> |
| | | | | | | | | | | On-going |

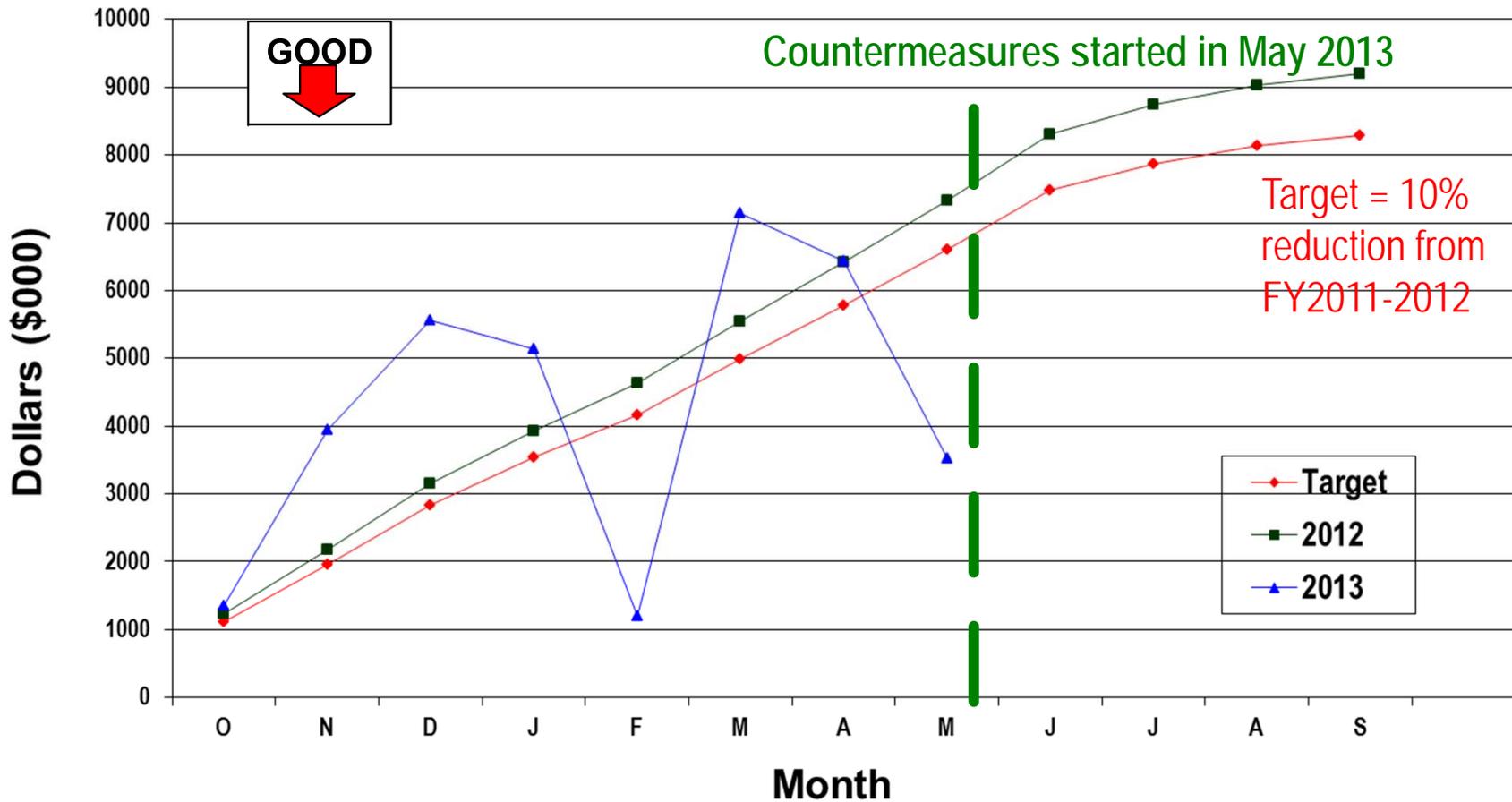


Review Results

17.,18.,19.,20. 

The team collected indicator data and reviewed countermeasure results:

Q1- Fiscal YTD Workers' Compensation Costs



The team was encouraged by employee reaction to the countermeasures.

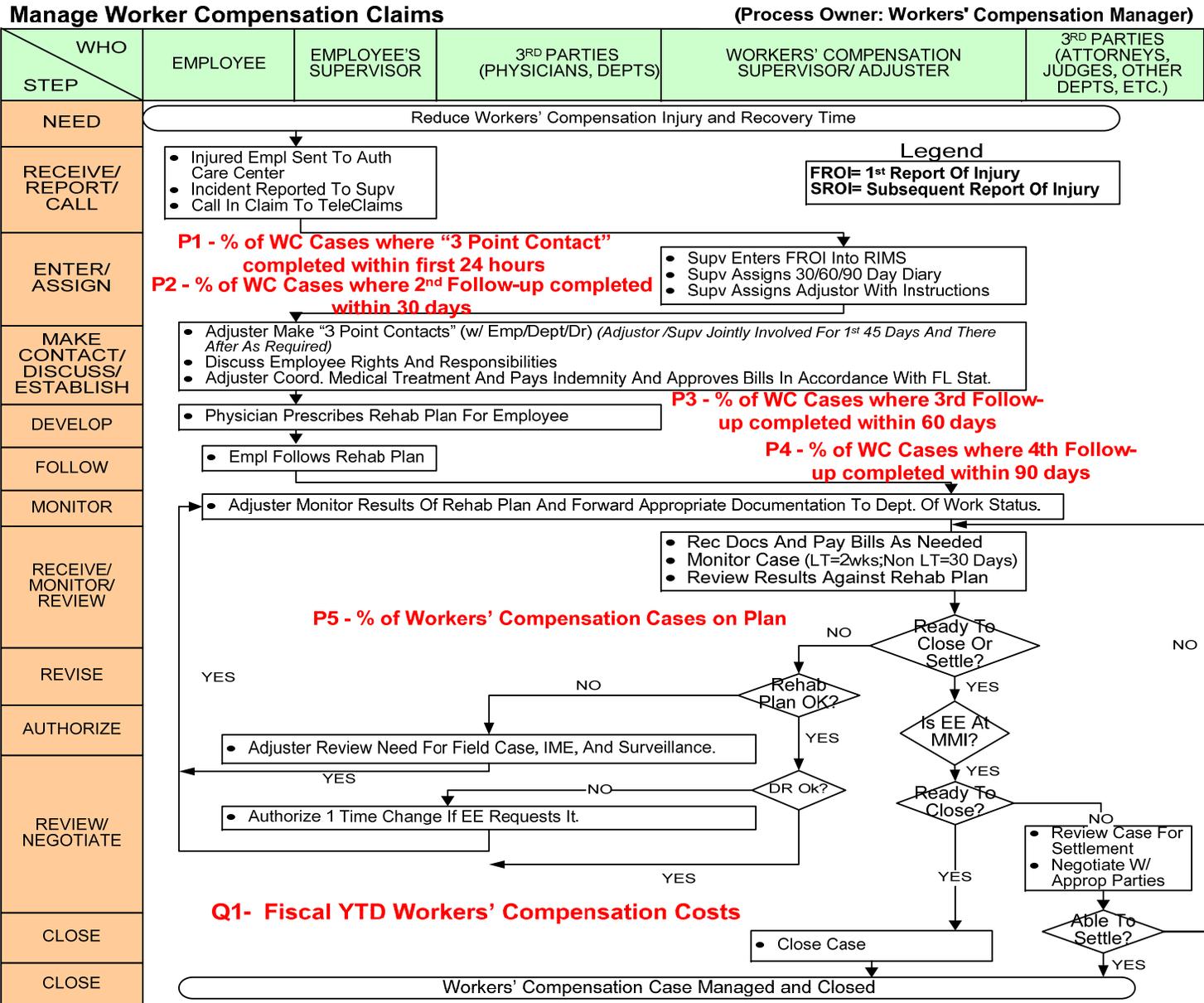
Note: 2013 Data unreliable as shown due to impact of RIM system



Standardize Countermeasures

21.,22.,23. 

The team included the proposed Flowchart in their Process Control System AND...



DMAIC_Story_Miami Dade_Reduce WC Injury Costs_Flowchart_6-14-13.vsd 6/18/13



Standardize Countermeasures

21.,22.,23. 

... completed the Process Control System (PCS) Form.

| Process Control System | | | | | | |
|---|---|--|---|-----------------|--|-----------------------------------|
| Process Name: Manage Workers' Compensation Claims | | | Process Owner: Workers' Compensation Manager | | | |
| Process Customer: Miami-Dade County Employee | | | Critical Customer Requirements: Manage WC to provide timely effective Rehab Services | | | |
| Process Purpose: Manage Workers' Compensation Claims | | | Current Sigma Level: 92% (State based %) | | | |
| | | | Outcome Indicators: Q1 | | | |
| Process and Quality Indicators | | Checking / Indicator Monitoring | | | Contingency Plans / Misc. • Actions Required for Exceptions • Procedure References | |
| Process Indicators | Control Limits | Data to Collect | Timeframe (Frequency) | Responsibility | | |
| And | Specs/ Targets | What is Checking Item or Indicator Calculation | When to Collect Data? | Who will Check? | | |
| Quality Indicators | | | | | | |
| P1 | % of WC Cases where "3 Point Contact" completed within first 24 hours | 95 | Review file documentation on WC cases where a "3-point contact" is completed within 24 hrs. | Monthly | Supv | Escalate and review account; IVOS |
| P2 | % of WC Cases where 2nd Follow-up completed within 30 days | 95 | Review file documentation on WC cases where a 30 day review was completed timely. | Monthly | Supv | Escalate and review account |
| P2 | % of WC Cases where 3rd Follow-up completed within 60 days | 95 | Review file documentation on WC cases where a 60 day review was completed timely. | Monthly | Supv | Escalate and review account |
| P3 | % of WC Cases where 4th Follow-up completed within 90 days | 95 | Review files documentation on WC cases where a 90 day review was completed timely. | Monthly | Supv | Escalate and review account |
| P4 | % of W/C Cases on Plan | 95 | Review file documentation to assure that the plan of action is documented. | Monthly | Supv | Escalate and review account |
| Q1 | Fiscal YTD W/C Costs | TBD | Sum(Monthly Workers' Compensation Costs) FYTD | Monthly | Supv | Escalate and review account |
| | W/C Survey for Claimants to Grade Division. | | | | | |

Approved: _____ Date: _____ Rev #: _____ Rev Date: _____

The team looked ahead to the future.



Identify Lessons Learned

24.,25. 

Lessons Learned

- 1) **Root cause identification is essential** *if one is serious in improving Performance*
- 2) **Data stratification was very important** *as it took the team to areas not initially thought to be part of the problem.*
- 3) **Creative Thinking techniques were more valuable** *in identifying more diverse countermeasures for the team to evaluate.*
- 4) **When evaluating countermeasures, the most effective is not always the best countermeasure** *since feasibility must also be considered.*
- 5) **Flowchart technique helped all team members see the process more clearly** *and was used to help identify and communicate process improvements.*

Next Steps

- 1) **Monitor implementation of Countermeasures and WC Costs.**

