Accelerating Ergonomics with Continuous Improvement Teams

Mike Wynn, CPE
Vice President
Today’s Agenda

- Humantech’s approach to continuous improvement events for ergonomics
- Typical results of CI events
- Lessons learned
Occupational Ergonomics

Reduce employee exposure to WMSD risk factors

Goal: Substantial and sustained improvement in:

- WMSD rates and costs
- Productivity and quality
- Employee engagement

• Workplace improvements
• Work practices
• Administrative controls
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Critical Success Factors

- Risk management
- Continuous improvement
- Engineering design
- Cost justification
RAPID Team Event

Companies:
- Caterpillar
- Quebecor World
- Alcoa
- Snap-on
- Northrop Grumman
- EMP
- Denso
- ADVO
- John Deere
- Pratt & Whitney
- Toyota
- Rock-Tenn Company
- Timken
- Goodyear

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RAPID Team Event

Day 1: Preparation
- Kick-off meeting
- RAPID training
- Practice

Day 2: Evaluate
- Line side evaluation
- Action planning

Day 3: Implement
- Implement improvements
- Refine action plans

Day 4: Present Results
- Develop an implementation plan
- Present results
RAPID Team Event

hassle - pain - WMSD
The RAPID Process

- Simple, rules based approach
  - Find It
  - Fix It
  - Check for Success
- Leverage existing roles and abilities
- Maintain a RAPID but accurate pace
RAPID Improvements

Observations

Operator input

Previously identified issues

Root Cause

Previously identified issues

Operator input

Observations
Rapid Hit List – “Find It”

Easy to remember ergonomic issues that can be identified through direct observation

<table>
<thead>
<tr>
<th>Find it</th>
<th>Fix it</th>
</tr>
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<tbody>
<tr>
<td>Wash Rag</td>
<td>Keep it straight</td>
</tr>
<tr>
<td>Elbows Out</td>
<td>Keep elbows at sides</td>
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<td>Keep it in the comfort zone</td>
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<td>Keep it in sight</td>
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<tr>
<td>Butts Up</td>
<td>Keep it above knees</td>
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<tr>
<td>Twist and Shout</td>
<td>Keep it in line with the spine</td>
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<td>Horizontal Distance</td>
<td>Keep it close</td>
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<tr>
<td>Sit vs. Stand</td>
<td>Is it right for the task?</td>
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<tr>
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<tr>
<td>Contact</td>
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RAPID Hit List – “Find It”

Identify low cost / high impact job improvements

Find it
- Wash Rag
- Elbows Out
- Shoulder Too High/Low
- Hungry Head
- Butts Up
- Twist and Shout
- Horizontal Distance
- Sit vs. Stand
- Bad Vibes
- Contact

Fix it
- Keep it straight
- Keep elbows at sides
- Keep it in the comfort zone
- Keep it in sight
- Keep it above knees
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The RAPID Process

Operator input is critical
Line Side Interview

- Biggest challenges in the job
- Routine discomfort experienced while doing the job
- Suggestions to improve the job

**Improvement Accelerated™**

- Introduce yourself and your teammates
- Describe the reason you are visiting the workstation
  - Improve ergonomics
  - Make the job easier and safer
- Describe the activities you will be performing
  - Short interview
  - Observation and note taking
  - Photographs of the process
- Complete the operator interview
- Thank the operator
RAPID Team Event

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Completed</th>
<th>30 Days</th>
<th>60 Days</th>
<th>90 Days</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>81</td>
<td>164</td>
<td>170</td>
<td>174</td>
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RAPID Team Process

4-6 weeks before: Identify management sponsor and team members, advance visit to identify jobs, negotiate resources

2-4 weeks before: Reserve classroom and A/V equipment, invite team members

1-2 weeks before: Arrange food, confirm team members and room logistics

30-60-90 day action plan: Follow through on improvements, regular team meetings
Today’s Agenda

- Humantech’s approach to continuous improvement events for ergonomics
- Typical results of CI events
- Lessons learned
RAPID Fixes

- High cost
- High impact
- Low cost
- Low impact

RAPID Teams

Operators
RAPID Fixes

Find It

- Horizontal Distance
- Elbows Out

Fix It

- Reduced the height and width of the side rails
- Angled conveyor
Rapid Fixes

Find It

- Tool weight
- Elbows Out

Fix It

- New aluminum wrench, 50% reduction in weight
RAPID Fixes

Find It
- Wash Rag
- Butts Up

Fix It
- Provided a table to reduce back bending postures
RAPID Fixes

Find It

- Wash Rag
- Butts Up

Fix It

- Provided a mobile cart to position the bin at a comfortable height
RAPID Fixes

Find It

- Hungry Head
- Twist and Shout

Fix It

- Provided additional lighting to improve the jam inspection.
- Increased up-time
RAPID Fixes

Find It

- Elbows Out
- Horizontal Distance
- Butts Up

Fix It

- Fabricated a tilt stand to slip the covers on the mail tray and to reduce the reach.
RAPID Fixes

Find It

- Wash Rag
- Twist and Shout
- Butts Up

Fix It

- Fabricated a fixture to hold part.
RAPID Fixes

Find It

- Contact

Fix It

- Installed foam grip padding on all weld clamps.
Rapid Fixes

Find It

- Sit vs. Stand

Fix It

- Provided a height adjustable stool.
RAPID Fixes

Find It

- Ask the Operator

Fix It

- Added a step and extended the hand rail.
Rapid Fixes

Find It

- Bad Vibes

Fix It

- Replaced 14 lb tool with an 11 lb tool
RAPID Fixes

Find It

- Contact

Fix It

- Increased grip size.
Operator-Focused Improvements
Operator-Focused Improvements
Operator-Focused Improvements
Employee Engagement
Typical Results

RAPID Improvements

- Total
- Implemented
Today’s Agenda

- Humantech’s approach to continuous improvement events for ergonomics
- Typical results of CI events
- Lessons learned
Lessons Learned: Planning

- Get the right team members
  - 50% operators (all shifts)
  - Natural leaders
  - Maintenance

- Team members 100% involved
  - Especially maintenance
  - Leadership involvement
  - Accountability for follow-through

- Communication
  - Area operations
  - Resource support managers
Lessons Learned: RAPID Week

- **Multiple shifts**
  - Interview second and third shift operators
  - Get input on Fix It items

- **Get stuff**
  - On-site: Tool cribs and graveyards
  - Off-site: Home Depot/Lowes/etc.
  - Overnight: Grainger/McMaster-Carr/etc.

- **Don’t force anything on anybody**
  - The customer is always right!

- **Everyone participates in the report out**
Lessons Learned: Follow Up

- Get the team together regularly
  - Weekly or bi-weekly
  - Transition from “event” to “daily improvements”
- Fix Once – Repeat Many (FORM)
  - Find other opportunities to apply fixes
- Communication
  - Area operations
  - Leadership
  - Plant-wide
Final Thought: Lean Thinking

- One of the biggest challenges in lean manufacturing is tapping into a fully supportive and engaged workforce.
- You will find that you cannot inspire people to perform at a world-class level in a painful and punishing workplace.
- Ergonomics creates a “win-win” for the operator:
  - Removes pain and discomfort from their jobs
  - They play an active role in the improvement process
  - They experience quick and visible improvements
Waste (Muda)

- **Value stream**
  - the steps required to physically transform raw materials into a final product throughout the entire supply chain.
Waste (Muda)

- Production flow
  - the value-added operations that transform the materials coming into your factory into the output that leaves your factory.
Waste (Muda)

- **Workstation**
  - the value added at individual operations
Ergonomics and TPS

“The Toyota Production System organizes all jobs around human motion and creates an efficient production sequence without any Muda.”

“Working Sequence refers to the sequence of operations in a single process which allows a floor worker to produce quality goods efficiently and in a manner which reduces overburden and minimizes the threat of injury or illness.”
