Injury and Illness *By Design*:

How Work Organization Changes Undermine the Health and Safety of Working People

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- Reported on a body of literature documenting adverse health and safety impacts associated with:
  - Lean Production
  - Downsizing
  - Long hours of work
  - Work pressures and demands

- Identified Knowledge Gaps and Research Directions
Since then....... 

More studies have documented adverse health and safety impacts associated with work organization changes

(see www.workhealth.org)
What’s happening in your workplace that’s causing or contributing to workers being injured, made ill and/or stressed on the job?
Most Significant Health and Safety Concerns
(Responses from 2010 USW Health, Safety and Environment Conference Delegate Survey)

- Lack of or inadequate training
- Downsizing/understaffing
- Production pressures
- Increased work loads/intensification of work
- Discipline for Safety- blaming workers
- Equipment not properly maintained or repaired
- Job combinations
- Ergonomic hazards
Workplace Hazards

- Crushing
- Shearing
- Noise, vibration
- Chemical, gases, fumes, mists, dusts
- Entanglement
- Pinch point
- High pressure
- Electrical
- Ergonomic hazards (e.g. lifting)
- Slips, Trips, Fall
- Fire
- Radiation
- Excessive hours of work
- Inadequate staffing
- Production pressures

• A survey questionnaire sent to USW paper mill local unions in the United States (2008).
• Local unions at 173 mills returned the surveys (79% response rate).
• One of 7 Key Study Findings: **Respondents reported changes in work design and restructuring are leading to safety and health problems.**

http://assets.usw.org/resources/hse/resources/papered-over.usw-2010.pdf
Table 1: Top Four Work Design Issues Making Contributions to Safety and Health Problems

<table>
<thead>
<tr>
<th>Work Organization Issue</th>
<th>Level of Contribution</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Major</td>
</tr>
<tr>
<td>1. Increased work load, pace of work, production pressures</td>
<td>63%</td>
</tr>
<tr>
<td>2. Downsizing or reduction of workforce</td>
<td>54%</td>
</tr>
<tr>
<td>3. Understaffing</td>
<td>52%</td>
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<tr>
<td>4. Combining or moving jobs, classifications, or duties resulting in loss of knowledge and expertise</td>
<td>45%</td>
</tr>
</tbody>
</table>

Q. To what extent is each of the below work organization or restructuring issues contributing to safety and health problems at this mill? Response=173, Missing 4-6% Note: Percents may not add up to 100% due to rounding.
Why Do Problems with Work Organization Persist?

Key Changes in the Work Process Continue:

- Standardization/De-Skilling
- Intensification/Lean/Speed-up
- Multi-Skilling/Job Combination/Flexibility
- Automation/New Technologies
- Monitoring
- Outsourcing/Moving Work
Formal Work Reorganization Programs:

Six Sigma
Continuous Improvement
Kaizen
Toyota Production System
Problem Solving Teams
5S – 6S
“Self-Directed” Work Groups
Cellular Manufacturing
Just-In-Time
“Basic Principles of Continuous Improvement”

<table>
<thead>
<tr>
<th><strong>Left Hand</strong></th>
<th><strong>Right Hand</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Pick up stud from tray</td>
<td>(2) Transfer stud to left hand</td>
</tr>
<tr>
<td>(3) Grasp and hold stud</td>
<td>(4) Release stud</td>
</tr>
<tr>
<td>(5) Position washer over stud</td>
<td>(6) Pick up washer from tray</td>
</tr>
<tr>
<td>(7) Loose assemble nut to stud</td>
<td>(8) Pick up nut from tray</td>
</tr>
<tr>
<td>(9) Hand start nut to proper position</td>
<td>(9) Release stud</td>
</tr>
<tr>
<td>(9) Dispose of nut and stud</td>
<td></td>
</tr>
</tbody>
</table>
## “Improved Situation”

<table>
<thead>
<tr>
<th><strong>Left Hand</strong></th>
<th><strong>Right Hand</strong></th>
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</thead>
<tbody>
<tr>
<td>(1) Pick up nut from tray</td>
<td>Pick up nut from tray</td>
</tr>
<tr>
<td>(2) Place nut in holding fixture</td>
<td>Place nut in holding fixture</td>
</tr>
<tr>
<td>(3) Obtain washer</td>
<td>Obtain washer</td>
</tr>
<tr>
<td>(4) Place washer on nut</td>
<td>Place washer on nut</td>
</tr>
<tr>
<td>(5) Obtain stud</td>
<td>Obtain stud</td>
</tr>
<tr>
<td>(6) Hand start stud to nut</td>
<td>Hand start stud to nut</td>
</tr>
<tr>
<td>(7) Grasp air tool</td>
<td>Grasp air tool</td>
</tr>
<tr>
<td>(8) Position tool and pre-secure stud to nut</td>
<td>Position tool and pre-secure stud to nut</td>
</tr>
<tr>
<td>(9) Release air tool</td>
<td>Release air tool</td>
</tr>
<tr>
<td>(10) Dispose of nut and stud</td>
<td>Dispose of nut and stud</td>
</tr>
</tbody>
</table>
“Accumulated Results”

• Capacity has been increased (2 built instead of 1)

• Non-value work has been minimized

• Work load impact is spread across more body muscles instead of being isolated to only the right arm and hand
I NEED ONE "NOW"
I NEED ANOTHER.
HERE IT IS!
I NEED ANOTHER.
HERE IT IS!
I NEED MORE!
HERE IT IS!
CUSTOMER
Step 9: Balance work to Takt Time

Balance table encasing LAB

From 10 workers with downtime/micro-breaks

To 7 workers with little downtime/micro-breaks
Today’s Work Organization Changes Have Negative Health & Safety Impacts on Workers

- Stress
- Fatigue
- Increased Tension/Increased Potential for Violence
- Job Loss/Insecurity
- Musculoskeletal Injuries
- Increased Risk of Injury/Illness/Death
- Increased Risk Factors for Cardiovascular Disease
EVERY EMPLOYEE WILL WEAR A BUTTON THAT SAYS "I'M EMPOWERED."

I DON'T WANT TO.

YOU HAVE TO.

THAT WAS EVERYTHING YOU NEED TO KNOW ABOUT LIFE IN ONE PACKAGE.
“Hey! They’re lighting their arrows! . . . Can they DO that?”
What’s Missing?

Real Workers’ Collective Voice
Collective bargaining on work organization & job stress

- Reasonable job demands: better staffing; shorter work shifts; reasonable workload & pace of work
- **More job control**: flextime; voluntary O/T; less repetitive work; more influence on work organization; job skills training; promotion opportunities
- **Social support**: reduce social isolation
- **Job security**
- **Work climate**: prevent harassment, discrimination
- **Programs to better balance work & family**: childcare, eldercare, family leave, flextime
- **Process**: health & safety committees

“If you are not at the table, you will be on the menu.”