Preventing Musculoskeletal Disorders in Garment Workers: Practical and Obstacles
A Partnership

California Department of Health Services
Occupational Health Branch

University of California, San Francisco
Occupational Health Nursing Program

University of California, San Francisco/Berkeley
Ergonomics Program

Asian Immigrant Women Advocates
(AIWA)
• **Worldwide Clothing Production Is a $335 Billion Business**

• **11 Million Workers/75% Women** (*China: 3.7 M. US 793k, Mexico 567k*)

• **Compared to 1960s, consumers are spending 50% less but buying twice as many garments** (*28.7 outerwear items per person in the US.*)

• **Labor Costs:** US $9hr, Mexico, $1.25hr, China $0.45hr
Who gets the money...

For a $100 dress.....

- Retailers get $50
- Manufacturers get $12-$16
- Contractor gets $9
- Fabric costs $22
- Garment Workers get $2-$6
Retailers

- Four companies sell 2/3 of the clothes sold in the US
- Wal-Mart sold more than $117 billion in 1998
- The next biggest retailers (Sears, K-Mart, Target and Mervyns) together sold over $100 billion

Retailers control the garment industry
The two rules for retailers:

- Don’t run out of items customers want
- Don’t order items customers don’t want.

- Big retailers carry between 800,000 and 2 million items in their stores.

- In 1987, retailers lost 25 billion dollars because of inventory errors.

- The invention of the bar code transformed the industry.
Manufacturers design, sell and deliver clothes to retail stores.

Usually they buy the fabric and contract with factories to cut and sew the garment.

They decide whether to use a factory in the US or overseas to make the garments.
What We Sew in California...

Women's Clothing: 68%

Men's and Boy's: 8%

Girl's and Children's: 3%

Other Products: 21%
California's Garment Factories

- 6,000 factories in CA
- 45% employ less than 5 workers
- Most are immigrant-owned
- The majority are considered sweatshops
- In a 1996 TIPP study, 96% had health and safety violations (72% serious)
- Over 60% had minimum wage and hour violations
**Los Angeles**
- 5,500 businesses
- 90,000 sewing machine operators
- 75% Latina
- Many undocumented workers
- No unions

**Bay Area**
- 500 businesses
- 10-12,000 sewing machine operators
- 90% Asian (immigrants)
Description of Problem

- unsafe conditions
- long hours, no breaks
- no control over work
- no benefits
- many unlicensed shops
- cultural/language barriers
- fear of reporting injuries
MSDs in Garment Workers

- Sewing machine operators have significantly more MSD symptoms (Vilma 1982, Westgaard 1992)
- Persistent pain common among garment workers (Punnett 1985)
- Increased chronic health problems and permanent disability (Brisson 1989)
Ergonomic Risk Factors

- Poor posture and seating leads to pain and reduced work output (Nag 1992)
- Upper extremity MSD symptoms reduced with adjustable chairs and workstation changes (Li 1995, Herbert 1997)
Limitations of Existing Studies

- No studies in small contractor shops
- Few studies in United States
- No data on non-English speaking Asian workers
Multidisciplinary Project

**FUNDING**

- Wellness Foundation
- California Endowment
- NIOSH
- ILE

**CDHS**
- Health education
- Ergonomics

**UCSF/UCB**
- Clinical
- Ergonomics

**AIWA**
- Community Workers & Volunteers
- Family Members
- Physical therapy
- Massage
- Translations

Worker outreach & empowerment
Project Components

(1) Free clinic in Chinatown -
   - clinical examinations
   - physical therapy/massage
   - ergonomics/exercise classes

(2) Work site ergonomics evaluation and intervention project
Goals of clinic

• provide service
• collect data on type and extent of MSDs in this population (questionnaire, focus groups)
• collect risk factor information to aid ergonomics project
Ergonomics Project - Goals

- identify risk factors for MSDs at small sewing shops
- perform detailed task analysis
- develop effective and cost-effective ergonomic interventions for sewing factories
- develop culturally sensitive and worker-friendly educational materials
• laboratory testing of proposed interventions
• introduce interventions at 3 “model” shops
• compare symptom severity and ergonomic measurements at “model” shops versus control shops
  – disseminate before/after work site surveys
  – videotaping, checklist, workstation measurements
  – employer/employee interviews
Age Distribution

\((n=100)\)

- 25-35: 7%
- 35-44: 27%
- 45-54: 46%
- 55-64: 17%
- 65+: 2%

\[ \text{Mean age} = 48.7 \text{ years} \]
Level of Education

(n=100)

- 39% Elementary School
- 41% Middle School
- 16% High School
- 1% College

- 80% less than middle school
- 95% Cantonese speaking
Hours Worked per Week
(n=100)

- Mean hours/week = 48 hours
- Mean years in industry = 13 years
Garment Worker Wages
(n=100)

Mean Wage: $17.54
Living Wage: $9.95
US Poverty Level: $8.50
Mean Wage: $6.32
Median Wage: $5.75

✓ Garment workers wages 75% US poverty level
Relatively few have benefits

11% have MediCal
• 57% have seen HCP for WRMSD
• Most go to community clinics
• Most common barriers to care are language (50%) and cost (one-third)
• Only 7% have filed workers’ compensation claim
### Primary Diagnoses

*(184 diagnoses for 99 patients)*

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprains/strains</td>
<td>144 (78)</td>
</tr>
<tr>
<td>Back</td>
<td>48 (26)</td>
</tr>
<tr>
<td>Neck</td>
<td>33 (18)</td>
</tr>
<tr>
<td>Shoulder</td>
<td>23 (13)</td>
</tr>
<tr>
<td>Carpal tunnel</td>
<td>7 (4)</td>
</tr>
<tr>
<td>Other nerve</td>
<td>9 (5)</td>
</tr>
<tr>
<td>Tenosynovitis</td>
<td>18 (10)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (4)</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>184 (100)</strong></td>
</tr>
</tbody>
</table>
Treatment Methods

- NSAIDs
- Splints
- Injections
- Referral to limited PT and ergonomic classes
- Only one work comp claim filed
Risk Factors

Sustained neck and trunk flexion

Repetitive Shoulder Abduction
Risk Factors

- Pinching of Fingers
- Wrist Deviations
Lumbar Motion Monitor
Proposed Interventions and Laboratory Testing

- Tilt to decrease neck & trunk flexion
- Table extensions
Tilting Table
Tilting Needle
Straight Back Chair
Barriers to Treatment and Prevention

• “Ergonomics” is a foreign word
• “Work-relatedness” not understood
• Cultural beliefs about medication and rx
• Fear of change
  ➢ job loss/reprisal
  ➢ pain part of job
Successes

- Patient recruitment
- Integrated stretching and ergonomics curriculum
- AIWA Ergonomics Committee: worker-to worker outreach, train-the-trainer program
- Participation in ergonomics “laboratory”
Participatory Model
Worker Helping Worker
Limitations

- Recruitment bias to clinic
- Uninsured/underinsured population
- Limited work site follow-up
- Few willing to file work comp claims
Conclusions

- Ergonomic risk factors in garment shops
- Risk of WRMSDs may be substantial
- Practical and feasible solutions needed
- Barriers to workers compensation
Future Steps: Ergonomic improvements

- Complete job task analysis at “model” shops
- Pilot test practical and feasible interventions
- Recommend improved ergonomic work practices throughout industry
Future Steps – Treatment of MSDs

- Expand access to occupational health services
- Improve occupational health at primary care level
- Improve tracking of occupational injuries/illnesses among low wage/immigrant populations