Intervention to Reduce Workplace Violence in Hospitals: Results and Lessons Learned

Judy Arnetz, PHD, MPH, PT
• Research grant from CDC/NIOSH
  – Randomized controlled intervention study (R01 OH009948)
  – Project period: September 2011-August 2016

• Partnered with Detroit Medical Center (DMC)
  – 7 hospitals
  – Centralized electronic reporting system for occupational injuries

• Project team:
  – Lynnette Essenmacher, MPH
  – James Janisse, PhD
  – Mark Luborsky, PhD
  – Lydia Hamblin, PhD
  – Jim Russell, BSN
  – Mark Upfal, MD, MPH
DMC Stakeholder Representatives

- Human Resources
- Labor (SEIU, AFSCME)
- Nursing
- Occupational Health
- Quality and Safety
- Security
Environment of Care Database

Hospital A
Hospital B
Hospital C
Hospital D
Hospital E
Hospital F
Hospital G

Workplace Violence Database

Loss Time Management Department

Human Resources Department
Incidence rates per hospital

Incidence rate = (# incidents/FTE) x 100

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Incidents</th>
<th>PPH</th>
<th>FTEs</th>
<th>Rate per 100 FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>274</td>
<td>20068362</td>
<td>9648</td>
<td>2.84</td>
</tr>
<tr>
<td>Hospital B</td>
<td>385</td>
<td>15755088</td>
<td>7575</td>
<td>5.08</td>
</tr>
<tr>
<td>Hospital C</td>
<td>102</td>
<td>1948192</td>
<td>937</td>
<td>10.89</td>
</tr>
<tr>
<td>Hospital D</td>
<td>263</td>
<td>21268510</td>
<td>10225</td>
<td>2.57</td>
</tr>
<tr>
<td>Hospital E</td>
<td>101</td>
<td>6277122</td>
<td>3018</td>
<td>3.35</td>
</tr>
<tr>
<td>Hospital F</td>
<td>48</td>
<td>6551160</td>
<td>3150</td>
<td>1.52</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1173</td>
<td>80984360</td>
<td>38935</td>
<td>3.12</td>
</tr>
</tbody>
</table>

PPH = paid-productive hours   FTE = full-time equivalents
FTEs=PPH/2080
Unique reporting system & database

- Rates of WPV
  - based on the population at risk
  - not just #s of incidents
- Risk factors for WPV
- Identify high-risk worksites
- Outcomes (injuries, time lost, costs)
- Evaluate the effect of the interventions (ROI)
PROJECT AIMS

1. Develop and evaluate database-generated reports of workplace violence incidents attuned to end-user specifications

2. Develop and implement data-driven strategies for prioritizing worksites for violence worksite intervention

3. Prospectively evaluate the impact of an intervention on violence incidence and injury rates
**PROJECT PLAN OVERVIEW**

**Phase I**
- Standardized computerized WPC reports
- Developed in collaboration with DMC stakeholders (Focus Groups)
- Sept 2011- Nov 2012

**Phase II**
- Hazard Risk Matrix
- Determine priorities for intervention
- n = 41 worksites (2,023 employees)
- Dec 2012-Feb 2013

**Phase III**
- Worksite Walkthrough intervention*
- n = 21 worksites
- n = 20 controls (no intervention)
- Aug 2013-Oct 2013

**Phase IV**
- Evaluations
- based on:
  - changes in incidence rates
  - management & staff appraisals
- Nov 2013-Oct 2015

* Questionnaire to all 41 worksites pre-intervention and 1-year post intervention
PHASE I: Database reports

• Stakeholders wanted data reports to provide “the big picture”
  – Rates of occurrence
  – Reasons/details
  – Consequences for employee/workplace
  – Organizational efforts to deal with incident
PHASE II: Risk Assessment

• Aim: To prioritize units for WPV intervention

• Methods: Implementation and application of the Hazard Risk Matrix (CDC/NIOSH 2003)
  – 30 months’ of data (Jan 2010- June 2012)
## Hazard Risk Matrix*

### Violence Risk Assessment

<table>
<thead>
<tr>
<th>PROBABILITY</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

*CDC/NIOSH*
Populated Hazard Risk Matrix with number of hospital units in each cell

<table>
<thead>
<tr>
<th>PROBABILITY</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>9</td>
<td>2*</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEVERITY</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
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<td></td>
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</tbody>
</table>

N=1159 hospital units total
N=53 units reporting at least 5 WPV incidents
N=41 units = high + medium probability and severity

* 1 additional unit identified by stakeholders
PHASE III: Randomized Intervention

• 41 units stratified by unit type (6 “blocks”)
  • acute care nursing, intensive care nursing, ED, psychiatry, security, surgery
  • 21 units randomized to the Intervention arm
  • 20 units randomized to the Control arm

• N=21 Intervention units received a worksite visit
  • Supervisors were presented with a summary report of workplace violence data for their unit compared to the entire hospital system
  • Based on this data, units developed an “Action Plan”
Worksite walkthrough: Data-driven improvement on a unit level

High-risk units identified by Hazard Risk Matrix

Worksite Walkthrough: 45 min. WPV Task Force present unit-level data to unit supervisor/staff

Review of risk factors and Intervention strategies
Modified OSHA checklist

Action Plan
Supervisor + staff

Follow-up

ACTION PLAN:

What:

Who:

When (Time Plan):

Contact Person: Email:
Template for data presentation

**Hospital:**

**Unit Name:** Emergency Room

**Time Period:** 2010 - 2012

**Number of Incidents:** 20

- **Type II (Pt-to-Worker):** 18
- **Type III (Worker-to-Worker):** 2

**Total Loss Time Management Costs:** $11,215.52

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**Workplace Violence/Conflict by Type**

- **Loss Time Management Costs**

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of Incidents/100 FTE's</th>
<th>Costs/100 FTE's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type II (Pt-to-Worker)</td>
<td>8</td>
<td>Cost=$5,343/100 FTE's</td>
</tr>
<tr>
<td>Type III (Worker-to-Worker)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>LTM Costs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Job Category**

- **Nursing:** 60%
- **Mgr/Admin. Prof.:** 20%
- **Other Technicians:** 20%

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**Unit Rate**

- **Average Rate**
Checklist of suggested prevention strategies for workplace violence on hospital units (Hamblin et al., 2017)

ENVIRONMENTAL

ENTRIES/EXITS

☐ Are there enough exits and adequate routes of escape?
☐ Can exit doors be opened only from the inside to prevent unauthorized entry?
☐ Is access to work areas only through a reception area?
☐ Are reception and work areas designed to prevent unauthorized entry?
☐ Are there security guards at the entrances and/or exits of the unit?
☐ Are there metal detectors at the entrances of the unit?

WORK AREA HAZARDS

☐ Are waiting and work areas free of objects that could be used as weapons?
☐ Are chairs and furniture secured to prevent use as weapons?
☐ Is furniture in waiting and work areas arranged to prevent employees from becoming trapped?
☐ Are hallways and work areas clear of obstacles that block pathways?

WORKPLACE DESIGN

☐ Could someone hear a worker call for help?
☐ Is there appropriate lighting used in patient areas? (brightly lit, dim during sleeping times)
☐ Is there an appropriate noise level in patient areas?
☐ Can workers observe patients or clients in waiting areas and rooms from their work stations?
☐ Are patient or client areas designed to maximize comfort and minimize stress?
☐ Are there employee-only work areas that are separate from public areas?
☐ Is a secure place available for employees to store their personal belongings?
Examples of interventions

• **Environmental**: Panic alarms installed; increase locked storage space for patient and staff belongings

• **Behavioral**: Active shooter training; debriefing with all staff at time of incident

• **Administrative**: Detailed check of patient belongings upon admission; enforcement of patient visiting hours
PHASE IV: Intervention Evaluation

- 6 months post-intervention: incident rates of violent events*
  - increased significantly on control units
  - did not increase on intervention units

- 24 months post-intervention: incident rates of violence-related injury
  - increased significantly on control units
  - did not increase on intervention units

*Patient-to-worker violence
Framework for WPV Prevention that builds on OSHA guidelines

- Stakeholder Engagement
- Population-based Risk Assessment
- Data-driven improvement at the unit level
- Prioritization of intervention needs (Hazard Risk Matrix)
• **Reporting** is key: No data – no problem!
  - Systematic, continuous monitoring of population-based rates
  - Identification of risk factors
  - Data reports should be reviewed regularly

• **Hazard Risk Matrix** is a useful tool for identifying/prioritizing hospital units at risk

• **Worksite walkthroughs** provide a practical forum for review of data and risk situations at unit level

• **Action plans** bring ownership of the issue to the work unit: data-driven prevention measures at unit level

• **Data-based evaluation** of prevention measures
TAKE-HOME POINTS

• Data is key!
  – Prevalence rates
  – Unit-based intervention
  – Intervention evaluation
  – Calculate the cost-savings of reduced violence-related injury $$

• Systems approach: WPV data on the hospital dashboard along with other occupational injuries
  – WPV prevention should be integrated into the everyday working life of the hospital

• Change employee mindset
  – from violence is “part of the job” to
  – violence is a problem that needs to be better managed and prevented
References/Resources

Population-based rates:

Hazard Risk Matrix:

Intervention results/Examples of prevention strategies implemented:

WPV data reports/Checklist of WPV prevention strategies: