Research Using the Workers’ Compensation Information System (WCIS)

Presented by
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Workers’ Compensation Information System (WCIS)

- Electronic repository
- Submitted by claims administrators
- Two parts
  - First Report of Injury (FROI) and Subsequent Report of Injury (SROI)
  - Medical bill payment data
- Uses
Information Collected by WCIS

- **Employee and Employer**
  
  Occupation Description: Bus Operator (P/T)
  Employer Name: Metropolitan Transit Au
  Class Code: 7382 Bus or Limousine Operations

- **Injury**
  
  Part of Body Injured: 30 Upper Extremities/Multiple Upper Extremities
  Cause of Injury: 60 Strain/Strain or Injury by, NOC
  Nature of Injury: 52 Sprain or strain
  Injury Description: Repetitive continuous use and turning of both arms while operating the bus has caused severe pain, to upper extremities both hands, wrist, arms, sh

- **Medical Bills – ICD-9**
  
  847.1 Thoracic Sprain
  847.2 Lumbar Sprain

WCIS Research Projects in 2014
CARPAL TUNNEL SYNDROME

Calculate Industry Specific Rates of CTS from 2006-2011

- Identify cases in WCIS
- Industry code cases
- Match cases to denominator
How do we identify CTS?

| Nature of injury                  | 78, Carpal tunnel syndrome  
|                                   | 49, Sprain or tear 
|                                   | 52, Strain or tear 
|                                   | 80, All other cumulative injury |
| Cause of injury                  | 97, Repetitive motion 
|                                   | 60, Strain or injury by 
|                                   | 98, Cumulative 
|                                   | 94, Rubbed or abraded by |
| Part of body                     | 33, Lower arm 
|                                   | 34, Wrist 
|                                   | 35, Hand 
|                                   | 36, Finger(s) 
| Injury description               | Contains a variation of the term “carpal,” “CTS,” etc. or “numbness” or “tingling” |

Case Classification Scheme

<table>
<thead>
<tr>
<th>Procedure code</th>
<th>ICD-9 Dx Code</th>
<th>Number of Acceptable Criteria Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>64721 or 29848</td>
<td>Any</td>
<td>Probable</td>
</tr>
<tr>
<td>Any</td>
<td>354 or 354.0</td>
<td>Probable</td>
</tr>
<tr>
<td>Other or N/A</td>
<td>Other or N/A</td>
<td>Possible</td>
</tr>
</tbody>
</table>
Requires match of FROI data with medical bill data – when we can’t do that, we can’t capture cases

CTS Case Characteristics, WCIS 2006-2011

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cases</th>
<th>Full-time Equivalent (FTE)</th>
<th>Rate x 100,000 FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>89,762</td>
<td>84,063,352</td>
<td>106.8</td>
</tr>
<tr>
<td>Age Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>18,178</td>
<td>21,204,757</td>
<td>85.7</td>
</tr>
<tr>
<td>35-44</td>
<td>23,390</td>
<td>21,250,744</td>
<td>110.1</td>
</tr>
<tr>
<td>45-54</td>
<td>28,126</td>
<td>19,384,346</td>
<td>145.1</td>
</tr>
<tr>
<td>55-64</td>
<td>13,877</td>
<td>10,799,772</td>
<td>128.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24,116</td>
<td>47,427,627</td>
<td>50.8</td>
</tr>
<tr>
<td>Female</td>
<td>65,121</td>
<td>36,635,726</td>
<td>177.8</td>
</tr>
</tbody>
</table>
WHAT JOB ACTIVITIES ARE CAUSING THIS?

Industry Coding Systems

<table>
<thead>
<tr>
<th>Standard Industrial Code (SIC)</th>
<th>North American Industry Classification System (NAICS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Started in 1937</td>
<td>Started in 1997</td>
</tr>
<tr>
<td>4 digits</td>
<td>6 digits</td>
</tr>
<tr>
<td>10 sectors</td>
<td>20 sectors</td>
</tr>
<tr>
<td>Last updated 1987</td>
<td>Updated every 5 years</td>
</tr>
</tbody>
</table>
Original Industry Coding in WCIS, CTS Cases 2006 - 2012

- No Industry Code: 25%
- NAICS: 26%
- SIC: 49%

Public Sector Workers are Less Likely to Have Correct Industry Code

- Public sector is composed of many industries
Government

- We aggregated six industries into 'public administration'
- Government claims were identified
  - By SIC 91* or NAICS 92* code
  - By employer name
  - By class

- Public Safety
- Public Transit
- Schools
- Other industries with industry

Combined Industry Codes

Wired and wireless telecommunications  Aircraft and aerospace manufacturing  Offices of physicians and outpatient care centers
Employer Name and Employer FEIN

407 claims all coded as department and discount stores

Employer Abracadabra

46 claims from employer “Abracadabra” without industry coding

Code 46 “Abracadabra” claims as department and discount stores

Challenges
### Industries with highest rates of CTS, California 2006-2011

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry Description</th>
<th>Cases</th>
<th>Rate x 100,000 FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Textile and fabric finishing and coating mills</td>
<td>54</td>
<td>393</td>
</tr>
<tr>
<td>2</td>
<td>Animal slaughtering and processing</td>
<td>396</td>
<td>342</td>
</tr>
<tr>
<td>3</td>
<td>Sugar and confectionery products</td>
<td>148</td>
<td>326</td>
</tr>
<tr>
<td>4</td>
<td>Telecommunications</td>
<td>2,674</td>
<td>325</td>
</tr>
<tr>
<td>5</td>
<td>Navigational and control instruments manufacturing</td>
<td>588</td>
<td>280</td>
</tr>
<tr>
<td>6</td>
<td>Public administration</td>
<td>4,752</td>
<td>268</td>
</tr>
<tr>
<td>7</td>
<td>Insurance carriers and related activities</td>
<td>3,632</td>
<td>262</td>
</tr>
<tr>
<td>8</td>
<td>Aluminum production and processing</td>
<td>67</td>
<td>252</td>
</tr>
<tr>
<td>9</td>
<td>Bus service and urban transit</td>
<td>808</td>
<td>238</td>
</tr>
<tr>
<td>10</td>
<td>Miscellaneous petroleum and coal products</td>
<td>27</td>
<td>234</td>
</tr>
</tbody>
</table>

### Prevalent Occupations Among Industries with the 10 Highest CTS Rates, California 2006 - 2011

- Computer Specialists
- Food Processing Workers
- Electrical Mechanics, Installers, and Repairers
- Financial Specialists
- Financial Clerks
- Secretaries and Administrative Assistants
- Motor Vehicle Operators
- Sales Representatives, Services
- Business Operations Specialists
- Information and Record clerks
- Office and Administrative Support Workers

In spite of everything we know about office ergonomics, there are still 1,000s of cases of CTS among office workers.
How much does CTS Cost?

- Subsequent Report of Occupational Injury
  - Cost
    - Temporary Disability
    - Permanent Disability
    - Medical Costs
    - Legal Costs
    - Settlements
  - Return to work

SROI Completeness, 2012

\[
\frac{305K}{568K} = \frac{SROI}{FROI}
\]

- Without SROI: 46%
- With SROI: 54%
How much does CTS Cost?

- Calculation coming soon....

Conclusions
Roadblocks for Research

- Industry coding
- Employer name/FEIN
- Matching FROI and Medical Bills
- Calculating Costs with SROI
- Complex Injury

WORKPLACE VIOLENCE IN HEALTH CARE SETTINGS
### Identify Cases of Workplace Violence among Health Care Workers, 2010-2012

- Identify health care workers
  - Industry code
  - Class Code
  - Occupation description
  - Employer name (confidential)
- Identify violence
  - Injury description
  - Cause of injury

```sql
SELECT *
FROM
WHERE INJURY_DESCRIPTION LIKE '%ASSAULT%'
  OR INJURY_DESCRIPTION LIKE '%STRANGLED%'
  OR INJURY_DESCRIPTION LIKE '%STR&G&D%'
  OR INJURY_DESCRIPTION LIKE '%AGITATED%'
  OR INJURY_DESCRIPTION LIKE '%AGGIT%TED%'
  OR INJURY_DESCRIPTION LIKE '%AGGRES%'
  OR INJURY_DESCRIPTION LIKE '%AGRES%'
  OR INJURY_DESCRIPTION LIKE '%COMBAT%'
  OR INJURY_DESCRIPTION LIKE '%THREAT%'
  OR INJURY_DESCRIPTION LIKE '%ABUSIVE%'
  OR INJURY_DESCRIPTION LIKE '%ABUSE%'
```
Continued…

- Cause of injury fellow worker, patient of other person, but only if it involves punch, kick, or stab, or shove
- Person in the act of a crime
- Robb but not throbb
- Stab but not stable
- Violent but not non-violent

- Takes time, patience, work hours, lots of iterations – but also relies on good data in the injury description.
- Needs to be validated every time it is done
Workplace Violence Claims among Healthcare workers, California 2010-2012

Demographics of Workplace Violence Claims, California 2010-2012

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>4,884</td>
<td>100%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3,393</td>
<td>69%</td>
</tr>
<tr>
<td>Male</td>
<td>1,466</td>
<td>30%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 – 19</td>
<td>22</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>20 – 24</td>
<td>573</td>
<td>12%</td>
</tr>
<tr>
<td>25 – 34</td>
<td>1,234</td>
<td>25%</td>
</tr>
<tr>
<td>35 – 44</td>
<td>1,024</td>
<td>21%</td>
</tr>
<tr>
<td>45 – 54</td>
<td>1,339</td>
<td>27%</td>
</tr>
<tr>
<td>55 – 64</td>
<td>583</td>
<td>12%</td>
</tr>
<tr>
<td>65 - 84</td>
<td>98</td>
<td>2%</td>
</tr>
</tbody>
</table>
What Happens?

Employee tried assisting resident to the restroom when resident became aggressive hitting and pulling the employee hair, resulting in an unknown injury to the head.

Employee was assaulted and robbed in the parking lot of a scenic location during lunch time.

Punch to right side of face/cheek by hospice patient when LPN was trying to calm an agitated patient.

Co-worker made multiple threats and threaten to kill the claimant causing stress.

Workplace Violence Claims among Healthcare workers, California 2010-2012

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>1629</td>
<td>33%</td>
</tr>
<tr>
<td>Skilled Nursing and Intermediate Care Facilities</td>
<td>866</td>
<td>18%</td>
</tr>
<tr>
<td>Government</td>
<td>583</td>
<td>12%</td>
</tr>
<tr>
<td>Residential and Intellectual Disability Facilities</td>
<td>303</td>
<td>6%</td>
</tr>
<tr>
<td>Residential Care Facility - Elderly</td>
<td>276</td>
<td>6%</td>
</tr>
<tr>
<td>Psych and Substance abuse and Specialty Hospitals</td>
<td>200</td>
<td>4%</td>
</tr>
<tr>
<td>Home Health Services</td>
<td>188</td>
<td>4%</td>
</tr>
<tr>
<td>Child and Youth Services</td>
<td>162</td>
<td>3%</td>
</tr>
<tr>
<td>Ambulance and Ambulatory Care Services</td>
<td>154</td>
<td>3%</td>
</tr>
<tr>
<td>Physician Offices</td>
<td>129</td>
<td>3%</td>
</tr>
<tr>
<td>Unknown</td>
<td>183</td>
<td>4%</td>
</tr>
</tbody>
</table>
Challenges

- Natural language processing
- Public sector reporting
- Underreporting

Improvement Activities

- Public sector meetings
- Targeting bad SROI reporters
- Training bulletins
- Medical bill matching project
- Medical Release 2.0
- Penalties
Conclusion

- Research (to practice) activities using WCIS
- Continuing challenges in reporting

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