Arizona Occupational Health Indicators
Lessons Learned and Bumps in the Road

Matthew Roach, MPH
Epidemiology Program Manager
Office of Environmental Health

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Hazards for Arizona Workers

Source: (Left) Flickr Creative Commons,  (Right) Thom Wilson
Background

Building an occupational health surveillance program in Arizona
Goals

- Improve knowledge
- Identify areas of concern
- Improve partnerships
- Promote awareness
WestON

Participation in WestON led to collaboration with the University of Arizona.
Overcoming Challenges

• Getting Data

• Workers compensation data access

• Absent industry/occupation on hospital discharge

Photo: Jorge Franganillo

Health and Wellness for all Arizonans
Stakeholder Engagement

- Arizona Department of Health Services
- Arizona Division of Occupational Safety & Health
- Arizona Industrial Commission
- Council of State & Territorial Epidemiologists
- University of Arizona
- University of Colorado, Mountain and Plains ERC
- University of California, Davis, Western Center for Agricultural Health and Safety
Areas of Concern

Monitoring
Benchmarking
Resource Allocation
Focusing
Successes

• Occupational Health Indicator Report

• Development of Occupational Health Surveillance Website

• Networking
Arizona Occupational Health Hazard Indicators

2008-2012

Prepared by:

Zachariah W. Peterson, MPH Student, University of Arizona Mel & Enid Zuckerman College of Public Health, Arizona Department of Health Services Intern

Matthew Roach, MPH, Program Manager, Arizona Department of Health Services, Bureau of Epidemiology & Disease Control, Office of Environmental Health

Philip Harper MD, MPH, Professor, University of Arizona Mel & Enid Zuckerman College of Public Health, Environmental Health Sciences

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Indicator 1
Non-fatal Injuries and Illnesses

Arizona's highest incidence rate was 3,700 events per 100,000 FTE in 2008 and its lowest rate was 3,200 events per 100,000 FTE in 2011 and 2012. The count and rate of all non-fatal injuries and illnesses has gradually decreased from 2008-2012. From 2010-2012, the count and the rate of cases approached 15,400 cases and 900 cases per 100,000 FTE, respectively.

<table>
<thead>
<tr>
<th>Year</th>
<th>All injuries and illnesses Count</th>
<th>Rate*</th>
<th>Injuries and illness involving days away from work Count</th>
<th>Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>69,500</td>
<td>3,700</td>
<td>18,300</td>
<td>1,000</td>
</tr>
<tr>
<td>2009</td>
<td>62,500</td>
<td>3,500</td>
<td>17,500</td>
<td>1,000</td>
</tr>
<tr>
<td>2010</td>
<td>53,700</td>
<td>3,300</td>
<td>15,200</td>
<td>900</td>
</tr>
<tr>
<td>2011</td>
<td>55,900</td>
<td>3,200</td>
<td>14,900</td>
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<tr>
<td>2012</td>
<td>54,400</td>
<td>3,200</td>
<td>15,400</td>
<td>900</td>
</tr>
</tbody>
</table>

* per 100,000 FTE

Table 1.1 Number and incidence rate of injuries and illnesses in Arizona
Source: BLS Survey of Occupational Injuries and Illnesses

Indicator 2
Work-related Hospitalizations

In Arizona, there were at least 2,700 annual hospital discharges with primary payer listed as workers' compensation from 2008-2012. The annual crude rate of workers hospitalized for a work-related injury or illness ranged from 95 per 100,000 workers in 2009 to 111 per 100,000 workers in 2008.

Table 2.1 Number and rate of work-related hospitalizations in Arizona, ages 16 and older
Source: Arizona Department of Health Services' hospital discharge database, BLS Current Population Survey

**SIGNIFICANCE**

Individuals hospitalized with work-related injuries and illnesses have some of the most serious and costly work-related adverse health outcomes. Tracking of these significant adverse health effects should be undertaken to document the burden of occupational injuries and illnesses, and to identify settings in which workers may be at high risk. Tracking efforts will also be useful for designing, targeting, and evaluating prevention efforts over time.

**METHODS**

The number of work-related hospitalizations were obtained from Arizona's Department of Health Services, which collects data on all hospital discharges from Arizona licensed hospitals. The data does not include cases of unknown age, cases under 16 years of age, out-of-state residents, unknown residence, or out-of-state hospitalizations. Discharges from federal, military, and Department of Veterans Affairs hospitals are excluded. Crude rates of hospitalizations per 100,000 employed persons were calculated for each year from 2008-2012 using civilian employment estimates from the Bureau of Labor Statistics Current Population Survey as the denominator.

**LIMITATIONS**

1. All admissions are counted, including multiple admissions for a single individual.
2. Age, gender, race/ethnicity, zip code specific counts, and rates can be used to better define the pattern of work-related hospitalizations.
3. The number of hospitalizations in Arizona.

**RECOMMENDATIONS**

1. Continue to track inpatient hospitalizations to get a more accurate representation of the overall trend.
2. Age, gender, race/ethnicity, zip code specific counts, and rates can be used to better define the pattern of work-related hospitalizations.
3. Examine the proportion of all hospitalizations in Arizona.
Occupational Health

Home

Occupational injuries and illnesses are significant but preventable public health problems. There are more than 2.7 million workers employed in Arizona. In 2012, more than 54,000 injuries and illnesses occurred in Arizona workplaces. Among those who were injured, 60 people died from a fatal work-related injury. The Arizona Department of Health Services has taken the initiative to perform surveillance of occupational health indicators for use in setting priorities for education and prevention activities. Successful approaches to making workplaces safer and healthier begin with having the data necessary to understand the problem. The following links highlight some of the resources available to promote occupational safety.

- National Institute for Occupational Safety and Health (NIOSH)
  Industry and occupation specific workplace safety information
- Council of State & Territorial Epidemiologists – Occupational Health Indicators
  Occupational measures of health (work-related disease or injury) and factors associated with health (workplace exposures, hazards, or interventions)
- Occupational Safety & Health Administration
  Information on worker rights, regulations, data, enforcement, and trainings
- Arizona Division of Occupational Safety and Health (ADOSH)
  Report a workplace fatality, accident, or imminent danger

Data, Statistics, & Reports

- 2008-2012 Arizona Occupational Health Hazard Indicators Report
  This report summarizes workforce statistics such as demographic profiles, workforce safety and health, and the counts of rates of injuries and illnesses for varying occupational health indicators for Arizona from 2008-2012.
- 2012 Demographic Profile of Arizona Workforce
  Statistics on civilian employment by industry and occupation

Additional Resources

- Heat and Outdoor Workers Toolkit
  Toolkit provides outdoor workers and employers with resources to prevent, recognize, and treat heat illness
Extreme Heat in Arizona

114 Days Over 100 Degrees F in Phoenix

128 degrees F, Record High, June 29, 1994, Lake Havasu City
Heat-Related Illness

In 2014,

- 2,170 ED Visits
- 494 Inpatient Admissions
Heat-Related Deaths

- (2003-2014)
- 154 Heat-Related Deaths Annually
Work-Related Heat Illness

### Inpatient Admissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Admissions</th>
<th>Total charges</th>
<th>Median charge</th>
<th>Total days</th>
<th>Median days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>15</td>
<td>$730,546</td>
<td>$23,276</td>
<td>69</td>
<td>2.0</td>
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</table>

### Emergency Department Visits

<table>
<thead>
<tr>
<th>Year</th>
<th>Visits</th>
<th>Total charges</th>
<th>Median charge</th>
<th>Total days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>100</td>
<td>$497,886</td>
<td>$3,490</td>
<td>22</td>
</tr>
</tbody>
</table>
YouTube Video Link: [https://youtu.be/HGO-hddrdRo](https://youtu.be/HGO-hddrdRo)
From Data to Action:

• Are OH Indicators actionable?
  • Weston Agendas (2013-15): Excellent topics, but none used OHI’s directly

• Can WC data analysis create motivation?
  • $$
HDD: Hospital Discharge Database

- Hospital inpatient (IP) Discharges
- Emergency Dept (ED) Visits
- 2008-2014
- Operationally define work-related by payer type = workers compensation
7 Clinical Groups (defined by ICD and CPT)

**INJURY**
- Back
- Trauma

**DISEASE**
- Cardiac
- CTS
- Heat
- Psych
- Respiratory
“Big diagnoses” - frequency and $charges

- Cardiac
- Psych
- Resp

- Cardiac = $543m
- Back = $318m
YES.... BUT...
Principal vs Secondary Dx

- Back, Trauma, Heat usually $1^0$
- Psych, Cardiac, Resp generally $2^0$

Primary Dx: # of Cases

P Harber, J Ha, M Roach
Frequency of Concurrent Dx
Pretty picture... No time to discuss
HEAT RELATED ILLNESS: Value of examining concurrent diagnoses

- Published time series analyses strongly suggest impact of heat on heart and lung
- Finding:
  - Often a Primary Diagnosis
  - Rarely a secondary diagnosis for heart, lung
- Implication:
  - Coding probably does not capture major impact of HRI
  - (since heart, lung, kidney are major serious impacts of HRI, would expect more concurrent diagnoses)
Suggestions

- Diseases Inpatient and ED have big impact
- More in-depth analytic research needed
- Analyze Principal Dx separately
- "Diseases" need more attention:
  - Effect modifiers
  - Major driver of cost
  - Underrecognized
- Use OHI data to gain support
Hopes for AZ → Action

• Create sustainable statewide surveillance
• Capture interest of “decision-makers”
• Include work information in HDD abstracts
• Share workers compensation data (currently outsourced)
Lessons Learned

• Open Dialogue

• Partnerships

• Flexibility
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Contact Information

Matthew Roach, MPH
Epidemiology Program Manager

matthew.roach@azdhs.gov
(602) 364-3673