Leveraging ArcGIS to Enable Public Health Surveillance of Work-Related Injuries

Christopher M. Bell, MSHI, CAPM, CHTS-IM
Arash Jalali, MPH, MSHI
Conflict of Interest Disclosure

Christopher M. Bell, MSHI, CAPM, CHTS-IM

Has no real or apparent conflicts of interest to report.

The following research was conducted under the guidance of UIC IRB. Protocol #2013-0529
University of Illinois Hospital & Health Sciences System

University of Illinois Hospital & Health Sciences Background
University Health Services
Overview
Workers’ Compensation Overview
Study Overview

- Capture the work-related incidents and visualize them using ArcGIS

- Identify vulnerable locations and occupations (hot spots) on campus

- Structure intervention programs

- Allocate prevention resources in a cost effective matter
Datasets Used
- First Report of Injury Forms
- OSHA Reports
- EHR Extracted Data
- UIC AutoCAD Building Files
UNIVERSITY OF ILLINOIS
FIRST REPORT OF INJURY/ILLNESS
Submit via campus mail or electronically to WorkComp@uillinois.edu
(To be completed within 24 hours of incident by employee)

EMPLOYEE INFORMATION (* Federal Government/University Required Information)

Name_________________________________________ UIN #_________________________
Street________________________________________________________________________ Phone #_________________________
City_________________________ State_________ ZIP_________________________
Birth date___________ Sex: M / F Marital Status: S / M / Sep / W / D # Children under the age of 18 ________________

*Applied for or been denied Social Security Disability Insurance (SSDI)? □ Yes □ No If yes, when________________________

*Applied for or been denied SURS benefits? □ Yes □ No If yes, when________________________ *Currently on Medicare? □ Yes □ No

Job Classification: □ Academic Professional □ Faculty □ Staff □ Student □ Extra Help

Date of hire___________ Job Title_________________________ Department_________________________

# Years in current job______ Previous job title __________________________ # Years in previous job _____________

Work days scheduled per week: M T W R F S S Work hours: □ am □ pm to □ am □ pm Hours per week_________
(Circle all that apply)

EMPLOYEE'S REPORT OF INJURY/ILLNESS (Attach additional sheets as needed)

Date of Injury/Illness_________________________ Time __________ □ am □ pm □ am □ pm Day of week __________________

Date Reported_________________________ To ______________________________

Exact location where accident occurred ________________________________________________________________

If on U of I property, include name of building / address / room # ________________________________

Amount of training on the job prior to incident _______________________________________________________

Working overtime when accident happened? □ Yes □ No

Do you have a second job? □ Yes □ No If yes, where____________________________________________

Body part Injured________________________________________ Type of Injury /Illness __________________________

Describe in detail what happened:______________________________________________________________
Programs Used
- ESRI ArcGIS Framework
- IBM SPSS Modeler Professional (for Text Analytics)
- Microsoft Access/Excel
Study Details
- 2012 Total WC Incidents = 355
- 2013 Total WC Incidents = 374

Most prevalent injury types =
- Needlesticks
- Sprains/Strains
- Contusions
Study Details
Reporting Period = March 2012 through October 2013

- Total Number of UIC Buildings = 172
- Total Number of Buildings with Reported Incidents in 2012 = 41
- Total Number of Buildings with Reported Incidents in 2013 = 55
### Table 1: Conceptual Analysis

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### Table 2: Additional Analysis

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Future Research

- Conduct 3D GIS, including room numbers and building floors information
- Follow incidents longitudinally
- Real-time mobile reporting
- Advance geostatistical analysis
Thank You!

Contact Info:

Christopher Bell
chrisbel@uic.edu