

Improving Occupational Health Surveillance through a Dashboard for the Healthcare Industry

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Background

DHMC is an over three hundred-bed tertiary care and academic medical center located in Lebanon, NH with multiple ambulatory clinics throughout the state and over 7,000 employees.

The Electronic Report of Occupational Injury and Illness (EROI) is an easy to use, web-based reporting tool consisting of open text fields, radio buttons, and drop-down lists that can be completed by an employee who has sustained an occupational injury, illness or exposure.

Data are downloaded daily into an excel spreadsheet which is easily de-identified and used to populate Environmental Health and Safety reports, the Occupational Health Medical Record and the OSHA log (Figure 1).

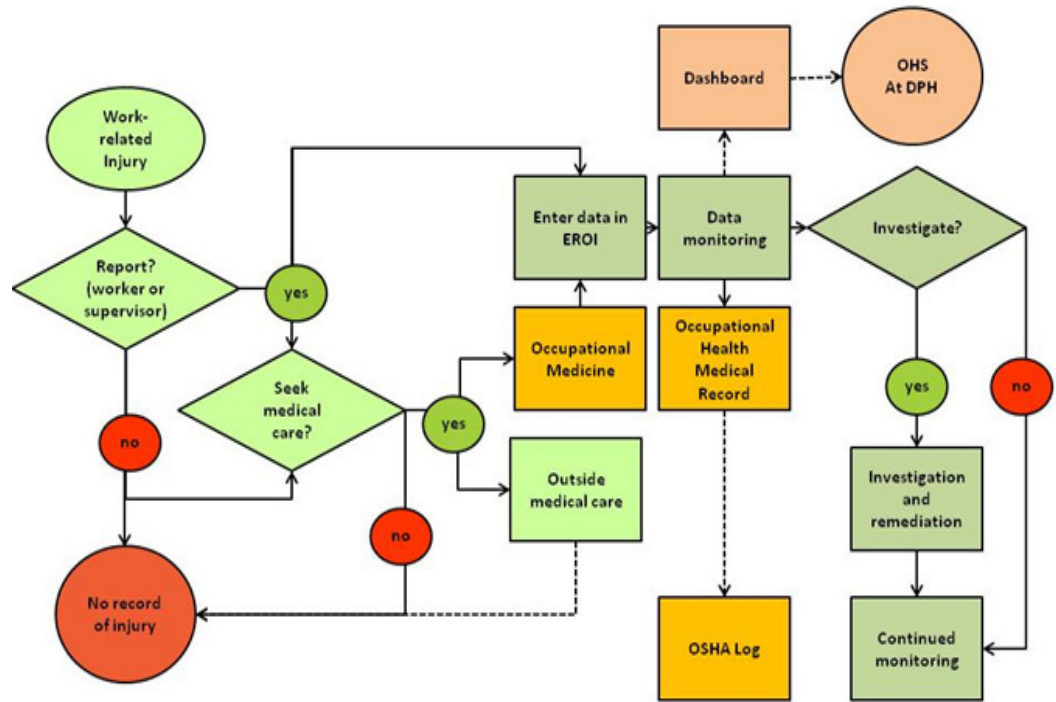


Figure 1. Flow of EROI data including proposed pathway to OHS at the DPH.

Purpose

This project took place within the context of an on-going partnership between the New Hampshire (NH) Division of Public Health Services (DPHS) Occupational Health Surveillance (OHS) Program and Dartmouth-Hitchcock

Medical Center (DHMC). As an initial phase of a NIOSH grant, this investigation explored using existing automated data collection on job type and hazard exposure for DHMC employees to populate a dashboard application

to aid in the surveillance of occupational exposure, injury and illness. Current state wide OHS is limited to injury logs submitted by employers to OSHA, which may lack timeliness and accuracy.

Since its implementation in 2009 through December 2011, employees have reported 2,484 incidents in EROI.

Methods

De-identified data from EROI was analyzed using Quality Improvement (QI) methodology:

Analysis of Means (ANOM) and statistical process control charts (SPC). A phone survey of NH hospitals was conducted in September 2011.

Figure 2. Survey of electronic reporting of occupational injury, illness or exposure by NH hospitals.

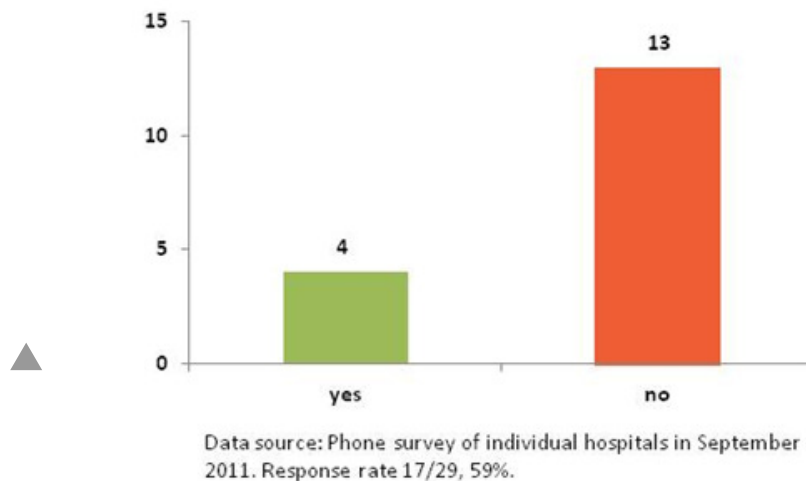
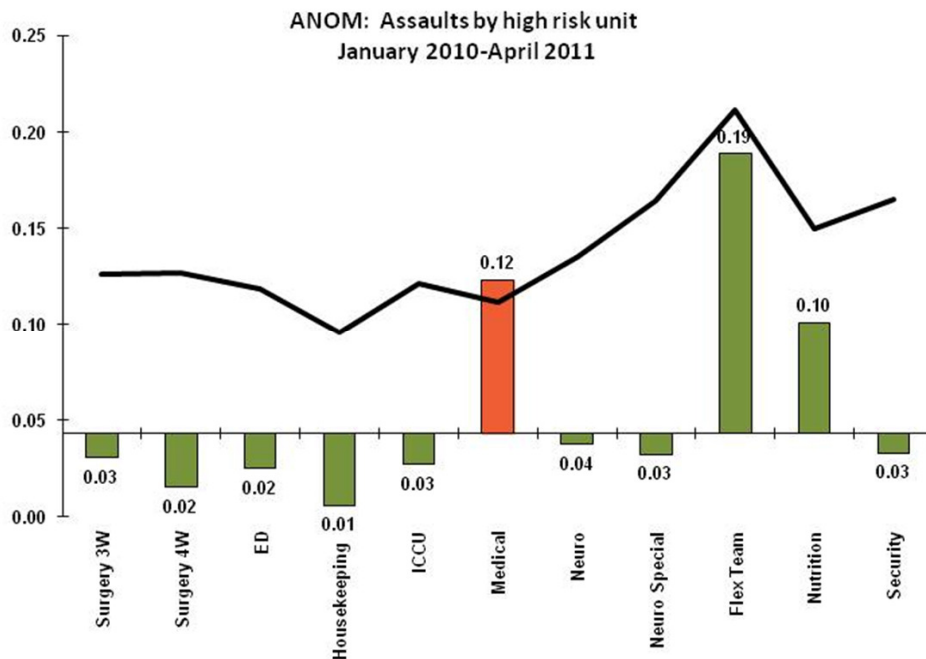


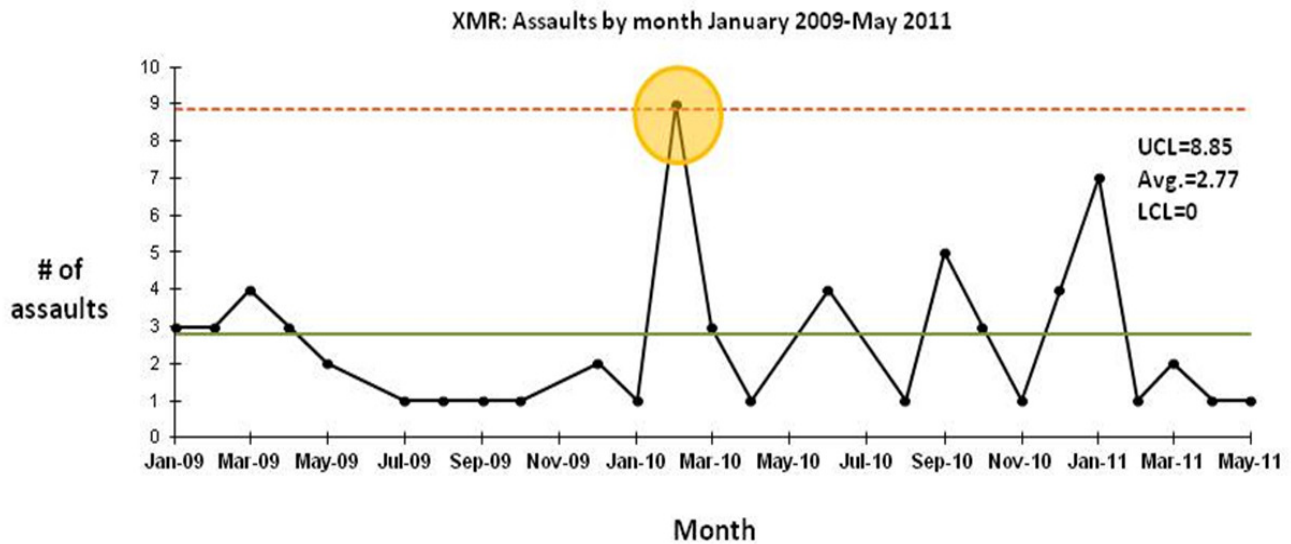
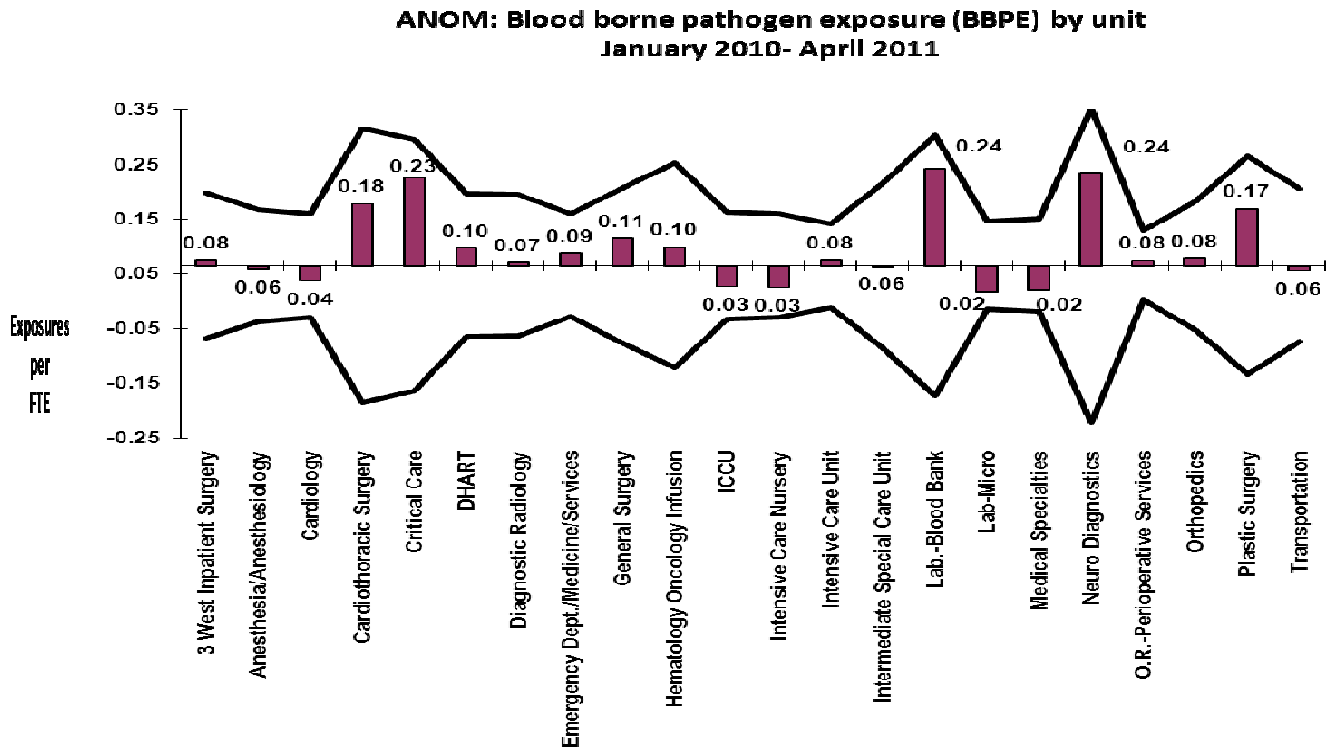
Figure 3. Sample dashboard display illustrating use of ANOM to identify high risk units and XMR charts to identify variation in real-time and effects of preventive interventions.



ANOM (Analysis of Means) was suitable for determining units at high risk for events. In 2011, the ambulatory and inpatient nursing floats reported the highest number incidents per full time equivalent by ANOM. Few hospitals in NH use electronic reporting of injury (Figure 2). A combination of ANOM and XMR is suitable for monitoring in a dashboard format (Figure 3).



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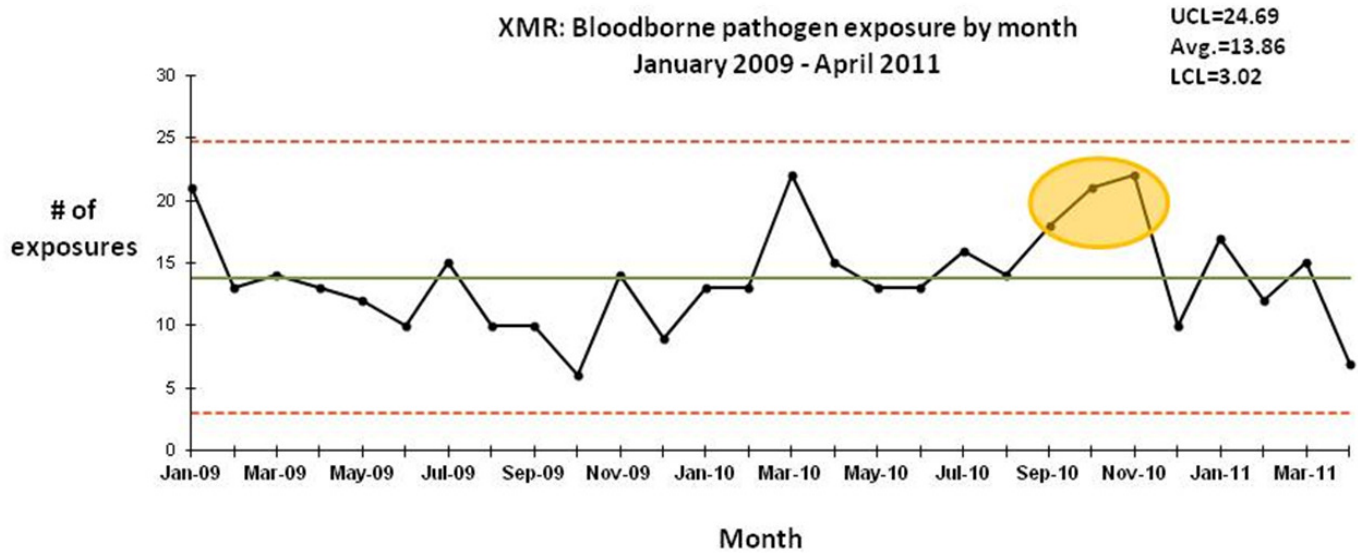
Figures 4-5: Sample dashboard display illustrating use of ANOM to identify high risk units and XMR charts to identify variation in real-time and effects of preventive interventions.



Legend
 Special cause variation
 Statistically different from the mean
 FTE = Full time equivalent

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Figures 6-7: Sample dashboard display illustrating use of ANOM to identify high risk units and XMR charts to identify variation in real-time and effects of preventive interventions.

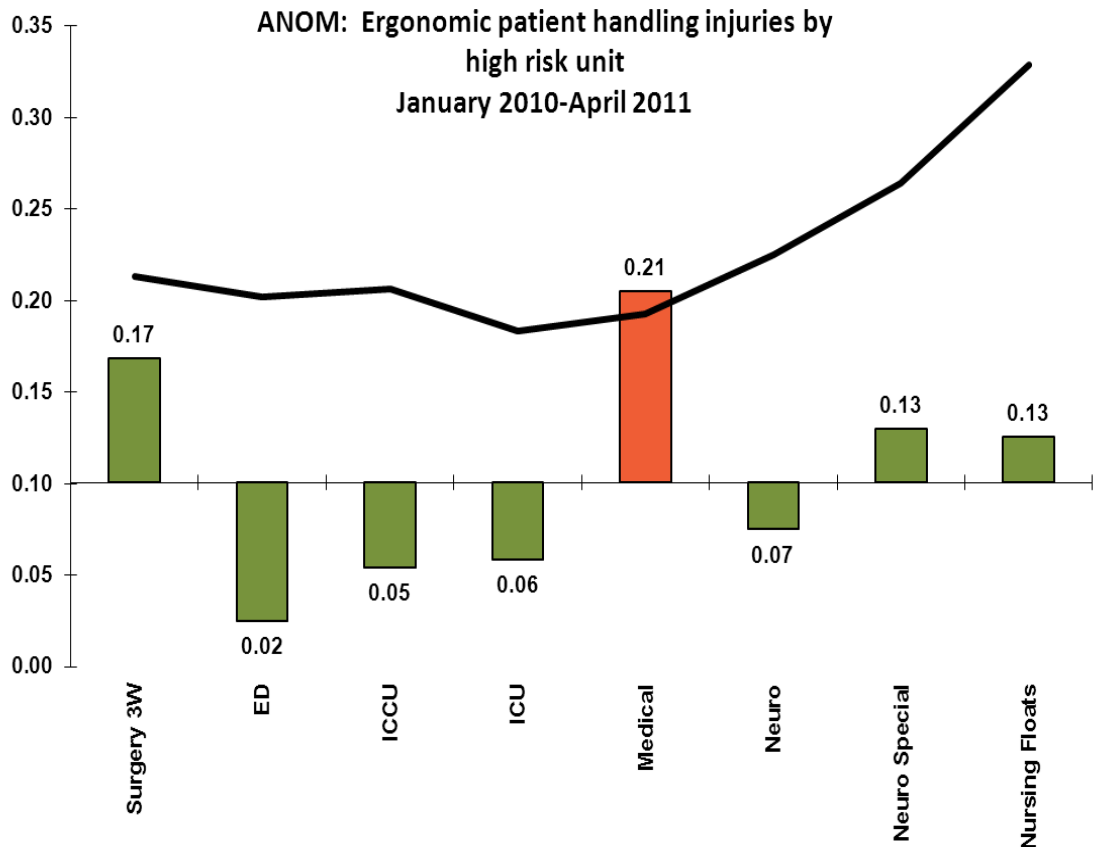


Conclusions

Presenting EROI injury data analysis in dashboard display may communicate actionable data trends in a timely way.

Opportunities exist to spread electronic reporting to other hospitals in NH.

Presenting EROI data in a dashboard format may provide a sensitive tool to assist occupational health surveillance programs at the institutional and state level.



Lower limits not shown, no statistically significant low deviants identified.



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Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention.

Successful approaches to making the workplace safer begin with having the most accurate and current occupational health surveillance data.