Reviewer’s report

Title: An ecological study of regional variation in work injuries among young workers

Version: 1 Date: 2 January 2007

Reviewer: Irwin Horwitz

Reviewer’s report:

General

This study uses workers’ compensation data to examine an important area of young worker injuries that has only been limited in previous studies: whether regional level factors are predictive of work injury risk. In doing so, the authors utilize lost-time injury reports collected by the Ontario Workplace Safety and Insurance Board (WSIB) for the year 2000 as a means of accounting for injuries among 15-24 year-old workers, and Canadian Census data for establishing a denominator so injury rates could be derived. Overall, the results of this ecological study could provide valuable information for occupational health and safety researchers and establishing future interventions by demonstrating the value of examining regional level variables in considering resource allocation for preventive interventions, as well as illustrating a new avenue for scholarly study through the application of regional considerations to workers’ compensation data analysis. In general, this paper is a very good piece of work, well written, methodologically sound, and if most of the compulsory revisions noted above could be addressed, would make an important and unique contribution to the literature on work injuries among young workers, and should be published in the BMC Journal.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The use of Canadian census data is a legitimate and sound way of deriving a denominator by which to estimate injury rates among the population under study. However, census data only provides an estimate of the true underlying population in question, and hence all rates, as stated, are in themselves estimates, but in the paper stated as if they were exact injury rate quantifications. The authors should thus instead utilize methods to derive confidence intervals for their rate estimates, and the confidence intervals included when comparing differences in the regional level results; seeing if the point estimates overlap within the resultant confidence intervals would be important to bolster their findings or raise questions to be addressed by future research.

The authors note on page 12 that the WSIB covers approximately 65 – 70% of Ontario workplace participants. More needs to be elaborated on this point, specifically to those who are and are not mandated to file such injury reports. Is there a difference in employers or workplaces which have to report and those that do not? If so, may this result in skewing the data with respect to young workers who may (or may not) be disproportion ally represented in the study analysis.

The authors should acknowledge the limitations of using Full Time Equivalents (FTE’s) in the calculation of the denominator, as doing so underestimates the amount of overall workers, as many young workers especially (and as noted by the authors), are employed part time. On the other hand, using FTE’s as a denominator estimation technique provides a measure of on-the-job exposure is a strength of this method, and hence, should also be discussed as such.

In many previous studies using workers’ compensation data to assess young worker injury, most limit their analysis to adolescents. In this study, the age range discussed are workers in the range from 15-24, which may represent quite a disparity between workers within the group with regards to experience, training and possible decision to take on more hazardous duties. Further analysis by age may prove fruitful for analysis. For example, possibly dichotomizing 15-19 year olds and 20-24 year olds and conducting a logistical regression could determine if differences in injury risk change between the youngest and oldest workers within the entire population examined. Doing so could add to the discussion of tenure and training effects in addition to regional differences with respect to these workers.
Greater discussion on Canadian workplace regulations should be discussed with regards to work limitations (if any) on the youngest segment of workers examined in this group. For example, in the United States, the Fair Labor Standards Act imposes hourly, and occupational restrictions on workers under 16 and 18 years of age. Is there any similar work laws in Canada that may affect differences within the group under investigation? Furthermore, this paper could benefit with added literature review and comparison of previous workers’ compensation findings on youths. While the Brooks and Davis Massachusetts study is discussed, and Bellville et al. study cited, there are other workers’ compensation studies that have examined workplace injuries among youths that report different rates that should be compared and contrasted to make this work more comparable within the framework of illustrating regional differences in injury rates. This is especially true as between such studies, differences in state workers’ compensation injury reporting laws, both similar and dissimilar to those provided in this study, would provide an important comparison. Such analysis might be succinctly presented in a table format and briefly discussed within the context of the paper.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Word "Geographi" should be Geographic" on Appendix B. May want to fully elucidate "CHD" on p.3 as only used once in paper.

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Discretionary Revisions (which the author can choose to ignore)

Given the sample size and uniqueness of the data the authors use, more general descriptive analysis would be of important value to occupational health researchers. Specifically, information (if available) on, and a comparison of, the general types of injuries, duration of injuries, associated costs of injuries, broken down by age, gender, and region would be especially interesting.

The fact that the authors have access to codes providing information to whether or not the injured workers were employed by unionized organizations also represents a unique and fascinating area that could be examined in further detail, as this represents an area in which there is much interest, yet a paucity of information in workers’ compensation data analysis currently exists.

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What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare I have no competing interests.