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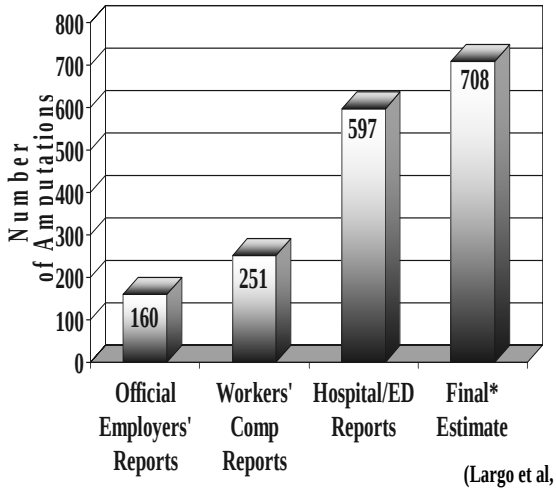
KEEPING TRACK: OCCUPATIONAL INJURIES & ILLNESSES

Public health surveillance has been described in CDC publications as the "ongoing systematic collection, analysis and interpretation of health data" that is essential to the "planning, implementation and evaluation of public health practices," closely integrated with the timely dissemination to those who need to know. Important in this definition of public health surveillance is public health action to intervene to reduce the identified disease burden.

Tracking occupational-related conditions might at first seem simpler to accomplish than tracking other medical conditions. For work-related conditions there is an insurance system specific to these conditions, workers' compensation, and there are employers who have knowledge of the work-related conditions of their employees. Unfortunately both workers' compensation data and employer reporting continue to be shown to markedly undercount the true occurrence of these conditions.

The current national system for occupational disease surveillance is based on a survey of a sample of employers and uses sampling statistics to estimate the total number of work-related injuries and illnesses. A paper previously published from Michigan concluded that the estimates from this statistical approach undercounted the true number of work-related injuries and illnesses by 66% based on data reported from 1999 -2001 (Rosenman et al, 2006). New data on the number of *work-related amputations* in Michigan show that the official statistics based on employer reporting undercount the true number of work-related amputations by 77% (Largo, 2009). Figure 1 shows a comparison of the number of amputations based on the survey of Michigan employers (the official number), the number of amputations identified from the Michigan workers' compensation data and the number of work-related amputations treated in Michigan hospitals and emergency departments.

Figure 1. Estimates of Amputations: Michigan, 2007



(Largo et al, 2009)

*Amputations reported by either WC or Hospital/ED reports. There was an overlap of 140 amputations identified from both WC and Hospital/ED reports.

The final estimate is based on matching amputations from hospitals and emergency departments with the workers' compensation (WC) data. A similar match was not done with the employer survey so the true total number would actually be greater than 708, potentially as large as 868.

Some of the variations in the numbers of reports can be explained by differences in definition and some can be accounted for by differences in coverage. For example, in the employer-based workers' compensation system one can only identify amputations with seven or more lost or restricted work days. Further, the WC system does not include self-employed and governmental workers. However, for hospital and emergency department work-related amputations, the self-employed and individuals without lost work time are included.

These differences in coverage do not explain why the number of WC cases is larger than the employer-based number, since WC requires seven or more lost work days and the employer survey only requires one day of lost work time. Although differences in coverage may be an important explanation for the much larger number of amputations identified from hospitals and emergency departments, neither the data based on the employer surveys nor the WC data provide a comprehensive picture of the true burden of work-related amputations on which one would want to base intervention activity.

The inability of WC data to provide a true burden of work-related injuries and illnesses is illustrated in another study (Table 1). In the Behavioral Risk Factor Surveillance System survey of the general population in 10 states, individuals were asked if they had a work-related injury in the prior year. If they answered "yes," they were then asked if workers' compensation paid for the treatment they received for that injury. As shown in Table 1, WC *did not pay* for the medical care of 23-53%, of work-related injuries, an average of 40% (Bonauto et al, submitted).

It is for the reasons illustrated by the above data that the Michigan system for tracking work-related injuries and illnesses relies so heavily on reporting by health care providers and medical facilities.

Table 1. Behavioral Risk Factor Surveillance System Survey 2007: Self-reported Work-injury Rates & Workers' Compensation Payment Status

State	Work-Injury Rate*		% Paid by WC	
	Rate	(95% CI)	%	(95% CI)
CA	6.3	(5.1-7.4)	61.0	(54.9-65.5)
CT	4.7	(3.7-5.6)	63.4	(52.7-74.0)
KY	4.0	(2.8-5.2)	77.0	(64.9-89.0)
MA	4.2	(3.1-5.4)	59.9	(45.0-74.8)
MI	6.3	(4.8-8.2)	55.6	(41.5-68.9)
NJ	4.3	(3.1-5.5)	64.5	(50.6-78.3)
NY	6.9	(5.6-8.2)	49.5	(39.4-59.7)
OR	5.9	(4.6-7.2)	61.8	(50.0-73.5)
TX	5.9	(4.6-7.5)	46.7	(34.7-59.0)
WA	6.0	(5.2-6.7)	61.1	(54.8-67.4)

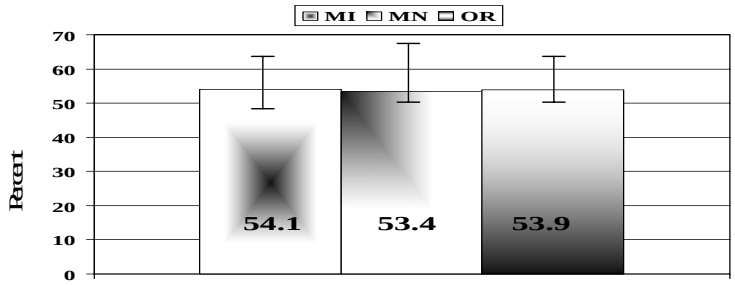
*Rate per 100 employed persons age 18 years and older, weighted to be representative of each state's population.

Reporting by health care providers is not without its own issues. Reasons for underreporting by health care providers include the lack of recognition that work caused or aggravated the medical condition and even if the connection with work is made, not reporting the condition.

Figure 2 shows the disconnect between patients' work-related health concerns, in this case, for work-related asthma, and their health care providers' recognition of the work-relatedness of that condition. About 50% of patients with asthma thought it was caused or made worse by their work. However, Figure 3 shows that only 22-25% of patients reported that their health care provider discussed with them whether work could contribute to their asthma. Figures 2 and 3 are adapted from a recent study from Michigan, Minnesota and Oregon published in the *Journal of Asthma* (Lutzker et al, 2010).

It should be noted that this data is based on self-reports of patients. Presumably the 50% reported overestimates the percentage of asthma in adults that is truly work-related. The fact, however, that only 25% of patients who thought their asthma was related to work remembered any discussion with their doctor about this possible association indicates, at minimum, that patients' concerns about the possible work-related causes or triggers of asthma are not being addressed.

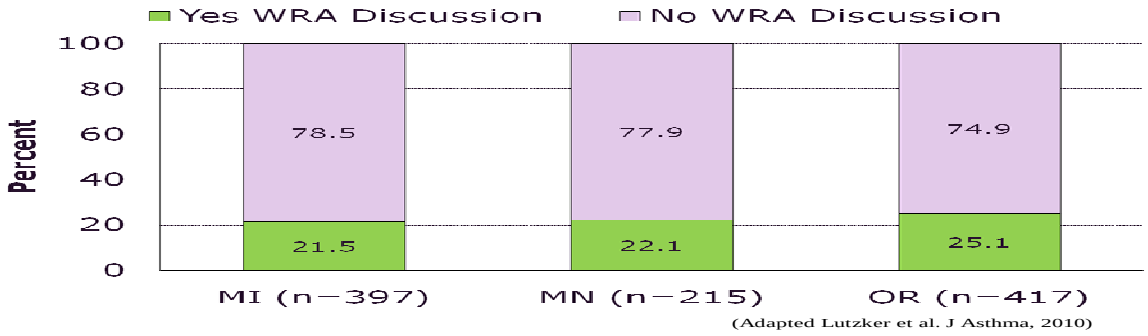
Figure 2. Estimates of Current Asthma Attributable to Work*: Michigan, Minnesota, & Oregon



*Asthma caused or aggravated by any job, either self-reported or ever told by health professional.

(Adapted Lutzker et al. J Asthma, 2010)

Figure 3. Lifetime Adult Asthmatics with Self-Reported Work-Related Symptoms by whether their Health Care Provider Discussed Work-Relatedness: Michigan, Minnesota, & Oregon



(Adapted Lutzker et al. J Asthma, 2010)

Dr. Rosenman is available to assist in the diagnosis and management of work-related diseases, 1.800.446.7805.We continue to encourage health care providers to report work-related conditions in compliance with Michigan law.

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Lansing, MI 48909-8149

Reporting forms can be obtained by
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