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## MUSCULOSKELETAL PROBLEMS OF THE NECK, SHOULDER, AND BACK AND FUNCTIONAL CONSEQUENCES IN NURSES . A Trinkoff* (University of Maryland, , Baltimore, MD 21201)

Problem: Musculoskeletal pain/ disorders (MSDs) are highly prevalent in registered nurses. Nurses ranked 6th overall with 12,400 injuries requiring a median of 5 days lost from work (BLS, 1999). Though MSDs have been documented as a significant problem among health care workers, little is known about the functional consequences related to reported MSDs in nurses. METHODS: Data were collected on neck, shoulder, and back MSD problems from nurses, using anonymous mailed questionnaires, with a response rate of 74% (n=1428). An MSD "case" was a relevant symptom with a duration of at least 1 week, or occurring at least monthly in the past year; with at least moderate pain intensity (Bernard, et al., 1994). MSD problems that did not meet these criteria were defined as MSD "symptoms". The odds of functional consequences due to a neck, shoulder, or back problem (saw a provider, missed work, modified work, modified non-work, reduced recreation, used medication, changed jobs, had inadequate sleep) were estimated for MSD cases, using MSD symptoms as the reference group, adjusted for age. RESULTS: 45.8%, 35.1% and 47% of the sample reported a neck, shoulder, or back problem, respectively, within the last year. Compared to symptoms, cases were 4-5 times as likely to have seen a provider (aOR Neck: 4.33, 95%CI: 2.85-6.56; aOR Shoulder: 4.83, 95%CI: 3.00-7.77; aOR Back: 3.69, 95%CI: 2.47-5.49). Nurses with an MSD case were significantly more likely to modify work, non-work and recreation, take medications, change jobs and have inadequate sleep vs. nurses with symptoms. Future research will examine the impact of organization of work and physical demands on MSDs.

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## OCCUPATIONAL INJURY AND ILLNESS REQUIRING HOSPITALIZATION. LA Layne, LL Jackson and G Chen* (National Institute for Occupational Safety and Health, Morgantown, WV 26505)

An estimated 3.6 million workers aged ?15 sought medical treatment in a hospital emergency department (ED) for an occupational injury or illness in the United States during 1998, as measured by a national probability sample of hospitals. Ninety-eight percent of the workers were discharged from the ED, while 2% (77,246 ±19,190, 95% confidence interval) were hospitalized for additional medical care. Workers hospitalized show significant differences ($p<0.01$) by sex, age, and injury demographics compared to the ED-discharged. Hospitalized patients were 85% male (65,571 ±16,582) and 15% female (11,675 ±3,397), whereas the ED-discharged were 70% male and 30% female. The hospitalized age-specific incident rates were higher among older patients, 10.4/10,000 workers for ages ?60 years compared to 6.2 for the <60. The ED-diseharged incident rates steadily decreased with age. Injuries to the head, upper trunk/chest, and leg regions among the hospitalized showed more than a 2-fold increase in the proportion of cases, while amputations increased 14-fold, fractures 7-fold, and blunt head trauma 4-fold. By type of incident, falls from height accounted for 19% of the hospitalized cases, with falls from roofs increasing 19-fold, scaffolding 9-fold, and ladders 4-fold. Caught or compressed in equipment accounted for 12% of the hospitalized cases. Atypical chest pain (3%) and pedestrians struck by vehicles (2%) proportionately increased 14- and 7-fold. In conclusion, prevention of hospitalized nonfatal work events should focus in areas such as fall protection and machine guarding, similar to fatal prevention rather than areas dictated by most nonfatal incidents.

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## PREDICTORS OF CASE LEVEL TRANSITIONS FOR WORK-RELATED MUSCULOSKELETAL DISORDERS (WMSD). DC Cole*, M Manno, DE Beaton and M Swift (Institute for Work & Health, 250 Bloor St E Ste 702, Toronto, ON M4W 1E6 Canada)

Background/Research Question: Pain associated with WMSD fluctuates over time. Are predictors of transitions into new pain, reduction of pain or worsening of pain the same? METHODS: A cohort of 379 Toronto newspaper workers completed questionnaires in 1996 and 1997. Descriptions of pain/discomfort permitted construction of two case definitions These were translated into three case levels: non-cases, case level A, and case level B. Transitions between these levels over the year were documented. Markov models for transitions from each of three 1996 levels to 1997 levels were constructed. Bayesian modelling was used to estimate the effect of covariates on the transitions. RESULTS: Tenure at work was the only important protective predictor for non-cases (1996 n=105: 2.5%=0.003, 97.5%=0.102), suggestive of a survivor effect. For case level A not B (1996 n=104), having one's own workstation (0.579, 3.576) was associated with improvement in pain, while initiating exercises (-2.255, -0.225) and medication (-3.25, -0.726) during the year was associated with worsening. For case B (1996 n=110), a lack of improvement was predicted by: tenure (-0.188 to -0.051/yr.), psychological demands of work (-0.736, -0.091), social support at work (-0.700, -0.113), pain intensity (-0.099, -0.001) and initiating medication (-3.172, -0.883). Implications: Predictors of change in WMSD vary according to initial pain-defined case level implying different etiological and prognostic factors. Keywords: occupational, methods, injury

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## UNDER-REPORTING OF WORK INJURIES. HS Shannon*, G Lowe and G Schellenberg (Institute for Work & Health, Toronto, ON M4W 1E6 Canada)

Background: Reports on specific work-related conditions and other anecdotal evidence suggests that work injuries are under-reported to Workers' Compensation (WC) systems. Questions to assess this were included in a national survey of 2500 Canadians which studied Changing Employment Relationships. METHODS: We asked respondents if they had had a work injury in the past year; if the injury required medical aid, time off work and/or a change in job assignment; and if a WC claim was filed. In general, when any of these conditions apply, there is a statutory requirement to file a WC claim. (although some employees in Canada are not covered by WC.) RESULTS: Preliminary analysis showed that 11.3% of paid employees reported a work injury in the previous year. The percentages of those making WC claims were 58% when the injury required medical attention, 66% when time off work was needed, and also 66% if the injury required a change of work assignment. When any of these criteria applied, 57.7% made a claim. Even when all three applied, only 70% of injured employees submitted a claim. Further analysis will confirm eligibility of injuries for WC. Discussion: Our data suggest under-claiming to WC systems, even allowing for some non-eligibility. One limitation is that we relied on self-reports. Nevertheless, many evaluations of trends in injuries or of safety measures, at both the workplace and jurisdictional level, rely on WC claims data. Such assessments need to take account of possible problems in reporting.

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