IWH Research Alert
May 22, 2020

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***Gignac MAM, Bowring J, Jetha A, Beaton DE, Breslin FC, Franche RL, et al. Disclosure, privacy and workplace accommodation of episodic disabilities: organizational perspectives on disability communication-support processes to sustain employment. Journal of Occupational Rehabilitation. 2020; [epub ahead of print].**
https://doi.org/10.1007/s10926-020-09901-2 [open access]
Abstract: Purpose Employers increasingly are asked to accommodate workers living with physical and mental health conditions that cause episodic disability, where periods of wellness are punctuated by intermittent and often unpredictable activity limitations (e.g., depression, anxiety, arthritis, colitis). Episodic disabilities may be challenging for workplaces which must comply with legislation protecting the privacy of health information while believing they would benefit from personal health details to meet a worker's accommodation needs. This research aimed to understand organizational perspectives on disability communication-support processes. Methods Twenty-seven participants from diverse employment sectors and who had responsibilities for supporting workers living with episodic disabilities (e.g., supervisors, disability managers, union representatives, occupational health representatives, labour lawyers) were interviewed. Five participants also had lived experience of a physical or mental health episodic disability. Participants were recruited through organizational associations, community networks and advertising. Semi-structured interviews and qualitative content analysis framed data collection and analyses, and mapped communication-support processes. Results Seven themes underpinned communication-support process: (1) similarities and differences among physical

and mental health episodic disabilities; (2) cultures of workplace support, including contrasting medical and biopsychosocial perspectives; (3) misgivings about others and their role in communication-support processes; (4) that subjective perceptions matter; (5) the inherent complexity of the response process; (6) challenges arising when a worker denies a disability; and (7) casting disability as a performance problem. Conclusions This study identifies a conceptual framework and areas where workplace disability support processes could be enhanced to improve inclusion and the sustainability of employment among workers living with episodic disabilities. FAU - Gignac, Monique A M

***Macpherson RA, Amick BC, III, Collie A, Hogg-Johnson S, Koehoorn M, Smith PM, et al. Urban-rural differences in the duration of injury-related work disability in six Canadian provinces. Journal of Occupational and Environmental Medicine. 2020; 62(5):e200-e207.**
https://doi.org/10.1097/JOM.0000000000001850
Abstract: OBJECTIVE: To examine associations between injury-related work disability duration and urban-rural place of residence and whether associations differed across the disability distribution and by industry sector. METHODS: Workers' compensation claims from six Canadian provinces were extracted between 2011 and 2015. Multivariable quantile regression models tested the associations between urban-rural place of residence and disability days paid between the 50th and 95th percentiles of the distribution. RESULTS: Compared to workers residing in metropolitan areas, those in all other areas experienced more disability days paid. Urban-rural differences increased toward the upper end of disability distribution and were largest in the construction, and transportation and warehousing sectors. CONCLUSION: Tailored interventions for workers in rural areas, particularly those in sectors associated with mobile work environments, may be warranted to reduce inequities in injury-related work disability duration by place of residence. FAU - Macpherson, Robert A

Albert A, Pandit B, and Patil Y. Focus on the fatal-four: implications for construction hazard recognition. Safety Science. 2020; 128:104774.
https://doi.org/10.1016/j.ssci.2020.104774

Baidwan NK, Gerberich SG, Kim H, Ryan AD, Church T, and Capistrant B. A marginal structural model approach to analyse work-related injuries: an example using data from the health and retirement study. Injury Prevention. 2020; 26(3):248-253.
https://doi.org/10.1136/injuryprev-2018-043124
Abstract: BACKGROUND: Biases may exist in the limited longitudinal data focusing on work-related injuries among the ageing workforce. Standard statistical techniques may not provide valid estimates when the data are time-varying and when prior exposures and outcomes may influence future outcomes. This research effort uses marginal structural models (MSMs), a class of causal models rarely applied for injury epidemiology research to analyse work-related

injuries. METHODS: 7212 working US adults aged ΓëÑ50 years, obtained from the Health and Retirement Study sample in the year 2004 formed the study cohort that was followed until 2014. The analyses compared estimates measuring the associations between physical work requirements and work-related injuries using MSMs and a traditional regression model. The weights used in the MSMs, besides accounting for time-varying exposures, also accounted for the recurrent nature of injuries. RESULTS: The results were consistent with regard to directionality between the two models. However, the effect estimate was greater when the same data were analysed using MSMs, built without the restriction for complete case analyses. CONCLUSIONS: MSMs can be particularly useful for observational data, especially with the inclusion of recurrent outcomes as these can be incorporated in the weights themselves

Choe S, Seo W, and Kang Y. Inter- and intra-organizational safety management practice differences in the construction industry. Safety Science. 2020; 128:104778.
https://doi.org/10.1016/j.ssci.2020.104778

Daher A, Carel RS, Tzipi K, Esther H, and Dar G. The effectiveness of an aerobic exercise training on patients with neck pain during a short- and long-term follow-up: a prospective double-blind randomized controlled trial. Clinical Rehabilitation. 2020; 34(5):617-629.
https://doi.org/10.1177/0269215520912000
Abstract: Objective: To examine the effect of adding aerobic exercise (AE) to neck-specific exercise treatment for patients with neck pain (NP) to reduce pain and disability. Design: A prospective multicentre randomized controlled trial. Setting: Physiotherapy outpatient clinics. Subjects: Patients with nonspecific NP. Intervention: Patients with NP were randomly assigned to six weeks of neck-specific exercise with and without the addition of AE. Measures: Patients were classified as having a successful or non-successful outcome according to the Global Rating of Change (GROC). Outcome measures included Visual Analogue Scale (VAS), Neck Disability Index (NDI), Fear Avoidance Beliefs Questionnaire (FABQ) and cervicogenic headache. Assessments were performed at six-week, and three- and six-month follow-ups. Results: A total of 139 participants (mean age: 54.6±10.5 years) were recruited (n=69 AE, n=70 control). According to GROC, 77.4% of the AE group reported a successful outcome at six months vs. 40% in the control group (P<0.001). There was a significant reduction in VAS from baseline to six months in the AE vs. control group 6.73 (±1.69) to 1.89 (±1.37) vs. 6.65 (±1.67) to 3.32 (±1.82), respectively (P<0.001). Significant improvements were also obtained for NDI and FABQ from baseline to six weeks in the AE group: NDI from 16.10 (±4.53) to 7.78 (±4.78) vs. 17.01 (±4.84) to 11.09 (±5.64) in the control group (P=0.003); FABQ from 33.53 (±9.31) to 20.94 (±841) in the AE vs. 33.45 (±10.20) to 26.83 (±10.79) in the control group (P<0.001). The AE group also demonstrated significant reduction in cervicogenic headache from baseline to six months (P=0.003). Conclusion: Adding AE to long-

term neck-specific exercises is an effective treatment for reducing NP and headache in patients with NP.

Emory TS, Maddox JC, and Kradin RL. Malignant mesothelioma following repeated exposures to cosmetic talc: a case series of 75 patients. American Journal of Industrial Medicine. 2020; 63(6):484-489.
https://doi.org/10.1002/ajim.23106 [open access]
Abstract: BACKGROUND: Asbestos is the primary known cause of malignant mesothelioma. Some cosmetic talc products have been shown to contain asbestos. Recently, repeated exposures to cosmetic talc have been implicated as a cause of mesothelioma. METHODS: Seventy-five individuals (64 females; 11 males) with malignant mesothelioma, whose only known exposure to asbestos was repeated exposures to cosmetic talcum powders, were reviewed in medical-legal consultation. Out of the 75 cases, 11 were examined for asbestiform fibers. RESULTS: All subjects had pathologically confirmed malignant mesothelioma. The mean age at diagnosis was 61±17 years. The mean latency from exposure to diagnosis was 50±13 years. The mean exposure duration was 33±16 years. Four mesotheliomas (5%) occurred in individuals working as barbers/cosmetologists, or in a family member who swept the barber shop. Twelve (16%) occurred in individuals less than 45 years old (10 females; 2 males). Forty-eight mesotheliomas were pleural (40 females; 8 males), 23 were peritoneal (21 females; 2 males). Two presented with concomitant pleural and peritoneal disease. There was one pericardial, and one testicular mesothelioma. The majority (51) were of the epithelioid histological subtype, followed by 13 biphasic, 8 sarcomatoid, 2 lymphohistiocytoid, and 1 poorly differentiated. Of the 11 individuals whose nontumorous tissues were analyzed for the presence of asbestiform fibers, all showed the presence of anthophyllite and/or tremolite asbestos. CONCLUSIONS: Mesotheliomas can develop following exposures to cosmetic talcum powders. These appear to be attributable to the presence of anthophyllite and tremolite contaminants in cosmetic talcum powder

Gartlehner G, Affengruber L, Titscher V, Noel-Storr A, Dooley G, Ballarini N, et al. Single-reviewer abstract screening missed 13 percent of relevant studies: a crowd-based, randomized controlled trial. Journal of Clinical Epidemiology. 2020; 121:20-28.
https://doi.org/10.1016/j.jclinepi.2020.01.005 [open access]
Abstract: Objectives To determine the accuracy of single-reviewer screening in correctly classifying abstracts as relevant or irrelevant for literature reviews. Study Design and Setting We conducted a crowd-based, parallel-group randomized controlled trial. Using the Cochrane Crowd platform, we randomly assigned eligible participants to 100 abstracts each of a pharmacological or a public health topic. After completing a training exercise, participants screened abstracts online based on predefined inclusion and exclusion criteria. We calculated sensitivities and specificities of single- and dual-reviewer screening using two published systematic reviews as reference standards. Results Two

hundred and eighty participants made 24,942 screening decisions on 2,000 randomly selected abstracts from the reference standard reviews. On average, each abstract was screened 12 times. Overall, single-reviewer abstract screening missed 13% of relevant studies (sensitivity: 86.6%; 95% confidence interval [CI], 80.6%–91.2%). By comparison, dual-reviewer abstract screening missed 3% of relevant studies (sensitivity: 97.5%; 95% CI, 95.1%–98.8%). The corresponding specificities were 79.2% (95% CI, 77.4%–80.9%) and 68.7% (95% CI, 66.4%–71.0%), respectively. Conclusions Single-reviewer abstract screening does not appear to fulfill the high methodological standards that decisionmakers expect from systematic reviews. It may be a viable option for rapid reviews, which deliberately lower methodological standards to provide decision makers with accelerated evidence synthesis products.

Hanania AN, Cook A, Threadgill MP, Conway SH, and Ludwig M. Prevalence of musculoskeletal work-related injuries among radiation therapists. Radiologic Technology. 2020; 91(5):414-421.
[doi unavailable as of May 22, 2020]
Abstract: PURPOSE: To evaluate the prevalence of and risk factors associated with work-related musculoskeletal injuries among radiation therapists in the United States. METHODS: Approximately 16 000 radiation therapists were identified and electronically mailed a modified Nordic Musculoskeletal Questionnaire. For inclusion in the analysis, participants were required to be actively employed during the preceding 12-month period and hold a current position as a radiation therapist. Descriptive statistics, univariate and multivariate analyses, and text analysis were performed to assess personal and work-related factors that correlated with injury risk. RESULTS: Contact was established with 5827 radiation therapists (contact rate, 37%). Of these, 2747 responded (cooperation rate, 47%), of which 1867 met inclusion criteria. Prevalence of work-related musculoskeletal injuries at 12 months was 76%, with the most common site-specific injury in the lumbar back (20%), followed by the neck (17%) and shoulders (15%). An incident rate of 33 injuries per 100 full-time equivalents per year was calculated. Multiple logistic regression analyses revealed the following variables to be significantly associated with increased injury risk: female sex, a body mass index of 30 or greater, and tobacco use. Daily exercise was associated with decreased risk. Patient transfers, body mechanics, and heavy lifting were the primary reported sources of injuries. DISCUSSION: Radiation therapists appear to be at considerable risk for work-related musculoskeletal injuries, which corresponds with findings of studies on health care employees. The high prevalence observed among radiation therapists (76%) is similarly high among nurses, and the increased risk for women also has been reported among physical therapists. Furthermore, other study results support obesity and tobacco use as risk factors and daily exercise as decreasing risk. In this study, most radiation therapists indicated interest in safety training courses, which could be addressed by involving national programs and competency requirements. CONCLUSION: Further study is needed to address modifiable risk factors and

implement interventions that reduce the high prevalence of work-related musculoskeletal injuries among radiation therapists. The results of such research might help decrease personal, societal, and radiation oncology practice-specific costs

Henke RM, Ellsworth D, Wier L, and Snowdon J. Opioid use disorder and employee work presenteeism, absences, and health care costs. Journal of Occupational and Environmental Medicine. 2020; 62(5):344-349.
https://doi.org/10.1097/JOM.0000000000001830
Abstract: Objective: To measure the prevalence of opioid use disorder (OUD) and employee health care and productivity costs with and without OUD and to assess whether utilization of pharmacotherapy for OUD reduces those costs. Methods: We conducted a cross-sectional analysis of 2016 to 2017 commercial enrollment, health care, and pharmacy claims and health risk assessment data using the IBM® MarketScan® Databases (Ann Arbor, MI). We estimated regression models to assess the association between OUD and annual employee health care and productivity costs. Results: Health care and productivity costs for employees with OUD who did and did not receive pharmacotherapy were approximately $6294 and $21,570 more than for other employees, respectively. Conclusions: Employers can make a business case for expanding access to pharmacotherapy treatment for OUD based on our finding that receipt of pharmacotherapy significantly reduces overall health care costs

Jiang W, Fu G, Liang C, and Han W. Study on quantitative measurement result of safety culture. Safety Science. 2020; 128:104751.
https://doi.org/10.1016/j.ssci.2020.104751

Lan FY, Wei CF, Hsu YT, Christiani DC, and Kales SN. Work-related COVID-19 transmission in six Asian countries/areas: a follow-up study. PLoS ONE. 2020; 15(5):e0233588.
https://doi.org/10.1371/journal.pone.0233588 **[open access]**
Abstract: Objective There is limited evidence of work-related transmission in the emerging coronaviral pandemic. We aimed to identify high-risk occupations for early coronavirus disease 2019 (COVID-19) local transmission. Methods In this observational study, we extracted confirmed COVID-19 cases from governmental investigation reports in Hong Kong, Japan, Singapore, Taiwan, Thailand, and Vietnam. We followed each country/area for 40 days after its first locally transmitted case, and excluded all imported cases. We defined a possible work-related case as a worker with evidence of close contact with another confirmed case due to work, or an unknown contact history but likely to be infected in the working environment (e.g. an airport taxi driver). We calculated the case number for each occupation, and illustrated the temporal distribution of all possible work-related cases and healthcare worker (HCW) cases. The temporal distribution was further defined as early outbreak (the earliest 10 days of the following period) and late outbreak (11th to 40th days of the following period). Results We identified 103 possible work-related cases (14.9%) among a total of 690 local

transmissions. The five occupation groups with the most cases were healthcare workers (HCWs) (22%), drivers and transport workers (18%), services and sales workers (18%), cleaning and domestic workers (9%) and public safety workers (7%). Possible work-related transmission played a substantial role in early outbreak (47.7% of early cases). Occupations at risk varied from early outbreak (predominantly services and sales workers, drivers, construction laborers, and religious professionals) to late outbreak (predominantly HCWs, drivers, cleaning and domestic workers, police officers, and religious professionals). Conclusions Work-related transmission is considerable in early COVID-19 outbreaks, and the elevated risk of infection was not limited to HCW. Implementing preventive/surveillance strategies for high-risk working populations is warranted

Larsen AD, Rugulies R, Hansen J, Kolstad HA, Hansen AM, Hannerz H, et al. Night work and risk of ischaemic heart disease and anti-hypertensive drug use: a cohort study of 145 861 Danish employees. European Journal of Public Health. 2020; 30(2):259-264.
https://doi.org/10.1093/eurpub/ckz189 [open access]
Abstract: Background Ischaemic heart disease (IHD) and hypertension are leading causes of mortality and night work has been suspected as a risk factor. Meta-analyses and previous studies are often limited by power and various definitions of exposure and outcomes. This study aimed to investigate if night work increases the risk of IHD or anti-hypertensive drug usage in a large cohort of Danish employees. Methods Individual participant data on night work were drawn from the Danish Labour Force Survey (1999–2013). We included 145 861 participants (53% men) 21–59 years of age working 32 h or more per week. Participants with diagnosis or drug use in the year prior to baseline were excluded. Data on outcomes were obtained from nationwide health registers. Using Poisson regression we analyzed incidence rates of the outcomes as functions of night work adjusted for relevant covariates. Results We observed 3635 cases of IHD and 20 648 cases used anti-hypertensive drugs. When examining main effects the association of night work with drug use was estimated at rate ratio (RR): 1.05 (95% CI: 1.01–1.09). A sensitivity analysis suggested a dose-response association. The association of night work with IHD was estimated at RR: 1.08 (95% CI: 0.98–1.19). Overall likelihood ratio test showed no statistically significant associations between night work and IHD or drug use when including interactions with sex and socioeconomic status. Conclusions Night work was associated with an increased risk of anti-hypertensive drug use. Small estimates suggested a dose-response association. No statistically significant association between night work and IHD were found.

Paladin M, Kogovsek T, and Pavlin S. How do the particular characteristics of less-educated employees with disabilities impact survey implementation? Work. 2020; 65(4):707-719.
https://doi.org/10.3233/WOR-203125
Abstract: BACKGROUND: Employees with disabilities make up a significant

share of the working population. The group of employees covered by this study is hard to include in research and yet must be researched due to the vulnerable position it holds in the labour market. The topic is quite complex. OBJECTIVE: The article's main goal is to demonstrate how to implement a survey and adapt a questionnaire for assessing competencies and motivation for training and career changes among older and less-educated employees who have disabilities. METHODS: In the paper, we discuss the approach to adapting a questionnaire and a survey by undertaking an extensive process of different testing and adaptation stages that is presented in the article. RESULTS: We highlight some obstacles that employees with disabilities face when participating in surveys due to their low literacy skills, as well as low self-esteem, accessibility issues and other general methodological issues in the context of our population. Potential solutions gathered from all phases of the adaptation process are discussed. CONCLUSIONS: Proper survey implementation and questionnaire modification must be ensured if researchers aim to increase the willingness of individuals with disabilities to participate in the survey and to gather quality results.

Salisbury-Afshar EM, Rich JD, and Adashi EY. Vulnerable populations: weathering the pandemic storm. American Journal of Preventive Med. 2020; 58(6):892-894.
https://doi.org/10.1016/j.amepre.2020.04.002 [open access]

Sasikumar V and Binoosh SCA. A model for predicting the risk of musculoskeletal disorders among computer professionals. International Journal of Occupational Safety and Ergonomics. 2020; 26(2):384-396.
https://doi.org/10.1080/10803548.2018.1480583
Abstract: Objective. This study aimed to develop a model for predicting the risk of musculoskeletal disorders among computer professionals. Materials and methods. A preliminary study with a modified Nordic musculoskeletal questionnaire was conducted to identify the risk in different body parts of the professionals during their work. A discrete postural evaluation of the dynamic postures involved in the work was assessed using rapid upper limb assessment. Postural, physiological and work-related factors were considered as attributes of the model. The model was developed using various machine learning algorithms, and was then tested and validated. Results. The postural factor of the computer professionals was found to be significantly (p<?0.01) correlated with the musculoskeletal disorders. Results of the logistic regression analysis showed that physiological and work-related factors were also significantly (p<?0.05) associated with musculoskeletal disorders. The Random Forest algorithm and Naïve Bayes Classifier predicted the risk of musculoskeletal disorders with the highest accuracy (81.25%). Conclusion. Postural, physiological and work-related factors contribute to the development of musculoskeletal disorders. The Random Forest algorithm or Naïve Bayes Classifier model developed based on these factors could be used to accurately predict the risk of musculoskeletal disorders among computer professionals at any instance of time, during their work.

Yang ST, Park MH, and Jeong BY. Types of manual materials handling (MMH) and occupational incidents and musculoskeletal disorders (MSDs) in motor vehicle parts manufacturing (MVPM) industry. International Journal of Industrial Ergonomics. 2020; 77:102954.
https://doi.org/10.1016/j.ergon.2020.102954
Abstract: The motor vehicle parts manufacturing (MVPM) works include various types of manual materials handling (MMH). This study analyzes occupational incidents and musculoskeletal disorders (MSDs) caused by MMH in the MVPM industry. Also, this study conducted a risk assessment for predicting the possibility and severity of the injuries and MSDs. This study examined 236 injured persons registered for occupational incidents and MSDs caused by MMH tasks. Of the 236 injuries, 124 (52.5%) were caused by lifting/lowering, followed by 92 (39.0%) pushing/pulling and 20 (8.5%) carrying. MSDs were the highest at 36.9%, followed by struck by (22.9%), caught in (19.5%), and slip/fall (9.7%) incidents. In the case of incidents, the percentage caused by pushing/pulling was the highest at 55.7%, followed by lifting/lowering (35.6%) and carrying (8.7%). However, in the case of MSDs, the percentage caused by lifting/lowering was the highest at 81.6%, followed by pushing/pulling (10.3%) and carrying (8.0%). However, the rate of severe injured with over 180 work-loss days was higher in carrying works, women, or older workers over 50 years. The highest prevalence of MSDs was low back (63.2%), followed by shoulders (17.2%), and arm/hand regions (16.1%). In risk assessment according to the work process, 'struck by incidents during pushing/pulling carts in the logistics process' is the most possible and the highest average of work-loss days. Relevance to industry This study presents the overview of actual nationwide compensation records occurred during MMH tasks in the MVPM industry. Also, this study shows the outlines of occupational incidents and MSDs, and the most possible and severe incident according to the types of MMH and work process.

Ziam S, Laroche E, Lakhal S, Alderson M, and Gagne C. Application of MSD prevention practices by nursing staff working in healthcare settings. International Journal of Industrial Ergonomics. 2020; 77:102959.
https://doi.org/10.1016/j.ergon.2020.102959
Abstract: Objective The objective of this article is to examine the application of MSD prevention practices among nursing staff and to identify organizational factors that may or may not support their application. Methods We measured the application of prevention practices and its determinants by means of a questionnaire filled out by 399 nurses and nursing staff in Canada. A qualitative component was conducted with two focus groups in order to validate and enrich the interpretation of the survey results. Results Results show that most respondents "often" (4) apply MSD prevention practices in their daily professional tasks. Significant differences were observed based on position, mission of the institution, degree, and training. Conclusions The characteristics of the nursing staff (position, training, etc.) and the specificities of the setting must be taken into consideration in MSD prevention interventions for nursing staff.

*IWH authored publications.