

IWH Research Alert
May 29, 2020

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***Fulton-Kehoe D, Lofy KH, Le V, Sterling R, Sears JM, and Franklin G. Opioid-prescribing metrics in Washington state: trends and challenges. *Journal of Public Health Management and Practice*. 2020; 26(3):214-221.**

<https://doi.org/10.1097/PHH.0000000000001149>

Abstract: CONTEXT: Analyses of prescribing trends using prescription drug monitoring programs (PDMP) are impacted by changes in reporting requirements and in the scheduling of medications by the Drug Enforcement Administration. In 2014, the Drug Enforcement Administration changed the status of tramadol from an unscheduled to a scheduled medication. The addition of tramadol to the PDMP may affect the prevalence of opioid-prescribing metrics and the interpretation of prescribing trends. **OBJECTIVE:** The objectives were to (1) examine trends in opioid prescribing in Washington State between 2012 and 2017, (2) assess the potential impact of adding tramadol to PDMP on these trends, and (3) describe challenges in defining and implementing opioid-prescribing metrics. **DESIGN:** Analysis of quarterly summary statistics of opioid prescribing. **SETTING:** Washington State. **PARTICIPANTS:** Washington State residents. **MAIN OUTCOME MEASURES:** The metrics include measures of opioid prescribing overall and by age

group, chronic opioid prescribing, high-dose prescribing among those on chronic opioid therapy, prescribing of concurrent opioids and sedatives, days' supply of new opioid prescriptions, and transition from short-term to long-term use of opioids. RESULTS: In Washington, the prevalence of any opioid prescribing, chronic opioid prescribing, high-dose opioid prescribing, and prescribing of concurrent opioids and sedatives declined between 2012 and 2017. The prevalence of opioid prescribing was higher in older than in younger age groups. The addition of tramadol to the Washington PDMP in 2014 affected the observed prevalence of all opioid metrics and of all opioid-prescribing trends. Conclusions about trends in opioid prescribing differ substantially depending on whether tramadol is included or not, particularly in 2014 and 2015. CONCLUSIONS: The development of opioid-prescribing metrics is relatively new. There is likely much benefit of standard definitions of opioid metrics at the state and national levels to track important trends and compare progress from state to state

***Nolet PS, Emary PC, Kristman VL, Murnaghan K, Zeegers MP, and Freeman MD. Exposure to a motor vehicle collision and the risk of future back pain: a systematic review and meta-analysis. Accident Analysis and Prevention. 2020; 142:105546.**

<https://doi.org/10.1016/j.aap.2020.105546> [open access]

Abstract: OBJECTIVE: The purpose of this study is to summarize the evidence for the association between exposure to a motor vehicle collision (MVC) and future low back pain (LBP). LITERATURE SURVEY: Persistent low back pain (LBP) is a relatively common complaint after acute injury in a MVC, with a reported 1 year post-crash prevalence of at least 31 % of exposed individuals. Interpretation of this finding is challenging given the high incidence of LBP in the general population that is not exposed to a MVC. Risk studies with comparison control groups need to be examined in a systematic review. METHODOLOGY: A systematic search of five electronic databases from 1998 to 2019 was performed. Eligible studies describing exposure to a MVC and risk of future non-specific LBP were critically appraised using the Quality in Prognosis Studies (QUIPS) instrument. The results were summarized using best-evidence synthesis principles, a random effects meta-analysis and testing for publication bias. SYNTHESIS: The search strategy yielded

1136 articles, three of which were found to be at low to medium risk of bias after critical appraisal. All three studies reported a positive association between an acute injury in a MVC and future LBP. Pooled analysis of the results resulted in an unadjusted relative risk of future LBP in the MVC-exposed and injured population versus the non-exposed population of 2.7 (95 % CI [1.9, 3.8]), which equates to a 63 % attributable risk under the exposed. CONCLUSIONS: There was a consistent positive association in the critically reviewed literature that investigated the risk of future LBP following an acute MVC-related injury. For the patient with chronic low back pain who was initially injured in a MVC, more often than not (63 % of the time) the condition was caused by the MVC. These findings are likely to be of interest to clinicians, insurers, patients, governments and the courts. Future studies from both general and clinical populations would help strengthen these results

Ablah E, Wilcox EA, Umansky E, Honn A, O'Malley E, and Usher J. A model for developing comprehensive initiatives to improve the health of the worksite: the WorkWell KS strategic framework. Workplace Health & Safety. 2020; 68(6):293-299.

<https://doi.org/10.1177/2165079919894364>

Abstract: Background: Worksite wellness programs that target individual employees, rather than worksites, have demonstrated limited long-term success. The purpose of this overview was to describe the theoretical basis for implementing an effective worksite wellness initiative, WorkWell Kansas (WorkWell KS). WorkWell KS is not a traditional worksite wellness initiative, as its goal is to create healthy worksites, rather than target workers. Methods: The WorkWell KS Strategic Framework is based on academic research that identified successful worksite wellness elements that produce sustainably healthy worksites. The curricula were built around the 3-4-80: three modifiable behaviors (tobacco use, poor access to nutritious foods and beverages, and physical inactivity) contribute to at least four chronic diseases (heart disease, type II diabetes, lung disease, and some cancers), which in turn contribute to approximately 80% of the premature deaths in the United States. Findings: To properly address these modifiable behaviors, the WorkWell KS Strategic Framework was developed to guide worksites to first build a solid worksite wellness foundation, which consists of

five elements: the wellness committee, exercising leadership, communications, incentives, and data. Once built, worksites are then encouraged to employ a socio-ecological approach to developing a comprehensive, multi-strategy (information, program, benefit design, policy, and environment) intervention, focusing on one health behavior at a time. Conclusions/Application to Practice: The goal of WorkWell KS was to create healthy worksites, which creates environments for employees to practice these healthy behaviors. Worksite wellness committees, occupational health professionals, and others interested in altering health behaviors at worksites have an opportunity to reframe their approach using this framework

Burgess JL, Hoppe-Jones C, Griffin SC, Zhou JJ, Gulotta JJ, Wallentine DD, et al. Evaluation of interventions to reduce firefighter exposures. Journal of Occupational and Environmental Medicine. 2020; 62(4):279-288.

<https://doi.org/10.1097/JOM.0000000000001815>

Abstract: OBJECTIVE: Evaluate the effectiveness of firefighter exposure reduction interventions. METHODS: Fireground interventions included use of self-contained breathing apparatus by engineers, entry team wash down, contaminated equipment isolation, and personnel showering and washing of gear upon return to station. Urinary polycyclic aromatic hydrocarbon metabolites (PAH-OHs) were measured after structural fire responses before and after intervention implementation. Separately, infrared sauna use following live-fire training was compared to standard postfire care in a randomized trial. RESULTS: The fireground interventions significantly reduced mean total urinary postfire PAH-OHs in engineers (-40.4%, 95%CI -63.9%, -2.3%) and firefighters (-36.2%, 95%CI -56.7%, -6.0%) but not captains (-11.3% 95%CI -39.4%, 29.9%). Sauna treatment non-significantly reduced total mean PAH-OHs by -43.5% (95%CI -68.8%, 2.2%). CONCLUSIONS: The selected fireground interventions reduced urinary PAH-OHs in engineers and firefighters. Further evaluation of infrared sauna treatment is needed

Fang D, Huang Y, Guo H, and Lim H. LCB approach for construction safety. Safety Science. 2020; 128:104761.

<https://doi.org/10.1016/j.ssci.2020.104761>

Gharibi V, Mokarami H, Cousins R, Jahangiri M, and Eskandari D. Excessive daytime sleepiness and safety performance: comparing proactive and reactive approaches. International Journal of Occupational and Environmental Medicine. 2020; 11(2):95-107.

<https://doi.org/10.34172/ijoem.2020.1872> [open access]

Abstract: BACKGROUND: Sleep disorders and excessive daytime sleepiness negatively affect employees' safety performance. OBJECTIVE: To investigate the relationship between excessive daytime sleepiness with obstructive sleep apnea and safety performance at an oil construction company in Iran. METHODS: 661 employees consented to participate in this study. Excessive daytime sleepiness was measured with the STOP-BANG questionnaire and Epworth Sleepiness Scale (ESS). To determine how sleepiness would affect the studied occupational incidents, accidents causing injury and near misses, both reactive data and proactive safety performance indices were measured. Demographic and predictor variables were analyzed with hierarchical multiple linear regression. RESULTS: Employees who met the criteria of excessive daytime sleepiness and obstructive sleep apnea had significantly poorer safety performance indicators. STOP-BANG and ESS were significant predictors of safety compliance (β 0.228 and 0.370, respectively), safety participation (β 0.210 and 0.144, respectively), and overall safety behavior (β 0.332 and 0.213, respectively). Further, occupational incidents were 2.5 times higher in workers with indicators of excessive daytime sleepiness and 2 times higher in those with obstructive sleep apnea compared with those without. CONCLUSION: These findings confirmed that excessive daytime sleepiness is a serious safety hazard, and that both reactive and proactive measures are important to understand the relative contribution of predictor variables

Guerrero-Barona E, Rodriguez-Jimenez M, and Chambel MJ. Engagement in carers of persons with intellectual disabilities: the role of self-efficacy and emotional intelligence. Disability and Rehabilitation. 2020; 42(10):1397-1405.

<https://doi.org/10.1080/09638288.2018.1526976>

Abstract: Purpose: Different research papers into various occupational groups demonstrate the importance of engagement for

the wellbeing of both employees and organizational results. However, the study of this phenomenon and that of other positive factors in professional staff caring for persons with intellectual disabilities is scarce. For this reason, the objective of this work was to test a theoretical model concerning the relationship between engagement, a positive factor, and self-efficacy in carers of persons with an intellectual disability, using emotional intelligence as a mediating variable. Materials and methods: Three hundred and eleven carers participated in the study. Self-report measures with adequate psychometric properties were provided to evaluate engagement, self-efficacy, and emotional intelligence. Results and conclusions: The structural equation models (SEM) showed a significant relation between self-efficacy and engagement. In addition, one of the dimensions of emotional intelligence, namely the use of emotions (UOE), was a full mediator in this relationship. The other dimensions showed no relation to engagement. Thus, the UOE was a fundamental factor for self-efficacy to imply engagement. For this reason, intervention programs in wellbeing and health in the workplace should include specific training in this skill among their objectives. Implications for rehabilitation Carers are very important persons in the lives of individuals with intellectual disabilities. There was a significant relationship between self-efficacy and engagement and use of emotions was a full mediator in this relationship. The intervention programs should include training the emotional intelligence among their objectives in order to optimize engagement

Jones MK and McVicar D. Estimating the impact of disability onset on employment. *Social Science & Medicine*. 2020; 255:113001.

<https://doi.org/10.1016/j.socscimed.2020.113001>

Abstract: This paper examines the impact of disability onset on the probability of employment using an underexplored longitudinal dataset for Britain. It contrasts estimates based on a control group drawn from those not experiencing disability onset - a common approach in the literature - with estimates based on a control group drawn from those who do experience disability onset, but one year after the treatment group. Compared to the non-disabled control group, the control group of later-onsetters is likely to be more similar to the treatment group in terms of unobservables, with the resulting

estimates therefore more plausibly interpreted as causal. Using this control group we estimate that the probability of employment falls by 11 percentage points in the year of disability onset. The equivalent estimate using the control group drawn from those not experiencing onset is about fifty percent larger. The employment effects of disability onset are also shown to be larger for those with lower qualification levels, consistent with weaker attachment to the labour market

Kuronen J, Winell K, Kopra J, and Rasanen K. Quality improvement activity in occupational healthcare associated with reduced need for disability retirement: a Bayesian mixed effects modelling study in Finland. *Scandinavian Journal of Work, Environment & Health*. 2020; [epub ahead of print].

<https://doi.org/10.5271/sjweh.3901> [open access]

Abstract: Objectives There is evidence that occupational healthcare (OHC) may improve employees' work ability. This research was designed to study whether common quality improvement (QI) activities in the OHC quality network (OQN) – a voluntary collaborative forum – can reduce the need for disability pensions. **Methods** The study population comprised employees under the care of 19 OHC units in Finland affiliated with the OQN. The association of 12 QI activities with new disability pensions during the years 2011–2017 was analyzed by Bayesian mixed effects modelling. **Results** Patients of OHC units affiliated with the OQN have fewer full permanent disability pensions [odds ratio (OR) 0.77, 95% credible interval (CI) 0.60–0.98] and full provisional disability pensions (OR 0.68, 95% CI 0.53–0.87) than patients of unaffiliated units. Of the studied QI activities, the measurements of intervening in excessive use of alcohol had the strongest association with the incidence of all disability pensions (OR 0.53, 95% CI 0.41–0.68). Participation in the focus of work measurements and quality facilitator training was also associated with the reduced incidence of disability pensions (OR 0.84, 95% CI 0.71–0.98, and OR 0.92, 95 CI 0.84–0.99, respectively). **Conclusions** Affiliation with a quality network seemed to improve outcomes by reducing full disability pensions or replacing them by partial disability pensions. Some QI activities in the OQN were associated with a reduction of disability pensions.

Liu S, Nkrumah ENK, Akoto LS, Gyabeng E, and Nkrumah E. The State of Occupational Health and Safety Management Frameworks (OHSMF) and occupational injuries and accidents in the Ghanaian oil and gas industry: assessing the mediating role of safety knowledge. BioMed Research International. 2020; 2020:6354895.

<https://doi.org/10.1155/2020/6354895> [open access]

Abstract: Background. The study examines the mediation effect of safety knowledge in causal the relationship between Occupational Health and Safety Management Frameworks (OHSMF) and occupational injuries and workplace accidents in the Ghanaian Oil and Gas Industry. The study explores different dimensions of occupational health and safety management systems, workplace accidents, and occupational injuries. The study adopted a cross-sectional survey design. A total of 699 respondents through a convenience and purposive sampling technique were selected in three government-owned oil and gas organizations for the study. Correlation, multiple regression analysis, and bootstrapping methods were used for data analysis. The findings of both the regression and correlation analysis indicated that there is a moderately strong negative and significant relationship between Occupational Health and Safety Management Frameworks (OHSMF) and workplace accidents and occupational injuries. Safety knowledge significantly mediates the causal relationship between OHSMF and workplace accidents and injuries. Safety training was found to be a significant predictor of safety knowledge, work-related injuries, and workplace accidents. The negative relationship between OHSMF and workplace accidents and injuries shows that the existing OHSMF are either ineffective or lack the acceptable safety standards to control hazard exposures in the industry. Management must invest in frequent safety training and orientations to improve safety knowledge among workers. The study further recommends government and industry players to extend serious attention towards the promotion and improvement of occupational health and safety management systems in Ghana

Mattijssen L, Pavlopoulos D, and Smits W. Occupations and the non-standard employment career: how the occupational skill level and task types influence the career outcomes of non-

standard employment. *Work, Employment and Society*. 2020; 34(3):495-513.

<https://doi.org/10.1177/0950017020902984> [open access]

Niedhammer I, Milner A, Geoffroy-Perez B, Coutrot T, LaMontagne AD, and Chastang JF. Psychosocial work exposures of the job strain model and cardiovascular mortality in France: results from the STRESSJEM prospective study. *Scandinavian Journal of Work, Environment & Health*. 2020; [epub ahead of print].

<https://doi.org/10.5271/sjweh.3902> [open access]

Abstract: Objectives The study aims to explore the prospective associations of the psychosocial work exposures of the job strain model with cardiovascular mortality, including mortality for ischemic heart diseases (IHD) and stroke, using various time-varying exposure measures in the French working population of employees. Methods The study was based on a cohort of 798 547 men and 697 785 women for which job history data from 1976 to 2002 were linked to mortality data and causes of death from the national death registry. Psychosocial work exposures from the validated job strain model questionnaire were assessed using a job-exposure matrix (JEM). Three time-varying measures of exposure were studied: current, cumulative, and recency-weighted cumulative exposure. Cox proportional hazards models were used to examine the associations between psychosocial work exposures and cardiovascular mortality. Results Within the 1976-2002 period, there were 19 264 cardiovascular deaths among men and 6181 among women. Low decision latitude, low social support, job strain, iso-strain, passive job, and high strain were associated with cardiovascular mortality. Most of these associations were also observed for IHD and stroke mortality. The comparison between the different exposure measures suggested that current exposure may be more important than cumulative (or past) exposure. The population fractions of cardiovascular mortality attributable to job strain were 5.64% for men and 6.44% for women. Conclusions Psychosocial work exposures of the job strain model may play a role in cardiovascular mortality. The estimated burden of cardiovascular mortality associated with these exposures underlines the need for preventive policies oriented toward the psychosocial work environment

Raj A, Johns NE, and Jose R. Gender parity at work and its association with workplace sexual harassment. *Workplace Health & Safety*. 2020; 68(6):279-292.

<https://doi.org/10.1177/2165079919900793>

Abstract: Background: Gender parity in the workplace-and increased representation of women at work-may reduce workplace sexual harassment, but research on this is unclear. This study assessed the associations between gender parity at work and workplace sexual harassment. Methods: We analyzed data from an online sexual harassment survey conducted with a nationally representative sample of U.S. adults in 2018 (N = 2,009; response rate 29%); current analyses were restricted to employed participants (women n = 610, men n = 690). Data on occupation and industry were each categorized as female-dominant (61%-100% female), male-dominant (0%-39% female), or at parity (40%-60% female). We used sex-stratified logistic regression models to assess associations between gender parity in industry and occupation and workplace sexual harassment. Findings: Our study of employed adults in the U.S. found that 42% women and 15% men had experienced workplace sexual harassment. Logistic regression analyses indicated that women employed in female-dominated industries (adjusted odds ratio [AOR] = 0.52; 95% confidence interval [CI] = [0.33, 0.81]) and men employed in male-dominated occupations (AOR = 0.55; 95% CI = [0.33, 0.91]) were less likely to have experienced workplace sexual harassment. Women in male-dominated occupations were more likely to report harassment or assault by a supervisor (AOR = 2.41, 95% CI = [1.00, 5.80]), and men in male-dominated occupations were less likely to report harassment or assault by a supervisor (AOR = 0.26, 95% CI = [0.08, 0.89]). Conclusion/Application to Practice: Women in female-dominated industries and men in male-dominated occupations, relative to those with workplace gender parity, are at lower risk for harassment. Women in male-dominated occupations are at greater risk for harassment from supervisors. Gender parity at work is not sufficient on its own to address workplace sexual harassment; normative changes are needed

Santesso N, Barbara AM, Kamran R, Akkinpally S, Cairney J, Akl EA, et al. Conclusions from surveys may not consider important biases: a systematic survey of surveys. *Journal of*

Clinical Epidemiology. 2020; 122:108-114.
<https://doi.org/10.1016/j.jclinepi.2020.01.019>

Siren M, Viikari-Juntura E, Arokoski J, and Solovieva S.
Occupational and non-occupational risk factors of sickness absence due to a shoulder lesion. Occupational and Environmental Medicine. 2020; 77(6):393-401.

<https://doi.org/10.1136/oemed-2019-106335> [open access]

Abstract: OBJECTIVES: To determine the associations of lifestyle factors and cumulative physical workload exposures with sickness absence (SA) due to a shoulder lesion and to calculate their population attributable fractions (PAF). METHODS: Our nationally representative cohort consisted of 4344 individuals aged 30-62 years who participated in the Finnish Health 2000 Survey. Education, smoking, chronic diseases and work exposures were assessed during interviews and leisure time physical activity with a questionnaire. Weight and height were measured. We followed the individuals for 15 years for the first SA due to a shoulder lesion. We used competing risk regression models. We calculated PAFs to assess the proportion of SA that was attributed to modifiable risk factors. RESULTS: In the entire study population, risk factors of SA were age, daily smoking, being exposed for more than 10 years to physically heavy work and being exposed for more than 10 years to at least two specific physical workload factors. The overall PAF for the modifiable risk factors was 49%. In men, number of specific cumulative exposures, obesity and daily smoking predicted SA with PAF values of 34%, 30% and 14%, respectively. Among women, being exposed for more than 10 years to physically heavy work, number of specific cumulative exposures and daily smoking accounted for 23%, 22% and 15% of SA, respectively. CONCLUSIONS: Reducing significantly prolonged exposure to physical workload factors, avoiding regular smoking in both genders and obesity in men has a high potential to prevent SA due to a shoulder lesion

Takwoingi Y, Partlett C, Riley RD, Hyde C, and Deeks JJ.
Methods and reporting of systematic reviews of comparative accuracy were deficient: a methodological survey and proposed guidance. Journal of Clinical Epidemiology. 2020; 121:1-14.

<https://doi.org/10.1016/j.jclinepi.2019.12.007> [open access]

Abstract: **OBJECTIVE:** The objective of this study was to examine methodological and reporting characteristics of systematic reviews and meta-analyses which compare diagnostic test accuracy (DTA) of multiple index tests, identify good practice, and develop guidance for better reporting. **STUDY DESIGN AND SETTING:** Methodological survey of 127 comparative or multiple tests reviews published in 74 different general medical and specialist journals. We summarized methods and reporting characteristics that are likely to differ between reviews of a single test and comparative reviews. We then developed guidance to enhance reporting of test comparisons in DTA reviews. **RESULTS:** Of 127 reviews, 16 (13%) reviews restricted study selection and test comparisons to comparative accuracy studies while the remaining 111 (87%) reviews included any study type. Fifty-three reviews (42%) statistically compared test accuracy with only 18 (34%) of these using recommended methods. Reporting of several items-in-particular the role of the index tests, test comparison strategy, and limitations of indirect comparisons (i.e., comparisons involving any study type)-was deficient in many reviews. Five reviews with exemplary methods and reporting were identified. **CONCLUSION:** Reporting quality of reviews which evaluate and compare multiple tests is poor. The guidance developed, complemented with the exemplars, can assist review authors in producing better quality comparative reviews

Williams G. Management millennialism: designing the new generation of employee. *Work, Employment and Society*. 2020; 34(3):371-387.

<https://doi.org/10.1177/0950017019836891>

*IWH authored publications.