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August 30, 2019

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***Sears JM, Fulton-Kehoe D, Schulman BA, Hogg-Johnson S, and Franklin GM. Opioid overdose hospitalization trajectories in states with and without opioid-dosing guidelines. *Public Health Reports*. 2019; 134(5):567-576.**

<https://doi.org/10.1177/0033354919864362>

Abstract: OBJECTIVES: High-risk opioid-prescribing practices contribute to a national epidemic of opioid-related morbidity and mortality. The objective of this study was to determine whether the adoption of state-level opioid-prescribing guidelines that specify a high-dose threshold is associated with trends in rates of opioid overdose hospitalizations, for prescription opioids, for heroin, and for all opioids. METHODS: We identified 3 guideline states (Colorado, Utah, Washington) and 5 comparator states (Arizona, California, Michigan, New Jersey, South Carolina). We used state-level opioid overdose hospitalization data from 2001-2014 for these 8 states. Data were based on the State Inpatient Databases and provided by the Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality, via HCUPnet. We used negative binomial panel regression to model trends in annual rates of opioid overdose hospitalizations. We used a multiple-baseline difference-in-differences study design to compare postguideline trends with concurrent trends for comparator states. RESULTS: For each

guideline state, postguideline trends in rates of prescription opioid and all opioid overdose hospitalizations decreased compared with trends in the comparator states. The mean annual relative percentage decrease ranged from 3.2%-7.5% for trends in rates of prescription opioid overdose hospitalizations and from 5.4%-8.5% for trends in rates of all opioid overdose hospitalizations.

CONCLUSIONS: These findings provide preliminary evidence that opioid-dosing guidelines may be an effective strategy for combating this public health crisis. Further research is needed to identify the individual effects of opioid-related interventions that occurred during the study period

Ahn CR, Lee S, Sun C, Jebelli H, Yang K, and Choi B. Wearable sensing technology applications in construction safety and health. Journal of Construction Engineering and Management. 2019; 145(11):03119007.

[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001708](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001708)

Benuto LT, Singer J, Gonzalez F, Newlands R, and Hooft S. Supporting those who provide support: work-related resources and secondary traumatic stress among victim advocates. Safety and Health at Work. 2019; 10(3):336-340.

<https://doi.org/10.1016/j.shaw.2019.04.001> [open access]

Abstract: Background/Aims Victim advocates are at risk of developing secondary traumatic stress (STS), which can result from witnessing or listening to accounts of traumatic events. This study investigated the relationship between victim status, years of experience, hours of direct contact with victims, and availability of workplace supports in the development of STS. **Results** Of the 142 victim advocates, 134 were women. Regression analyses revealed that the only significant predictor of STS was the number of direct hours of victim services provided. **Conclusion** The findings from this study found that women have high rates of STS and that more workplace support needs to be implemented

Brauner C, Wohrmann AM, Frank K, and Michel A. Health and work-life balance across types of work schedules: a latent class analysis. Applied Ergonomics. 2019; 81:102906.

<https://doi.org/10.1016/j.apergo.2019.102906> [open access]

Abstract: This study explores how different aspects of working time demands (e.g., shift work) and working time control (e.g., beginning/end of workday) can be clustered into distinct types of work schedules and how they relate to health and work-life balance. Data from 13,540 full-time employees interviewed in the 2015 BAuA-Working Time Survey was used. By means of latent class analysis, we extracted six types of work schedules. Subjective health was highest in the flexible extended and flexible standard schedules, both featuring high working time control. Work-life balance was highest in the flexible standard and rigid standard schedules and lowest in schedules with high working time demands, namely the extended shift, rigid all-week, and rigid extended schedules. Employees with high working time demands and low control represent risk groups prone to impairments of well-being. Overall, this study offers an intuitive taxonomy for the design of sustainable work schedules

Chen WH. Health and transitions into nonemployment and early retirement among older workers in Canada. *Economics and Human Biology*. 2019; 35:193-206.

<https://doi.org/10.1016/j.ehb.2019.06.001>

Abstract: Extending working lives is considered a viable solution to fiscal and macroeconomic challenges related to population ageing. Opportunities for sustained employment, however, are not experienced equally among older population, particularly among those with a health problem. This study aims to examine the longer-term effect of health on employment trajectories in later part of working life using a unique survey-administrative linked dataset for Canada. Specifically, we apply competing-risks models to analyze whether different aspects of health conditions at baseline predict subsequent exit routes, including nonemployment and early retirement. The nonparametric findings of the paper show that only about 33% of workers aged 50-62 with a health problem at baseline remained employed at age 64, compared to 55% of healthy workers. Exiting into nonemployment seemed more common among leavers with activity limitations, while early retirement was more likely among healthy leavers. These results are robust even when individuals' preferences for work and financial factors were controlled for. Moreover, we identify differential impacts of specific chronic diseases on early work exit. Not all symptoms affect employment transitions to

a similar extent. Older workers who reported the comorbidity of mental and musculoskeletal disorders faced an increased risk of nonemployment, while the presence of diabetes and cardiovascular problems at baseline were more predictive of early retirement

Delaney H, Devane D, Hunter A, Hennessy M, Parker A, Murphy L, et al. Limited evidence exists on the effectiveness of education and training interventions on trial recruitment; a systematic review. Journal of Clinical Epidemiology. 2019; 113:75-82.

<https://doi.org/10.1016/j.jclinepi.2019.05.013>

Abstract: **OBJECTIVE:** The objective of this study was to examine the effectiveness of education and training interventions on recruitment to randomized and non-randomized trials. **STUDY DESIGN AND SETTING:** A systematic review of the effectiveness of education and training interventions for recruiters to trials. The review included randomized and non-randomized controlled trials of any type of education and training intervention for recruiters to trials, within any health care field. The primary outcome was recruitment rates, and secondary outcomes were quality of informed consent, recruiter self-confidence, understanding/knowledge of trial information, numbers of potential trial participants approached, satisfaction with training, and retention rates. **RESULTS:** Of the 19 records reviewed at full-text level, six met the inclusion criteria for our review. Owing to heterogeneity of outcomes and methods between the included studies, meta-analysis was not possible for the primary outcome. Of the three studies that reported recruitment rates, one favored the education and training intervention for increased recruitment; the remaining two found no differences between the groups. Of the reported secondary outcomes, quality of informed consent was improved, but no differences between groups in understanding/knowledge of trial information were found. **CONCLUSION:** There is limited evidence of effectiveness on the impact of education and training interventions on trial recruitment. Further work on developing a substantial evidence base around the effectiveness of education and training interventions for recruiters to trials is required

Hansen BB, Kirkeskov L, Begtrup LM, Boesen M, Bliddal H, Christensen R, et al. Early occupational intervention for people with low back pain in physically demanding jobs: a randomized clinical trial. PLoS Medicine. 2019; 16(8):e1002898.

<https://doi.org/10.1371/journal.pmed.1002898> [open access]

Abstract: BACKGROUND: Occupational medicine seeks to reduce sick leave; however, evidence for an add-on effect to usual care is sparse. The objective of the GOBACK trial was to test whether people with low back pain (LBP) in physically demanding jobs and at risk of sick leave gain additional benefit from a 3-month complex intervention that involves occupational medicine consultations, a work-related evaluation and workplace intervention plan, an optional workplace visit, and a physical activity program, over a single hospital consultation and an MRI. METHODS AND FINDINGS: We enrolled people from the capital region of Denmark to an open-label, parallel-group randomized controlled trial with a superiority design from March 2014 through December 2015. In a hospital setting 305 participants (99 women) with LBP and in physically demanding jobs were randomized to occupational intervention (n = 153) or no additional intervention (control group; n = 152) added to a single hospital consultation giving a thorough explanation of the pain (i.e., clinical examination and MRI) and instructions to stay active and continue working. Primary outcome was accumulated sick leave days due to LBP during 6 months. Secondary outcomes were changes in neuropathic pain (painDETECT questionnaire [PDQ]), pain 0-10 numerical rating scale (NRS), Fear-Avoidance Beliefs Questionnaire (FABQ), Roland-Morris Disability Questionnaire (RMDQ), Short Form Health Survey (SF-36) for physical and mental health-related quality of life (HRQoL), and self-assessed ability to continue working (range 0-10). An intention-to-treat analysis of sick leave at 6 months showed no significant difference between groups (mean difference in days suggestively in favor of no additional intervention: 3.50 [95% CI -5.08 to 12.07], P = 0.42). Both groups showed significant improvements in average pain score (NRS), disability (RMDQ), fear-avoidance beliefs about physical activities and work (FABQ), and physical HRQoL (SF-36 physical component summary); there were no significant differences between the groups in any secondary outcome. There was no statistically significant improvement in neuropathic pain (PDQ score), mental HRQoL (SF-36 mental component summary), and

self-assessed ability to stay in job. Four participants could not complete the MRI or the intervention due to a claustrophobic attack or accentuated back pain. Workplace visits may be an important element in the occupational intervention, although not always needed. A per-protocol analysis that included the 40 participants in the intervention arm who received a workplace visit as part of the additional occupational intervention did not show an add-on benefit in terms of sick leave (available cases after 6 months, mean difference: -0.43 days [95% CI -12.8 to 11.94], P = 0.945). The main limitations were the small number of sick leave days taken and that the comprehensive use of MRI may limit generalization of the findings to other settings, for example, general practice. **CONCLUSIONS:** When given a single hospital consultation and MRI, people in physically demanding jobs at risk of sick leave due to LBP did not benefit from a complex additional occupational intervention. Occupational interventions aimed at limiting biopsychological obstacles (e.g., fear-avoidance beliefs and behaviors), barriers in the workplace, and system barriers seem essential to reduce sick leave in patients with LBP. This study indicates that these obstacles and barriers may be addressed by thorough usual care. **TRIAL REGISTRATION:** Clinical Trials.gov: NCT02015572

Herman PM, Broten N, Lavelle TA, Sorbero ME, and Coulter ID. Health care costs and opioid use associated with high-impact chronic spinal pain in the United States. Spine. 2019; 44(16):1154-1161.

<https://doi.org/10.1097/BRS.0000000000003033>

Abstract: STUDY DESIGN: A descriptive analysis of secondary data. **OBJECTIVE:** The aim of this study was to estimate health care costs and opioid use for those with high-impact chronic spinal (back and neck) pain. **SUMMARY OF BACKGROUND DATA:** The US National Pain Strategy introduced a focus on high-impact chronic pain-that is, chronic pain associated with work, social, and self-care restrictions. Chronic neck and low-back pain are common, costly, and associated with long-term opioid use. Although chronic pain is not homogenous, most estimates of its costs are averages that ignore severity (impact). **METHODS:** We used 2003 to 2015 Medical Expenditures Panel Survey (MEPS) data to identify individuals with chronic spinal pain, their health care expenditures, and use of opioids. We developed

prediction models to identify those with high- versus moderate- and low-impact chronic spinal pain based on the variables available in MEPS. RESULTS: We found that overall and spine-related health care costs, and the use and dosage of opioids increased significantly with chronic pain impact levels. Overall and spine-related annual per person health care costs for those with high-impact chronic pain (\$14,661 SE: \$814; and \$5979 SE: \$471, respectively) were more than double that of those with low-impact, but still clinically significant, chronic pain (\$6371 SE: \$557; and \$2300 SE: \$328). Those with high-impact chronic spinal pain also use spine-related opioids at a rate almost four times that of those with low-impact pain (48.4% vs. 12.4%), and on average use over five times the morphine equivalent daily dose (MEDD) in mg (15.3 SE: 1.4 vs. 2.7 SE: 0.6). Opioid use and dosing increased significantly across years, but the increase in inflation-adjusted health care costs was not statistically significant. CONCLUSION: Although most studies of chronic spinal pain do not differentiate participants by the impact of their chronic pain, these estimates highlight the importance of identifying chronic pain levels and focusing on those with high-impact chronic pain. LEVEL OF EVIDENCE: 3

Komisar V, McIlroy WE, and Duncan CA. Individual, task, and environmental influences on balance recovery: a narrative review of the literature and implications for preventing occupational falls. IJSE Transactions on Occupational Ergonomics and Human Factors. 2019; 7(2):91-118.
<https://doi.org/10.1080/24725838.2019.1634160>

Kunz R, von Allmen DY, Marelli R, Hoffmann-Richter U, Jeger J, Mager R, et al. The reproducibility of psychiatric evaluations of work disability: two reliability and agreement studies. BMC Psychiatry. 2019; 19(1):205.

<https://doi.org/10.1186/s12888-019-2171-y> [open access]

Abstract: BACKGROUND: Expert psychiatrists conducting work disability evaluations often disagree on work capacity (WC) when assessing the same patient. More structured and standardised evaluations focusing on function could improve agreement. The RELY studies aimed to establish the inter-rater reproducibility (reliability and agreement) of 'functional evaluations' in patients with

mental disorders applying for disability benefits and to compare the effect of limited versus intensive expert training on reproducibility. METHODS: We performed two multi-centre reproducibility studies on standardised functional WC evaluation (RELY 1 and 2). Trained psychiatrists interviewed 30 and 40 patients respectively and determined WC using the Instrument for Functional Assessment in Psychiatry (IFAP). Three psychiatrists per patient estimated WC from videotaped evaluations. We analysed reliability (intraclass correlation coefficients [ICC]) and agreement ('standard error of measurement' [SEM] and proportions of comparisons within prespecified limits) between expert evaluations of WC. Our primary outcome was WC in alternative work (WC_{alternative.work}), 100-0%. Secondary outcomes were WC in last job (WC_{last.job}), 100-0%; patients' perceived fairness of the evaluation, 10-0, higher is better; usefulness to psychiatrists. RESULTS: Inter-rater reliability for WC_{alternative.work} was fair in RELY 1 (ICC 0.43; 95%CI 0.22-0.60) and RELY 2 (ICC 0.44; 0.25-0.59). Agreement was low in both studies, the 'standard error of measurement' for WC_{alternative.work} was 24.6 percentage points (20.9-28.4) and 19.4 (16.9-22.0) respectively. Using a 'maximum acceptable difference' of 25 percentage points WC_{alternative.work} between two experts, 61.6% of comparisons in RELY 1, and 73.6% of comparisons in RELY 2 fell within these limits. Post-hoc secondary analysis for RELY 2 versus RELY 1 showed a significant change in SEM_{alternative.work} (- 5.2 percentage points WC_{alternative.work} [95%CI - 9.7 to - 0.6]), and in the proportions on the differences \leq 25 percentage points WC_{alternative.work} between two experts ($p = 0.008$). Patients perceived the functional evaluation as fair (RELY 1: mean 8.0; RELY 2: 9.4), psychiatrists as useful. CONCLUSIONS: Evidence from non-randomised studies suggests that intensive training in functional evaluation may increase agreement on WC between experts, but fell short to reach stakeholders' expectations. It did not alter reliability. Isolated efforts in training psychiatrists may not suffice to reach the expected level of agreement. A societal discussion about achievable goals and readiness to consider procedural changes in WC evaluations may deserve considerations

Leung N, Tao XG, and Bernacki EJ. The relationship of the amount of physical therapy to time lost from work and costs in

the workers' compensation system. Journal of Occupational & Environmental Medicine. 2019; 61(8):635-640.

<https://doi.org/10.1097/JOM.0000000000001630>

Abstract: : Physical therapy (PT) is perceived as a cost driver in the US workers' compensation system. We conducted a 5-year (2013 to 2017) retrospective analysis utilizing 192,197 claims from a large Texas based workers' compensation insurance company to describe the relationship between the amount of physical therapy delivered and workers' compensation costs and lost-time. Closed, indemnity claims with 15 or more PT visits were six times more likely (95% confidence interval [CI]: 5.50, 86.58) to result in high medical costs (>\$7000, excluding PT costs) and were four times more likely (95% CI: 3.77, 4.42) to result in more than or equal to 6 months of lost-time, when controlling for confounders. When the number of PT visits more than or equal to 15 visits for a lost time claim, this level of PT exceeds all other predictors (opioid use, comorbidities, legal involvement, surgery, etc) of medical cost and extended time out from work

Mai QD, Jacobs AW, and Schieman S. Precarious sleep? Nonstandard work, gender, and sleep disturbance in 31 European countries. Social Science & Medicine. 2019; 237:112424.

<https://doi.org/10.1016/j.socscimed.2019.112424>

Abstract: Despite the advent of precarious work, little is known about how this form of employment can generate disparities in sleep outcomes. We extend existing work by providing a theoretical framework linking different measures of work precarity to sleep problems. We argue that the association between objective precarious working conditions and sleep disturbance is channeled through and mediated by subjective work precarity. We further argue that gender moderates the relationship between objective and subjective work precarity. We test this theoretical framework using the 2010 European Working Conditions Survey. Our results indicate that objective precarious working conditions undermine sleep by promoting the subjective experience of insecurity. Furthermore, the indirect effect of objective precarious work on sleep disturbance through subjective employment insecurity varies by gender: compared to women in similar working conditions, men report higher levels of subjective precarity. This research makes important

contributions to the literatures on the health consequences of nonstandard work and social determinants of well-being

Munguia Vega NE, Flores Borboa VS, Zepeda Quintana DS, and Velazquez Contreras LE. Assessing the effectiveness of integrating ergonomics and sustainability: a case study of a Mexican maquiladora. International Journal of Occupational Safety & Ergonomics. 2019; 25(4):587-596.

<https://doi.org/10.1080/10803548.2017.1419589>

Abstract: In 2015, the United Nations defined sustainable industrialization as one of 17 sustainable development goals. In this article, an analysis is performed to assess the opportunities for ergonomics to contribute toward sustainability in the manufacturing industry. To that effect, a case study was carried out in a maquiladora of electronic components in the northwestern region of Mexico. The investigation was developed in four stages: (a) diagnosis; (b) planning; (c) implementations; (d) verification of results. Barriers found during each stage are presented. Finally, a discussion of the obtained results is provided, and areas of opportunity for programs or actions to prevent health risks are identified

Resendiz M, Lustik MB, Conkright WR, and West GF. Standing desks for sedentary occupations: assessing changes in satisfaction and health outcomes after six months of use. Work. 2019; 63(3):347-353.

<https://doi.org/10.3233/WOR-192940>

Abstract: BACKGROUND: Standing desks are a low cost option for the reduction of sedentary behavior. OBJECTIVE: This study evaluated changes in utility and health outcomes during a standing desk intervention. METHODS: Thirty-five participants (BMI >25) who reported sitting an average of >= six hours per workday were recruited. Participants were randomized into a control or intervention group. Eleven were enrolled in the control group and 24 in the intervention group. Participants in the intervention group were outfitted with an adjustable standing desktop accessory while participants in the control group maintained a standard work desk. Self-reported and objective measures of sedentary time during an eight hour workday were captured for a baseline and intervention period. Changes in health outcomes and workplace satisfaction were

assessed after six months. RESULTS: Self-recorded sedentary behavior decreased by 25% after six months though no changes in health outcomes were observed. Subjective assessments of standing time were over-estimated by 10% (compared to accelerometer recordings) in the intervention group. The intervention group reported higher levels of satisfaction with comfort, customizability, and overall personal workplace. CONCLUSIONS: Despite a decrease in sedentary behavior, no changes in health outcomes occurred after a six month intervention. Future studies should incorporate objective measures of diet and physical activity to assess compensatory behaviors that may offset sedentary reduction. More sensitive health outcome measures should also be considered

Song JY, Kim MG, and Ahn YS. Injury-related hospital admission of female firefighters in South Korea. International Journal of Occupational Safety & Ergonomics. 2019; 25(4):575-582.

<https://doi.org/10.1080/10803548.2017.1411666>

Abstract: Purpose. The main objective of this study was to ascertain whether injury-related hospital admission in all South Korea female firefighters is greater than that in the general population. Methods. To perform this comparison, the standardized admission ratios (SARs) and their 95% confidence intervals (CIs) were calculated by person-years and mortality computation software. Results. Compared to the general population, the SARs for overall injury (SAR = 1.57, 95% CI [1.24, 1.96]) and for injury to the lower back (SAR = 2.78, 95% CI [1.81, 4.07]) in the female firefighters were significantly higher. The SARs for injury to the knee (SAR = 2.48, 95% CI [1.18, 4.55]) in emergency medical services (EMS) workers were significantly higher than those in the general population. Conclusions. Our study shows that the SARs of overall injury and injury to the lower back in female firefighters and knee injury in the EMS were significantly higher than those in the general population. Further studies are needed to protect the lower back of firefighters and the knees of EMS

Stevenson M and Duxbury L. Overloaded and stressed: a case study of women working in the health care sector. Journal of Occupational Health Psychology. 2019; 24(3):333-345.

<https://doi.org/10.1037/ocp0000111>

Abstract: Although role overload has been shown to be prevalent and

consequential, there has been little attempt to develop the associated theory. The fact that the consequences of role overload can be positive or negative implies that the relationship between role overload and perceived stress depends partly on the environment within which role overload is experienced (i.e., the perceived situation) and how the situation is evaluated (i.e., appraised). Guided by cognitive appraisal theory, this study applies qualitative methodology to identify the situation properties that contribute to variable stress reactions to role overload. In this in-depth examination, overloaded female hospital workers were asked to describe what makes role overload situations potentially stressful, to gain an insight into how role overload is appraised. A taxonomy listing 12 role overload situation properties was developed from the findings, providing the first known classification of the situation properties of role overload that can create the potential for stress. The results also reveal clues as to why some people suffer more stress during role overload than others, increase our understanding of the relationship between role overload and perceived stress, and provide a useful tool for examining the environment of role overload. (PsycINFO Database Record (c) 2019 APA, all rights reserved)

Tamminga SJ, Braspenning AM, Haste A, Sharp L, Frings-Dresen MHW, and de Boer AGEM. Barriers to and facilitators of implementing programs for return to work (RTW) of cancer survivors in four European countries: a qualitative study. *Journal of Occupational Rehabilitation*. 2019; 29(3):550-559. <https://doi.org/10.1007/s10926-018-9818-2> [open access]

Abstract: Purpose Implementation of return to work (RTW) programs for cancer survivors has proved to be challenging. The purpose of our study was to gather experiences about barriers to and facilitators of implementing RTW programs for cancer survivors in four European countries. Methods Separate multidisciplinary focus groups were held in Belgium (n = 8), the Netherlands (n = 8), Ireland (n = 6), and UK (n = 4) in 2017 and included among others a physician, and a representative of an employer, a cancer society, and the government. Primary focus of thematic analysis was what could be done to improve the implementation of RTW programs for cancer survivors. Analysis used the 'Arena in work disability prevention model' as the conceptual framework. Results Many barriers to and facilitators of

implementing RTW programs for cancer survivors were described including the personal, workplace, healthcare and legislative system as well as the overall societal and political context. That is, for example cooperation between stakeholders, time, money and ability issues at the workplace, and insufficient/inadequate legislation. Insufficient knowledge of cancer and its implications for work was identified as an overarching theme in all countries leading to stigma, misconceptions and lack of communication. This was mentioned in relation to the workplace, personal and healthcare system, and in the overall societal context. Conclusions Results indicate that a prerequisite for implementing RTW programs is raising sufficient knowledge regarding cancer and its implications for work. Greater knowledge could be a first step to better implement RTW programs which may result in better supporting cancer survivors with their RTW

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