IWH Research Alert
September 4, 2020

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***Pohlman KA, Funabashi M, Ndetan H, Hogg-Johnson S, Bodnar P, and Kawchuk G. Assessing adverse events after chiropractic care at a chiropractic teaching clinic: an active-surveillance pilot study. Journal of Manipulative and Physiological Therapeutics. 2020; [epub ahead of print]**
https://doi.org/10.1016/j.jmpt.2020.05.007 [open access]
Abstract: Objective: This study aimed to assess the feasibility of implementing an active-surveillance reporting system within a chiropractic teaching clinic and subsequently determining the frequency of adverse events (AEs) after treatment administered by chiropractic interns. Methods: Interns were invited to collect data from patients using 3 questionnaires that recorded patient symptom change: 2 completed by the patient (before and 7 days after treatment) and 1 completed by the intern (immediately after treatment). Worsened and new symptoms were considered AEs. Qualitative interviews were conducted with clinicians and interns to assess the feasibility of implementing the reporting system, with resulting data categorized under 4 domains: acceptability, implementation, practicality, and integration. Results: Of the 174 eligible interns, 80 (46.0%) collected data from 364 patient

encounters, with 119 (32.7%) returning their posttreatment form. Of the 89 unique patients (mean age = 39.5 years; 58.4% female, 41.6% male), 40.1% presented with low back pain and 31.1% with neck pain. After treatment, 25 symptoms (8.9%) were identified as AEs, mostly reported by patients as worsening discomfort or pain. Data from qualitative interviews suggest that the AE reporting system was well accepted; however, proposed specific modifications include use of longitudinal electronic surveys. Conclusion: Our findings suggest that it is feasible to conduct an active-surveillance reporting system at a chiropractic teaching clinic. Important barriers and facilitators were identified and will be used to inform future work regarding patient safety education and research.

Alcocer JJ. Exploring the effect of Colorado's recreational marijuana policy on opioid overdose rates. Public Health. 2020; 185:8-14.
https://doi.org/10.1016/j.puhe.2020.04.007
Abstract: OBJECTIVES: Opioid overdose death rates have continued to spike exponentially from the start of the 21st century, creating what is known to be one of the worst public health crises in the United States. Simultaneously, as more states began passing medical cannabis laws (MCLs), the idea that marijuana was the solution to the opioid crisis began to spread nationwide. As some states have maintained strict medical marijuana policies, others-such as Colorado-have expanded their statutes to allow recreational marijuana sales within their state. Researchers have been able to provide sense of the public health implications resulting from MCLs, but little is known about the effects of this marijuana policy expansion. This preliminary study will focus on exploring the statewide effects of Colorado's recreational marijuana policy on the state's opioid overdose death rates. STUDY DESIGN: Because Colorado has existing panel data for opioid overdose death rates, we can use statistical software to define and create an optimal control group to adequately resemble Colorado's outcome variable of interest. This process known as the synthetic control method can provide a valid counterfactual for Colorado's opioid overdose outcomes in the absence of this policy-a Colorado that did not expand marijuana policy to the point recreational dispensaries were established. METHODS: Opioid overdose death rate data from the Centers for

Disease Control and Prevention's Wide-ranging Online Data for Epidemiologic Research (WONDER) will be used to construct a synthetic control unit composed of a donor pool of states resembling Colorado's regulatory environment pertaining to marijuana before legalization. The synthetic control unit allows for a comparative observation of overdose rate trends in Colorado and its synthetic counterpart for the years 1999-2017, all while including a set of predictor variables for robustness checks. A difference-in-difference estimate will then help us observe the effects of the treatment given to Colorado. Inference tests will be conducted to evaluate the method's predictive power and significance of the results. RESULTS: The results of the synthetic control model and its outcomes showed that the estimated negative 5% drop in overdose death rates was deemed insignificant on conducting a placebo in-space analysis, meaning there is not enough evidence to prove that opening recreational dispensaries as a result of recreational marijuana legislation was instrumental in reducing Colorado's ongoing opioid crisis depicted through opioid overdose deaths. CONCLUSION: Owing to the lack of additional post-treatment data and captured lagged effects, it is too soon to dismiss this policy as inadequate in combating the opioid epidemic. Once additional post-treatment data become available, the study can be reproduced to obtain more robust results and achieve a clearer understanding of the policy implications shown

Awsumb JM, Carter EW, Schutz MA, and McMillan ED. Perspectives of pre-employment transition services providers on preparing youth with disabilities for employment. Journal of Vocational Rehabilitation. 2020; 53(2):205-218.
https://doi.org/10.3233/JVR-201097

Axen I, Bjork Bramberg E, Vaez M, Lundin A, and Bergstram G. Interventions for common mental disorders in the occupational health service: a systematic review with a narrative synthesis. International Archives of Occupational and Environmental Health. 2020; 93(7):823-838.
https://doi.org/10.1007/s00420-020-01535-4 [open access]
Abstract: INTRODUCTION: Common mental disorders (CMD) are leading causes of decreased workability in Sweden and worldwide.

Effective interventions to prevent or treat such disorders are important for public health. OBJECTIVE: To synthesize the research literature regarding occupational health service (OHS) interventions targeting prevention or reduction of CMD among employees. The effect on workability (sickness absence, return-to-work and self-reported workability) and on CMD symptoms was evaluated in a narrative analysis. DATA SOURCES: The literature search was performed in four electronic databases in two searches, in 2014 and in 2017. ELIGIBILITY CRITERIA (USING PICO): Population: studies investigating employees at risk or diagnosed with CMD, as well as preventive workplace intervention targeting mental health. INTERVENTION: studies where the recruitment or the intervention was delivered by the OHS or OHS personnel were included. CONTROL: individuals or groups who did not receive the target intervention. OUTCOME: all types of outcomes concerning sickness absence and psychological health were included. Study quality was assessed using a Swedish AMSTAR-based checklist, and results from studies with low or medium risk of bias were narratively synthesized based on effect or absence thereof. RESULTS: Thirty-three studies were included and assessed for risk of bias. Twenty-one studies had low or medium risk of bias. In 18 studies, rehabilitation interventions were evaluated, 11 studies concerned interventions targeting employees at risk for developing CMD and four studies investigated preventive interventions. Work-focused cognitive behavioral therapy and problem-solving skill interventions decreased time to first return-to-work among employees on sick leave for CMD in comparison with treatment-as-usual. However, effect on return to full-time work was not consistent, and these interventions did not consistently improve CMD symptoms. Selective interventions targeting employees at risk of CMD and preventive interventions for employees were heterogeneous, so replication of these studies is necessary to evaluate effect. LIMITATIONS: Other workplace interventions outside the OHS may have been missed by our search. There was considerable heterogeneity in the included studies, and most studies were investigating measures targeting the individual worker. Interventions at the workplace/organizational level were less common. CONCLUSIONS AND IMPLICATION OF KEY FINDINGS: Return-to-work and improvement of CMD symptoms are poorly correlated and should be addressed simultaneously in future

interventions. Further, interventions for CMD administered through the occupational health service require further study. Rehabilitative and preventive strategies should be evaluated with scientifically robust methods, to examine the effectiveness of such interventions

Curcuruto M, Strauss K, Axtell C, and Griffin MA. Voicing for safety in the workplace: a proactive goal-regulation perspective. Safety Science. 2020; 131:104902.
https://doi.org/10.1016/j.ssci.2020.104902

Fang X, Zhang J, Teng C, Zhao K, Su KP, Wang Z, et al. Depressive symptoms in the front-line non-medical workers during the COVID-19 outbreak in Wuhan. Journal of Affective Disorders. 2020; 276:441-445.
https://doi.org/10.1016/j.jad.2020.06.078
Abstract: Background: The outbreak of Coronavirus Disease 2019 (COVID-19) has been raising global anxiety and fear to the real or perceived health threat from the virus. This study aimed to investigate the psychological impacts and depression in the front-line non-medical workers in Wuhan, the first and the worst hit place by COVID-19. Methods: A total of 191 front-line non-medical workers in Wuhan were recruited by online survey. The Positive and Negative Affect Schedule (PANAS), the Stress Reaction Questionnaire (SRQ) and the Patient Health Questionnaire-9 (PHQ) were used. Results: The results showed that 50.3% (96) participants reported the clinically significant symptoms of depression. Among them, 33.0% (63) participants were with mild depression, 10.5% (20) participants with moderate depression, 5.8% (11) with moderately severe depression, and 1.0% (2) with severe depression. Participants with depression tend to be post-90 s (the generation born after 1990s), females, with increased levels of stress reactions, increased negative affects, but lower positive affects compared to these without depression. The stepwise logistic regression analysis revealed that post-90 s (ß = 0.908, P = 0.016), the emotional reaction (ß = 0.122, P = 0.005) and physical reaction (ß = 0.124, P = 0.020) in SQR were significant independent responsible for the development of depression. Conclusion: The findings of the present study suggest the targeted psychological intervention measures should be developed to improve

the mental health of non-medical workers on the front-line of COVID-19 epidemic, especially the females and younger individuals.

Ge CB, Kim J, Labreche F, Heer E, Song C, Arrandale VH, et al. Estimating the burden of lung cancer in Canada attributed to occupational radon exposure using a novel exposure assessment method. International Archives of Occupational and Environmental Health. 2020; 93(7):871-876. https://doi.org/10.1007/s00420-020-01537-2 [open access]
Abstract: Objective: Exposure to radon causes lung cancer. The scope and impact of exposure among Canadian workers have not been assessed. Our study estimated occupational radon exposure in Canada and its associated lung cancer burden. Methods: Exposed workers were identified among the working population during the risk exposure period (1961-2001) using data from the Canadian Census and Labour Force Survey. Exposure levels were assigned based on 12,865 workplace radon measurements for indoor workers and assumed to be 1800 mg/m3 for underground workers. Lung cancer risks were calculated using the Biological Effects of Ionizing Radiation (BEIR) VI exposure-age-concentration model. Population attributable fractions were calculated with Levin's equation and applied to 2011 Canadian lung cancer statistics. Results: Approximately 15.5 million Canadian workers were exposed to radon during the risk exposure period. 79% of exposed workers were exposed to radon levels < 50 Bq/m3 and 4.8% were exposed to levels > 150 Bq/m3. We estimated that 0.8% of lung cancers in Canada were attributable to occupational radon exposure, corresponding to approximately 188 incident lung cancers in 2011. Conclusions: The lung cancer burden associated with occupational radon exposure in Canada is small, with the greatest burden occurring among those exposed to low levels of radon.

Gjengedal RGH, Reme SE, Osnes K, Lagerfeld SE, Blonk RWB, Sandin K, et al. Work-focused therapy for common mental disorders: a naturalistic study comparing an intervention group with a waitlist control group. Work. 2020; 66(3):657-667. https://doi.org/10.3233/WOR-203208
Abstract: Background: Common mental disorders (CMD) are leading causes of sickness absence. Treatments for CMD that both reduce

symptoms and support work participation urgently need to be developed. Objective: Determine the potential effects of work-focused therapy combining work interventions with either meta cognitive therapy or cognitive behavioural therapy (W-MCT/CBT) for patients with CMD on sick leave. Methods: Naturalistic study with a quasi-experimental approach. Pre- and post-scores (return to work, symptoms, return-to-work self-efficacy, clinical recovery from depression and anxiety) were compared between the intervention group (n = 87) who received immediate treatment over an average of 10.40 sessions (SD = 3.09) and the non-randomized waitlist control group (n = 95) that had waited an average of 11.18 weeks (SD = 2.29). Results: Significantly more patients returned fully to work in the intervention group (41.4%) than the control group (26.3%). Effect sizes for self-efficacy scores, depression and anxiety were large in the intervention group (d = 1.28, 1.01, 1.58), and significantly lower in the control group (d = 0.60, 0.14, 0.45). Significantly more patients in the treatment group than control group recovered from depression (54.1% vs. 12.8%) and anxiety (50.0% vs.10.6%). Conclusions: W-MCT/CBT may be an effective intervention for patients on sick leave due to CMD.

Gorst SL, Prinsen CAC, Salcher-Konrad M, Matvienko-Sikar K, Williamson PR, and Terwee CB. Methods used in the selection of instruments for outcomes included in core outcome sets have improved since the publication of the COSMIN/COMET guideline. Journal of Clinical Epidemiology. 2020; 125:64-75. https://doi.org/10.1016/j.jclinepi.2020.05.021 [open access]
Abstract: OBJECTIVES: Once a core outcome set (COS) has been defined, it is important to achieve consensus on how these outcomes should be measured. The aims of this systematic review were to gain insight into the methods used to select outcome measurement instruments and to determine whether methods have improved following the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN)/Core Outcome Measures in Effectiveness Trials (COMET) guideline publication. STUDY DESIGN AND SETTING: Eligible articles, which were identified from the annual COMET systematic review, concerned any COS development studies that provided a recommendation on how to measure the outcomes included in the COS. Data were extracted on the methods

used to select outcome measurement instruments in accordance with the COSMIN/COMET guideline. RESULTS: Of the 118 studies included in the review, 48% used more than one source of information when finding outcome measurement instruments, and 74% performed some form of quality assessment of the measurement instruments. Twenty-three studies recommended one single instrument for each core outcome included in the COS. Clinical experts and public representatives were involved in selecting instruments in 62% and 28% of studies, respectively. CONCLUSION: Methods used to select outcome measurement instruments have improved since the publication of the COSMIN/COMET guideline. Going forward, COS developers should ensure that recommended outcome measurement instruments have sufficient content validity. In addition, COS developers should recommend one instrument for each core outcome to contribute to the overarching goal of uniformity in outcome reporting

Ji Z, Pons DJ, and Pearse J. Integrating occupational health and safety into plant simulation. Safety Science. 2020; 130:104898. https://doi.org/10.1016/j.ssci.2020.104898

Lee HE, Kim I, Kim MH, and Kawachi I. Increased risk of suicide after occupational injury in Korea. Occupational and Environmental Medicine. 2020; [epub ahead of print]. https://doi.org/10.1136/oemed-2020-106687 [open access]
Abstract: Objectives: This study sought to investigate the association between occupational injury and subsequent risk of suicide in Korea. Methods: We linked compensation data for 775 537 workers injured at work during 2003-2014 with National Death Registry through 2015. Suicide among injured workers was compared with the economically active population in Korea separately for men and women by calculating SMRs, with 95% CIs. Results: Injured workers showed higher mortality from suicide for both men (SMR=2.22, 95% CI 2.14 to 2.31) and women (SMR=2.11, 95% CI 1.81 to 2.45) compared with the economically active population in Korea. Conclusions: Occupational injuries are associated with substantially elevated suicide risk in Korea. The results suggest the importance of social policies to protect and support injured workers as well as intensifying efforts to prevent workplace injuries.

Marchand A and Blanc ME. Chronic diseases, age and gender: examining the contribution to burnout symptoms in a sample of 2075 Canadian workers. International Archives of Occupational and Environmental Health. 2020; 93(7):853-861.
https://doi.org/10.1007/s00420-020-01534-5
Abstract: PURPOSE: This cross-sectional study aims to evaluate the role of chronic diseases, and their interactions with age and gender, on the emotional exhaustion component of the burnout syndrome. METHODS: Data came from the Salveo Study conducted in 2009-2012. It contained a random sample of 2075 Canadian workers employed in 63 workplaces. Multilevel regression models were estimated. Main effects of chronic diseases were first evaluated, and then age-chronic diseases interactions were tested. Analyses were performed on the total sample and stratified by gender. All analyses were adjusted for work conditions decision latitude, physical and psychological demands, work hours, social support and rewards. RESULTS: Mental and behavioural disorders, diseases of the nervous system, the musculoskeletal system and connective tissue, and genitourinary system are associated with a higher level of burnout symptoms. Associations with mental and behavioural disorders, and diseases of the nervous system are stronger for men than women. Age increases the association of behavioural disorders, diseases of the nervous system, and genitourinary system and burnout. Age may moderate the association of nervous and genitourinary systems diseases with burnout in women. CONCLUSION: Workplaces must be more proactive to better recognise the role of chronic diseases on burnout and to implement preventive measures. The development of interventions towards specific risk groups is needed

Marmot M and Allen J. COVID-19: exposing and amplifying inequalities. Journal of Epidemiology and Community Health. 2020; 74(9):681-682.
https://doi.org/10.1136/jech-2020-214720

Oakman J, Stevens M, Karstad K, Hallman DM, Rugulies R, and Holtermann A. Do organisational and ward-level factors explain the variance in multi-site musculoskeletal pain in eldercare workers? A multi-level cross-sectional study. International

Archives of Occupational and Environmental Health. 2020; 93(7):891-898.
https://doi.org/10.1007/s00420-020-01540-7
Abstract: PURPOSE: Multi-site musculoskeletal pain (MSP) is highly prevalent among eldercare workers, leading to increased incidence of sickness absence and early retirement. Most research on MSP in eldercare workers has focused on individual-level factors reported by the employees, with limited focus at the organisation and ward level. To address this gap, the aim of this study was to investigate whether organisation and ward-level factors explain the variance in MSP among Danish eldercare workers. METHODS: A multi-level cross-sectional study was conducted among 20 Danish nursing homes, containing 126 wards, and 418 workers who participated in measurements of organisational factors, working environment factors, and MSP (classified as reporting pain in 2 or more body regions). Data were collected at the level of the organisation, ward, and individual. The proportion of variance in MSP explained by each level was estimated using variance components analysis. The association between factors at each level of the organisation and MSP was investigated using generalised linear mixed-effects regression. RESULTS: Sixty seven percent of participants reported having MSP. The organisational and ward-level factors explained 0% of the variance in MSP, while the individual-level factors explained 100% of the variance in MSP. Moreover, no factors at the organisational and ward levels showed statistically significant associations with MSP. Individual-level perceived physical exertion and quantitative demands had a statistically significant association with a higher prevalence of MSP. CONCLUSIONS: The organisation and ward levels did not contribute to explaining any of the variance in MSP. All variance in MSP was explained at the individual level

Peiro JM, Nielsen K, Latorre F, Shepherd R, and Vignoli M. Safety training for migrant workers in the construction industry: a systematic review and future research agenda. Journal of Occupational Health Psychology. 2020; 25(4):275-295.
https://doi.org/10.1037/ocp0000178

Scognamiglio A. Paid sick leave and employee absences. Labour. 2020; 34(3):305-322.
https://doi.org/10.1111/labr.12171

Silva DS and Smith MJ. Social distancing, social justice, and risk during the COVID-19 pandemic. Canadian Journal of Public Health. 2020; 111(4):459-461.
https://doi.org/10.17269/s41997-020-00354-x [open access]
Abstract: Social distancing is an important and necessary measure to help arrest the spread of SARS-CoV-2 during the COVID-19 pandemic. However, it does place persons who are socially or politically marginalized, including those who are of lower socio-economic status, at risk of further harms. In other words, marginalized or disadvantaged persons are at risk of both contracting SARS-CoV-2 and the risk of harms that may come about because of the social distancing measures themselves. Finally, a third layer of risk faced by marginalized persons would be the overuse of utility (i.e., maximize the benefit of resource x) as the primary ethics principle upon which to make allocation decisions, since oftentimes it is resource-intensive to help those in positions of social marginality. This three-fold risk of harm to which marginalized persons are subjected runs counter to the very notion of social justice that underpins public health. Social distancing in a socially just manner requires dialoguing with affected populations and providing social supports to marginalized persons, regardless of the associated costs

Waongenngarm P, van der Beek AJ, Akkarakittichoke N, and Janwantanakul P. Perceived musculoskeletal discomfort and its association with postural shifts during 4-h prolonged sitting in office workers. Applied Ergonomics. 2020; 89:103225.
https://doi.org/10.1016/j.apergo.2020.103225
Abstract: This study examined the characteristics of perceived discomfort and postural shifts at different magnitudes during a 4-h sitting period and the association between perceived discomfort and number of postural shifts. Forty healthy participants continuously typed a standardized text passage at a computer work station for 4 h. Subjects rated perceived body discomfort using Borg's CR-10 scale in 10 body regions (i.e. neck, shoulder, elbow, wrist/hand, upper back, lower back, buttock, thigh, knee, and ankle/foot). A seat

pressure mat device was used to gather seat pressure data during sitting. Postural shifts were determined by analysis of the dispersion index of both ischial tuberosities from seat pressure data. The threshold for a postural shift was set at ±10% and ±20%. Perceived discomfort in all body regions increased continuously during a 4-h sitting period. The body regions with the highest perceived discomfort were the low back, buttocks, upper back, thigh, and neck. The average (±SD) numbers of postural shifts during the 1st, 2nd, 3rd, and 4th hour of sitting were 14.8 ± 9.5, 17.8 ± 9.4, 18.2 ± 11.1, and 18.1 ± 9.8 shifts per hour for the 10% threshold, and were 4.8 ± 4.4, 6.0 ± 5.6, 7.4 ± 6.7, and 7.7 ± 6.6 shifts per hour for the 20% threshold, respectively. Prolonged sitting led to an increase in perceived musculoskeletal discomfort over time. The number of postural shifts at both magnitudes increased in the first 2 h of sitting and, in the second 2-h period of sitting, only the number of larger postural shifts (with 20% threshold) increased. The findings extend our understanding of sitting behaviors.

*IWH authored publication.