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November 22, 2019

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***Gerasimaviciute V, Bultmann U, Diamond PM, Tullar JM, Delclos GL, Gimeno Ruiz de Porras D, and Benjamin III CA. Reciprocal associations between depression, anxiety and work-related injury. *Injury Prevention*. 2019; [epub ahead of print].**

<https://doi.org/10.1136/injuryprev-2019-043403>

Abstract: OBJECTIVE: To examine the reciprocal longitudinal associations between depression or anxiety with work-related injury (WRI) at a large employer in the southwestern United States. METHOD: Three administrative datasets (2011-2013) were merged: employee eligibility, medical and prescription claims, and workers' compensation claims. The sample contained 69 066 active employees. Depression and anxiety were defined as episodes of medical visits care (ie, claims) with corresponding ICD-9-CM codes. For an individual's consecutive claims, a new case of depression or anxiety was defined if more than 8 weeks have passed since the prior episode. The presence of a workers' compensation injury claim was used to identify WRI. Three-wave (health plan years 2011 or T1, 2012 or T2, and 2013 or T3) autoregressive cross-lagged models were used to estimate whether depression or anxiety predicted WRI, also if WRI predicted depression or anxiety in the following year(s). RESULTS: Depression predicted injury from T1 to T2 (beta=0.127, p<0.001) and from T2 to T3 (beta=0.092, p=0.001). Injury predicted depression from T1 to T3 (beta=0.418, p<0.001). Effects of anxiety on WRI were small and inconsistent, from T1 to T2 (beta=0.013, p=0.622) and from T2 to T3 (beta=-0.043, p=0.031). T1 injury had a protective effect on T3 anxiety (beta=-0.273, p<0.001). CONCLUSIONS: We found evidence of reciprocal effects for depression with WRI after adjustment for prior injuries and depression. The evidence for the relationship between anxiety and WRI is less clear. WRI prevention and

management programmes should incorporate depression prevention and management

***Sujic R, Luo J, Beaton DE, Bogoch ER, Sale JEM, Jaglal S, et al. Multiple simultaneous fractures are associated with higher all-cause mortality: results from a province-wide fracture liaison service. Osteoporosis International. 2019; [epub ahead of print].**

<https://doi.org/10.1007/s00198-019-05207-z>

Abstract: Mortality rates in our fracture liaison service ranged from 2.7% at year 1 to 14.8% at year 5 post-screening. Presentation with multiple simultaneous fractures at screening was associated with higher risk of death. This finding indicates the need for increased focus on this high-risk group. PURPOSE: To examine all-cause mortality rates in a provincial fracture liaison service (FLS) and the association between the index fracture type, particularly multiple simultaneous fractures, and the risk of death at follow-up. METHODS: This cohort study includes fragility fracture patients aged 50+, enrolled in a provincial FLS in Ontario, Canada, between 2007 and 2010. All-cause mortality was assessed using administrative data. Multivariable Cox proportional hazards model was used to examine the risk of death 5 years after screening. RESULTS: Crude mortality rates for 6543 fragility fracture patients were 2.7% at year 1, 5.6% at year 2, and 14.8% at year 5 after screening. After adjusting for age and sex, and relative to distal radius fracture, patients with multiple (simultaneous) fractures at screening had a higher risk of dying (HR = 1.8, 95%CI 1.3-2.4), followed by those with a hip fracture (HR = 1.5, 95%CI 1.3-1.8), a proximal humerus fracture (HR = 1.4, 95%CI 1.2-1.7), and other single fractures (HR = 1.4, 95%CI 1.1-1.7). Having an index ankle fracture was not associated with the risk of death over a distal radius fracture. As compared to the 50-65 age group, patients 66 years and older had a higher risk of death (for 66-70 age group: HR = 2.5, 95%CI 1.9-3.3; for 71-80: HR = 4.3, 95%CI 3.5-5.4; and for 81+: HR = 10.6, 95%CI 8.7-13.0). Females had a lower risk of death (HR = 0.5, 95%CI 0.5-0.6) than males. CONCLUSIONS: Presenting with multiple fractures was an indicator of higher risk of death relative to a distal radius fracture. This finding indicates the need for increased focus on this high-risk group

Al-Rashaida M, Lopez-Paz JF, Amayra I, Martinez O, Lazaro E, Berrocoso S, et al. An instrument to measure perceptions of people with disabilities regarding the application of international vocational rehabilitation standards. International Journal of Rehabilitation Research. 2019; 42(4):322-329.

<https://doi.org/10.1097/MRR.0000000000000367>

Abstract: This study aimed to create a valid and reliable instrument to measure people with disabilities' perceptions regarding the extent of application of international standards issued by the Council of Europe, International Labour Organization, and the International Classification of Functioning, Disability and Health in vocational rehabilitation centers in the Basque country, Spain. The

instrument items were selected from international recommendations and conventions issued by the International Labour Organization, Council of Europe, International Classification of Functioning, Disability and Health, and a vocational rehabilitation literature review. The instrument was translated from English to Spanish, and the content validity index of an expert panel survey was used to assess content validity. For the Spanish version of the instrument, internal consistency reliability, confirmatory factor analysis and factor analysis were examined with 186 people with disabilities in 10 vocational rehabilitation centers in the Basque country. The coefficient alpha estimate was 0.945, indicating excellent internal consistency. Three factors were identified: job-related services, aims of vocational rehabilitation center, and vocational rehabilitation guidance. The instrument appears to have good validity and reliability but requires further validation. Support is provided for its use in both English and Spanish. Implications for vocational rehabilitation practice and suggestions for future research are provided

Calkins MM, Bonauto D, Hajat A, Lieblich M, Seixas N, Sheppard L, et al. A case-crossover study of heat exposure and injury risk among outdoor construction workers in Washington State. *Scandinavian Journal of Work, Environment & Health*. 2019; 45(6):588-599.

<https://doi.org/10.5271/sjweh.3814>

Abstract: Objectives The primary objective of this study was to assess the relationship between heat exposure and occupational traumatic injuries among construction workers. Methods We assessed the relationship between humidex, a measure of apparent temperature, and Washington State Fund workers' compensation injuries among outdoor construction workers using a case-crossover design with time-stratified referent selection. Warm month (March-October) adult outdoor construction traumatic injury claims from 2000-2012 were spatiotemporally joined with high-resolution meteorological data. We used conditional logistic regression with linear splines to assess the association between maximum daily humidex and injuries. Results There were 63 720 occupational traumatic injury claims in construction that met our eligibility criteria during the study period. The traumatic injury odds ratio (OR) was 1.005 [95% confidence interval (CI) 1.003-1.007] per one degrees C change in humidex. In the spline analyses, we observed a nearly linear association of humidex with the risk of a traumatic injury. Effect estimates were higher among younger (18-24 years) and older (>54 years) workers, workers with lower extremity injuries, workers with less job experience, smaller employers, workers working in Western Washington, and time of injury before 12:30 hours, although CI of effect estimates overlapped in stratified analysis categories. Conclusions In this study of Washington outdoor construction workers, increasing maximum daily humidex was associated with increasing traumatic injury risk. Further work should explore mechanisms of the association between heat exposure and traumatic injuries. Injury prevention efforts targeted at construction should address heat-related risk

factors. In addition, heat awareness campaigns should address outcomes beyond heat-related illness

Campbell F, Weeks L, Booth A, Kaunelis D, and Smith A. A scoping review found increasing examples of rapid qualitative evidence syntheses and no methodological guidance. Journal of Clinical Epidemiology. 2019; 115:160-171.

<https://doi.org/10.1016/j.jclinepi.2019.05.032>

Abstract: OBJECTIVES: The objective of the study was to identify existing methodological guidance for the conduct of rapid qualitative evidence syntheses and examples of rapid qualitative evidence syntheses to describe the methods used. STUDY DESIGN AND SETTING: We conducted a systematic scoping review. We searched MEDLINE, CINAHL, gray literature, including PROSPERO, with no date limits and solicited examples through experts and researchers in the field. RESULTS: We found no methodological guidance to direct the conduct of rapid qualitative evidence synthesis and 15 examples including 13 completed reviews and two protocols. Diverse methods to abbreviate the review process were followed, which largely mirror methods developed for rapid reviews of clinical effects. Abbreviated search strategies, including date and language restrictions, were common, as was the use of a single reviewer for screening, data extraction, and quality appraisal. Descriptive approaches to synthesis, such as thematic synthesis, were more common than interpretive approaches, such as metaethnography. CONCLUSION: There is a need to develop and explore methods for the synthesis of qualitative research that balance the need for rapidity with rigor. In the meantime, providing details on the methods used, shortcuts made, and the implications of such methodological choices, together with collective sharing of innovations, becomes more important under increased time constraints

Flachs EM, Petersen SEB, Kolstad HA, Schlunssen V, Svendsen SW, Hansen J, et al. Cohort Profile: DOC*X: a nationwide Danish occupational cohort with eXposure data: an open research resource. International Journal of Epidemiology. 2019; 48(5):1413-1413k.

<https://doi.org/10.1093/ije/dyz110>

French SD, Nielsen M, Hall L, Nicolson PJA, vanTulder M, Bennell KL, et al. Essential key messages about diagnosis, imaging, and self-care for people with low back pain: a modified Delphi study of consumer and expert opinions. Pain. 2019; 160(12):2787-2797.

<https://doi.org/10.1097/j.pain.0000000000001663>

Abstract: People with back pain regularly search for information online; however, the quality of this online information is often poor. We established a list of the most important messages about diagnosis, imaging, and self-care for people with low back pain, based on consensus opinion and prioritised in order of importance. A list of key messages was derived from clinical practice guidelines for back pain. During 2 survey rounds, a Delphi panel of consumers with back

pain and experts rated the importance of each item and suggested additional statements. Messages were retained that were rated as important by more than 70% of the panel. Retained messages were reviewed by consumer focus groups. A priority pairwise ranking activity determined the rank order of the important messages. A final online survey determined the robustness and currency of the final list of statements. The Delphi process and consumer focus groups resulted in 30 unique messages. Experts considered that the most important messages for patients are (1) remain active and (2) reassurance that back pain is a normal experience and not necessarily related to serious harm. This differed from the preferences of people with back pain who prioritised messages related to (1) identification of more serious pathology and (2) principles of management. This list of important key messages about diagnosis, imaging, and general self-care for people with back pain can be used to inform the development of education resources, including new web sites, as well as to direct clinicians in the information they provide to patients

Gonas L, Wikman A, Alexanderson K, and Gustafsson K. Age, period, and cohort effects for future employment, sickness absence, and disability pension by occupational gender segregation: a population-based study of all employed people in a country (> 3 million). Canadian Journal of Public Health. 2019; 110(5):584-594.

<https://doi.org/10.17269/s41997-019-00216-1>

Abstract: OBJECTIVES: The occupational gender segregation of the labour market is very strong, both in Sweden and in North America. Nevertheless, there is little knowledge on how this is associated with employees' future employment or morbidity. The objectives of this study were to explore age, period, and cohort effects on future employment and morbidity in terms of sickness absence (SA) or disability pension (DP) among women and men employed in numerically gender-segregated or gender-integrated occupations. METHODS: Based on Swedish nationwide register data, three population-based cohorts of all people living in Sweden, with a registered occupation, and aged 20-56 years at inclusion in 1985 (N = 3,183,549), 1990 (N = 3,372,152), or 2003 (N = 3,565,579), respectively, were followed prospectively for 8 years each. First, descriptive statistics of employment and SA/DP at follow-up were calculated, related to level of gender segregation/integration of occupation at inclusion. Second, differences between birth cohorts (those born in 1929-1983, respectively) were estimated within each of the periods 1985-1993, 1990-1998, and 2003-2011, using mean polish analyses. RESULTS: Women and men in gender-segregated occupations differed in relation to future employment rates and SA/DP. However, these differences decreased over time. Furthermore, the results show a birth cohort effect; those born in 1943-1956 remained in employment to a higher extent and also had lower rates of SA/DP than all other birth cohorts. CONCLUSION: Differences between people in the five categories of gender-segregated occupations decreased over time. Although age and period are important when

explaining the outcome, also birth cohort effects have to be considered, both from a public and an occupational health perspective

Hannon PA, Hammerback K, Kohn MJ, Kava CM, Gary Chan KC, Parrish AT, et al. Disseminating evidence-based interventions in small, low-wage worksites: a randomized controlled trial in King county, Washington (2014-2017). American Journal of Public Health. 2019; 109(12):1739-1746.

<https://doi.org/10.2105/AJPH.2019.305313>

Abstract: Objectives. To determine whether (1) participating in HealthLinks, and (2) adding wellness committees to HealthLinks increases worksites' evidence-based intervention (EBI) implementation. **Methods.** We developed HealthLinks to disseminate EBIs to small, low-wage worksites. From 2014 to 2017, we conducted a site-randomized trial in King County, Washington, with 68 small worksites (20-200 employees). We assigned worksites to 1 of 3 arms: HealthLinks, HealthLinks plus wellness committee (HealthLinks+), or delayed control. At baseline, 15 months, and 24 months, we assessed worksites' EBI implementation on a 0% to 100% scale and employees' perceived support for their health behaviors. **Results.** Postintervention EBI scores in both intervention arms (HealthLinks and HealthLinks+) were significantly higher than in the control arm at 15 months (51%, 51%, and 23%, respectively) and at 24 months (33%, 37%, and 24%, respectively; $P < .001$). Employees in the intervention arms perceived greater support for their health at 15 and 24 months than did employees in control worksites. **Conclusions.** HealthLinks is an effective strategy for disseminating EBIs to small worksites in low-wage industries. **Public Health Implications.** Future research should focus on scaling up HealthLinks, improving EBI maintenance, and measuring impact of these on health behavior

Hiesinger K and Tophoven S. Job requirement level, work demands, and health: a prospective study among older workers. International Archives of Occupational & Environmental Health. 2019; 92(8):1139-1149.

<https://doi.org/10.1007/s00420-019-01451-2> [open access]

Abstract: PURPOSE: Persons in lower occupational positions experience higher rates of morbidity compared to workers in higher advantaged positions. Working conditions may explain this occupational health gradient. Most studies consider either psychosocial or physical work demands at one point in time. In our study, we examine both physical and psychosocial work demands and their association with health status differentiated by job requirement level. We further distinguish between constant and changing work demands. **METHODS:** Using data from the first two waves of the German cohort study on work, age and health, we analyse a sample of 3644 older workers born in 1959 and 1965. We test direct and mediating effects of high physical and psychosocial work demands on functional physical and mental health. For this, we estimate a prospective path model using multiple linear regression models. **RESULTS:** Our results show that (1) constant high physical and psychosocial work demands affect physical and mental health negatively and (2) high physical workload partly mediates the relationship

between job requirement level and physical health. Moreover, at least for men, a reduction of physical and psychosocial workload improves mental health status. CONCLUSIONS: Research and prevention measures currently focus particularly on psychosocial work demands. Our study shows that high physical workload is still present among older workers. Its negative health effect refers to occupational safety and health measures that take into account both the physical and psychosocial work environment as well as workers' occupational positions

Jones AR, Hallman MG, and Heaton K. Application of bleeding control training in occupational settings. Workplace Health & Safety. 2019; [epub ahead of print].

<https://doi.org/10.1177/2165079919883240>

Abstract: Background: Uncontrolled blood loss is a primary source of preventable death after injury. Workplace injuries and fatalities are common, with most occurring in the agricultural/fishing/forestry/hunting or transportation/warehousing industries. Stop the Bleed (STB) training provides instruction on application of bleeding control methods to injured persons and is available to the general public. Method: We provided an overview of high-risk injury industries that could benefit from STB training. We also provided a review of the application of STB training and bleeding control methods in occupational settings with an emphasis on the role of the occupational health nurse. Findings: Suggested guidelines for occupational health nurses and employees in occupational settings who may respond to injured colleagues are provided. Implications for occupational health nurses are reviewed, including implementing STB training in the workplace and obtaining/storing bleeding control supplies. Resources for STB training, purchasing and storing bleeding control supplies, and general emergency response information are provided. Conclusions/application to practice: Occupational health nurses play a crucial role in emergency response in the workplace and have the ability to drive the implementation of STB training in their institution. Occupational health nurses often work in isolation or in small teams and serve as a primary resource for treatment of injured employees. Implementation of STB training for all employees is highly recommended given the limited availability of occupational health nurses in large or rural settings. Such training may reduce the morbidity and mortality associated with workplace injuries

Karhade AV, Ogink PT, Thio QCBS, Cha TD, Gormley WB, Hershman SH, et al. Development of machine learning algorithms for prediction of prolonged opioid prescription after surgery for lumbar disc herniation. Spine Journal. 2019; 19(11):1764-1771.

<https://doi.org/10.1016/j.spinee.2019.06.002>

Abstract: BACKGROUND CONTEXT: Spine surgery has been identified as a risk factor for prolonged postoperative opioid use. Preoperative prediction of opioid use could improve risk stratification, shared decision-making, and patient counseling before surgery. PURPOSE: The primary purpose of this study was to

develop algorithms for prediction of prolonged opioid prescription after surgery for lumbar disc herniation. **STUDY DESIGN/SETTING:** Retrospective, case-control study at five medical centers. **PATIENT SAMPLE:** Chart review was conducted for patients undergoing surgery for lumbar disc herniation between January 1, 2000 and March 1, 2018. **OUTCOME MEASURES:** The primary outcome of interest was sustained opioid prescription after surgery to at least 90 to 180 days postoperatively. **METHODS:** Five models (elastic-net penalized logistic regression, random forest, stochastic gradient boosting, neural network, and support vector machine) were developed to predict prolonged opioid prescription. Explanations of predictions were provided globally (averaged across all patients) and locally (for individual patients). **RESULTS:** Overall, 5,413 patients were identified, with sustained postoperative opioid prescription of 416 (7.7%) at 90 to 180 days after surgery. The elastic-net penalized logistic regression model had the best discrimination (c-statistic 0.81) and good calibration and overall performance; the three most important predictors were: instrumentation, duration of preoperative opioid prescription, and comorbidity of depression. The final models were incorporated into an open access web application able to provide predictions as well as patient-specific explanations of the results generated by the algorithms. The application can be found here: <https://sorg-apps.shinyapps.io/lumbardiscopioid/> **CONCLUSION:** Preoperative prediction of prolonged postoperative opioid prescription can help identify candidates for increased surveillance after surgery. Patient-centered explanations of predictions can enhance both shared decision-making and quality of care

Li Y, Cheng F, Ye R, Zhu Y, Tian L, Zheng H, et al. Weekly working hours and mental health status in different occupations: evidence from the 2015 to 2016 California Health Interview Survey. *Journal of Occupational & Environmental Medicine.* 2019; 61(11):e452-e458.

<https://doi.org/10.1097/JOM.0000000000001718>

Abstract: **OBJECTIVE:** The aim of this paper was to identify shapes of the curves between weekly working hours (WWH) and mental health status (MHS) and determine WWH for the best MHS in 13 occupations. **METHODS:** This cross-sectional study applied public data of the 2015 to 2016 California Health Interview Survey. Restricted cubic spline regression was used to determine non-linear trends. **RESULTS:** A statistically significant nearly V-shaped curve was demonstrated between WWH and MHS in total population, men and management, business and finance occupations. WWH for the best MHS were 42, 45, and 46 hours, respectively. **CONCLUSION:** These results suggest MHS be susceptible to WWH in total population, men and management, business and finance occupations. WWH for the best MHS for relevant populations could provide evidence for better work hours regulations in California

Liu J, Gan Y, Jiang H, Li L, Dwyer R, Lu K, et al. Prevalence of workplace violence against healthcare workers: a systematic review and meta-

analysis. Occupational & Environmental Medicine. 2019; 76(12):927-937.
<https://doi.org/10.1136/oemed-2019-105849>

Abstract: We aim to quantitatively synthesise available epidemiological evidence on the prevalence rates of workplace violence (WPV) by patients and visitors against healthcare workers. We systematically searched PubMed, Embase and Web of Science from their inception to October 2018, as well as the reference lists of all included studies. Two authors independently assessed studies for inclusion. Data were double-extracted and discrepancies were resolved by discussion. The overall percentage of healthcare worker encounters resulting in the experience of WPV was estimated using random-effects meta-analysis. The heterogeneity was assessed using the I² statistic. Differences by study-level characteristics were estimated using subgroup analysis and meta-regression. We included 253 eligible studies (with a total of 331 544 participants). Of these participants, 61.9% (95% CI 56.1% to 67.6%) reported exposure to any form of WPV, 42.5% (95% CI 38.9% to 46.0%) reported exposure to non-physical violence, and 24.4% (95% CI 22.4% to 26.4%) reported experiencing physical violence in the past year. Verbal abuse (57.6%; 95% CI 51.8% to 63.4%) was the most common form of non-physical violence, followed by threats (33.2%; 95% CI 27.5% to 38.9%) and sexual harassment (12.4%; 95% CI 10.6% to 14.2%). The proportion of WPV exposure differed greatly across countries, study location, practice settings, work schedules and occupation. In this systematic review, the prevalence of WPV against healthcare workers is high, especially in Asian and North American countries, psychiatric and emergency department settings, and among nurses and physicians. There is a need for governments, policymakers and health institutions to take actions to address WPV towards healthcare professionals globally

Matrat M, Radoi L, Fevotte J, Guida F, Cenee S, Cyr D, et al. Occupational exposure to wood dust and risk of lung cancer: the ICARE study. Occupational & Environmental Medicine. 2019; 76(12):901-907.
<https://doi.org/10.1136/oemed-2019-105802>

Abstract: OBJECTIVES: In a previous analysis of data from a French population-based case-control study (the Investigation of occupational and environmental CAuses of REspiratory cancers (ICARE) study), 'having ever worked' in wood-related occupations was associated with excess lung cancer risk after adjusting for smoking but not for occupational factors. The present study aimed to investigate the relationship between lung cancer risk and wood dust exposure after adjusting for occupational exposures. METHODS: Data were obtained from 2276 cases and 2780 controls on smoking habits and lifelong occupational history, using a standardised questionnaire with a job-specific questionnaire for wood dust exposure. Logistic regression models were used to calculate ORs and 95% CIs adjusted for age, area of residence, tobacco smoking, the number of job periods and exposure to silica, asbestos and diesel motor exhaust (DME). RESULTS: No significant association was found between lung cancer and wood dust exposure after adjustment for smoking, asbestos, silica and DME

exposures. The risk of lung cancer was slightly increased among those who were exposed to wood dust more than 10 years, and had over 40 years since the first exposure. CONCLUSION: Our findings do not provide a strong support to the hypothesis that wood dust exposure is a risk factor for lung cancer. This study showed the importance of taking into account smoking and occupational coexposures in studies on lung cancer and wood dust exposure. Further studies evaluating the level and frequency of exposure during various tasks in woodwork are needed

Miyoshi Y. Restorative yoga for occupational stress among Japanese female nurses working night shift: randomized crossover trial. Journal of Occupational Health. 2019; 61(6):508-516.

<https://doi.org/10.1002/1348-9585.12080> [open access]

Abstract: OBJECTIVES: To determine whether restorative yoga is an effective method for relieving occupational stress among female nurses working the night shift in Japan. METHODS: From July 2017 to May 2018, 20 female nurses aged in their 20s to 30s who were working the night shift at a university hospital participated in a randomized crossover trial, consisting of a 1-hour guided group yoga session followed by 4 weeks of at-home practice and 4 weeks of usual stress relief methods. The level of stress was assessed by the Brief Job Stress Questionnaire of the Ministry of Health, Labour and Welfare before and after performing restorative yoga. Descriptive statistics were calculated and data were analyzed by Student's t test, one-way analysis of variance (with repeated measures), or Bonferroni's multiple comparison test. RESULTS: Vital signs showed no significant differences from before to after the group yoga session, and there was no change of weight after 4 weeks of at-home practice. The mean questionnaire score for "psychological and physical stress reactions" was significantly reduced after the group yoga session. In addition, the mean score was significantly lower after 4 weeks of at-home practice than before or after group yoga, or after 4 weeks of the usual stress relief methods. CONCLUSIONS: These findings suggest that restorative yoga may be effective for alleviating occupational stress among female nurses working the night shift

Phillips KG, Houtenville AJ, O'Neill J, and Katz E. The effectiveness of employer practices to recruit, hire, and retain employees with disabilities: supervisor perspectives. Journal of Vocational Rehabilitation. 2019; 51(3):339-353.

<https://doi.org/10.3233/JVR-191050>

Proper KI and van Oostrom SH. The effectiveness of workplace health promotion interventions on physical and mental health outcomes: a systematic review of reviews. Scandinavian Journal of Work, Environment & Health. 2019; 45(6):546-559.

<https://doi.org/10.5271/sjweh.3833>

Abstract: Objective This systematic review aimed to provide an overview of the effectiveness of health promotion interventions at the workplace on physical and

mental health outcomes related to chronic diseases. **Methods** A search for reviews published between 2009 and 2018 was performed in electronic databases. References of the included reviews were checked for additional reviews. Workplace health promotion interventions were included if they studied metabolic risk factors as important predictors of type 2 diabetes mellitus (T2DM) and cardiovascular diseases (CVD) or if they studied mental or musculoskeletal health outcomes. Review quality was assessed using the AMSTAR checklist. **Results** Of the 23 reviews included, 9 were of high quality. For weight-related outcomes, there was strong evidence for favorable effects of workplace interventions, especially for interventions targeting physical activity and/or diet. For the remaining metabolic risk factors, there was no evidence for a positive effect of workplace health promotion interventions due to the absence of high quality reviews and mixed conclusions between the reviews. There was also strong evidence for a positive, small effect on the prevention of mental health disorders of workplace psychological interventions, especially those that use e-health and cognitive behavioral therapy techniques. Furthermore, strong evidence was found for the prevention of musculoskeletal disorders through workplace interventions, especially resistance exercise training. **Conclusions** This review found evidence for the effectiveness of workplace interventions on the prevention of weight-related outcomes as well as mental health and musculoskeletal disorders. Future research is however needed on the factors that contribute to the successful implementation of an intervention

Reynolds CJ, Minelli C, Darnton A, and Cullinan P. Mesothelioma mortality in Great Britain: how much longer will dockyards dominate? Occupational & Environmental Medicine. 2019; 76(12):908-912.

<https://doi.org/10.1136/oemed-2019-105878>

Abstract: **OBJECTIVES:** We aimed to investigate whether there has been a geographic shift in the distribution of mesothelioma deaths in Great Britain given the decline of shipbuilding and progressive exposure regulation. **METHODS:** We calculated age-adjusted mesothelioma mortality rates and estimated rate ratios for areas with and without a dockyard. We compared spatial autocorrelation statistics (Moran's I) for age-adjusted rates at local authority district level for 2002-2008 and 2009-2015. We measured the mean distance of the deceased's postcode to the nearest dockyard at district level and calculated the association of average distance to dockyard and district mesothelioma mortality using simple linear regression for men, for 2002-2008 and 2009-2015. **RESULTS:** District age-adjusted male mortality rates fell during 2002-2015 for 80 of 348 districts (23%), rose for 267 (77%) and were unchanged for one district; having one or more dockyards in a district was associated with rates falling (OR=2.43, 95% CI 1.22 to 4.82, p=0.02). The mortality rate ratio for men in districts with a dockyard, compared with those without a dockyard was 1.41 (95% CI 1.35 to 1.48, p<0.05) for 2002-2008 and 1.18 (95% CI 1.13 to 1.23, p<0.05) for 2009-2015. Spatial autocorrelation (measured by Moran's I) decreased from 0.317 (95% CI 0.316 to 0.319, p=0.001) to 0.312 (95% CI 0.310 to 0.314, p=0.001) for men and the

coefficient of the association between distance to dockyard and district level age-adjusted male mortality (per million population) from -0.16 (95% CI -0.21 to -0.10, $p < 0.01$) to -0.13 (95% CI -0.18 to -0.07, $p < 0.01$) for men, when comparing 2002-2008 with 2009-2015. CONCLUSION: For most districts age-adjusted mesothelioma mortality rates increased through 2002-2015 but the relative contribution from districts with a dockyard fell. Dockyards remain strongly spatially associated with mesothelioma mortality but the strength of this association appears to be falling and mesothelioma deaths are becoming more dispersed

Scott SD, Rotter T, Flynn R, Brooks HM, Plesuk T, Bannar-Martin KH, et al. Systematic review of the use of process evaluations in knowledge translation research. *Systematic Reviews*. 2019; 8(1):266.

<https://doi.org/10.1186/s13643-019-1161-y> [open access]

Abstract: BACKGROUND: Experimental designs for evaluating knowledge translation (KT) interventions can provide strong estimates of effectiveness but offer limited insight into how the intervention worked. Consequently, process evaluations have been used to explore the causal mechanisms at work; however, there are limited standards to guide this work. This study synthesizes current evidence of KT process evaluations to provide future methodological recommendations. METHODS: Peer-reviewed search strategies were developed by a health research librarian. Studies had to be in English, published since 1996, and were not excluded based on design. Studies had to (1) be a process evaluation of a KT intervention study in primary health, (2) be a primary research study, and (3) include a licensed healthcare professional delivering or receiving the intervention. A two-step, two-person hybrid screening approach was used for study inclusion with inter-rater reliability ranging from 94 to 95%. Data on study design, data collection, theoretical influences, and approaches used to evaluate the KT intervention, analysis, and outcomes were extracted by two reviewers. Methodological quality was assessed with the Mixed Methods Appraisal Tool (MMAT). RESULTS: Of the 20,968 articles screened, 226 studies fit our inclusion criteria. The majority of process evaluations used qualitative forms of data collection (43.4%) and individual interviews as the predominant data collection method. 72.1% of studies evaluated barriers and/or facilitators to implementation. 59.7% of process evaluations were stand-alone evaluations. The timing of data collection varied widely with post-intervention data collection being the most frequent (46.0%). Only 38.1% of the studies were informed by theory. Furthermore, 38.9% of studies had MMAT scores of 50 or less indicating poor methodological quality. CONCLUSIONS: There is widespread acceptance that the generalizability of quantitative trials of KT interventions would be significantly enhanced through complementary process evaluations. However, this systematic review found that process evaluations are of mixed quality and lack theoretical guidance. Most process evaluation data collection occurred post-intervention undermining the ability to evaluate the process of implementation. Strong science and methodological guidance is needed to underpin and guide the design and

execution of process evaluations in KT science. REGISTRATION: This study is not registered with PROSPERO

*IWH authored publications.