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September 10, 2021

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***D'Agostino MA, Beaton DE, Maxwell LJ, Cembalo SM, Hoens AM, Hofstetter C, et al. Improving domain definition and outcome instrument selection: lessons learned for OMERACT from imaging. Seminars in Arthritis and Rheumatism. 2021; [epub ahead of print].**

<https://doi.org/10.1016/j.semarthrit.2021.08.004>

Abstract: OBJECTIVES: Imaging is one of the most rapidly evolving fields in medicine. Unfortunately, many imaging technologies have been applied as measurement instruments without rigorous evaluation of the evidence supporting their truth, discriminatory capability and feasibility for that context of use. The Outcome Measures in Rheumatology (OMERACT) Filter 2.1 Instrument Selection Algorithm (OFISA) is used to evaluate such evidence for use of an instrument in a research setting. The objectives of this work are to: [1] define and describe the key conceptual aspects that are essential for the evaluation of imaging as an outcome measurement instrument and [2] describe how these aspects can be assessed through OFISA. METHODS: Experts in imaging and/or methodology met to formalize concepts and define key steps. These concepts were discussed with a team of patient research partners with interest in imaging to refine technical and methodological aspects into



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comprehensible information. A workshop was held at OMERACT2020 and feedback was incorporated into existing OMERACT process for domain and instrument selection. RESULTS: Three key lessons were identified: (1) a clear definition of the domain we want to measure is a necessary prerequisite to the selection of a good instrument, (2) the sources of variability that can directly influence the instrument should be clearly identified, (3) incorporating these first two lessons into OFISA improves the quality of every instrument selection process. CONCLUSIONS: The incorporation of these lessons in the updated OMERACT Filter (now 2.2) will improve the quality of the selection process for all types of outcome measurement instruments

***Mustard C, Nadalin V, Carnide N, Tompa E, and Smith P. Cohort profile: the Ontario Life After Workplace Injury Study (OLAWIS). BMJ Open. 2021; 11(9):e048143.**

<https://doi.org/10.1136/bmjopen-2020-048143> [open access]

Abstract: PURPOSE: The substantial economic burden of work-related injury and illness, borne by workers, employers and social security programmes, is primarily attributed to the durations of work disability among workers whose recovery requires a period of absence from work, with the majority of costs arising from the minority of workers with the longest duration absences. The objective of the Ontario Life After Workplace Injury Study is to describe the long-term health and labour market outcomes of workers disabled by work injury or illness after they are no longer receiving benefits or services from the work disability insurance authority.

PARTICIPANTS: Workers disabled by a work-related injury or illness were recruited from a sample frame of disability benefit claimants with oversampling of claimants with longer benefit durations.

Characteristics of workers, their employers and claimant benefits were obtained from baseline administrative data. Interviews completed at 18 months post injury (T1) and to be completed at 36 months (T2) measure return-to-work and work status; income; physical and mental health; case manager and healthcare provider interactions and employer accommodations supporting return-to-work and sociodemographic characteristics. Of eligible claimants, 40% (1132) participated in the T1 interview, with 96% consenting to participate in the T2 interview. FINDINGS TO DATE: Preliminary



descriptive analyses of T1 data have been completed. The median age was 50 years and 56% were male. At 18 months following injury, 61% were employed by their at-injury employer, 16% had changed employment and 23% were not working. Past-year prescription opioid use was prevalent (34%), as was past-year cannabis use (31%). Longer duration claimants had poorer function, recovery and health and more adverse labour market outcomes. FUTURE PLANS: Multivariate analyses to identify modifiable predictors of adverse health and labour market outcomes and a follow-up survey of 96% of participants consenting to follow-up at 36 months are planned

***Nolet PS, Yu H, Cote P, Meyer AL, Kristman VL, Sutton D, et al. Reliability and validity of manual palpation for the assessment of patients with low back pain: a systematic and critical review. Chiropractic & Manual Therapies. 2021; 29(1):33.**

<https://doi.org/10.1186/s12998-021-00384-3> [open access]

Abstract: BACKGROUND: Static or motion manual palpation of the low back is commonly used to assess pain location and reproduction in low back pain (LBP) patients. The purpose of this study is to review the reliability and validity of manual palpation used for the assessment of LBP in adults. METHOD: We systematically searched five databases from 2000 to 2019. We critically appraised internal validity of studies using QAREL and QUADAS-2 instruments. We stratified results using best-evidence synthesis. Validity studies were classified according to Sackett and Haynes. RESULTS: We identified 2023 eligible articles, of which 14 were low risk of bias. Evidence suggests that reliability of soft tissue structures palpation is inconsistent, and reliability of bony structures and joint mobility palpation is poor. We found preliminary evidence that gluteal muscle palpation for tenderness may be valid in differentiating LBP patients with and without radiculopathy. CONCLUSION: Reliability of manual palpation tests in the assessment of LBP patients varies greatly. This is problematic because these tests are commonly used by manual therapists and clinicians. Little is known about the validity of these tests; therefore, their clinical utility is uncertain. High quality validity studies are needed to inform the clinical use of manual palpation tests



Bertke SJ, Keil A, and Daniels RD. Lung cancer mortality and styrene exposure in the reinforced plastics boatbuilding industry: evaluation of healthy worker survivor bias. American Journal of Epidemiology. 2021; 190(9):1784-1792.

<https://doi.org/10.1093/aje/kwab108>

Abstract: The evidence of styrene as a human lung carcinogen has been inconclusive. Occupational cohorts within the reinforced plastics industry are an ideal population to study this association due to relatively high levels of exposure to styrene and lack of concomitant exposures to other known carcinogens. However, healthy worker survivor bias (HWSB), where healthier workers stay employed longer and thus have higher exposure potential, is a likely source of confounding bias for exposure-response associations, in part due to styrene's acute effects. We studied a cohort of 5163 boatbuilders exposed to styrene in Washington state employed between 1959 and 1978; prior regression analyses demonstrated little evidence for an exposure-response between styrene exposure and lung cancer mortality. Based on estimates of necessary components of HWSB, we found evidence for a potentially large HWSB. Using g-estimation of a structural nested model to account for HWSB we estimated that one year of exposure >30 ppm accelerates time to lung cancer death by 2.3 years (95% Confidence intervals=1.53, 2.94). Our results suggest possibly strong HWSB in our small cohort and indicate that large, influential studies of styrene exposed workers may suffer similar biases, warranting a re-assessment of the evidence of long-term health effects of styrene exposure

Burton C, Coles B, Adisesh A, Smith S, Toomey E, Chan XHS, et al. Performance and impact of disposable and reusable respirators for healthcare workers during pandemic respiratory disease: a rapid evidence review. Occupational and Environmental Medicine. 2021; 78(9):679-690.

<https://doi.org/10.1136/oemed-2020-107058>

Abstract: OBJECTIVES: To synthesise evidence concerning the range of filtering respirators suitable for patient care and guide the selection and use of different respirator types. DESIGN: Comparative analysis of international standards for respirators and rapid review of their performance and impact in healthcare. DATA SOURCES: Websites of international standards organisations, Medline and



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Embase, hand-searching of references and citations. **STUDY SELECTION:** Studies of healthcare workers (including students) using disposable or reusable respirators with a range of designs. We examined respirator performance, clinician adherence and performance, comfort and impact, and perceptions of use. **RESULTS:** We included standards from eight authorities across Europe, North and South America, Asia and Australasia and 39 research studies. There were four main findings. First, international standards for respirators apply across workplace settings and are broadly comparable across jurisdictions. Second, effective and safe respirator use depends on proper fitting and fit testing. Third, all respirator types carry a burden to the user of discomfort and interference with communication which may limit their safe use over long periods; studies suggest that they have little impact on specific clinical skills in the short term but there is limited evidence on the impact of prolonged wearing. Finally, some clinical activities, particularly chest compressions, reduce the performance of filtering facepiece respirators. **CONCLUSION:** A wide range of respirator types and models is available for use in patient care during respiratory pandemics. Careful consideration of performance and impact of respirators is needed to maximise protection of healthcare workers and minimise disruption to care

Dollard MF and Bailey T. Building psychosocial safety climate in turbulent times: the case of COVID-19. Journal of Applied Psychology. 2021; 106(7):951-964.

<https://doi.org/10.1037/apl0000939>

Abstract: Our theoretically driven cluster-randomized cohort control study sought to understand how psychosocial safety climate (PSC)-a climate to protect worker psychological health-could be built in different organizational change scenarios. We drew on event system theory to characterize change (planned vs. shock) as an event (observable, bounded in time and space, nonroutine) to understand how events connect and impact organizational behavior and features (e.g., job design, PSC). Event 1 was an 8-month planned intervention involving training middle managers to enact PSC in work units and reduce job stressors. Event 2 was the shock COVID-19 pandemic which occurred midintervention (at 4 months). Three waves (T1, 0 months; T2, 4 months; T3, 8 months) of data were collected from



experimental (295T1, 224T2, 119T3) and control (236T1, 138T2, 83T3) employees across 22 work groups. Multilevel analysis showed in Event 1 (T1T2) a significant Group × Time effect where PSC (particularly management priority) significantly increased in the experimental versus control group. Under Event 2 (T2T3), PSC was maintained at higher levels in the experimental versus control group but both groups reported significantly increased PSC communication and commitment. Results suggest that middle management training increases PSC within 4 months. Event 2, COVID-19 was shocking and its novelty, disruption, criticality, and timing in Australian industrial history enabled a strong top management response, positively affecting the control group. PSC may be sustained and built in times of shock with top management will, the application of PSC principles, and a top-level pro-psychological health agenda. (PsyInfo Database Record (c) 2021 APA, all rights reserved).

Einarsdottir M and Rafnsdottir GL. The prevalence, seriousness, and causes of teenage work accidents: a gender difference? Work. 2021; 69(4):1209-1216.

<https://doi.org/10.3233/WOR-213542>

Abstract: BACKGROUND: Teenage workers are prone to a higher injury risk than adult workers, and adult men are prone to a higher risk of work injuries than adult women. OBJECTIVES: This study aims to examine whether gender differences exist in teenage work accidents, the level of the accidents, their causes, and the types of the injuries. METHODS: A survey was sent to a sample of 2,800 13-19-year-olds, randomly selected from Registers Iceland. The response rate was 48.6%. A chi-square test, CI 95%, was applied to measure gender differences. RESULTS: In total, 16.3% of the respondents had at least one work accident, and 1.2%, an accident that led to more than one week's absence from work. No gender differences were observed in the level of the accidents, but appeared in the types of injuries and their causes. Cuts were the most common injuries of the boys, but burns of the girls. Bone fractures were the most serious injuries of the boys, but sprains of the girls. CONCLUSION: Work accidents among teenagers are a particular threat to public health. Therefore, all stakeholders need to work together to prevent teenage work accidents in the future; and to keep in mind the gender diversity of the group



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Insarauto V. Women's vulnerability to the economic crisis through the lens of part-time work in Spain. *Work, Employment and Society*. 2021; 35(4):621-639.

<https://doi.org/10.1177/09500170211001271> [open access]

Abstract: This article studies women's vulnerability to the economic crisis of 2008 through the lens of part-time work in Spain. It posits that part-time work made the female employment position more fragile by acting as a transmission mechanism of traditional gender norms that establish women as secondary workers. This argument is tested through an analysis of Labour Force Survey data from 2007 to 2014 that examines the influence of the employment situation of the household on women's part-time employment patterns. The results expose the limited take-up of part-time work but also persistent patterns of involuntariness and underemployment corresponding to negative household employment situations, highlighting the constraining role of gender norms borne by the relative position of part-time work in the configuration of employment structures. The article concludes that, during the crisis, part-time work participated in the re-establishment of women as a family dependent and flexible labour supply, increasing their vulnerability.

James CL, Tynan RJ, Bezzina AT, Rahman MM, and Kelly BJ. Alcohol consumption in the Australian mining industry: the role of workplace, social, and individual factors. *Workplace Health & Safety*. 2021; 69(9):423-434.

<https://doi.org/10.1177/21650799211005768>

Abstract: BACKGROUND: Coal miners have been reported to have higher rates of risky/harmful alcohol misuse; however, it is not known if metalliferous mining employees whose working conditions differ in workplace practices, also have increased rates of risky/harmful alcohol misuse. This study aimed to examine alcohol consumption in a sample of Australian metalliferous mining workers and to examine the demographic and workplace factors associated with risky/harmful alcohol use. METHODS: All employees from a convenience sample of four Australian mine sites were invited to complete a paper-based cross-sectional survey between June 2015 and May 2017. The survey contained questions relating to social networks, health behaviors, psychological distress, demographic characteristics, and risky/harmful drinking. Current alcohol use was measured by the



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Alcohol Use Disorders Identification Test (AUDIT), a validated measure of risky and/or harmful drinking. Factors associated with risky/harmful drinking were investigated using univariate and multivariable logistic regression. FINDINGS: A total of 1,799 participants completed the survey (average site response rate 95%). Overall, 94.8% of males and 92.1% of females reported using alcohol in the preceding 12 months. The odds of risky/harmful alcohol use were significantly higher in those who were male, younger, and reported higher psychological distress.

CONCLUSIONS/APPLICATION TO PRACTICE: This study identified that metalliferous mining employees engage in at-risk levels of alcohol consumption significantly higher than the national average despite workplace policies and practices that restrict alcohol use. Personal and workplace risk factors that may help target specific employee groups and inform the development of tailored, integrated multicomponent intervention strategies for the industry were identified

Kayaalp A, Page KJ, and Rospenda KM. Caregiver burden, work-family conflict, family-work conflict, and mental health of caregivers: a mediational longitudinal study. *Work Stress*. 2021; 35(3):217-240.

<https://doi.org/10.1080/02678373.2020.1832609>

Abstract: Caregivers are responsible for the care of another, such as a young adult, disabled child, elderly parent, or sick spouse. Individuals who have caregiving responsibilities must blend the often-contradictory behavioral expectations from the different roles in which they reside. Building on the theoretical foundations of Conservation of Resources theory, this study tests a mediational model explicating the process through which caregiver burden impacts mental health through work-family conflict among a community sample of 1,007 unpaid caregivers in the greater Chicago area who responded to a mail survey at three time points. Structural equation modeling analyses indicate strain-based conflict as being a consistent mediator between caregiver burden and mental health at baseline and two years later. These findings can inform practice and policy for workers with caregiving responsibilities

Li W, Yu K, Jia N, Xu X, Yuan Y, Peng R, et al. Past shift work and incident coronary heart disease in retired workers: a



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prospective cohort study. American Journal of Epidemiology. 2021; 190(9):1821-1829.

<https://doi.org/10.1093/aje/kwab074>

Abstract: Present shift work has been associated with coronary heart disease (CHD) among employed workers, but it remains unclear whether shift work in the past is still associated with CHD in retired workers. We recruited 21,802 retired workers in Shiyan, China in 2008-2010 and 2013, and followed them up for CHD events to December 31, 2018. Retired workers with longer duration of past shift work had higher CHD risks (hazard ratios for those with =5.0, 5.25 to 10.0, 10.5 to 20.0, and >20.0 years of past shift work were 1.05 (95% confidence interval: 0.94, 1.16), 1.08 (0.94, 1.25), 1.23 (1.07, 1.42), and 1.28 (1.08, 1.51)). The association was substantially higher among services or sales workers than among manufacturing or manual labor workers (hazard ratio for every 5-year increase in past shift work, 1.11 (95% confidence interval: 1.05, 1.16) versus 1.02 (0.98, 1.06)). Moreover, the risk was lower among those who were physically active than their inactive counterparts (P for interaction, 0.019). Longer duration of past shift work was associated with higher risk of incident CHD among retired workers, especially those from services or sales sectors. Physical exercise might be beneficial in reducing the excess risk.

Manoli R, Delecroix H, Daveluy W, and Moroni C. Impact of cognitive and behavioural functioning on vocational outcome following traumatic brain injury: a systematic review. Disability and Rehabilitation. 2021; 43(18):2531-2540.

<https://doi.org/10.1080/09638288.2019.1706105>

Abstract: Purpose: Individuals with traumatic brain injury (TBI) often present injury-related cognitive and behavioural sequelae hindering a successful professional outcome, even many years after injury. The aim of this study was to investigate cognitive and behavioural factors predicting vocational outcome in the post-acute stages (=one year) of TBI. Methods: A systematic review of empirical research about vocational outcome of individuals with TBI was conducted. Studies published in PubMed and PsycINFO from 1 January 1998 to 31 May 2019 were screened. Only studies using the same injury severity criteria (the Glasgow Coma Scale score and/or the duration of post-traumatic amnesia) were selected. Results: We found that (1) self-



reported symptoms, (2) Functional Independence Measure and Mayo-Portland Adaptability Inventory Scores, (3) alcohol abuse and mood disorders, and (4) Differentiated Outcome Scale Cognitive Scores in individuals with TBI were highly predictive of the vocational outcome. Conclusion: This systematic review emphasized the link between cognitive and behavioural functioning and vocational rehabilitation in individuals with TBI. However, scientific literature lacks cognitive and behavioural models predicting vocational outcome of these individuals, including academic or vocational training. Such models would allow clinicians to improve vocational guidance of these individuals. Implications for rehabilitation Cognitive and behavioural assessment is highly important even many years after traumatic brain injury, especially in a social and professional rehabilitation context. Clinicians should integrate objective measures of cognition and behaviour in post-acute phases of traumatic brain injury. Identifying vocational outcome related cognitive and behavioural patterns of functioning would allow clinicians to improve vocational guidance of adults with traumatic brain injury.

van Ooijen R, Koning PW, Boot CR, and Brouwer S. The contribution of employer characteristics to continued employment of employees with residual work capacity: evidence from register data in the Netherlands. *Scandinavian Journal of Work, Environment & Health*. 2021; 47(6):435-445.

<https://doi.org/10.5271/sjweh.3961> [open access]

Abstract: OBJECTIVES: This study aimed to examine the contribution of employer characteristics to continued employment of employees with residual work capacity. Moreover, we examined whether the contribution of employer characteristics differs across types of employers and employees' types of diseases. METHODS: Register data on disability assessments and employment status of N=84 394 long-term sick-listed employees with residual work capacity were obtained from the Dutch Employee Insurance Agency between 2010 and 2017. The dependent variable was continued employment four months after the assessment. We linked employees to their (former) employer to measure sector, firm size, and workforce composition. The average employment outcome of all employees assessed in the same firm and year served as a proxy measure for the extent of implemented disability-related policies and practices. Using multilevel



multiple regression analysis, we compared the relative contribution of employer characteristics with employees' characteristics. RESULTS: Employer characteristics accounted for 10% of the variability in employment outcomes. In comparison, employees' socio-demographic and disease characteristics accounted for 13% of the variability. The prevalence of continued employment was lowest in smaller firms and construction and low-wage service-orientated sectors. Furthermore, there were sizeable differences in employment outcomes between similar employers in terms of size, sector and workforce-composition, particularly between larger firms and among employees with mental or musculoskeletal disorders compared to other diseases. CONCLUSIONS: This study shows substantial differences between employers in facilitating continued employment of employees with residual work capacity. Encouraging firms to invest more in disability-related policies and practices may result in better employment opportunities for these employees

Quinn MM, Markkanen PK, Galligan CJ, Sama SR, Lindberg JE, and Edwards MF. Healthy aging requires a healthy home care workforce: the occupational safety and health of home care aides. Current Environmental Health Reports. 2021; 8(3):235-244. <https://doi.org/10.1007/s40572-021-00315-7> [open access]

Abstract: Purpose of review: To identify important home care (HC) aide occupational safety and health (OSH) hazards and examine how addressing these can improve aide health and the delivery of HC services overall. Specifically, this review seeks to answer: Why is HC aide OSH important? What are the most significant OSH challenges? How can improving HC aide OSH also improve the safety and health of their clients? What implications do the findings have for future research? Recent findings: HC is one of the fastest growing US industries. Aides comprise its largest workforce and are increasingly needed to care for the rapidly aging population. There is an aide shortage due in part to instabilities in HC work organization and to serious job-specific hazards, resulting in aides losing work time. Recent social, economic, and technological factors are rapidly changing the nature of HC work, creating OSH hazards similar to those found in nursing homes. At the same time, aides are experiencing social and economic inequities that increase their vulnerability to OSH hazards. These hazards are also a burden on



employers who are challenged to recruit, retain, and train aides. OSH injuries and illness interrupt the continuity of care delivery to clients. Many OSH hazards also put HC clients and families at risk. A new framework and methodologies are needed to assess aide and client safety together in order to guide future HC research, policies, and practices. Government, industry, and labor commitment is needed to fund and coordinate a comprehensive, multidisciplinary research program.

Schmidt KG, Holtermann A, Jorgensen MB, Svendsen MJ, and Rasmussen CDN. Developing a practice and evidence-based guideline for occupational health and safety professionals to prevent and handle musculoskeletal pain in workplaces. *Applied Ergonomics*. 2021; 97:103520.

<https://doi.org/10.1016/j.apergo.2021.103520> [open access]

Abstract: Practice guidelines can facilitate the translation of evidence-based knowledge into better occupational health and safety (OHS) prevention. This paper describes the development process, findings and content of a practice and evidence-based guideline for musculoskeletal pain (MSP) to OHS professionals in Denmark. We used a participatory process with involvement of more than 100 OHS professionals in the development of the guideline. The guideline contains three sections: 1) Rapid review of risk factors for MSP (Push/pull, Screen work, Lifting, Awkward postures and Psychosocial factors related to MSP) and single- and multi-stranded interventions targeting MSP. 2) Process recommendations for use of the guideline by a three-phase participatory process 3) Practical recommendations that contain advice and methods for the three-phase participatory process. This paper can promote future guideline development, as it provides specific insight into how OHS professionals can be included in the development of practice and evidence-based guideline through a participatory process

Wang B and Wang Y. Big data in safety management: an overview. *Safety Science*. 2021; 143:105414.

<https://doi.org/10.1016/j.ssci.2021.105414>

Zangoue M, Safari H, Royce SG, Zangoie A, Rezapour H, Zangouei A, et al. The high level of adherence to personal



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protective equipment in health care workers efficiently protects them from COVID-19 infection. Work. 2021; 69(4):1191-1196.

<https://doi.org/10.3233/WOR-210634>

Abstract: BACKGROUND: The first case of coronavirus disease 2019 (COVID-19) was reported in December 2019 in Wuhan, China.

Healthcare workers (HCWs) are at high risk of acquiring and spreading the COVID-19 infection; using personal protective equipment (PPE) reduces the risk of COVID-19 infection in HCWs.

OBJECTIVE: Our study aimed to investigate the seroprevalence of COVID-19 IgG, IgM antibodies among HCWs as well as identifying the factors associated with this seroprevalence. METHODS: This

cross-sectional study was performed from July to August 2020 on healthcare workers at two COVID-19 referral hospitals of Birjand University of Medical Sciences. The level of COVID-19 IgG and IgM antibodies in sera was measured by commercial qualitative ELISA

kits. RESULTS: In total, 192 individuals participated in the study: physicians (31.25%), nurses (30.2%). 84.2% of participants had contact with confirmed COVID-19 cases and among them 42.9 % of

had close contact with COVID-19 patients for more than 3 months, and 31% reported close contact with more than 50 confirmed COVID-19 cases. Mask and gloves were the most frequently used personal

protective equipment (PPE) with 92.4% and 77.2% of usage.

CONCLUSIONS: The results of the current study showed high level of adherence to the use of PPE among HCWs as well as very low prevalence of seropositivity for of COVID-19 antibodies, hence

confirming the effectiveness of PPE in protecting HCWs among COVID-19 and possibly any other similar infections

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