

IWH Research Alert
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***Nielsen SM, Tugwell P, de Wit MPT, Boers M, Beaton DE, Woodworth TG, et al. Identifying provisional generic contextual factor domains for clinical trials in rheumatology: results from an OMERACT initiative. Journal of Rheumatology. 2019; 46(9):1159-1163.**

<https://doi.org/10.3899/jrheum.181081>

Abstract: OBJECTIVE: The Contextual Factors Working Group aims to provide guidance on addressing contextual factors in rheumatology trials within OMERACT. METHODS: During the Special Interest Group session at OMERACT 2018, preliminary results were presented from a case scenario survey and semistructured interviews, including contextual factors mentioned in these. A group-based exercise sought to identify and rank important generic contextual factors. RESULTS: A total of 79 candidate factors were listed. Across the 3 groups, gender/sex, comorbidities, and the healthcare system were ranked as most important. CONCLUSION: The identified important contextual factor domains may be considered a provisional list pending further research

***Nowak LL, Davis AM, Mamdani M, Beaton D, and Schemitsch EH. A concept analysis and overview of outcome measures used for evaluating patients with proximal humerus fractures. Disability and Rehabilitation. 2019; 1-13.**

<https://doi.org/10.1080/09638288.2019.1649728>

Abstract: Purpose: It is unclear to which degree existing studies evaluate the primary goal of treatment for patients with proximal humerus fractures (restoration of daily activities). Our purpose was to systematically review and analyze the concepts reflected by outcome measures used in studies of patients with proximal humerus fractures. Methods: We reviewed three databases from 2000 to 2018. Two reviewers categorized outcomes in each study into concepts of the International Classification of Functioning, Disability and Health framework. Results: The most commonly represented concept across 35 studies was "Body Function/Structure Impairment", followed by aggregate measures that reflect multiple concepts to varying degrees. All patient-reported aggregate measures such as the Disabilities of the Arm, Shoulder, and Hand, American Shoulder and Elbow Surgeon's, and Oxford Shoulder scores better reflected "Activity Limitations", however, these measures were only reported in 34% of studies. Conclusion: There may be misalignment between what studies measure, and the primary goal of treatment for patients with proximal humerus fractures. The Disabilities of the Arm, Shoulder and Hand, American Shoulder and Elbow Surgeon's, and Oxford Shoulder scores reflect concepts that more adequately address the restoration of daily activities following these injuries, and future studies should include at least one of these measures. Implications for rehabilitation We have shown that there is a misalignment between what existing studies are measuring (primarily objective measures of impairment) and the primary goal of treatment and rehabilitation (restoring activities of daily living). This suggests that existing studies evaluating different treatment types for proximal humerus fracture patients are providing inadequate information to make evidence-based treatment and rehabilitation decisions following these injuries. Our results tentatively suggest that the Disabilities of the Arm, Shoulder and Hand, the American Shoulder and Elbow Surgeon's, and Oxford Shoulder scores may better reflect limitations in daily activities following these injuries and should be used in future studies and by clinicians

Bontrup C, Taylor WR, Fliesser M, Visscher R, Green T, Wippert PM, et al. Low back pain and its relationship with sitting behaviour among sedentary office workers. Applied Ergonomics. 2019; 81:102894.

<https://doi.org/10.1016/j.apergo.2019.102894> [open access]

Abstract: The relationships between sedentary lifestyle, sitting behaviour, and low back pain (LBP) remain controversial. In this study, we investigated the relationship between back pain and occupational sitting habits in 64 call-centre employees. A textile pressure mat was used to evaluate and parameterise sitting behaviour over a total of 400h, while pain questionnaires evaluated acute and chronic LBP. Seventy-five percent of the participants reported some level of either chronic or acute back pain. Individuals with chronic LBP demonstrated a possible trend (t-test not significant) towards more static sitting behaviour compared to their pain-free counterparts. Furthermore, a greater association was found between sitting behaviour and chronic LBP than for acute pain/disability, which is plausibly due to a greater awareness of pain-free sitting positions in individuals with chronic pain compared to those affected by acute pain

Dey M, Piccone Jr DS, and Miller SM. Model-based estimates for the Occupational Employment Statistics program. Monthly Labor Review. 2019; August:1-32.

<https://www.bls.gov/opub/mlr/2019/article/model-based-estimates-for-the-occupational-employment-statistics-program.htm>

Enthoven P, Peolsson A, Ludvigsson ML, Wibault J, Peterson G, and Oberg B. Validity, internal consistency and self-rated change of the patient enablement instrument in patients with chronic musculoskeletal pain. Journal of Rehabilitation Medicine. 2019; 51(8):587-597.

<https://doi.org/10.2340/16501977-2573> [open access]

Abstract: OBJECTIVE: Patient enablement reflects patient's understanding of and coping with illness. The aim of this study was to investigate the content validity, construct validity, internal consistency and self-rated change (SRC) of the Patient Enablement Instrument (PEI) in patients with whiplash-associated disorders, cervical

radiculopathy and mixed chronic pain treated in different settings. DESIGN: Psychometric analyses. PARTICIPANTS: Patients with disabling non-malignant chronic musculoskeletal pain. METHODS: Participants answered questionnaires on disability (Neck Disability Index (NDI) or Functional Rating Index (FRI)), anxiety/depression (Hospital Anxiety and Depression Scale; HADS) and general health (EuroQol; EQ-5D). Content validity, construct validity (confirmatory factor analysis), internal consistency and cut-off for SRC were investigated for the PEI after treatment. The SRC value was the receiver operating characteristic (ROC) curve optimal cut-off point. RESULTS: After treatment all items were completed by 516 patients (mean standard deviation (SD) age 45.1 years (SD 10.1), women 75% (n = 385)). The 1-factor PEI model had approximate fit to the data. The internal consistency Cronbach's alpha was between 0.878 and 0.929 for the 3 groups. Correlations between the PEI and the NDI/FRI, HADS and EQ-5D were fair to good. The SRCROC for whiplash-associated disorders, cervical radiculopathy and mixed chronic pain groups was 5, 6 and 4 points in the PEI, respectively. CONCLUSION: The PEI showed fair content validity, construct validity and internal consistency. However, the scale needs further development to improve measurement of change

Garben S. The regulatory challenge of occupational safety and health in the online platform economy. International Social Security Review. 2019; 72(3):95-112.

<https://doi.org/10.1111/issr.12215>

Glasgow RE, Huebschmann AG, Krist AH, and Degruy FV. An adaptive, contextual, technology-aided support (ACTS) system for chronic illness self-management. Milbank Quarterly. 2019; 97(3):669-691.

<https://doi.org/10.1111/1468-0009.12412>

Abstract: Policy Points Fundamental changes are needed in how complex chronic illness conditions are conceptualized and managed. Health management plans for chronic illness need to be integrated, adaptive, contextual, technology aided, patient driven, and designed to address the multilevel social environment of patients' lives. Such primary care-based health management plans are feasible today but will be even more effective and sustainable if supported by systems

thinking, technological advances, and policies that create and reinforce home, work, and health care collaborations. **CONTEXT:** The current health care system is failing patients with chronic illness, especially those with complex comorbid conditions and social determinants of health challenges. The current system combined with unsustainable health care costs, lack of support for primary care in the United States, and aging demographics create a frightening probable future. **METHODS:** Recent developments, including integrated behavioral health, community resources to address social determinants, population health infrastructure, patient-centered digital-health self-management support, and complexity science have the potential to help address these alarming trends. This article describes, first, the opportunity to integrate these trends and, second, a proposal for an integrated, patient-directed, adaptive, contextual, and technology-aided support (ACTS) system, based on a patient's life context and home/primary care/work-setting "support triangle." **FINDINGS:** None of these encouraging trends is a panacea, and although most have been described previously, they have not been integrated. Here we discuss an example of integration using these components and how our proposed model (termed My Own Health Report) can be applied, along with its strengths, limitations, implications, and opportunities for practice, policy, and research. **CONCLUSIONS:** This ACTS system builds on and extends the current chronic illness management approaches. It is feasible today and can produce even more dramatic improvements in the future

Hawkins D, Roelofs C, Laing J, and Davis L. Opioid-related overdose deaths by industry and occupation: Massachusetts, 2011-2015. American Journal of Industrial Medicine. 2019; 62(10):815-825.

<https://doi.org/10.1002/ajim.23029>

Abstract: **BACKGROUND:** Thousands of people in the United States continue to die from opioid overdoses every year. Work-related injuries and other factors associated with work may increase exposure to opioids and, subsequently, opioid-related overdose deaths (OROD). This study sought to determine whether OROD rates differed by industry and occupation and explored work-related factors that might contribute to these differences. **METHODS:** We coded industry and occupation information on death certificates for all

OROD among Massachusetts residents from 2011 to 2015. We estimated rates of OROD by industry and occupation using Massachusetts employment data. National survey data were used to explore whether work-related factors known to vary by occupation (occupational injury and illness, job insecurity, and paid sick leave) correlate to observed differences in OROD. RESULTS: Several industries and occupation groups had rates of OROD that were significantly higher than the rates for other workers. Construction workers and fishing workers stood out for having OROD rates many times higher than the average for all workers. Occupation groups with high rates of occupational injuries and illnesses, high job insecurity, and low availability of paid sick leave had higher rates of OROD. CONCLUSIONS: These findings underscore the need for policy and educational interventions to reduce OROD tailored to the needs of high rate worker populations. Interventions should address workplace hazards that cause injuries for which opioids are prescribed, as well as best practices in medical management and return to work following injury, safer prescribing, enhanced access to treatment for opioid use disorders, and overdose prevention education

Oude Hengel K, Robroek SJW, Eekhout I, van der Beek AJ, and Burdorf A. Educational inequalities in the impact of chronic diseases on exit from paid employment among older workers: a 7-year prospective study in the Netherlands. Occupational & Environmental Medicine. 2019; 76(10):718-725.

<https://doi.org/10.1136/oemed-2019-105788> [open access]

Abstract: OBJECTIVES: The study aimed to investigate the relative and absolute risks of early exit from paid employment among older workers with a chronic disease, and to assess whether these risks differ across educational groups. METHODS: Data on chronic diseases and demographics from 9160 Dutch workers aged 45-64 years were enriched with monthly information on employment status from Statistics Netherlands. Subdistribution hazard ratios (SHR) and 7-year probabilities among workers with a chronic disease of exit from paid employment through disability benefits, unemployment benefits, early retirement benefits or economic inactivity were estimated using competing risks regression analyses based on Fine and Gray's models. RESULTS: Workers with one chronic disease had a higher risk to exit paid employment through disability benefits

(SHR 4.48 (95%CI 3.22 to 6.25)) compared with workers without chronic disease, and this risk further increased for multiple chronic diseases (SHR 8.91 (95%CI 6.33 to 12.55)). As occurrence of chronic diseases was highest among low educated workers, the 7-year probabilities to exit paid employment through disability benefits were highest among this group. Cardiovascular, musculoskeletal, psychological and respiratory diseases were associated with disability benefits (SHRs ranging from 2.11 (95%CI 1.45 to 3.07) to 3.26 (95%CI 2.08 to 5.12)), whereas psychological diseases were also related to unemployment (SHR 1.78 (95%CI 1.33 to 2.38)).

CONCLUSIONS: Older workers with a chronic disease have a higher risk to exit paid employment through disability benefits. As multimorbidity has an additive effect, addressing multimorbidity as a risk factor for sustainable employment is needed

Larouche D, Corbeil P, Bellemare M, Authier M, Prairie J, and Hegg-Deloye S. To what extent do paramedics apply safe handling principles when transferring patients from stair chairs to stretchers? *Ergonomics*. 2019; 62(10):1313-1326.

<https://doi.org/10.1080/00140139.2019.1641629>

Abstract: The efficiency of training programmes in handling designed to prevent injuries has rarely been demonstrated by studies in the workplace. This study aimed to identify factors that may favour or inhibit the application of safe handling principles by paramedics performing full-body transfers of patients from a stair chair to a stretcher. In an observational field study, handling methods used in 45 patient transfers from a stair chair to stretcher were characterised. Principles concerning the physical environment seem to be applied frequently, but those applicable during the transfer are neglected. Principles taught during training may not be applied due to the physical constraints of the workplace and the underestimation of risk exposure. The results suggest that training should be enhanced, not by focussing on handling techniques but by focussing on compromise and the capacity to adapt work techniques based on the working context and the team-mate

McDonnall MC and Cmar J. Employment outcomes and job quality of vocational rehabilitation consumers with deaf-

blindness. *Rehabilitation Counseling Bulletin*. 2019; 63(1):13-24.
<https://doi.org/10.1177/0034355218769461>

Meyers AR, Al-Tarawneh IS, Bushnell PT, Wurzelbacher SJ, Lampl MP, Tseng CY, et al. Degree of integration between occupational safety and health programs and wellness programs: first-year results from an insurer-sponsored wellness grant for smaller employers. *Journal of Occupational & Environmental Medicine*. 2019; 61(9):704-717.

<https://doi.org/10.1097/JOM.0000000000001644>

Abstract: OBJECTIVE: The aim of this study was to describe levels of integration between occupational safety and health (OSH) and workplace wellness programs/practices/policies ("programs") among participants in an insurer-sponsored wellness grant program.

METHODS: We analyzed survey responses about year 1 of an insurer-sponsored grant to start a wellness program from 220 small- and medium-sized employers. Responses yielded 25 indicators of OSH-wellness integration, and 10 additional indicators to summarize multiple responses. RESULTS: At least half of the employers (N = 220) reported some level of integration within five of seven categories of OSH-wellness integration. Employers sometimes considered ergonomics, safety, or substance exposure hazards while designing their wellness program (15%) or reduced such hazards to support their wellness program (24%). Few meaningful differences were observed by employer size. CONCLUSIONS: Although high levels of integration were unusual, some degree of integration was common for most indicator categories

Pourhassan B, Meysamie A, Alizadeh S, Habibian A, and Beigzadeh Z. Risk of obstructive pulmonary diseases and occupational exposure to pesticides: a systematic review and meta-analysis. *Public Health*. 2019; 174:31-41.

<https://doi.org/10.1016/j.puhe.2019.05.024>

Abstract: OBJECTIVE: This meta-analysis study was performed to examine the relationship between occupational exposure to pesticides and the risk of obstructive pulmonary diseases such as chronic obstructive pulmonary disease (COPD) and chronic bronchitis. STUDY DESIGN: This is a systematic review and meta-analysis study. METHODS: PubMed and Scopus databases were

searched for English-language publications. Eight cohort studies and one case-control study were included in the pooled analysis.

RESULTS: These studies had a total of 101,353 participants from eleven different countries and were published between 2006 and 2018. The heterogeneity among the studies was high ($P < 0.001$, $I(2) = 68.7\%$). In a random-effects model meta-analysis, a pooled odds ratio (OR) analysis showed that there was a direct relationship between occupational exposure to the pesticides and obstructive pulmonary diseases (OR = 1.33, 95% confidence interval [CI]: 1.21-1.47). A positive significant relationship was also observed between exposure to the pesticides and risk of chronic bronchitis (OR = 1.27, 95% CI: 1.23-1.31). Also, there was a significant relationship between occupational exposure to the pesticides and an increased risk of COPD (OR = 1.44, 95% CI: 1.14-1.81). No evidence of publication bias was found among the studies according to the results of the Egger's test (P of bias = 0.157). **CONCLUSIONS:** Findings of this study show that occupational exposure to pesticides can be associated with an increased risk of obstructive lung diseases including chronic bronchitis and COPD

Schuemie MJ, Ryan PB, Man KKC, Wong ICK, Suchard MA, and Hripcsak G. A plea to stop using the case-control design in retrospective database studies. *Statistics in Medicine*. 2019; 38(22):4199-4208.

<https://doi.org/10.1002/sim.8215> [open access]

Abstract: The case-control design is widely used in retrospective database studies, often leading to spectacular findings. However, results of these studies often cannot be replicated, and the advantage of this design over others is questionable. To demonstrate the shortcomings of applications of this design, we replicate two published case-control studies. The first investigates isotretinoin and ulcerative colitis using a simple case-control design. The second focuses on dipeptidyl peptidase-4 inhibitors and acute pancreatitis, using a nested case-control design. We include large sets of negative control exposures (where the true odds ratio is believed to be 1) in both studies. Both replication studies produce effect size estimates consistent with the original studies, but also generate estimates for the negative control exposures showing substantial residual bias. In contrast, applying a self-controlled design to answer the same

questions using the same data reveals far less bias. Although the case-control design in general is not at fault, its application in retrospective database studies, where all exposure and covariate data for the entire cohort are available, is unnecessary, as other alternatives such as cohort and self-controlled designs are available. Moreover, by focusing on cases and controls it opens the door to inappropriate comparisons between exposure groups, leading to confounding for which the design has few options to adjust for. We argue that this design should no longer be used in these types of data. At the very least, negative control exposures should be used to prove that the concerns raised here do not apply

Weinmann T, Forster F, von Mutius E, Vogelberg C, Genuneit J, Windstetter D, et al. Association between occupational exposure to disinfectants and asthma in young adults working in cleaning or health services: results from a cross-sectional analysis in Germany. Journal of Occupational & Environmental Medicine. 2019; 61(9):754-759.

<https://doi.org/10.1097/JOM.0000000000001655>

Abstract: OBJECTIVE: To analyze the association of occupational disinfectants use with asthma and wheezing in young professionals. METHODS: Three hundred sixty-five participants from the German Study on Occupational Allergy Risks II aged 20 to 24 years and working in cleaning or health services answered a questionnaire on respiratory health, occupational exposure to disinfectants, and potential confounders. By logistic regression, we calculated the association between duration of occupational disinfectants exposure and doctor-diagnosed asthma, current asthma, and current wheezing. RESULTS: Individuals exposed to disinfectants for more than 12 months had almost three times the odds of doctor-diagnosed asthma compared with those not exposed (odds ratio [OR]: 2.99, 95% confidence interval [CI]: 1.36-6.55). CONCLUSIONS: Our findings provide some further evidence for an association between occupational exposure to disinfectants and asthma, indicating that this association can be seen already after the first year of exposure

Yiu NSN, Sze NN, and Chan DWM. Implementation of safety management systems in Hong Kong construction industry: a safety practitioner's perspective. Journal of Safety Research.

2018; 64:1-9.

<https://doi.org/10.1016/j.jsr.2017.12.011>

Abstract: INTRODUCTION: In the 1980s, the safety management system (SMS) was introduced in the construction industry to mitigate against workplaces hazards, reduce the risk of injuries, and minimize property damage. Also, the Factories and Industrial Undertakings (Safety Management) Regulation was introduced on 24 November 1999 in Hong Kong to empower the mandatory implementation of a SMS in certain industries including building construction. Therefore, it is essential to evaluate the effectiveness of the SMS in improving construction safety and identify the factors that influence its implementation in Hong Kong. METHOD: A review of the current state-of-the-practice helped to establish the critical success factors (CSFs), benefits, and difficulties of implementing the SMS in the construction industry, while structured interviews were used to establish the key factors of the SMS implementation. RESULTS: Results of the state-of-the-practice review and structured interviews indicated that visible senior commitment, in terms of manpower and cost allocation, and competency of safety manager as key drivers for the SMS implementation. More so, reduced accident rates and accident costs, improved organization framework, and increased safety audit ratings were identified as core benefits of implementing the SMS. Meanwhile, factors such as insufficient resources, tight working schedule, and high labor turnover rate were the key challenges to the effective SMS implementation in Hong Kong. PRACTICAL APPLICATIONS: The findings of the study were consistent and indicative of the future development of safety management practice and the sustainable safety improvement of Hong Kong construction industry in the long run

*IWH authored publications.