

IWH Research Alert
July 6, 2018

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***Gilbert-Ouimet M, Ma H, Glazier R, Brisson C, Mustard C, and Smith PM. Adverse effect of long work hours on incident diabetes in 7065 Ontario workers followed for 12 years. *BMJ Open Diabetes Research & Care*. 2018; 6(1): e000496.**

<http://dx.doi.org/10.1136/bmjdr-2017-000496> [open access]

Abstract Objective According to the International Diabetes Federation, the most important challenge for prevention is now to identify social and environmental modifiable risk factors of diabetes. In this regard, long work hours have recently been linked with diabetes, but more high-quality prospective studies are needed. We evaluated the relationship between long work hours and the incidence of diabetes among 7065 workers over a 12- year period in Ontario, Canada. **Research design and methods** Data from Ontario respondents (35–74 years of age) to the 2003 Canadian Community Health Survey were prospectively linked to the Ontario Health Insurance Plan database for physician services and the Canadian Institute for Health Information Discharge Abstract Database for hospital admissions. Our sample consisted of actively employed participants with no previous diagnoses of diabetes. Cox proportional hazard regression models were then performed to evaluate the relationship between long work hours (≥45 hours per week) and the incidence of diabetes. **Results** Long work hours did not increase the risk of developing diabetes among men. However, among women, those usually working 45 hours or more per week had a significantly higher risk of diabetes than women working between 35 and 40 hours per week (HR: 1.63 (95% CI 1.04 to 2.57)). The effect was slightly attenuated when adjusted for the potentially mediating factors which are smoking, leisure time physical activity, alcohol consumption and body mass index. **Conclusion** Working 45 hours or more per week was associated with an increased incidence of diabetes among

women, but not men. Identifying modifiable risk factors such as long work hours is of major importance to improve prevention strategies and orient policy making.

Aamland A and Maeland S. Sick-listed workers' expectations about and experiences with independent medical evaluation: a qualitative interview study from Norway. *Scandinavian Journal of Primary Health Care*. 2018; 36(2):134-141.

<http://dx.doi.org/10.1080/02813432.2018.1459168>

Abstract: PURPOSE: To reduce the country's sick leave rate, Norwegian politicians have suggested independent medical evaluations (IMEs) for sick-listed workers. IME was tested in a large, randomized controlled trial in one Norwegian county (Evaluation of IME in Norway, or 'the NIME trial'). The current study's aim was to explore sick-listed workers' expectations about and experiences with participating in an IME. MATERIAL AND METHODS: Nine individual semi-structured telephone interviews were conducted. Our convenience sample included six women and three men, aged 35-59 years, who had diverse medical reasons for being on sick leave. Systematic text condensation was used for analysis. RESULTS: The participants questioned both the IME purpose and timing, but felt a moral obligation to participate. Inadequate information provided by their general practitioner (GP) to the IME doctor was considered burdensome by several participants. However, most participants appreciated the IME as a positive discussion, even if they did not feel it had any impact on their follow-up or return-to-work process. CONCLUSIONS: According to the sick-listed workers the IMEs were administered too late and disturbed already initiated treatment processes and return to work efforts. Still, the consultation with the IME doctor was rated as a positive encounter, contrary to their expectations. Our results diverge from findings in other countries where experiences with IME consultations have been reported as predominantly negative. These findings, along with additional, upcoming evaluations, will serve as a basis for the Norwegian government's decision about whether to implement IMEs on a regular basis. Key points Independent medical evaluations for sick-listed workers has been tested out in a large Norwegian RCT and will be evaluated through qualitative interviews with participating stakeholders and by assessing the effects on RTW and costs/benefits. In this study, we explored sick-listed workers' expectations about and experiences with participating in an IME. * Participants questioned both the IME purpose and timing, but felt a moral obligation to participate. * Inadequate information provided by their general practitioner (GP) to the IME doctor was considered burdensome by several participants * Sick-listed workers appreciated the IME as a positive discussion, even if they did not feel it had any impact on their follow-up or return-to-work process

Ajslev JZN, Sundstrup E, Jakobsen MD, Kines P, Dyreborg J, and Andersen LL. Is perception of safety climate a relevant predictor for occupational accidents? Prospective cohort study among blue-collar workers. *Scandinavian Journal of Work, Environment & Health*. 2018; 44(4):370-376.

<http://dx.doi.org/10.5271/sjweh.3723>

Abstract: Objectives The capability of safety climate to predict accidents has been the target of widespread debate in occupational health and safety research. The objective of this prospective cohort study was to employ a shortened five-item safety climate survey to investigate whether safety climate reports in 2012 are predictive for accidents reported within the last 12 months in 2014. **Methods** In both 2012 and 2014, 3864 blue-collar workers answered the Danish Working Environment and Health Cohort Study. Logistic regression was used to study the association [odds ratio (OR)] of reporting a work-related accident (yes/no) with more than one day of sickness absence (outcome) within the last 12 months in 2014 with the number of safety climate problems (predictor). The analyses were cumulatively adjusted for age, gender (model 1), socioeconomic class, occupational group, lifestyle (model 2), and previous accidents in 2012 (model 3). **Results** Of the safety climate problems reported in 2012, 1017 (28%) participants reported one problem, 357 (10%) reported two and 614 (17%) reported three or more problems. Using the number of safety climate problems as a continuous variable, all models showed a dose-response relationship between number of safety climate problems in 2012 and at least one accident in 2014 (trend-test, $P < 0.001$). Compared to participants with no safety climate problems, participants reporting two safety climate problems in 2012 had a higher risk for reporting an accident in 2014 [OR 1.84, 95% confidence interval (CI) 1.22-2.77], and the risk was higher for participants reporting three or more safety problems (OR 2.22, 95% CI 1.60-3.09). **Conclusions** A higher number of safety climate problems progressively increased the OR for reporting at least one accident within the last 12 months at the two-year follow-up. The five-item safety climate survey is a simple and important tool that can be used as part of risk assessment in blue-collar workplaces

Angelov N and Eliason M. Factors associated with occupational disability classification. Scandinavian Journal of Disability Research. 2018; 20(1):37-49.

<http://dx.doi.org/10.16993/sjdr.42> [open access]

Bliksvar T. Disability, labour market participation and the effect of educational level: compared to what? Scandinavian Journal of Disability Research. 2018; 20(1):6-17.

<http://dx.doi.org/10.16993/sjdr.3> [open access]

Boustras G and Guldenmund FW. The effects of the global financial crisis on Occupational Safety and Health (OSH): effects on the workforce and organizational safety systems. Safety Science. 2018; 106:244-245.

<http://dx.doi.org/10.1016/j.ssci.2017.11.025>

Bragazzi NL, Dini G, Toletone A, Rahmani A, Montecuccio A, Massa E, Manca A, Guglielmi O, Garbarino S, Debarbieri N, and Durando P. Patterns of harmful alcohol consumption among truck drivers: implications for

occupational health and work safety from a systematic review and meta-analysis. International Journal of Environmental Research and Public Health. 2018; 15(6):E1121.

<http://dx.doi.org/10.3390/ijerph15061121> [open access]

Abstract: Alcohol consumption is one of the main causes of productivity losses arising from absenteeism, presenteeism, and workplace injuries. Among occupational categories most affected by the use of this substance, truck drivers are subject to risk factors and risky behaviors that can have a serious impact on their health, their work, and the general road safety. The use of alcohol during truck-driving activities is, indeed, an important risk factor for traffic accidents. The present systematic review and meta-analysis aims at synthesizing the literature regarding harmful alcohol consumption patterns among truck drivers in a rigorous way. A 'binge drinking' prevalence of 19.0%, 95% confidence interval or CI (13.1, 26.9) was present. An 'everyday drinking' pattern rate of 9.4%, 95% CI (7.0, 12.4) was found, while the rate of alcohol misuse according to the "Alcohol Use Disorders Identification Test" (AUDIT)-"Cut down-Annoyed-Guilty-Eye opener questionnaire" (CAGE) instruments was computed to be of 22.7%, 95% CI (14.8, 33.0). No evidence of publication bias could be found. However, there is the need to improve the quality of published research, utilizing standardized reliable instruments. The knowledge of these epidemiological data can be useful for decision makers in order to develop, design, and implement ad hoc adequate policies

Gkiouleka A, Huijts T, Beckfield J, and Bambra C. Understanding the micro and macro politics of health: inequalities, intersectionality & institutions: a research agenda. Social Science & Medicine. 2018; 200:92-98.

<http://dx.doi.org/10.1016/j.socscimed.2018.01.025> [open access]

Abstract: This essay brings together intersectionality and institutional approaches to health inequalities, suggesting an integrative analytical framework that accounts for the complexity of the intertwined influence of both individual social positioning and institutional stratification on health. This essay therefore advances the emerging scholarship on the relevance of intersectionality to health inequalities research. We argue that intersectionality provides a strong analytical tool for an integrated understanding of health inequalities beyond the purely socioeconomic by addressing the multiple layers of privilege and disadvantage, including race, migration and ethnicity, gender and sexuality. We further demonstrate how integrating intersectionality with institutional approaches allows for the study of institutions as heterogeneous entities that impact on the production of social privilege and disadvantage beyond just socioeconomic (re)distribution. This leads to an understanding of the interaction of the macro and the micro facets of the politics of health. Finally, we set out a research agenda considering the interplay/intersections between individuals and institutions and involving a series of methodological implications for research - arguing that quantitative designs can incorporate an intersectional institutional approach

Gustafsson J, Peralta J, and Danermark B. Supported employment and social inclusion: experiences of workers with disabilities in wage subsidized employment in Sweden. *Scandinavian Journal of Disability Research*. 2018; 20(1):26-36.

<http://dx.doi.org/10.16993/sjdr.36>

Harma M, Karhula K, Ropponen A, Puttonen S, Koskinen A, Ojajarvi A, Hakola T, Pentti J, la Oksanen T, Vahtera J, and Kivimaki M. Association of changes in work shifts and shift intensity with change in fatigue and disturbed sleep: a within-subject study. *Scandinavian Journal of Work, Environment & Health*. 2018; 44(4):394-402.

<http://dx.doi.org/10.5271/sjweh.3730>

Abstract: Objectives The aim of this study was to examine whether changes in work shifts and shift intensity are related to changes in difficulties to fall asleep, fatigue, and sleep length. Methods Questionnaire responses of hospital employees (N=7727, 93% women) in 2008, 2012, 2014 and 2015 were linked to daily-based records of working hours during three months preceding each survey. We used conditional logistic regression and longitudinal fixed-effects analyses to investigate odds ratios (OR) and 95% confidence intervals (CI) for each 25% within-individual change in the proportion of working hour characteristics in relation to changes in fatigue, difficulties to fall asleep, and 24-hour sleep length. Results Change in night but not in morning or evening shifts was associated with parallel changes in odds for longer sleep length (OR 1.45, 95% CI 1.28-1.64) and fatigue during free days (OR 1.38, 95% CI 1.16-1.64). Similarly, short shift intervals and having >2 but not >4 consecutive night shifts were associated with increased odds of fatigue during work and difficulties to fall asleep (OR 1.42, 95% CI 1.19-1.72 and OR 1.10, 95% CI 1.05-1.19, respectively). Among workers aged ≥ 50 years, the associations were the strongest between night shifts and longer sleep (OR 2.24, 95% CI 1.52-3.81) and between higher proportion of short shift intervals and fatigue during free days (OR 1.68, 95% CI 1.10-2.54). Conclusions Among shift workers with fatigue or sleep problems, decreasing the proportion of night shifts and quick returns and giving preference to quickly forward-rotating shift systems may reduce fatigue

Mallidou AA, Atherton P, Chan L, Frisch N, Glegg S, and Scarrow G. Core knowledge translation competencies: a scoping review. *BMC Health Services Research*. 2018; 18(1):502.

<http://dx.doi.org/10.1186/s12913-018-3314-4> [open access]

Abstract: BACKGROUND: Knowledge translation (KT) is the broad range of activities aimed at supporting the use of research findings leading to evidence-based practice (EBP) and policy. Recommendations have been made that capacity building efforts be established to support individuals to enact KT. In this study, we summarized existing knowledge on KT competencies to provide a foundation for such capacity building efforts and to inform policy and research. Our research questions were "What are the core KT competencies needed in the

health sector?" and "What are the interventions and strategies to teach and reinforce those competencies?" METHODS: We used a scoping review approach and an integrated KT process by involving an Advisory Group of diverse stakeholders. We searched seven health and interdisciplinary electronic databases and grey literature sources for materials published from 2003 to 2017 in English language only. Empirical and theoretical publications in health that examined KT competencies were retrieved, reviewed, and synthesized. RESULTS: Overall, 1171 publications were retrieved; 137 were fully reviewed; and 15 empirical and six conceptual academic, and 52 grey literature publications were included and synthesized in this scoping review. From both the academic and grey literature, we categorized 19 KT core competencies into knowledge, skills, or attitudes; and identified commonly used interventions and strategies to enhance KT competencies such as education, organizational support and hands-on training. CONCLUSIONS: These initial core KT competencies for individuals provide implications for education, policy, knowledge brokering, and future research, and on the need for future evaluation of the KT competencies presented. We also discuss the essential role of organizational support and culture for successful KT activities/practice

Milner A, King T, LaMontagne AD, Bentley R, and Kavanagh A. Men's work, Women's work, and mental health: a longitudinal investigation of the relationship between the gender composition of occupations and mental health. *Social Science & Medicine*. 2018; 204:16-22.

<http://dx.doi.org/10.1016/j.socscimed.2018.03.020>

Abstract: This longitudinal investigation assesses the extent to which the gender composition of an occupation (e.g., the extent to which an occupation is comprised of males versus females) has an impact on mental health. We used 14 annual waves of the Household Income Labour Dynamics in Australia (HILDA) study to construct a measure representing the gender ratio of an occupation. The outcome measure was the Mental Health Inventory (MHI-5). A Mundlak model was used to compare within and between person effects, after controlling for possible confounders. Results suggest that males and females employed in occupations where their own gender was dominant had better mental health than those in gender-neutral occupations (between person effects). However, within-person results suggested that a movement from a gender-neutral to a male or female dominated occupation was associated with both a decline (females) and improvement (males) in mental health. These results highlight the need for more research on gender specific selection into and out of different occupations in order to progress understandings of gender as a social determinant of health in the work context

Nguyen VH, Dinh LM, Nguyen VT, Nguyen D, Tran TNA, and Nguyen P. A systematic review of effort-reward imbalance among health workers. *International Journal of Health Planning and Management*. 2018; [Epub ahead of print].

<http://dx.doi.org/10.1002/hpm.2541>

Abstract: The purpose of this article is to systematically collate effort-reward imbalance (ERI) rates among health workers internationally and to assess gender differences. The effort-reward (ER) ratio ranges quite widely from 0.47 up to 1.32 and the ERI rate from 3.5% to 80.7%. Many studies suggested that health workers contribute more than they are rewarded, especially in Japan, Vietnam, Greece, and Germany-with ERI rates of 57.1%, 32.3%, 80.7%, and 22.8% to 27.6%, respectively. Institutions can utilize systems such as the new appraisal and reward system, which is based on performance rather than the traditional system, seniority, which creates a more competitive working climate and generates insecurity. Additionally, an increased workload and short stay patients are realities for workers in a health care environment, while the structure of human resources for health care remains inadequate. Gender differences within the ER ratio can be explained by the continued impact of traditional gender roles on attitudes and motivations that place more pressure to succeed for men rather than for women. This systematic review provides some valued evidence for public health strategies to improve the ER balance among health workers in general as well as between genders in particular. An innovative approach for managing human resources for health care is necessary to motivate and value contributions made by health workers

Nielsen HB, Larsen AD, Dyreborg J, Hansen AM, Pompeii LA, Conway SH, Hansen J, Kolstad HA, Nabe-Nielsen K, and Garde AH. Risk of injury after evening and night work: findings from the Danish Working Hour Database. *Scandinavian Journal of Work, Environment & Health*. 2018; 44(4):385-393.
<http://dx.doi.org/10.5271/sjweh.3737>

Abstract: Objectives Evening and night work have been associated with higher risk of injury than day work. However, previous findings may be affected by recall bias and unmeasured confounding from differences between day, evening and night workers. This study investigates whether evening and night work during the past week increases risk of injury when reducing recall bias and unmeasured confounding. Methods We linked daily working hours at the individual level of 69 200 employees (167 726 person years from 2008-2015), primarily working at hospitals to registry information on 11 834 injuries leading to emergency room visits or death. Analyses were conducted with Poisson regression models in the full population including permanent day, evening and night workers, and in two sub-populations of evening and night workers, with both day and evening or night work, respectively. Thus, the exchangeability between exposure and reference group was improved in the two sub-populations. Results Risk of injury was higher after a week with evening work [incidence rate ratio (IRR) 1.32, 95% confidence interval (CI) 1.26-1.37] and night work (IRR 1.33, 95% CI 1.25-1.41) compared with only day work. Similar, although attenuated, estimates were found for evening work among evening workers (IRR 1.18, 95% CI 1.12-1.25), and for night work among night workers (IRR 1.10, 95% CI 1.01-1.20). Conclusion There is an overall increased risk of injury after a week that has included evening or

night work compared with only day work. Though attenuated, the higher risk remains after reducing unmeasured confounding

Oswald D, Sherratt F, and Smith S. Problems with safety observation reporting: a construction industry case study. *Safety Science*. 2018; 107:35-45.

<http://dx.doi.org/10.1016/j.ssci.2018.04.004>

Perotti S and Russo MC. Work-related fatal injuries in Brescia County (Northern Italy), 1982 to 2015: a forensic analysis. *Journal of Forensic and Legal Medicine*. 2018; 58:122-125.

<http://dx.doi.org/10.1016/j.jflm.2018.06.002>

Abstract: Work-related deaths represent an important social problem. We report all the occupational fatal injuries recorded by the Brescia Institute of Forensic Medicine from 1982 to 2015. A total of 426 post-mortem examinations due to accidental work injuries were retrospectively analysed according to temporal distribution (year, month and day of the workplace accident); workers' characteristics (sex, age, nationality); type of occupation; cause of death; anatomical region of fatal injuries and timing of death. The accidental occupational events occurred with a mean of 12.5 cases per year. Almost all the workers were male (99%) and Italians (87%), aged between 35 and 49 years old (34.27%). The occupation with more fatalities was construction (36.62%), followed by mechanical industry (19.25%) and agriculture (13.15%). Most of deaths were connected to a mechanical trauma (77.69%) such as falls, machinery-related events, blunt forces or explosions. The predominant site of the lethal wound was the head (33.56%), with a high percentage of death resulting from a traumatic brain injury. In 30.75% of cases death occurred after a short period of hospitalization

Rothmore P, Saniotis A, and Pisaniello D. A multi-stakeholder perspective on the integration of safety in university nursing, education, and engineering curricula. *International Journal of Environmental Research and Public Health*. 2018; 15429.(7):1429.

<http://dx.doi.org/10.3390/ijerph15071429>

*IWH authored publication.