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Journal articles marked with an asterisk indicate an IWH scientist or adjunct scientist is included in the list of authors.

***Carnide N, Nadalin V, Mustard C, Severin CN, Furlan AD, and Smith PM. Cannabis use among workers with work-related injuries and illnesses: results from a cross-sectional study of workers' compensation claimants in Ontario, Canada. *BMJ Open*. 2023; 13(7):e072994.**

<https://doi.org/10.1136/bmjopen-2023-072994> [open access]

Abstract: OBJECTIVES: Little is known about how workers use cannabis following a work-related injury/illness, including whether they receive clinical guidance. The objective was to compare characteristics of workers using and not using cannabis after a work-related injury/illness and describe use patterns. DESIGN: Cross-sectional study. SETTING AND PARTICIPANTS: Workers who experienced a work-related physical injury/illness resulting in one or more days of lost time compensated by the workers' compensation authority in Ontario, Canada (n=1196). METHODS: Participants were interviewed 18 or 36 months after their injury/illness. Participants were asked about their past-year cannabis use, including whether use was for the treatment of their work-related condition. Sociodemographic, work and health characteristics were compared across cannabis groups: no past-year use; use for the work-related condition; use unrelated to the work-related condition. Cannabis use reasons, patterns, perceived impact and healthcare provider engagement were described. RESULTS: In total, 27.4% of the sample reported using cannabis (14.1% for their work-related condition). Workers using cannabis for their condition were less likely to be working (58.0%) and more likely to have quite a bit/extreme pain interference (48.5%), psychological distress (26.0%) and sleep problems most/all the time (62.1%) compared with those not using

cannabis (74.3%, 26.3%, 12.0% and 38.0%, respectively) and those using cannabis for other reasons (74.2%, 19.5%, 12.0% and 37.1%, respectively) (all $p < 0.0001$). No significant differences were observed in medical authorisations for use among those using cannabis for their condition (20.4%) or unrelated to their condition (15.7%) ($p = 0.3021$). Healthcare provider guidance was more common among those using cannabis for their condition (32.7%) compared with those using for other reasons (17.1%) ($p = 0.0024$); however, two-thirds of this group did not receive guidance. CONCLUSIONS: Cannabis may be used to manage the consequences of work-related injuries/illnesses, yet most do not receive clinical guidance. It is important that healthcare providers speak with injured workers about their cannabis use

***Chapman LS, Jones J, Redmond AC, Flurey CA, Richards P, Hofstetter C, Smith TO, Arnold JB, Hannan MT, Maxwell LJ, Menz HB, Shea B, Golightly YM, Tugwell P, Beaton D, et al. Developing a core outcome set for foot and ankle disorders in rheumatic and musculoskeletal diseases: a scoping review and report from the OMERACT 2022 foot and ankle special interest group session. *Seminars in Arthritis and Rheumatism*. 2023; 61:152210.**

<https://doi.org/10.1016/j.semarthrit.2023.152210> [open access]

Abstract: OBJECTIVES: Foot and ankle involvement is common in rheumatic and musculoskeletal diseases, yet high-quality evidence assessing the effectiveness of treatments for these disorders is lacking. The Outcome Measures in Rheumatology (OMERACT) Foot and Ankle Working Group is developing a core outcome set for use in clinical trials and longitudinal observational studies in this area. METHODS: A scoping review was performed to identify outcome domains in the existing literature. Clinical trials and observational studies comparing pharmacological, conservative or surgical interventions involving adult participants with any foot or ankle disorder in the following rheumatic and musculoskeletal diseases (RMDs) were eligible for inclusion: rheumatoid arthritis (RA), osteoarthritis (OA), spondyloarthropathies, crystal arthropathies and connective tissue diseases. Outcome domains were categorised according to the OMERACT Filter 2.1. RESULTS: Outcome domains were extracted from 150 eligible studies. Most studies included participants with foot/ankle OA (63% of studies) or foot/ankle involvement in RA (29% of studies). Foot/ankle pain was the outcome domain most commonly measured (78% of studies), being the most frequently specified outcome domain across all RMDs. There was considerable heterogeneity in the other outcome domains measured, across core areas of manifestations (signs, symptoms, biomarkers), life impact, and societal/resource use. The group's progress to date, including findings from the scoping review, was presented and discussed during a virtual OMERACT Special Interest Group (SIG) in October 2022. During this meeting, feedback was sought amongst delegates regarding the scope of the core outcome set, and feedback was received on the next steps of the project, including focus group and Delphi methods. CONCLUSION: Findings from the scoping review and feedback from the SIG will contribute to the development of a core outcome set for foot and ankle disorders in RMDs. The next steps are

to determine which outcome domains are important to patients, followed by a Delphi exercise with key stakeholders to prioritise outcome domains

Avellone L, Malouf E, Taylor JP, and Whittenburg H. An international scoping review of factors impacting self-employment outcomes for individuals with disabilities. *Journal of Vocational Rehabilitation*. 2023; 59(1):7-24.

<https://doi.org/10.3233/JVR-230024>

Bernaers L, Cnockaert E, Braeckman L, Mairiaux P, and Willems TM. Disability and return to work after a multidisciplinary intervention for (sub)acute low back pain: a systematic review. *Clinical Rehabilitation*. 2023; 37(7):964-974.

<https://doi.org/10.1177/02692155221146447>

Abstract: OBJECTIVE: This systematic review aimed to examine pain, functional status and return to work after a multidisciplinary intervention, with or without additional workplace intervention, for (sub)acute low back pain among adults. DATA SOURCES: A comprehensive search was completed (November 2022) in six electronic databases (Embase, MEDLINE, Web of Science, Cochrane, CENTRAL and Scopus) and in the reference list of all identified studies. REVIEW METHODS: The search results were screened against predefined eligibility criteria by two independent researchers. Included articles were systematic reviews or randomized controlled trials examining the effect of a multidisciplinary intervention, with or without workplace intervention, in working adults with (sub)acute low back pain. Relevant information was summarized and clustered, and the methodological quality and certainty of evidence were assessed respectively using the RoB 2-tool, the ROBIS tool and the GRADE criteria. RESULTS: The search resulted in a total of 3020 articles. After the screening process, 12 studies remained (11 randomized controlled trials and 1 systematic review), which studied overall 2751 patients, with a follow-up period of at least 12 months. CONCLUSIONS: A multidisciplinary intervention is favorable compared to usual care for pain intensity and functional status but this is less clear for return to work. Comparable work-related effects were found when comparing a multidisciplinary intervention with a less extensive intervention, whereas uncertainties exist regarding outcomes of pain intensity and functional status. Furthermore, adding a workplace intervention to usual care and subdividing patients based on work-related characteristics seems beneficial for return to work

Blomqvist S, Virtanen M, Westerlund H, and Magnusson Hanson LL. Associations between COVID-19-related changes in the psychosocial work environment and mental health. *Scandinavian Journal of Public Health*. 2023; 51(5):664-672.

<https://doi.org/10.1177/14034948231160633> [open access]

Abstract: BACKGROUND: Individuals' lives have been substantially affected by the COVID-19 pandemic. We aimed to describe changes in psychosocial work environment and mental health and to investigate associations between job insecurity and mental ill-health in relation to changes in other psychosocial work factors, loneliness and financial worries. METHODS: A

sub-sample of individuals from the eighth Swedish Longitudinal Occupational Survey of Health answered a web-based survey in early 2021 about current and pandemic-related changes in health, health behaviours, work and private life. We investigated participants working before the pandemic (N=1231) in relation to standardised measures on depression, anxiety and loneliness, together with psychosocial work factors, in descriptive and logistic regression analyses. RESULTS: While 9% reached the clinical threshold for depression and 6% for anxiety, more than a third felt more worried, lonelier or in a low mood since the start of the pandemic. Two per cent had been dismissed from their jobs, but 16% experienced workplace downsizings. Conditioning on socio-demographic factors and prior mental-health problems, the 8% experiencing reduced job security during the pandemic had a higher risk of anxiety, but not of depression, compared to employees with unaltered or increased job security. Loneliness and other psychosocial work factors explained more of the association than objective measures of job insecurity and financial worries. CONCLUSIONS: Reduced job security during the COVID-19 pandemic seems to have increased the risk of anxiety among individuals with a strong labour market attachment, primarily via loneliness and other psychosocial work factors. This illustrates the potentially far-reaching effects of the pandemic on mental health in the working population

Chang HY, Saleh MC, Bruyere SM, and Vogus TJ. Making the employment interview work for a neurodiverse workforce: perspectives of individuals on the autism spectrum, employers, and service providers. *Journal of Vocational Rehabilitation*. 2023; 59(1):107-122.

<https://doi.org/10.3233/JVR-230031>

Dias M, Silva L, Folgado D, Nunes ML, Cepeda C, Cheetham M, et al. Cardiovascular load assessment in the workplace: a systematic review. *International Journal of Industrial Ergonomics*. 2023; 96:103476.

<https://doi.org/10.1016/j.ergon.2023.103476> [open access]

Abstract: Cardiovascular disease (CVD) is the leading cause of death worldwide. Health and safety hazards and risk factors in the workplace are associated with occupational CVD, though inconsistent evidence of causal associations represents a knowledge gap. The assessment of physical load on the cardiovascular system in relation to work different risk factors and occupational groups is necessary, if preventative measures for occupational CVD are to be better tailored to workers' needs. The pertinent literature reports the use of different objective and subjective metrics to evaluate the cardiovascular load (CVL). We aimed to identify how cardiovascular stress is assessed in the workplace and to bring together related evidence-based recommendations for preventative measures. Hence, we systematically searched the Google Scholar database for corresponding publications to a) gather metrics used to assess CVL, b) summarize the related risk factors investigated, c) report the occupational groups and activities targeted in these studies, and d) compile recommendations resulting from these studies. The majority of studies reported objective

measures, mostly Relative Heart Rate. The identified risk factors included work environment factors, general job features (such as the number of working hours), task-related factors and individual characteristics of the worker. Most studies focused on the industrial sector, namely, the manufacturing industry and construction were the two most frequent occupational groups, due to high exposure to risk factors. Few evidence-based recommendations were identified, though guidelines to promote safety and productivity were proposed. Our results encourage further research on CVL, occupational risk and CVD.

Gustavsson P, Bigert C, Andersson T, Kader M, Harma M, Selander J, et al. Night work and breast cancer risk in a cohort of female healthcare employees in Stockholm, Sweden. *Occupational and Environmental Medicine*. 2023; 80(7):372-376.

<https://doi.org/10.1136/oemed-2022-108673> [open access]

Abstract: Objectives: Night work has been classified as probably carcinogenic to humans by the International Agency for Research on Cancer, but epidemiological evidence was considered limited due to variability in findings and potential bias. This study aimed to investigate the risk of breast cancer in a cohort with detailed and registry-based data on night work. Methods: The cohort comprised 25 585 women (nurses and nursing assistants) employed 1 year or more between 2008 and 2016 in the healthcare sector in Stockholm. Information on work schedules was obtained from employment records. Breast cancer cases were identified from the national cancer register. HRs were estimated by a discrete time proportional hazards model, adjusting for age, country of birth, profession and childbirth. Results: There were 299 cases of breast cancer, 147 in premenopausal and 152 in postmenopausal women. The adjusted HR of postmenopausal breast cancer in association with ever versus never working nights was 1.31 (95% CI 0.91 to 1.85). Eight or more years of night work was associated with an increased risk of postmenopausal breast cancer, HR=4.33 (95% CI 1.45 to 10.57), based on five cases only, though. Conclusions: This study is limited by a short period of follow-up and a lack of information on night work before 2008. Most exposure metrics showed no association with breast cancer risk, but there was an elevated risk of postmenopausal breast cancer in women after 8 or more years of night work.

Ioannou LG, Testa DJ, Tsoutsoubi L, Mantzios K, Gkikas G, Agaliotis G, et al. Migrants from low-income countries have higher heat-health risk profiles compared to native workers in agriculture. *Journal of Immigrant & Minority Health*. 2023; 25(4):816-823.

<https://doi.org/10.1007/s10903-023-01493-2> [open access]

Abstract: The present observational study was conducted to uncover potential differences in the risk of experiencing high occupational heat strain during agriculture work between migrants and their native coworkers, as well as to elucidate the factors that may contribute to such differences. The study took place over the period from 2016 through 2019 and involved monitoring 124 experienced and acclimatized individuals from high-income (HICs), upper-middle-income (UMICs), as well as lower-middle- and low-income (LMICs) countries. Baseline self-reported data for age, body stature, and body mass were collected at the start

of the study. Second-by-second video recordings throughout the work shifts were captured using a video camera and were used to estimate workers' clothing insulation, covered body surface area, and body posture, as well as to calculate their walking speed, the amount of time they spent on different activities (and their intensity) and unplanned breaks throughout their work shifts. All information derived from the video data was used to calculate the physiological heat strain experienced by the workers. The core temperature of migrant workers from LMICs (37.81 ± 0.38 °C) and UMICs (37.71 ± 0.35 °C) was estimated to be significantly higher compared to the core temperature of native workers from HICs (37.60 ± 0.29 °C) ($p < 0.001$). Moreover, migrant workers from LMICs faced a 52% and 80% higher risk for experiencing core body temperature above the safety threshold of 38 °C compared to migrant workers from UMICs and native workers from HICs, respectively. Our findings show that migrant workers originating from LMICs experience higher levels of occupational heat strain, as compared to migrant workers from UMICs and native workers from HICs, because they take fewer unplanned breaks during work, they work at a higher intensity, they wear more clothing, and they have a smaller body size.

Kincl L, Doza S, Nahorniak J, Case S, Vaughan A, and Bovbjerg V. Commercial fishing fatalities and injuries described by linked vessel incidents. *Journal of Agromedicine*. 2023; [epub ahead of print].

<https://doi.org/10.1080/1059924X.2023.2229827>

Abstract: OBJECTIVES: The Risk Information System for Commercial Fishing (RISC Fishing) merged information on fishermen and vessel incident types from various databases. This descriptive study examined linked fisherman injury records (fatal and nonfatal) and vessel incident records in Oregon and Washington from 2000 to 2018 in the RISC Fishing database. The circumstances of incidents and any association with fishermen outcomes were explored to identify injury prevention opportunities. METHODS: The statistical analyses included a descriptive study of incidents related to the injury characteristics and frequency of outcomes by incident type. Further analyses included contingency tables and Pearson Chi-Square tests for selected variables to determine if there were associations between vessel incident outcomes (fatality, nonfatal injury, no injury). RESULTS: A total of 375 reported incidents with 93 cases of fatalities, 239 nonfatal injuries, and over 6,575 fishermen with no injury were described. Of fatalities, 90% were due to drowning, with only 2% of victims reported donning survival equipment. Deckhands experienced fatal and nonfatal injuries most frequently. The most common factors associated with nonfatal injuries included contact with objects (event), walking on vessel and hauling gear (work activities), and fractures and open wounds (nature). The most common final event leading to a vessel disaster with no injury being reported was sinking (76%). Distributions between the incident outcomes (fatality, nonfatal injury, and no injury) differed by vessel activity/type, fishery/gear, and event leading to the incident. CONCLUSION: Linked information of fishermen injury outcomes and vessel incident information showed that events and settings that involve fatalities are qualitatively different from incidents resulting in only nonfatal injuries or uninjured survivors. Vessel-level

approaches for mitigating fatalities, such as ensuring vessel stability, improving navigation/operation decisions, and spotlighting survival equipment policies/rescue priorities could have a significant impact. Work task-specific prevention strategies for nonfatal injuries related to the larger vessels (catcher/processors and processors) and smaller vessels (with pot/trap gears) are paramount. The use of linked information provided in reports can provide a fuller incident picture to advance efforts to improve the working conditions of commercial fishermen

Knop ES, Pauly M, Friede T, and Welz T. The consequences of neglected confounding and interactions in mixed-effects meta-regression: an illustrative example. *Research Synthesis Methods*. 2023; 14(4):647-651.

<https://doi.org/10.1002/jrsm.1643> [open access]

Abstract: Analysts seldom include interaction terms in their meta-regression model, which can introduce bias if an interaction is present. We illustrate this by reanalysing a meta-regression study in acute heart failure. Based on a total of 285 studies, the 1-year mortality rate related to acute heart failure is considered and the connection to the study-level covariates year of recruitment and average age of study participants are of interest. We show that neglecting a possibly confounding variable and an interaction term might lead to erroneous inference and conclusions. Based on our results and accompanying simulations, we recommend to include possible confounders and interaction terms, whenever they are plausible, in mixed-effects meta-regression models

Kristiansen JH, Larsen TP, and Ilsoe A. Hybrid work patterns: a latent class analysis of platform workers in Denmark. *Nordic Journal of Working Life Studies*. 2023; 13(S10):55-76.

<https://doi.org/10.18291/njwls.133721> [open access]

Abstract: This paper presents a novel approach for studying differences and similarities among platform workers, by taking into account the wider labor market position of platform workers. Analytically, we seek inspiration from literature on labor market segmentation (SLM) and multiple jobholding (MJH) to nuance the often-dichotomized view of labor markets characterized by SLM theory. By using survey data from a set of additional questions tied to the Danish LFS, we apply latent class analysis models to discover patterns of labor market divisions among platform workers in Denmark. We identify three major groups of platform workers, and while all of them have multiple income sources, they have very different labor market positions in the traditional labor market. We categorize them as 'established workers', 'transitional workers', and 'new labor market entrants'. These divisions point to marked differences among platform workers, implying that platform work is characterized by varying blends of labor market hybridity.

Lysova EI, Fletcher L, and El Baroudi S. What enables us to better experience our work as meaningful? The importance of awareness and the social context. *Human Relations*. 2023; 76(8):1226-1255.

<https://doi.org/10.1177/00187267221094243> [open access]

Abstract: Why does becoming more aware of yourself and your wider work environment enable you to experience greater meaningful work? Drawing upon mindfulness-to-meaning and interpersonal sensemaking theories, we argue that in a state of awareness individuals are cognitively flexible and are able to interpret relevant interpersonal cues in ways that enable them to experience their work as meaningful. Study 1 is a quantitative diary study over a period of six weeks that tests the state-level relationships between awareness, cognitive flexibility, and meaningful work. We find that awareness is, directly and indirectly, related to three of four dimensions of meaningful work via cognitive flexibility. Study 2 qualitatively explores what individuals cognitively attend to in the social context when they reflect upon the most meaningful work events that occurred each week, over four weeks. Findings reveal that ambivalent work events are experienced as meaningful when individuals attend to interpersonal cues in their work context that convey a sense of worth, care, and/or safety. Overall, our article advances knowledge about meaningful work as a state-level experience that is facilitated by awareness, cognitive flexibility, and cues from the social context. It shows the importance of integrating meaningful work, mindfulness, and interpersonal sensemaking literatures.

Perlman-Arrow S, Loo N, Bobrovitz N, Yan T, and Arora RK. A real-world evaluation of the implementation of NLP technology in abstract screening of a systematic review. *Research Synthesis Methods*. 2023; 14(4):608-621.

<https://doi.org/10.1002/jrsm.1636> [open access]

Abstract: The laborious and time-consuming nature of systematic review production hinders the dissemination of up-to-date evidence synthesis. Well-performing natural language processing (NLP) tools for systematic reviews have been developed, showing promise to improve efficiency. However, the feasibility and value of these technologies have not been comprehensively demonstrated in a real-world review. We developed an NLP-assisted abstract screening tool that provides text inclusion recommendations, keyword highlights, and visual context cues. We evaluated this tool in a living systematic review on SARS-CoV-2 seroprevalence, conducting a quality improvement assessment of screening with and without the tool. We evaluated changes to abstract screening speed, screening accuracy, characteristics of included texts, and user satisfaction. The tool improved efficiency, reducing screening time per abstract by 45.9% and decreasing inter-reviewer conflict rates. The tool conserved precision of article inclusion (positive predictive value; 0.92 with tool vs. 0.88 without) and recall (sensitivity; 0.90 vs. 0.81). The summary statistics of included studies were similar with and without the tool. Users were satisfied with the tool (mean satisfaction score of 4.2/5). We evaluated an abstract screening process where one human reviewer was replaced with the tool's votes, finding that this maintained recall (0.92 one-person, one-tool

vs. 0.90 two tool-assisted humans) and precision (0.91 vs. 0.92) while reducing screening time by 70%. Implementing an NLP tool in this living systematic review improved efficiency, maintained accuracy, and was well-received by researchers, demonstrating the real-world effectiveness of NLP in expediting evidence synthesis.

Soderberg M, Eriksson H, Toren K, Bergstrom G, Andersson E, and Rosengren A. Psychosocial job conditions and biomarkers of cardiovascular disease: a cross-sectional study in the Swedish CARDioPulmonary bioImage Study (SCAPIS). *Scandinavian Journal of Public Health*. 2023; 51(6):843-852.

<https://doi.org/10.1177/14034948211064097> [open access]

Abstract: Aims: The aim of this study was to investigate associations between psychosocial work exposure and the presence of biological and imaging biomarkers of cardiovascular disease. Methods: This cross-sectional study was conducted in a sub-cohort of the Swedish CARDioPulmonary bioImage Study (SCAPIS). Psychosocial exposure was evaluated with the job demand-control model, and analysed according to the standard categorization: high strain, active, passive and low strain (reference). Biomarkers (blood pressure, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol, coronary artery calcification (CAC) and metabolic syndrome) were measured, or derived through measurements, from clinical examinations. Gender-specific prevalence ratios (PRs) and 95% confidence intervals (CIs) were calculated with regression models and adjusted for age, education, smoking, physical activity, general life stress and body mass index (BMI). Results: The analyses included 3882 participants (52.5% women). High strain (high demands-low control) was linked to increased PR for low HDL cholesterol in women, adjusted for all covariates (PR 1.76; 95% CI 1.25-2.48). High strain was also related to moderately increased PR for metabolic syndrome in men, after adjustments for all covariates except BMI (PR 1.25; 95% CI 1.02-1.52). In addition, passive work (low demands-low control) was associated with diastolic hypertension in women (fully adjusted: PR 1.29; 95% CI 1.05-1.59). All relationships between psychosocial factors and LDL cholesterol or CAC (both genders), or hypertension (men), were non-significant. Conclusions: Poor psychosocial job conditions was associated with the presence of low HDL cholesterol and diastolic hypertension in women, and metabolic syndrome in men. These findings contribute to the knowledge of potential pathways between stressful work and coronary heart disease.

Toren K, Albin M, Bergstrom T, Alderling M, Schioler L, and Aberg M. Occupational risks for infection with influenza A and B: a national case-control study covering 1 July 2006-31 December 2019. *Occupational and Environmental Medicine*. 2023; 80(7):377-383.

<https://doi.org/10.1136/oemed-2022-108755> [open access]

Abstract: Objectives: We investigated whether crowded workplaces, sharing surfaces and exposure to infections were factors associated with a positive test for influenza virus. Methods: We studied 11 300 cases with a positive test for influenza A and 3671 cases of influenza B from Swedish registry of communicable diseases. Six controls for each case were

selected from the population registry, with each control being assigned the index date of their corresponding case. We linked job histories to job-exposure matrices (JEMs), to assess different transmission dimensions of influenza and risks for different occupations compared with occupations that the JEM classifies as low exposed. We used adjusted conditional logistic analyses to estimate the ORs for influenza with 95% CI. Results: The highest odds were for influenza were: regular contact with infected patients (OR 1.64, 95% CI 1.54 to 1.73); never maintained social distance (OR 1.51, 95% CI 1.43 to 1.59); frequently sharing materials/surfaces with the general public (OR 1.41, 95% CI 1.34 to 1.48); close physical proximity (OR 1.54, 95% CI 1.45 to 1.62) and high exposure to diseases or infections (OR 1.54, 95% CI 1.44 to 1.64). There were small differences between influenza A and influenza B. The five occupations with the highest odds as compared with low exposed occupations were: primary care physicians, protective service workers, elementary workers, medical and laboratory technicians, and taxi drivers. Conclusions: Contact with infected patients, low social distance and sharing surfaces are dimensions that increase risk for influenza A and B. Further safety measures are needed to diminish viral transmission in these contexts.

Washburn C, Kueny C, and Murray S. Establishing links between safety culture, climate, behaviors, and outcomes of long-haul truck drivers. *Journal of Safety Research*. 2023; 85:371-379.

<https://doi.org/10.1016/j.jsr.2023.04.004>

Abstract: INTRODUCTION: This paper examines the safety relationships between safety culture, safety influences, safety climate, and safety outcomes for long-haul truck drivers. The relationships focus on the intersection of the electronic logging device (ELD) technology, regulations, and truck drivers that fall into the lone-worker category. RESULTS: Through research questions, links between safety culture and safety climate were established with links between the layers. CONCLUSIONS: The implementation of the ELD system was associated with safety outcomes

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