respectively. Approximately 70–75% of at-risk workers were probably or possibly exposed to any of the pesticides. Glyphosate exposure was most common among workers in oilseed (29%) and dry pea/bean farms (28%), along with those providing support activities for farms (31%). 2,4-D exposure was most common in corn (28%), other grain (28%), and soybean farms (27%), while chlorothalonil exposure was more likely among greenhouse, nursery and floriculture workers (42%) and those working on farms (28%, for occupations not captured by the CEAG). Regional variations reflected differences in farm types by province.

Conclusion This study estimated the prevalence of occupational pesticide exposure in Canada, and findings can support priority setting for future research and data collection.

P-113 AN EXPLORATION OF DISPENSING ERRORS AMONG THE HOSPITAL PHARMACISTS IN TAIWAN

¹Kuan-Han Lin, Yun-Chia Chang. ¹Asia University, Taiwan

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Introduction Dispensing errors are among the most common medical errors. Previous studies found that environmental factors, educational training, physical and mental health were factors affecting dispensing errors among pharmacists. However, the associations among burnout, sleep quality and dispensing error in pharmacists are still unknown.

Objectives The aims of this study were to investigate the frequency of dispensing errors among the hospital pharmacists in Taiwan and to determine the risk factors associated with it.

Methods This was a cross-sectional study. The electronic questionnaires were sent to the pharmacists from multiple centers. The questionnaire included demographic characteristics, the frequencies of dispensing errors in the past three months, environmental factors, Chinese version of Copenhagen Burnout Inventory, Chinese version of Pittsburgh Sleep Quality Index, and continuing education questions. Logistic regression models were used to assess the association between environmental factors, burnout, sleep quality, continuing education and dispensing errors.

Results A total of 370 pharmacists completed the questionnaire. Among them, 96.5% reported dispensing errors in the past three months. In the univariate logistic analysis, pharmacists experienced dispensing errors were more likely to have shorter working years (Odds Ratio (OR)= 0.91, 95% Confidence Interval (CI) : 0.85–0.98), shift work (OR= 4.75, 95% CI : 1.51–14.89), shorter working hour per day (OR= 0.80, 95% CI: 0.64–0.99), lower personal burnout score (OR= 0.97, 95% CI: 0.94–0.99) and lower over-commitment score (OR= 0.96, 95% CI: 0.94–0.99) compared with those without dispensing errors. The multivariate logistic regression model indicated that after adjusting for all possible risk factors, shorter working years (adjusted Odds Ratio (aOR)= 0.92, 95% CI: 0.85–0.99) and shift work (aOR= 4.63, 95% CI: 1.39–15.45) was associated with dispensing errors among pharmacists.

Conclusion A significant proportion of pharmacists experienced dispensing errors. Development of stress management programs to enhance pharmacists' physical and psychological well-being and to improve job performance is warranted.

P-115 PRO-MENTA: IMPACT OF MAJOR ORGANIZATIONAL CHANGES ON EMPLOYEE MENTAL HEALTH AND WORKPLACE PRODUCTIVITY

¹Lea Nørgaard Sørensen, Morten Vejs Willert, Johan Høy Jensen, Vita Ligaya Dalgaard, Marianne Kyndi. ¹Aarhus University Hospital, Denmark

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Introduction The health care system of Denmark is currently undergoing major centralizations. Relocation of workplaces as well as mergers and split-ups may impact both health and productivity among employees and managers. The unification of all hospital units in Aarhus, Denmark, poses an opportunity to study the short- and long-term consequences of different degrees of organizational change during a fixed event.

Objectives The primary aims are to: 1) investigate the consequences of major organizational changes on absenteeism and mental health of employees and workplace productivity and staff turnover, and 2) identify risk factors for negative consequences on mental health, sickness absence, productivity, and staff turnover, in order to identify risk groups for targeted prevention.

Methods Using national and regional registers we will establish a cohort of 10,000 individuals employed at Aarhus University Hospital in the period from 2011–2020. Hospital units moving at different time points through 2016–2019 will be aligned on the index date defined by their relocation and followed up to 5 years after and prior to this.

Results Based on the life event literature we expect to find a delayed effect of major organisational change on sickness absence and mental health, and an immediate effect on staff turnover and productivity. We hypothesize these effects as more pronounced for units which in addition to relocating also merge/split, representing greater organisational change. We also expect to identify risk factors for the chosen outcomes based on job titles, age, seniority, and work unit characteristics such as number of employees, patient centred vs. service/administrative, and out-patient vs. in-patient wards.

Conclusion This project is expected to produce valuable knowledge about the mental health and/or economic consequences of major organizational changes in the health care system. This can inform preventive actions targeting specific employee groups in future centralization projects.

P-118 MANAGEMENT OF CAUSAL UNCERTAINTY : CAN A SICK BUILDING SYNDROM BECOME CHRONIC ?

¹Christine Meffre, Yoann Dominique, Juliette Chatelot, Eve Bourgard, Michel Vernay. ¹Agence Nationale de Santé Publique, France

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Objectives In 2014, the head of a elderly care facility (ECF) alerted the regional health authority for chronic irritative symptoms among office workers. Symptoms started in 2009 for 4 workers back in a newly rehabilitated building. From 2009 to 2014, the first analysis of indoor air quality lead to cleaning and disinfection of the air treatment plant. Furthermore no toxic compounds were identified in the materials used. In 2014, out of 21 office workers, 13 declared irritative symptoms, and the French national public health agency was called to carry out epidemiological investigations.

Methods In 2016, a regional group of experts in sanitary alerts in occupational health was involved as well as experts in air treatment, indoor air quality, building materials, and occupational medicine. Investigations were structured into 4 axes : clinical, epidemiological, environmental and psycho-sociological, all accepted by a local steering committee, except the psycho-sociological investigations.

Results Out of 130 workers of the ECF, 24 met the case definition. Among them, 18 worked in the newly rehabilitated building. Cases occurred regularly in this building from 2009 to 2016. Symptoms increasing with damp weather were: fatigue (89%), headache (83%) and multi-site irritations (35 to 88%). Medical consultations were reported by 12 workers. Underground springs existed under the building and water ingresses occurred after raining. Molds in high concentrations in indoor air (> 1000 UFC/m³) were identified in some offices. Ventilation systems followed reglementation. A surface disinfectant was withdrawn due to toxic compounds. Alcans disappeared when flooring was replaced in an office.

Conclusion This episode of sick building syndrom had an exceptional duration. Although former remediation measures were undertaken, the dampness of the environment and symptoms of workers persisted. This suggests 2 possible ways of symptoms chronicization : hyper-sensibilisation of workers due to identified molds and/or psycho-sociological runaway (unfortunately not investigated).

P-119 OCCUPATIONAL RADIATION-INDUCED CANCER IN MEDICAL STAFF (ORICAMS): PROTOCOL FOR A FRENCH NESTED CASE-CONTROL STUDY

¹Julie Lopes, Clémence Baudin, Juliette Feuarden, Hervé Roy, Sylvaine Caer-Lorho, Klervi Leuraud, Marie-Odile Bernier. ¹*Institute of Radiobiological Protection and Nuclear Safety, France*

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Introduction Currently, medical workers represent the largest group of workers occupationally exposed to ionizing radiation (IR), reaching 7.4 million practitioners worldwide. The risk of radiation associated cancer is still under debate for low-doses IR exposures for these professionals. Some publications have reported an excess of central nervous system (CNS) tumors in interventional cardiologists, but the link with the profession has never been established in a large, properly controlled epidemiological study.

Objectives The ORICAMS (Occupational Radiation-Induced Cancer in Medical Staff) nested case-control study aims to assess the dose-response relationship between IR exposure and CNS tumor.

Methods This study includes medical workers with at least one dosimetric record in the national dose registry called SISERI (Système d'Information de la Surveillance de l'Exposition aux Rayonnements Ionisants) between 2002 and 2012. Follow-up ended in 2019. Individual cumulative doses for each worker will be provided by SISERI. CNS death cases will be matched 1:5 by gender, year of birth, and date of enrollment, with controls alive at the time of case death. Associations between CNS cancer death and cumulative dose will be investigated using conditional logistic regressions.

Results The study will quantify the relationship between occupational exposure to low doses of IR and CNS tumor mortality risks in medical workers. The inclusion of 45 CNS cases and their matched controls will allow detecting at least an odds ratio of 1.5 for a statistical power of 80% and an alpha significance level of 5%.

Conclusion This study will improve the knowledge of the health risks associated with repeated low-dose IR exposures and will contribute to improve radiation protection strategies for medical workers. This cohort will be part of the international BECOME (Brain canCEr risk in pooled Case-cOntrol study of MEdical workers) project, which will address the same objectives, but using joint analyses of data from France, South Korea and the United States.

P-126 ASSESSMENT OF MORAL HARASSMENT AT WORKPLACE IN TUNISIAN JUNIOR DOCTORS THROUGH A TWO-STEP STUDY

¹Samia Madghoul, Marouen Hayouni, Ines Rassas, Feten Mhenni, Nidhal Mlik, Imen Miled, Charfeddine Amri, Neila Chaari, Adnene Hanchi, Mohamed Akrou, Irtyah Merchaoui. ¹*Faculty of Medicine of Monastir, Tunisia*

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Introduction The Tunisian revolution was followed by a flourishing in the freedom of expression, which sometimes exceeds the limits. This resulted in an increase of violence levels, particularly in hospitals, worsening already unfavorable work conditions and exposing young doctors to mental harassment at work (MHW).

Objectives To compare the prevalence and the perception of workplace bullying in interns and residents before and after the revolution and to determine its influence on their quality of life.

Methods A two-step-cross-sectional study, carried out in 2009 and in 2016, among 547 and 667 interns and residents respectively. Data concerning sociodemographic and occupational information were collected using a self-administered questionnaire. Workplace bullying was assessed using the Negative Acts Questionnaire Revised (NAQ-R). A person is considered a victim of psychological harassment if he or she has been suffering of any of these acts at least once per week in the last six months. The impact of MHW on the interns and residents' quality of life was determined using the SF8 'health survey' scale.

Results The prevalence of workplace bullying decreased significantly between 2009 (74%) and 2016 (43.6%) ($p < 10^{-3}$). It was related to the professional status, gender, seniority, deliberate choice of medicine, satisfaction, serious family problems and hobbies in 2009 while it was related to professional status, nature of specialty, deliberate choice of medical studies and the satisfaction of the practice of Medicine in 2016. Median mental and physical quality of life scores were below the mean baseline scores in both cohorts with no significant difference; and were both significantly influenced by workplace bullying in the two cohorts.

Conclusion Despite the decrease of workplace bullying among young doctors after the Tunisian revolution, its deleterious impact remains troublesome. The promulgation of incriminating legislation and raising awareness about MHW are urgent preventive measures.