

(aOR=2.4, 95% CI=1.8–3.1 for SRH; aOR=3.0, 95% CI=2.0–4.5 for PHU), and client-related burnout (aOR=1.6, 95% CI=1.2–2.3 for SRH; aOR= 2.1, 95% CI=1.2–3.5 for PHU) while adjusted for significant variables.

**Conclusions** We concluded that nurses worked in public health units and secondary referral hospitals had higher job strain and work-related burnout as compared to primary clinics. Further study should examine the stressors from these workplaces and follow up the health effects of high strain and burnout status.

#### 0164 METAGENOMIC DETECTION OF BACTERIA IN AEROSOL SAMPLES IN ANIMAL SLAUGHTERHOUSES TO DEVELOP EXPOSURE PROFILES FOR AN EPIDEMIOLOGICAL ANALYSIS

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**Objectives** Significant excess risks of lung cancer and haematologic neoplasms have been observed in slaughterhouse workers in eight New Zealand studies, and numerous studies conducted elsewhere. No specific causal agents have been identified, although a biological aetiology is suggested as the risk is highest in those areas where workers are exposed to live animals or to biological material containing animal urine, faeces or blood. This study aimed to assess the airborne bacterial microflora in the slaughterhouse environment in order to develop exposure categories for reanalysis of a meat workers' cohort.

**Method** Bulk air samples (n = 31) were collected for between 5 and 8 h in five areas in both sheep and beef slaughterhouses using a SASS3100 sampler (fitted with a proprietary SASS filter) located between 0.5 and 2 metres from the worker. Nucleic acid was extracted from each filter and amplified using commercially available kits, then sequenced on an Illumina MiSeq instrument. Bioinformatics analyses conducted included comparative taxonomic analyses, gene function (including virulence factor) analyses, and principal component analyses to compare profiles in samples taken in different areas.

**Results** Of the bacteria identified over 95% were in the classes Actinobacteria, Firmicutes and Proteobacteria. Clear differences in all parameters were apparent in the different areas, however, and the full results of the comparative analyses and the development of exposure profiles will be presented.

**Conclusions** Metagenomic analysis of bioaerosol samples represents a promising method for the development of exposure categories for the epidemiological analysis of the effect of biological exposures in an occupational environment.

#### 0168 SOMATISING TENDENCY, OCCUPATIONAL STRAIN AND MUSCULOSKELETAL SYMPTOMS: RESULTS FROM A LONGITUDINAL STUDY AMONG ITALIAN NURSES

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**Objectives** Musculoskeletal symptoms are a common cause of disability, with major impact on workforce wellbeing, absenteeism and productivity. Several, mainly cross-sectional, studies have linked such symptoms to physical workload, and also to psychological and socio-cultural factors.

We investigated whether prolonged or increasing job strain, tendency to somatise and other individual characteristics, are associated with worsening musculoskeletal pain.

**Method** As part of the CUPID study, we investigated a cohort of nurses employed on medical wards at the Varese University Hospitals (Italy). Participants were asked, at baseline and after one year of follow-up, about individual and occupational risk factors, psychological characteristics (including tendency to somatise), occupational strain (by Siegrist's Effort/Reward Imbalance Questionnaire-ERI), and musculoskeletal symptoms. Associations of worsening musculoskeletal pain with perceived job strain were assessed by multivariate log-binomial regression.

**Results** Occupational stress was associated with pain in the lower back (LBP) and neck/shoulder (NSP) in both cross-sectional questionnaires.

Comparing baseline and follow-up answers, workers who reported an increase in perceived stress showed more frequent worsening of both LBP (prevalence of worsening symptoms=41%, OR when compared with not stressed=1.7, 95% CI=1.1–2.7) and NSP (prevalence of worsening=51%, OR=1.2, 95% CI=0.8–1.8).

This relationship persisted after adjustment for gender, age and BMI, and exposure to physical workload, and was more evident among subjects with a tendency to somatise (OR=2.8, 95% CI=1.0–7.4 for LBP; OR=1.6, 95% CI=0.8–3.2 for NSP).

**Conclusions** Our observation suggests that tendency to somatise modifies individual responses to "triggering exposures", such as psychological workload, with important implications for the health, and productivity of workers.

#### 0169 SINONASAL CANCERS: IS INTESTINAL TYPE ADENOCARCINOMA THE ONLY RELATED TO OCCUPATIONAL EXPOSURES? RESULTS FROM AN ITALIAN CASE-CONTROL STUDY

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**Objectives** Epithelial sinonasal cancers (SNC) are rare, severe diseases associated to the exposure to several well-established carcinogens (IARC). The etiologic role of these carcinogens in different histological subtypes is still disputed, with several studies focusing on intestinal-type adenocarcinoma (ITAC) as the most (and maybe the only) occupational-related subtype. To assess the role of occupational exposures in SNC aetiology we designed a case control study, in which occupational exposures prevalence in two group of ITAC cases and non-ITAC were compared to controls.

**Method** In a large Italian hospital we enrolled 50 consecutive surgical non-ITAC cases (mainly squamous-cell carcinoma), 50 consecutive ITAC cases and 50 non-neoplastic patients (controls). Previous occupational exposures to wood and leather dust, solvents, metals, formaldehyde were investigated through a