

be under estimated by their supervisor while they are supported by their colleagues. In addition, most of them felt unsatisfied with their salary and were not confident in their career evolution.

**Conclusion** The discrepancy raised by our study between the real workload and the perceived well-being seems to be conditioned by organizational dysfunction and dissatisfaction with conditions of work performance. New organizational possibilities with brainstorming approaches of the nurses' work environment are recommended and are being built through interdisciplinary research-action studies.

**P-171 AIR RECIRCULATION IN VENTILATION SYSTEM AND ITS IMPACT ON TRICHLORAMINE EXPOSURES IN A SWIMMING POOL HALL: A NUMERICAL INVESTIGATION**

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**Introduction** Trichloramine (NCl<sub>3</sub>) is an irritant gas commonly found in the air of indoor swimming pool, causing health problems to swimmers and workers who are often exposed to this contaminant. ASHRAE recommends a supply air delivery rate of 4 to 8 air changes per hour to remove trichloramine in aquatic centers. However, the fraction of recirculated air can have a significant impact on the exposure level.

**Objective** The main objective of this study is to investigate the impact of air recirculation by mechanical ventilation systems on NCl<sub>3</sub> exposures for five user groups: i) swimmers in the basin, ii) people sitting or iii) standing on the deck, iv) lifeguards in surveillance chairs and v) spectators in mezzanine area.

**Methods** Exposure to NCl<sub>3</sub> levels in a 9300 m<sup>3</sup> swimming pool hall located in Montreal (Canada) is evaluated with a computational fluid dynamic software (Fire Dynamic Simulator). Simulations are performed for five recirculation ratios starting from the reference case at 77% down to 0% (100% fresh air). Emission rate of NCl<sub>3</sub> is based on equations found in literature for a fully occupied pool. The numerical model was experimentally validated with tracer gas injection in situ.

**Results** The tracer gas simulation results show good agreement with the experimental results. Compared to the reference case (77% recirculation condition), a 100% fresh air ventilation strategy decreases the NCl<sub>3</sub> levels of the five groups from: i) 19%, ii) 31%, iii) 62%, iv) 61% and v) 77%, respectively.

**Conclusion** Reducing the recirculation rate reduces the NCl<sub>3</sub> concentrations. However, recirculation of air has less impact on the concentrations in the breathing zones located near the water surface compared to the other zones. The best air quality improvement with the 100% fresh air strategy is for spectators. Other ventilation strategies have to be investigated to improve air quality in the lower breathing zones as well.

**P-175 UNDERSTANDING THE ASSOCIATION BETWEEN TREATMENT MODALITY VERSUS EMPLOYMENT STATUS AMONG PATIENTS WITH ORGAN FAILURE**

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**Objectives** In advanced organ failure patients: (1) To study the association between treatment modality versus employment status, (2) To analyze socio-demographic profiles and deprivation status, and (3) To explore Return to Work (RTW) by analysis of self-reported employment status.

**Methods** This ongoing hospital based cross-sectional study used a convenience sample: 1070 patients with advanced organ failure requiring solid organ transplant (SOT) or dialysis pooled from the Comprehensive Psychosocial Research Data System at UHN, Toronto. Patient reported outcome measures, clinical and socio-demographic variables were collected from stable outpatients on iPads using electronic data capture (DATA Driven Outcomes System-DADOS, Techna Institute, UHN, Toronto). The Ontario Marginalization Index characterized material deprivation. Data was analyzed using STATA v16, logistic regression used multiple imputation by chained equations.

**Results** Of 1070 SOT recipients, 646 (60%) were males with 424 (40%) females. Almost half (49%) were of White ethnicity, Black (23%) followed by South Asians and East Asians. 63% (646) had >12 years education, the kidney-pancreas sub-group were highest 88% (30) then kidney, liver and dialysis with 65%, 62% and 59%, respectively. 51% of dialysis patients had a yearly income of \$70,000. These results reflect the higher employment status of kidney (60%), liver (55%) and kidney-pancreas (51%) transplants compared to dialysis patients (28%). 59% of dialysis patients had high deprivation. The association between treatment modality vs employment status and employment status vs deprivation remained statistically significant after adjusting for age, sex, ethnicity and comorbidities in logistic regression models.

**Conclusion** SOT was associated with significantly higher odds of employment and lower material deprivation. Dialysis, transplant and occupational health professionals should support SOT and dialysis patients overcoming barriers to maintain and RTW. RTW post-SOT is complex and likely associated with personal, professional, societal and medical factors.

**P-177 TEMPORARY AND PERMANENT AUDITORY EFFECTS ASSOCIATED WITH OCCUPATIONAL CO-EXPOSURE TO LOW LEVELS OF SOLVENTS AND NOISE**

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**Introduction** The effect of combined exposures to noise and solvents on hearing has been studied for decades, but the characterization of the risk is incomplete.

**Objective** To assess the temporary and permanent auditory effects associated with occupational co-exposures to low levels of solvents and noise.

**Method** Cross-sectional study with 25 printing industry workers (mean age 36.2 years) simultaneously exposed to low levels of solvents and noise (< 80 dBA TWA). The control group composed of 29 industry workers (mean age 36.7 years) without exposure to noise and/or solvents. Participants answered a questionnaire and underwent pure-tone audiometry (PTA), acoustic immittance tests, auditory brainstem response