the late-onset asthma group (OR 1.28 [95% CI: 1.11–1.48]) or the early-onset persistent asthma group (OR 1.27 [95% CI: 1.08–1.48]) compared to the never/infrequent asthma group. Similar results were seen for boys, OR 1.16 [95% CI: 1.08–1.25], OR 1.11 [95% CI: 0.98–1.25], and OR 1.34 [95% CI: 1.20–1.51] respectively. The odds remained largely the same in imputed and unadjusted models.

Conclusion In a Danish nationwide population four asthma trajectories were identified, in agreement with clinical studies. ACE in early life was associated with all asthma phenotypes.

**Conclusions**

- In order to protect and improve the occupational functions of firefighters, effective prevention and management of work-related trauma incidents should be considered.
- The late-onset asthma group and the early-onset persistent asthma group had significantly higher odds of work limitations compared to the never/infrequent asthma group.
- Similar results were observed for boys.

**Objective**

The purpose of this study was to investigate whether firefighters’ exposure to work-related trauma events is related to work limitations that form part of social health.

**Methods**

In 2016, 618 firefighters from four cities in Gyeongsangnam-do participated in this study. They were analyzed using a health-related work limitations questionnaire, experience and type of work-related trauma, Korea Depression Scale, and the World Health Organization quality of life assessment instrument. The health-related work limitations consisted of three scales: ‘physical work demands,’ ‘psychosocial work demands,’ and ‘environmental work demands.’ The analysis was done by hierarchical logistic regression analysis.

**Results**

Of the 70.2% remembered traumatic experiences they had experienced during their job. The total work limitations were 21.5%; the limitation of physical work demands was 16.8%, that of psychosocial work demands was 15.5%, and that of environmental work demands was 13.8%. Logistic regression analysis of the final model 3 showed that, if firefighters have experienced of their own risks and personal injury, physical (95% CI=1.169–9.405), psychosocial (95% CI=1.080–8.609), and environmental (95% CI=1.659–14.402), the total (95% CI=1.439–9.678) work limitation was significantly increased. When there was a memory of a terrible body or injury, the total work limitations increased significantly (95% CI=1.092–3.905).

**Conclusions**

When firefighters are exposed to trauma events during their jobs, these have a negative impact on their work. In order to protect and improve the occupational functions of firefighters, effective prevention and management of work-related trauma incidents should be considered.

**MAGNESIAN EXPOSURE IN STEEL AND ALLIED FACTORY: CAUSE OF SECONDARY PARKINSONISM**

Priyanka Roy*, Praveen Kumar. Department of Labour, Kolkata, India; Consultant Neurologist, Durgapur, India

**Objective**

The patient for this study.

**Conclusion**

In view of strong occupational history of manganese exposure, the clinical features and non responsiveness of treatment with levodopa, a possibility of manganese toxicity was strongly considered for this rare case of secondary parkinsonism. Also non adherence with the legal mandate of periodic medical examination of workers exposed to toxic metals with long term consequence is very important factor to be corrected in the developing country like India.

**Case presentation**

A 43 year old male presented with 6 months history of gradual onset and progressive bradykinesia, tremors of upper limbs and walking difficulty in the form of imbalance and short shuffling gait, slurring of speech with hypophonia. Neurological examination revealed slow broken saccades, rigidity with cogwheeling, bradykinesia and short shuffling, festinating gait. He had action and postural tremors of upper limbs. Pull test was positive. Thus a diagnosis of young onset Parkinsonism was considered. But, occupational history revealed that he worked in blast furnace of a steel and allied factory for past 14 years where manganese ore has been using for the strengthening of the stainless steel. He was evaluated with MRI Brain which showed symmetrical hyperintensities involving basal ganglia and subcortical white matter in T2 weighted images. T1 weighted images showed evidence of basal ganglia hyperintensities probably related to mineral deposition. Renal function, thyroid function tests including anti thyroid antibodies, KF Ring, S. Ceruloplasmin, Liver function tests, CSF, ultrasound abdomen-all were normal. Two consecutive serum manganese level tests in six months interval showed initial rise (two times) with the history of exposure and followed by normal level without the exposure. Patient was started on symptomatic medications like levodopa and trihexiphenidyl but after 8 months of medication (March-October, 2018) he had not showed any significant improvement. The written consent was taken from patient for this study.

**Conclusion**

In view of strong occupational history of manganese exposure, the clinical features and non responsiveness of treatment with levodopa, a possibility of manganese toxicity was strongly considered for this rare case of secondary parkinsonism. Also non adherence with the legal mandate of periodic medical examination of workers exposed to toxic metals with long term consequence is very important factor to be corrected in the developing country like India.
showed that working conditions substantially changed (i.e. difference of one standard deviation) between two waves. Social support and emotional job demands had the highest amounts of substantial changes (17% and 19%), while physical demands remained relatively stable (6% substantial change). After the first two waves, about 12% of workers with a chronic illness left paid employment. Results of discrete-time survival models are expected to be available in 2019 (by the time of the EPICOH conference).

Conclusion Ensuring that working conditions can be adapted to the needs of older workers who have a chronic disease may help to extend working life.

ASSOCIATION BETWEEN WORK AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE REVIEW OF SYSTEMATIC REVIEWS

Herk van der Molen*, Gerda de Groene, Carol Hulshof, Monique Frings-Dresen. Amsterdam UMC, Corneli Institute of Occupational Health, Netherlands Center for Occupational Diseases, Amsterdam Public Health research institute, Amsterdam, Netherlands

Introduction Chronic Obstructive Pulmonary Disease (COPD) is a highly prevalent disease with reported prevalence up to 12%. Although smoking is one of the main factors in causing COPD, evidence from systematic reviews grows that also occupational exposures contribute. To examine whether work-related risk factors are associated with chronic pulmonary obstructive disease (COPD) a review of systematic reviews was performed.

Methods Medline was searched from 2009 until 20 June 2017 for systematic reviews. Systematic reviews were included when outcome data were described in terms of clinically assessed COPD by means of data on lung function and at least two levels of work-related exposure were mentioned (exposed versus non-exposed). One author selected studies and extracted data, two authors assessed study quality with AMSTAR.

Result Eight systematic reviews met the inclusion criteria. In all reviews various exposures to vapour, dusts, gases, and fumes (VGDF) at work are associated with COPD. Most of the included studies are cross-sectional and show a high heterogeneity in population, setting and mostly self-reported - exposures. Two high-quality reviews including meta-analyses show associations and excess risk of COPD for work-related general exposure to VGDF with a summary odds ratio of 1.4 (95% CI 1.19–1.73) and for work exposure to inorganic dust with a mean difference in predicted FEV1 of –5.7% (95%CI: -8.62% to –2.71%).

Discussion Exposure to VGDF at work is associated with a small but increased risk of COPD. More detailed workplace measurements of specific VGDF are warranted to gain an insight into dose-response relationships.

BACKGROUND ASSOCIATION BETWEEN PATTERN OF SHIFT WORK AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE REVIEW OF SYSTEMATIC REVIEWS

Kampanat Wangsan*, Naesinee Chaiear, Kittisak Sawanyawisuth, Paanumas Krisorn. Faculty of Medicine, Khon Kaen University, Muang, Thailand

Introduction Shift work associated with many health problems, work performance and injury. Disturbance of sleep quality is the main mechanism of shift work effects. Nurses are at risk of many occupational hazards and also shift work. The information about shiftwork and the association of sleep quality amongst nurses of Thailand is still limited.

Objective To study the association of shift work and quality of sleep and which pattern has highest risk of poor quality of sleep amongst nurses in university hospital in Northeastern region of Thailand.

Material and method One thousand and one hundred nurses were met inclusion and exclusion criteria with 75.5%(n=831) participation rate. The data was collected via questionnaire including personal information, shift schedule, depression screening questionnaire, obstructive sleep apnea screening questionnaire and sleep quality questionnaire (PSQI). Cross-sectional analytical study was conducted.

Result All patterns of shift work amongst sample were irregular shift work. There were statistically significant association between shift work and poor quality of sleep. Predominant backward shift pattern has higher association.