

chronic solvent encephalopathy, characterised by persistent neurocognitive symptoms, often leading to early retirement. Surprisingly, under detection of CSE occurs even in targeted health screens by occupational health services. The non-specific cognitive findings are challenging to interpret for clinicians and thus the improvement of protocols for the neuropsychological assessment are necessary. Not all exposed develop neurological dysfunction, does epigenetics reveal why neurobehavioural disorders develop. And finally, the question is addressed, does occupational solvent exposure increase the risk of neurodegenerative disease, such as Parkinson disease.

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### 1713a WHY ISN'T CHRONIC SOLVENT ENCEPHALOPATHY DETECTED IN PERIODICAL OCCUPATIONAL HEALTH EXAMINATIONS

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**Introduction** Under detection of occupational diseases is a global challenge (Samant, *et al.* 2015). Chronic Solvent Encephalopathy (CSE) is an occupational disease caused by long term occupational solvent exposure, and characterised by cognitive impairment. In Finland, occupational health services (OHS) screen exposed workers regularly in comprehensive mandatory health examinations with well instructed protocols. Despite the obligatory occupational health examination system, a recent screening project found 18 undetected CSE cases (Furu, *et al.* 2012, 2014). In the present study, we explored the reasons why health check based screening didn't detect occupational CSE cases.

**Methods** In this retrospective study, we collected and analysed the medical journals of the previously detected 18 new CSE cases. Information was gathered from occupational health care units, previous screening project files, and the outpatient clinic of Finnish Institute of Occupational Health. The patient journals are studied on the regularity, frequency, and content of the health checks, were they done by a nurse or a doctor, and how were the instructions about the content actualized. Also, was a suspicion of solvent effects or symptoms raised or if the diagnostic procedure had ceased in some stage.

**Results and discussion** Our results show that health checks had concentrated on screening of common diseases like hypertension and overweight rather than occupational diseases. In addition, the recommended screening protocol was not always followed, and there seems also be lack of knowledge about CSE. These findings suggest that occupational diseases are under detected also in countries with advanced screening procedures.

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### 1713b WRAP UP OF THE EUROPEAN CONSENSUS ON THE NEUROPSYCHOLOGICAL ASSESSMENT OF CSE

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The acute neurotoxic effects of organic solvents are well described in human *in vivo* studies, as well as in experimental studies investigation the neurophysiological mechanisms. Many solvents disturb the fine-tuned balance of excitatory and inhibitory pathways in the brain shifting it into a more inhibitory state. During repeated, occupational exposures to solvents various physiological processes related to neuronal plasticity might be affected. The European Consensus group on chronic solvent encephalopathy (CSE) agreed that the behavioural phenotype of CSE is characterised by impairment performance in various cognitive tasks of domains. During the evaluation of workers suspected to suffer from CSE these different cognitive domains (e.g. attention, memory) and their sub-domains (e.g. delayed recall) should be assessed by standardised neuropsychological. Here, the national associations of neuropsychology should be consulted to provide the most suitable tests. The performance of the patients should be quantified by a scoring system that is based on the test scores of gender-, age-, and education-matched controls. The unweighted average score of the various tests should be used to classify the severity of CSE. During the examination factors like malingering, aggravation, insufficient effort, non-credible performance, or sub-optimal performance should be considered when evaluation the validity of the test performance. Possible comorbidities (e.g. major depression) should be treated and a re-evaluation should be offered. To avoid the occurrence of CSE cases in the future screening programs among solvent-exposed workers are needed, worldwide. Here the European Consensus group recommend a combination of standard questionnaires and neuropsychological screening tests. In general, the fact that occupational exposures to solvents at least in western countries generally decreased during the last decades should not be turned in an argument to reduce health surveillance of workers at risk for CSE.

### 1713c EPIGENETICS IN SOLVENT INDUCED NEUROBEHAVIORAL DISORDERS

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