The Montreal Cognitive Assessment (MoCA)

Brief history
The Montreal Cognitive Assessment (MoCA) was developed by Dr Ziad Nasreddine in Montreal, Canada in 1995 for the detection of mild cognitive impairment (MCI) by health professionals. MCI is a syndrome defined as cognitive decline greater than expected for an individual's age and education level but that does not interfere notably with activities of daily life [1]. The prevalence of MCI in population-based epidemiological studies ranges from 3 to 19% in adults older than 65 years and more than half progress to dementia within 5 years. The MoCA may be useful in the occupational health setting for detecting MCI or early dementia especially as the workforce ages. A comprehensive website provides the test, instructions, normative data, references, frequently asked questions and permissions and updates [2].

Description
The assessment consists of a 30 point test on a single side of A4 and can be administered in 10 min. A score of 26 or above is considered normal. MoCA is free for use by universities, foundations, health professionals, hospitals, clinics and public health institutes. It is available in over 30 languages. The test may be administered by anyone who understands and follows the instructions but the website states that only a health professional with expertise in the cognitive field should interpret the results. In my opinion and experience, the MoCA is suitable and very useful as a convenient screening tool for use in the occupational health clinic by occupational health doctors and nurses. A less than satisfactory score would suggest the need for referral to a specialist for further assessment.

Items
The MoCA assesses several cognitive domains. These are Visuospatial/Executive, Naming, Memory, Attention, Language, Abstraction, Delayed Recall and Orientation (to time and place). Many of the elements are familiar or similar to other tests of cognitive function. Visuospatial abilities are assessed using a clock-drawing task and a trail-making task which is said to be useful in assessing fitness to drive. Attention, concentration and working memory are evaluated using a sustained attention task (target detection using tapping), a serial subtraction task and digits forward and backward.

Validity
The MoCA is validated for use in 55–85 year olds. The original study was carried out on 90 controls, 94 patients with MCI and 93 patients with Alzheimer's Disease [3]. Their average scores were 27.4, 22.1 and 16.2, respectively. The MoCA has been validated in many conditions including MCI, Alzheimer's disease and Parkinson's Disease dementia [3–5]. The MoCA has been found to be superior to the Mini-Mental State Examination (MMSE) as a global assessment tool, particularly in discerning earlier stages of cognitive decline [6]. A review comparing different brief assessment tools for cognitive impairment listed the MoCA's disadvantages as lacking studies in general practice settings, an education bias (12 years), limited use and evidence due to published data being relatively new (2005) and an administration time of over 10 min [7]. The MoCA has been recommended by the National Institutes of Health and the Canadian Stroke Consortium for detection of vascular cognitive impairment and the Canadian Consensus Guidelines for Diagnosis and Treatment of Dementia for detection of Mild Cognitive Impairment and Alzheimer's disease [8]. In the UK, the Alzheimer's Society recommends that the MoCA should be used for cognitive assessment in memory clinics and for outpatient specialist assessment [9].

Key research
The website lists over 70 English language references regarding the use of the MoCA in Alzheimer's Disease and MCI. There are also similar lists of references for its use in a wide range of other conditions including vascular dementia and Parkinson's Disease. There was no research found validating the MoCA in an occupational health setting. The MoCA has been used to assess cognitive decline in manganese workers [10].

References