LETTERS TO THE EDITOR

Pre-employment colour vision testing

Sir,
First please let me heartily congratulate you, your editorial team and our Society for the excellent new look, the extended direction and the full international flavour given to the first issue of Volume 42 of Occupational Medicine.

I was very surprised that just 24 hours after I read the article by N. L. G. McElearney et al. (Occup Med 1992; 42: 19–22) I conducted a pre-employment medical examination on a 23-year-old man. He had been diagnosed at a school health examination (most likely by the 'Ishihara's' test) to have red/green colour blindness. This was confirmed, as such, that morning by the senior occupational health nurse who had utilized the 'City University colour vision test'.

I had identified over 50 colour blind school children during the four years 1984 to 1988 when I served as one of the school health officers in the Mid-Staffordshire District Health Authority area utilizing the simple Ishihara test; but I had not relied on the test results only but proceeded to show the different shades of the colours to which the test indicated the children were colour blind and certified them colour blind only if they could not recognize the colours.

I, therefore, proceeded to show the young man different books, equipment both inside and outside; different flowers and took him to many sections of the big factory and I found out that he could consistently and clearly see and identify all shades of red, green, blue and all other colours. My findings were corroborated by the personnel officer who was allowed to test the man with different shades of all colours.

Perhaps the authors could confirm whether they themselves took any of their failed candidates a stage further using practical tests with everyday objects which might thus qualify them as fit for work and avoid unnecessary rejection for employment.

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Sir,

Drs McElearney, Waddy and Rawll state in their paper on pre-employment colour vision testing (Occup Med 1992; 42: 19–22) that the airline industry sets very high standards of acceptable colour vision for reasons of safety and in this setting the use of the Ishihara screening test is understandable. However, it is reassuring to see that the need for additional appropriate trade tests of vision for those failing the Ishihara test is stressed. The authors' findings are consistent with

the fact that the Ishihara test fails virtually all colour defective observers without giving any indication as to the type and degree of defect (Health and Safety Executive. Guidance Note MS7 Colour Vision. London: HMSO, 1987), and it is further reported (Voke J. Colour vision testing in specific industries and professions. London: Keeler, 1980) that there is very poor correlation between error scores on the Ishihara test and performance on practical tests such as wire sorting. In short, the Ishihara test is an inadequate predictor of the colour defective person's practical ability in many occupational tasks.

In contrast the City University test (adapted from the Farnsworth dichotamous D15 test) claims to separate the 'safe' from the 'unsafe' colour defective employee by failing the 5 per cent of men with a 'significant' colour defect while generally passing the remaining 3 per cent of colour defectives (those with a mild degree of anomalous trichromacy). As the test indicates the type and degree of defect present appropriate pass/fail criteria can be set and advice on individual suitability for specific aspects of occupation may be offered. Furthermore, correlations with practical task error scores appear to be good (see Voke J. above).

In settings in which it is felt necessary to identify as many colour defectives as possible for reasons of safety the Ishihara test is clearly an effective screen, but no more than that. It would certainly be unfortunate if it were to be used as a basis for exclusion from employment without further assessment, and in some occupational settings initial assessment might more appropriately involve a more flexible and quantitative diagnostic test in which the pass/fail mark can be set at a level appropriate to the intended occupation.

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Reply

Sir,

With regard to Professor Sofoluwe’s letter, the objective of trade testing is to standardize such practical tests. The wire test is such an example, so too is the Giles Archer Lantern Test for fitness for airfield driving.

Dr Mounstephen’s letter in which he advocates the setting of a pass/fail score based on the City University test is interesting. The connection that remains to be validated for the City test is between safe/unsafe and pass/fail. At the very least the wire test is a practical safe/unsafe test because either the fellow can or cannot do that which he is required to do.

We are all agreed that a failed Ishihara test must be