

**CMS Briefing – Issued quarterly**  
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Welcome to our first "Briefing". **CMS Briefing** will appear quarterly and include news and briefing on a range of topics.

## **NEWS**

Jane Russell, a psychologist on our team, has persuaded three other team members to form a sponsored Marathon relay team in aid of the charity BRAKE.....



Jane Russell

Lynn Hodge

Michaela McGowan

Liz Newbigging

***Please consider sponsoring them!***  
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### **About CMS**

Our team of psychologists, occupational therapists, case managers, and others provides a range of health-related services.

- Community based rehabilitation and case management
- Medico-legal assessment including quantification reports
- Psychometric assessment for clinical and occupational purposes
- Psychological therapies

We accept medico-legal referrals from pursuer/plaintiff, defender, or joint instruction, and clinical/occupational referrals from GPs, psychiatrists, occupational health and HR departments.

## JOURNAL CLUB: Assessing premorbid ability

**What is premorbid ability?** It is an individual's level of ability before they suffer an injury (e.g. brain injury) or develop an illness (e.g. dementia) which reduces their ability.

**Why is the assessment of premorbid ability useful?** It is important in neuropsychological assessment to gauge how intelligent an individual was so that you can determine whether or not their current abilities are impaired.

**Measures of premorbid IQ include** the National Adult Reading Test (NART), the Wechsler Test of Adult Reading (WTAR), the Cambridge Contextual Reading Test (CCRT), and the Spot-the-Word (STW) test, all tests administered by neuropsychologists.

**A recent paper shows a modest but potentially important limitation on one of these tests - which may apply to the others given that they are based on the same basic principle.** Mathias and his colleagues (from Adelaide, Utah, and Melbourne) report on the Wechsler Test of Adult Reading (WTAR) when used to assess premorbid IQ after traumatic brain injury (TBI)<sup>1</sup>. The test - a good marker for intelligence - is supposedly robust to the effects of TBI, and thereby provides a kind of permanent mark of how intelligent someone was before an injury/illness.

If the test were itself affected by TBI, it would mean at best that caution should be used in interpreting it in such cases. Specifically the authors ask if WTAR performance is affected by TBI in the first year after TBI. They studied 216 TBI cases (a range of *mild*, *moderate*, and *severe* TBI) and a 'control' (comparison) group of 95 cases with orthopaedic injury.

The study showed that 3-6 months post-injury, the WTAR scores of the *severe* TBI group were lowered (and would therefore suggest a lower-than-accurate premorbid IQ) whereas there was no effect on those with *mild* or *moderate* TBI, or in the orthopaedic group. When a subset of the cases was reassessed 6 months later, the effects persisted.

**Caution therefore needs to be used in interpreting the WTAR scores of those who have had *severe* TBI, at least in the first year or so after injury and probably beyond, although the WTAR and the other measures remain a key part of neuropsychological assessment.**

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<sup>1</sup> Mathias JL, Bowden SC, Bigler ED, Rosenfeld JV: Is performance on the Wechsler adult reading test affected by traumatic brain injury? British Journal of Clinical Psychology, 46, 457-466, 2007.

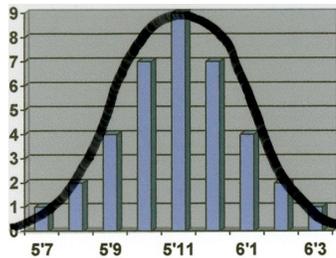
## FEATURED TOPIC - Understanding psychometric test scores

Psychometric tests are used in personnel selection, staff development, and clinical and educational settings. They form a key part of neuropsychological assessment.

These tests are standardised. It's not just a matter of (say) reading the patient a few words, or an address, and asking him/her to remember the information. The questions are carefully designed and graded for difficulty, and the tests are administered in a standard way, with set instructions and scoring methods.

Another key feature of these tests is that there are 'norms'. In the development of the each test, many people (a representative sample) are tested and their scores tabulated. For example, this means that rather than simply saying that John got a score of 10/15, we can go further and say that this places him at the middle of the population, or that a score of 5/15 puts him in the lowest 10% of the population. In other words, we are able to compare his result with that of a large number of others.

This means that the scores are not reported as (e.g.) '5 out of 10', but instead in terms of IQ or Index scores, or centile scores. What do these mean?



**FIGURE 1: Height distribution in a class**  
The most common height is 5'11 (9 people) with fewer and fewer at larger and smaller heights – only 1 person at 5'7 and 1 person at 6'3. The frequency distribution approximates to a NORMAL CURVE.

In order to understand these scores, keep in mind that the biological characteristics of a group – e.g., the height or weight of adult men, or the speed at which they can run – follow the 'normal distribution'. This means that most men are in the middle – e.g., at or near average height – with fewer and fewer men at progressively lower or higher heights. FIGURE 1 shows the heights of male students in a class in the form of a *frequency distribution* which approximates to a *normal curve*.

The frequency distributions of intelligence, memory, and other cognitive scores also approximate to a normal curve. The 'normal' curve is a bell-shaped curve. These curves can be defined by stating the mean (which falls in the middle of the curve) and the standard deviation (which tells you how spread out the curve is).

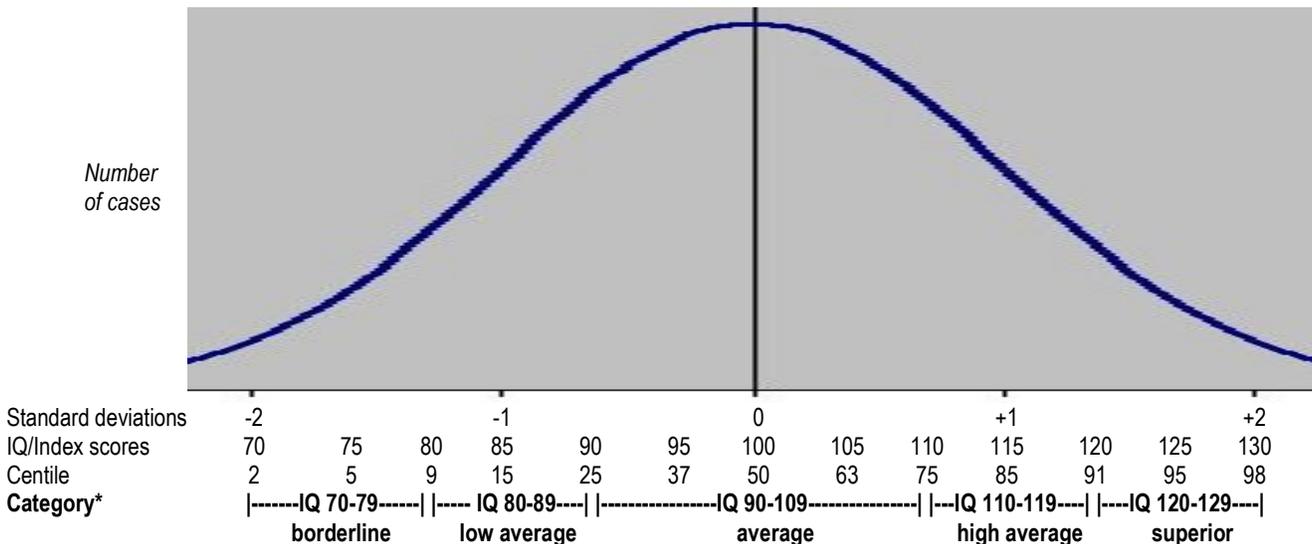
IQ and Index scores are fitted to a 'normal' curve with a mean of 100 and a standard deviation of 15. This means the curve is as in FIGURE 2.

Someone with an IQ of 100 is therefore at the 50<sup>th</sup> centile – as good as or better than 50% of his/her peers. Someone with an IQ of 130 is at the 98<sup>th</sup> centile – as good as or better than 98% of his/her peers, in other words in the top 2%.

Some tests are not IQ or Index-type tests and simply provide a score which can be compared to the mean and standard deviation of comparison groups. This however also allows a centile to be calculated.

For this reason many psychologists choose centile scores as the most straightforward and meaningful way to sum up test scores. FIGURE 2 shows the correspondence between centile scores, IQ/Index scores, and categories like 'Low Average'.

**FIGURE 2: Normal curve and IQ scores, centile scores, and ability categories**



\*These are Wechsler scale IQ categories. In addition, **less than IQ 70 is extremely low** (formerly "subnormal"); **IQ 130+ is very superior**.

In May 2008, staff at Case Management Services Ltd will be running the **'Hairy Haggis' Team Relay in the Edinburgh Marathon** to raise money for the charity, **Brake**. The marathon is 26.4 miles and will be split between four staff at CMS: Michaela McGowan, Lynn Hodge, Liz Newbigging and Jane Russell.

**Brake** is a national road safety charity with two aims:

- To prevent death and injury on the roads through education of all road users and campaigning for Government improvements to road safety.
- To care for people who are bereaved or affected by serious injury in a road crash through support services, including a helpline and literature distributed through police officers.

Road crashes are the most common cause of head injury, with between 40% and 50% of all brain injuries being due to the person being involved in some kind of collision on the road – whether in a car, on a bike or walking. Every day on UK roads, nine people are killed and 82 are seriously injured. Many casualties involve children and young people – road crashes are the biggest killer of 15-24 year-olds and the second biggest killer of children.

As brain injury case managers we know, all too well, the implications a head injury has on victims and their families. We feel it is extremely important to try and reduce the number of these and we would like to offer our support to **Brake**.

The marathon takes place in Edinburgh on **Sunday 25 May 2008** at 9am.

We would be most grateful for your support in this event. You can sponsor us online at: [www.justgiving.com/CMSfundraising](http://www.justgiving.com/CMSfundraising).



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**PRIZE QUESTION** - each [CMS Briefing](#) contains a prize question.

Can you identify this "cottage" and the town in which it is located?

Answers by e-mail to [maureen.murdoch@caseman.co.uk](mailto:maureen.murdoch@caseman.co.uk) by Friday 14 March 2008

A bottle of *Maker's Mark* bourbon for the lucky winner (the first correct entry drawn).  
(Answer and winner will be announced in the next "CMS Briefing".)

