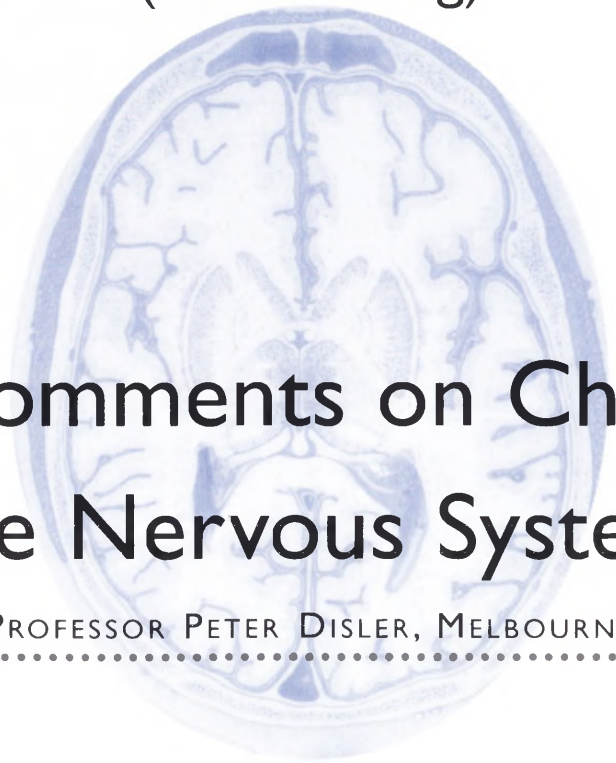
The American Medical Association Guides to the Evaluation of Permanent Impairment 4th Edition (3rd Printing)



Some comments on Chapter 4: The Nervous System*

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The author is a representative of Melbourne University in the consortium (Melbourne and Monash Universities) contracted by the Transport Accident Commission and Victorian Workcover Authority to develop a teaching program on the 4th edition of the AMA Guides for medical specialists in Victoria.[1] Here he explains and analyses Chapter 4.

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Impairment is a concept that is often difficult to understand and even more difficult to measure scientifically.

The modern definition is based on the landmark writings of Philip Wood in the late 1970's leading to the publication of the first classification of "Impairments, Disabilities and Handicaps" by the World Health Organisation in 1980. In this, 'impairment' was defined as *"any loss or abnormality of psychological, physical or anatomical structure or function"* and was placed at the "organ level" e.g. loss of a leg, hemiplegia or cardiac failure. This is independent of the disease which causes it, e.g. in the case of amputation, irrespective of whether this is trauma, diabetic vascular disease or cancer.

This paradigm forms the basis of the Guides to the Measurement of

Permanent Impairment published by the American Medical Association, now in its 4th edition. A 5th edition is soon to be published.

Chapter 4 of the 4th edition deals with the Nervous System, and is commonly used in medico-legal reporting, particularly with respect to traumatic brain injury. Chapter 4 contains several significant changes from the comparable Chapter 2 of the well-known second edition.

This chapter is constructed according to the standard approach to clinical examination taught to medical students:

4.1 **Central Nervous System:** ie Cerebrum or forebrain (*within skull, above the tentorium of the posterior fossa)*

4.2 **Brain stem:** *midbrain, pons, cerebellum & medulla*

4.3 **Spinal Cord**

4.4 **Muscular and Peripheral Nervous Systems**

Section 4.5 deals cursorily with **Pain**, noting only that the chapters on the individual organ systems "make allowance for pain that may accompany the impairing conditions", and that the "Chronic pain syndrome" is evaluated in the later chapter on pain (which has been specifically excluded in Victorian law). Comment is also made that "Impairment due primarily to intractable pain can greatly influence an individual's ability to function. Psychological factors can influence the degree and perception of pain". In my view, this is a very superficial and inadequate approach to the complex topic of pain, a topic which is outside the scope of this review however.

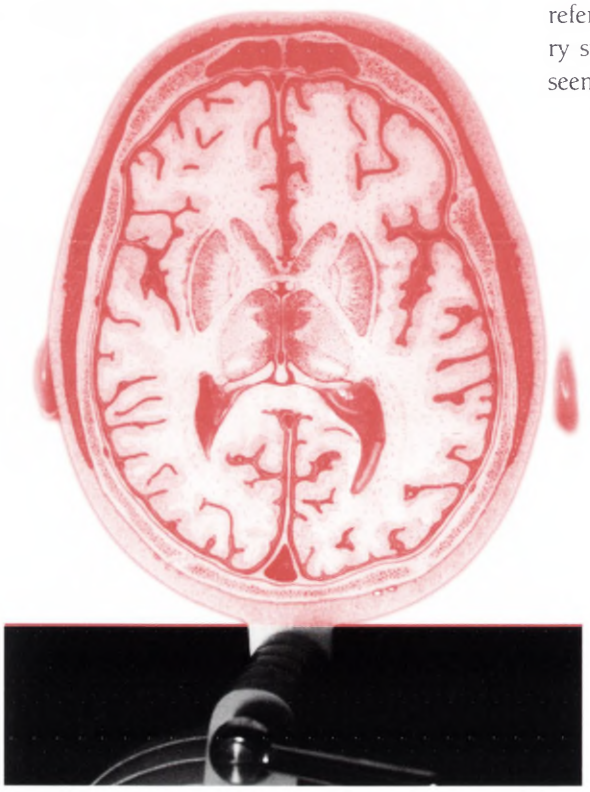
4.1 **Central Nervous System**

This includes:

1 Disturbances of consciousness & awareness
2 Aphasia or communication disturbances
3 Mental status & integrative functioning abnormalities
4 Emotional or behavioural disturbances
5 Special types of preoccupation or obsession
6 Major motor or sensory abnormalities
7 Movement disorders
8 Episodic neurological disorders
9 Sleep and arousal disorders

Of these, the category of "Special types of preoccupation or obsession" is defined no further, and very difficult to understand. It surely fits better in the psychiatric assessment.

In addition, for assessment of "Sleep and arousal disorders", the examiner is referred to the chapter on the respiratory system (p.153), and what is written seems to refer mainly to Obstructive Sleep Apnoea or narcolepsy. The important aspect of sleep disturbance, so often stressed by patients, is therefore not clarified, although it is noted that sleep disturbance can cause depression, irritability, interpersonal difficulties and social problems.



"the measurement of impairment is not always easy, and this is far more true of the neurological than the musculo-skeletal chapters."

Significant change #1

The 4th edition states clearly that impairment assessment is based on the most severe of #1-5 combined separately with each of #6-9.

This is an important difference from the 2nd edition, which did not make this calculation clear, and indeed implied that the highest of all of the above should be seen to reflect the whole.

As such it was often argued by barristers for the defendants that the cognitive deficits of brain injury could not be combined with motor impairment (eg hemiparesis) which made no clinical sense, and underestimated the effect of brain injury. Such an argument no longer holds water.

The examination

The examiner is instructed to first determine whether aphasia is present (as this is said to be "paramount to the evaluation". It is stressed that the "patient must be awake, alert and cooperative" and be capable, *inter alia,* of naming objects by sight, repeating speech, following commands (oral or written), reading and understanding text, writing, spelling and pantomiming.

In addition it is noted that mood, including depression, can modify cerebral function and that the level of education, "also a modifier", should be determined.

Although these demands make sense, they are reasonably stringent. In addition, the guidelines provided for assessing the quoted parameters are relatively vague, particularly in comparison to the precise angles of movement prescribed in the musculo-skeletal chapters. It is thus left largely to the clinical acumen of the medical examiner as to whether the assessment can be deemed valid. While most medical specialists would applaud this, it does perhaps leave the path open to lengthy debate in the court room.

Disorders of the motor system, bladder, and bowel

Most of these assessments have not changed greatly in the new edition. There are minor changes of quantum, cf the example given below, the assessment of station and gait.

SPINAL CORD: STATION AND GAIT

2nd edition

- Difficulty with elevations, stairs, 5-20%
- Can walk "some distance" on level ground, 25-35 %
- Stand but can't walk, 40-60%
- Can't stand, 65%

4th edition

- Difficulty with elevations, stairs, 1-9%
- Can walk "some distance" on level ground, 10-19%
- Stand but can't walk, 20-39%
- Can't stand, 40-60%

In this instance the 4th edition assessment would be lower at each level, however in other instances the 4th edition is more generous, eg olfactory nerve deficit is now up to 5% in comparison to the 3% in the 2nd edition.

Cognitive deficits

I mentioned at the outset that the measurement of impairment is not always easy, and this is far more true of the neurological than the musculoskeletal chapters. In fact, impairment in many instances is expressed only in terms of the disability, an often loosely used term, but one which was described precisely by the WHO as "a restriction (resulting from impairment) of the ability to perform an activity in the manner or within the range considered normal for a human being". This therefore relates to the function of the whole body, and does not rest at the organ level. The effect of this in the 4th edition is shown in the box below:

Significant change #2

Both the 2nd and 4th editions evaluate aspects of neurological impairment in terms of the ability to perform activities of daily living (ADL) eg. terms of cognitive status. The 4th edition allows 1-14% if the person can perform most ADL satisfactorily, and 15-29% if supervision of ADL is required.

However the 4th edition defines ADL in the glossary in much more detail than in the 2nd, ie to include *self care, communication, physical activity, sensory function, hand functions, travel, sexual function, sleep, social and recreational function.* Similarly on page 1/1 the lists "include, but are not limited to...caring for the home, personal finances...and work activities."

This is extremely important in a person with mild to moderate traumatic brain injury. Many such patients can care for themselves in terms of personal hygiene, and even in their homes. However, as a result of their cognitive and behavioural problems they fail to cope in the community, and cannot maintain personal relationships and vocational activities. I have always been concerned that they have been under-compensated using the 2nd edition. Hopefully the 4th edition will assess them more appropriately.

Postscript

It is frightening, and even demeaning for people to be viewed as a rubric on a table, rather than as a person who has suffered greatly, often through no fault of their own, and then be told they have not had a "serious" injury. They *know* they have.

As George Canning, the liberal MP (and later Prime Minister) said to the British House of Commons in 1801, "Away with the cant of 'measures not men (*sic*)'...if the comparison must be made, if the distinction must be taken, men (*sic*) are everything, measures comparatively nothing." PL

Footnotes:

* This article is based in part on talks given to APLA members earlier this year, at the Victorian APLA conference at Mt Buffalo, and at a 4th edition course in Melbourne.

[1] NB DISCLAIMER

The views presented here reflect my personal opinion, and should not be seen to be representative of any organisation by which I am employed, or with which I am associated.