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Use of diagnostic imaging in Australian general practice

The BEACH program, a continuous national study of general practice activity in Australia, gives us an overview of diagnostic imaging ordered by Australian general practitioners. This provides a backdrop against which the theme articles in this issue of *Australian Family Physician* can be further considered.

The general practitioners participating in this study were asked to record (in free text) any imaging tests ordered or undertaken at the encounter and to nominate the patient problem(s) associated with each order placed. This allows the linkage of test orders to a single problem or multiple problems. Up to two orders for imaging could be recorded at each encounter. A single test may have been ordered for the management of multiple problems, and multiple tests may have been used in the management of a single problem. They also recorded the body site for any imaging ordered (eg. X-ray chest, computerised tomography [CT] head).

Changes in imaging ordering

Between 1998–1999 and 2004–2005 there was a significant increase in the proportion of encounters generating one or more imaging test orders. The likelihood of having imaging ordered at the encounter increased from 6.3 to 7.3% of encounters (16% increase) over that period.

Imaging orders at each encounter

There were no tests recorded at the majority (92.7%) of encounters. At least one imaging test was ordered at 7.3% of encounters (5.2% of problems managed). There were 8.3 imaging tests ordered per 100 encounters. The distribution of imaging tests by Medicare Benefits Schedule (MBS) group are presented in decreasing frequency order, with each group expressed as a rate per 100 encounters. Diagnostic radiology was the most common, at a rate of 4.5 per 100 encounters (*Figure 1*).

Problems for which imaging tests were ordered

The most common problems for which imaging was ordered are presented in decreasing frequency order of problem-imaging combinations. Problem distributions are shown for total imaging orders and for each specific MBS imaging group. There were 8286 problem-imaging combinations recorded in BEACH in 2004–2005. Back complaint was the problem for which any imaging was most frequently ordered, closely followed by osteoarthritis, fracture, sprain/strain and other musculoskeletal injuries.

There were 4456 diagnostic radiology problem-imaging combinations recorded making up over half of all imaging orders. Musculoskeletal problems constituted the five most frequent problem-imaging combinations led by fracture as the most common problem.

There were 2723 ultrasound problem-imaging combinations with investigation of abdominal pain the most common problem followed by pregnancy and menstrual problems.

There were 973 CT scan problem-imaging combinations. Back complaints resulted in almost one in 5 of the scans ordered. Scans for head and neck problems constituted another fifth of all orders for CT scans.

There were only 100 nuclear medicine problem-imaging combinations recorded in BEACH in 2004–2005 with fracture, chest pain and back complaint comprising the three most common problems.

There were only 34 problem-imaging combinations recorded for magnetic resonance imaging (MRI), due no doubt to the limitation of GP ordering of MRI in the MBS.

Back complaint constituted almost one-fifth of combinations with knee MRI making up nearly another fifth.

Discussion

There has been a significant rise in the use of diagnostic imaging over the past decade and this can be expected to continue with the introduction of new imaging techniques. BEACH data suggest generally appropriate selection of imaging techniques by GPs in Australia. An exception is the

use of CT scans for investigating back complaints when MRI is the more appropriate modality. This exception is probably induced by the lack of MBS rebates for MRI referral by GPs and the lack of availability of MRI in some areas.

Conflict of interest: none declared.

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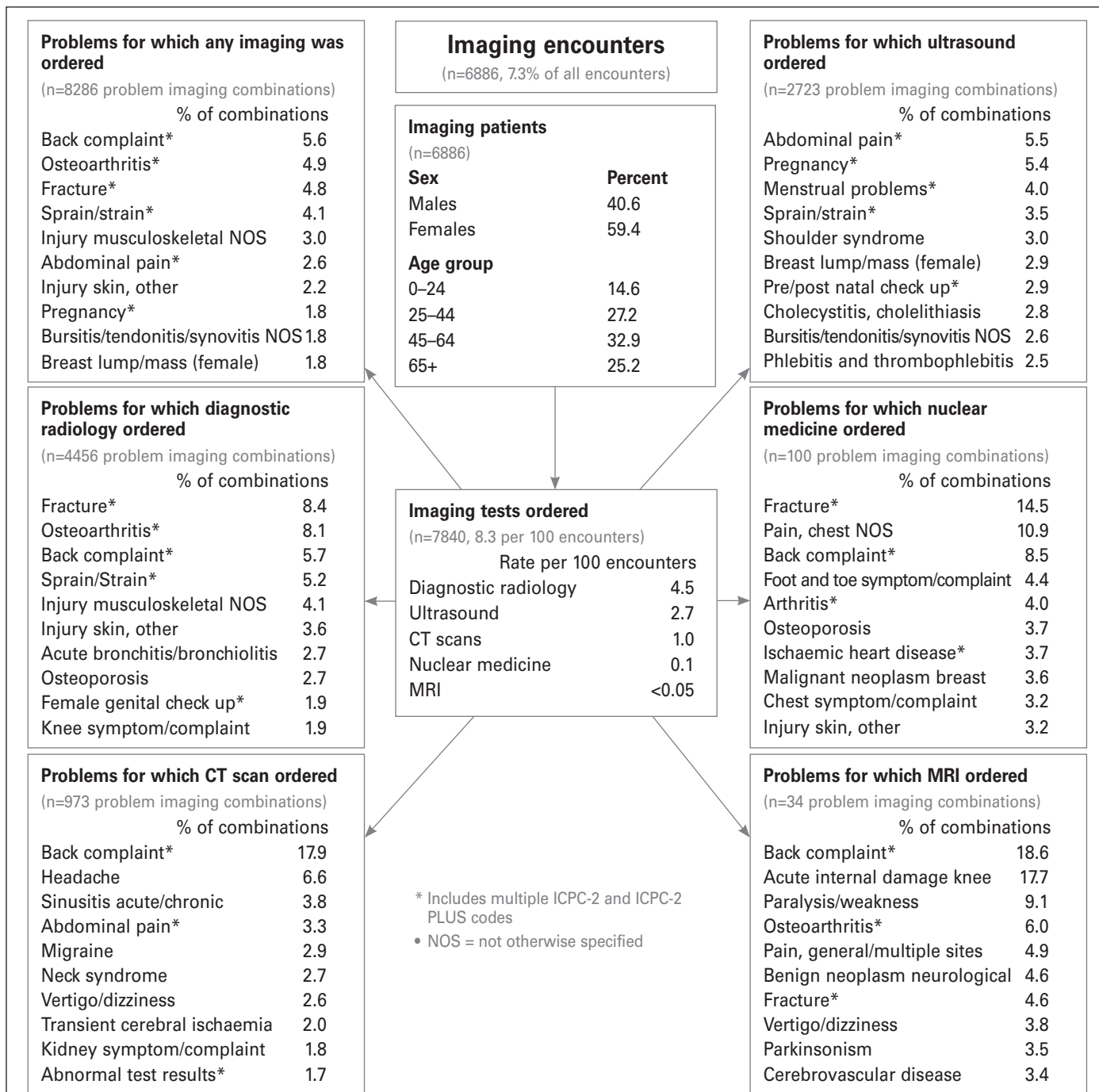


Figure 1. Imaging orders at general practice encounters