

# 10 Tests and investigations

The GPs participating in the study were asked to record (in free text) any pathology, imaging or other tests ordered or undertaken at the encounter and to nominate the patient problem(s) associated with each test order placed. This allows the linkage of test orders to a single problem or multiple problems. Up to five orders for pathology and two for imaging and other tests 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.

A pathology test order may be for a single test (e.g. Pap smear, HbA1c) or for a battery of tests (e.g. lipids, full blood count). Where a battery of tests was ordered, the battery name was recorded rather than each individual test. GPs also recorded the body site for any imaging ordered (e.g. X-ray chest, CT head).

This chapter describes differences that arose across RRMA and ASGC Remoteness categories. For a summary of findings in each individual RRMA category or trends with ASGC Remoteness, please refer to Chapter 11 – Summary of results.

## 10.1 Rates of tests and investigations

There were no tests recorded for the vast majority of problems managed. In the national sample, at least one pathology test was ordered for 11.8% of problems managed and at least one imaging test was ordered for 5.0% of problems managed. Pathology tests were recorded at a rate of 23.4 per 100 problems and imaging tests at a rate of 5.6 per 100 problems (Table 10.1(a)).

### RRMA

Table 10.1(a) compares the number of tests and investigations ordered across RRMA categories. All reported differences were statistically significant ( $p < 0.05$ ). The majority of encounters involved the management of only one problem. Compared with the national average:

- Capital Cities had a lower rate of pathology test ordering, all rural and remote areas had higher pathology ordering rates, and pathology test ordering rates tended to increase across the rural and remote zones
- there were higher rates of imaging orders in Other Metropolitan Centres, Small Rural Centres and Remote Centres
- the rural and remote zones had larger proportions of problems at which at least one pathology test was ordered, and Capital Cities a smaller proportion
- Other Metropolitan Centres, Small Rural Centres, Other Rural Areas and Remote Centres all had a higher percentage of problems which resulted in least one imaging test.

## **ASGC Remoteness**

Table 10.1(b) compares the number of tests and investigations ordered across ASGC Remoteness categories. All reported differences were statistically significant ( $p < 0.05$ ) unless otherwise stated.

- Outer Regional Australia and Remote Australia had higher than average rates of pathology ordering and Major Cities a lower rate, with an increasing trend in pathology ordering rates with increasing remoteness.
- Inner Regional Australia, Outer Regional Australia and Remote Australia had a higher than average proportion of problems at which at least one pathology test was ordered and Major Cities a lower rate, with an increasing trend for problems to receive a test order with increasing remoteness.
- There were no differences in the number of imaging tests ordered per 100 encounters across ASGC categories; however, in Outer Regional Australia there was a higher than average proportion of problems for which at least one imaging test was ordered.

**Table 10.1(a): Test and investigation rates by RRMA**

Rate per 100 problems managed, 95% confidence interval, column specific								
	Capital City (n=389,383)	Other Metropolitan (n=44,073)	Large Rural Centre (n=35,724)	Small Rural Centre (n=37,622)	Other Rural Area (n=73,513)	Remote Centre (n=4,302)	Other Remote Area (n=6,947)	Australia (n=591,564)
<b>Number of problems 2000–2004<sup>(a)</sup></b>								
Pathology test	22.2 (21.6–22.7)	24.6 (22.8–26.3)	25.6 (24.0–27.3)	25.6 (24.1–27.1)	26.2 (25.0–27.4)	32.8 (27.6–37.9)	29.0 (24.0–34.0)	23.4 (23.0–23.9)
<b>Number of problems 1999–2004<sup>(b)</sup></b>	(n=490,244)	(n=55,517)	(n=48,071)	(n=47,525)	(n=93,497)	(n=4,850)	(n=8,436)	(n=748,140)
Imaging test	5.3 (5.2–5.5)	6.3 (5.8–6.9)	5.6 (4.9–6.4)	6.1 (5.8–6.5)	6.0 (5.7–6.3)	7.2 (5.8–8.7)	5.8 (4.9–6.6)	5.6 (5.5–5.7)
Per cent of problems with at least one investigation, 95% confidence interval, column specific								
Pathology test	11.2 (11.0–11.5)	12.2 (11.5–13.0)	13.1 (12.3–14.0)	12.7 (12.0–13.4)	13.2 (12.7–13.7)	15.6 (13.6–17.5)	14.6 (12.5–16.7)	11.8 (11.6–12.0)
Imaging test	4.8 (4.7–4.9)	5.7 (5.2–6.2)	5.0 (4.5–5.5)	5.5 (5.2–5.9)	5.5 (5.2–5.7)	6.8 (5.5–8.1)	5.3 (4.5–6.1)	5.0 (4.9–5.1)

**Table 10.1(b): Test and investigation rates by ASGC Remoteness**

Rate per 100 problems managed, 95% confidence interval, column specific						
	Major Cities (n=407,482)	Inner Regional Australia (n=116,378)	Outer Regional Australia (n=56,160)	Remote Australia (n=8,248)	Very Remote Australia (n=3,296)	Australia (n=591,564)
<b>Number of problems 2000–2004<sup>(a)</sup></b>						
Pathology test	22.3 (21.8–22.9)	24.7 (23.9–25.5)	27.4 (25.9–28.8)	28.8 (24.8–32.9)	31.8 (23.7–39.9)	23.4 (23.0–23.9)
<b>Number of problems 1999–2004<sup>(b)</sup></b>	(n=513,614)	(n=149,745)	(n=71,073)	(n=10,122)	(n=3,586)	(n=748,140)
Imaging test	5.4 (5.3–5.6)	5.9 (5.6–6.2)	6.0 (5.7–6.3)	6.0 (5.1–6.9)	5.2 (3.8–6.5)	5.6 (5.5–5.7)
Per cent of problems with at least one investigation, 95% confidence interval, column specific						
Pathology test	11.3 (11.0–11.5)	12.5 (12.1–12.9)	13.9 (13.3–14.6)	15.1 (13.4–16.9)	15.1 (11.8–18.5)	11.8 (11.6–12.0)
Imaging test	4.9 (4.8–5.0)	5.3 (5.1–5.5)	5.5 (5.2–5.8)	5.5 (4.7–6.3)	4.8 (3.6–6.0)	5.0 (4.9–5.1)

(a) Limited to April 2000 to March 2004 inclusive due to older pathology codes in Years 1 and 2.

(b) Limited to April 1999 to March 2004 inclusive due to older imaging codes in Year 1.

Note: Shading indicates a significant difference between an ASGC and Australia (total sample). Darker shading indicates a higher than average result and lighter shading indicates a lower than average result.

## 10.2 Distribution of pathology orders across MBS pathology groups

The top 10 most frequently ordered pathology tests were the basis for selection for individual test reporting in this section. The top 10 ordered by all GPs (nationally) were mainly reflected in the orders by region; however, there were some differences in the order of frequency. HbA1c and coagulation studies entered the top 10 in the Outer Regional Australia and Remote Australia ASGC categories and were therefore added to the list for comparison.

### RRMA

Table 10.2(a) shows the distribution of pathology orders across Medicare Benefits Schedule (MBS) pathology groups and the most common tests in each group by RRMA categories. All reported differences were statistically significant ( $p < 0.05$ ). Compared with the national average:

- chemistry tests were ordered at a higher rate in Other Rural Areas and in Remote Centres
- EUC was ordered at a lower rate in Capital Cities and at a higher rate in Small Rural Centres and Other Rural Areas
- multi-biochemical analysis was ordered at higher rates in Other Metropolitan Centres
- HbA1c had a higher rate of ordering in both Other Rural and Other Remote Areas
- haematology tests (particularly full blood count (FBC) and erythrocyte sedimentation rate (ESR)) were ordered at lower rates in Capital Cities and at higher rates in Small Rural Centres, Other Rural Areas and Remote Centres
- ESR and coagulation studies were ordered at higher rates in Other Rural Areas and coagulation studies were lower in Other Metropolitan Centres
- microbiology tests were ordered at a higher rate in the remote zone, while tissue pathology was ordered at a higher rate in Large Rural Centres and Other Rural Areas.

### ASGC Remoteness

Table 10.2(b) shows the distribution of pathology orders across MBS pathology groups and the most common tests in each group by ASGC categories. All reported results were statistically significant ( $p < 0.05$ ).

- Glucose tests order rates were higher than average in Outer Regional Australia.
- Haematology order rates were generally higher outside the Major Cities. FBCs were ordered at higher rates in Inner and Outer Regional Australia and ESR at higher rates in Inner Regional Australia compared with the national average.
- Coagulation studies were ordered at higher than average rates in Outer Regional and Remote Australia, but not Very Remote Australia.
- Tissue pathology order rates were higher than average across Inner Regional, Outer Regional and Remote Australia, but not Very Remote Australia.
- The rate of microbiology test orders increased with increasing remoteness.
- The rate of chemistry orders increased with increasing remoteness – in particular EUC and HbA1c orders.

Table 10.2(a): Distribution of pathology orders across MBS pathology groups by RRMA

Pathology test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific							
	Capital City (n=389,383)	Other Metropolitan (n=44,073)	Large Rural Centre (n=35,724)	Small Rural Centre (n=37,622)	Other Rural Area (n=73,513)	Remote Centre (n=4,302)	Other Remote Area (n=6,947)	Australia (n=591,564)
<b>Chemistry</b>	11.8 (11.5–12.2)	12.5 (11.6–13.5)	13.3 (12.2–14.4)	13.5 (12.6–14.5)	<b>14.1 (13.3–14.8)</b>	<b>16.4 (13.0–19.7)</b>	14.0 (11.0–17.0)	12.4 (12.2–12.7)
Lipids*	2.3 (2.2–2.4)	2.1 (1.8–2.3)	2.3 (2.0–2.6)	2.3 (2.0–2.5)	2.5 (2.3–2.7)	2.3 (1.4–3.1)	2.4 (1.6–3.2)	2.3 (2.2–2.4)
EUC*	<b>1.4 (1.3–1.4)</b>	1.3 (1.1–1.5)	1.8 (1.5–2.1)	<b>2.1 (1.8–2.4)</b>	<b>2.2 (2.0–2.5)</b>	2.5 (1.6–3.4)	1.9 (1.1–2.6)	1.6 (1.5–1.6)
Liver function*	1.5 (1.4–1.5)	1.2 (1.1–1.4)	1.6 (1.4–1.8)	1.6 (1.4–1.8)	1.7 (1.5–1.9)	2.1 (1.5–2.8)	1.7 (1.0–2.3)	1.5 (1.4–1.6)
Glucose—all*	1.5 (1.4–1.5)	1.4 (1.2–1.6)	1.3 (1.1–1.6)	1.6 (1.4–1.8)	1.6 (1.4–1.8)	1.9 (1.1–2.6)	1.1 (0.7–1.5)	1.5 (1.4–1.5)
Thyroid function*	1.2 (1.1–1.2)	1.3 (1.1–1.5)	1.5 (1.3–1.7)	1.4 (1.3–1.6)	1.3 (1.2–1.4)	1.7 (1.1–2.2)	1.5 (1.1–2.0)	1.3 (1.2–1.3)
Multi-biochemical analysis*	0.8 (0.7–0.9)	<b>1.4 (1.1–1.7)</b>	1.0 (0.8–1.3)	0.8 (0.6–1.0)	0.9 (0.7–1.1)	1.0 (0.3–1.7)	0.9 (0.4–1.4)	0.9 (0.8–0.9)
HbA1c	0.5 (0.4–0.5)	0.5 (0.4–0.5)	0.6 (0.5–0.7)	0.6 (0.5–0.7)	<b>0.7 (0.6–0.8)</b>	1.0 (0.4–1.5)	<b>0.9 (0.6–1.2)</b>	0.5 (0.5–0.5)
<b>Haematology</b>	<b>4.1 (4.0–4.2)</b>	4.6 (4.2–5.1)	5.1 (4.6–5.5)	<b>5.4 (5.0–5.8)</b>	<b>5.8 (5.4–6.1)</b>	<b>6.4 (5.0–7.7)</b>	5.4 (4.3–6.5)	4.5 (4.4–4.6)
Full blood count	<b>2.9 (2.8–2.9)</b>	3.2 (2.9–3.5)	3.5 (3.2–3.8)	<b>3.8 (3.4–4.1)</b>	<b>3.8 (3.5–4.0)</b>	<b>4.5 (3.6–5.4)</b>	3.7 (2.8–4.6)	3.1 (3.0–3.2)
Erythrocyte sedimentation rate	<b>0.6 (0.6–0.6)</b>	0.8 (0.7–1.0)	0.9 (0.7–1.0)	0.8 (0.7–0.9)	<b>1.0 (0.9–1.1)</b>	0.8 (0.4–1.1)	0.7 (0.3–1.0)	0.7 (0.7–0.7)
Coagulation	0.5 (0.4–0.5)	<b>0.3 (0.3–0.4)</b>	0.4 (0.4–0.5)	0.5 (0.4–0.6)	<b>0.8 (0.7–0.9)</b>	0.5 (0.2–0.8)	0.7 (0.5–1.0)	0.5 (0.5–0.5)
<b>Microbiology</b>	3.5 (3.4–3.6)	4.2 (3.7–4.7)	3.9 (3.5–4.4)	3.7 (3.3–4.0)	3.4 (3.1–3.6)	<b>6.7 (4.9–8.5)</b>	<b>5.8 (4.3–7.2)</b>	3.6 (3.5–3.7)
Urine MC&S*	1.2 (1.1–1.2)	1.3 (1.2–1.5)	1.3 (1.1–1.4)	1.2 (1.0–1.3)	1.1 (1.0–1.2)	1.5 (1.0–2.1)	1.5 (1.1–2.0)	1.2 (1.1–1.2)

(continued)

Table 10.2(a) (continued): Distribution of pathology orders across MBS pathology groups by RRMA

Pathology test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific							
	Capital City (n=389,383)	Other Metropolitan (n=44,073)	Large Rural Centre (n=35,724)	Small Rural Centre (n=37,622)	Other Rural Area (n=73,513)	Remote Centre (n=4,302)	Other Remote Area (n=6,947)	Australia (n=591,564)
<b>Cytology</b>	1.4 (1.3–1.4)	1.6 (1.3–1.9)	1.5 (1.3–1.8)	1.4 (1.2–1.7)	1.2 (1.0–1.4)	1.3 (0.7–1.8)	1.3 (0.8–1.8)	1.4 (1.3–1.4)
Pap smear*	1.3 (1.3–1.4)	1.6 (1.3–1.8)	1.5 (1.3–1.7)	1.4 (1.1–1.6)	1.2 (1.0–1.4)	1.2 (0.7–1.7)	1.3 (0.7–1.8)	1.4 (1.3–1.4)
<b>Other NEC</b>	0.5 (0.5–0.6)	0.5 (0.4–0.5)	0.4 (0.3–0.5)	0.5 (0.4–0.6)	0.5 (0.4–0.6)	0.7 (0.3–1.1)	1.1 (0.6–1.6)	0.5 (0.5–0.6)
<b>Infertility/pregnancy</b>	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.2)	0.2 (0.1–0.3)	0.2 (0.1–0.2)	0.2 (0.1–0.4)	0.3 (0.1–0.6)	0.2 (0.2–0.2)
<b>Tissue pathology</b>	0.3 (0.2–0.3)	0.5 (0.3–0.6)	<b>0.8</b> <b>(0.6–1.0)</b>	0.5 (0.4–0.6)	<b>0.5</b> <b>(0.5–0.6)</b>	0.6 (0.3–0.9)	0.6 (0.3–0.8)	0.4 (0.3–0.4)
<b>Immunology</b>	0.3 (0.3–0.3)	0.4 (0.3–0.5)	0.4 (0.3–0.5)	0.3 (0.2–0.4)	0.4 (0.4–0.5)	0.5 (0.2–0.8)	0.4 (0.2–0.6)	0.3 (0.3–0.4)
<b>Simple basic tests</b>	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.1)	0.1 (0.0–0.2)	0.1 (0.0–0.3)	0.1 (0.0–0.1)
<b>Total pathology tests</b>	<b>22.2</b> <b>(21.6–22.7)</b>	<b>24.6</b> <b>(22.8–26.3)</b>	<b>25.6</b> <b>(24.0–27.3)</b>	<b>25.6</b> <b>(24.1–27.1)</b>	<b>26.2</b> <b>(25.0–27.4)</b>	<b>32.8</b> <b>(27.6–37.9)</b>	<b>29.0</b> <b>(24.0–34.0)</b>	<b>23.4</b> <b>(23.0–23.9)</b>

(a) Figures do not total 100 as more than one pathology test can be ordered at each encounter and for each problem.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3, <<http://www.aihw.gov.au/publications/index.cfm/title/10171>>).

Note: Limited to April 2000 to March 2004 inclusive due to older pathology codes in Years 1 and 2. Shading indicates a significant difference between a RRMA and Australia (total sample). Darker shading indicates a higher than average result and lighter shading indicates a lower than average result. EUC—electrolytes, urea & creatinine; MC&S—microscopy, culture & sensitivity; NEC—not elsewhere classified.

**Table 10.2(b): Distribution of pathology orders across MBS pathology groups by ASGC Remoteness**

Pathology test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific					
	Major Cities (n=407,482)	Inner Regional Australia (n=116,378)	Outer Regional Australia (n=56,160)	Remote Australia (n=8,248)	Very Remote Australia (n=3,296)	Australia (n=591,564)
<b>Chemistry</b>	11.9 (11.6–12.2)	13.1 (12.6–13.7)	<b>14.4</b> <b>(13.4–15.3)</b>	14.5 (11.6–17.3)	15.6 (10.5–20.6)	12.4 (12.2–12.7)
Lipids*	2.3 (2.2–2.4)	2.3 (2.1–2.4)	2.6 (2.4–2.9)	2.5 (1.6–3.3)	2.8 (1.4–4.1)	2.3 (2.2–2.4)
EUC*	<b>1.4</b> <b>(1.3–1.4)</b>	<b>1.9</b> <b>(1.7–2.1)</b>	<b>2.3</b> <b>(2.0–2.5)</b>	2.1 (1.4–2.8)	2.5 (1.0–4.0)	1.6 (1.5–1.6)
Liver function*	1.4 (1.4–1.5)	1.6 (1.5–1.7)	1.7 (1.5–1.9)	1.7 (1.2–2.1)	2.0 (0.7–3.2)	1.5 (1.4–1.6)
Glucose—all*	1.4 (1.4–1.5)	1.4 (1.3–1.5)	<b>1.8</b> <b>(1.6–2.0)</b>	1.3 (0.9–1.8)	1.1 (0.5–1.7)	1.5 (1.4–1.5)
Thyroid function*	1.2 (1.2–1.3)	1.3 (1.2–1.4)	1.4 (1.2–1.5)	1.5 (1.1–1.8)	1.5 (0.9–2.1)	1.3 (1.2–1.3)
Multi-biochemical analysis*	0.9 (0.8–1.0)	1.0 (0.8–1.1)	0.6 (0.5–0.8)	0.7 (0.3–1.1)	1.1 (0.2–1.9)	0.9 (0.8–0.9)
HbA1c	0.5 (0.4–0.5)	<b>0.6</b> <b>(0.6–0.7)</b>	<b>0.7</b> <b>(0.6–0.8)<sup>†</sup></b>	<b>1.1</b> <b>(0.6–1.5)<sup>†</sup></b>	1.0 (0.5–1.5)	0.5 (0.5–0.5)
<b>Haematology</b>	<b>4.2</b> <b>(4.0–4.3)</b>	<b>5.2</b> <b>(4.9–5.4)</b>	<b>5.7</b> <b>(5.3–6.1)</b>	5.4 (4.4–6.4)	5.8 (3.9–7.7)	4.5 (4.4–4.6)
Full blood count	2.9 (2.8–3.0)	<b>3.5</b> <b>(3.3–3.7)</b>	<b>3.8</b> <b>(3.5–4.1)</b>	3.2 (2.5–3.8)	4.4 (3.0–5.8)	3.1 (3.0–3.2)
Erythrocyte sedimentation rate	0.6 (0.6–0.7)	<b>0.9</b> <b>(0.8–1.0)</b>	0.8 (0.7–0.9)	0.8 (0.5–1.1)	0.6 (0.1–1.1)	0.7 (0.7–0.7)
Coagulation	0.5 (0.4–0.5)	0.5 (0.5–0.6)	<b>0.7</b> <b>(0.6–0.8)<sup>†</sup></b>	<b>1.0</b> <b>(0.8–1.3)<sup>†</sup></b>	0.4 (0.2–0.6)	0.5 (0.5–0.5)
<b>Microbiology</b>	3.6 (3.4–3.7)	3.5 (3.2–3.7)	3.9 (3.6–4.2)	<b>5.4</b> <b>(4.0–6.7)</b>	<b>6.7</b> <b>(4.5–8.9)</b>	3.6 (3.5–3.7)
Urine MC&S*	1.2 (1.1–1.2)	1.2 (1.1–1.3)	1.2 (1.1–1.3)	1.5 (1.1–1.8)	1.6 (0.8–2.4)	1.2 (1.1–1.2)

(continued)

Table 10.2(b) (continued): Distribution of pathology orders across MBS pathology groups by ASGC Remoteness

Pathology test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific					
	Major Cities (n=407,482)	Inner Regional Australia (n=116,378)	Outer Regional Australia (n=56,160)	Remote Australia (n=8,248)	Very Remote Australia (n=3,296)	Australia (n=591,564)
<b>Cytology</b>	1.4 (1.3–1.4)	1.4 (1.2–1.5)	1.5 (1.2–1.7)	1.2 (0.8–1.5)	1.4 (0.4–2.4)	1.4 (1.3–1.4)
Pap smear*	1.3 (1.3–1.4)	1.3 (1.2–1.5)	1.4 (1.2–1.7)	1.1 (0.8–1.5)	1.4 (0.4–2.4)	1.4 (1.3–1.4)
<b>Other NEC</b>	0.5 (0.5–0.6)	0.4 (0.4–0.5)	0.6 (0.4–0.7)	0.9 (0.5–1.3)	1.2 (0.5–1.9)	0.5 (0.5–0.6)
<b>Infertility/pregnancy</b>	0.2 (0.2–0.2)	0.2 (0.1–0.2)	0.2 (0.2–0.3)	0.3 (0.1–0.4)	0.3 (0.1–0.5)	0.2 (0.2–0.2)
<b>Tissue pathology</b>	0.3 (0.2–0.3)	<b>0.5 (0.5–0.6)</b>	<b>0.7 (0.6–0.8)</b>	0.7 (0.4–1.0)	0.3 (0.1–0.6)	0.4 (0.3–0.4)
<b>Immunology</b>	0.3 (0.3–0.3)	0.4 (0.3–0.5)	0.4 (0.3–0.4)	0.4 (0.2–0.5)	0.5 (0.1–0.8)	0.4 (0.3–0.4)
<b>Simple basic tests</b>	0.1 (0.0–0.1)	0.1 (0.1–0.1)	0.1 (0.0–0.1)	0.2 (0.1–0.2)	0.1 <sup>†</sup>	0.1 (0.0–0.1)
<b>Total pathology tests</b>	<b>22.3 (21.8–22.9)</b>	<b>24.7 (23.9–25.5)</b>	<b>27.4 (25.9–28.8)</b>	<b>28.8 (24.8–32.9)</b>	<b>31.8 (23.7–39.9)</b>	<b>23.4 (23.0–23.9)</b>

(a) Figures do not total 100 as more than one pathology test can be ordered at each encounter and for each problem.

\* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 3, <<http://www.aihw.gov.au/publications/index.cfm/title/10171>>).

† Indicates that the pathology test is among the most frequently managed conditions in this ASGC, but not among the most frequent for the average.

‡ Rates are reported to one decimal place, there is not enough variance to calculate confidence intervals (n=2).

Note: Limited to April 2000 to March 2004 inclusive due to older pathology codes in Years 1 and 2. Shading indicates a significant difference between an ASGC and Australia (total sample). Darker shading indicates a higher than average result and lighter shading indicates a lower than average result. EUC—electrolytes, urea & creatinine; MC&S—microscopy, culture & sensitivity; NEC—not elsewhere classified.

## 10.3 Distribution of imaging tests across MBS groups

The top two most frequently ordered imaging tests – chest X-ray and pelvis ultrasound – were the basis for selection for individual test reporting in this section. The top two ordered by all GPs were mainly reflected in the orders by region; however, there were some differences in the order of frequency. Obstetric ultrasound entered the top two in RRMA Remote Centres and ASGC Remote Australia, and knee X-ray entered the top two in RRMA Other Rural Areas and Other Remote Areas, and in ASGC Outer Regional Australia and Very Remote Australia, and were therefore added to the list for comparison.

### RRMA

Table 10.3(a) shows the distribution of imaging tests across MBS groups and the most common tests in each group by RRMA categories. Compared with the national average:

- chest X-rays were ordered at significantly higher rates in Other Rural Areas, Remote Centres and Other Remote Areas
- ultrasound ordering rates were significantly higher in Small Rural and Remote Centres and obstetric ultrasound was ordered at significantly higher rates in Small Rural Centres, Other Rural Areas and Remote Centres.

### ASGC Remoteness

Table 10.3(b) shows the distribution of imaging tests across MBS groups and the most common tests in each group by ASGC categories. Compared with the national average:

- chest X-rays were ordered at significantly higher rates in Outer Regional Australia and Remote Australia
- obstetric ultrasounds were ordered at significantly higher rates in Inner Regional, Outer Regional and Remote Australia.

Table 10.3(a): Most frequent imaging tests ordered, by MBS group and most frequent tests, by RRMA

Imaging test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific							
	Capital City (n=490,244)	Other Metropolitan (n=55,517)	Large Rural Centre (n=48,071)	Small Rural Centre (n=47,525)	Other Rural Area (n=93,497)	Remote Centre (n=4,850)	Other Remote Area (n=8,436)	Australia (n=748,140)
Diagnostic radiology	3.2 (3.1–3.2)	3.8 (3.3–4.2)	3.2 (2.8–3.6)	3.4 (3.2–3.6)	3.6 (3.4–3.8)	4.5 (3.2–5.7)	3.8 (3.2–4.4)	3.3 (3.2–3.4)
X-ray; chest	0.6 (0.6–0.7)	0.9 (0.7–1.1)	0.7 (0.6–0.8)	0.8 (0.7–0.9)	<b>0.9</b> <b>(0.8–1.0)</b>	1.2 (0.8–1.6)	<b>1.1</b> <b>(0.8–1.3)</b>	0.7 (0.7–0.7)
X-ray; knee	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.2–0.3)	0.3 (0.3–0.4)	0.3 (0.3–0.4) <sup>†</sup>	0.2 (0.0–0.4)	0.3 (0.1–0.4) <sup>†</sup>	0.3 (0.3–0.3)
Ultrasound	1.6 (1.6–1.7)	1.9 (1.7–2.0)	1.8 (1.4–2.1)	<b>2.0</b> <b>(1.8–2.2)</b>	1.8 (1.6–1.9)	<b>2.3</b> <b>(1.8–2.9)</b>	1.5 (1.1–1.8)	1.7 (1.6–1.7)
Ultrasound; pelvis	0.3 (0.3–0.4)	0.4 (0.3–0.5)	0.3 (0.2–0.4)	0.3 (0.3–0.4)	0.3 (0.3–0.3)	0.5 (0.2–0.7)	0.2 (0.1–0.3)	0.3 (0.3–0.4)
Ultrasound; obstetric	0.1 (0.1–0.1)	0.1 (0.1–0.2)	0.1 (0.1–0.2)	<b>0.3</b> <b>(0.2–0.4)</b>	<b>0.2</b> <b>(0.2–0.3)</b>	<b>0.5</b> <b>(0.2–0.8)<sup>†</sup></b>	0.2 (0.1–0.4)	0.1 (0.1–0.1)
Computerised tomography	0.5 (0.5–0.5)	0.6 (0.5–0.7)	0.5 (0.4–0.6)	0.6 (0.5–0.7)	0.6 (0.5–0.6)	0.3 (0.0–0.6)	0.4 (0.3–0.6)	0.5 (0.5–0.5)
<b>Total imaging tests</b>	<b>5.3</b> <b>(5.2–5.5)</b>	<b>6.3</b> <b>(5.8–6.9)</b>	<b>5.6</b> <b>(4.9–6.4)</b>	<b>6.1</b> <b>(5.8–6.5)</b>	<b>6.0</b> <b>(5.7–6.3)</b>	<b>7.2</b> <b>(5.8–8.7)</b>	<b>5.8</b> <b>(4.9–6.6)</b>	<b>5.6</b> <b>(5.5–5.7)</b>

(a) Figures do not total 100 as more than one imaging test can be ordered at each encounter and for each problem.

† Indicates that the imaging test is among the most frequently ordered tests in this RRMA, but not among the most frequent for the average.

Note: Limited to April 1999 to March 2004 inclusive due to older imaging codes in Year 1. Shading indicates a significant difference between a RRMA and Australia (total sample). Darker shading indicates a higher than average result and lighter shading indicates a lower than average result.

**Table 10.3(b): Most frequent imaging tests ordered, by MBS group and most frequent tests, by ASGC Remoteness**

Imaging test ordered	Rate per 100 problems managed, <sup>(a)</sup> 95% confidence interval, column specific					
	Major Cities (n=513,614)	Inner Regional Australia (n=149,745)	Outer Regional Australia (n=71,073)	Remote Australia (n=10,122)	Very Remote Australia (n=3,586)	Australia (n=748,140)
Diagnostic radiology	3.2 (3.1–3.3)	3.3 (3.2–3.5)	3.6 (3.3–3.8)	3.9 (3.2–4.6)	3.2 (2.3–4.1)	3.3 (3.2–3.4)
X-ray; chest	0.7 (0.6–0.7)	0.8 (0.7–0.9)	<b>1.0</b> <b>(0.8–1.1)</b>	<b>1.1</b> <b>(0.8–1.3)</b>	0.7 (0.4–1.1)	0.7 (0.7–0.7)
X-ray; knee	0.3 (0.3–0.3)	0.3 (0.3–0.3)	0.3 (0.3–0.4) <sup>†</sup>	0.2 (0.1–0.3)	0.3 (0.1–0.6) <sup>†</sup>	0.3 (0.3–0.3)
Ultrasound	1.6 (1.6–1.7)	1.9 (1.7–2.0)	1.8 (1.7–2.0)	1.6 (1.3–2.0)	1.7 (1.0–2.3)	1.7 (1.6–1.7)
Ultrasound; pelvis	0.4 (0.3–0.4)	0.3 (0.3–0.4)	0.3 (0.2–0.3)	0.3 (0.1–0.4)	0.3 (0.0–0.6)	0.3 (0.3–0.4)
Ultrasound; obstetric	0.1 (0.1–0.1)	<b>0.2</b> <b>(0.2–0.2)</b>	<b>0.3</b> <b>(0.2–0.3)</b>	<b>0.3</b> <b>(0.2–0.5)<sup>†</sup></b>	0.3 (0.1–0.5)	0.1 (0.1–0.1)
Computerised tomography	0.5 (0.5–0.5)	0.6 (0.5–0.6)	0.5 (0.4–0.6)	0.4 (0.2–0.5)	0.3 (0.1–0.6)	0.5 (0.5–0.5)
<b>Total imaging tests</b>	<b>5.4</b> <b>(5.3–5.6)</b>	<b>5.9</b> <b>(5.6–6.2)</b>	<b>6.0</b> <b>(5.7–6.3)</b>	<b>6.0</b> <b>(5.1–6.9)</b>	<b>5.2</b> <b>(3.8–6.5)</b>	<b>5.6</b> <b>(5.5–5.7)</b>

(a) Figures do not total 100 as more than one imaging test can be ordered at each encounter and for each problem.

† Indicates that the imaging test is among the most frequently ordered in this ASGC but not among the most frequent for the average.

Note: Limited to April 1999 to March 2004 inclusive due to older imaging codes in Year 1. Shading indicates a significant difference between an ASGC and Australia (total sample). Darker shading indicates a higher than average result and lighter shading indicates a lower than average result.