An Analysis of Pathology Test Use in Australia

A paper by the Australian Association of Pathology Practices Inc, utilising data from the BEACH program, Family Medicine research Centre, University of Sydney

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Data source: BEACH program

This analysis of BEACH data was undertaken as a consultancy to the Australian Association of Pathology Practices Inc.

Dr Helena Britt
A/Professor and Director
Family Medicine research Centre
& Australian GP Statistics and Classification Centre
School of Public Health
University of Sydney

Attached at Appendix A is the methodology used by A/Professor Britt to capture the data reproduced in the main document and presented in its original format in the accompanying **Appendix B** is the Excel File.

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Executive Summary

1. Pathology underpins most Australians' health care. It is the way 70% of diagnoses are reached and plays a critical role in the safe management of most diseases.

2. About 85% of the Australian population visits a doctor at least once every year. Clearly some patients have multiple visits. In 2007 there were 117 million attendances to GPs and 22 million to specialists.

3. In comparison 50% of Australians have at least one episode of pathology testing each year, with a total of approximately 30 million episodes in 2007. Medicare counts services claimed through and paid by Medicare – for pathology this is a single test or group of tests, for GPs and specialists this is a single consultation or procedure. In 2007 Pathology accounted for 34.3% of all Medicare services and 14.5% of all Medicare benefits.

4. Pathology has been subject to marked fee restraint. The schedule fee for an average pathology item of service is 4% lower in 2008 than it was in 1988 – during this time CPI and AWE have increased by over 180%.

5. Pathology use has grown much faster than GP or specialist activity. The long term trend has been more than 5% per annum. In the last 4 years this growth has been higher (approximately 7% per annum). Despite this, in these 4 years, pathology's share of Medicare outlays has fallen 7.6% per annum (as a result of declining fees in real terms).

6. GPs directly request 70% of all pathology tests and, through their critical gate keeper role in Australian health care, control referral to specialists and admissions to hospitals, responsible for the other 30% of pathology test ordering.

7. Ongoing studies have been made of GPs' activity and the pathology they request (BEACH – University of Sydney and Australian Institute of Health and Welfare). These show that primary care is changing: GPs are seeing more older and sicker patients, with more time spent on chronic disease management; fewer younger patients with minor acute illness are being seen. The pattern of pathology use is also changing – more testing is being done for chronic disease management and preventive health strategies.

8. Detailed study of pathology requesting by GPs consistently demonstrates appropriate use – for example over 60% of growth in GP pathology requesting is clearly linked to preventive health and chronic disease management. Definite over-utilization has been demonstrated only in the circumstance of unnecessary repeat testing in public hospitals by inexperienced doctors. The main cause for concern is variation in requesting rates – this is being addressed by the development of guidelines for requesters and electronic decision support.

9. Pathology testing plays a vital role in illness prevention and chronic disease management. Pathology testing requested by GPs is the mainstay of preventive health and the early detection of disease in the Australian health system. There is a strong body of scientific evidence supporting this activity and this has become a major mechanism in reducing morbidity and mortality and increasing life expectancy in Australia.

10. Pathology is the most accessible and affordable medical service. Both in terms of how patients access pathology and how any patient can have any test virtually at any place and any time, pathology has few barriers. Pathology has the highest bulk billing rate of any medical service.

11. Pathology leads in the area of quality and patient safety. Pathology has an established quality framework which underpins patient safety. Pathology fulfils the main audit process for health care generally.

12. Pathology supports the top four of the five priorities of the National Primary Health Care Strategy.

Section 1: Those Influences on the Demand for Pathology Testing (Drivers of Demand)

Key Points

Pathology investigations are a referred service: general practitioners (GPs) and specialists request pathology tests and pathologists respond to these requests. GPs initiate most medical activity, requesting 70% of Medicare pathology, and their referrals to clinical specialists result in much of the remainder of pathology test use. Growth in pathology testing is due to increases in a referrer's own activity, in the rate that a referrer initiates pathology investigations and in the number of tests requested on each occasion.

In the 4 years from 2002/3 to 2005/06: the number of GPs increased by 5.6%, GP services increased by 6.8%, pathology tests requested by GPs increased by 18.6%, and the volume of pathology requested per GP service increased by 11%.

Why did GP activity change and how was this managed?
In the six years from 1997/98 to 2003/04 the average clinical activity per GP **fell** by 8%. This led to a crisis of reduced patient access and a subsequent political response. The series of measures thus introduced (from 2003 onwards) dramatically increased GP activity, which led to increased pathology use (both GP requested and specialist requested). Some measures were 'across the board' but many were targeted. Health Check items were introduced and other preventive health activities were encouraged.

How did GP activity change and how did this specifically affect Pathology use?
The BEACH data set (University of Sydney) is derived from an annual survey of GP activity. Examination of this data for the period between 2004/05 and 2007/08 (the current MoU) shows significant changes in GP activity and GP use of pathology. This data shows that there were ***20 patient problems that accounted for less than 20% of all problems managed by GPs but were responsible for 73% of pathology growth.*** In these 20 problems preventive health interventions accounted for 32% of pathology test growth by GPs while management of three chronic diseases - diabetes, hypertension and lipid disorders - accounted for a further 27% of pathology test growth. Thus most of the increase in pathology use is due to increased GP activity in two areas – preventive health and the management of chronic disease. Both these areas have been the target of government policy, and these data clearly demonstrate the success of those interventions.

The recent growth in demand for pathology testing is clearly linked to a number of factors outside of the control of the pathology sector. These include increasing rates of preventable disease and chronic illness within the community, and the government's response to these and to the access problems experienced within the general practice sector. The range of policies, programs and initiatives implemented by the government have been working to address the increased burden of chronic illness within our society. The growth in demand for pathology testing resulting from these government actions and the changing health care needs of the community has played a crucial role in contributing to the successful implementation of government policies and programs, and has helped to achieve a healthier and more productive society.

Introduction

Pathology testing differs from many other health and medical services in that it is a *referred* service. This means that GPs and medical specialists request pathology tests on behalf of their patients and pathologists respond to these requests. This differs from many other health and medical services – such as GP visits – which are generally directly initiated by patients themselves.

This is fundamental to the understanding of changes in demand for pathology testing. It means that demand for pathology services is driven primarily by referring doctors (GPs and specialists), rather than by either pathologists or patients.

GPs, as a group, are responsible for initiating most pathology testing, including requesting about 70% of Medicare funded pathology. GPs are also responsible for referring patients to specialists, who then also may request pathology testing. Due to this, any changes to the ways in which GPs practice and the general practice environment can have a significant impact on the pathology sector.

There are a range of mechanisms through which referring doctors' patterns of requesting pathology testing can change. These can be broadly grouped into three categories:

1. Increases in referring doctors' own activity (i.e. referring doctors seeing more patients);
2. Increases in the rate that referring doctors initiate pathology investigations (i.e. referring doctors ordering tests for a higher proportion of patients); and
3. Increases in the number of tests requested on each occasion (i.e. referring doctors ordering more tests per patient).

These three mechanisms can operate separately, but more often occur simultaneously to result in a combined effect on demand for pathology testing. These mechanisms are themselves influenced by a number of factors, both internal and external to the health and medical sector. Some of these are as follows:

- changes in population demographics (for example, the ageing of the population resulting in an increase in chronic disease; an increasing birthrate resulting in a need for more pregnancy care);
- the emergence of new diseases or conditions (for example, HIV, Avian flu);
- the development of new treatments for existing conditions (for example, more sophisticated treatments for breast cancer which require targeting of drugs to specific types of tumours);
- increased community awareness of specific conditions (for example, as a result of a government information campaign or a high profile celebrity contracting a disease);
- changes in the GP workforce (for example, workforce shortages which reduce access to GP services);
- changes in funding arrangements for GP services (for example, the introduction of new item numbers for chronic disease management);
- the implementation of new government health policies (for example, support for the introduction of practice nurses into general practices);
- the introduction of new government general practice programs (for example, wellness checks for specific age groups);
- changes in the education and training of GPs (for example, an increased emphasis on prevention in medical school curricula);

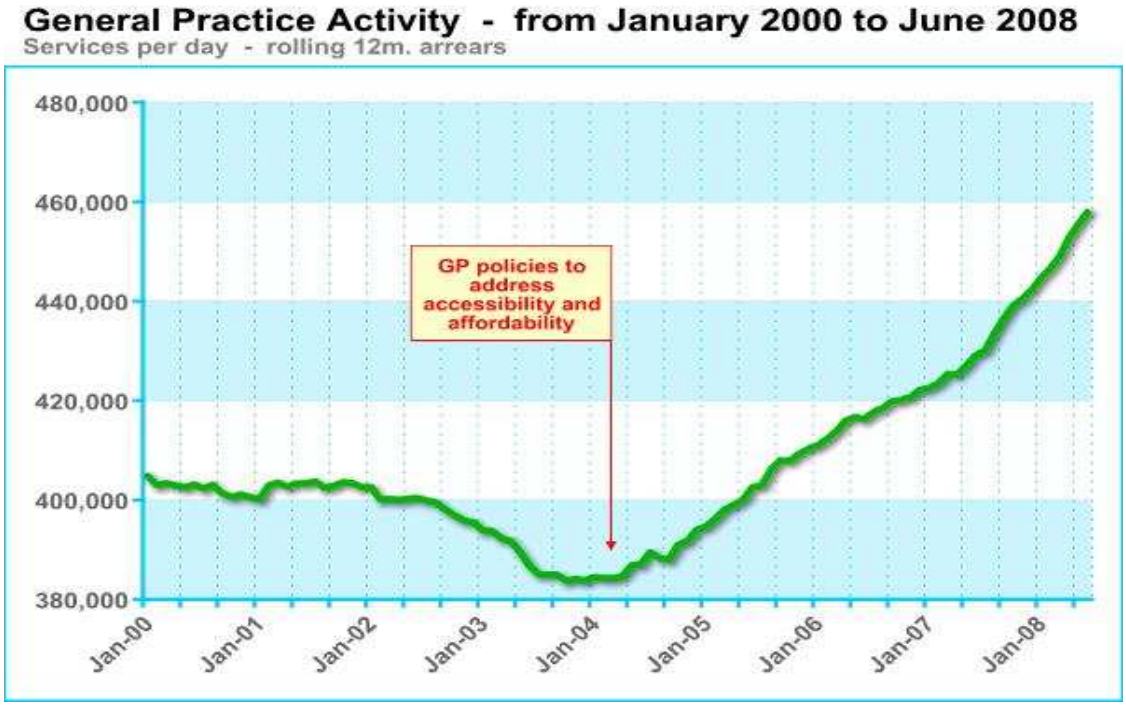
- changes in the affordability of GP services, resulting in increased or decreased access for some groups in the community;
- changes in the location where specific conditions are managed (for example, the shift out of hospitals for pregnancy care to 'shared care' between GPs and hospitals);
- the introduction of screening programs for specific diseases (for example, the faecal occult blood testing program for colorectal cancer);
- changes in guidelines for the management of specific conditions (for example, new and lower targets for cholesterol in certain patients).

The specific factors that have influenced changes in demand for pathology testing in recent years and the mechanisms through which these changes have taken effect are discussed in more detail below.

Increases in overall GP services

There is evidence that during the four years from 2002/3 to 2005/06 the number of GP services being provided increased significantly. This followed a six year period in which the total number of GP services being provided declined. Figure A shows the change in general practice activity over the past eight years:

Figure A



The reasons for the decline in GP activity over the period to 2004 include: a reduction in the overall number of full-time GPs (and an increase in part-time GPs); a decline in the real value of the Medicare rebate; and a reduction in bulk billing levels. Together, these factors acted to reduce access to GP services, both through creating cost barriers and reducing the supply of services.

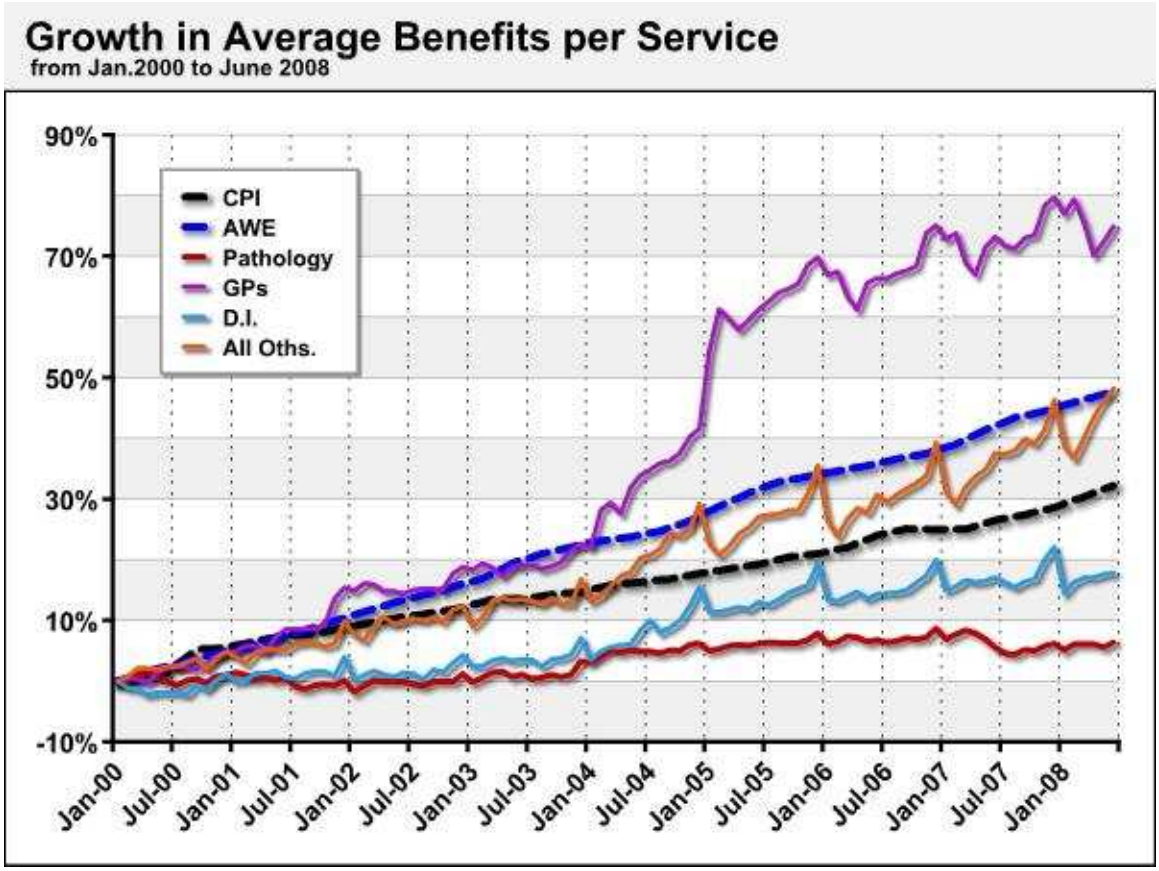
The government responded to this through a number of different measures to increase access to GP services (from 2003 onwards). These measures included:

- increasing bulk billed GP attendance fees by 15%;
- the introduction of a practice nurse item number;
- the introduction of 'health check' item numbers for specific population groups;
- the introduction of chronic disease item numbers; and
- an increased emphasis on chronic disease management in GP continuing professional education.

Collectively these measures resulted in both an increase in the numbers of GPs and an increase in their level of activity. Medicare Australia data show that in the five years to 2007/08 the number of GPs increased by 10.6% and their clinical activity (services) increased by 16.7%. The Medicare payments for their services during this time increased by 70.2% overall (benefits per GP service increased by 45.8%).

Figure B illustrates the growth in average GP benefits per service to January 2008, compared with other benefits, CPI and average weekly earnings:

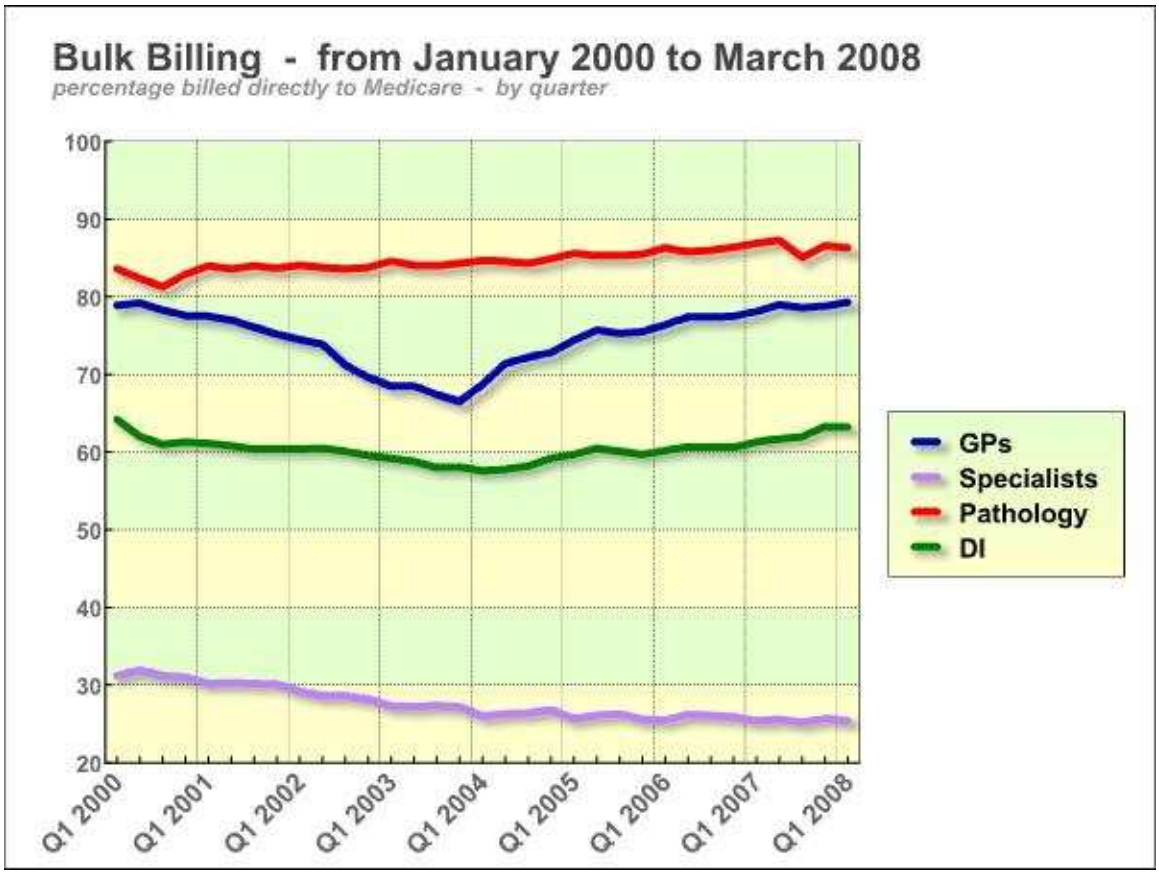
Figure B



Note: CPI = Consumer Price Index, AWE = Average Weekly Earnings, DI = Diagnostic Imaging, All Others = Other Divisions of Medicare Table.

Figure C illustrates the bulk billing rate for general practice, pathology and other medical services from 2000 to 2008:

Figure C



Note: DI = Diagnostic Imaging.

During this whole period specialist activity continued to grow. Specialist activity is dependent on three factors:

1. The rate of referral by GPs to specialists – this depends on most of the same things that influence GP pathology requesting rates. In particular patients who have longer consultations and have pathology requested are likely to be referred to specialists;
2. Once a patient is under specialist care repeat visits are determined mostly by the specialist's management plan. Referrals from GPs are current for 12 months, from specialists for 3 months. This is to reinforce the primacy of the GP's role in patient care;
3. Access to specialists is often restricted by workforce issues and also to some extent by patient co-payment levels. This was the factor that dampened the increase in specialist activity that followed the dramatic increase in GP activity.

Increases in GP services overall lead to an increase in pathology services as the more patients a doctor sees, the more opportunities there are to identify the need for pathology testing. The types of GP services provided and the types of problems/conditions patients present with also influence the referring patterns of GPs for pathology testing. There is a strong relationship between certain presentations, longer consultations and pathology use. This relationship also

exists for other referred services, such as diagnostic imaging, specialist medical care and prescribing of pharmaceuticals. This is discussed in more detail in the following section.

Increases in pathology services

In the 4 years from 2002/3 to 2005/06 the number of pathology tests requested by GPs increased by 18.6%. The Medicare payments for these increased by 26% and benefits per pathology service increased by 6.2%. The rate that pathology was requested per 100 GP services increased by 11%. Although pathology use has been growing for over 20 years, this recent increase is greater than that over the previous 16 years. The BEACH data set (discussed in more detail below) helps explain the reasons behind this changed pattern of pathology use.

BEACH data

Data taken from the Bettering the Evaluation and Care of Health (BEACH) program provides useful information which can inform our understanding of the drivers of growth during this period.

The BEACH program is a national study of GP activity. It provides information which can link specific problems that patients present with to GPs' responses to managing these problems, such as writing prescriptions, referrals to specialists and recommendations for further investigations. BEACH annually surveys 1000 GPs and its results can be validly extrapolated to all GPs. BEACH data and Medicare data are combined by the Australian Institute of Health Welfare in their annual reports on Australia's Health Services.

Over the period 2004/05 to 2007/08 (the period of the current MoU between the pathology sector and the federal government), analysis of the BEACH data set shows the links between the growth in pathology services with the specific presenting problem of patients during this time. This provides a picture of where the growth in pathology services occurs and gives an indication of its role in the overall health care of patients.

The table below illustrates the association between the percentage growth in pathology services and the specific problems being managed. For example, at least 11.1% of the growth in pathology services initiated by GPs during this period was associated with the management of diabetes.

Table 1: Problems in General Practice Associated With Growth In Pathology Services

Problem managed	Per cent of total pathology growth
1. General check-up	12.9
2. Diabetes	10.5
3. Hypertension	10.4
4. Blood test NOS**	5.5
5. Lipid disorders	4.9
6. Pregnancy	4.0
7. Abnormal test results	3.7
8. Female genital check-up	2.9
9. Microbiology/immunology test NOS**	2.5
10. Weakness/tiredness general	2.2
11. Vitamin/nutritional deficiency	1.8
12. Urinary disease, other	1.6
13. Skin symptom/complaint, other	1.4
14. Cardiac check-up	1.4
15. Hypothyroidism/myxoedema	1.3
16. Pain, chest NOS**	1.3
17. Abdominal pain	1.3
18. Anaemia	1.3
19. Menopausal symptom/complaint	1.2
20. Overweight (BMI < 30)	1.2
21. Endocrine/metabolic/nutritional disease, other	1.1
Total Pathology test growth as % of all GP Path growth	74.4%

* This is the proportion of pathology test growth attributed to this problem as a percentage of the total pathology test order growth

** NOS = Not otherwise specified

The 21 problems/conditions included in Table 1 comprise 19.3% of all problems managed by GPs in 2004/05 and 21.6% in 2007/08. This represents a 12% increase in the management rate of problems most likely to require further pathology testing during this period.

This is then compounded by the growth in total GP activity, i.e. there was both an overall increase in the number of GP services being provided and in the proportion of these services requiring pathology referrals. Adding both of these factors together results in a 42% increase in the number of these problems managed over these four years.

The growth in the number of pathology tests requested associated with these problems accounted for 75% of the total increase in pathology tests requested by GPs over that period. An extrapolation to the whole of Medicare means that these 21 problems being managed by GPs accounted for 55% of the total increase in Medicare pathology services between 2004/05 and 2007/08.

Preventive health

As the data in Table 1 makes clear, a high proportion of the problems/conditions generating the greatest growth in pathology testing are preventative health interventions. These include the problems ranked Numbers 1, 4, 6, 8, 9, 14, and 20 in the table above. Together, these conditions accounted for 31.7% of the total growth of pathology tests requested by GPs during this time.

This outcome is in line with government policy which aims to increase activity in the area of disease prevention and also reflects changing patterns of disease within the community, such as the increase in the number of Australians with diabetes.

The BEACH data also provide an outline of the specific tests requested by GPs in response to each managed problem/condition. These are detailed in the tables below.

Table 2: General Check-up

Tests requested for general check-up	% of all tests ordered for this problem
Lipids	17.41
Full blood count	15.06
Glucose tolerance	10.44
Liver function	8.47
Multiple biochemical analysis	6.60
Electrolytes Urea Creatinine	6.42
Prostate specific antigen	6.18
Thyroid function	5.15
Pap (cervical) smear	3.94
These 9 tests or test groups	**79.67**

A similar pattern of test use is associated with a number of other managed problems/conditions, specifically Number 4, Blood test NOS; Number 14, Cardiac check up; Number 20, Obesity; and Number 21, Endocrine blood test. This indicates that treatment in response to these problems can also be seen as part of a 'check up' activity.

The pattern of test use for Number 8, Female genital check-up, is quite different with the focus clearly on cervical cancer prevention.

Table 3: Female Genital Check-up

Tests with female genital check-up	% of tests for this problem
Pap smear	91.34
Chlamydia	1.78
Vaginal swab and C&S	1.24
Lipids	1.15
Full blood count	0.78
Microbiology; other	0.78
These 6 tests or test groups	97.1

The pattern of test use for Number 9, Microbiology/Immunology test NOS, indicates this is the presenting problem used for screening for sexually transmitted diseases.

Table 4: Microbiology/Immunology Test, NOS

Tests with Micro/Imm test	% of tests for this problem
Venereal disease	18.33
Hepatitis serology	18.05
Microbiology, other	15.56
Chlamydia	15.32
HIV	14.63
Vaginal swab and C&S	2.94
Urine test	2.79
Throat swab C&S	2.59
Cervical swab	1.89
These 9 tests or test groups	92.1

The pattern of test use for Number 6, Pregnancy, is predictably different. The increase in pathology test use here results from three things – the rising birth rate, the 'shared care' initiative whereby GPs have taken over some of the responsibility for antenatal care (from public hospital antenatal clinics) and changes in guidelines for antenatal screening (addition of HIV, HCV and other tests).

Table 5: Pregnancy

Tests with Pregnancy	% of tests for this problem
Full blood count	13.26
Hormone assay	11.55
Infertility/pregnancy	11.26
Microbiology; other	10.1
Blood grouping & typing	8.6
Glucose tolerance	6.15
Rubella	4.87
Urine MC&S	4.52
Hepatitis serology	4.02
Ferritin	2.88
Venereal disease	2.85
HIV	2.34
These 12 tests or test groups	82.4

Chronic disease management

Table 1 also demonstrates that the management of chronic disease is responsible for a significant percentage of the growth in pathology use. The problems/conditions ranked Numbers 2, 3 and 5 (diabetes, hypertension and lipid disorders) together account for 27% of the increase in pathology requested by GPs during this time. The increased management of these diseases and the greater use of pathology with these conditions are in line with government policy and published guidelines.

Table 6: Diabetes Management

Tests for Diabetes	% of tests with this problem
HbA1c	28.53
Lipids	14.62
Glucose tolerance	11.18
Chemistry, other	8.88
Electrolytes Urea Creatinine	8.04
Full blood count	7.93
Liver function	6.42
Multiple biochemical analysis	5.21
These 8 tests or test groups	90.81

Table 7: Hyperlipidaemia Management

Tests for lipid problems	% of tests with this problem
Lipids	47.27
Liver function	10.29
Glucose tolerance	8.18
Full blood count	7.33
Electrolytes Urea Creatinine	6.09
Cardiac enzymes	5.48
Multiple biochemical analysis	5.08
Thyroid function	2.3
These 8 tests or test groups	92.02

Table 8: Hypertension Management

Tests for hypertension	% of tests with this problem
Lipids	20.37
Electrolytes Urea Creatinine	18.98
Full blood count	13.82
Glucose tolerance	10.31
Liver function	9.1
Multiple biochemical analysis	7.15
Chemistry; other	3.77
Thyroid function	3.66
Prostate specific antigen	2.09
These 8 tests or test groups	89.25

Therefore, taken together, tests requested by GPs and performed in association with preventive health and chronic disease management accounted for 42% of all pathology growth during this period.

The remaining nine problems from the top 21 listing in Table 1 account for another 13% of overall growth. There is some overlap within this group with problems in the first two groups – for example, 'Abnormal tests' may represent follow-up tests performed as part of preventive health management. An outline of the specific tests resulting from the follow-up of 'abnormal tests' is provided below.

Table 9: Follow-up of Abnormal Tests

Tests with 'Abnormal tests'	% of tests with this problem
Glucose tolerance	23.5
Liver function	10.3
Electrolytes Urea Creatinine	9.58
Full blood count	7.76
Prostate specific antigen	5.23
Chemistry; other	4.08
Multiple biochemical analysis	3.79
Lipids	3.71
Hepatitis serology	3.47
Pap smear	3.1
Urine MC&S	2.75
Ferritin	2.63
Thyroid function	2.23
The 13 tests or test groups	82.13

The BEACH data set examined covers the top 118 problems/conditions treated by GPs (72% of all problems) and 82% of those problems that resulted in a pathology test. It provides solid

evidence that the recent increases in pathology test use are due to changes in GP behaviour and patient factors (rather than pathologist practices) and in particular the increase in the management rate of certain problems that has caused this increase. The specific government policies and programs which influenced this change in GP and patient demand are discussed in more detail below.

1998 BEACH study

This conclusion reflects the findings of previous research into the drivers of growth in Australian pathology. For example, the BEACH study 'Pathology Ordering by General Practitioners in Australia 1998' analysed the variability of pathology test requesting rates by patient factors (for example, age, sex, morbidities) and GP factors (for example, age, sex, medical school, years in practice, size of practice, full time versus part time, location rural versus regional versus metropolitan).

This study found that together these factors explained approximately 50% of the variation in pathology use and that changes in these factors (for example, young doctors replacing older doctors) explained a significant amount of the growth in testing. However, the study concluded that the major influence on demand for pathology testing was the type of problem being managed.

The breakdown of predictable variation in pathology requesting found by this study was as follows:

- GP characteristics 11.9%;
- Patient characteristics/age 2.8%;
- Patient characteristics/problems 32.9%; and
- Total explanatory variables 47.6%.

Other studies

Three qualitative studies of pathology requesting in Australia have also been undertaken in recent years.[1] These studies identified a range of reasons given by doctors for initiating a pathology request, as follows:

- Clinical decision-making;
- Diagnosis – confirmation or exclusion;
- Assessment of severity and prognosis ;
- Establishment of baseline values for assessment of future change;
- Monitoring the course of a disease or the response to therapy;
- Detection of complications;
- Screening – including anonymous screening and occupational risk screening;
- Assessment of risk;
- Patient demand;
- Medico legal considerations; and
- Economic factors.

[1] These comprise Hunter Urban Division of General Practice Study; Mara-Vining Use of Pathology by GPs; and The Impact of Computers on the Ordering of Pathology by GPs.

The impact of government actions

During the period of the MoU a number of Federal Government policies, programs and initiatives worked together to increase demand for pathology services. While it is impossible to isolate the impact of each individual factor, taken collectively these government actions created an environment in which the demand for pathology rose significantly.

This occurred through three different mechanisms:

- increasing overall GP numbers;
- increasing the number of patients seen in general practice; and
- increasing attention to chronic disease management and prevention.

The policies, programs and initiatives which influenced these mechanisms include workforce initiatives to increase the overall general practice workforce; policies and programs, particularly in the areas of chronic disease and illness prevention; and new Medicare item numbers to support GPs to undertake more preventive health care and chronic disease management. They are discussed in more detail below.

Workforce initiatives

During this period the Government implemented a number of GP workforce initiatives to increase the overall GP workforce. This came in response to restrictions placed on Medical school student numbers and GP training places in the 1990s which resulted in reduced access for consumers. These initiatives included significant increases in training places and incentives for GPs to stay or return to the workforce and to work more efficiently, such as:

- subsidies for medical indemnity insurance (in the wake of the near collapse of one medical insurance fund);
- incentives for the uptake of computerization within general practice; and
- grants for the provision of after-hours care.

The Government also implemented a number of initiatives to specifically support the rural GP workforce. These included:

- the Workforce Support for Rural General Practitioners (WSRGP) Program;
- bonded medical places;
- the Relocation Incentive Grant Program; and
- the HECS Reimbursement Scheme

Incentives were also provided to GPs establishing practices in metropolitan areas of need, for example, through additional payments to GPs working in outer-metropolitan areas with low GP numbers.

These initiatives resulted in a significant increase in overall GP numbers during the period of the MoU, as follows:

Number of full-time equivalent GPs in 2004/05 – 22122
Number of full-time equivalent GPs in 2006/07 – 22868

During this period the Federal Government's Practice Nurse Program, including workforce support and specific item numbers, also resulted in a dramatic increase in the number of practice nurses

working in general practice. Data from the Primary Health Care Research and Information Service (PHCRIS) show that between 2003 and 2006, practice nurse numbers in Australia increased by 89%.

The combined impact of these workforce initiatives was to increase access to GP services for Australian consumers. As there is a direct relationship between the numbers of patients seen by GPs and the demand for pathology testing, this increase in access is likely to have had a significant influence on the growth in pathology testing during this time. In particular, it is important to note that many of the workforce initiatives focused on increasing access to GP services for rural Australians who have higher than average rates of chronic disease. This factor is also likely to have influenced the growth in demand for pathology testing.

Specialist activity and pathology requesting practices

In 2007/08 in Australia there were 46,614 active medical practitioners with provider numbers; 25,232 were GPs (54%) and 21,382 were specialists or others (46%). There were 117 million GP attendances and 22 million specialist attendances (by comparison there were approximately 30 million pathology episodes). For completeness, the 7.5 million operations, 2.4 million anaesthetic procedures and 1.5 million obstetric items should be added to the attendances above.

Specialist attendances account for 51% of the total Medicare benefits of $10,233,824,328 per annum. Of a total 63,929,053 pathology services, 70% are requested by GPs and 30% by specialists. The pathology benefits are similarly split, with 33% for pathology requested by specialists.

In the last five years, specialist activity has increased 19.3% (compared with a GP activity increase of 16.7%), while the increase in pathology tests requested is 32.3% and 36.7% respectively.

Whereas 1 in 6 GP consultations leads to a pathology request, only 1 in 13 GP consultations results in a referral to a specialist.

Specialists' behaviours have not been studied in a similar way to GPs; there is no equivalent of the BEACH study for specialists. They are however defined (per pathology requesting) by their particular specialty. Within their particular specialty it appears they have less variability of requesting than GPs. Overall they have on average a similar ratio to that of GPs for pathology requesting compared with their clinical activity. The range however is very wide – for example ophthalmologists requested pathology on only 1 in 100 patients whereas clinical haematologists requested pathology on virtually every patient they saw.

Examples:-

Requesting Doctor Types	Pathology/ Own Services	Index	Total Pathology per Requesting Doctor	Index
GPs	0.39	1	1895	1
All Specialists*	0.48	1.2	2468	1.3
General Physicians	1.2	3.1	2285	1.2
Clinical Haematologists	2.3	5.9	5647	3
Renal Medicine	2.5	6.4	4282	2.3
Infectious Disease Physicians	1.3	3.3	1110	0.6
General Surgeons	0.5	1.3	1036	0.5
Obstetricians	0.7	1.8	1787	0.9
Dermatologists	0.3	0.8	1423	0.8
Psychiatrists	0.2	0.5	165	0.1
Ophthalmologists	0.0	0.0	106	0.1

* Radiologists removed – in 2007 there were 12.6 million radiology services

What this table shows is the great variation in different specialists' dependence on pathology tests in their clinical practice (there is a 53 times difference in pathology use between ophthalmologists and haematologists). This reflects the diseases their patients are subject to and the treatments used for them. Specialists are much more likely to be dealing with patients with differentiated disease (i.e. patients are referred from their GPs with known diseases) so that most of their clinical activity is related to management.

Government policies and programs

A number of policies and programs focusing on preventive health and chronic disease management were also implemented by the federal government during the period of the current MoU. These include the following:

COAG – reducing the risk of type 2 diabetes

A COAG initiative implemented to reduce the increasing rate of type 2 diabetes in the community, including through promoting early detection and treatment.

National Hepatitis C Testing Policy

A federal government policy to assist government, health professionals, industry, people living with hepatitis C, and the community in general, about matters associated with hepatitis C testing.

Australian Primary Care Collaboratives Program

The aims of this program are to improve clinical health outcomes, reduce lifestyle risk factors, maintain health for chronic and complex conditions and improve access to Australian general practice.

Divisions of General Practice Program

This is an ongoing program to link general practices across Australia into local groups to promote high quality primary care. During the period of the MoU, Divisions' programs

have focused specifically on access to GP services, managing chronic disease and supporting the role of practice nurses.

Medicare Safety Net

A safety net for people with high out-of-hospital, out-of-pocket medical costs providing an 80 per cent rebate of the gap between the schedule fee and the actual fee charged by doctors.

Healthy for Life

A program to provide enhanced primary care services to indigenous communities, focusing on maternal and child health, and chronic disease prevention and management.

Childhood Obesity Strategy

A strategy aimed at reducing childhood obesity through addressing risk factors such as low levels of physical activity.

Aged Care GP Panels Initiative

This initiative was established to ensure better access to primary medical care for residents of aged care facilities and to enable GPs and allied health service providers to work with homes on quality improvement strategies for the care of all residents.

These policies and programs in particular focused on population groups with higher than average rates of chronic illness, such as people from low socio-economic groups and older Australians.

New Medicare item numbers

Over the period of the MoU a number of new Medicare item numbers were introduced to support better preventive health practices and chronic disease management by GPs. These included:

Health checks

Healthy Kids Check – for every four year old in Australia to promote early detection of lifestyle risk factors, delayed development and illness, and introduce guidance for healthy lifestyles and early intervention strategies.

Type 2 Diabetes Risk Evaluation – to prevent the development of Type 2 Diabetes in those at risk.

Older age health assessment - for patients aged 75 years or over, living in the community to promote healthy ageing and prevent the development of disease.

Aboriginal and Torres Strait Islander (ATSI) health check (including ATSI child health check, ATSI adult health check and ATSI older persons health check) – to improve the health and prevent the development of disease among Indigenous Australians.

Refugee and Other Humanitarian Entrants (R&OHE) Health Check – a comprehensive health check of refugee or other humanitarian entrant who has arrived in Australia in the last 12 months.

Health Assessment for People with an Intellectual Disability – to address the specific health care needs of people with intellectual disabilities.

Medical assessment for residents of an aged care facility - for patients who are permanent residents of a Commonwealth-funded Residential Aged Care Facility.

Chronic disease management

Preparation of a GP Management Plan – for GPs to prepare a management plan for a patient with a chronic or terminal condition.

Review of a GP Management Plan – review of management plan (outlined above).

Coordination of Team Care Arrangements - for GPs to coordinate the preparation of Team Care Arrangements for a patient with a chronic or terminal medical condition.

Coordination of a Review of Team Care Arrangements – for GPs to review Team Care Arrangements (outlined above).

Contribution to a multidisciplinary care plan being prepared by another health or care provider – for GPs to contribute to a multidisciplinary care plan prepared or reviewed by another health or care provider.

Contribution to a multidisciplinary care plan being prepared by another health or care provider for a resident of an aged care facility – for GPs to review a care plan for patients in residential aged care facilities.

Multidisciplinary Case Conferencing – for GPs to take part in a meeting of health and care providers to plan for the health and care needs of an individual patient with at least one chronic medical condition.

Other – preventive health

Practice nurse item numbers - Practice nurse performing services on behalf of a GP (immunization and Pap smears).

The overall impact of the introduction of these new Medicare item numbers was to improve the health and well-being of the Australian community through increased prevention of illness and the better management of chronic disease. The item numbers supported this outcome through making preventive health services and chronic disease management more affordable and accessible to consumers. In particular, the item numbers focused on communities at risk of developing chronic diseases, including indigenous Australians, older Australians and those with an existing illness or co-morbidity. These are all areas in which pathology testing plays a critical role in providing best practice care and therefore any growth in demand for these services is likely to result in a consequent demand for pathology testing.

Conclusion

The recent growth in demand for pathology testing is clearly linked to a number of factors outside of the control of the pathology sector. These include increasing rates of preventable disease and chronic illness within the community and the government's response to this and the access problems experienced within the general practice sector. The range of policies, programs and initiatives implemented by the government have been working to address the increased burden of chronic illness within our society. The growth in demand for pathology testing resulting from these government actions and the changing health care needs of the community has played a crucial role in contributing to the successful implementation of government policies and programs in this area and helped to achieve a healthier and more productive society.

Section 2: The benefits to patients and the health system generally that flow from the early detection of disease

Prevention of disease is the ideal goal

This is often impossible (e.g. most forms of cancer) or practically difficult (e.g. achieving universal condom use in casual sexual encounters).

The alternative approach is early detection

This reduces the amount of illness, the complication rate, incapacity, mortality and often the cost and difficulty of treating the disease.

A good example is the Sexually Transmitted Disease (STD) caused by Chlamydia trachomatis. Although transmission can be prevented by condom use, the incidence of this infection in Australia is rising. Most infected females have no symptoms – however, the infection persists indefinitely and in some may progress to involve the fallopian tubes and other organs (which causes significant morbidity). The most common complication is infertility due to tubal scarring – requiring expensive Assisted Reproductive Techniques to achieve pregnancy. During this whole time spread to other sexual partners can also occur. The infection would be suspected by an astute GP (usually following the taking of a sexual history during a consultation) and is easily confirmed by a cheap and non invasive (urine) pathology test. Treatment with antibiotics is also cheap and usually straight forward. The comparison between the costs of early detection and treatment and those of late treatment are stark at the individual level – let alone factoring in the other cases which may have occurred as a consequence of delay.

Early detection of disease thus often requires pathology tests to be used in symptomless patients (i.e. population screening or individual case finding). However, early detection of disease mostly occurs in patients with recently observed symptoms or signs.

The investigation of symptomless persons may be done in a systematic and organized way – this is usually called 'screening' – and involves the testing of all persons with certain attributes (age, sex etc). It can also occur opportunistically where other factors may influence the decision to test (e.g. family history, existing conditions). This is also called 'case finding'.

The BEACH GP data base categorises patients' presenting complaints when pathology is requested as follows:

Undifferentiated illness (diagnostic testing) - 40%;
Differentiated illness (monitoring) – 40-45%;
No illness (screening) - 15-20%.

1. Screening is organized and systematic

Examples include:

- **Neonatal** – all newborns – heel prick blood tested for cystic fibrosis, phenylketonuria, galactosaemia and hypothyroidism: www.chw.edu.au/prof/services/newborn/
- **Cervical cancer** – all sexually active females; age and previous results influence frequency: www.**cervical**screen.health.gov.au/.../publishing.nsf/Content/cv-**early-detection**/$File/**early-detection**
- **Antenatal testing** – all pregnancies for syphilis, rubella, HIV, HBV, HCV, glucose tolerance: www.mja.com.au/public/issues/177_09_041102/wal10595_fm.html
- **Faecal occult blood testing** – all persons of appropriate age: www.**cancerscreening**.gov.au/internet/**screening**/publishing.nsf/Content/bw-facts
- **Breast cancer** – mammography of all females of appropriate age: www.breastscreen.info.au/internet/**screening**/publishing.nsf/Content/breastscreen
- **Blood donations** are tested for HIV, hepatitis B and C, HTLV1, Syphilis, CMV: www.health.gov.au/internet/main/publishing.nsf/Content/health-mediarel-yr1999-mw-hmc1.htm

For a screening program to be performed, a cost benefit analysis must have shown a reasonable benefit. Apart from cervical cancer screening using cytology and antenatal testing, these programs are performed by State/Federal service providers.

2. Screening as an opportunistic process

This usually occurs when a patient presents to a GP for other reasons – this is also called 'case finding'.

Examples include:

- **Random or fasting blood glucose** – obesity or family history: *Diabetes Care* 27:2120-2128, 2004
- **Cholesterol and HDL Cholesterol:** www.**heartfoundation**.org.au/document/NHF/guideline_lipid_summary_2001.pdf -
- **STDs**- Chlamydia, gonorrhoea, HIV, HBV: www.mja.com.au/public/issues/175_08_151001/donovan/donovan.html http://www.som.uq.edu.au/hivandhcvprojects/about-us/Meeting_S_H_Clinicians/PDFPPT/Commonwealth_Chlamydia_Screening_Program_Qld.pdf
- **Blood born viruses** in IV drug users: www.aic.gov.au/publications/proceedings/04/liew.pdf
- **Genetic diseases** where there is a family history of thrombophilia – Factor V Leiden and other clotting factors, haemochromatosis, cystic fibrosis: www.racgp.org.au/redbook/static/2.htm www.mja.com.au/public/issues/179_10_171103/ger10460_fm-2.html
- **Vitamin D** – diet, sex, age, racial groups, family history, smoking: www.thewomens.org.au/**VitaminD**Antenatal**Screening** www.racgp.org.au/.../NavigationMenu/Publications/AustralianFamilyPhys/2006issues/afp200607/20060705wong.p**df**
- **Renal disease** – diabetes, chronic infection, glomerulonephritis: www.**kidney**.org.au/LinkClick.aspx?fileticket=87c5TgrIfIo%3D&tabid=650&mid=455 www.mja.com.au/public/issues/176_11_030602/cas10211_fm.html
- **Iron deficiency** – age, sex, dietary, bleeding, ethnicity: www.racpcongress.com/PDF_files/ppt/BENSON_Jill.pdf www.labtestsonline.org.au/understanding/wellness/ab_infant.html
- **Depression** – Hypothyroidism: www.mja.com.au/public/mentalhealth/articles/ellen/ellen.html

Some work has been done on the effectiveness of this strategy but the cost benefit analysis is not as well developed as for 1.

3. Early investigation of symptomatic patients

This requires the potential cause to be considered and that there is a way that early disease can be detected. This process can be extended to virtually any disease process but obviously is most effective for diseases that do not spontaneously resolve. A patient with any treatable condition should benefit from early detection and thus early treatment of their illness. Early diagnosis of untreatable conditions may be of dubious value.

Examples including clues leading to testing:

- **Thyroid function tests (TSH/TFTs):** weakness and tiredness but also past history, age, sex, pregnancy. Of proven benefit - Danase et al: Screening for mild thyroid failure at the periodic health examination: a decision and cost effective analysis. JAMA. 1996;276:285-292
- **Glucose tolerance testing (GTT):** in patients with indicator illnesses for diabetes (e.g. thrush). See www.mja.com.au/public/issues/176_03_040202/hil10056_fm.html which demonstrated the clinical effectiveness of GTTs in this setting.
- **Ischaemic heart disease:** non cholesterol risk factors such as homocysteinaemia. See Am J Public Health 1998 January; 88(1):61-67. This article describes a cost effective intervention.
- **Osteoporosis:** Vitamin D deficiency. Cost effective intervention described in www.mja.com.au/public/guides/osteo/intvntn.html
- **Hypertension:** hyperaldosteronism etc - cost effective investigations. See J Clin Hypertens (Greenwich) 2008 Jan; 10(1):77-80.
- **Hepatocellular carcinoma:** cost benefit of screening in cirrhotics. See Gastroenterology 2004 Nov; 127(5 Suppl 1):S108-12.
- **PSA:** early detection of prostate cancer is controversial. See www.mja.com.au/public/issues/sep1/stricker/stricker.html
- **BNP** – early diagnosis of cardiac failure. See www.heart.nhs.uk/**BNP**/necvn/NECVN%20A%20Fuat%20are%20we%20ready.doc
- **Helicobacter pylori:** testing cost effectiveness in www.eprints.soton.ac.uk/24490/
- **Tissue biopsy:** Any biopsy of an in apparent/impalpable lesion. See www.who.int/cancer/detection/en

4. Data on the amount of screening and early detection of disease.

Examples include:

- All pregnancies have antenatal screening testing performed (250,000 per annum);
- All newborns are screened for at least five diseases (250,000 tested per annum);
- 1.5 million women are screened yearly for breast cancer;
- GP activities outside the above programs are best identified through examination of the BEACH data base or the AIHW reports (see above).

The BEACH program is a national study of GP activity. It provides direct linkage of management actions (e.g. prescriptions, referrals, investigations) to the problem under management. BEACH annually surveys 1000 GPs and its results can be validly extrapolated to all GPs.

This data shows that pathology testing requested by GPs is the mainstay of preventive health and the early detection of disease in the Australian health system.

There is a strong body of scientific evidence supporting this activity and this has become a major mechanism in reducing morbidity and mortality and increasing life expectancy in Australia.

Section 3: The Role of Pathology in Preventive Health and Chronic Disease Management.

Introduction

One of the greatest challenges facing Australia's health system is the increasing prevalence of chronic diseases in the community. Like most other developed countries over the past 20-30 years, Australia has experienced a relative reduction in the levels of acute illnesses and an increase in longer term chronic conditions. Currently, according to the Australian Institute of Health and Welfare, the top 10 causes of disease burden in Australia are chronic diseases. These diseases alone account for nearly 43% of the total disease burden in Australia. This trend is likely to continue into the future; in fact the World Health Organisation has predicted that by 2020 three quarters of all deaths will be due to chronic diseases.

This change in the health care needs of the Australian community is placing increased pressure on our health system. Other factors which are adding to this pressure include the ageing of our population (which also results in higher chronic disease levels) and global workforce shortages which mean that we need to increase the efficiency of our health workforce. It is imperative that we continue to focus our health care efforts on reducing the chronic disease burden and keeping people healthier for longer. Unless we change the way in which our health system operates we will not be able to continue to meet the health care needs of our population in the future.

Re-orienting our health system towards illness prevention and chronic disease management has had, and will continue to have, a profound impact on the delivery of health care in the community. For example, compared with a generation ago, GPs now focus more on preventing illness and managing chronic conditions and less on treating short-term acute problems. This, in turn, has had a major impact upon other areas of health care with a role to play in preventive health, particularly pathology. This section outlines the crucial role of pathology testing in most forms of illness prevention and chronic disease management and how the changing focus of our health system has had a significant impact on the pathology sector.

Government policies

The need to re-orient our health system towards illness prevention and chronic disease management has been recognized by both the current and previous governments. Over the past decade, a number of policies and programs have been introduced to support an increased focus on illness prevention and chronic disease management.

The aims of these policies and programs are to reduce the overall burden of disease and disability on the Australian community, through achieving the following:

- primary prevention of disease (where possible);
- early detection of disease (enabling more timely and effective treatment);
- a reduction in the level of illness, complication rates, incapacity and mortality associated with specific conditions;
- an increase in the numbers of 'healthy and active' older Australians; and
- an increase in the overall health and well-being of the population.

The specific influence of recent government policies on the pathology sector is discussed in more detail in Sections 1 and 2 above.

Role of pathology

Pathology underpins almost all preventive health care and is vital to the effective management of chronic disease. Pathology contributes to the overall effectiveness of health care provided to patients through a number of different means, including:

- assisting in the diagnosis of a disease (e.g. diagnosing HIV/AIDS);
- determining the type of disease present (e.g. the specific type of breast cancer);
- assessing the level of progression of disease (e.g. the severity of heart disease);
- preventing the transmission of disease to others (e.g. testing pregnant women for syphilis to prevent exposure of the baby during the birth);
- preventing the development of more serious conditions (e.g. testing sexually active women for Chlamydia to prevent infertility); and
- ensuring the treatment is targeted to the individual patient's needs (e.g. Her 2 gene amplification testing in breast cancer).

Prevention

Some examples of the role of pathology testing in key areas of preventive health are outlined below. These are categorized into three separate categories:

1. population screening (the testing of a defined population group);
2. individual screening (the opportunistic testing of an asymptomatic individual patient);
3. early investigation (the testing of a symptomatic patient).

Population screening		
Population	**Specific test**	**Role of pathology**
New-born babies	Test for cystic fibrosis	Testing of blood for evidence of cystic fibrosis (immuno reactive trypsin)
Sexually active women	Test for cervical cancer	Testing of cervical cells for evidence of malignancy (Pap smears)
Pregnant women	Test for rubella immunity	Testing of blood for rubella antibodies

Individual screening		
Individuals	**Specific test**	**Role of pathology**
Injecting drug user	Test for Hepatitis C virus	Testing of blood for Hepatitis C virus antibodies
Person with a family history of diabetes	Test for glucose tolerance	Testing of blood for glucose metabolism
Person with diabetes	Test for early onset renal disease	Testing of urine for mild proteinuria
Woman at risk for STDs	Test for Chlamydia trachomatis	Testing of first passed urine using PCR test for Chlamydia DNA

Early detection testing		
Individuals	**Specific test**	**Role of pathology**
Person with suspicious mole or lesion	Test for melanoma	Testing of tissue biopsy for evidence of malignancy
Person with symptoms of osteoporosis	Test for Vitamin D deficiency	Testing of blood for Vitamin D levels
Person with unexplained lethargy and tiredness	Test for iron deficiency	Testing of blood for ferritin, a measure of iron stores

These tests all provide long-term health benefits to individuals, as well as to the community as a whole, through enabling the early identification of disease and thus providing the best opportunity for early intervention and treatment. For example, by testing people with early signs of osteoporosis for Vitamin D deficiency, one of the main causes of this debilitating condition can be identified and addressed. This reduces the rate of progression of the disease and the risk of serious complications, such as hip fractures, which are life threatening, expensive to treat and which result in significant reductions in quality of life for patients. In some cases, such as the routine testing of pregnant women for rubella antibodies, potentially serious and disabling rubella infection of babies in utero can be prevented, thus resulting in life-long benefits.

With an increasing focus on prevention and early detection of disease within our health system, pathology testing will continue to support doctors and other health professionals to deliver optimum health outcomes to patients and to contribute to maximizing the efficient use of scarce health resources.

Chronic disease management

Pathology also plays a vital role in the diagnosis and management of chronic disease. Some common chronic conditions which rely on pathology testing include diabetes mellitus, hypertension and high cholesterol. Other conditions, such as pregnancy, also involve a range of pathology tests for best practice management. Some examples of specific pathology tests involved in managing the above conditions are as follows:

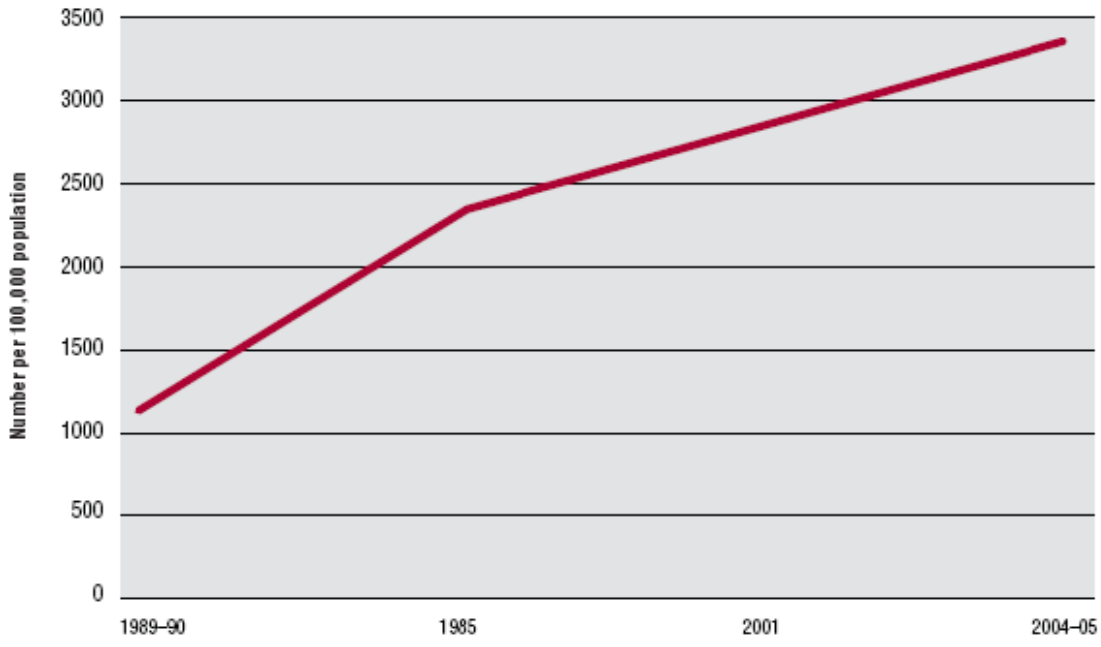
Chronic disease/condition management		
Condition	**Specific test**	**Role of pathology**
Diabetes	HbA1C levels	Testing of average blood glucose to determine how well diabetes is being managed
High cholesterol	Test for levels of LDL cholesterol, HDL cholesterol, triglycerides and total cholesterol	Testing of blood for atherogenic factors including cholesterol and triglyceride levels
Pregnancy	Triple test for fetal immaturity	Identify Down syndrome and other trisomies
Overweight/obesity	Glucose tolerance test	To determine the risk of diabetes mellitus

Through supporting best practice management of chronic disease, pathology testing provides doctors with the information they need to prevent, as far as possible, further progression of the disease and ensure patients with chronic conditions remain as healthy as possible.

Diabetes mellitus – a case study

Diabetes provides a useful case study for examining the role of pathology testing in chronic disease management. Diabetes is a significant cause of disability within our community, especially amongst the indigenous population. Of particular concern is the rapidly increasing rate of type 2 diabetes – currently 850,000 Australian adults have type 2 diabetes and this figure has doubled in the last decade. If this trend continues, we can expect that three million Australians will have diabetes by 2031.

Trends in the prevalence of diabetes: 1989–90 to 2004–05



Source: Australian Institute of Health and Welfare, Australia's Health 2006 (2006).
Note: Figure is based on self-reported data age-standardised to the 2001 Australian population.

Poorly managed diabetes can lead to a range of serious health complications, such as chronic kidney disease – the long-term loss of kidney function. People whose diabetes is not managed well are two to five times more likely to have a heart attack or stroke. Heart attacks and strokes are major causes of premature death in Australia today and can also often result in significant disability and a reduction in quality of life.

Diabetes costs the Australian community approximately $21 billion per year. This figure includes health and medical costs, as well as the costs associated with lost productivity, foregone taxation revenue, welfare payments and carers' costs.

However, many of the complications of diabetes can be avoided or reduced through effective management of this condition. This increases the quality of life of people with diabetes and also significantly reduces the associated treatment costs. According to one estimate, the cost of treating uncomplicated diabetes is $4,000 per person per year, but this rises to $10,000 for people whose eyes, heart or circulation are affected.

The Australian Institute of Health and Welfare has also found that 25% of the almost one in ten diabetic hospital admissions each year could have been avoided with better care of the complications of diabetes. This equates to 138 000 Australians with diabetes being admitted to hospital each year for complications which could have been avoided or better managed in the community. This indicates the benefits, in terms of both quality of life and avoidable health care costs, which can be achieved through the better management of diabetes. Monitoring of diabetic control is totally dependent on pathology tests. Pathology will continue to make an essential contribution to improving the prevention and management of diabetes and in reducing the future burden that this condition will impose on our health system and on the community as a whole.

Conclusion

Pathology testing plays a vital role in illness prevention and chronic disease management. Without access to pathology testing, doctors would have to make decisions about the diagnosis and treatment of patients without having vital information about the patients' condition. This would lead to a higher rate of mis-diagnosis and delayed diagnosis and make it more difficult for doctors to find the best treatment for their patients.

Without pathology testing, patients would experience delays in accessing the most appropriate treatment for their condition and would be at risk of suffering unnecessary side-effects from inappropriate treatments. Overall, people with chronic conditions would have poorer outcomes and reduced health and well-being.

Without access to pathology testing, the effectiveness of screening and prevention programs would be greatly reduced as the means to identify diseases within the population would be limited. This would significantly increase the incidence of preventable diseases in the community, resulting in higher health care costs and reducing the overall health of our society.

Section 4: Primary Care Strategies, Access, Affordability, Quality and Safety

1. National Primary Health Care Strategy

The strategy will have priorities including:

- better rewarding prevention;
- promoting evidence-based management of chronic disease;
- supporting patients with chronic disease to manage their condition;
- supporting the role GPs play in the health care team; and
- addressing the growing need for access to other health professionals, including practice nurses and allied health professionals like physiotherapists and dieticians.

Pathology testing will play a vital role in the first four of these priorities.

1. Many **prevention strategies** require pathology testing, usually initiated by patients and GPs in partnership. Examples include:
Diabetes mellitus;
Coronary artery disease and other vascular disease (lipids, homocysteine);
Cervical cancer (Pap smears, HPV testing);
Sexually transmitted diseases (Chlamydia, N gonorrhoea, HPV, HSV);
Colorectal cancer (FOBT, biopsy);
Blood born viruses (HIV, HCV, HBV testing);
Skin cancer (tissue biopsy);
Osteoporosis (Vitamin D, bone turnover markers);
Prostate cancer (PSA & fractions);
Anaemia (FBC, ferritin, Vitamin B12);
Perinatal and neonatal disease (antenatal screening); and
Renal disease (urinary protein).

2. Many **chronic diseases** require pathology testing to guide their management. In most cases there are evidence based examples of how best to manage these diseases and how to use pathology tests. In many cases MNAC and NH&MRC have developed guidelines for this. The best examples include:
Diabetes mellitus (HbA1c, microalbumin);
Cancers (cancer markers);
Hyperlipidemia (blood lipids);
Hypercoagulability (INR); and
Renal failure/dialysis.

3. **Patient involvement** with their chronic disease management often leads to pathology testing. Such patients may develop a partnership with their local pathology laboratory and become responsible for monitoring their own tests (e.g. INR for patients on Warfarin).

4. There is a close **relationship** between GPs and pathologists. This is seen in the assistance provided in test selection, result interpretation and follow up of abnormalities. There is high level connectivity, both electronic and by telephone, which facilitates this. This is particularly seen in rural and regional areas where access issues for patients means that GPs often take on some of the roles of specialists.

2. Access and Affordability

Pathology is the most accessible medical service. This is a bold claim as it is a referred service; however, this can be justified easily for these reasons:

1. Pathology has the highest bulk billing rate of any medical service - 88% of all pathology services and if hospital patient episodes are excluded (as these are rarely if ever bulk billed as the Health Funds and Medicare will reimburse a minimum of 100% of the schedule fee) this rises to 95%.

2. Any patient can get any pathology test done wherever they live. The specimen can be collected anywhere in Australia and sent to whichever laboratory performs the test.

3. Australian pathology practices have an extensive network of collection centres throughout Australia with excellent coverage of virtually all populated areas. Where collection centres are not present, GPs are provided with training and collection materials and high quality courier services. Also provided is a home visit service for incapacitated patients as well as collection services in nursing homes and hospitals.

3. Quality and Safety

Pathology was the early adopter of the Australian quality movement. It has built the process of quality targets into all its activities and has sophisticated quality control and quality assurance. In 2008 there is a strong and mature quality framework of laboratory accreditation against international standards (ISO 15189) and quality systems accreditation (ISO 15189, ISO 9001). Testing is regulated by federal law and there is strong support from the pathologist and scientist professions. The success of Australian pathology in this area can be measured by two independent validations – the Australian Commission on Safety and Quality in Health Care has endorsed pathology's approach as 'the model that others in Health Care can aspire to' and the indemnity crisis that hit other areas of medicine went close to unnoticed in pathology – despite its central and critical role in patient care, errors in pathology are rare.

4. Conclusion

The pathology profession leads Australia's push to provide affordable, accessible, high quality and safe services to the Australian public. The RCPA has also published a paper on 'The Quality of Pathology Services'.

Drivers of Growth in Pathology Testing

Appendix A

BEACH data methodology and EXCEL file

Helena Britt
27/7/2008

The University of Sydney

Family Medicine Research Centre
School of Public Health

A Collaborating Centre of the
World Organization of Family Doctors

Methods and limitations

Changes in pathology test ordering by GPs 2004-05 to 2007-08

Data source: BEACH program

This document should be read in conjunction with:

Notes on XL files to AAPP.doc

and

AAPP results 0405,0708.xls

(both prepared by Helena Britt)

This work was undertaken as a consultancy to the Australian Association of Pathology Practices Inc.

Contact details:
Dr Helena Britt
A/Professor and Director
Family Medicine research Centre
& Australian GP Statistics and Classification Centre
School of Public Health
University of Sydney
Ph: 02 98458150
Fax: 0298458155
Email: helenab@med.usyd.edu.au
http://www.fmrc.org.au

Methods

BEACH is a continuous national study of general practice activity that began in April 1998. It is the only continuous randomised study of general practice activity in the world, and the only national program which provides direct linkage of management actions (such as prescriptions, referrals, investigations) to the problem under management.

In summary:

- each year BEACH involves a random sample of approximately 1,000 GPs
- each GP records details about 100 doctor–patient encounters of all types
- the GP sample is a rolling (ever-changing) sample, with approximately 20 GPs participating in any one week, 50 weeks a year
- each GP can be selected only once per quality assurance triennium
- the encounter information is recorded by the GPs on structured paper encounter forms (Appendix 1)
- each GP participant also completes a questionnaire about themselves and their practice (Appendix 2).

The BEACH program relies on the co-operation of randomly selected GPs across the country. Each completes details for 100 consecutive GP–patient encounters on structured paper encounter forms. They each also provide information about themselves and their practice. About 1,000 GPs participate in BEACH each year and the sample is ever-changing. Participants gain points towards their quality assurance requirements for continued vocational registration.

The sample frame for the study is all vocationally registered GPs who claimed at least 375 A1 Medicare items of service from Medicare Australia in the most recent data quarter. The Australian Government Department of Health and Ageing draws the GP samples from Medicare claims data. We approach the GPs by letter with telephone follow-up.

Data elements

BEACH includes three interrelated data collections: encounter data, GP characteristics and patient health status. An example of the form used to collect the encounter data and the data on patient health status is included in Appendix 1. The GP characteristics questionnaire is provided in Appendix 2.

- **Encounter data:** date of consultation, type of consultation (direct/indirect), up to three Medicare/Department of Veterans' Affairs (DVA) item numbers (where applicable) and other payment source (where applicable) (tick boxes).
- **The patient:** date of birth, sex and postcode of residence. Tick boxes are provided for Commonwealth concession card holder, holder of a Repatriation health card (from DVA), non-English-speaking background (patient self-report—a language other than English is the primary language at home), Aboriginal person (self-identification) and Torres Strait Islander (self-identification). Space is provided for up to three patient reasons for encounter (RFEs).
- **The problems managed** at encounter (at least one and up to four). Tick boxes are provided to denote the status of each problem as new or continuing for the patient (if applicable).
- **Management of** each problem, including:
  - medications prescribed, supplied by the GP and advised for over-the-counter purchase including brand name, form (where required), strength, regimen, status (if new or continuing medication for this problem for this patient) and number of repeats

- other treatments provided for each problem including counselling, advice and education, and procedures undertaken; and if other treatment was provided by practice nurse (tick box)
- new referrals to medical specialists, allied health professionals and hospital
- investigations including pathology tests, imaging and other investigations ordered at the encounter.

- **GP characteristics:** age and sex, years in general practice, number of GP sessions worked per week, number of full time equivalent GPs working in the practice, postcode of major practice address, country of graduation, postgraduate general practice training and FRACGP status, after-hours care arrangements, use of computers in the practice, whether the practice is accredited, whether it is a teaching practice, work undertaken in other clinical settings, hours worked in direct patient care.

Pathology data

- GPs record pathology test orders in free text (see coding and classification below)
- All pathology tests are linked by the GP to the problem/s for the test is associated. Each pathology test can be linked to up to 4 problems managed (the maximum number of problems recorded per encounter)
- There is space for up to 5 pathology tests to be recorded at each encounter (see limitations below)
- Each test can either be a single test (e.g. fasting glucose test) or for a battery of tests (such as FBC) and each of these counts as one order

Coding and classification

- We code each test recorded by GPs specifically
- The International Classification of Primary care (ICPC- 2) which is used to classify most clinical data elements in BEACH is not used in the reporting of pathology because it classifies pathology very broadly.
- We report pathology data in MBS groups. All test order terms are mapped to the MBS groups (Haematology, Chemistry etc)
- We cannot classify tests at any lower group level in MBS because most MBS items group tests in iso-resource groups (according to MBS benefit). Therefore they do not identify individual test (e.g. any 1 of…, any 2 of…..)
- Synonymous test labels are grouped (see pathology section of Appendix 4 from 'General practice activity in Australia 2006–07' available from www.aihw.gov.au/publications/index.cfm/subject/19)

Limitations

- As mentioned above each test is counted once regardless of whether the GP records an individual test or a battery of tests
- It is possible for a single pathology order to be linked to more than one problem. This report uses a problem base and therefore it looks at the linkages of pathology tests to the problem. It is possible that a single pathology test could be counted more than once in the top morbidities listed in the spreadsheet(s). However it is very unlikely that a single pathology test would be counted twice within a morbidity group.

- There is only space for up to 5 pathology tests to be recorded per encounter.
  Over time there has been a significant increase in the number of encounters where 5 pathology tests have been recorded. In 2004–05, 2.4% of encounter had
  5 pathology tests and in 2007–08 this had increased significantly to 3.5% (see Figure 1). This increase suggests that these data are likely to underestimate the number of pathology tests ordered by GPs.
- We code the pathology data at the same level of specificity that the GP records whenever possible. However, on occasions where GPs specify all the analytes from a battery of tests these have been coded as the battery test to provide space for any other tests recorded by the GP to be coded. This coding decision would also contribute to an underestimation of the number of tests ordered by GPs.

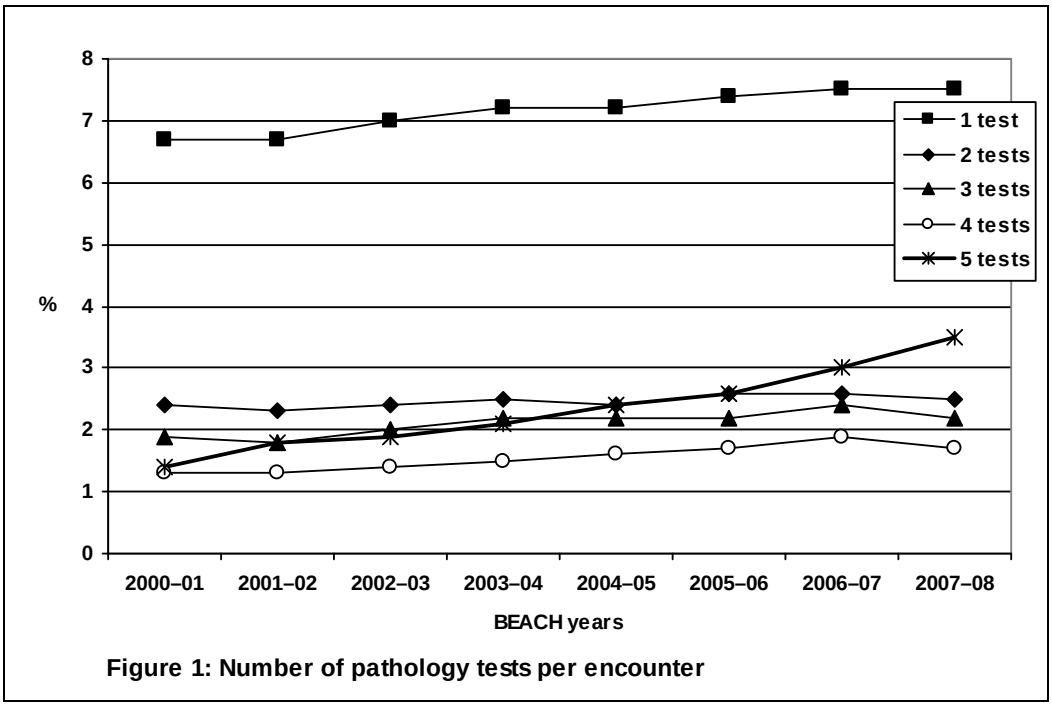


Figure 1: Number of pathology tests per encounter

Acacia House, Westmead Hospital, PO Box 533, WENTWORTHVILLE NSW 2145
Ph: +61 2 9845 8151 Fax: +61 2 9845 8155 email: helenab@med.usyd.edu.au Web: http://www.fmrc.org.au

Overview of the data

The data sets for the April 2004 to March 2005 and April 2007 to March 2008 BEACH years are summarised in Table 1.1.

- In 2004–05, 954 GPs participated in BEACH providing data about 94,386 encounters. These encounters included the management of 137,330 problems involving 34,652 pathology orders.
- In 2007–08, 953 GPs participated in BEACH providing data about 995,898, encounters. These encounters included the management of 145,078 problems involving 41,375 pathology orders.

Table 1.1: Summary of data sets, 2004–05 and 2007–08 (final weighted data)

Variable	2004–05	2007–08
General practitioners	954	953
Encounters	94,386	95,898
Reasons for encounter	141,215	146,696
Problems managed	137,330	145,078
Medications	95,816	98,439
Other treatments	53,630	49,130
Referrals	10,881	12,008
Imaging	7,840	9,143
Pathology	34,652	41,375

From 2004–05 to 2007–08 there has been a significant increase in the number of problems managed per 100 encounters. Over this time the management rate of chronic problems did not significantly increase (Table 1.2).

Pathology order rates have increased between 2004–05 and 2007–08 (Table 1.2).

- Pathology orders increased from a rate of 36.7 per 100 encounters in 2004–05 to 43.2 per 100 in 2007–08
- GPs were significantly more likely to order pathology at encounters in 2007–08 than in 2004–05 (17.4% of encounters c.f. 15.7%)
- Pathology order rates per 100 problems also increased significantly from 25.2 per 100 problems in 2004–05 to 28.5 per 100 in 2007–08
- The likelihood of pathology tests being ordered for problems also increased from 12.2% of problems in 2004–05 to 13.1% in 2007–08

Table 1.3 shows there has been a significant increase in the likelihood of having 5 tests ordered per encounter and per problem in 2007–08 compared with 2004–05. There has also been a significant increase in the number of pathology tests ordered per encounter and per problem once the decision to order has been made.

Table 1.2: Changes in pathology order rates, 2004–05 and 2007–08

	2004–05	2007–08
	(*n* = 94,386)	**(*n* = 95,898)**
Problems managed rate per 100 encounters (95% CI)	145.5 (143.6–147.4)	151.3 (149.2–153.4)
Chronic problems managed (95% CI)	50.4 (48.7–52.1)	52.3 (50.4–54.1)
Pathology test rate per 100 encounters (95% CI)	36.7 (35.2–38.2)	43.2 (41.3–45.0)
At least one pathology test ordered Per cent of encounters (95% CI)	15.7 (15.2–16.3)	17.4 (16.7–18.0)
	(n = 137,330)	**(n = 145,078)**
Pathology test rate per 100 problems (95% CI)[(a)]	25.2 (24.3–26.2)	28.5 (27.4–29.6)
At least one pathology test ordered Per cent of problems (95% CI)[(a)]	12.2 (11.8-12.6)	13.1 (12.7-13.6)

(a) This is a rate of pathology test/batteries ordered per 100 problems based on the number of pathology tests/batteries over the number of problems rather than the number of problem-pathology links.

Note: CI—confidence interval.

Table 1.3: Number of pathology tests ordered per encounter and per problem, 2004–05 and 2007–08

	2004–05	2007–08
Number of pathology test ordered at encounters	**Per cent of encounters (95% CI) (*n* = 94,386)**	**Per cent of encounters (95% CI) (*n* = 95,898)**
No pathology tests	84.3 (83.7–84.8)	82.7 (82.0–83.3)
1 pathology test ordered	7.2 (6.9–7.5)	7.5 (7.2–7.9)
2 pathology tests ordered	2.4 (2.3–2.6)	2.5 (2.3–2.6)
3 pathology tests ordered	2.2 (2.0–2.3)	2.2 (2.0–2.3)
4 pathology tests ordered	1.6 (1.4–1.7)	1.7 (1.6–1.9)
5 pathology tests ordered	2.4 (2.2–2.6)	3.5 (3.2–3.7)
Mean number of pathology tests per 100 encounters at which pathology ordered	235 (230–240)	251 (247–256)
Number of pathology test ordered	**Per cent of problems (95% CI) (n = 137,330)**	**Per cent of problems (95% CI) (n = 145,078)**
No pathology tests	87.8 (87.4–88.2)	86.9 (86.4–87.3)
1 pathology test ordered	6.2 (5.9–6.5)	6.5 (6.2–6.7)
2 pathology tests ordered	2.0 (1.9–2.1)	1.9 (1.8–2.0)
3 pathology tests ordered	1.6 (1.5–1.7)	1.6 (1.5–1.7)

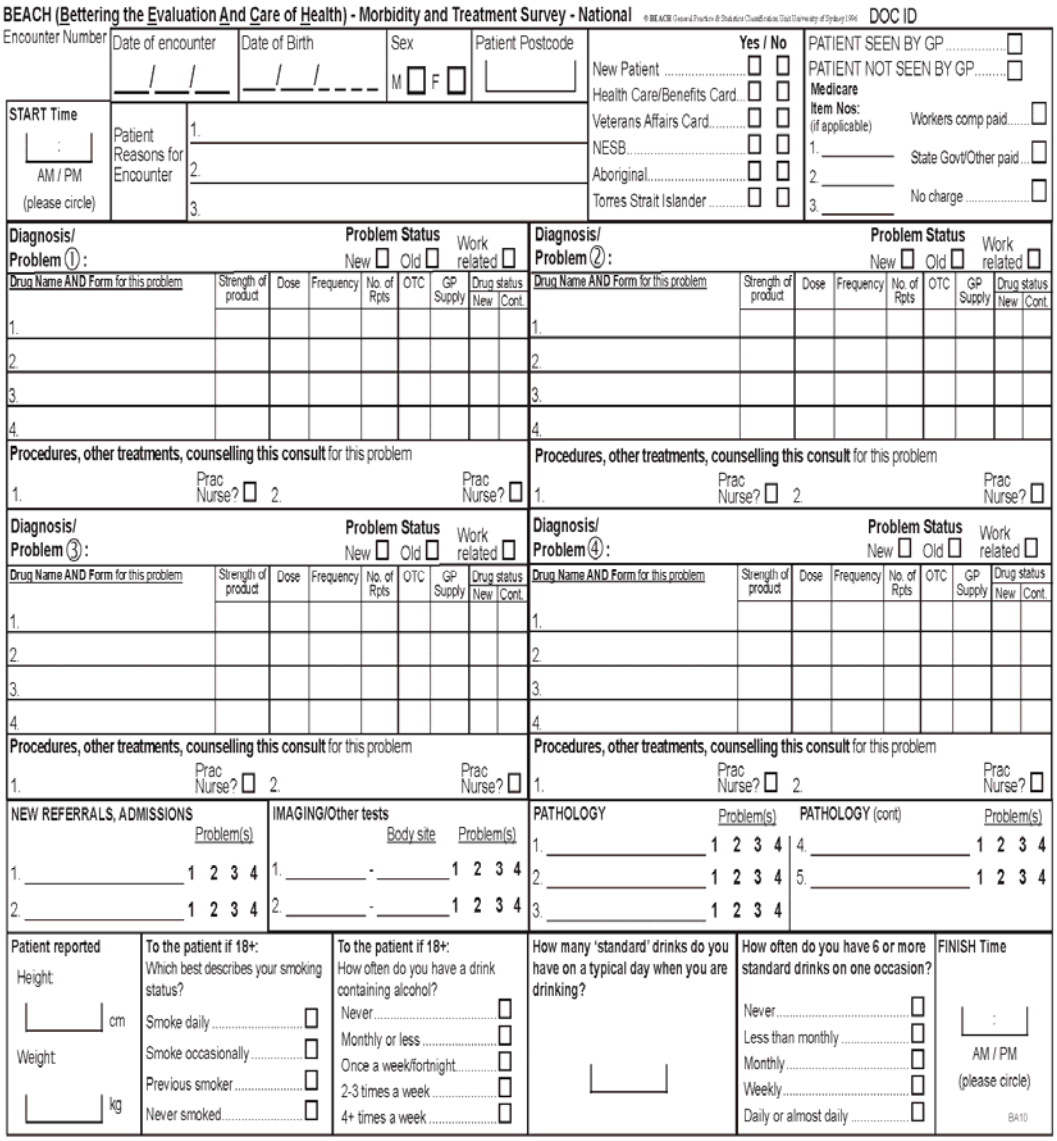
(continued)

Table 1.3 (continued): Number of pathology tests ordered per encounter and per problem, 2004–05 and 2007–08

Number of pathology test ordered	Per cent of problems (95% CI) (n = 137,330)	Per cent of problems (95% CI) (n = 145,078)
4 pathology tests ordered	1.1 (1.0–1.2)	1.3 (1.2–1.4)
5 pathology tests ordered	1.3 (1.2–1.4)	1.9 (1.7–2.0)
Mean number of pathology tests per 100 problems at which pathology ordered	212 (208–216)	224 (220–228)

Note: CI—confidence interval.

Appendix 1: Example of a 2007–08 recording form



BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National © BEACH General Practice & Statistics Classification Unit University of Sydney 1996 DOC ID

Encounter Number | Date of encounter ___/___/___ | Date of Birth ___/___/____ | Sex M ☐ F ☐ | Patient Postcode

START Time : AM / PM (please circle)

Patient Reasons for Encounter 1. 2. 3.

	Yes / No
New Patient	☐ ☐
Health Care/Benefits Card	☐ ☐
Veterans Affairs Card	☐ ☐
NESB	☐ ☐
Aboriginal	☐ ☐
Torres Strait Islander	☐ ☐

PATIENT SEEN BY GP ☐
PATIENT NOT SEEN BY GP ☐
Medicare Item Nos: (if applicable) 1. 2. 3.
Workers comp paid ☐
State Govt/Other paid ☐
No charge ☐

Diagnosis/ Problem ①: Problem Status New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ②: Problem Status New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ③: Problem Status New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ④: Problem Status New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

NEW REFERRALS, ADMISSIONS Problem(s)
1. _____ 1 2 3 4
2. _____ 1 2 3 4

IMAGING/Other tests Body site Problem(s)
1. _____ - _____ 1 2 3 4
2. _____ - _____ 1 2 3 4

PATHOLOGY Problem(s)
1. _____ 1 2 3 4
2. _____ 1 2 3 4
3. _____ 1 2 3 4

PATHOLOGY (cont) Problem(s)
4. _____ 1 2 3 4
5. _____ 1 2 3 4

Patient reported
Height: ____ cm
Weight: ____ kg

To the patient if 18+: Which best describes your smoking status?
Smoke daily ☐
Smoke occasionally ☐
Previous smoker ☐
Never smoked ☐

To the patient if 18+: How often do you have a drink containing alcohol?
Never ☐
Monthly or less ☐
Once a week/fortnight ☐
2-3 times a week ☐
4+ times a week ☐

How many 'standard' drinks do you have on a typical day when you are drinking? ____

How often do you have 6 or more standard drinks on one occasion?
Never ☐
Less than monthly ☐
Monthly ☐
Weekly ☐
Daily or almost daily ☐

FINISH Time : AM / PM (please circle)

BA10

Acacia House, Westmead Hospital, PO Box 533, WENTWORTHVILLE NSW 2145
Ph: +61 2 9845 8151 Fax: +61 2 9845 8155 email: helenab@med.usyd.edu.au Web: http://www.fmrc.org.au

The University of Sydney
at Westmead Hospital

Australian General Practice Statistics and Classification Centre

a collaborating unit of the
Australian Institute of Health and Welfare

Doctor Identification Number

Please fill in boxes or circle answers

1. Sex ..... **Male / Female** *(please circle)*

2. Age.....

3. How many years have you spent in general practice?.....

4. How many GPs (full time equivalents) work at this practice (including yourself)?
(Practice = shared medical records)

5. Postcode of major practice address ..

6. In which GP Division is this practice

_____

7. Year of graduation .....

8. Place of graduation *(primary medical degree)*:

Aust 1
NZ 2
Asia 3
UK / Ireland..... 4
Other: (specify) 5

9. Do you conduct any of your consultations in a language other than English?

No..... 1
Yes - <25%..... 2
Yes - 25 to 50%..... 3
Yes - >50%..... 4

10. Are you a GP registrar (i.e. in training)?... **Yes / No**

11. Do you hold FRACGP ?..... **Yes / No**

12. Is your major practice accredited ?..... **Yes / No**

13. Is there a practice nurse at your major practice address ?..... **Yes / No**
If yes, how many full time equivalents?

14. Number of general practice sessions you usually work per week?
(1 session = ~4 hrs eg a morning session) ....

15. Direct patient care hours worked per week?
(Include hours of direct patient care, instructions, counselling etc and other services such as referrals, prescriptions, phone calls etc.) .....

16. Over the past four weeks have you provided any patient care ....*(Circle all that apply)*

As a locum 1
In a deputising service 2
In a residential aged care facility 3
As a salaried/sessional hospital medical officer..... 4
None of the above 5

17. What are the normal after-hours arrangements for your practice? *(Circle all that apply)*

Practice does its own.....1
Co-operative with other practices 2
Deputising service.....3
Referral to other service (eg A&E) 4
Other 5
None 6

18. Do you bulk bill ALL patients?..... **Yes / No**

If No, which groups are bulk billed?

(Tick those that apply)	**All**	**Some**
Pensioner/Healthcare Card holders ...	☐	☐
Children <16 years.....	☐	☐
Selected other patients		☐

19. To what extent are computers used -

(i) at your major practice?	(ii) by you (at work)?
Not at all 1	Not at all 1
Billing.....2	Test ordering 2
Prescribing.....3	Prescribing 3
Medical Records.....4	Medical Records 4
Other Admin.....5	Internet 5
Internet / Email.....6	Email 6

(iii) Prescribing / Health record software used is —

_____

20. Is your major practice site a teaching practice? *(Circle all that apply)*

for undergraduates..... 1
for GP registrars..... 2
No..... 3

21. Did any of your BEACH consultations take place in an Aboriginal Community Controlled Health Service (ACCHS)?

No.....1
Yes - all.....2
Yes - some (which dates?) _____ 3

*Thank you for participating in the **BEACH PROGRAM**.*

AGPSCC, Acacia House, Westmead Hospital, WESTMEAD, 2145.
Ph: 02 98458151 fax: 02 98458155 email: janc@med.usyd.edu.au Web http://www.fmrc.org.au

The Excel file

Selection of problems included in this output:
Problems were selected first on the basis of those problems with the highest number of test/battery orders per 100 contacts (top 100). These were then compared with the list of top 30 problems managed in general practice, and where a problem in the top 30 management list was NOT already in the top test list, it was added to this output.

Sheet 1 (2004-05) provides all the rates from BEACH April 2004–March 2005.
Sheet 2 (2007-08) provides all the rates from BEACH April 2004–March 2005.
Sheet 3 tries to estimate the independent effect of the changes between these two years in:

- Problem specific management rate
- Proportion of problem contacts for which at least one path test was ordered
- Number of path test/batteries ordered when decision to order had been made.

This Sheet calculates the effect of changed behaviour holding the denominator constant and ignoring other behavioural change effect, by using the 2004-05 number of events to test the impact of each changed behaviour.

Sheet 4 (Real change) provides the extrapolated national changes in numbers when also considering there were about 10 million more GP Medicare items of service claimed in 2007-08 than in 2004-05.

Sheet 5(Real descend order +tests), provides the selected problems in descending order of the size of the increase in estimated number of tests for the problem nationally (it is the same as Sheet 4, in different order.
This shows that the ten problems accounting for the largest increased test order rates from GP were:

- General check-up*
- Diabetes*
- Hypertension*
- Blood test NOS
- Lipid disorders*
- Pregnancy*
- Abnormal test results*
- Female genital check-up*
- Microbiology/immunology test NOS
- Weakness/tiredness general

Together these accounted for an estimated additional 6 million test/battery orders from GPs in 2007-08 compared with 2004-05.

Going through an example of the output:
Diabetes
From 2004–05 BEACH year to 2007–08 BEACH year, we estimate the total increase in number of tests/batteries ordered was +7,405 per 100,000 GP consultations. (Sheet 3 Effect, B39)

GPs had increased their management rate of diabetes over this period, from 3.2229 per 100 encounters (sheet 2004-05, C39) to 3.8762 per 100 encounters (sheet 2007-08, C29), an increase of 0.6533 per 100, or 653.3 contacts per 100,000 encounters (Sheet Effect, C39)

If GPs had merely changed the management rate and retained the same likelihood to test, this would have led to an increase of 191 additional diabetes problems tested per 100, 000 contacts. (Sheet Effects, D39)

However, GPs had increased their likelihood to test (% of contacts tested) when managing diabetes, from testing at 29.2% of diabetes contacts (Sheet 2004-05, I39), to 29.3% of diabetes contacts (Sheet 2007-08, I 39), resulting in an additional 0.1 tested occasions per 100 diabetes contacts, independently leading to an additional 100 occasions at which diabetes was tested per 100,000 contacts with diabetes (Sheet Effects, E39).

When GPs decided to order pathology test(s) in the management of diabetes, they increased their average number of tests ordered from 258.6 tests/batteries ordered per 100 tested diabetes problems (Sheet 2004-05, K39), to 282.9 tests/batteries per 100 tested diabetes contacts (Sheet 2007-08, K39), an increase of 24.3 tests/batteries per 100 tested diabetes problems.

If the number of tested diabetes contacts had remained at the same level over the study period, based on 2004-05 proportions of tested diabetes contacts, this increase in number of tests ordered after the decision to order would have resulted in an additional 228 tests per 100,000 contacts with diabetes.

However, all these factors combine:
management rate + likelihood + tests ordered when decision made.
So I have added up these independent effects (Sheet, Effects H39) and this suggests these independent changes in behaviour had resulted in an increased 982 tests/batteries ordered per 100,000 diabetes contacts.

However, this is all a little academic. While it gives you an idea of the independent contribution of each factor, it is calculated as a n effect per 100,000 contacts with the problem.

Yet - In 2007-08 there were approx. 107 million GP services claimed, some 10 million more than in 2007-08, so when you extrapolate this effect it is far greater than one would expect.

So, in *Sheet: Real Change*, I have worked with extrapolated figures (extrapolated to the total Medicare claims in each of the study period) for 2004-05 and then for 2007-08, the total estimated number of contacts with each problem, and subtracted 2004-05 from 2007-08 to show the change in actual number of contacts for each problem over the study period.

Then I have then done the same for estimated total number of tested contacts with each problem and for the estimated total number of tests ordered for each problem.

I am somewhat at a loss as to how I can allocate a per cent contribution to the overall increase from the independent effect of each of the 3 changes in GP behaviour listed above. Any suggestions would be appreciated.

In *Sheet, real change*, the diabetes results suggest that nationally:

- in 2007-08 there were an estimated 1.02 million more GP-patient contacts for diabetes than in 2004-05
- in 2007-08 there were an estimated 300,00 contacts that resulted in path test order(s)more diabetes contacts at which tests were ordered than in 2004-05

- in 2007-08 there were an estimated 1.07 million more pathology tests/batteries ordered by GPs in management of diabetes than in 2004-05.

While GPs have increased their management orate of diabetes from 3.2 to 3.9 per 100 encounters, the overall increase in total encounters combined with this increase in management rate gives this huge 1.02 million additional diabetes contacts.
Policy changes certainly would have been influential in these changes:

1. Diabetes plans means extra visits
2. Diabetes plans mean more tests more often

Helena Britt
Friday 25th July 2007.

Acacia House, Westmead Hospital, PO Box 533, WENTWORTHVILLE NSW 2145
Ph: +61 2 9845 8151 Fax: +61 2 9845 8155 email: helenab@med.usyd.edu.au Web: http://www.fmrc.org.au

Drivers of Growth in Pathology Testing

Appendix B

BEACH data methodology and EXCEL file

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 1.1: Pathology orders across MBS pathology groups- Abdo pain Apr07-Mar08

pathology	n	% of total pathology for Abdo pain probs	Lower 95% CI	Upper 95% CI	Per 100 Abdo pain probs	Lower 95% CI	Upper 95% CI
Chemistry	226.11	46.35	40.7	52	36	27.7	44.3
Haematology	114.98	23.57	20.2	26.9	18.31	14.1	22.5
Microbiology	96.96	19.88	15.1	24.6	15.44	11.6	19.3
Other NEC	27.11	5.56	0	12	4.32	0	9.4
Simple test	9.57	1.96	0.4	3.6	1.52	0.3	2.8
Immunology	8.73	1.79	0.5	3.1	1.39	0.3	2.4
Cytopathology	4.36	0.89	0	1.9	0.69	0	1.5
Subtotal	487.82	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**487.82**	**100**	**.**	**.**	**77.68**	**63.9**	**91.4**

Table 1.2: Pathology orders at individual test level- Abdo pain Apr07-Mar08

pathology	n	% of total pathology for Abdo pain probs	Lower 95% CI	Upper 95% CI	Per 100 Abdo pain probs	Lower 95% CI	Upper 95% CI
Full blood count	92.68	19	16.6	21.4	14.76	11.5	18
Urine MC&S	58.91	12.08	8.5	15.7	9.38	6.5	12.2
Liver function	55.09	11.29	8.7	13.9	8.77	6.2	11.3
Multibiochemical analysis	33.66	6.9	3.8	10	5.36	2.8	7.9
EUC	32.41	6.64	4.6	8.7	5.16	3.3	7
Chemistry; other	25.17	5.16	2.9	7.4	4.01	2	6
ESR	22.29	4.57	2.8	6.4	3.55	2	5.1
Amylase	22.22	4.56	2.6	6.5	3.54	1.8	5.3
Urine test	22.04	4.52	0	11	3.51	0	8.6
C reactive protein	20.81	4.27	2.4	6.1	3.31	1.8	4.8
Faeces MC&S	18.09	3.71	1.7	5.7	2.88	1.3	4.5
Simple test; other	9.57	1.96	0.4	3.6	1.52	0.3	2.8
H pylori	9.12	1.87	0.6	3.1	1.45	0.5	2.4
Immunology; other	8.73	1.79	0.5	3.1	1.39	0.3	2.4
Thyroid function	7.93	1.63	0.5	2.8	1.26	0.4	2.2
Glucose tolerance	6.63	1.36	0	2.7	1.06	0	2.1
Lipids	6.11	1.25	0.2	2.3	0.97	0.2	1.8
Hormone assay	4.9	1	0	2	0.78	0	1.6
Microbiology; other	4.61	0.94	0.2	1.7	0.73	0.1	1.3
Ferritin	4.15	0.85	0	1.7	0.66	0	1.3
Pap smear	3.95	0.81	0	1.8	0.63	0	1.4
Blood test	3.07	0.63	0	1.4	0.49	0	1.1
Chlamydia	2.9	0.59	.	.	0.46	.	.
B12	2.32	0.48	.	.	0.37	.	.
Hepatitis serology	2.18	0.45	.	.	0.35	.	.
Other test NEC	1.93	0.39	.	.	0.31	.	.
Drug screen	1.82	0.37	.	.	0.29	.	.
Prostate specific antigen	1.16	0.24	.	.	0.18	.	.
Calcium phosphate	1.1	0.23	.	.	0.18	.	.
HIV	0.76	0.16	.	.	0.12	.	.
Subtotal	486.31	99.69	.	.	.	.	.
Other pathology	1.51	0.31	.	.	.	.	.
Total pathology	**487.82**	**100**	**.**	**.**	**77.68**	**63.9**	**91.4**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 2.1: Pathology orders across MBS pathology groups- Abnormal results Apr07-Mar08

pathology	n	% of total pathology for Abnormal results probs	Lower 95% CI	Upper 95% CI	Per 100 Abnormal results probs	Lower 95% CI	Upper 95% CI
Chemistry	826.38	72.12	68.3	76	84.64	76.8	92.4
Haematology	115.39	10.07	7.9	12.3	11.82	9	14.7
Microbiology	102.38	8.93	6.5	11.4	10.49	7.5	13.4
Other NEC	37.52	3.27	1.9	4.7	3.84	2.2	5.5
Cytopathology	36.51	3.19	1.9	4.5	3.74	2.2	5.3
Immunology	20.02	1.75	0.7	2.8	2.05	0.8	3.3
Simple test	4.93	0.43	0	1	0.5	0	1.1
Histopathology	2.77	0.24	.	.	0.28	.	.
Subtotal	1145.88	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**1145.88**	**100**	**.**	**.**	**117.36**	**107.8**	**126.9**

Table 2.2: Pathology orders at individual test level- Abnormal results Apr07-Mar08

pathology	n	% of total pathology for Abnormal results probs	Lower 95% CI	Upper 95% CI	Per 100 Abnormal results probs	Lower 95% CI	Upper 95% CI
Glucose tolerance	269.31	23.5	19.4	27.6	27.58	22.6	32.6
Liver function	118.07	10.3	8.1	12.5	12.09	9.4	14.8
EUC	109.82	9.58	6.7	12.5	11.25	7.8	14.7
Full blood count	88.93	7.76	5.8	9.7	9.11	6.6	11.6
Prostate specific antigen	59.98	5.23	2.8	7.6	6.14	3.3	9
Chemistry; other	46.79	4.08	2.6	5.6	4.79	3	6.6
Multibiochemical	43.4	3.79	2.1	5.5	4.44	2.4	6.5
Lipids	42.57	3.71	2.5	4.9	4.36	2.9	5.8
Hepatitis serology	39.81	3.47	1.8	5.1	4.08	2.1	6.1
Pap smear	35.55	3.1	1.8	4.4	3.64	2.1	5.2
Urine MC&S	31.5	2.75	1.3	4.2	3.23	1.6	4.9
Ferritin	30.17	2.63	1.6	3.6	3.09	1.9	4.3
Thyroid function	25.5	2.23	1.2	3.3	2.61	1.4	3.9
Other test NEC	23.25	2.03	0.9	3.1	2.38	1.1	3.7
Calcium phosphate	17.45	1.52	0.6	2.5	1.79	0.7	2.9
ESR	17.03	1.49	0.8	2.2	1.74	0.9	2.6
HbA1c	16.82	1.47	0.6	2.3	1.72	0.7	2.8
Microbiology; other	15.35	1.34	0.2	2.5	1.57	0.2	2.9
Cardiac enzymes	13.34	1.16	0.4	1.9	1.37	0.5	2.3
Immunology; other	11.57	1.01	0.2	1.8	1.18	0.2	2.1
C reactive protein	9.84	0.86	0.3	1.4	1.01	0.4	1.7
Blood test	8.46	0.74	0	1.5	0.87	0	1.8
B12	7.22	0.63	0.2	1.1	0.74	0.2	1.3
Anti nuclear antibodies	6.85	0.6	0.1	1.1	0.7	0.2	1.2
Folic acid	6.26	0.55	0.1	1	0.64	0.2	1.1
Urate/uric acid	5.34	0.47	0	0.9	0.55	0	1.1
Coagulation	5.23	0.46	0	0.9	0.54	0	1.1
Simple test; other	4.93	0.43	0	1	0.5	0	1.1
Venereal disease	4.69	0.41	0	0.9	0.48	0	1
Blood; other	3.64	0.32	0	0.6	0.37	0	0.7
Subtotal	1118.67	97.62	.	.	.	.	.
Other pathology	27.22	2.38	.	.	.	.	.
Total pathology	**1145.88**	**100**	**.**	**.**	**117.36**	**107.8**	**126.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 3.1: Pathology orders across MBS pathology groups- Anaemia Apr07-Mar08

pathology	n	% of total pathology for Anaemia probs	Lower 95% CI	Upper 95% CI	Per 100 Anaemia probs	Lower 95% CI	Upper 95% CI
Chemistry	336.09	54.05	49.3	58.8	54.73	43.9	65.6
Haematology	226.27	36.39	32.4	40.4	36.84	30.8	42.9
Simple test	23.66	3.81	1.3	6.3	3.85	1.3	6.4
Other NEC	19.42	3.12	0	6.4	3.16	0	6.4
Immunology	11.84	1.9	0.5	3.3	1.93	0.5	3.3
Microbiology	4.53	0.73	0	1.5	0.74	0	1.5
Subtotal	621.81	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**621.81**	**100**	**.**	**.**	**101.25**	**85.7**	**116.8**

Table 3.2: Pathology orders at individual test level- Anaemia Apr07-Mar08

pathology	n	% of total pathology for Anaemia probs	Lower 95% CI	Upper 95% CI	Per 100 Anaemia probs	Lower 95% CI	Upper 95% CI
Full blood count	164.83	26.51	22.8	30.2	26.84	22.1	31.5
Ferritin	137.36	22.09	18.3	25.9	22.37	17.4	27.4
EUC	36.32	5.84	3.7	8	5.91	3.4	8.4
B12	31.15	5.01	3.1	6.9	5.07	3	7.2
Simple test; other	23.66	3.81	1.3	6.3	3.85	1.3	6.4
Liver function	22.11	3.56	2	5.1	3.6	1.8	5.4
Thyroid function	21.79	3.5	0.9	6.1	3.55	0.8	6.3
Blood; other	20.8	3.34	1	5.7	3.39	1	5.8
Multibiochemical analysis	18.89	3.04	1.3	4.7	3.08	1.3	4.9
Haemoglobin	18.07	2.91	0	5.9	2.94	0	6
Blood test	16.04	2.58	0	5.8	2.61	0	5.9
Folic acid	16.01	2.57	1.3	3.9	2.61	1.3	4
ESR	14.97	2.41	1.1	3.7	2.44	1.1	3.7
Lipids	14.19	2.28	0.9	3.7	2.31	0.8	3.8
Chemistry; other	13.63	2.19	0.9	3.5	2.22	0.8	3.6
Immunology; other	11.84	1.9	0.5	3.3	1.93	0.5	3.3
C reactive protein	11.7	1.88	0.7	3	1.9	0.7	3.1
Glucose tolerance	7.42	1.19	0.3	2.1	1.21	0.3	2.1
Blood grouping & typing	6.6	1.06	0.1	2	1.07	0.1	2.1
Hormone assay	1.9	0.31	.	.	0.31	.	.
Other test NEC	1.89	0.3	.	.	0.31	.	.
Faeces test	1.49	0.24	.	.	0.24	.	.
HIV	1.34	0.22	.	.	0.22	.	.
Monospot	1.34	0.22	.	.	0.22	.	.
HbA1c	1.28	0.21	.	.	0.21	.	.
Calcium phosphate	1.04	0.17	.	.	0.17	.	.
Coagulation	1	0.16	.	.	0.16	.	.
Prostate specific antigen	0.89	0.14	.	.	0.15	.	.
Ross River fever	0.68	0.11	.	.	0.11	.	.
Microbiology; other	0.68	0.11	.	.	0.11	.	.
Subtotal	620.9	99.85	.	.	.	.	.
Other pathology	0.91	0.15	.	.	.	.	.
Total pathology	**621.81**	**100**	**.**	**.**	**101.25**	**85.7**	**116.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 4.1: Pathology orders across MBS pathology groups- Anxiety Apr07-Mar08

pathology	n	% of total pathology for Anxiety probs	Lower 95% CI	Upper 95% CI	Per 100 Anxiety probs	Lower 95% CI	Upper 95% CI
Chemistry	145.83	69.71	63.6	75.9	8.62	5.8	11.5
Haematology	44.29	21.17	17.3	25.1	2.62	1.7	3.6
Microbiology	12.27	5.86	1.1	10.6	0.73	0.1	1.3
Other NEC	4.37	2.09	0	4.8	0.26	0	0.6
Simple test	1.07	0.51	.	.	0.06	.	.
Cytopathology	0.84	0.4	.	.	0.05	.	.
Infertility/pregnancy test	0.53	0.26	.	.	0.03	.	.
Subtotal	209.2	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**209.2**	**100**	**.**	**.**	**12.37**	**8.5**	**16.2**

Table 4.2: Pathology orders at individual test level- Anxiety Apr07-Mar08

pathology	n	% of total pathology for Anxiety probs	Lower 95% CI	Upper 95% CI	Per 100 probs	Lower 95% CI	Upper 95% CI
Full blood count	37.26	17.81	14.9	20.7	2.2	1.4	3
Thyroid function	28	13.38	9.5	17.3	1.66	1	2.4
EUC	21.79	10.42	6.5	14.3	1.29	0.7	1.9
Liver function	15.09	7.21	4.2	10.2	0.89	0.5	1.3
Glucose tolerance	14.36	6.87	3.6	10.1	0.85	0.4	1.3
Multibiochemical analysis	13.62	6.51	2.6	10.4	0.81	0.3	1.4
Lipids	12.76	6.1	2.4	9.8	0.75	0.3	1.2
Ferritin	10.66	5.1	1.5	8.7	0.63	0.1	1.1
Chemistry; other	8.07	3.86	0.4	7.3	0.48	0	0.9
ESR	5.11	2.44	0.4	4.5	0.3	0	0.6
B12	4.86	2.33	0	4.7	0.29	0	0.6
Folic acid	3.82	1.82	0	3.7	0.23	0	0.5
HbA1c	3.79	1.81	0	4.6	0.22	0	**0.6**
C reactive protein	3.44	1.65	0	3.3	0.2	0	0.4
Urine MC&S	3	1.43	.	.	0.18	.	.
Cardiac enzymes	2.99	1.43	.	.	0.18	.	.
Microbiology; other	2.8	1.34	.	.	0.17	.	.
Blood test	2.73	1.3	.	.	0.16	.	.
Hepatitis serology	2.63	1.25	.	.	0.16	.	.
HIV	2.54	1.21	.	.	0.15	.	.
Coagulation	1.55	0.74	.	.	0.09	.	.
Prostate specific antigen	1.2	0.58	.	.	0.07	.	.
Simple test; other	1.07	0.51	.	.	0.06	.	.
Urine test	0.99	0.47	.	.	0.06	.	.
Venereal disease	0.85	0.41	.	.	0.05	.	.
Pap smear	0.84	0.4	.	.	0.05	.	.
Hormone assay	0.71	0.34	.	.	0.04	.	.
Drug screen	0.68	0.33	.	.	0.04	.	.
Other test NEC	0.65	0.31	.	.	0.04	.	.
Infertility/pregnancy	0.53	0.26	.	.	0.03	.	.
Subtotal	208.37	99.61	.	.	.	.	.
Other pathology	0.83	0.39	.	.	.	.	.
Total pathology	**209.2**	**100**	**.**	**.**	**12.37**	**8.5**	**16.2**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 5.1: Pathology orders across MBS pathology groups- Asthma Apr07-Mar08

pathology	n	% of total pathology for Asthma probs	Lower 95% CI	Upper 95% CI	Per 100 Asthma probs	Lower 95% CI	Upper 95% CI
Chemistry	54.85	48.61	35.5	61.7	2.63	1.3	4
Haematology	27.09	24.01	16.9	31.1	1.3	0.7	1.9
Microbiology	20.03	17.75	6.6	28.9	0.96	0.3	1.6
Immunology	7.66	6.79	0	14	0.37	0	0.7
Cytopathology	2.87	2.54	.	.	0.14	.	.
Other NEC	0.36	0.32	.	.	0.02	.	.
Subtotal	112.85	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**112.85**	**100**	**.**	**.**	**5.4**	**3.2**	**7.6**

Table 5.2: Pathology orders at individual test level- Asthma Apr07-Mar08

pathology	n	% of total pathology for Asthma probs	Lower 95% CI	Upper 95% CI	Per 100 Asthma probs	Lower 95% CI	Upper 95% CI
Full blood count	23.24	20.59	14.5	26.7	1.11	0.6	1.7
Sputum C&S	9.96	8.83	1.3	16.4	0.48	0.1	0.9
Liver function	8.29	7.35	1.1	13.6	0.4	0	0.8
EUC	8.09	7.17	0.6	13.8	0.39	0	0.8
Multibiochemical analysis	7.56	6.7	2	11.4	0.36	0.1	0.7
Chemistry; other	7.22	6.4	0	15.3	0.35	0	0.8
Lipids	7.1	6.29	1.7	10.9	0.34	0.1	0.6
RAST	5.04	4.46	0	9.9	0.24	0	0.5
Microbiology; other	4.99	4.42	0	9.5	0.24	0	0.5
ESR	2.92	2.58	.	.	0.14	.	.
Ferritin	2.88	2.55	.	.	0.14	.	.
Pap smear	2.87	2.54	.	.	0.14	.	.
Thyroid function	2.81	2.49	.	.	0.13	.	.
Immunology; other	2.62	2.32	.	.	0.13	.	.
HbA1c	2.58	2.29	.	.	0.12	.	.
Prostate specific antigen	2.4	2.13	.	.	0.11	.	.
Glucose tolerance	2.28	2.02	.	.	0.11	.	.
Drug screen	1.58	1.4	.	.	0.08	.	.
Urine MC&S	1.56	1.39	.	.	0.07	.	.
C reactive protein	1.11	0.98	.	.	0.05	.	.
Venereal disease	1.01	0.9	.	.	0.05	.	.
B12	0.95	0.84	.	.	0.05	.	.
Haemoglobin	0.94	0.83	.	.	0.04	.	.
Throat swab C&S	0.91	0.81	.	.	0.04	.	.
Monospot	0.81	0.72	.	.	0.04	.	.
Vaginal swab and C&S	0.39	0.35	.	.	0.02	.	.
Pertussis	0.39	0.35	.	.	0.02	.	.
Blood test	0.36	0.32	.	.	0.02	.	.
Subtotal	112.85	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**112.85**	**100**	**.**	**.**	**5.4**	**3.2**	**7.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 6.1: Pathology orders across MBS pathology groups- Atrial fib/flutter Apr07-Mar08

pathology	n	% of total pathology for Atrial fib/flutter probs	Lower 95% CI	Upper 95% CI	Per 100 Atrial fib/flutter probs	Lower 95% CI	Upper 95% CI
Haematology	555.36	80.04	74.3	85.8	56.41	47.1	65.7
Chemistry	128.57	18.53	13	24	13.06	8.9	17.2
Other NEC	8.98	1.29	0	2.9	0.91	0	2
Immunology	0.55	0.08	.	.	0.06	.	.
Simple test	0.42	0.06	.	.	0.04	.	.
Subtotal	693.88	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**693.88**	**100**	**.**	**.**	**70.48**	**60.5**	**80.4**

Table 6.2: Pathology orders at individual test level- Atrial fib/flutter Apr07-Mar08

pathology	n	% of total pathology for Atrial fib/flutter probs	Lower 95% CI	Upper 95% CI	Per 100 Atrial fib/flutter probs	Lower 95% CI	Upper 95% CI
Coagulation	525.09	75.67	68.7	82.6	53.34	44	62.7
EUC	29.55	4.26	2.4	6.1	3	1.7	4.3
Full blood count	26.95	3.88	2.2	5.5	2.74	1.5	3.9
Thyroid function	20.43	2.94	1.4	4.5	2.08	1	3.2
Drug screen	16.85	2.43	1	3.9	1.71	0.7	2.7
Liver function	15.14	2.18	1	3.4	1.54	0.7	2.4
Lipids	14.12	2.04	0.8	3.3	1.43	0.6	2.3
Glucose tolerance	9.16	1.32	0.2	2.4	0.93	0.2	1.7
Chemistry; other	7.83	1.13	0.2	2	0.8	0.2	1.4
Multibiochemical analysis	7.58	1.09	0.1	2.1	0.77	0.1	1.5
Other test NEC	6.92	1	0	2.5	0.7	0	1.8
ESR	2.57	0.37	.	.	0.26	.	.
Blood test	2.06	0.3	.	.	0.21	.	.
Prostate specific antigen	2.02	0.29	.	.	0.21	.	.
Urate/uric acid	1.79	0.26	.	.	0.18	.	.
Cardiac enzymes	1.58	0.23	.	.	0.16	.	.
C reactive protein	1.4	0.2	.	.	0.14	.	.
Ferritin	1.13	0.16	.	.	0.11	.	.
Haemoglobin	0.76	0.11	.	.	0.08	.	.
Immunology; other	0.55	0.08	.	.	0.06	.	.
Simple test; other	0.42	0.06	.	.	0.04	.	.
Subtotal	693.88	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**693.88**	**100**	**.**	**.**	**70.48**	**60.5**	**80.4**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 7.1: Pathology orders across MBS pathology groups- Back comp Apr07-Mar08

pathology	n	% of total pathology for Back comp probs	Lower 95% CI	Upper 95% CI	Per 100 Back comp probs	Lower 95% CI	Upper 95% CI
Chemistry	63.48	46.6	36.9	56.3	2.42	1.4	3.4
Haematology	37.9	27.82	21.3	34.3	1.44	0.9	2
Microbiology	20.64	15.15	6.1	24.2	0.79	0.3	1.3
Immunology	8.55	6.28	2	10.5	0.33	0.1	0.6
Other NEC	5.39	3.96	0	8	0.21	0	0.4
Simple test	0.25	0.18	.	.	0.01	.	.
Subtotal	136.21	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**136.21**	**100**	**.**	**.**	**5.19**	**3.5**	**6.9**

Table 7.2: Pathology orders at individual test level- Back comp Apr07-Mar08

pathology	n	% of total pathology for Back comp probs	Lower 95% CI	Upper 95% CI	Per 100 Back comp probs	Lower 95% CI	Upper 95% CI
Full blood count	26.58	19.52	16.3	22.8	1.01	0.6	1.4
Urine MC&S	20.64	15.15	6.1	24.2	0.79	0.3	1.3
Liver function	11.91	8.74	5.1	12.4	0.45	0.2	0.7
C reactive protein	11.78	8.65	4.6	12.7	0.45	0.2	0.7
ESR	11.31	8.31	3.9	12.7	0.43	0.2	0.7
Lipids	10.7	7.86	2.7	13.1	0.41	0.1	0.7
EUC	5.66	4.16	1	7.3	0.22	0	0.4
Prostate specific	4.91	3.61	0	7.2	0.19	0	0.4
Immunology; other	4.89	3.59	0.3	6.9	0.19	0	0.4
Other test NEC	4.06	2.98	0	6.7	0.15	0	0.3
Chemistry; other	3.9	2.86	0	5.9	0.15	0	0.3
Rheumatoid factor	2.93	2.15	.	.	0.11	.	.
Multibiochemical	2.72	2	.	.	0.1	.	.
Glucose tolerance	2.61	1.92	.	.	0.1	.	.
Thyroid function	2.43	1.78	.	.	0.09	.	.
Cardiac enzymes	2.32	1.7	.	.	0.09	.	.
Calcium phosphate	2.04	1.5	.	.	0.08	.	.
Ferritin	1.27	0.93	.	.	0.05	.	.
Urate/uric acid	1.23	0.9	.	.	0.05	.	.
Blood test	0.77	0.57	.	.	0.03	.	.
Anti nuclear antibodies	0.73	0.53	.	.	0.03	.	.
Urinalysis	0.56	0.41	.	.	0.02	.	.
Simple test; other	0.25	0.18	.	.	0.01	.	.
Subtotal	136.21	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**136.21**	**100**	**.**	**.**	**5.19**	**3.5**	**6.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 8.1: Pathology orders across MBS pathology groups- Endo blood test Apr07-Mar08

pathology	n	% of total pathology for Endo blood test probs	Lower 95% CI	Upper 95% CI	Per 100 Endo blood test probs	Lower 95% CI	Upper 95% CI
Chemistry	331.45	89.97	86.9	93.1	179.46	153.8	205.2
Haematology	36.65	9.95	6.8	13.1	19.84	12	27.7
Microbiology	0.3	0.08	.	.	0.16	.	.
Subtotal	368.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**368.4**	**100**	**.**	**.**	**199.47**	**169.1**	**229.9**

Table 8.2: Pathology orders at individual test level- Endo blood test Apr07-Mar08

pathology	n	% of total pathology for Endo blood test probs	Lower 95% CI	Upper 95% CI	Per 100 Endo blood test probs	Lower 95% CI	Upper 95% CI
Lipids	134.2	36.43	29.6	43.2	72.66	57.7	87.7
Glucose tolerance	64.68	17.56	12.4	22.7	35.02	23.7	46.3
Full blood count	32.95	8.95	6.1	11.8	17.84	10.6	25.1
Thyroid function	32.11	8.72	4.7	12.8	17.38	9.9	24.9
EUC	26.26	7.13	4.3	10	14.22	7.5	21
Liver function	23.73	6.44	3.7	9.2	12.85	6.3	19.4
Multibiochemical	13.1	3.56	1.5	5.6	7.09	3.1	11.1
Prostate specific	10.01	2.72	0.7	4.8	5.42	1.3	9.6
Calcium phosphate	9.19	2.49	0.5	4.5	4.98	1	9
Cardiac enzymes	6.21	1.68	0.1	3.3	3.36	0	6.8
Coagulation	3.69	1	0	3	2	0	5.9
Ferritin	3.59	0.97	0	1.9	1.94	0	3.9
HbA1c	2.64	0.72	.	.	1.43	.	.
Urate/uric acid	2.51	0.68	.	.	1.36	.	.
Chemistry; other	1.24	0.34	.	.	0.67	.	.
Folic acid	1.21	0.33	.	.	0.65	.	.
B12	0.8	0.22	.	.	0.43	.	.
Antibody	0.3	0.08	.	.	0.16	.	.
Subtotal	368.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**368.4**	**100**	**.**	**.**	**199.47**	**169.1**	**229.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 9.1: Pathology orders across MBS pathology groups- Blood test NOS Apr07-Mar08

pathology	n	% of total pathology for Blood test NOS probs	Lower 95% CI	Upper 95% CI	Per 100 Blood test NOS probs	Lower 95% CI	Upper 95% CI
Chemistry	891	71.01	67.4	74.7	215.85	191	240.7
Haematology	237.61	18.94	17.1	20.8	57.56	49.5	65.6
Other NEC	68.37	5.45	2.5	8.4	16.56	8.1	25
Microbiology	46.22	3.68	1.5	5.8	11.2	4.7	17.7
Immunology	6.89	0.55	0.1	1	1.67	0.2	3.1
Simple test	3.06	0.24	0	0.6	0.74	0	1.9
Cytopathology	0.95	0.08	.	.	0.23	.	.
Infertility/pregnancy test	0.6	0.05	.	.	0.15	.	.
Subtotal	1254.69	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**1254.69**	**100**	**.**	**.**	**303.95**	**277.3**	**330.6**

Table 9.2: Pathology orders at individual test level- Blood test NOS Apr07-Mar08

pathology	n	% of total pathology for Blood test NOS probs	Lower 95% CI	Upper 95% CI	Per 100 Blood test NOS probs	Lower 95% CI	Upper 95% CI
Full blood count	216.96	17.29	15.7	18.9	52.56	45.4	59.7
Lipids	204.66	16.31	14.4	18.2	49.58	41.7	57.5
Liver function	127.77	10.18	7.9	12.5	30.95	22.4	39.5
EUC	110.92	8.84	6.5	11.1	26.87	19.1	34.7
Glucose tolerance	108.18	8.62	6.6	10.6	26.21	19.2	33.2
Thyroid function	75.93	6.05	4.3	7.8	18.4	12.8	24
Multibiochemical analysis	70.95	5.66	3.5	7.8	17.19	11	23.4
Blood test	60.67	4.84	2	7.7	14.7	6.4	23
Prostate specific antigen	48.07	3.83	2.6	5	11.64	7.9	15.4
Ferritin	42.75	3.41	2.1	4.7	10.36	6.4	14.3
Chemistry; other	34.27	2.73	1.3	4.2	8.3	3.9	12.7
Hepatitis serology	16.35	1.3	0.4	2.3	3.96	1.1	6.8
Calcium phosphate	14.79	1.18	0.4	2	3.58	1.1	6.1
B12	13.45	1.07	0.4	1.7	3.26	1.1	5.4
Hormone assay	13.25	1.06	0	2.2	3.21	0	6.6
ESR	12.94	1.03	0.3	1.8	3.13	0.9	5.4
HbA1c	9.13	0.73	0	1.5	2.21	0	4.6
HIV	7.44	0.59	0.1	1.1	1.8	0.4	3.2
Cardiac enzymes	6.28	0.5	0	1.3	1.52	0	3.9
Microbiology; other	6.22	0.5	0	1	1.51	0	3.2
Other test NEC	5.8	0.46	0	1	1.41	0	2.9
Drug screen	5.63	0.45	0	1	1.36	0	2.9
Venereal disease	4.8	0.38	0	0.8	1.16	0	2.3
Urine MC&S	4.68	0.37	0	0.7	1.13	0.1	2.2
Immunology; other	3.93	0.31	0	0.7	0.95	0	2.1
Coagulation	3.52	0.28	0	0.6	0.85	0	1.9
Blood grouping & typing	3.44	0.27	0	0.6	0.83	0	1.8
Simple test; other	3.06	0.24	0	0.6	0.74	0	1.9
Rubella	2.8	0.22	.	.	0.68	.	.
Folic acid	2.41	0.19	.	.	0.58	.	.
Subtotal	1241.05	98.91	.	.	.	.	.
Other pathology	13.64	1.09	.	.	.	.	.
Total pathology	**1254.69**	**100**	**.**	**.**	**303.95**	**277.3**	**330.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 10.1: Pathology orders across MBS pathology groups- Bronchitis Apr07-Mar08

pathology	n	% of total pathology for Bronchitis probs	Lower 95% CI	Upper 95% CI	Per 100 Bronchitis probs	Lower 95% CI	Upper 95% CI
Microbiology	59.24	42.45	28.4	56.5	2.57	1.5	3.7
Chemistry	38.11	27.3	17.3	37.4	1.65	0.8	2.5
Haematology	35.01	25.09	17.6	32.5	1.52	0.8	2.2
Immunology	2.91	2.08	.	.	0.13	.	.
Other NEC	1.6	1.15	.	.	0.07	.	.
Cytopathology	1.38	0.99	.	.	0.06	.	.
Simple test	1.31	0.94	.	.	0.06	.	.
Subtotal	139.57	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**139.57**	**100**	**.**	**.**	**6.06**	**4.1**	**8.1**

Table 10.2: Pathology orders at individual test level- Bronchitis Apr07-Mar08

pathology	n	% of total pathology for Bronchitis probs	Lower 95% CI	Upper 95% CI	Per 100 Bronchitis probs	Lower 95% CI	Upper 95% CI
Full blood count	26.34	18.87	14.2	23.6	1.14	0.7	1.6
Sputum C&S	24.81	17.78	5.9	29.7	1.08	0.3	1.8
Microbiology; other	16.03	11.49	4.6	18.4	0.7	0.2	1.2
Pertussis	10.7	7.67	1.2	14.2	0.46	0.1	0.9
ESR	7.92	5.67	1.5	9.8	0.34	0.1	0.6
Liver function	6.02	4.32	1.4	7.3	0.26	0.1	0.5
Multibiochemical analysis	4.97	3.56	0.2	6.9	0.22	0	0.4
EUC	4.95	3.55	1	6.1	0.22	0	0.4
C reactive protein	4.7	3.37	0.3	6.5	0.2	0	0.4
Lipids	3.67	2.63	0	5.2	0.16	0	0.3
Nose swab C&S	3.19	2.29	0	6.9	0.14	0	0.4
Thyroid function	2.93	2.1	.	.	0.13	.	.
Anti nuclear antibodies	2.91	2.08	.	.	0.13	.	.
Chemistry; other	2.57	1.84	.	.	0.11	.	.
Glucose tolerance	2.29	1.64	.	.	0.1	.	.
Cardiac enzymes	2.1	1.5	.	.	0.09	.	.
Urine MC&S	2.08	1.49	.	.	0.09	.	.
Ferritin	1.91	1.37	.	.	0.08	.	.
Cytology	1.38	0.99	.	.	0.06	.	.
Faeces MC&S	1.33	0.95	.	.	0.06	.	.
Simple test; other	1.31	0.94	.	.	0.06	.	.
Calcium phosphate	1.19	0.85	.	.	0.05	.	.
Blood test	0.8	0.57	.	.	0.03	.	.
Other test NEC	0.8	0.57	.	.	0.03	.	.
Throat swab C&S	0.64	0.46	.	.	0.03	.	.
Blood grouping & typing	0.52	0.37	.	.	0.02	.	.
Monospot	0.45	0.32	.	.	0.02	.	.
B12	0.4	0.29	.	.	0.02	.	.
Folic acid	0.4	0.29	.	.	0.02	.	.
Coagulation	0.24	0.17	.	.	0.01	.	.
Subtotal	139.57	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**139.57**	**100**	**.**	**.**	**6.06**	**4.1**	**8.1**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 11.1: Pathology orders across MBS pathology groups- Cardiac check-up Apr07-Mar08

pathology	n	% of total pathology for Cardiac check-up probs	Lower 95% CI	Upper 95% CI	Per 100 Cardiac check-up probs	Lower 95% CI	Upper 95% CI
Chemistry	277.57	77.4	72.6	82.2	24.32	17.4	31.2
Haematology	64.96	18.12	14	22.2	5.69	3.7	7.7
Other NEC	10.19	2.84	0.8	4.9	0.89	0.2	1.5
Microbiology	3.66	1.02	0	2.8	0.32	0	0.9
Simple test	1.58	0.44	.	.	0.14	.	.
Cytopathology	0.63	0.18	.	.	0.06	.	.
Subtotal	358.6	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**358.6**	**100**	**.**	**.**	**31.42**	**22.9**	**39.9**

Table 11.2: Pathology orders at individual test level- Cardiac check-up Apr07-Mar08

pathology	n	% of total pathology for Cardiac check-up probs	Lower 95% CI	Upper 95% CI	Per 100 Cardiac check-up probs	Lower 95% CI	Upper 95% CI
Lipids	80.06	22.33	17.3	27.4	7.01	4.4	9.6
Full blood count	53.87	15.02	11.9	18.1	4.72	3.1	6.4
Multibiochemical	38.17	10.64	6.2	15.1	3.34	1.7	5
Glucose tolerance	37.25	10.39	7	13.8	3.26	2	4.6
EUC	34.49	9.62	6.1	13.1	3.02	1.8	4.2
Liver function	22.26	6.21	3.6	8.8	1.95	1	2.9
Chemistry; other	15.99	4.46	1.6	7.3	1.4	0.5	2.3
Thyroid function	12.39	3.45	1.7	5.2	1.09	0.5	1.7
Prostate specific	10.6	2.96	0.5	5.4	0.93	0.1	1.8
Ferritin	9.45	2.63	0	5.9	0.83	0	1.9
Other test NEC	6.66	1.86	0.1	3.6	0.58	0	1.1
Drug screen	6.31	1.76	0	5.3	0.55	0	1.6
ESR	6.27	1.75	0.3	3.2	0.55	0.1	1
Coagulation	4.82	1.34	0	3.8	0.42	0	1.2
Calcium phosphate	3.95	1.1	0	2.7	0.35	0	0.8
Cardiac enzymes	2.2	0.61	.	.	0.19	.	.
Blood test	1.86	0.52	.	.	0.16	.	.
Hepatitis serology	1.6	0.45	.	.	0.14	.	.
Simple test; other	1.58	0.44	.	.	0.14	.	.
Hormone assay	1.4	0.39	.	.	0.12	.	.
HbA1c	1.35	0.38	.	.	0.12	.	.
Urine test	1.31	0.36	.	.	0.11	.	.
Folic acid	1.14	0.32	.	.	0.1	.	.
HIV	0.8	0.22	.	.	0.07	.	.
Monospot	0.8	0.22	.	.	0.07	.	.
Pap smear	0.63	0.18	.	.	0.06	.	.
Urate/uric acid	0.57	0.16	.	.	0.05	.	.
Urine MC&S	0.46	0.13	.	.	0.04	.	.
Urinalysis	0.37	0.1	.	.	0.03	.	.
Subtotal	358.6	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**358.6**	**100**	**.**	**.**	**31.42**	**22.9**	**39.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 12.1: Pathology orders across MBS pathology groups- General check Apr07-Mar08

pathology	n	% of total pathology for General check probs	Lower 95% CI	Upper 95% CI	Per 100 General check probs	Lower 95% CI	Upper 95% CI
Chemistry	1854.33	69.28	66.8	71.8	77.05	68.6	85.5
Haematology	463.4	17.31	15.9	18.7	19.25	16.6	22
Microbiology	142.25	5.31	3.8	6.8	5.91	4.2	7.6
Cytopathology	105.36	3.94	2.5	5.4	4.38	2.7	6.1
Other NEC	81.4	3.04	1.6	4.5	3.38	1.7	5
Simple test	22.59	0.84	0.4	1.2	0.94	0.5	1.4
Immunology	6.12	0.23	0	0.5	0.25	0	0.5
Infertility/pregnancy test	1.1	0.04	.	.	0.05	.	.
Subtotal	2676.56	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**2676.56**	**100**	**.**	**.**	**111.21**	**99.9**	**122.6**

Table 12.2: Pathology orders at individual test level- General check Apr07-Mar08

pathology	n	% of total pathology for General check probs	Lower 95% CI	Upper 95% CI	Per 100 General check probs	Lower 95% CI	Upper 95% CI
Lipids	466.11	17.41	16.1	18.8	19.37	17	21.8
Full blood count	403.21	15.06	13.8	16.3	16.75	14.3	19.2
Glucose tolerance	279.46	10.44	9	11.9	11.61	9.7	13.5
Liver function	226.73	8.47	7.1	9.8	9.42	7.4	11.4
Multibiochemical analysis	176.77	6.6	5.1	8.1	7.35	5.5	9.2
EUC	171.92	6.42	5.2	7.6	7.14	5.6	8.7
Prostate specific antigen	165.5	6.18	4.9	7.4	6.88	5.3	8.4
Thyroid function	137.95	5.15	4.2	6.1	5.73	4.5	7
Pap smear	105.36	3.94	2.5	5.4	4.38	2.7	6.1
Chemistry; other	53.92	2.01	1	3	2.24	1.1	3.4
Drug screen	53.53	2	0	4.5	2.22	0	4.9
Blood test	51.33	1.92	0.6	3.2	2.13	0.7	3.6
Ferritin	41.57	1.55	1	2.1	1.73	1.1	2.4
Urine MC&S	35.84	1.34	0.7	2	1.49	0.7	2.3
ESR	31.8	1.19	0.5	1.9	1.32	0.6	2.1
Hepatitis serology	28.25	1.06	0.6	1.5	1.17	0.6	1.7
Simple test; other	22.59	0.84	0.4	1.2	0.94	0.5	1.4
Venereal disease	22.36	0.84	0.3	1.3	0.93	0.4	1.5
Other test NEC	19.6	0.73	0.1	1.3	0.81	0.1	1.5
Calcium phosphate	15.93	0.6	0.3	0.9	0.66	0.3	1
HIV	15.91	0.59	0.3	0.9	0.66	0.3	1
B12	15.85	0.59	0.2	1	0.66	0.2	1.1
Hormone assay	15.4	0.58	0.2	1	0.64	0.2	1.1
Rubella	14.42	0.54	0.2	0.9	0.6	0.2	1
HbA1c	13.72	0.51	0.2	0.9	0.57	0.2	1
Coagulation	12.11	0.45	0.1	0.8	0.5	0.1	0.9
Microbiology; other	11.92	0.45	0	0.9	0.5	0	1
Haemoglobin	10.31	0.39	0	1	0.43	0	1.1
Folic acid	9.25	0.35	0.1	0.6	0.38	0.1	0.7
Urine test	7.78	0.29	0	0.6	0.32	0	0.6
Subtotal	2636.4	98.5	.	.	.	.	.
Other pathology	40.16	1.5	.	.	.	.	.
Total pathology	**2676.56**	**100**	**.**	**.**	**111.21**	**99.9**	**122.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 13.1: Pathology orders across MBS pathology groups- Chest pain Apr07-Mar08

pathology	n	% of total pathology for Chest pain probs	Lower 95% CI	Upper 95% CI	Per 100 Chest pain probs	Lower 95% CI	Upper 95% CI
Chemistry	250.85	74.05	68.9	79.2	76.15	56.9	95.4
Haematology	64.89	19.16	16	22.3	19.7	13.7	25.7
Other NEC	17.94	5.3	0	10.7	5.45	0	10.9
Microbiology	4.64	1.37	0.1	2.7	1.41	0.1	2.8
Immunology	0.41	0.12	.	.	0.13	.	.
Subtotal	338.74	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**338.74**	**100**	**.**	**.**	**102.84**	**78.6**	**127.1**

Table 13.2: Pathology orders at individual test level- Chest pain Apr07-Mar08

pathology	n	% of total pathology for Chest pain probs	Lower 95% CI	Upper 95% CI	Per 100 Chest pain probs	Lower 95% CI	Upper 95% CI
Full blood count	55.76	16.46	13.7	19.2	16.93	11.5	22.4
Chemistry; other	54.02	15.95	10.7	21.2	16.4	10	22.8
Lipids	43.64	12.88	9.3	16.4	13.25	8.1	18.4
EUC	31.62	9.33	5.8	12.8	9.6	5.7	13.5
Glucose tolerance	25.02	7.38	3.8	10.9	7.59	3.1	12.1
Liver function	24.36	7.19	4.8	9.6	7.4	4.2	10.6
Thyroid function	21.34	6.3	3.9	8.7	6.48	3.2	9.7
Multibiochemical	16.85	4.97	2.2	7.8	5.11	2.1	8.1
Cardiac enzymes	16.15	4.77	1.9	7.7	4.9	2	7.8
Blood test	10.06	2.97	0	6.7	3.05	0	6.9
C reactive protein	9.7	2.86	0.8	4.9	2.94	0.8	5.1
Other test NEC	7.88	2.33	0	5.4	2.39	0	5.5
ESR	7.15	2.11	0.4	3.8	2.17	0.4	3.9
H pylori	3.5	1.03	0	2.2	1.06	0	2.2
Ferritin	2.53	0.75	.	.	0.77	.	.
Coagulation	1.98	0.58	.	.	0.6	.	.
Prostate specific	1.9	0.56	.	.	0.58	.	.
Drug screen	1.58	0.47	.	.	0.48	.	.
Urate/uric acid	1.23	0.36	.	.	0.37	.	.
Urine MC&S	1.14	0.34	.	.	0.35	.	.
Calcium phosphate	0.5	0.15	.	.	0.15	.	.
HbA1c	0.41	0.12	.	.	0.13	.	.
Anti nuclear antibodies	0.41	0.12	.	.	0.13	.	.
Subtotal	338.74	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**338.74**	**100**	**.**	**.**	**102.84**	**78.6**	**127.1**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 14.1: Pathology orders across MBS pathology groups- Depression Apr07-Mar08

pathology	n	% of total pathology for Depression probs	Lower 95% CI	Upper 95% CI	Per 100 Depression probs	Lower 95% CI	Upper 95% CI
Chemistry	327.23	70.61	66.6	74.6	8.56	6.6	10.5
Haematology	106.55	22.99	20.2	25.8	2.79	2.2	3.4
Microbiology	14.69	3.17	1.4	5	0.38	0.2	0.6
Other NEC	10.78	2.33	0.1	4.6	0.28	0	0.6
Cytopathology	2.27	0.49	.	.	0.06	.	.
Immunology	1.93	0.42	.	.	0.05	.	.
Subtotal	463.45	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**463.45**	**100**	**.**	**.**	**12.13**	**9.7**	**14.6**

Table 14.2: Pathology orders at individual test level- Depression Apr07-Mar08

pathology	n	% of total pathology for Depression probs	Lower 95% CI	Upper 95% CI	Per 100 Depression probs	Lower 95% CI	Upper 95% CI
Full blood count	94.68	20.43	18.1	22.8	2.48	1.9	3
Thyroid function	78.5	16.94	14.2	19.6	2.05	1.6	2.5
Liver function	51.28	11.07	7.5	14.6	1.34	0.8	1.9
EUC	31.08	6.71	4.6	8.9	0.81	0.5	1.1
Ferritin	30.94	6.68	4.5	8.8	0.81	0.5	1.1
Multibiochemical analysis	28.84	6.22	3.9	8.6	0.75	0.4	1.1
Lipids	23.67	5.11	2.8	7.4	0.62	0.3	0.9
Glucose tolerance	21.51	4.64	3	6.3	0.56	0.3	0.8
B12	16.7	3.6	2.1	5.2	0.44	0.2	0.6
Hormone assay	14.8	3.19	0	6.6	0.39	0	0.8
ESR	10.82	2.33	0.9	3.7	0.28	0.1	0.5
Chemistry; other	7.2	1.55	0.6	2.5	0.19	0.1	0.3
Other test NEC	7.1	1.53	0	3.6	0.19	0	0.4
Urine MC&S	6.99	1.51	0.4	2.6	0.18	0	0.3
Prostate specific antigen	5.29	1.14	0.1	2.2	0.14	0	0.3
Calcium phosphate	4.35	0.94	0.1	1.8	0.11	0	0.2
Folic acid	3.94	0.85	0.1	1.6	0.1	0	0.2
Drug screen	3.69	0.8	0	1.7	0.1	0	0.2
Blood test	3.68	0.79	0	1.8	0.1	0	0.2
Pap smear	2.27	0.49	.	.	0.06	.	.
Faeces MC&S	2.08	0.45	.	.	0.05	.	.
C reactive protein	1.81	0.39	.	.	0.05	.	.
Urate/uric acid	1.59	0.34	.	.	0.04	.	.
HIV	1.39	0.3	.	.	0.04	.	.
HbA1c	1.3	0.28	.	.	0.03	.	.
H pylori	1.29	0.28	.	.	0.03	.	.
Rheumatoid factor	1.26	0.27	.	.	0.03	.	.
Blood grouping & typing	1.05	0.23	.	.	0.03	.	.
Rubella	1.05	0.23	.	.	0.03	.	.
Cardiac enzymes	0.75	0.16	.	.	0.02	.	.
Subtotal	460.89	99.45	.	.	.	.	.
Other pathology	2.56	0.55	.	.	.	.	.
Total pathology	**463.45**	**100**	**.**	**.**	**12.13**	**9.7**	**14.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 15.1: Pathology orders across MBS pathology groups- Dermatitis Apr07-Mar08

pathology	n	% of total pathology for Dermatitis probs	Lower 95% CI	Upper 95% CI	Per 100 Dermatitis probs	Lower 95% CI	Upper 95% CI
Microbiology	29.69	38.42	21.6	55.3	1.73	0.9	2.6
Chemistry	20.95	27.12	16.5	37.7	1.22	0.5	2
Immunology	11.86	15.35	4.2	26.5	0.69	0	1.4
Haematology	9.73	12.59	7.2	18	0.57	0.1	1
Other NEC	2.57	3.33	.	.	0.15	.	.
Histopathology	2.47	3.19	.	.	0.14	.	.
Subtotal	77.27	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**77.27**	**100**	**.**	**.**	**4.49**	**2.4**	**6.6**

Table 15.2: Pathology orders at individual test level- Dermatitis Apr07-Mar08

pathology	n	% of total pathology for Dermatitis probs	Lower 95% CI	Upper 95% CI	Per 100 Dermatitis probs	Lower 95% CI	Upper 95% CI
Skin swab C&S	13.06	16.9	4.7	29.1	0.76	0.1	1.4
Full blood count	9.73	12.59	7.2	18	0.57	0.1	1
Microbiology; other	8.65	11.2	2.3	20.1	0.5	0.1	0.9
Immunology; other	7.01	9.07	0.7	17.4	0.41	0	0.9
Vaginal swab and C&S	5.44	7.04	0	14.5	0.32	0	0.6
Liver function	5.39	6.97	1.2	12.8	0.31	0	0.7
RAST	3.31	4.28	0	10.1	0.19	0	0.5
Thyroid function	3.15	4.08	0	8.7	0.18	0	0.4
Lipids	2.89	3.74	.	.	0.17	.	.
Histology; skin	2.47	3.19	.	.	0.14	.	.
Chemistry; other	2.01	2.6	.	.	0.12	.	.
Other test NEC	1.93	2.5	.	.	0.11	.	.
EUC	1.66	2.15	.	.	0.1	.	.
Fungal ID/sensitivity	1.62	2.09	.	.	0.09	.	.
Drug screen	1.58	2.04	.	.	0.09	.	.
Anti nuclear antibodies	1.54	1.99	.	.	0.09	.	.
Multibiochemical	1.42	1.84	.	.	0.08	.	.
Ferritin	1.23	1.6	.	.	0.07	.	.
Urine MC&S	0.92	1.19	.	.	0.05	.	.
Blood test	0.64	0.82	.	.	0.04	.	.
Glucose tolerance	0.62	0.81	.	.	0.04	.	.
C reactive protein	0.62	0.81	.	.	0.04	.	.
Folic acid	0.37	0.48	.	.	0.02	.	.
Subtotal	77.27	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**77.27**	**100**	**.**	**.**	**4.49**	**2.4**	**6.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 16.1: Pathology orders across MBS pathology groups- Diabetes Apr07-Mar08

pathology	n	% of total pathology for Diabetes probs	Lower 95% CI	Upper 95% CI	Per 100 Diabetes probs	Lower 95% CI	Upper 95% CI
Chemistry	2916.62	87.31	85.4	89.2	78.46	71.1	85.8
Haematology	288.57	8.64	7.2	10.1	7.76	6.3	9.2
Other NEC	105.76	3.17	2	4.3	2.85	1.8	3.9
Microbiology	23.05	0.69	0.4	1	0.62	0.3	0.9
Immunology	4.05	0.12	0	0.3	0.11	0	0.3
Simple test	2.46	0.07	.	.	0.07	.	.
Subtotal	3340.51	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**3340.51**	**100**	**.**	**.**	**89.87**	**82**	**97.8**

Table 16.2: Pathology orders at individual test level- Diabetes Apr07-Mar08

pathology	n	% of total pathology for Diabetes probs	Lower 95% CI	Upper 95% CI	Per 100 Diabetes probs	Lower 95% CI	Upper 95% CI
HbA1c	952.96	28.53	26.4	30.7	25.64	22.6	28.7
Lipids	488.46	14.62	13.2	16	13.14	11.4	14.9
Glucose tolerance	373.6	11.18	8.4	14	10.05	7.4	12.7
Chemistry; other	296.76	8.88	7.4	10.4	7.98	6.4	9.6
EUC	268.64	8.04	6.7	9.4	7.23	5.9	8.5
Full blood count	264.81	7.93	6.6	9.3	7.12	5.8	8.5
Liver function	214.39	6.42	5.3	7.5	5.77	4.7	6.8
Multibiochemical	173.95	5.21	4	6.4	4.68	3.5	5.9
Blood test	49.95	1.5	0.7	2.3	1.34	0.7	2
Thyroid function	44.95	1.35	0.8	1.9	1.21	0.7	1.7
Other test NEC	42.24	1.26	0.6	1.9	1.14	0.5	1.7
Prostate specific	29.62	0.89	0.5	1.3	0.8	0.5	1.1
ESR	19.1	0.57	0.3	0.9	0.51	0.2	0.8
Cardiac enzymes	15.83	0.47	0.2	0.8	0.43	0.2	0.7
Urine MC&S	15.57	0.47	0.2	0.7	0.42	0.2	0.7
Ferritin	13.97	0.42	0.1	0.7	0.38	0.1	0.7
Calcium phosphate	12.51	0.37	0.1	0.7	0.34	0.1	0.6
Urine test	11.12	0.33	0.1	0.5	0.3	0.1	0.5
B12	11.04	0.33	0	0.6	0.3	0	0.6
Urate/uric acid	10.37	0.31	0	0.6	0.28	0	0.6
C reactive protein	4.3	0.13	0	0.3	0.12	0	0.2
Rheumatoid factor	3.72	0.11	0	0.3	0.1	0	0.2
Haemoglobin	3.45	0.1	0	0.3	0.09	0	0.2
Simple test; other	2.46	0.07	.	.	0.07	.	.
Urinalysis	2.44	0.07	.	.	0.07	.	.
Hepatitis serology	2.36	0.07	.	.	0.06	.	.
Drug screen	1.62	0.05	.	.	0.04	.	.
Amylase	1.62	0.05	.	.	0.04	.	.
Vaginal swab and	1.22	0.04	.	.	0.03	.	.
Coagulation	1.21	0.04	.	.	0.03	.	.
Subtotal	3334.27	99.81	.	.	.	.	.
Other pathology	6.23	0.19	.	.	.	.	.
Total pathology	**3340.51**	**100**	**.**	**.**	**89.87**	**82**	**97.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 17.1: Pathology orders across MBS pathology groups- Endo disease Apr07-Mar08

pathology	n	% of total pathology for Endo disease probs	Lower 95% CI	Upper 95% CI	Per 100 Endo disease probs	Lower 95% CI	Upper 95% CI
Chemistry	322.07	79	74.8	83.2	73.19	60.7	85.7
Haematology	55.75	13.67	10.6	16.8	12.67	9.1	16.2
Other NEC	17.2	4.22	1.9	6.5	3.91	1.8	6
Microbiology	10.19	2.5	0.5	4.5	2.32	0.4	4.2
Cytopathology	2.49	0.61	.	.	0.57	.	.
Subtotal	407.71	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**407.71**	**100**	**.**	**.**	**92.65**	**78.3**	**107**

Table 17.2: Pathology orders at individual test level- Endo disease Apr07-Mar08

pathology	n	% of total pathology for Endo disease probs	Lower 95% CI	Upper 95% CI	Per 100 Endo disease probs	Lower 95% CI	Upper 95% CI
Ferritin	66.13	16.22	11	21.4	15.03	10	20.1
Thyroid function	62.54	15.34	10.9	19.8	14.21	9.7	18.7
Hormone assay	56.4	13.83	7.9	19.8	12.82	6.6	19.1
Full blood count	52.96	12.99	9.9	16.1	12.04	8.6	15.5
Chemistry; other	33.99	8.34	4.6	12.1	7.73	4.1	11.3
Glucose tolerance	25.98	6.37	3.7	9.1	5.9	3.3	8.5
Liver function	17	4.17	2.2	6.1	3.86	1.9	5.8
Lipids	16.54	4.06	2.2	5.9	3.76	1.9	5.6
Multibiochemical analysis	13.96	3.42	1.6	5.2	3.17	1.4	4.9
EUC	13.06	3.2	1.6	4.8	2.97	1.4	4.5
Blood test	12.38	3.04	1	5.1	2.81	0.9	4.7
Prostate specific antigen	5.98	1.47	0.2	2.8	1.36	0.1	2.6
Calcium phosphate	5.13	1.26	0.2	2.4	1.17	0.2	2.2
Other test NEC	3.84	0.94	0.1	1.8	0.87	0.1	1.7
Antibody	3.14	0.77	0	1.8	0.71	0	1.7
Sputum C&S	2.53	0.62	.	.	0.57	.	.
Pap smear	2.49	0.61	.	.	0.57	.	.
HbA1c	2.1	0.51	.	.	0.48	.	.
Cardiac enzymes	1.93	0.47	.	.	0.44	.	.
Haemoglobin	1.83	0.45	.	.	0.41	.	.
Urine MC&S	1.69	0.41	.	.	0.38	.	.
Microbiology; other	1.39	0.34	.	.	0.32	.	.
Rubella	0.98	0.24	.	.	0.22	.	.
Urine test	0.98	0.24	.	.	0.22	.	.
ESR	0.96	0.24	.	.	0.22	.	.
B12	0.77	0.19	.	.	0.18	.	.
C reactive protein	0.57	0.14	.	.	0.13	.	.
Chlamydia	0.46	0.11	.	.	0.11	.	.
Subtotal	407.71	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**407.71**	**100**	**.**	**.**	**92.65**	**78.3**	**107**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 18.1: Pathology orders across MBS pathology groups- Female check Apr07-Mar08

pathology	n	% of total pathology for Female check probs	Lower 95% CI	Upper 95% CI	Per 100 Female check probs	Lower 95% CI	Upper 95% CI
Cytopathology	2362.35	91.34	89.6	93.1	137.19	131.7	142.7
Microbiology	116.48	4.5	3.4	5.6	6.76	5.1	8.5
Chemistry	78.33	3.03	2	4.1	4.55	2.9	6.2
Haematology	22.4	0.87	0.4	1.3	1.3	0.6	2
Other NEC	3.54	0.14	0	0.3	0.21	0	0.4
Immunology	1.76	0.07	.	.	0.1	.	.
Infertility/pregnancy test	1.05	0.04	.	.	0.06	.	.
Simple test	0.31	0.01	.	.	0.02	.	.
Subtotal	2586.22	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**2586.22**	**100**	**.**	**.**	**150.19**	**144.1**	**156.3**

Table 18.2: Pathology orders at individual test level- Female check Apr07-Mar08

pathology	n	% of total pathology for Female check probs	Lower 95% CI	Upper 95% CI	Per 100 Female check probs	Lower 95% CI	Upper 95% CI
Pap smear	2362.35	91.34	89.6	93.1	137.19	131.7	142.7
Chlamydia	46.01	1.78	1.2	2.4	2.67	1.8	3.6
Vaginal swab and C&S	32.07	1.24	0.7	1.8	1.86	1	2.7
Lipids	29.81	1.15	0.6	1.7	1.73	0.9	2.5
Full blood count	20.25	0.78	0.4	1.2	1.18	0.6	1.7
Microbiology; other	20.21	0.78	0.4	1.1	1.17	0.6	1.7
Glucose tolerance	13.06	0.5	0.2	0.8	0.76	0.3	1.2
Ferritin	6.49	0.25	0.1	0.4	0.38	0.1	0.7
Thyroid function	6.15	0.24	0.1	0.4	0.36	0.1	0.6
Chemistry; other	6.11	0.24	0	0.5	0.35	0	0.7
Multibiochemical analysis	5.9	0.23	0	0.5	0.34	0	0.7
Cervical swab	5.57	0.22	0	0.4	0.32	0.1	0.6
Venereal disease	4.68	0.18	0	0.3	0.27	0.1	0.5
Calcium phosphate	4.47	0.17	0	0.4	0.26	0	0.5
Hepatitis serology	3.14	0.12	0	0.3	0.18	0	0.5
Rubella	2.92	0.11	.	.	0.17	.	.
EUC	2.19	0.08	.	.	0.13	.	.
ESR	1.76	0.07	.	.	0.1	.	.
C reactive protein	1.76	0.07	.	.	0.1	.	.
Anti nuclear antibodies	1.76	0.07	.	.	0.1	.	.
Blood test	1.3	0.05	.	.	0.08	.	.
Liver function	1.21	0.05	.	.	0.07	.	.
Urine test	1.19	0.05	.	.	0.07	.	.
Other test NEC	1.05	0.04	.	.	0.06	.	.
Infertility/pregnancy	1.05	0.04	.	.	0.06	.	.
Skin swab C&S	1.02	0.04	.	.	0.06	.	.
B12	0.94	0.04	.	.	0.05	.	.
HIV	0.85	0.03	.	.	0.05	.	.
Haemoglobin	0.38	0.01	.	.	0.02	.	.
Simple test; other	0.31	0.01	.	.	0.02	.	.
Subtotal	2585.98	99.99	.	.	.	.	.
Other pathology	0.24	0.01	.	.	.	.	.
Total pathology	**2586.22**	**100**	**.**	**.**	**150.19**	**144.1**	**156.3**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 19.1: Pathology orders across MBS pathology groups- Gastro Apr07-Mar08

pathology	n	% of total pathology for Gastro probs	Lower 95% CI	Upper 95% CI	Per 100 Gastro probs	Lower 95% CI	Upper 95% CI
Microbiology	204.35	58.21	49.2	67.3	12.91	10.2	15.7
Chemistry	79.59	22.67	15.7	29.7	5.03	2.8	7.2
Haematology	40.66	11.58	8	15.2	2.57	1.5	3.6
Other NEC	17.48	4.98	1.5	8.5	1.1	0.3	1.9
Simple test	6.76	1.93	0	3.9	0.43	0	0.9
Immunology	2.19	0.62	.	.	0.14	.	.
Subtotal	351.03	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**351.03**	**100**	**.**	**.**	**22.18**	**17.5**	**26.9**

Table 19.2: Pathology orders at individual test level- Gastro Apr07-Mar08

pathology	n	% of total pathology for Gastro probs	Lower 95% CI	Upper 95% CI	Per 100 Gastro probs	Lower 95% CI	Upper 95% CI
Faeces MC&S	150.92	42.99	34.9	51.1	9.54	7.3	11.8
H pylori	34.52	9.83	4.7	15	2.18	1	3.4
Full blood count	30.62	8.72	6.2	11.3	1.93	1.2	2.7
EUC	21.04	5.99	1.4	10.6	1.33	0.2	2.5
Liver function	14.77	4.21	2.1	6.3	0.93	0.4	1.5
Multibiochemical analysis	11.54	3.29	1.4	5.1	0.73	0.3	1.2
ESR	9.36	2.67	1	4.4	0.59	0.2	1
Microbiology; other	9.35	2.66	0.8	4.6	0.59	0.2	1
Faeces test	8.91	2.54	0	5.3	0.56	0	1.2
Urine MC&S	8.81	2.51	1	4	0.56	0.2	0.9
C reactive protein	8.45	2.41	0.6	4.3	0.53	0.1	1
Simple test; other	6.76	1.93	0	3.9	0.43	0	0.9
Other test NEC	6.41	1.83	0	4	0.4	0	0.9
Thyroid function	6.36	1.81	0.1	3.5	0.4	0	0.8
Lipids	3.98	1.13	0.1	2.1	0.25	0	0.5
Ferritin	2.82	0.8	.	.	0.18	.	.
Chemistry; other	2.68	0.76	.	.	0.17	.	.
Hormone assay	2.57	0.73	.	.	0.16	.	.
B12	2.53	0.72	.	.	0.16	.	.
Immunology; other	2.19	0.62	.	.	0.14	.	.
Urinalysis	1.23	0.35	.	.	0.08	.	.
Glucose tolerance	1.15	0.33	.	.	0.07	.	.
Calcium phosphate	1.15	0.33	.	.	0.07	.	.
Blood test	0.92	0.26	.	.	0.06	.	.
Venereal disease	0.75	0.21	.	.	0.05	.	.
Coagulation	0.69	0.2	.	.	0.04	.	.
Prostate specific antigen	0.55	0.16	.	.	0.03	.	.
Subtotal	351.03	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**351.03**	**100**	**.**	**.**	**22.18**	**17.5**	**26.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 20.1: Pathology orders across MBS pathology groups- Gout Apr07-Mar08

pathology	n	% of total pathology for Gout probs	Lower 95% CI	Upper 95% CI	Per 100 Gout probs	Lower 95% CI	Upper 95% CI
Chemistry	189.15	69.22	63.6	74.8	33.01	25.1	40.9
Haematology	64.4	23.57	18.7	28.4	11.24	7.7	14.8
Other NEC	14.35	5.25	1.8	8.7	2.51	0.9	4.1
Microbiology	3.13	1.14	0	2.5	0.55	0	1.2
Immunology	1.52	0.56	.	.	0.27	.	.
Cytopathology	0.71	0.26	.	.	0.12	.	.
Subtotal	273.26	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**273.26**	**100**	**.**	**.**	**47.69**	**37**	**58.4**

Table 20.2: Pathology orders at individual test level- Gout Apr07-Mar08

pathology	n	% of total pathology for Gout probs	Lower 95% CI	Upper 95% CI	Per 100 Gout probs	Lower 95% CI	Upper 95% CI
Urate/uric acid	63.91	23.39	18.1	28.7	11.15	8.1	14.2
Full blood count	47.23	17.28	14.3	20.3	8.24	5.7	10.8
EUC	42.13	15.42	11.6	19.3	7.35	4.8	9.9
Multibiochemical analysis	24.13	8.83	2.8	14.9	4.21	1.2	7.2
Liver function	18.75	6.86	4	9.8	3.27	1.7	4.9
ESR	16.61	6.08	3.1	9.1	2.9	1.4	4.4
Lipids	16.34	5.98	3.1	8.9	2.85	1.3	4.4
C reactive protein	6.43	2.35	0.5	4.2	1.12	0.2	2
Prostate specific antigen	6.04	2.21	0	4.4	1.05	0	2.2
Glucose tolerance	5.81	2.13	0.2	4.1	1.01	0.1	2
Urinalysis	5.65	2.07	0	4.2	0.99	0	2
Blood test	5.25	1.92	0	4.2	0.92	0	2
Other test NEC	3.46	1.26	0	2.8	0.6	0	1.3
Thyroid function	1.86	0.68	.	.	0.32	.	.
Urine MC&S	1.78	0.65	.	.	0.31	.	.
Calcium phosphate	1.63	0.6	.	.	0.29	.	.
Rheumatoid factor	1.52	0.56	.	.	0.27	.	.
Chemistry; other	1.45	0.53	.	.	0.25	.	.
Skin swab C&S	1.34	0.49	.	.	0.23	.	.
Cytology	0.71	0.26	.	.	0.12	.	.
HbA1c	0.68	0.25	.	.	0.12	.	.
Coagulation	0.56	0.21	.	.	0.1	.	.
Subtotal	273.26	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**273.26**	**100**	**.**	**.**	**47.69**	**37**	**58.4**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 21.1: Pathology orders across MBS pathology groups- Hypertension Apr07-Mar08

pathology	n	% of total pathology for Hypertension probs	Lower 95% CI	Upper 95% CI	Per 100 Hypertension probs	Lower 95% CI	Upper 95% CI
Chemistry	2428.38	79.6	77.7	81.5	25.57	23	28.2
Haematology	470.3	15.42	13.9	17	4.95	4.2	5.7
Other NEC	101.29	3.32	2.1	4.5	1.07	0.7	1.5
Microbiology	37.18	1.22	0.8	1.7	0.39	0.2	0.5
Cytopathology	6.71	0.22	0	0.6	0.07	0	0.2
Simple test	5.48	0.18	0	0.4	0.06	0	0.1
Immunology	1.28	0.04	.	.	0.01	.	.
Subtotal	3050.62	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**3050.62**	**100**	**.**	**.**	**32.13**	**29**	**35.2**

Table 21.2: Pathology orders at individual test level- Hypertension Apr07-Mar08

pathology	n	% of total pathology for Hypertension probs	Lower 95% CI	Upper 95% CI	Per 100 Hypertension probs	Lower 95% CI	Upper 95% CI
Lipids	621.27	20.37	19	21.7	6.54	5.8	7.3
EUC	579.01	18.98	17	21	6.1	5.2	7
Full blood count	421.65	13.82	12.4	15.2	4.44	3.8	5.1
Glucose tolerance	314.45	10.31	9	11.7	3.31	2.8	3.9
Liver function	277.63	9.1	8	10.2	2.92	2.4	3.4
Multibiochemical analysis	218.12	7.15	5.7	8.6	2.3	1.8	2.8
Chemistry; other	114.92	3.77	2.5	5	1.21	0.8	1.6
Thyroid function	111.73	3.66	3	4.4	1.18	0.9	1.4
Prostate specific antigen	63.66	2.09	1.5	2.6	0.67	0.5	0.9
Blood test	52.32	1.71	0.7	2.7	0.55	0.2	0.9
ESR	41.35	1.36	0.8	1.9	0.44	0.2	0.6
Other test NEC	38.75	1.27	0.7	1.9	0.41	0.2	0.6
Urine MC&S	34.61	1.13	0.7	1.6	0.36	0.2	0.5
Ferritin	32.42	1.06	0.6	1.5	0.34	0.2	0.5
Cardiac enzymes	26.45	0.87	0.3	1.4	0.28	0.1	0.5
HbA1c	23.51	0.77	0.4	1.1	0.25	0.1	0.4
Calcium phosphate	14.52	0.48	0.2	0.8	0.15	0.1	0.2
Urate/uric acid	13.67	0.45	0.2	0.7	0.14	0	0.2
C reactive protein	12.96	0.42	0.1	0.7	0.14	0	0.2
Pap smear	6.71	0.22	0	0.6	0.07	0	0.2
Urinalysis	5.5	0.18	0	0.4	0.06	0	0.1
Simple test; other	5.48	0.18	0	0.4	0.06	0	0.1
Urine test	4.73	0.15	0	0.3	0.05	0	0.1
Coagulation	4.58	0.15	0	0.3	0.05	0	0.1
Haemoglobin	2.72	0.09	.	.	0.03	.	.
B12	1.79	0.06	.	.	0.02	.	.
Faeces MC&S	1.34	0.04	.	.	0.01	.	.
Anti nuclear antibodies	1.28	0.04	.	.	0.01	.	.
H pylori	1.24	0.04	.	.	0.01	.	.
Hormone assay	1.14	0.04	.	.	0.01	.	.
Subtotal	3049.5	99.96	.	.	.	.	.
Other pathology	1.13	0.04	.	.	.	.	.
Total pathology	**3050.62**	**100**	**.**	**.**	**32.13**	**29**	**35.2**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 22.1: Pathology orders across MBS pathology groups- Hypothy/myx Apr07-Mar08

pathology	n	% of total pathology for Hypothy/myx probs	Lower 95% CI	Upper 95% CI	Per 100 Hypothy/myx probs	Lower 95% CI	Upper 95% CI
Chemistry	542.49	89.46	86.2	92.8	81.01	71.2	90.8
Haematology	41.57	6.86	4.7	9	6.21	3.9	8.5
Other NEC	18.98	3.13	0.3	5.9	2.83	0.3	5.4
Microbiology	2.17	0.36	.	.	0.32	.	.
Immunology	0.96	0.16	.	.	0.14	.	.
Histopathology	0.24	0.04	.	.	0.04	.	.
Subtotal	606.41	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**606.41**	**100**	**.**	**.**	**90.55**	**79.4**	**101.7**

Table 22.2: Pathology orders at individual test level- Hypothy/myx Apr07-Mar08

pathology	n	% of total pathology for Hypothy/myx probs	Lower 95% CI	Upper 95% CI	Per 100 Hypothy/myx probs	Lower 95% CI	Upper 95% CI
Thyroid function	426.24	70.29	64.6	76	63.65	56	71.3
Full blood count	37.25	6.14	4.3	8	5.56	3.6	7.6
Lipids	25.66	4.23	2.5	5.9	3.83	2.1	5.5
Glucose tolerance	16.73	2.76	1.4	4.1	2.5	1.2	3.8
Liver function	15.86	2.61	1.3	4	2.37	1	3.7
Ferritin	13.77	2.27	1	3.6	2.06	0.8	3.3
Multibiochemical analysis	13.58	2.24	0.9	3.6	2.03	0.8	3.3
EUC	12.08	1.99	0.8	3.2	1.8	0.6	3
Other test NEC	9.33	1.54	0	3.8	1.39	0	3.5
Blood test	8.47	1.4	0	3	1.26	0	2.7
Chemistry; other	5.95	0.98	0	1.9	0.89	0	1.8
ESR	3.39	0.56	0	1.3	0.51	0	1.1
Calcium phosphate	3.08	0.51	0	1.1	0.46	0	1
HbA1c	2.78	0.46	.	.	0.42	.	.
Hormone assay	2.11	0.35	.	.	0.31	.	.
C reactive protein	1.55	0.26	.	.	0.23	.	.
Antibody	1.32	0.22	.	.	0.2	.	.
Urinalysis	1.19	0.2	.	.	0.18	.	.
Urate/uric acid	1.14	0.19	.	.	0.17	.	.
Immunology; other	0.96	0.16	.	.	0.14	.	.
Haemoglobin	0.94	0.15	.	.	0.14	.	.
B12	0.85	0.14	.	.	0.13	.	.
Drug screen	0.76	0.12	.	.	0.11	.	.
H pylori	0.48	0.08	.	.	0.07	.	.
Venereal disease	0.38	0.06	.	.	0.06	.	.
Folic acid	0.36	0.06	.	.	0.05	.	.
Histology; other	0.24	0.04	.	.	0.04	.	.
Subtotal	606.41	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**606.41**	**100**	**.**	**.**	**90.55**	**79.4**	**101.7**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 23.1: Pathology orders across MBS pathology groups- IHD Apr07-Mar08

pathology	n	% of total pathology for IHD probs	Lower 95% CI	Upper 95% CI	Per 100 IHD probs	Lower 95% CI	Upper 95% CI
Chemistry	369.69	81	76.6	85.4	35.35	28.5	42.2
Haematology	71.3	15.62	11.7	19.5	6.82	4.6	9
Other NEC	14.42	3.16	0.6	5.7	1.38	0.3	2.5
Microbiology	0.99	0.22	.	.	0.09	.	.
Subtotal	456.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**456.4**	**100**	**.**	**.**	**43.64**	**35.5**	**51.8**

Table 23.2: Pathology orders at individual test level- IHD Apr07-Mar08

pathology	n	% of total pathology for IHD probs	Lower 95% CI	Upper 95% CI	Per 100 IHD probs	Lower 95% CI	Upper 95% CI
Lipids	132.89	29.12	24.5	33.7	12.71	9.6	15.8
Full blood count	51.92	11.38	8.7	14.1	4.96	3.4	6.6
EUC	47.79	10.47	7.8	13.2	4.57	3.1	6.1
Liver function	41.66	9.13	6.7	11.5	3.98	2.6	5.4
Glucose tolerance	37.38	8.19	5.6	10.7	3.57	2.2	4.9
Multibiochemical analysis	27.4	6	3.7	8.3	2.62	1.5	3.7
Chemistry; other	23.37	5.12	2.2	8.1	2.23	0.9	3.5
Cardiac enzymes	20.56	4.5	2.4	6.6	1.97	1	3
Coagulation	16.3	3.57	0.5	6.6	1.56	0.2	2.9
Blood test	12.83	2.81	0.3	5.3	1.23	0.1	2.3
Thyroid function	9.48	2.08	0.7	3.5	0.91	0.3	1.5
Drug screen	9.06	1.99	0	4.5	0.87	0	1.9
Prostate specific antigen	5.89	1.29	0.2	2.4	0.56	0.1	1.1
HbA1c	4.88	1.07	0.2	2	0.47	0.1	0.9
Calcium phosphate	4.04	0.89	0	2	0.39	0	0.9
Ferritin	2.95	0.65	.	.	0.28	.	.
Haemoglobin	2.12	0.47	.	.	0.2	.	.
Other test NEC	1.58	0.35	.	.	0.15	.	.
C reactive protein	1.19	0.26	.	.	0.11	.	.
Urate/uric acid	1.13	0.25	.	.	0.11	.	.
Microbiology; other	0.99	0.22	.	.	0.09	.	.
ESR	0.96	0.21	.	.	0.09	.	.
Subtotal	456.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**456.4**	**100**	**.**	**.**	**43.64**	**35.5**	**51.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 24.1: Pathology orders across MBS pathology groups- Lipid disorders Apr07-Mar08

pathology	n	% of total pathology for Lipid disorders probs	Lower 95% CI	Upper 95% CI	Per 100 Lipid disorders probs	Lower 95% CI	Upper 95% CI
Chemistry	2211.73	88.6	86.6	90.6	62.46	56.9	68
Haematology	199.15	7.98	6.6	9.4	5.62	4.3	6.9
Other NEC	68.01	2.72	1.1	4.4	1.92	0.8	3.1
Microbiology	9.31	0.37	0	0.7	0.26	0	0.5
Simple test	4.96	0.2	0	0.5	0.14	0	0.4
Histopathology	2.56	0.1	.	.	0.07	.	.
Immunology	0.69	0.03	.	.	0.02	.	.
Subtotal	2496.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**2496.4**	**100**	**.**	**.**	**70.5**	**64.1**	**76.9**

Table 24.2: Pathology orders at individual test level- Lipid disorders Apr07-Mar08

pathology	n	% of total pathology for Lipid disorders probs	Lower 95% CI	Upper 95% CI	Per 100 Lipid disorders probs	Lower 95% CI	Upper 95% CI
Lipids	1180.06	47.27	44	50.5	33.32	30.5	36.2
Liver function	256.79	10.29	8.8	11.7	7.25	5.9	8.6
Glucose tolerance	204.18	8.18	6.7	9.7	5.77	4.6	6.9
Full blood count	182.99	7.33	6	8.7	5.17	4	6.4
EUC	152.03	6.09	4.8	7.3	4.29	3.2	5.4
Cardiac enzymes	136.84	5.48	4.1	6.8	3.86	2.8	4.9
Multibiochemical	126.76	5.08	3.7	6.5	3.58	2.6	4.6
Thyroid function	57.37	2.3	1.4	3.2	1.62	0.9	2.3
Prostate specific antigen	38.6	1.55	0.8	2.3	1.09	0.6	1.6
Other test NEC	35.82	1.43	0.3	2.6	1.01	0.2	1.8
Blood test	29.04	1.16	0.5	1.9	0.82	0.3	1.3
Chemistry; other	15.38	0.62	0.3	1	0.43	0.2	0.7
ESR	15.21	0.61	0.3	1	0.43	0.2	0.7
HbA1c	9.77	0.39	0.1	0.6	0.28	0.1	0.4
Ferritin	8.96	0.36	0.1	0.6	0.25	0.1	0.4
Calcium phosphate	6.8	0.27	0	0.5	0.19	0	0.4
Urine MC&S	5.29	0.21	0	0.5	0.15	0	0.3
B12	5.2	0.21	0	0.4	0.15	0	0.3
C reactive protein	5.01	0.2	0	0.4	0.14	0	0.3
Simple test; other	4.96	0.2	0	0.5	0.14	0	0.4
Urate/uric acid	4.51	0.18	0	0.4	0.13	0	0.3
Faeces MC&S	3.01	0.12	0	0.4	0.08	0	0.3
Histology; other	2.56	0.1	.	.	0.07	.	.
Urinalysis	2.29	0.09	.	.	0.06	.	.
Folic acid	1.84	0.07	.	.	0.05	.	.
Hormone assay	1.61	0.06	.	.	0.05	.	.
Hepatitis serology	1.02	0.04	.	.	0.03	.	.
Haemoglobin	0.94	0.04	.	.	0.03	.	.
Urine test	0.86	0.03	.	.	0.02	.	.
Immunology; other	0.69	0.03	.	.	0.02	.	.
Subtotal	2496.4	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**2496.4**	**100**	**.**	**.**	**70.5**	**64.1**	**76.9**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 25.1: Pathology orders across MBS pathology groups- Menopause Apr07-Mar08

pathology	n	% of total pathology for Menopause probs	Lower 95% CI	Upper 95% CI	Per 100 Menopause probs	Lower 95% CI	Upper 95% CI
Chemistry	311.33	72.71	66.6	78.9	39.07	30.4	47.7
Haematology	44.76	10.45	7.9	13	5.62	3.8	7.5
Cytopathology	30.99	7.24	3.9	10.6	3.89	2.1	5.7
Microbiology	22.04	5.15	1.5	8.8	2.77	0.7	4.8
Other NEC	17.33	4.05	0.1	8	2.17	0.1	4.3
Immunology	1	0.23	.	.	0.13	.	.
Infertility/pregnan	0.4	0.09	.	.	0.05	.	.
Simple test	0.34	0.08	.	.	0.04	.	.
Subtotal	428.19	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**428.19**	**100**	**.**	**.**	**53.74**	**42.9**	**64.5**

Table 25.2: Pathology orders at individual test level- Menopause Apr07-Mar08

pathology	n	% of total pathology for Menopause probs	Lower 95% CI	Upper 95% CI	Per 100 Menopause probs	Lower 95% CI	Upper 95% CI
Hormone assay	146.09	34.12	26.6	41.6	18.33	13.4	23.2
Full blood count	41.02	9.58	7.2	11.9	5.15	3.4	6.9
Pap smear	30.99	7.24	3.9	10.6	3.89	2.1	5.7
Lipids	30.06	7.02	4.5	9.5	3.77	2.2	5.4
Thyroid function	29.14	6.8	4.4	9.2	3.66	2.2	5.1
Chemistry; other	21.28	4.97	1.4	8.5	2.67	0.6	4.8
Glucose	20.42	4.77	2.5	7	2.56	1.2	3.9
Blood test	14.09	3.29	0	7.1	1.77	0	3.8
Liver function	13.74	3.21	1.3	5.1	1.72	0.6	2.9
Ferritin	13.49	3.15	1.6	4.7	1.69	0.8	2.6
Multibiochemical	12.5	2.92	1.2	4.7	1.57	0.6	2.5
EUC	12.07	2.82	1	4.6	1.52	0.5	2.5
Vaginal swab and	10.84	2.53	0.2	4.9	1.36	0	2.7
Urine MC&S	9.55	2.23	0.8	3.7	1.2	0.4	2
Calcium	5.66	1.32	0.3	2.4	0.71	0.1	1.3
Other test NEC	3.24	0.76	0	1.5	0.41	0	0.8
ESR	3.1	0.72	0	1.5	0.39	0	0.8
B12	2.9	0.68	.	.	0.36	.	.
Folic acid	2.15	0.5	.	.	0.27	.	.
Microbiology;	1.56	0.37	.	.	0.2	.	.
Urate/uric acid	1.23	0.29	.	.	0.15	.	.
Immunology;	1	0.23	.	.	0.13	.	.
Haemoglobin	0.64	0.15	.	.	0.08	.	.
Cardiac enzymes	0.61	0.14	.	.	0.08	.	.
Infertility/pregnan	0.4	0.09	.	.	0.05	.	.
Simple test; other	0.34	0.08	.	.	0.04	.	.
H pylori	0.09	0.02	.	.	0.01	.	.
Subtotal	428.19	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**428.19**	**100**	**.**	**.**	**53.74**	**42.9**	**64.5**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 26.1: Pathology orders across MBS pathology groups- Menstrual probs Apr07-Mar08

pathology	n	% of total pathology for Menstrual probs	Lower 95% CI	Upper 95% CI	Per 100 Menstrual probs	Lower 95% CI	Upper 95% CI
Chemistry	329.56	64.86	59.6	70.1	54.11	43.5	64.7
Haematology	91.36	17.98	15.3	20.6	15	11.9	18.1
Microbiology	35.66	7.02	4.1	9.9	5.86	3.3	8.4
Cytopathology	31.13	6.13	3.7	8.6	5.11	3.1	7.1
Infertility/pregnancy test	12.46	2.45	0.7	4.2	2.05	0.6	3.5
Other NEC	4.44	0.87	0.2	1.6	0.73	0.2	1.3
Simple test	2.42	0.48	.	.	0.4	.	.
Immunology	1.05	0.21	.	.	0.17	.	.
Subtotal	508.09	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**508.09**	**100**	**.**	**.**	**83.43**	**70.1**	**96.8**

Table 26.2: Pathology orders at individual test level- Menstrual probs Apr07-Mar08

pathology	n	% of total pathology for Menstrual probs	Lower 95% CI	Upper 95% CI	Per 100 Menstrual probs	Lower 95% CI	Upper 95% CI
Hormone assay	135.7	26.71	20.5	32.9	22.28	15.4	29.2
Full blood count	79.01	15.55	13.4	17.7	12.97	10.4	15.6
Thyroid function	56.57	11.13	8.8	13.4	9.29	6.8	11.7
Ferritin	55.31	10.89	8.6	13.2	9.08	6.8	11.3
Pap smear	31.13	6.13	3.7	8.6	5.11	3.1	7.1
Chemistry; other	20.85	4.1	2.5	5.7	3.42	2	4.8
EUC	18.11	3.56	1.9	5.3	2.97	1.5	4.5
Liver function	15.82	3.11	1.5	4.7	2.6	1.2	4
Multibiochemical analysis	14.44	2.84	1.3	4.4	2.37	1	3.7
Infertility/pregnancy	12.46	2.45	0.7	4.2	2.05	0.6	3.5
Chlamydia	10.13	1.99	0.7	3.3	1.66	0.6	2.7
Coagulation	9.76	1.92	0.5	3.4	1.6	0.4	2.8
Glucose tolerance	8.85	1.74	0.7	2.8	1.45	0.5	2.4
Vaginal swab and C&S	8.27	1.63	0.5	2.7	1.36	0.4	2.3
Venereal disease	4.98	0.98	0	2	0.82	0	1.6
Urine MC&S	3.58	0.7	0.1	1.3	0.59	0.1	1.1
Microbiology; other	3.58	0.7	0.1	1.3	0.59	0.1	1.1
Cervical swab	2.69	0.53	.	.	0.44	.	.
ESR	2.59	0.51	.	.	0.43	.	.
Simple test; other	2.42	0.48	.	.	0.4	.	.
Other test NEC	1.98	0.39	.	.	0.33	.	.
Lipids	1.97	0.39	.	.	0.32	.	.
Blood test	1.68	0.33	.	.	0.28	.	.
Rubella	1.38	0.27	.	.	0.23	.	.
Ross River fever	1.05	0.21	.	.	0.17	.	.
Rheumatoid factor	1.05	0.21	.	.	0.17	.	.
B12	0.95	0.19	.	.	0.16	.	.
Urine test	0.78	0.15	.	.	0.13	.	.
C reactive protein	0.63	0.12	.	.	0.1	.	.
Drug screen	0.36	0.07	.	.	0.06	.	.
Subtotal	508.09	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**508.09**	**100**	**.**	**.**	**83.43**	**70.1**	**96.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 27.1: Pathology orders across MBS pathology groups- Microbiology test Apr07-Mar08

pathology	n	% of total pathology for Microbiology test probs	Lower 95% CI	Upper 95% CI	Per 100 Microbiology test probs	Lower 95% CI	Upper 95% CI
Microbiology	540.18	90.64	86.8	94.5	232.66	205.5	259.8
Other NEC	21.34	3.58	0.9	6.3	9.19	2.4	16
Chemistry	17.29	2.9	1.1	4.7	7.45	2.8	12.1
Immunology	7.23	1.21	0.3	2.1	3.11	0.7	5.5
Haematology	5.51	0.92	0	1.8	2.37	0.1	4.6
Cytopathology	4.39	0.74	0.2	1.3	1.89	0.5	3.3
Subtotal	595.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**595.93**	**100**	**.**	**.**	**256.68**	**231.1**	**282.2**

Table 27.2: Pathology orders at individual test level- Microbiology test Apr07-Mar08

pathology	n	% of total pathology for Microbiology test probs	Lower 95% CI	Upper 95% CI	Per 100 Microbiology test probs	Lower 95% CI	Upper 95% CI
Venereal disease	109.24	18.33	14	22.6	47.05	36.9	57.2
Hepatitis serology	107.59	18.05	14.4	21.7	46.34	35.2	57.5
Microbiology; other	92.74	15.56	12.2	18.9	39.94	29.9	50
Chlamydia	91.28	15.32	11.9	18.7	39.32	29.5	49.1
HIV	87.16	14.63	12.3	16.9	37.54	29.2	45.8
Vaginal swab and C&S	17.52	2.94	1.5	4.4	7.54	3.9	11.2
Urine test	16.6	2.79	0.2	5.4	7.15	0.5	13.8
Throat swab C&S	15.42	2.59	0.1	5.1	6.64	0	13.3
Cervical swab	11.25	1.89	0.5	3.3	4.84	1.3	8.4
Immunology; other	6.69	1.12	0.2	2	2.88	0.5	5.2
Chemistry; other	6.08	1.02	0	2.1	2.62	0	5.5
Full blood count	5.51	0.92	0	1.8	2.37	0.1	4.6
Blood test	4.74	0.8	0	1.7	2.04	0	4.2
Pap smear	4.39	0.74	0.2	1.3	1.89	0.5	3.3
Multibiochemical analysis	4.07	0.68	0	1.4	1.75	0	3.6
Rubella	3.84	0.64	0	1.3	1.65	0	3.4
Ferritin	2.64	0.44	.	.	1.14	.	.
Pertussis	1.74	0.29	.	.	0.75	.	.
Urine MC&S	1.5	0.25	.	.	0.65	.	.
Liver function	1.42	0.24	.	.	0.61	.	.
Thyroid function	0.95	0.16	.	.	0.41	.	.
Antibody	0.91	0.15	.	.	0.39	.	.
EUC	0.73	0.12	.	.	0.31	.	.
Calcium phosphate	0.69	0.12	.	.	0.3	.	.
C reactive protein	0.69	0.12	.	.	0.3	.	.
RAST	0.54	0.09	.	.	0.23	.	.
Subtotal	595.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**595.93**	**100**	**.**	**.**	**256.68**	**231.1**	**282.2**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 28.1: Pathology orders across MBS pathology groups- Osteoarthritis Apr07-Mar08

pathology	n	% of total pathology for Osteoarthritis probs	Lower 95% CI	Upper 95% CI	Per 100 Osteoarthritis probs	Lower 95% CI	Upper 95% CI
Chemistry	68.24	51.97	42.5	61.4	2.75	1.7	3.8
Haematology	35.27	26.86	19.7	34.1	1.42	0.8	2
Immunology	9.87	7.52	2.3	12.7	0.4	0.1	0.7
Other NEC	8.13	6.19	0.7	11.7	0.33	0	0.6
Histopathology	4.99	3.8	0	11.3	0.2	0	0.6
Microbiology	4.05	3.09	0	6.7	0.16	0	0.3
Cytopathology	0.75	0.57	.	.	0.03	.	.
Subtotal	131.31	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**131.31**	**100**	**.**	**.**	**5.29**	**3.5**	**7.1**

Table 28.2: Pathology orders at individual test level- Osteoarthritis Apr07-Mar08

pathology	n	% of total pathology for Osteoarthritis probs	Lower 95% CI	Upper 95% CI	Per 100 Osteoarthritis probs	Lower 95% CI	Upper 95% CI
Full blood count	20.4	15.54	11	20.1	0.82	0.4	1.2
Liver function	15.09	11.49	3.7	19.3	0.61	0.1	1.1
ESR	13.53	10.3	5.8	14.8	0.54	0.2	0.9
Lipids	9.12	6.95	2.8	11	0.37	0.1	0.6
Multibiochemical analysis	6.61	5.03	0.7	9.4	0.27	0	0.5
C reactive protein	6.47	4.93	1.5	8.3	0.26	0.1	0.5
Glucose tolerance	5.54	4.22	0.6	7.8	0.22	0	0.4
EUC	5.52	4.2	0.8	7.6	0.22	0	0.4
Rheumatoid factor	5.34	4.06	0.6	7.5	0.21	0	0.4
Histology; other	4.99	3.8	0	11.3	0.2	0	0.6
Other test NEC	4.75	3.62	0	7.5	0.19	0	0.4
Calcium phosphate	4.74	3.61	0.1	7.2	0.19	0	0.4
Urate/uric acid	4.07	3.1	0	6.5	0.16	0	0.3
Thyroid function	3.98	3.03	0.2	5.8	0.16	0	0.3
Anti nuclear antibodies	2.68	2.04	.	.	0.11	.	.
Blood test	2.58	1.97	.	.	0.1	.	.
Prostate specific antigen	2.55	1.94	.	.	0.1	.	.
Immunology; other	1.86	1.41	.	.	0.07	.	.
Chemistry; other	1.69	1.29	.	.	0.07	.	.
Urine MC&S	1.6	1.22	.	.	0.06	.	.
HbA1c	1.47	1.12	.	.	0.06	.	.
Hepatitis serology	1.41	1.08	.	.	0.06	.	.
Coagulation	1.34	1.02	.	.	0.05	.	.
Microbiology; other	0.77	0.58	.	.	0.03	.	.
Pap smear	0.75	0.57	.	.	0.03	.	.
Urine test	0.41	0.31	.	.	0.02	.	.
Urinalysis	0.39	0.3	.	.	0.02	.	.
Ferritin	0.37	0.29	.	.	0.02	.	.
B12	0.37	0.29	.	.	0.02	.	.
Folic acid	0.37	0.29	.	.	0.02	.	.
Subtotal	130.77	99.59	.	.	.	.	.
Other pathology	0.54	0.41	.	.	.	.	.
Total pathology	**131.31**	**100**	**.**	**.**	**5.29**	**3.5**	**7.1**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 29.1: Pathology orders across MBS pathology groups- Obesity Apr07-Mar08

pathology	n	% of total pathology for Obesity probs	Lower 95% CI	Upper 95% CI	Per 100 Obesity probs	Lower 95% CI	Upper 95% CI
Chemistry	259.54	83.8	79.9	87.7	38.03	28.9	47.2
Haematology	45.87	14.81	11.1	18.6	6.72	4.2	9.2
Other NEC	4.32	1.4	0	3	0.63	0	1.4
Subtotal	309.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**309.73**	**100**	**.**	**.**	**45.38**	**34.5**	**56.3**

Table 29.2: Pathology orders at individual test level- Obesity Apr07-Mar08

pathology	n	% of total pathology for Obesity probs	Lower 95% CI	Upper 95% CI	Per 100 Obesity probs	Lower 95% CI	Upper 95% CI
Lipids	65.99	21.31	17.7	24.9	9.67	7	12.4
Glucose tolerance	53.43	17.25	13.5	21	7.83	5.5	10.2
Thyroid function	44.1	14.24	9.8	18.7	6.46	4.1	8.8
Full blood count	42.75	13.8	10.5	17.1	6.26	4	8.5
Liver function	28.19	9.1	6.2	12	4.13	2.3	5.9
EUC	20.35	6.57	3.6	9.5	2.98	1.4	4.6
Multibiochemical analysis	15.7	5.07	2.5	7.6	2.3	1.1	3.6
Ferritin	8.48	2.74	0.6	4.9	1.24	0.2	2.3
Hormone assay	7.44	2.4	0	5	1.09	0	2.3
Chemistry; other	6.25	2.02	0.3	3.7	0.92	0.2	1.7
Prostate specific antigen	3.79	1.22	0.1	2.3	0.56	0	1.1
ESR	3.12	1.01	0	2.4	0.46	0	1.1
Urate/uric acid	2.87	0.93	.	.	0.42	.	.
Other test NEC	2.39	0.77	.	.	0.35	.	.
HbA1c	2.11	0.68	.	.	0.31	.	.
Blood test	1.93	0.62	.	.	0.28	.	.
Drug screen	0.82	0.26	.	.	0.12	.	.
Subtotal	309.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**309.73**	**100**	**.**	**.**	**45.38**	**34.5**	**56.3**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 30.1: Pathology orders across MBS pathology groups- Oesophagus disease Apr07-Mar08

pathology	n	% of total pathology for Oesophagus disease probs	Lower 95% CI	Upper 95% CI	Per 100 Oesophagus disease probs	Lower 95% CI	Upper 95% CI
Chemistry	115.95	53.18	45.7	60.7	5.22	3.5	6.9
Microbiology	55.69	25.54	16.6	34.5	2.51	1.6	3.4
Haematology	36.85	16.9	13.4	20.4	1.66	1.1	2.2
Simple test	4.76	2.18	0	4.8	0.21	0	0.5
Other NEC	4.05	1.86	0	4	0.18	0	0.4
Cytopathology	0.73	0.34	.	.	0.03	.	.
Subtotal	218.03	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**218.03**	**100**	**.**	**.**	**9.82**	**7.3**	**12.4**

Table 30.2: Pathology orders at individual test level- Oesophagus disease Apr07-Mar08

pathology	n	% of total pathology for Oesophagus disease probs	Lower 95% CI	Upper 95% CI	Per 100 Oesophagus disease probs	Lower 95% CI	Upper 95% CI
H pylori	50.54	23.18	14.6	31.7	2.28	1.4	3.2
Full blood count	34.52	15.83	12.5	19.2	1.56	1	2.1
Liver function	23.21	10.64	7.4	13.9	1.05	0.6	1.5
EUC	15.31	7.02	4.1	9.9	0.69	0.3	1
Lipids	14.5	6.65	3.4	9.9	0.65	0.3	1
Thyroid function	11.18	5.13	2.5	7.8	0.5	0.2	0.8
Multibiochemical analysis	10.15	4.65	1.4	7.9	0.46	0.1	0.8
Chemistry; other	8.3	3.81	1.3	6.3	0.37	0.1	0.6
Ferritin	7.23	3.31	0.6	6	0.33	0	0.6
Prostate specific antigen	5.68	2.61	0	5.3	0.26	0	0.5
Amylase	5.4	2.48	0.3	4.7	0.24	0	0.5
Simple test; other	4.76	2.18	0	4.8	0.21	0	0.5
Cardiac enzymes	3.83	1.76	0.1	3.4	0.17	0	0.3
Glucose tolerance	3.68	1.69	0	3.3	0.17	0	0.3
Blood test	2.57	1.18	.	.	0.12	.	.
Throat swab C&S	2.29	1.05	.	.	0.1	.	.
Calcium phosphate	1.87	0.86	.	.	0.08	.	.
C reactive protein	1.76	0.81	.	.	0.08	.	.
Faeces test	1.47	0.68	.	.	0.07	.	.
B12	1.05	0.48	.	.	0.05	.	.
ESR	1.03	0.47	.	.	0.05	.	.
Hormone assay	0.95	0.44	.	.	0.04	.	.
Urine MC&S	0.94	0.43	.	.	0.04	.	.
Pap smear	0.73	0.34	.	.	0.03	.	.
Blood grouping & typing	0.7	0.32	.	.	0.03	.	.
HbA1c	0.68	0.31	.	.	0.03	.	.
Urate/uric acid	0.68	0.31	.	.	0.03	.	.
Haemoglobin	0.6	0.27	.	.	0.03	.	.
Folic acid	0.49	0.23	.	.	0.02	.	.
Monospot	0.4	0.18	.	.	0.02	.	.
Subtotal	216.52	99.31	.	.	.	.	.
Other pathology	1.51	0.69	.	.	.	.	.
Total pathology	**218.03**	**100**	**.**	**.**	**9.82**	**7.3**	**12.4**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 31.1: Pathology orders across MBS pathology groups- Contraception Apr07-Mar08

pathology	n	% of total pathology for Contraception probs	Lower 95% CI	Upper 95% CI	Per 100 Contraception probs	Lower 95% CI	Upper 95% CI
Cytopathology	51.46	49.51	30.8	68.2	4.16	2.1	6.2
Chemistry	31.81	30.61	13.9	47.3	2.57	0.8	4.4
Microbiology	14.02	13.49	4.3	22.7	1.13	0.4	1.9
Haematology	6.65	6.4	2.2	10.6	0.54	0.1	1
Subtotal	103.94	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	103.94	100	.	.	8.41	5.4	11.5

Table 31.2: Pathology orders at individual test level- Contraception Apr07-Mar08

pathology	n	% of total pathology for Contraception probs	Lower 95% CI	Upper 95% CI	Per 100 Contraception probs	Lower 95% CI	Upper 95% CI
Pap smear	51.46	49.51	30.8	68.2	4.16	2.1	6.2
Lipids	8.68	8.36	0.7	16	0.7	0	1.4
Full blood count	6.65	6.4	2.2	10.6	0.54	0.1	1
Chlamydia	6.6	6.35	0.8	11.9	0.53	0.1	1
Venereal disease	5.08	4.89	0	10.6	0.41	0	0.9
Liver function	3.59	3.45	0.1	6.8	0.29	0	0.6
Ferritin	3.41	3.29	0.4	6.2	0.28	0	0.5
Multibiochemical analysis	3.37	3.24	0	9.5	0.27	0	0.8
Thyroid function	3.29	3.17	0.4	5.9	0.27	0	0.5
Hormone assay	3.05	2.94	0	6.4	0.25	0	0.5
Chemistry; other	2.2	2.12	.	.	0.18	.	.
Glucose tolerance	2.16	2.08	.	.	0.17	.	.
Microbiology; other	1.66	1.6	.	.	0.13	.	.
Calcium phosphate	1.09	1.05	.	.	0.09	.	.
EUC	0.96	0.92	.	.	0.08	.	.
Vaginal swab and C&S	0.67	0.65	.	.	0.05	.	.
Subtotal	103.94	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**103.94**	**100**	**.**	**.**	**8.41**	**5.4**	**11.5**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 32.1: Pathology orders across MBS pathology groups- Otitis media Apr07-Mar08

pathology	n	% of total pathology for Otitis media probs	Lower 95% CI	Upper 95% CI	Per 100 Otitis media probs	Lower 95% CI	Upper 95% CI
Microbiology	12.2	70.16	41.1	99.2	1.21	0.3	2.1
Chemistry	3.33	19.17	0	41	0.33	0	0.7
Haematology	1.14	6.58	.	.	0.11	.	.
Other NEC	0.71	4.09	.	.	0.07	.	.
Subtotal	17.39	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**17.39**	**100**	**.**	**.**	**1.72**	**0.7**	**2.8**

Table 32.2: Pathology orders at individual test level- Otitis media Apr07-Mar08

pathology	n	% of total pathology for Otitis media probs	Lower 95% CI	Upper 95% CI	Per 100 Otitis media probs	Lower 95% CI	Upper 95% CI
Ear swab and C&S	8.18	47.01	11.5	82.5	0.81	0	1.6
Urine MC&S	2.45	14.06	.	.	0.24	.	.
EUC	2.43	13.96	.	.	0.24	.	.
Full blood count	1.14	6.58	.	.	0.11	.	.
Nose swab C&S	0.81	4.67	.	.	0.08	.	.
Microbiology;	0.77	4.42	.	.	0.08	.	.
Blood test	0.71	4.09	.	.	0.07	.	.
Ferritin	0.45	2.61	.	.	0.04	.	.
B12	0.45	2.61	.	.	0.04	.	.
Subtotal	17.39	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**17.39**	**100**	**.**	**.**	**1.72**	**0.7**	**2.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 33.1: Pathology orders across MBS pathology groups- Pregnancy Apr07-Mar08

pathology	n	% of total pathology for Pregnancy probs	Lower 95% CI	Upper 95% CI	Per 100 Pregnancy probs	Lower 95% CI	Upper 95% CI
Microbiology	306.35	33.31	29.5	37.1	23.95	19.9	28
Chemistry	259.39	28.21	23.7	32.7	20.28	16.2	24.4
Haematology	215.88	23.47	20.7	26.2	16.88	13.7	20
Infertility/pregnancy test	103.51	11.26	8.5	14	8.09	6.2	10
Other NEC	17.86	1.94	0.9	3	1.4	0.6	2.2
Simple test	8.86	0.96	0.1	1.9	0.69	0.1	1.3
Cytopathology	5.86	0.64	0.1	1.2	0.46	0	0.9
Immunology	1.92	0.21	.	.	0.15	.	.
Subtotal	919.62	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**919.62**	**100**	**.**	**.**	**71.89**	**63.3**	**80.5**

Table 33.2: Pathology orders at individual test level- Pregnancy Apr07-Mar08

pathology	n	% of total pathology for Pregnancy probs	Lower 95% CI	Upper 95% CI	Per 100 Pregnancy probs	Lower 95% CI	Upper 95% CI
Full blood count	121.98	13.26	11.5	15	9.54	7.7	11.4
Hormone assay	106.21	11.55	8.2	14.9	8.3	5.8	10.8
Infertility/pregnancy	103.51	11.26	8.5	14	8.09	6.2	10
Microbiology; other	92.9	10.1	7.8	12.4	7.26	5.5	9.1
Blood grouping & typing	79.11	8.6	7	10.2	6.18	4.7	7.7
Glucose tolerance	56.59	6.15	4.2	8.1	4.42	3	5.9
Rubella	44.83	4.87	3.5	6.2	3.5	2.4	4.7
Urine MC&S	41.59	4.52	3.1	5.9	3.25	2.2	4.3
Hepatitis serology	36.94	4.02	2.6	5.4	2.89	1.8	4
Ferritin	26.48	2.88	1.6	4.2	2.07	1.1	3
Venereal disease	26.24	2.85	1.9	3.8	2.05	1.3	2.8
HIV	21.56	2.34	1.3	3.4	1.69	0.8	2.5
Vaginal swab and C&S	21.16	2.3	1.2	3.4	1.65	0.9	2.4
Antibody	21.13	2.3	1.2	3.4	1.65	0.9	2.4
Chemistry; other	20.86	2.27	0.8	3.7	1.63	0.6	2.7
Thyroid function	12.23	1.33	0.4	2.2	0.96	0.3	1.6
Haemoglobin	10.93	1.19	0.3	2.1	0.85	0.2	1.5
Liver function	10.41	1.13	0	2.2	0.81	0	1.6
Multibiochemical analysis	10.1	1.1	0.3	1.9	0.79	0.2	1.4
Other test NEC	9.25	1.01	0.3	1.8	0.72	0.2	1.3
Simple test; other	8.86	0.96	0.1	1.9	0.69	0.1	1.3
EUC	7.63	0.83	0.1	1.6	0.6	0	1.2
Pap smear	5.86	0.64	0.1	1.2	0.46	0	0.9
Blood test	4.85	0.53	0	1.1	0.38	0	0.8
Blood; other	3.86	0.42	0	0.9	0.3	0	0.6
Urine test	3.75	0.41	0	0.9	0.29	0	0.7
B12	3.19	0.35	0	0.7	0.25	0	0.5
Folic acid	2.99	0.33	.	.	0.23	.	.
Immunology; other	1.92	0.21	.	.	0.15	.	.
HbA1c	1.01	0.11	.	.	0.08	.	.
Subtotal	917.93	99.82	.	.	.	.	.
Other pathology	1.7	0.18	.	.	.	.	.
Total pathology	**919.62**	**100**	**.**	**.**	**71.89**	**63.3**	**80.5**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 34.1: Pathology orders across MBS pathology groups- Prescription Apr07-Mar08

pathology	n	% of total pathology for Prescription probs	Lower 95% CI	Upper 95% CI	Per 100 Prescription probs	Lower 95% CI	Upper 95% CI
Chemistry	151.89	78.73	71.7	85.7	8.06	5.6	10.6
Haematology	28.35	14.69	10	19.4	1.51	0.8	2.2
Microbiology	10.86	5.63	0	11.5	0.58	0	1.2
Other NEC	1.82	0.95	.	.	0.1	.	.
Subtotal	192.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**192.93**	**100**	**.**	**.**	**10.24**	**7.3**	**13.2**

Table 34.2: Pathology orders at individual test level- Prescription Apr07-Mar08

pathology	n	% of total pathology for Prescription probs	Lower 95% CI	Upper 95% CI	Per 100 Prescription probs	Lower 95% CI	Upper 95% CI
Lipids	37.3	19.34	12.8	25.8	1.98	1.1	2.8
EUC	21.33	11.06	6	16.1	1.13	0.5	1.8
Full blood count	20.88	10.82	6.9	14.8	1.11	0.6	1.6
Thyroid function	19.56	10.14	3.2	17	1.04	0.3	1.8
Liver function	15.49	8.03	4.6	11.4	0.82	0.4	1.3
HbA1c	11.66	6.04	1.4	10.7	0.62	0.1	1.1
Glucose tolerance	10.75	5.57	2.2	8.9	0.57	0.2	0.9
Multibiochemical analysis	10.46	5.42	1.9	8.9	0.56	0.2	0.9
Urine MC&S	5.84	3.02	0	8.3	0.31	0	0.8
Calcium phosphate	5.57	2.89	0	5.9	0.3	0	0.6
Prostate specific antigen	5.37	2.79	0.2	5.3	0.29	0	0.5
Coagulation	5.08	2.63	0	6.5	0.27	0	0.7
Chemistry; other	4.21	2.18	0	4.7	0.22	0	0.5
Cardiac enzymes	3.51	1.82	0	3.9	0.19	0	0.4
ESR	2.4	1.24	.	.	0.13	.	.
Hormone assay	2.39	1.24	.	.	0.13	.	.
B12	1.88	0.97	.	.	0.1	.	.
H pylori	1.33	0.69	.	.	0.07	.	.
Blood test	1.25	0.65	.	.	0.07	.	.
C reactive protein	1.2	0.62	.	.	0.06	.	.
Venereal disease	1.06	0.55	.	.	0.06	.	.
Hepatitis serology	0.96	0.5	.	.	0.05	.	.
HIV	0.96	0.5	.	.	0.05	.	.
Drug screen	0.78	0.41	.	.	0.04	.	.
Fungal ID/sensitivity	0.71	0.37	.	.	0.04	.	.
Other test NEC	0.58	0.3	.	.	0.03	.	.
Ferritin	0.41	0.21	.	.	0.02	.	.
Subtotal	192.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**192.93**	**100**	**.**	**.**	**10.24**	**7.3**	**13.2**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 35.1: Pathology orders across MBS pathology groups- Prev immun/vacc Apr07-Mar08

pathology	n	% of total pathology for Prev immun/vacc probs	Lower 95% CI	Upper 95% CI	Per 100 Prev immun/vacc probs	Lower 95% CI	Upper 95% CI
Microbiology	37.59	41.27	23.5	59	0.75	0.4	1.1
Chemistry	33.35	36.61	20.5	52.7	0.66	0.2	1.1
Haematology	8.36	9.18	4.4	13.9	0.17	0	0.3
Cytopathology	7.81	8.58	0	19.2	0.16	0	0.3
Other NEC	3.16	3.46	0	8.5	0.06	0	0.2
Simple test	0.83	0.91	.	.	0.02	.	.
Subtotal	91.1	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**91.1**	**100**	**.**	**.**	**1.82**	**1.1**	**2.5**

Table 35.2: Pathology orders at individual test level- Prev immun/vacc Apr07-Mar08

pathology	n	% of total pathology for Prev immun/vacc probs	Lower 95% CI	Upper 95% CI	Per 100 Prev immun/vacc probs	Lower 95% CI	Upper 95% CI
Hepatitis serology	27.1	29.75	14.3	45.2	0.54	0.2	0.8
Thyroid function	7.99	8.77	2.3	15.3	0.16	0	0.3
Full blood count	7.98	8.75	4	13.5	0.16	0	0.3
Pap smear	7.81	8.58	0	19.2	0.16	0	0.3
Microbiology; other	6.65	7.3	1.8	12.8	0.13	0	0.2
Lipids	6.45	7.08	2.2	12	0.13	0	0.2
EUC	3.71	4.07	0	8.6	0.07	0	0.2
Multibiochemical analysis	3.69	4.05	0.1	8	0.07	0	0.2
Liver function	2.88	3.16	.	.	0.06	.	.
Chemistry; other	2.7	2.96	.	.	0.05	.	.
Glucose tolerance	2.67	2.93	.	.	0.05	.	.
B12	2.24	2.46	.	.	0.04	.	.
Urine test	1.67	1.84	.	.	0.03	.	.
Other test NEC	1.48	1.63	.	.	0.03	.	.
Rubella	1.05	1.15	.	.	0.02	.	.
Prostate specific antigen	1.03	1.13	.	.	0.02	.	.
Antibody	0.97	1.07	.	.	0.02	.	.
Chlamydia	0.9	0.98	.	.	0.02	.	.
Simple test; other	0.83	0.91	.	.	0.02	.	.
Vaginal swab and C&S	0.54	0.59	.	.	0.01	.	.
Haemoglobin	0.38	0.42	.	.	0.01	.	.
HIV	0.38	0.42	.	.	0.01	.	.
Subtotal	91.1	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**91.1**	**100**	**.**	**.**	**1.82**	**1.1**	**2.5**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 36.1: Pathology orders across MBS pathology groups- Rheum arthritis Apr07-Mar08

pathology	n	% of total pathology for Rheum arthritis probs	Lower 95% CI	Upper 95% CI	Per 100 Rheum arthritis probs	Lower 95% CI	Upper 95% CI
Chemistry	140.11	50.59	45.7	55.5	32.2	24.5	39.9
Haematology	102.98	37.19	33.4	41	23.67	17.9	29.4
Immunology	18.66	6.74	3.1	10.4	4.29	1.9	6.6
Other NEC	8.75	3.16	0.4	5.9	2.01	0.3	3.8
Microbiology	6.42	2.32	0.3	4.3	1.48	0.2	2.7
Subtotal	276.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**276.93**	**100**	**.**	**.**	**63.64**	**50.3**	**77**

Table 36.2: Pathology orders at individual test level- Rheum arthritis Apr07-Mar08

pathology	n	% of total pathology for Rheum arthritis probs	Lower 95% CI	Upper 95% CI	Per 100 Rheum arthritis probs	Lower 95% CI	Upper 95% CI
Full blood count	67.53	24.38	21.1	27.7	15.52	11.6	19.5
Liver function	37.45	13.52	9.7	17.4	8.61	5.5	11.7
ESR	35.46	12.8	9.8	15.8	8.15	5.5	10.8
EUC	28.02	10.12	6.4	13.8	6.44	3.8	9.1
C reactive protein	24.46	8.83	5.9	11.7	5.62	3.5	7.8
Multibiochemical analysis	20.61	7.44	3.7	11.2	4.74	2.2	7.3
Rheumatoid factor	9.97	3.6	1.5	5.7	2.29	1	3.6
Lipids	7.07	2.55	0.4	4.7	1.62	0.2	3
Blood test	5.98	2.16	0	4.6	1.37	0	2.9
Glucose tolerance	5.63	2.03	0.1	3.9	1.29	0	2.6
Immunology; other	5	1.8	0	3.6	1.15	0	2.3
Anti nuclear antibodies	3.69	1.33	0.1	2.6	0.85	0.1	1.6
B12	3.42	1.24	0	2.6	0.79	0	1.7
Antibody	2.79	1.01	.	.	0.64	.	.
Thyroid function	2.5	0.9	.	.	0.58	.	.
HbA1c	2.37	0.86	.	.	0.54	.	.
Ferritin	2.26	0.82	.	.	0.52	.	.
Urine MC&S	2.24	0.81	.	.	0.51	.	.
Other test NEC	2.13	0.77	.	.	0.49	.	.
Hormone assay	2.06	0.74	.	.	0.47	.	.
Chemistry; other	1.6	0.58	.	.	0.37	.	.
Drug screen	1.39	0.5	.	.	0.32	.	.
Urate/uric acid	0.76	0.27	.	.	0.17	.	.
Ross River fever	0.7	0.25	.	.	0.16	.	.
Microbiology; other	0.7	0.25	.	.	0.16	.	.
Urinalysis	0.65	0.23	.	.	0.15	.	.
Prostate specific antigen	0.49	0.18	.	.	0.11	.	.
Subtotal	276.93	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**276.93**	**100**	**.**	**.**	**63.64**	**50.3**	**77**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 37.1: Pathology orders across MBS pathology groups- Risk factor Apr07-Mar08

pathology	n	% of total pathology for Risk factor probs	Lower 95% CI	Upper 95% CI	Per 100 Risk factor probs	Lower 95% CI	Upper 95% CI
Chemistry	185.11	53.81	45	62.6	68.31	54.1	82.5
Microbiology	79.98	23.25	13.1	33.4	29.52	14.9	44.1
Haematology	37.65	10.94	7.4	14.5	13.89	8.8	19
Other NEC	18.25	5.31	1.8	8.8	6.74	2.3	11.2
Simple test	11.62	3.38	0.3	6.4	4.29	0.4	8.1
Immunology	9.46	2.75	0.8	4.7	3.49	1	6
Cytopathology	1.94	0.56	.	.	0.72	.	.
Subtotal	344.01	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**344.01**	**100**	**.**	**.**	**126.94**	**106.3**	**147.6**

Table 37.2: Pathology orders at individual test level- Risk factor Apr07-Mar08

pathology	n	% of total pathology for Risk factor probs	Lower 95% CI	Upper 95% CI	Per 100 Risk factor probs	Lower 95% CI	Upper 95% CI
Lipids	49.38	14.36	10.6	18.1	18.22	13	23.5
Glucose tolerance	31.72	9.22	6.2	12.2	11.7	7.8	15.6
Full blood count	27.91	8.11	5.5	10.8	10.3	6.5	14.1
Hepatitis serology	22.82	6.63	3	10.2	8.42	3.5	13.4
Liver function	20.11	5.85	3.6	8.1	7.42	4.4	10.4
Prostate specific antigen	17.98	5.23	1.1	9.3	6.63	1.3	12
Ferritin	17.26	5.02	2.7	7.3	6.37	3.4	9.3
Other test NEC	15.3	4.45	1.2	7.7	5.64	1.4	9.9
Venereal disease	14.87	4.32	1.4	7.2	5.49	1.6	9.4
HIV	14.83	4.31	1.9	6.7	5.47	2.1	8.9
Simple test; other	11.62	3.38	0.3	6.4	4.29	0.4	8.1
EUC	11.47	3.33	1.6	5.1	4.23	1.9	6.6
Multibiochemical analysis	11.11	3.23	1.3	5.2	4.1	1.6	6.6
Microbiology; other	11.03	3.21	1	5.5	4.07	1	7.1
Chemistry; other	10.2	2.96	1	4.9	3.76	1.3	6.2
Chlamydia	9.63	2.8	0.2	5.4	3.55	0.1	7
Coagulation	7.74	2.25	0	5	2.86	0	6.3
Thyroid function	7.16	2.08	0.7	3.5	2.64	0.8	4.5
Immunology; other	6.89	2	0.5	3.5	2.54	0.6	4.4
Hormone assay	2.83	0.82	.	.	1.04	.	.
Calcium phosphate	2.16	0.63	.	.	0.8	.	.
Blood test	2.02	0.59	.	.	0.75	.	.
ESR	1.99	0.58	.	.	0.73	.	.
Pap smear	1.94	0.56	.	.	0.72	.	.
Pertussis	1.74	0.5	.	.	0.64	.	.
Vaginal swab and C&S	1.72	0.5	.	.	0.64	.	.
Folic acid	1.66	0.48	.	.	0.61	.	.
Cervical swab	1.6	0.47	.	.	0.59	.	.
Anti nuclear antibodies	1.52	0.44	.	.	0.56	.	.
B12	1.45	0.42	.	.	0.53	.	.
Subtotal	339.64	98.73	.	.	.	.	.
Other pathology	4.37	1.27	.	.	.	.	.
Total pathology	**344.01**	**100**	**.**	**.**	**126.94**	**106.3**	**147.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 38.1: Pathology orders across MBS pathology groups- Sinusitis Apr07-Mar08

pathology	n	% of total pathology for Sinusitis probs	Lower 95% CI	Upper 95% CI	Per 100 Sinusitis probs	Lower 95% CI	Upper 95% CI
Chemistry	26.54	43.7	26.3	61.1	2.12	0.4	3.9
Haematology	15.8	26.01	14.7	37.3	1.26	0.6	2
Microbiology	9.71	15.98	3.3	28.7	0.77	0.1	1.4
Immunology	5.78	9.52	0.2	18.8	0.46	0.1	0.9
Cytopathology	1.57	2.59	.	.	0.13	.	.
Other NEC	0.7	1.15	.	.	0.06	.	.
Simple test	0.64	1.05	.	.	0.05	.	.
Subtotal	60.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**60.73**	**100**	**.**	**.**	**4.84**	**2.2**	**7.5**

Table 38.2: Pathology orders at individual test level- Sinusitis Apr07-Mar08

pathology	n	% of total pathology for Sinusitis probs	Lower 95% CI	Upper 95% CI	Per 100 Sinusitis probs	Lower 95% CI	Upper 95% CI
Full blood count	12.42	20.45	12.3	28.6	0.99	0.4	1.6
Nose swab C&S	8.12	13.37	1.3	25.4	0.65	0	1.3
Multibiochemical analysis	5.78	9.52	1.7	17.3	0.46	0	0.9
Thyroid function	5.09	8.38	0.9	15.9	0.41	0	0.9
Lipids	4.27	7.02	0.2	13.8	0.34	0	0.8
ESR	3.38	5.56	0.2	10.9	0.27	0	0.5
RAST	3.01	4.96	0	10.9	0.24	0	0.5
Liver function	2.96	4.87	.	.	0.24	.	.
Ferritin	2.89	4.76	.	.	0.23	.	.
Immunology; other	2.11	3.48	.	.	0.17	.	.
Cytology	1.57	2.59	.	.	0.13	.	.
Throat swab C&S	0.99	1.63	.	.	0.08	.	.
Glucose tolerance	0.97	1.61	.	.	0.08	.	.
Prostate specific antigen	0.97	1.61	.	.	0.08	.	.
Calcium phosphate	0.97	1.61	.	.	0.08	.	.
B12	0.92	1.51	.	.	0.07	.	.
Chemistry; other	0.92	1.51	.	.	0.07	.	.
EUC	0.73	1.19	.	.	0.06	.	.
Other test NEC	0.7	1.15	.	.	0.06	.	.
Anti nuclear antibodies	0.65	1.08	.	.	0.05	.	.
Simple test; other	0.64	1.05	.	.	0.05	.	.
Sputum C&S	0.6	0.99	.	.	0.05	.	.
C reactive protein	0.07	0.12	.	.	0.01	.	.
Subtotal	60.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**60.73**	**100**	**.**	**.**	**4.84**	**2.2**	**7.5**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 39.1: Pathology orders across MBS pathology groups- Skin neoplasm Apr07-Mar08

pathology	n	% of total pathology for Skin neoplasm probs	Lower 95% CI	Upper 95% CI	Per 100 Skin neoplasm probs	Lower 95% CI	Upper 95% CI
Histopathology	36.55	70.65	43.1	98.2	10.82	5.2	16.4
Chemistry	10.98	21.22	0	43.3	3.25	0	7.2
Haematology	3.16	6.12	0	12.5	0.94	0	2.1
Cytopathology	1.04	2.01	.	.	0.31	.	.
Subtotal	51.74	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**51.74**	**100**	**.**	**.**	**15.32**	**8**	**22.6**

Table 39.2: Pathology orders at individual test level- Skin neoplasm Apr07-Mar08

pathology	n	% of total pathology for Skin neoplasm probs	Lower 95% CI	Upper 95% CI	Per 100 Skin neoplasm probs	Lower 95% CI	Upper 95% CI
Histology; skin	36	69.59	42.2	97	10.66	5.1	16.3
Full blood count	3.16	6.12	0	12.5	0.94	0	2.1
Multibiochemical analysis	2.19	4.23	.	.	0.65	.	.
Lipids	1.89	3.65	.	.	0.56	.	.
Thyroid function	1.62	3.13	.	.	0.48	.	.
Ferritin	1.55	2.99	.	.	0.46	.	.
B12	1.55	2.99	.	.	0.46	.	.
Folic acid	1.55	2.99	.	.	0.46	.	.
Pap smear	1.04	2.01	.	.	0.31	.	.
Chemistry; other	0.64	1.25	.	.	0.19	.	.
Histology; other	0.55	1.07	.	.	0.16	.	.
Subtotal	51.74	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**51.74**	**100**	**.**	**.**	**15.32**	**8**	**22.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 40.1: Pathology orders across MBS pathology groups- Sleep dist Apr07-Mar08

pathology	n	% of total pathology for Sleep dist probs	Lower 95% CI	Upper 95% CI	Per 100 Sleep dist probs	Lower 95% CI	Upper 95% CI
Chemistry	84.3	74.12	67.1	81.2	5.45	3.2	7.7
Haematology	22.14	19.46	14	24.9	1.43	0.7	2.1
Other NEC	4.68	4.11	0	9	0.3	0	0.6
Microbiology	2.12	1.86	.	.	0.14	.	.
Immunology	0.5	0.44	.	.	0.03	.	.
Subtotal	113.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**113.73**	**100**	**.**	**.**	**7.35**	**4.5**	**10.2**

Table 40.2: Pathology orders at individual test level- Sleep dist Apr07-Mar08

pathology	n	% of total pathology for Sleep dist probs	Lower 95% CI	Upper 95% CI	Per 100 Sleep dist probs	Lower 95% CI	Upper 95% CI
Full blood count	20.7	18.2	13	23.4	1.34	0.7	2
Thyroid function	19.38	17.04	11.6	22.5	1.25	0.6	1.9
Ferritin	11.35	9.98	2.7	17.3	0.73	0.2	1.3
Liver function	10.27	9.03	4	14.1	0.66	0.2	1.1
Multibiochemical analysis	9.48	8.33	2.3	14.4	0.61	0.1	1.1
Lipids	8.91	7.83	2.1	13.6	0.58	0.1	1.1
EUC	7.68	6.75	2.3	11.2	0.5	0.1	0.9
Glucose tolerance	4.95	4.35	0.4	8.3	0.32	0	0.6
Cardiac enzymes	4.2	3.7	0	11.2	0.27	0	0.8
Blood test	3.75	3.3	0	7.9	0.24	0	0.6
C reactive protein	3.5	3.08	0	6.2	0.23	0	0.5
B12	2.75	2.42	.	.	0.18	.	.
Urine MC&S	2.12	1.86	.	.	0.14	.	.
Folic acid	1.23	1.08	.	.	0.08	.	.
Other test NEC	0.92	0.81	.	.	0.06	.	.
ESR	0.74	0.65	.	.	0.05	.	.
Coagulation	0.7	0.62	.	.	0.05	.	.
Hormone assay	0.6	0.52	.	.	0.04	.	.
Immunology; other	0.5	0.44	.	.	0.03	.	.
Subtotal	113.73	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**113.73**	**100**	**.**	**.**	**7.35**	**4.5**	**10.2**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 41.1: Pathology orders across MBS pathology groups- Solar keratosis Apr07-Mar08

pathology	n	% of total pathology for Solar keratosis probs	Lower 95% CI	Upper 95% CI	Per 100 Solar keratosis probs	Lower 95% CI	Upper 95% CI
Histopathology	28.89	45.9	18.7	73.1	2.23	1.1	3.4
Chemistry	26.04	41.38	20.1	62.7	2.01	0.2	3.8
Haematology	6.31	10.03	3.3	16.8	0.49	0	1
Other NEC	1.28	2.03	.	.	0.1	.	.
Microbiology	0.41	0.66	.	.	0.03	.	.
Subtotal	62.94	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**62.94**	**100**	**.**	**.**	**4.85**	**2.3**	**7.4**

Table 41.2: Pathology orders at individual test level- Solar keratosis Apr07-Mar08

pathology	n	% of total pathology for Solar keratosis probs	Lower 95% CI	Upper 95% CI	Per 100 Solar keratosis probs	Lower 95% CI	Upper 95% CI
Histology; skin	28.89	45.9	18.7	73.1	2.23	1.1	3.4
Lipids	10.57	16.8	5.8	27.8	0.82	0	1.6
Full blood count	6.31	10.03	3.3	16.8	0.49	0	1
Thyroid function	3.58	5.69	0	12.3	0.28	0	0.7
Prostate specific antigen	3.39	5.39	0	16.5	0.26	0	0.8
Glucose tolerance	2.74	4.35	.	.	0.21	.	.
Multibiochemical analysis	2.3	3.66	.	.	0.18	.	.
Liver function	1.28	2.03	.	.	0.1	.	.
Other test NEC	1.28	2.03	.	.	0.1	.	.
EUC	1.2	1.9	.	.	0.09	.	.
HbA1c	0.99	1.57	.	.	0.08	.	.
Fungal ID/sensitivity	0.41	0.66	.	.	0.03	.	.
Subtotal	62.94	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**62.94**	**100**	**.**	**.**	**4.85**	**2.3**	**7.4**

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 42.1: Pathology orders across MBS pathology groups- Sprain/Strain Apr07-Mar08

pathology	n	% of total pathology for Sprain/Strain probs	Lower 95% CI	Upper 95% CI	Per 100 Sprain/Strain probs	Lower 95% CI	Upper 95% CI
Chemistry	8.34	58.51	18.6	98.4	1.53	0	3.9
Microbiology	3.26	22.86	0	66.6	0.6	0	1.3
Haematology	1.58	11.12	.	.	0.29	.	.
Other NEC	1.07	7.52	.	.	0.2	.	.
Subtotal	14.25	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**14.25**	**100**	**.**	**.**	**2.62**	**0**	**5.6**

Table 42.2: Pathology orders at individual test level- Sprain/Strain Apr07-Mar08

pathology	n	% of total pathology for Sprain/Strain probs	Lower 95% CI	Upper 95% CI	Per 100 Sprain/Strain probs	Lower 95% CI	Upper 95% CI
Urine MC&S	3.26	22.86	0	66.6	0.6	0	1.3
Lipids	2.28	15.99	.	.	0.42	.	.
Full blood count	1.58	11.12	.	.	0.29	.	.
Glucose tolerance	1.58	11.12	.	.	0.29	.	.
EUC	1.58	11.12	.	.	0.29	.	.
Prostate specific antigen	1.58	11.12	.	.	0.29	.	.
Other test NEC	1.07	7.52	.	.	0.2	.	.
Chemistry; other	0.76	5.31	.	.	0.14	.	.
C reactive protein	0.55	3.86	.	.	0.1	.	.
Subtotal	14.25	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**14.25**	**100**	**.**	**.**	**2.62**	**0**	**5.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 43.1: Pathology orders across MBS pathology groups- Test results Apr07-Mar08

pathology	n	% of total pathology for Test results probs	Lower 95% CI	Upper 95% CI	Per 100 Test results probs	Lower 95% CI	Upper 95% CI
Chemistry	193.59	62.03	54.8	69.3	11.53	8.4	14.7
Haematology	51.18	16.4	9.3	23.5	3.05	1.2	4.9
Microbiology	28.14	9.02	4.3	13.8	1.68	0.8	2.5
Other NEC	12.27	3.93	0	8.4	0.73	0	1.6
Cytopathology	11.4	3.65	0.2	7.1	0.68	0	1.3
Immunology	10.3	3.3	0.6	6	0.61	0.1	1.1
Simple test	4.31	1.38	0	2.9	0.26	0	0.5
Infertility/pregnancy test	0.89	0.29	.	.	0.05	.	.
Subtotal	312.09	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**312.09**	**100**	**.**	**.**	**18.58**	**13.8**	**23.4**

Table 43.2: Pathology orders at individual test level- Test results Apr07-Mar08

pathology	n	% of total pathology for Test results probs	Lower 95% CI	Upper 95% CI	Per 100 Test results probs	Lower 95% CI	Upper 95% CI
Glucose tolerance	38.33	12.28	6.5	18.1	2.28	1.2	3.4
Full blood count	34.11	10.93	4.7	17.2	2.03	0.5	3.5
Lipids	28.96	9.28	5.3	13.3	1.72	0.9	2.5
Thyroid function	20.31	6.51	3.2	9.8	1.21	0.5	1.9
Multibiochemical analysis	19.82	6.35	1.6	11.1	1.18	0.1	2.2
Liver function	15.75	5.05	2.5	7.6	0.94	0.5	1.4
Ferritin	15.09	4.83	1.7	8	0.9	0.3	1.5
Coagulation	12.02	3.85	0.1	7.6	0.72	0	1.4
Pap smear	11.4	3.65	0.2	7.1	0.68	0	1.3
EUC	10.83	3.47	1	5.9	0.65	0.2	1.1
Other test NEC	7.5	2.4	0	6.6	0.45	0	1.2
Prostate specific antigen	7.31	2.34	0.1	4.6	0.44	0	0.9
B12	6.48	2.08	0.3	3.9	0.39	0.1	0.7
Hepatitis serology	6.43	2.06	0.1	4	0.38	0	0.7
C reactive protein	6.29	2.02	0.4	3.6	0.37	0	0.7
Immunology; other	6.19	1.98	0.2	3.8	0.37	0	0.7
Urine MC&S	6.07	1.95	0	4	0.36	0	0.7
Hormone assay	5.32	1.71	0	3.6	0.32	0	0.7
ESR	5.05	1.62	0.2	3.1	0.3	0	0.6
Chemistry; other	5	1.6	0.3	2.9	0.3	0	0.6
Blood test	4.32	1.39	0	2.9	0.26	0	0.5
Simple test; other	4.31	1.38	0	2.9	0.26	0	0.5
Drug screen	4.29	1.37	0	3	0.26	0	0.6
HIV	4.09	1.31	0	2.7	0.24	0	0.5
Microbiology; other	3.58	1.15	0	2.4	0.21	0	0.4
Calcium phosphate	2.99	0.96	.	.	0.18	.	.
Cardiac enzymes	2.79	0.89	.	.	0.17	.	.
Venereal disease	2.49	0.8	.	.	0.15	.	.
Anti nuclear antibodies	2.28	0.73	.	.	0.14	.	.
HbA1c	2.09	0.67	.	.	0.12	.	.
Subtotal	301.49	96.6	.	.	.	.	.
Other pathology	10.6	3.4	.	.	.	.	.
Total pathology	**312.09**	**100**	**.**	**.**	**18.58**	**13.8**	**23.4**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 44.1: Pathology orders across MBS pathology groups- Upper respiratory tract infection acute Apr07-Mar08

pathology	n	% of total pathology for URTI probs	Lower 95% CI	Upper 95% CI	Per 100 Upper respiratory tract infection acute probs	Lower 95% CI	Upper 95% CI
Chemistry	77.69	34.55	24.6	44.5	1.31	0.8	1.8
Microbiology	68.48	30.46	20	40.9	1.15	0.7	1.6
Haematology	50.4	22.42	17	27.8	0.85	0.6	1.1
Other NEC	12.03	5.35	0	11.1	0.2	0	0.4
Immunology	7.86	3.5	0.4	6.6	0.13	0	0.3
Histopathology	3.49	1.55	0	4.5	0.06	0	0.2
Simple test	2.89	1.29	.	.	0.05	.	.
Cytopathology	1.99	0.88	.	.	0.03	.	.
Subtotal	224.82	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**224.82**	**100**	**.**	**.**	**3.78**	**2.8**	**4.8**

Table 44.2: Pathology orders at individual test level- Upper respiratory tract infection acute Apr07-Mar08

pathology	n	% of total pathology for URTI probs	Lower 95% CI	Upper 95% CI	Per 100 Upper respiratory tract infection acute probs	Lower 95% CI	Upper 95% CI
Full blood count	40.33	17.94	13.8	22.1	0.68	0.5	0.9
Urine MC&S	13.76	6.12	2.2	10	0.23	0.1	0.4
Thyroid function	13.71	6.1	0.5	11.7	0.23	0	0.5
Liver function	13.41	5.96	3.1	8.8	0.23	0.1	0.3
Throat swab C&S	11.76	5.23	1.5	9	0.2	0.1	0.3
C reactive protein	9.97	4.44	1.9	7	0.17	0.1	0.3
Microbiology; other	9.22	4.1	0	8.5	0.16	0	0.3
EUC	8.43	3.75	1.4	6.1	0.14	0	0.2
Blood test	8.38	3.73	0	9.3	0.14	0	0.3
Multibiochemical analysis	7.83	3.48	1.1	5.8	0.13	0	0.2
Glucose tolerance	7.77	3.46	0.9	6	0.13	0	0.2
Monospot	7.41	3.3	1.2	5.4	0.12	0	0.2
Lipids	7.34	3.26	0.5	6	0.12	0	0.2
ESR	7.15	3.18	1.1	5.3	0.12	0	0.2
Skin swab C&S	5.82	2.59	0	7.7	0.1	0	0.3
Immunology; other	5.58	2.48	0	5.1	0.09	0	0.2
Ferritin	5.37	2.39	0.3	4.4	0.09	0	0.2
Nose swab C&S	5.01	2.23	0	4.8	0.08	0	0.2
Pertussis	4.7	2.09	0	4.9	0.08	0	0.2
Sputum C&S	3.7	1.65	0	3.8	0.06	0	0.1
Histology; skin	3.49	1.55	0	4.5	0.06	0	0.2
Other test NEC	3.06	1.36	0	2.9	0.05	0	0.1
Simple test; other	2.89	1.29	.	.	0.05	.	.
HIV	2.64	1.17	.	.	0.04	.	.
Coagulation	2.11	0.94	.	.	0.04	.	.
Chlamydia	1.99	0.89	.	.	0.03	.	.
Pap smear	1.99	0.88	.	.	0.03	.	.
Chemistry; other	1.43	0.64	.	.	0.02	.	.
Hormone assay	1.01	0.45	.	.	0.02	.	.
B12	0.95	0.42	.	.	0.02	.	.
Subtotal	218.23	97.07	.	.	.	.	.
Other pathology	6.59	2.93	.	.	.	.	.
Total pathology	**224.82**	**100**	**.**	**.**	**3.78**	**2.8**	**4.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 45.1: Pathology orders across MBS pathology groups- UTI Apr07-Mar08

pathology	n	% of total pathology for UTI probs	Lower 95% CI	Upper 95% CI	Per 100 UTI probs	Lower 95% CI	Upper 95% CI
Microbiology	1156.81	87.73	83	92.4	75.87	70.2	81.5
Chemistry	70.99	5.38	3.4	7.3	4.66	2.9	6.5
Other NEC	46.44	3.52	0	7.6	3.05	0	6.6
Haematology	34.37	2.61	1.5	3.7	2.25	1.3	3.2
Cytopathology	4.82	0.37	0	0.7	0.32	0	0.6
Infertility/pregnancy test	3.5	0.27	0	0.7	0.23	0	0.6
Immunology	0.83	0.06	.	.	0.05	.	.
Histopathology	0.8	0.06	.	.	0.05	.	.
Subtotal	1318.56	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**1318.56**	**100**	**.**	**.**	**86.48**	**79.8**	**93.1**

Table 45.2: Pathology orders at individual test level- UTI Apr07-Mar08

pathology	n	% of total pathology for UTI probs	Lower 95% CI	Upper 95% CI	Per 100 UTI probs	Lower 95% CI	Upper 95% CI
Urine MC&S	1127.28	85.49	80.8	90.2	73.93	68.4	79.4
Urine test	34.26	2.6	0	6.6	2.25	0	5.8
Full blood count	29.75	2.26	1.4	3.1	1.95	1.1	2.8
EUC	23.28	1.77	0.9	2.6	1.53	0.8	2.3
Chlamydia	15.18	1.15	0.4	1.9	1	0.4	1.6
Liver function	14.79	1.12	0.4	1.9	0.97	0.3	1.6
Urinalysis	9.13	0.69	0	1.4	0.6	0	1.2
Microbiology; other	7.91	0.6	0.1	1.1	0.52	0.1	0.9
Chemistry; other	6.64	0.5	0	1.1	0.44	0	1
Vaginal swab and C&S	6.44	0.49	0.1	0.8	0.42	0.1	0.7
Multibiochemical analysis	5.59	0.42	0	0.8	0.37	0	0.7
ESR	4.62	0.35	0	0.7	0.3	0	0.6
Glucose tolerance	4.06	0.31	0	0.6	0.27	0	0.5
Pap smear	3.66	0.28	0	0.6	0.24	0	0.5
Infertility/pregnancy	3.5	0.27	0	0.7	0.23	0	0.6
Prostate specific antigen	3.43	0.26	0	0.5	0.22	0	0.5
C reactive protein	3.25	0.25	0	0.5	0.21	0	0.4
Thyroid function	2.93	0.22	.	.	0.19	.	.
Other test NEC	2.43	0.18	.	.	0.16	.	.
Lipids	1.98	0.15	.	.	0.13	.	.
Hormone assay	1.87	0.14	.	.	0.12	.	.
HbA1c	1.87	0.14	.	.	0.12	.	.
Cytology	1.17	0.09	.	.	0.08	.	.
Immunology; other	0.83	0.06	.	.	0.05	.	.
Histology; other	0.8	0.06	.	.	0.05	.	.
Urate/uric acid	0.69	0.05	.	.	0.05	.	.
Blood test	0.63	0.05	.	.	0.04	.	.
Cardiac enzymes	0.62	0.05	.	.	0.04	.	.
Subtotal	1318.56	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**1318.56**	**100**	**.**	**.**	**86.48**	**79.8**	**93.1**

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 46.1: Pathology orders across MBS pathology groups- Viral disease Apr07-Mar08

pathology	n	% of total pathology for Viral disease probs	Lower 95% CI	Upper 95% CI	Per 100 Viral disease probs	Lower 95% CI	Upper 95% CI
Chemistry	161.07	43.8	37	50.6	13.79	9.6	18
Haematology	99.9	27.17	23.7	30.7	8.55	6.3	10.8
Microbiology	89.27	24.28	18.7	29.8	7.64	5.4	9.9
Other NEC	14.03	3.81	1	6.6	1.2	0.3	2.1
Immunology	3.43	0.93	0	2.1	0.29	0	0.7
Subtotal	367.71	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**367.71**	**100**	**.**	**.**	**31.47**	**24.2**	**38.8**

Table 46.2: Pathology orders at individual test level- Viral disease Apr07-Mar08

pathology	n	% of total pathology for Viral disease probs	Lower 95% CI	Upper 95% CI	Per 100 Viral disease probs	Lower 95% CI	Upper 95% CI
Full blood count	82.6	22.46	20.1	24.9	7.07	5.3	8.8
Liver function	38.55	10.48	7.7	13.3	3.3	2.1	4.5
EUC	25.3	6.88	4.2	9.5	2.17	1.1	3.2
Urine MC&S	23.07	6.27	3.4	9.2	1.97	1.1	2.9
Microbiology; other	23.05	6.27	3.4	9.1	1.97	1	2.9
Monospot	18.03	4.9	2.5	7.3	1.54	0.7	2.4
Thyroid function	16.81	4.57	2.3	6.8	1.44	0.6	2.3
ESR	16.35	4.45	2.4	6.5	1.4	0.7	2.1
Multibiochemical analysis	15.91	4.33	2.1	6.6	1.36	0.6	2.1
Glucose tolerance	15.51	4.22	1.3	7.1	1.33	0.4	2.3
C reactive protein	15.05	4.09	2	6.2	1.29	0.5	2
Ferritin	11.01	2.99	0.9	5.1	0.94	0.2	1.7
Ross River fever	9.67	2.63	0.9	4.4	0.83	0.2	1.4
Blood test	8.89	2.42	0	5	0.76	0	1.6
Chemistry; other	8	2.18	0.2	4.1	0.68	0.1	1.3
HIV	6.41	1.74	0.5	3	0.55	0.2	0.9
Hormone assay	4.77	1.3	0.1	2.5	0.41	0	0.8
B12	4.2	1.14	0	2.5	0.36	0	0.8
Lipids	4.08	1.11	0	2.4	0.35	0	0.8
Urine test	3.93	1.07	0.1	2.1	0.34	0	0.6
Anti nuclear antibodies	3.01	0.82	0	2	0.26	0	0.6
Throat swab C&S	2.74	0.75	.	.	0.23	.	.
Hepatitis serology	1.71	0.47	.	.	0.15	.	.
Chlamydia	1.71	0.46	.	.	0.15	.	.
Vaginal swab and C&S	0.96	0.26	.	.	0.08	.	.
Blood; other	0.96	0.26	.	.	0.08	.	.
Faeces MC&S	0.84	0.23	.	.	0.07	.	.
Prostate specific antigen	0.77	0.21	.	.	0.07	.	.
Folic acid	0.68	0.19	.	.	0.06	.	.
Rubella	0.66	0.18	.	.	0.06	.	.
Subtotal	365.23	99.33	.	.	.	.	.
Other pathology	2.48	0.67	.	.	.	.	.
Total pathology	**367.71**	**100**	**.**	**.**	**31.47**	**24.2**	**38.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 47.1: Pathology orders across MBS pathology groups- Viral disease Apr07-Mar08

pathology	n	% of total pathology for Viral disease probs	Lower 95% CI	Upper 95% CI	Per 100 Viral disease probs	Lower 95% CI	Upper 95% CI
Chemistry	161.07	43.8	37	50.6	13.79	9.6	18
Haematology	99.9	27.17	23.7	30.7	8.55	6.3	10.8
Microbiology	89.27	24.28	18.7	29.8	7.64	5.4	9.9
Other NEC	14.03	3.81	1	6.6	1.2	0.3	2.1
Immunology	3.43	0.93	0	2.1	0.29	0	0.7
Subtotal	367.71	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**367.71**	**100**	**.**	**.**	**31.47**	**24.2**	**38.8**

Table 47.2: Pathology orders at individual test level- Viral disease Apr07-Mar08

pathology	n	% of total pathology for Viral disease probs	Lower 95% CI	Upper 95% CI	Per 100 Viral disease probs	Lower 95% CI	Upper 95% CI
Full blood count	82.6	22.46	20.1	24.9	7.07	5.3	8.8
Liver function	38.55	10.48	7.7	13.3	3.3	2.1	4.5
EUC	25.3	6.88	4.2	9.5	2.17	1.1	3.2
Urine MC&S	23.07	6.27	3.4	9.2	1.97	1.1	2.9
Microbiology; other	23.05	6.27	3.4	9.1	1.97	1	2.9
Monospot	18.03	4.9	2.5	7.3	1.54	0.7	2.4
Thyroid function	16.81	4.57	2.3	6.8	1.44	0.6	2.3
ESR	16.35	4.45	2.4	6.5	1.4	0.7	2.1
Multibiochemical analysis	15.91	4.33	2.1	6.6	1.36	0.6	2.1
Glucose tolerance	15.51	4.22	1.3	7.1	1.33	0.4	2.3
C reactive protein	15.05	4.09	2	6.2	1.29	0.5	2
Ferritin	11.01	2.99	0.9	5.1	0.94	0.2	1.7
Ross River fever	9.67	2.63	0.9	4.4	0.83	0.2	1.4
Blood test	8.89	2.42	0	5	0.76	0	1.6
Chemistry; other	8	2.18	0.2	4.1	0.68	0.1	1.3
HIV	6.41	1.74	0.5	3	0.55	0.2	0.9
Hormone assay	4.77	1.3	0.1	2.5	0.41	0	0.8
B12	4.2	1.14	0	2.5	0.36	0	0.8
Lipids	4.08	1.11	0	2.4	0.35	0	0.8
Urine test	3.93	1.07	0.1	2.1	0.34	0	0.6
Anti nuclear antibodies	3.01	0.82	0	2	0.26	0	0.6
Throat swab C&S	2.74	0.75	.	.	0.23	.	.
Hepatitis serology	1.71	0.47	.	.	0.15	.	.
Chlamydia	1.71	0.46	.	.	0.15	.	.
Vaginal swab and C&S	0.96	0.26	.	.	0.08	.	.
Blood; other	0.96	0.26	.	.	0.08	.	.
Faeces MC&S	0.84	0.23	.	.	0.07	.	.
Prostate specific antigen	0.77	0.21	.	.	0.07	.	.
Folic acid	0.68	0.19	.	.	0.06	.	.
Rubella	0.66	0.18	.	.	0.06	.	.
Subtotal	365.23	99.33	.	.	.	.	.
Other pathology	2.48	0.67	.	.	.	.	.
Total pathology	**367.71**	**100**	**.**	**.**	**31.47**	**24.2**	**38.8**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 48.1: Pathology orders across MBS pathology groups- Vit deficiency Apr07-Mar08

pathology	n	% of total pathology for Vit deficiency probs	Lower 95% CI	Upper 95% CI	Per 100 Vit deficiency probs	Lower 95% CI	Upper 95% CI
Chemistry	279.54	64.5	59.3	69.7	31.96	26.1	37.8
Haematology	97.47	22.49	18.1	26.8	11.14	8.2	14.1
Immunology	20.36	4.7	2.4	7	2.33	1.1	3.5
Microbiology	16.12	3.72	1.4	6	1.84	0.7	3
Other NEC	13.51	3.12	0.4	5.9	1.54	0.2	2.9
Simple test	6.39	1.47	0.1	2.8	0.73	0.1	1.4
Subtotal	433.39	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**433.39**	**100**	**.**	**.**	**49.54**	**41.5**	**57.6**

Table 48.2: Pathology orders at individual test level- Vit deficiency Apr07-Mar08

pathology	n	% of total pathology for Vit deficiency probs	Lower 95% CI	Upper 95% CI	Per 100 Vit deficiency probs	Lower 95% CI	Upper 95% CI
Ferritin	123.23	28.43	23.6	33.3	14.09	11	17.2
Full blood count	79.37	18.31	15.2	21.4	9.07	6.9	11.3
B12	42.91	9.9	6.7	13.1	4.91	3.3	6.6
Calcium phosphate	36.03	8.31	4.8	11.8	4.12	2.3	6
Immunology; other	18.91	4.36	2.1	6.6	2.16	1	3.3
Folic acid	15.25	3.52	1.7	5.3	1.74	0.8	2.7
Other test NEC	11.26	2.6	0	5.3	1.29	0	2.6
EUC	11.04	2.55	0.8	4.3	1.26	0.3	2.2
Blood; other	10.34	2.38	0	5.9	1.18	0	3
Liver function	10.24	2.36	1	3.7	1.17	0.4	1.9
Thyroid function	9.3	2.15	0.8	3.5	1.06	0.3	1.8
Chemistry; other	9.17	2.12	0.8	3.5	1.05	0.4	1.7
Lipids	8.61	1.99	0.7	3.2	0.98	0.3	1.6
Antibody	8.35	1.93	0.4	3.4	0.95	0.2	1.7
Glucose tolerance	7.22	1.67	0.5	2.9	0.83	0.2	1.5
ESR	6.74	1.56	0.3	2.8	0.77	0.1	1.4
Simple test; other	6.39	1.47	0.1	2.8	0.73	0.1	1.4
Microbiology; other	3.55	0.82	0	2	0.41	0	1
Multibiochemical analysis	3.3	0.76	0.1	1.5	0.38	0	0.7
Urine MC&S	2.9	0.67	.	.	0.33	.	.
Cardiac enzymes	1.74	0.4	.	.	0.2	.	.
Faeces test	1.07	0.25	.	.	0.12	.	.
Haemoglobin	1.03	0.24	.	.	0.12	.	.
RAST	0.98	0.23	.	.	0.11	.	.
Prostate specific antigen	0.94	0.22	.	.	0.11	.	.
Blood test	0.93	0.21	.	.	0.11	.	.
Rubella	0.72	0.17	.	.	0.08	.	.
Faeces MC&S	0.6	0.14	.	.	0.07	.	.
C reactive protein	0.57	0.13	.	.	0.06	.	.
Anti nuclear antibodies	0.47	0.11	.	.	0.05	.	.
Subtotal	433.15	99.94	.	.	.	.	.
Other pathology	0.24	0.06	.	.	.	.	.
Total pathology	**433.39**	**100**	**.**	**.**	**49.54**	**41.5**	**57.6**

Analysis of BEACH data undertaken as a consultancy for AAPP August 2008,
by the Family Medicine Research Centre, University of Sydney

SUBJECT: most frequent pathology tests/batteries ordered by GPs for this problem, from BEACH 2007–08.

ANALYST: Salma Fahridin. Prepared by Dr Helena Britt

Table 49.1: Pathology orders across MBS pathology groups- Weakness/tiredness Apr07-Mar08

pathology	n	% of total pathology for Weakness / tiredness probs	Lower 95% CI	Upper 95% CI	Per 100 Weakness / tiredness probs	Lower 95% CI	Upper 95% CI
Chemistry	999.59	66.69	64.5	68.9	160	143.3	176.7
Haematology	365.65	24.39	22.9	25.8	58.53	51.9	65.2
Microbiology	63.51	4.24	2.9	5.6	10.17	6.9	13.5
Other NEC	35.3	2.35	1	3.7	5.65	2.6	8.7
Immunology	29.26	1.95	1.1	2.8	4.68	2.6	6.8
Simple test	4.09	0.27	0	0.6	0.65	0	1.5
Infertility/pregnancy test	0.75	0.05	.	.	0.12	.	.
Cytopathology	0.73	0.05	.	.	0.12	.	.
Subtotal	1498.88	100	.	.	.	.	.
Other pathology	0	0	.	.	.	.	.
Total pathology	**1498.88**	**100**	**.**	**.**	**239.91**	**217.6**	**262.2**

Table 49.2: Pathology orders at individual test level- Weakness/tiredness Apr07-Mar08

pathology	n	% of total pathology for Weakness / tiredness probs	Lower 95% CI	Upper 95% CI	Per 100 Weakness / tiredness probs	Lower 95% CI	Upper 95% CI
Full blood count	319.29	21.3	20.3	22.3	51.11	45.7	56.5
Thyroid function	242.48	16.18	14.2	18.2	38.81	32.7	44.9
Ferritin	154.84	10.33	8.9	11.8	24.78	20.4	29.2
Liver function	126.31	8.43	7	9.9	20.22	16	24.4
EUC	87.5	5.84	4.5	7.2	14.01	10.4	17.6
Multibiochemical analysis	86.25	5.75	4.4	7.1	13.81	10.4	17.3
Glucose tolerance	66.69	4.45	3.2	5.7	10.67	7.4	13.9
B12	54.52	3.64	2.6	4.7	8.73	6	11.5
Lipids	45.26	3.02	2	4	7.24	4.7	9.8
ESR	43.21	2.88	2	3.8	6.92	4.6	9.2
Chemistry; other	35.86	2.39	1.4	3.4	5.74	3.2	8.3
C reactive protein	31.43	2.1	1.1	3.1	5.03	2.7	7.4
Hormone assay	18.73	1.25	0.6	1.9	3	1.4	4.6
Immunology; other	17.62	1.18	0.5	1.8	2.82	1.2	4.4
Monospot	17.08	1.14	0.6	1.7	2.73	1.4	4.1
Blood test	16.99	1.13	0.2	2	2.72	0.6	4.9
Calcium phosphate	16.47	1.1	0.5	1.7	2.64	1.1	4.2
Other test NEC	15.22	1.02	0.1	2	2.44	0.2	4.7
Microbiology; other	15.03	1	0.4	1.6	2.41	1	3.9
Urine MC&S	13.61	0.91	0.4	1.4	2.18	1	3.3
Prostate specific antigen	9.76	0.65	0.1	1.2	1.56	0.3	2.8
Folic acid	9.48	0.63	0.2	1.1	1.52	0.5	2.5
Anti nuclear antibodies	8.19	0.55	0.2	0.9	1.31	0.5	2.1
HIV	7.04	0.47	0.1	0.9	1.13	0.1	2.1
Ross River fever	4.67	0.31	0	0.6	0.75	0	1.5
Lactose intolerance	4.51	0.3	0	0.9	0.72	0	2.1
Simple test; other	4.09	0.27	0	0.6	0.65	0	1.5
Cardiac enzymes	3.6	0.24	0	0.5	0.58	0	1.3
HbA1c	3.49	0.23	0	0.6	0.56	0	1.3
Rheumatoid factor	3.45	0.23	0	0.5	0.55	0	1.1
Subtotal	1482.69	98.92	.	.	.	.	.
Other pathology	16.19	1.08	.	.	.	.	.
Total pathology	**1498.88**	**100**	**.**	**.**	**239.91**	**217.6**	**262.2**