


New Zealand Permit No. XXXXXX **Permit** 

# Sample

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## Annual Pharmaceutical & Laboratory Report **2009**

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Dear Colleague

Welcome to your 2009 bpac<sup>nz</sup> sample annual report. You are receiving this report to keep you up-to-date with the messages bpac<sup>nz</sup> is promoting to primary care. This report provides GPs with an overview of their patterns of prescribing and testing and how they compare to their peers. We have produced this report to encourage them to reflect on the way they use pharmaceuticals and laboratory tests. The information here may be useful for identifying learning opportunities, informing peer group discussions and selecting areas to audit and target for improvement.

The report is made up of four sections:

**Section 1** provides an overview of prescribing and testing along with peer comparisons.

**Section 2** contains some examples of review exercises demonstrating how the data in this report can be used.

**Section 3** provides an overview of the age and ethnicity of a sample practice and how it compares to national data. This may be helpful when reviewing prescribing and testing patterns.

**Section 4** reports on prescribing and testing rates for a sample practice by deprivation and ethnicity. While prescribing rates appear largely unaffected by deprivation, there remain significant disparities in prescribing and testing rates by ethnicity.

**Appendices 1 and 2** provide comprehensive listings of the number of prescriptions dispensed and laboratory tests requested by a GP and their peers nationally over the 12 month time period April 2008 - March 2009.

Following feedback from previous years, this report differs in its presentation of data by presenting number of prescriptions rather than number of items. This better reflects a GP's day-to-day practice and how GPs consider their prescribing behaviour.

Additional information is available from [www.bpac.org.nz](http://www.bpac.org.nz). Follow the "annual report" link from the home page where you will find a range of articles and references to support the review exercises on page 4.

As always, we welcome any feedback on this report and suggested improvements for the future.

Regards

The bpac<sup>nz</sup> team

## Section 1 - Overview

### Overview of prescribing for 2008 and 2009

#### Sample report

	Number of Prescriptions		Average Prescription Cost		Total Cost	
	April 08 - March 09	April 07 - March 08	April 08 - March 09	April 07 - March 08	April 08 - March 09	April 07 - March 08
<b>A GP</b>						
<b>A DHB (per GP)</b>						
<b>National (per GP)</b>	7,462	7,160	\$18.38	\$18.28	\$137,167	\$130,880

	Number of Prescriptions	Average Prescription Cost	Total Cost
<b>A Practice (per GP)</b>			
<b>Similar Practices (per GP)</b>			

Please note: Time period is April 08 - March 09. Due to GPs changing practices, we are unable to compare practice data over a two year period. For more detail on how your practice was matched to other similar practices, see Appendix 3 - Notes on page 24.

#### Top 20 dispensed items by volume

	<b>A GP</b>	Number of Prescriptions			<b>National</b>	Ranking	
		April 08 - March 09	April 07 - March 08			April 08 - March 09	April 07 - March 08
1				1	Paracetamol	1	1
2				2	Aspirin	2	2
3				3	Simvastatin	3	3
4				4	Omeprazole	4	4
5				5	Amoxicillin	5	6
6				6	Metoprolol succinate	6	5
7				7	Amoxicillin clavulanate	7	8
8				8	Salbutamol	8	7
9				9	Cilazapril	9	9
10				10	Diclofenac sodium	10	10
11				11	Zopiclone	11	12
12				12	Prednisone	12	15
13				13	Bendrofluazide	13	11
14				14	Quinapril	14	14
15				15	Fluticasone	15	17
16				16	Felodipine	16	19
17				17	Levothyroxine	17	18
18				18	Furosemide	18	13
19				19	Flucloxacillin sodium	19	20
20				20	Ibuprofen	20	22

**Please Note:** This year we have changed our presentation of data to reflect the number of prescriptions dispensed rather than the number of items dispensed (as displayed in previous reports). The presentation of the data in this report therefore cannot be compared with reports from previous years.

## Overview of laboratory testing for 2008 and 2009

### Sample report

	Number of Tests	
	April 08 - March 09	April 07 - March 08
<b>A GP</b>		
<b>A DHB (per GP)</b>		
<b>National (per GP)</b>	4,792	4,652

	Number of Tests	
	<b>A Practice (per GP)</b>	
<b>Similar Practices (per GP)</b>		

Please note: Time period is April 08 - March 09. Due to GPs changing practices, we are unable to compare practice data over a two year period. For more detail on how your practice was matched to other similar practices, see Appendix 3 - Notes on page 24.

### Top 20 tests ordered by volume

	<b>A GP</b>	Number of Tests	
		April 08 - March 09	April 07 - March 08
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

	National	Ranking	
		April 08 - March 09	April 07 - March 08
1	Complete blood count (CBC)	1	1
2	Creatinine, serum	2	2
3	Sodium & Potassium, serum	3	3
4	Liver function group	4	4
5	Fasting lipid group test	5	5
6	Serum glucose	6	6
7	Thyroid stimulating hormone, serum (TSH)	7	7
8	Plasma prothrombin ratio (INR)	8	8
9	Ferritin, serum	9	9
10	C-reactive protein test	10	11
11	Urine culture	11	10
12	Glycosylated haemoglobin	12	12
13	Folate plus Vitamin B12, serum	13	13
14	Iron, serum	14	14
15	Urate or uric acid, serum	15	16
16	Prostate Specific Antigen	16	18
17	Iron binding capacity, serum	17	15
18	Free thyroxine index or free T4	18	17
19	Urea, serum	19	20
20	Cytological examination of cervical smears	20	19

## Section 2 - Reviewing practice

The following are suggestions for review exercises. These examples focus on areas of prescribing and testing that are generally independent of the number of patients treated. This data is presented for the one year time period April 08 - March 09.

**Additional information** is available from [www.bpac.org.nz](http://www.bpac.org.nz). Follow the "annual report" link from the home page where you will find a range of articles and references to support each review exercise.

The following are a few examples, and we would be interested in your suggestions regarding further ways to use the information provided.

### Combination diuretics

Combination diuretics are generally not recommended due to risk of electrolyte disturbances. In thiazide/potassium sparing combinations, the dose of thiazide is unnecessarily high for antihypertensive effect and will tend to counteract the potassium sparing effect of the other agent.

Combination Diuretics	A GPs Prescribing
Amiloride with hydrochlorothiazide	
Amiloride with frusemide	
Triamterene with hydrochlorothiazide	

**Review:** How often do you prescribe combination diuretics? Could these patients be changed to a low dose thiazide?

**Suggested target:** no prescriptions for combination diuretics.

### Amoxicillin clavulanate

Amoxicillin clavulanate is a broad spectrum antibiotic which should be reserved for specific indications. Widespread use of broad spectrum antibiotics encourages development of bacterial resistance.

Penicillins	A GPs Prescribing	% Amoxicillin clavulanate
Total Penicillins		
Amoxicillin clavulanate		

**Review:** What proportion of your total penicillin prescribing is for amoxicillin clavulanate?

**Suggested target:** the proportion of amoxicillin clavulanate prescribing compared with total penicillin prescribing should be 7.5% (based on current UK practice).

## Antibiotics for UTI

Trimethoprim is strongly recommended as first line treatment for uncomplicated UTIs. Other antibiotics should only be considered if there is known allergy or proven bacterial resistance to trimethoprim.

Urinary Tract Infections	A GPs Prescribing
Trimethoprim	
Norfloracin	
Nitrofurantoin	

**Review:** Is trimethoprim your first line antibiotic for uncomplicated UTI?

**Suggested target:** the majority of prescriptions for UTI should be trimethoprim.

## Dextropropoxyphene with paracetamol combination

The use of dextropropoxyphene with paracetamol (e.g. Paradex, Capadex) is not recommended. There is no evidence that dextropropoxyphene with paracetamol has any more analgesic benefit than paracetamol alone. In addition, it is particularly dangerous in overdose as it causes respiratory depression and cardiac arrhythmias and relatively few tablets constitute a toxic dose.

The combination is especially unsuitable for elderly people as it causes sedation, dizziness and can increase the risk of falls. We recommend using regular paracetamol alone, or if pain persists refer to step 2, WHO analgesic ladder.

Medsafe has recently decided to review the safety and efficacy of all medicines containing dextropropoxyphene.

Opiate	A GPs Prescribing
Dextropropoxyphene with paracetamol	

**Review:** How often do you prescribe dextropropoxyphene with paracetamol? Consider eliminating its use from your practice.

**Suggested target:** no prescriptions for dextropropoxyphene with paracetamol.

## Morphine vs oxycodone

Morphine is the strong opioid of first choice when considering a step three analgesic. Oxycodone is a second line option in the rare situations of morphine allergy, neurotoxicity with morphine, or if there is evidence of morphine tolerance. Oxycodone has more drug interactions than morphine and, being twice as potent, requires half the dose for the same analgesic effect e.g. morphine 10 mg = oxycodone 5 mg.

Opiate	A GPs Prescribing
Morphine sulphate	
Oxycodone hydrochloride	

**Review:** Is morphine your strong opioid of first choice?

**Suggested target:** the majority of strong opioid prescriptions should be morphine.

## Tricyclic antidepressants (TCAs)

Nortriptyline is preferable to amitriptyline for most indications, especially in elderly people to reduce the risk of adverse effects. Nortriptyline is less sedating, and less likely to cause hypotension or anticholinergic effects than amitriptyline (and other TCAs such as dothiepin, doxepin and imipramine). See Appendix 1 for a full list of TCA prescriptions.

Tricyclic antidepressants	A GPs Prescribing
Amitriptyline	
Nortriptyline hydrochloride	
Other TCAs	

**Review:** Is nortriptyline your TCA of first choice?

**Suggested target:** the majority of TCA prescriptions should be nortriptyline.

## Testing for iron deficiency

When there is high clinical suspicion of iron deficiency, a low ferritin is diagnostic of iron deficiency. Ferritin should be requested in the first instance. Further iron studies should only be requested if the ferritin is suspected to be elevated by another disease process, such as inflammation or haemochromatosis.

Anaemia	A GPs Testing
Ferritin, serum	
Iron, serum	

**Review:** Are most of your requests for "ferritin only"?

**Suggested target:** the majority of your requests should be for ferritin.

## Thyroid function testing

TSH is recommended as the sole initial test to diagnose hyperthyroidism or hypothyroidism and for monitoring in most situations. Simultaneous testing of TSH and FT4 is only recommended when investigating suspected pituitary failure and monitoring thyroid function for patients on amiodarone, on commencement of anti-thyroid treatment, during pregnancy and when checking for non-compliance with therapy.

Thyroid	A GPs Testing
Thyroid stimulating hormone, serum (TSH)	
Free thyroxine index or free T4	

**Review:** Are you requesting TSH as the sole initial test of thyroid function?

**Suggested target:** the majority of your requests should be for TSH.

## CRP vs ESR

On most occasions CRP is more useful than ESR for assessing the acute phase response. Request CRP when investigating the severity of an inflammatory process and when monitoring polymyalgia rheumatica, temporal arteritis/giant cell arteritis and rheumatoid arthritis.

Acute Phase Response	A GPs Testing
C-reactive protein test	
Erythrocyte sedimentation rate (ESR)	

**Review:** Are you requesting CRP in most cases?

**Suggested target:** the majority of your requests should be for CRP.

## Faecal testing

Laboratory investigations are not routinely required for most patients with acute diarrhoea. If laboratory testing is indicated, a single stool specimen for faecal culture (i.e. enteric pathogens) is usually appropriate. Testing for Giardia, Cryptosporidium and ova and cysts are only indicated if there are specific risk factors.

Faecal tests	A GPs Testing
Enteric pathogens (faeces or rectal swab)	
Giardia/Cryptosporidium	
Ova and cysts	

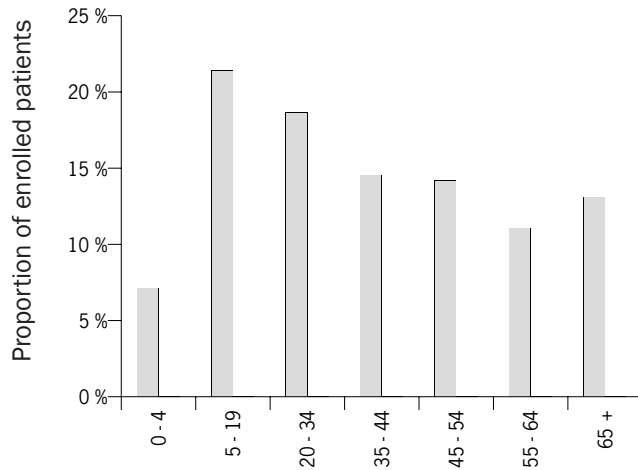
**Review:** Are you requesting "enteric pathogens" only unless otherwise indicated?



**Suggested target:** the majority of your requests should be for "enteric pathogens" only, a smaller proportion should be for Giardia/Cryptosporidium and only a very small proportion of requests should be for ova and cysts.

## Section 3 - Comparing practice demographics

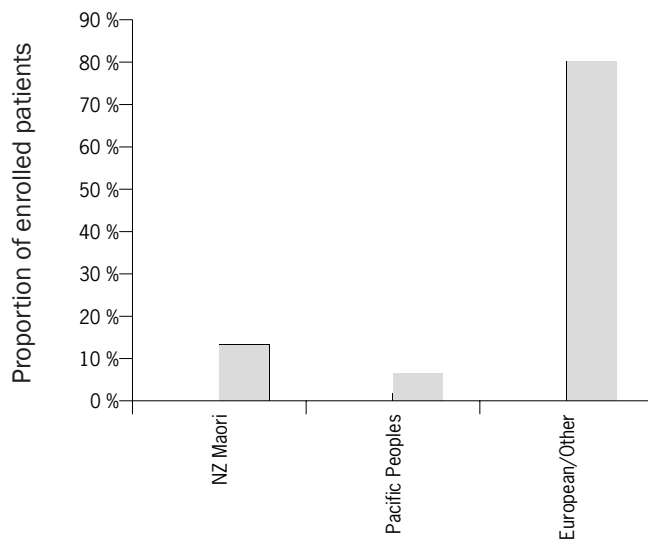
This section provides an overview of the age and ethnicity of practices and how they compare to national data. This may be helpful when comparing prescribing and testing patterns.

**Figure 1. Proportion of enrolled patients by age  
A Sample Practice vs National**



 A Sample Practice  
 National

**Figure 2. Proportion of enrolled patients by ethnicity  
A Sample Practice vs National**

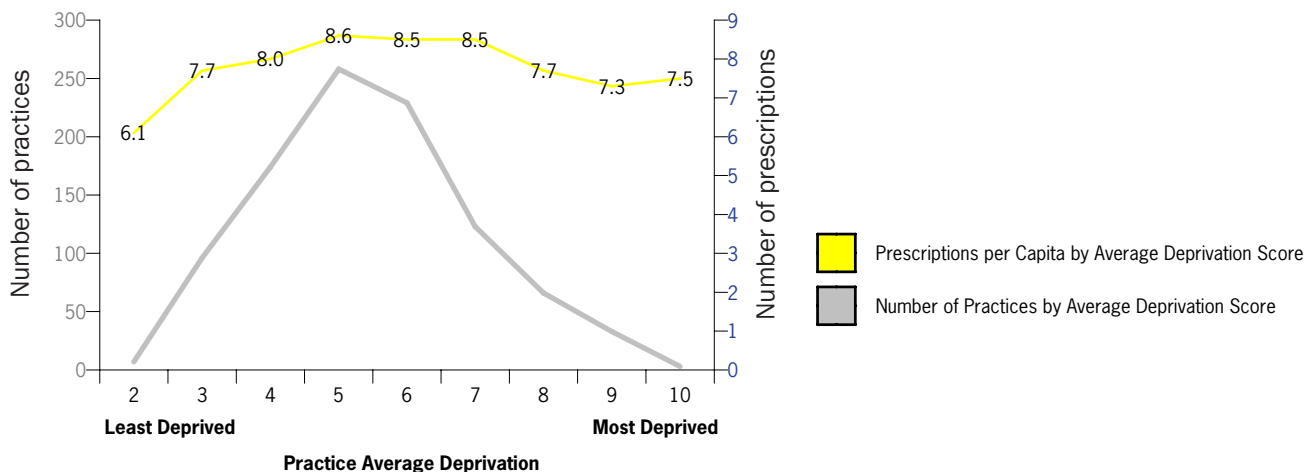


## Section 4 - Rates of prescribing and testing

### Prescribing and deprivation

Figure 3 below looks at the relationship between the number of prescriptions per capita and the average deprivation score of a practice (see notes section for detail of calculation). This data shows that prescription rates appear to be unaffected by deprivation.

**Figure 3. Prescriptions per capita by deprivation**

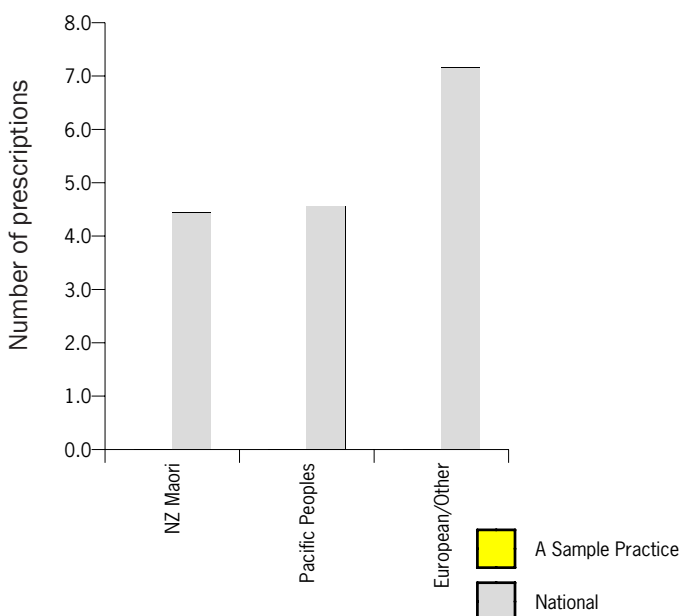


### Prescribing and testing by ethnicity

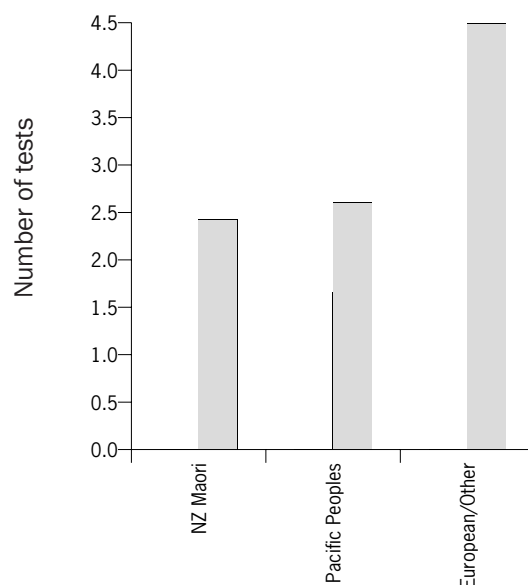
One area of continued concern is the ongoing disparity in the number of prescriptions and testing provided to Māori. Primary care services are ideally positioned to have a significant positive impact on the overall health and wellbeing of Māori, as Māori are now accessing primary care services at similar levels to the rest of the population. Careful planning and targeting of services at the practice level should ensure Māori receive at least the same level of access to pharmaceuticals and tests as non-Māori.

Figures 4 and 5 illustrate prescribing and testing rates in a sample practice by ethnicity compared to national averages.

**Figure 4. Prescriptions per enrolled patient  
A Sample Practice vs National**



**Figure 5. Testing per enrolled patient  
A Sample Practice vs National**



## Section 4

Detection and management of cardiovascular disease and diabetes are key national health goals. The following tables show prescribing and testing rates by ethnicity for four key indicators in this area. Consider if this data suggests any gaps in your practice.

### Prescribing of ACE inhibitors / Angiotensin Receptor Blockers (ARBs)

% Patients dispensed ACE/ARB (35 yrs +)	A Sample Practice	Similar Practices	National
NZ Maori			18.0 %
Pacific Peoples			20.5 %
European/Other			17.4 %

ACE inhibitors (and ARBs if ACE inhibitor intolerant) are recommended for people with hypertension, left ventricular dysfunction (with or without heart failure), nephropathy, and for people with hypertension who have diabetes or who are at high risk of developing diabetes.

We would expect to see higher rates of dispensed ACE inhibitors in Māori and Pacific peoples given their greater prevalence of these conditions.

### HbA<sub>1c</sub> testing in patients receiving oral antidiabetic medication

*For inclusion criteria please see the notes section.*

% Patients on oral antidiabetic medication had HbA <sub>1c</sub> tested (35 yrs +)	A Sample Practice	Similar Practices	National
NZ Maori			85.4 %
Pacific Peoples			88.3 %
European/Other			86.8 %

Are your Māori and Pacific patients with diabetes receiving adequate monitoring?

It is recommended that cardiovascular risk assessment occur in Māori and Pacific males from 35 years onward, and a decade later for the majority of other males. For this reason, we have looked at data in the following areas for Māori and Pacific males aged 35 - 44 years, and other males aged 45 - 54 years.

## Lipid Testing

<b>% Male patients had lipids tested</b>	<b>A Sample Practice</b>	<b>Similar Practices</b>	<b>National</b>
NZ Maori (35-44 yrs)			14.0 %
Pacific Peoples (35-44 yrs)			19.8 %
European/Other (45-54 yrs)			33.1 %

*Please note: this data is presented for the one year time period April 08 - March 09.*

## Statin Prescribing

<b>% Male patients dispensed statins</b>	<b>A Sample Practice</b>	<b>Similar Practices</b>	<b>National</b>
NZ Maori (35-44 yrs)			4.4 %
Pacific Peoples (35-44 yrs)			6.8 %
European/Other (45-54 yrs)			13.3 %

The data above suggests that this recommendation is yet to be fully adopted. Lipid testing and statin prescribing rates for Māori and Pacific males remain significantly behind that of European/Other males despite having higher rates of cardiovascular disease.

## Appendix 1

### A GPs prescribing

This section focuses on an individual GPs prescribing. All prescriptions associated with a NZMC number are presented regardless of where the prescription was generated e.g. an after hours clinic, rest home or on a practitioner supply order.

<b>Diuretics</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Bendrofluzide		100
Furosemide		88
Spironolactone		17
Indapamide		6
Bumetanide		2
Chlorthalidone		1
<b>Combination Diuretics</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Amiloride with hydrochlorothiazide		6
Triamterene with hydrochlorothiazide		1
Amiloride with frusemide		1
<b>ACE</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Cilazapril		121
Quinapril		96
Enalapril		26
Lisinopril		5
Captopril		3
Perindopril		1
<b>ACE &amp; Diuretic</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Cilazapril with hydrochlorothiazide		48
Quinapril with hydrochlorothiazide		23
Enalapril with hydrochlorothiazide		1
<b>ARBs</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Candesartan		37
Losartan		12
<b>Beta Adrenoceptor Blockers</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Metoprolol succinate		184
Atenolol		34
Celiprolol		11
Carvedilol		8
Sotalol		8
Propranolol		7
Nadolol		6
Metoprolol tartrate		4
Labetalol		3
Pindolol		2

<b>Calcium Channel Blockers</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Felodipine		89
Diltiazem hydrochloride		53
Amlodipine		26
Verapamil hydrochloride		9
Nifedipine		4
Perhexiline maleate		1
<b>Lipid Modifying Agents</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Simvastatin		279
Atorvastatin		46
Bezafibrate		22
Ezetimibe		6
Nicotinic acid		2
Ezetimibe with simvastatin		1
<b>Asthma Preventative Medicines</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Fluticasone		89
Budesonide		14
Beclomethasone dipropionate		13
Nedocromil		1
<b>SABA / Other</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Salbutamol		170
Salbutamol with ipratropium bromide		29
Terbutaline sulphate		14
Tiotropium bromide		8
Ipratropium bromide		7
Theophylline		2
<b>LABA</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Budesonide with eformoterol		22
Fluticasone with salmeterol		14
Salmeterol		13
Eformoterol fumarate		9

<b>H2 Antagonists</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Ranitidine hydrochloride		20
Famotidine		3
<b>Proton Pump Inhibitors</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Omeprazole		239
Pantoprazole		30
Lansoprazole		5
<b>Oral Hypoglycaemic Agents</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Metformin hydrochloride		84
Gliclazide		27
Glipizide		15
Pioglitazone		3
Glibenclamide		3
Tolbutamide		< 1
<b>Insulin</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Insulin isophane		15
Insulin isophane with insulin neutral		13
Insulin aspart		7
Insulin glargine		4
Insulin lispro		4
Insulin neutral		2
<b>Glucose/Blood Testing</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Blood glucose diagnostic test strip		68
Blood glucose diagnostic test meter		2

<b>Antibacterials</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Amoxicillin		203
Amoxicillin clavulanate		170
Flucloxacillin sodium		87
Doxycycline hydrochloride		54
Erythromycin ethyl succinate		50
Roxithromycin		39
Cefaclor monohydrate		37
Co-trimoxazole		36
Phenoxymethylpenicillin (Penicillin V)		26
Ciprofloxacin		15
Azithromycin		8
Minocycline hydrochloride		4
Erythromycin stearate		2
Clindamycin		1
<b>Urinary Tract Infections</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Norfloxacin		30
Trimethoprim		27
Nitrofurantoin		11
<b>Vitamins</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Cholecalciferol		73
Vitamins		46
Hydroxocobalamin		20
Calcitriol		5
Thiamine hydrochloride		4
Vitamin B complex		4
Pyridoxine hydrochloride		4
Ascorbic acid		3
Vitamin A with vitamins D and C		1
Alfacalcidol		< 1

<b>Antifungals</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Terbinafine		8
Itraconazole		3
Fluconazole		2
Nystatin		1
<b>SSRIs</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Citalopram hydrobromide		63
Fluoxetine hydrochloride		55
Paroxetine hydrochloride		35
Venlafaxine		13
<b>Other Antidepressants</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Amitriptyline		51
Nortriptyline hydrochloride		20
Dothiepin hydrochloride		10
Doxepin hydrochloride		9
Imipramine hydrochloride		2
Moclobemide		2
Clomipramine hydrochloride		2
Trimipramine maleate		2
<b>Sedatives and Hypnotics</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Zopiclone		110
Triazolam		27
Temazepam		23
Midazolam		4
Nitrazepam		3
<b>Atypical Antipsychotics</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Quetiapine		16
Risperidone		15
Olanzapine		5

<b>Other Antipsychotics</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Haloperidol		5
Lithium carbonate		5
Methotrimeprazine		2
Chlorpromazine hydrochloride		2
Trifluoperazine hydrochloride		1
Haloperidol decanoate		< 1
Thioridazine hydrochloride		< 1
<b>Non-Opiate</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Paracetamol		395
Paracetamol with codeine		58
Aspirin		19
Nefopam hydrochloride		1
<b>Opiate</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Codeine phosphate		49
Dextropropoxyphene with paracetamol		38
Morphine sulphate		26
Oxycodone hydrochloride		16
Dihydrocodeine tartrate		10
Morphine hydrochloride		5
Pethidine hydrochloride		3
Fentanyl		1
<b>Antiepilepsy Drugs</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Sodium valproate		23
Clonazepam		19
Carbamazepine		15
Phenytoin sodium		9
Gabapentin		7
Lamotrigine		5
Topiramate		1
Diazepam		1
Clobazam		1
Phenobarbitone		1
Primidone		1
Vigabatrin		< 1
Ethosuximide		< 1

<b>Antimigraine Preparations</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Sumatriptan		13
Metoclopramide hydrochloride with paracetamol		5
Clonidine hydrochloride		3
Rizatriptan benzoate		2
Ergotamine tartrate with caffeine		2
Pizotifen		2
<b>Anti-inflammatory Non Steroidal Drugs (NSAIDs)</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Diclofenac sodium		117
Ibuprofen		86
Naproxen sodium		21
Naproxen		17
Tenoxicam		7
Indomethacin		5
Piroxicam		2
Mefenamic acid		2
Ketoprofen		1
<b>Corticosteroids and Related Agents for Systemic Use</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Prednisone		101
Prednisolone sodium phosphate		22
Triamcinolone acetonide		3
Hydrocortisone		3
Fludrocortisone acetate		3
Dexamethasone		2
<b>Antiandrogen Oral Contraceptives</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Cyproterone acetate with ethinyloestradiol		14
<b>Contraceptives - Hormonal</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Ethinyloestradiol with levonorgestrel		56
Norethisterone		13
Ethinyloestradiol with norethisterone		11
Medroxyprogesterone acetate		8
Levonorgestrel		6
Ethinyloestradiol with desogestrel		3
Ethinyloestradiol with gestodene		1

<b>Contraceptives - Non-hormonal</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Condoms		18
<b>Hormone Replacement Therapy - Systemic</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Oestrogens		6
Oestradiol		6
Oestradiol with norethisterone		5
Medroxyprogesterone acetate		4
Oestrogens with medroxyprogesterone		2
Oestradiol valerate		1
<b>Thyroid and Antithyroid Agents</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Levothyroxine		88
Carbimazole		3

## Appendix 2

### A GPs testing

This section looks at the use of laboratory tests on the "laboratory schedule". All tests associated with a NZMC number and performed in a community laboratory are recorded here.

<b>Renal Function</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Sodium & Potassium, serum		301
Creatinine, serum		366
Urea, serum		63
Urate or uric acid, serum		83
Calcium, serum		42
Phosphate, serum		36
Magnesium, serum		6
Chloride, serum		1
Potassium, serum		7
Sodium, serum		4
Creatinine, 24 hr urine		3
Proteins, 24 hr. urine		1
<b>Liver Function</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Liver function group		278
Albumin, serum		18
Alanine transaminase - ALT		13
Alkaline phosphatase, serum		5
Asparate amino transferase, serum - AST		7
Bilirubin total, conjugated & unconjugated serum		1
Bilirubin total, serum		2
Gamma glutamyl transferase, serum (GGT)		8
Proteins total, serum		9
Amylase		13
<b>Diabetes</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Serum glucose		270
Glycosylated haemoglobin		120
Glucose Tolerance Test standard		13
Glucose Tolerance Test post-polycose		1
Microalbumin, early morning urine		57
<b>Anaemia</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Iron, serum		93
Ferritin, serum		193
Iron binding capacity, serum		71
Transferrin, serum		22
Folate plus Vitamin B12, serum		106
Folate, red cell		3

<b>Lipids</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Fasting lipid group test		277
Cholesterol total, serum		1
Lipoproteins, electrophoresis, serum		1
<b>Cardiac Markers</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Creatine kinase, serum (CK)		23
Troponin T & Troponin I		14
<b>Proteins</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Protein electrophoretic pattern, serum		11
Immunoglobulins (IgA, IgE, IgG, or IgM)		26
Paraprotein Identification		1
Electrophoresis concentrated urine		1
<b>Cancer</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Prostate Specific Antigen		74
Faecal occult blood, human haemoglobin specific		26
Cytological examination of cervical smears		62
Cytological examination of fine needle aspiration		2
Cytological examination of smears from other sites		4
Histology		25
<b>Reproductive Health</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Luteinising hormone (LH)		14
Follicle stimulating hormone (FSH)		16
Prolactin, serum		7
Progesterone, serum		6
Oestradiol, serum		8
Chorionic Gonadotrophin qualitative plus quantitative (HCG)		17
Serum Testosterone		5
Seminal fluid - fertility		1
Seminal fluid - post vasectomy		2
<b>Therapeutic Drug Monitoring</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Digoxin		4
Lithium		3
Antiepileptics		7
<b>Thyroid</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Thyroid stimulating hormone, serum (TSH)		220
Free thyroxine index or free T4		69
Serum free T3		25
<b>Antenatal</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
First antenatal group		14
Antenatal subsequent groups		1
HIV antenatal screening		1

<b>Hepatitis</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Hepatitis A IgG antibody		9
Hepatitis A IgM antibody		7
Hepatitis B (anti HBc) antibody		10
Hepatitis B - (Anti HBs) antibody		22
Hepatitis B (HBe) e antigen		3
Hepatitis B - (HBsAg) surface antigen		23
Hepatitis C antibody		12
<b>Auto-immune</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Auto-immune disease, anti-nuclear antibody		13
Auto-immune disease, anti-nuclear antibody titre		3
Auto-immune disease, thyroid		10
Autoantibodies, other		44
Rheumatoid factor - Rose Waaler test		14
<b>Acute Phase Response</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
C-reactive protein test		156
Erythrocyte sedimentation rate (ESR)		52
<b>Other Immunology / Serology</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Antistreptococcal antibodies		3
CM virus, specific antibody titre		7
Epstein-Barr virus IgG antibody		10
Epstein-Barr virus IgM antibody		9
Herpes virus direct antigen test		2
HIV Screen test		16
Leptospira specific antibody test		< 1
Paul-Bunnell (or equivalent)		5
Rubella antibodies - IgG		4
Skin tests, immediate hypersensitivity		43
Syphilis - specific antibody test		14
Syphilis - VDRL or other reagin test		7
Toxoplasma antibodies IgG		2
Toxoplasma antibodies IgM		1
Tuberculin skin test		1
Anti human globulin test including Coombs test		1
Blood Grouping - ABO/ Rhesus group		3
Antenatal antibodies, including Coombs test		< 1

<b>Cultures</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Swab, cervical		29
Swab, ear		7
Swab, eye		5
Swab, nasal		2
Swab, skin/wound/pus		35
Swab, throat		26
Swab, urethral		5
Swab, vaginal		40
Urine culture		154
Enteric pathogens (faeces or rectal swab)		27
Aspirates, culture and sensitivities		1
Blood culture		2
Other, culture, sensitivities and identification		18
Sputum (excluding tuberculosis)		4
<b>Haematology</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Complete blood count (CBC)		418
Plasma prothrombin ratio (INR)		197
Coagulation profile		3
Fibrinogen (quantitative)		1
Partial thromboplastin clotting time		1
Thrombin time		1
Haemoglobin pigments - qualitative		1
Haemoglobin pigments - quantitative		2
Coagulation factors individual assays		3
Red blood cell inclusion bodies		3
<b>Other Microbiology Tests</b>	<b>A Sample GP</b>	<b>National (per GP)</b>
Ova and cysts		8
Film - examination for malaria, filaria, &/or gonococci		4
Mycology - skin		13
Tuberculosis - sputum		1
Tuberculosis - other sites		< 1
Chlamydia direct antigen test		53
Giardia/Cryptosporidium		17
Rotavirus direct antigen test		6

## Appendix 3 - Notes

Report period is from 1 April 2008 to 31 March 2009.

Data has been excluded where the NZMC number was not recorded or the data was incomplete.

Some discrepancies may occur due to rounding.

### Pharmaceutical Notes

- ❖ National (per GP) 1 April 2008 to 31 March 2009 is based on 3908 GPs.  
National (per GP) 1 April 2007 to 31 March 2008 is based on 3845 GPs.
- ❖ Please note that we have changed the way we report your use of pharmaceuticals. The figures now report the number of prescriptions, where previously we reported the number of dispensings. For example, previously if a prescription for a medication for a chronic condition was dispensed monthly instead of three-monthly, it would be counted three times; once for the initial prescription, plus two repeats. In this report each prescription is now counted only once. We have made this change because we feel it better reflects your pattern of prescribing and medication choice, which is what we would like you to focus on when reviewing this report.
- ❖ Data are collected from prescriptions submitted by pharmacies to HealthPAC for reimbursement. NZHIS downloads the HealthPAC data into the PharmHouse database. This report is generated using data in the PharmHouse database.
- ❖ There is a potential for data entry errors at the pharmacy, HealthPAC and at NZHIS. These errors may include the incorrect NZMC number or dose and frequency information being entered in the wrong fields.
- ❖ Cost represents the standard price at which a pharmaceutical is supplied to the wholesalers. This excludes dispensing fees, mark-up, GST and rebates.
- ❖ If an item appears on your report that you did not prescribe please consider that there are a number of potential opportunities for error. On occasion a locum or hospital doctor may have prescribed items for your patient that subsequently were assigned to your NZMC number at the pharmacy. You may have written prescriptions for patients you do not regularly see, such as casual patients, patients seen at an after hours clinic, or provided repeat prescriptions to patients who usually see another GP. Most often items included in your report that are not familiar to you can be explained by one-off or unusual circumstances that do not immediately come to mind.
- ❖ HbA<sub>1c</sub> testing in patients receiving oral antidiabetic medication: Patients were included in this subset if they were dispensed at least one oral antidiabetic medication by you in the six months October 2007 - March 2008. HbA<sub>1c</sub> testing data is presented for April 2008 - March 2009 for this subset of patients. Testing may have been performed by any doctor.
- ❖ Clozapine and Methadone hydrochloride have been excluded from this report.

### Laboratory Notes

- ❖ National (per GP) 1 April 2008 to 31 March 2009 is based on 3245 GPs.  
National (per GP) 1 April 2007 to 31 March 2008 is based on 3162 GPs.
- ❖ Every effort has been made to ensure the figures presented here are correct, however we cannot guarantee complete accuracy. Laboratory data is recorded by HealthPAC and then downloaded by NZHIS into the Lab data warehouse.
- ❖ Tests performed in hospitals will not appear in this report as we do not have access to this data set.

### Similar Practice Notes

- ❖ For each New Zealand practice, an "average deprivation" was calculated by adding together the deprivation decile for each enrolled patient, then dividing by the total number of patients in each practice.
- ❖ Age/Sex Register data was used to match your practice to others with a similar demographic profile based on age, gender, ethnicity and deprivation. The proportion of patients in each subgroup was used to match your practice with the five most similar to yours nationwide.
- ❖ Practice demographic data and similar practice comparisons will not appear if we were unable to match an Age/Sex Register to your practice.



