

# 3 Use of cardiovascular medicines for any health condition

This chapter presents information on patterns of supply and prescription of cardiovascular medicines for any health condition in Australia. In this report we have used the medicines names and groupings of the Anatomical Therapeutic Chemical (ATC) classification of medicines, described in detail in the Appendix. Medicines used to prevent and treat cardiovascular conditions belong in the 'Cardiovascular system' and the 'Blood and blood-forming organs' groups.

Note: throughout this report we have used the term 'antihypertensives' strictly to refer to the group of medicines so labelled in the ATC classification (see Appendix). However, there are many other medicines used to treat hypertension, which are commonly referred to as 'antihypertensives' elsewhere. Here we have referred to all medicines used to treat hypertension as 'medicines with blood-pressure-lowering effect'.

## 3.1 Supply of cardiovascular medicines in the community

Information on the supply of prescription medicines in the community is available from the Australian Government Department of Health and Ageing (DoHA). The information is derived from prescriptions submitted for subsidy payment under the Pharmaceutical Benefits Scheme (PBS) or the Repatriation Pharmaceutical Benefits Scheme (RPBS) and estimates of the use of non-subsidised prescription medicines, calculated from data collected for the Pharmacy Guild of Australia's ongoing survey of community pharmacies. For more information on the PBS see Box 1. Data are not available on the use of prescribed medicines in public hospitals and most private hospitals. Note that as a medicine may have more than one indication, and the condition for which the medicine is prescribed is not recorded, it is not possible to determine from these data sources the actual medicine use for specific conditions or purposes.

Medicine use can be expressed as defined daily dose per 1,000 population per day (DDD/1,000/day). This is based on the assumed average dose per day of a medicine used for its main indication in adults. It gives an estimate of how many people per 1,000 population are taking the standard dose of the medicine each day, on average. The DDD enables valid comparisons between medicines, independent of differences in price, preparation and quantity per prescription. However, it has several limitations. As the DDD is based on international experience, it does not necessarily reflect the recommended or average prescribed dose in Australia. This measure assumes that the amount of medicine supplied is the same as the amount used, but this is not always the case. Note also that the DDD is calculated for the whole population, while medicine use may be concentrated in certain age groups or a particular sex (DoHA 2005).

This section presents information on the community supply of cardiovascular medicines to manage any health condition (not limited to cardiovascular conditions), as explained above.

### **Box 1: The Pharmaceutical Benefits Scheme**

*In Australia community prescriptions (that is, not given in public hospitals) are dispensed either as private prescriptions or under one of two subsidisation schemes – the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS). These schemes were established to provide Australians with access to necessary medicinal products, which are affordable, available and of acceptable standards.*

*A new medicine must gain approval for supply in accord with the requirements of the Therapeutic Goods Act 1989. Approval is also required to extend the indications of an established medicine. Applications are dealt with by the Therapeutic Goods Administration (TGA) and, for prescription medicines, advice is sought from an expert committee, the Australian Drug Evaluation Committee (ADEC).*

*Once a prescription medicine is approved for marketing, the company concerned usually applies to have the medicine listed on the PBS. Because of the attraction of the scheme to consumers, it is usually necessary for the company to have the medicine listed on the scheme for viable marketing to occur.*

*The Pharmaceutical Benefits Advisory Committee (PBAC) makes recommendations to the Australian Government about which medicines should be listed on the PBS. Whereas the pre-market evaluation examines the issues of quality, safety and efficacy, the PBAC considers effectiveness and cost-effectiveness of the product compared with other alternatives. Once a medicine has been recommended for listing on the PBS by the PBAC, the Pharmaceutical Benefits Pricing Authority (PBPA) negotiates the price paid with the company. The PBPA consists of government, industry and consumer representatives. After agreement is reached, the Australian Government considers the advice of both the PBAC and the PBPA and makes a decision on whether the medicine should be listed on the PBS.*

*Under the PBS, patients are grouped into two classes. General patients pay the first \$29.50 of the cost of each prescription item (called patient co-payment). Pensioner and concessional patients (people with low incomes and sickness beneficiaries who hold a health care card) pay \$4.70 per prescription item.*

*In addition, there is a safety net to protect people with high medicine needs. Once general patients and/or their immediate family spend \$960.10 on PBS items in a calendar year, prescriptions for the remainder of that year cost the concessional co-payment amount of \$4.70 per item. Once pensioners and concessionals spend \$253.80 on PBS items in a calendar year, they receive all remaining prescriptions free of charge for the remainder of the year. These co-payments and safety net thresholds are indexed according to the Consumer Price Index from 1 January each year. The figures quoted here apply for the year 2006.*

*Patients may also be required to pay a surcharge where the doctor prescribes a more expensive brand of an item, when there are cheaper, equivalent brands of that item listed on the PBS.*

*As the general patient co-payment rises, the dispensed price of many of the cheaper medicines falls under this level. In such cases, the patient pays the full price and no claim for payment is recorded under the PBS. In 2003, under co-payment general prescriptions represented around 15% of all community prescriptions. There are also many medicines that are not listed on the PBS or RPBS and are available only on private prescription with the patient paying the full cost (these represented 7.3% of community prescriptions in 2003).*

*The Repatriation Benefits Scheme gives assistance to eligible war veterans and dependants. It is generally similar to the PBS for concessional beneficiaries.*

*Sources: DoHA 2005, 2006.*

In 2003 there were 178.1 million subsidised (PBS/RPBS) prescriptions overall, of which 55.6 million (31.2%) were for 'cardiovascular system' medicines and 6.1 million (3.4%) were for 'blood and blood-forming organs' medicines (DoHA 2005). In addition, there were an estimated 42 million prescriptions that did not attract a subsidy, with 'cardiovascular system' medicines accounting for 3.5 million (8.4%) and 'blood and blood-forming organs' medicines 0.6 million (1.3%).

Seven 'cardiovascular system' medicines were among the top ten most commonly used medicines by the DDD/1,000/day measure (Table 3). Atorvastatin and simvastatin, both blood cholesterol-lowering medicines, were the leading medicines using this measure.

**Table 3: Top ten medicines by defined daily dose/1,000 population/day, 2005**

Rank	Medicine	Action	DDD/1,000/day
1	Atorvastatin*	Lowers blood cholesterol	106.8
2	Simvastatin*	Lowers blood cholesterol	57.5
3	Ramipril*	Lowers blood pressure	38.0
4	Diltiazem hydrochloride*	Lowers blood pressure	30.9
5	Salbutamol	Opens airways	26.2
6	Irbesartan*	Lowers blood pressure	21.9
7	Omeprazole	Lowers gastric acid	20.1
8	Fruzemide*	Lowers blood pressure	19.6
9	Aspirin*	Antiplatelet, pain killer, anti-inflammatory	19.3
10	Sertraline	Antidepressant	17.8

Note: \* Denotes medicine indicated for cardiovascular disease.

Source: Drug Utilisation Sub-Committee database, DoHA .

Over the period 1995–2005, there were important changes in the supply of medicines for cardiovascular disease in the community:

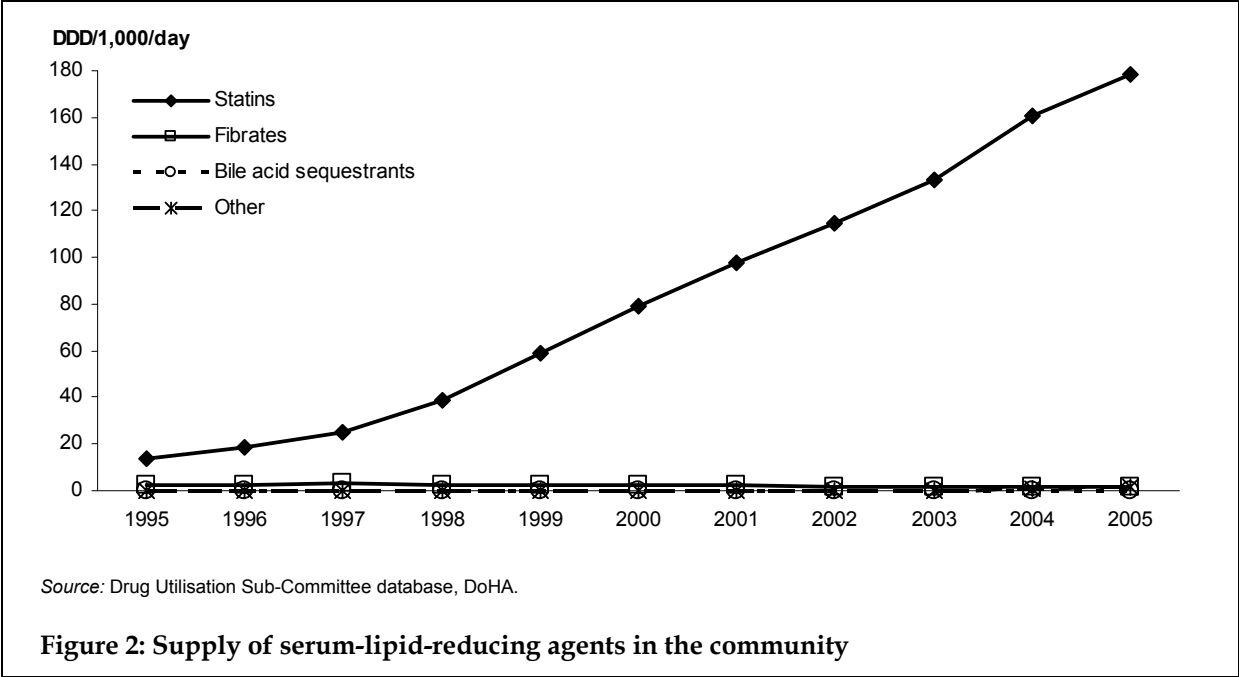
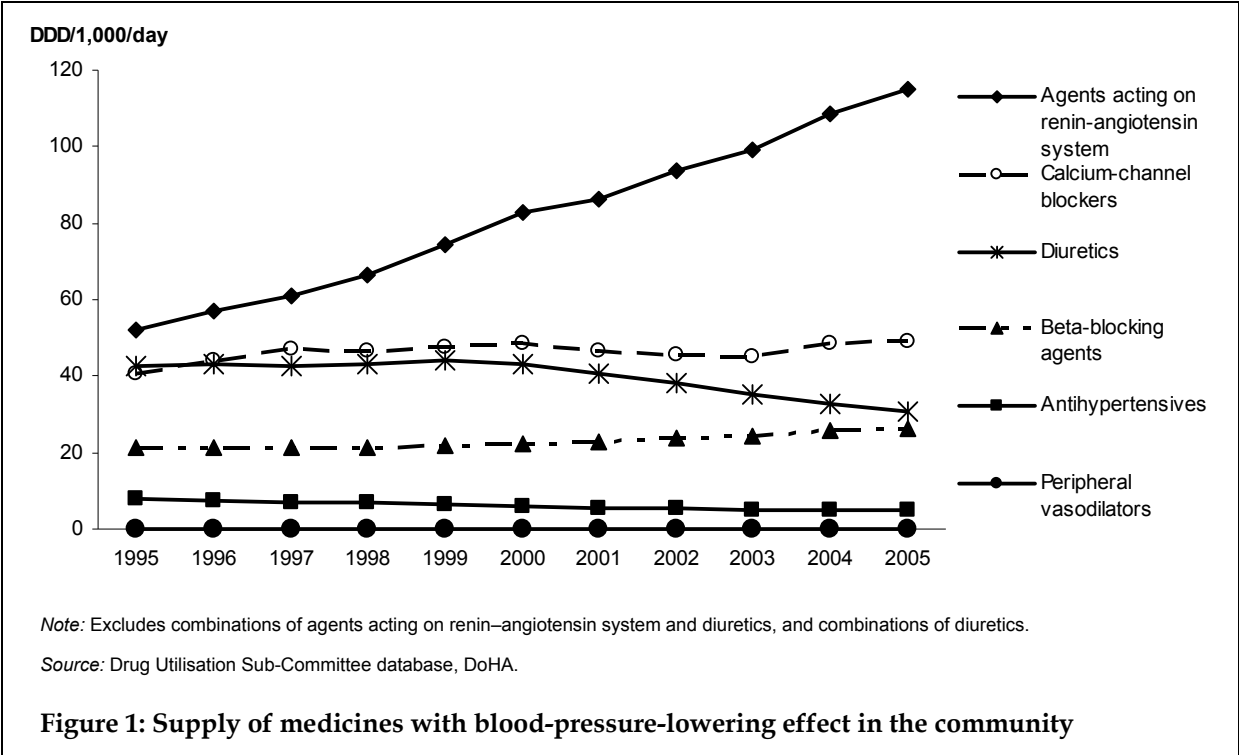
- Among medicines with blood-pressure-lowering effect, agents acting on the renin-angiotensin system were the most popular (121% increase), calcium-channel blockers and beta-blockers also increased by 21% each, while diuretics fell by 28%, antihypertensives fell by 37% and peripheral vasodilators, which were dispensed infrequently, fell by 90% (Figure 1).
- Among serum-lipid-reducing agents, statins rose markedly (1,218% increase). Other types of medicines in this group were supplied relatively rarely compared with statins (Figure 2).
- All types of antithrombotic agents increased considerably – platelet aggregation inhibitors particularly (4,668%), vitamin K antagonists (102%), heparins (846%) (Figure 3).
- Among cardiac therapy medicines, antiarrhythmics rose (49%) while the rest fell – vasodilators (-7%), cardiac glycosides (-44%) and cardiac-stimulants (-22%) (Figure 4).

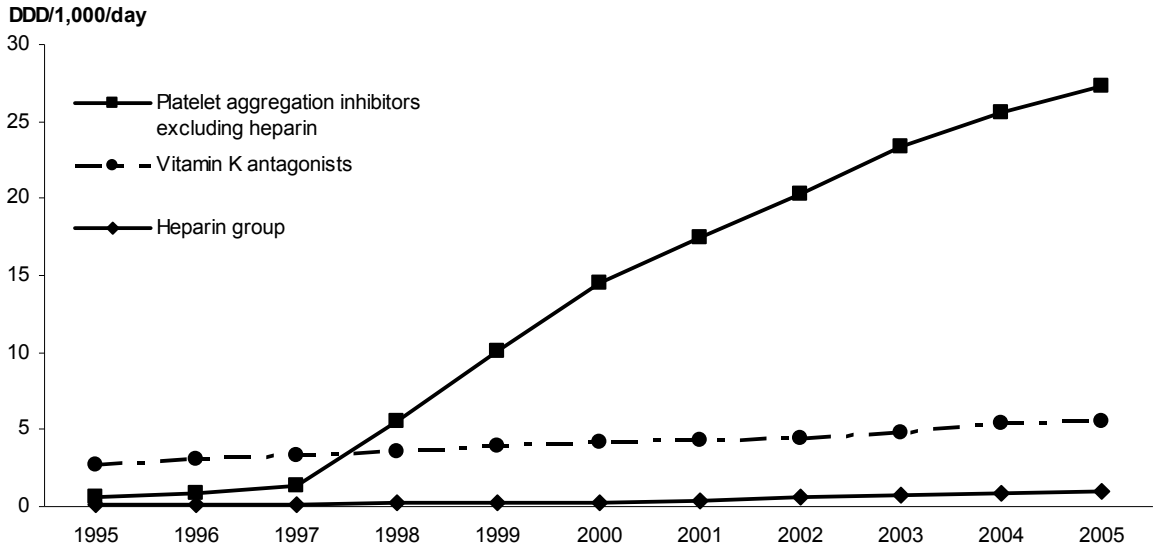
Note that for agents acting on the renin-angiotensin system and diuretics, the figures presented here underestimate their real supply, as DDDs for combination products are not calculated and are therefore not included in the totals.

Compared with other OECD countries for which similar data are available (Table A1), Australia:

- has a considerably greater use of serum-lipid-reducing agents than any other country on the list
- is among the top users of agents acting on the renin-angiotensin system and calcium-channel blockers
- is among the countries that uses beta-blocking agents and diuretics the least.

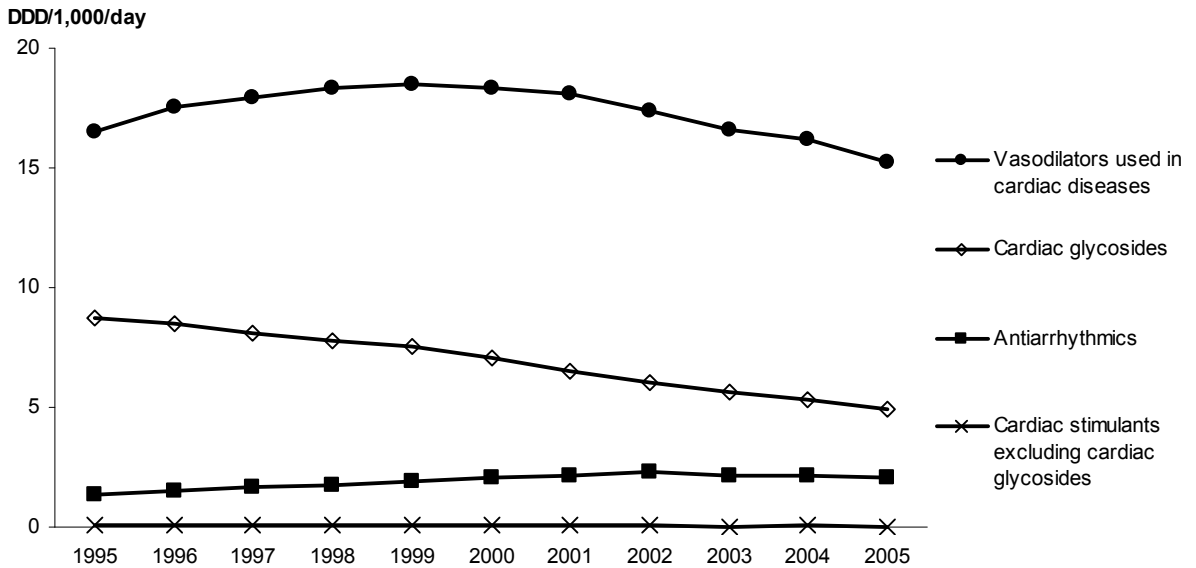
These differences in use of medicines might reflect differences in prevalence of cardiovascular disease, clinical practices, patients' preferences, access to medicines and affordability of medicines in the countries compared, and the rate and level of acceptance of new evidence.





Source: Drug Utilisation Sub-Committee database, DoHA.

Figure 3: Supply of antithrombotic agents in the community



Source: Drug Utilisation Sub-Committee database, DoHA.

Figure 4: Supply of cardiac therapy medicines in the community

## 3.2 Cardiovascular medicines prescribed in general practice

This section presents information on cardiovascular medicines prescribed in general practice for any health problem, sourced from the BEACH study, described in the Appendix. The BEACH survey of general practice collects information on medicines that GPs prescribe and advise patients to buy over the counter, and those that GPs supply directly. However, in this report we have limited the analyses to those medicines prescribed or supplied by GPs.

### **Box 2: Definitions used in the BEACH study as presented in this report**

*General practitioner (GP): a medical practitioner who provides primary comprehensive and continuing care to patients and their families within the community.*

*Problem: a statement of the GP's understanding of a health problem presented by a patient.*

*Encounter: any professional interchange between a patient and a GP.*

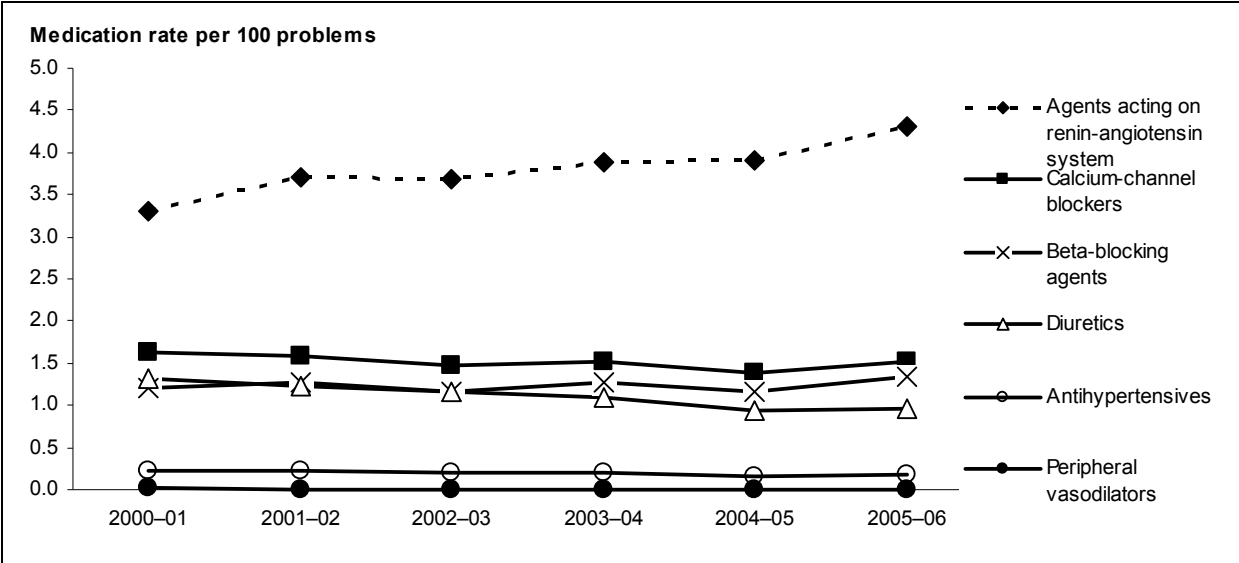
*Medicine: a medicine prescribed or provided by the GP at the encounter.*

*Medication rate: medicines prescribed or supplied by the GP per 100 problems managed.*

In 2004–05, GPs prescribed cardiovascular medicines to manage any health condition at a rate of 14.7 per 100 encounters, accounting for 17.7% of all general practice prescriptions (AIHW: Britt et al. 2005). Blood lipid lowering medicines were the most commonly prescribed cardiovascular medicines (3.0 per 100 encounters), followed by plain ACE-inhibitors (2.4 per 100 encounters) and beta-blocking agents (1.7 per 100 encounters).

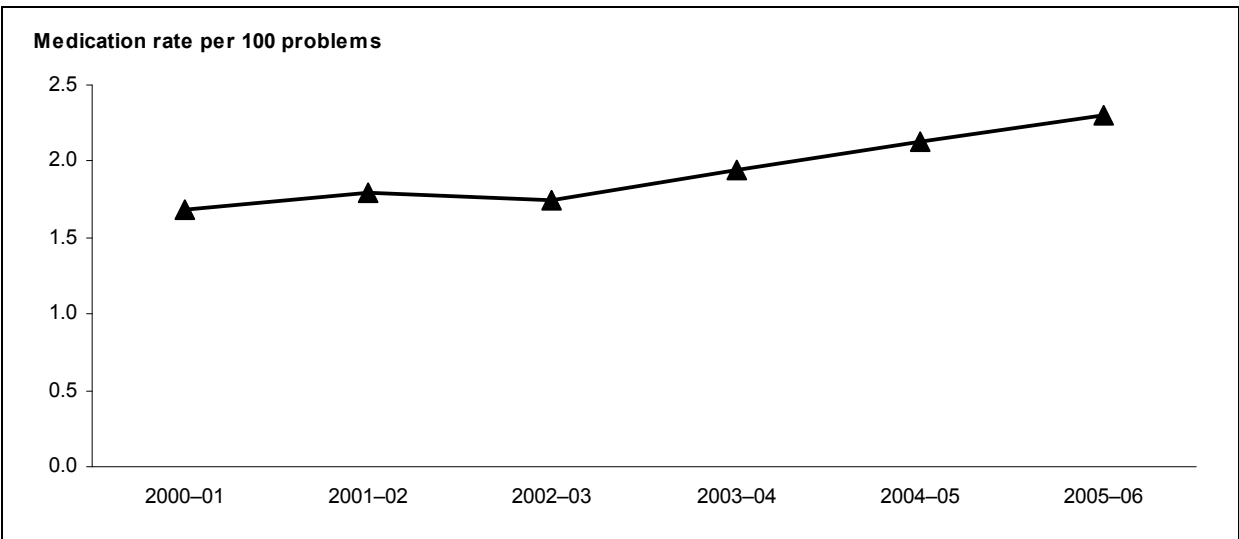
Comparing the rate at which GPs prescribed or supplied cardiovascular medicines for any problem in 2000–01 and 2005–06, there were statistically significant changes (p value <0.0001):

- Among medicines with blood-pressure-lowering effect, agents acting on the renin-angiotensin system increased, while diuretics fell (Figure 5). Other types of medicines in this category remained stable.
- Serum-lipid-reducing agents rose, with statins and 'other cholesterol and triglyceride reducers' accounting for the increase (Figure 6).
- Antithrombotic agents increased owing solely to the rise in platelet aggregation inhibitors such as aspirin (Figure 7).
- Cardiac therapy medicines fell as a result of reduced prescription of cardiac glycosides and nitrates (Figure 8).



Source: BEACH study (unpublished).

**Figure 5: Medicines with blood-pressure-lowering effect prescribed or supplied by GPs**

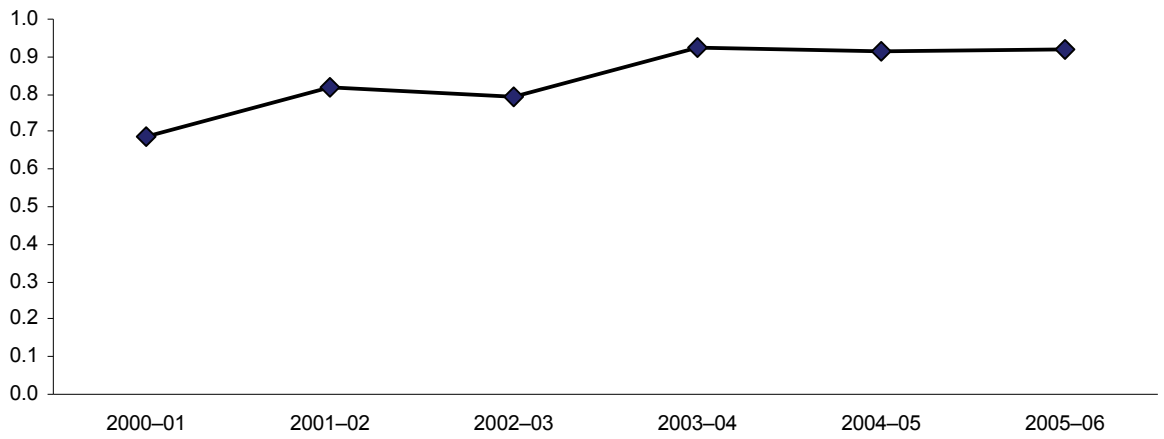


Source: BEACH study (unpublished).

**Figure 6: Serum-lipid-reducing agents prescribed or supplied by GPs**



Medication rate per 100 problems



Source: BEACH study (unpublished).

Figure 7: Antithrombotic agents prescribed or supplied by GPs

Medication rate per 100 problems



Source: BEACH study (unpublished).

Figure 8: Cardiac therapy medicines prescribed or supplied by GPs