PHARMAC

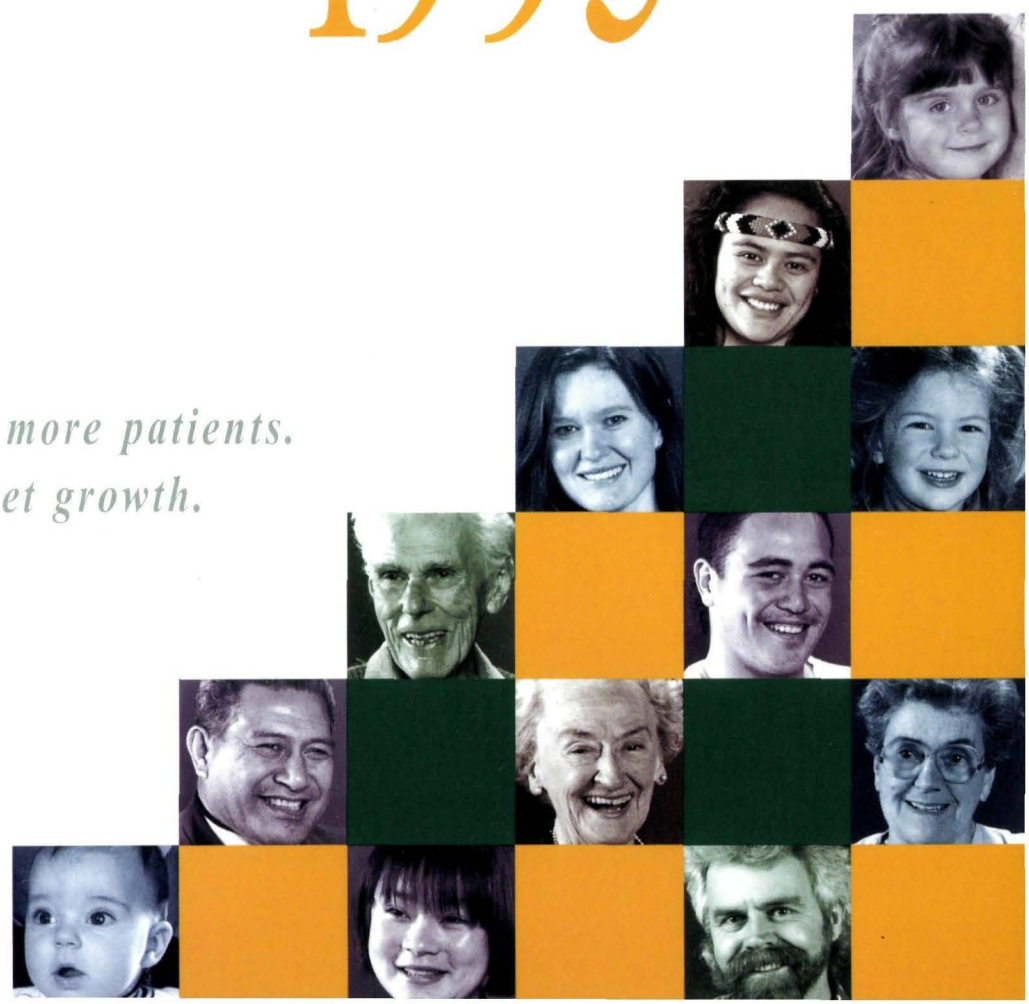
Pharmaceutical Management Agency Ltd

Annual Review

for the year ended 30 June

1995

Treating more patients.
Slowing budget growth.



PHARMAC *(Pharmaceutical Management Agency Limited) was established in mid-1993 to manage the national Pharmaceutical Schedule on behalf of the four RHAs (Regional Health Authorities). It is a not-for-profit Crown agency owned equally by the RHAs.*

The Schedule is a list, updated monthly and reprinted three times a year, of more than 2,500 subsidised prescription medicines and related products available in New Zealand. The Schedule also records the price of each pharmaceutical, the subsidy it receives from public funds, and the guidelines or conditions under which the pharmaceutical may be prescribed.

Decisions on subsidy levels, and prescribing guidelines and conditions, are taken by the PHARMAC Board with input from independent, medical experts on the Pharmacology and Therapeutics Advisory Committee (PTAC), and PHARMAC's managers and analysts.

In taking its decisions, PHARMAC seeks to balance the needs of patients for equitable access to health care with the needs of tax payers for responsible management of the costs they ultimately bear.

Inside

Two views on PHARM goal of more cost-

Information is a key to more rational prescribing.

PHARMAC's effective drug use

Denis Tait, PHARMAC's chairman, says that although the rate of increase in the number of scripts is slowing, more people are getting access to the drugs they need.

In the year ended 30 June 1995, some 22 million prescriptions were written in New Zealand for patients requiring medicines and special foods. That is an average of about six scripts for every woman, man and child. The subsidy cost ranges from $22 a year, for the anti-hypertensive bendrofluazide, up to $87,000 a year, for octreotide (Sandostatin) for the treatment of acromegaly. The total cost in the year was $674 million, including GST, or about $30 per prescription.

One view of this information is that it depicts a nation of pill-poppers. A more measured view is that it depicts a normal, western nation taking full advantage of the impressive array of beneficial treatments that international medical technology offers. The gross data is not, however, as instructive as what lies behind it:

- The number of subsidised prescriptions increased last year by seven per cent.

- A significant proportion of the growth is in the management of cardiovascular illness, including such treatments as angiotensin converting enzyme (ACE) inhibitors, calcium channel blockers (CCBs) and, increasingly, lipid modifying drugs.

- A major new area of expenditure growth is in selective serotonin re-uptake inhibitor (SSRI) antidepressants, which are probably being consumed by 1.5 per cent of the population. Other new areas of rising expenditure are in treatments for other disorders of the central nervous system and osteoporosis.

- There are areas, such as epilepsy, herpes, and asthma where many more people are being treated as a result of more liberal access to some drugs.

- Prior to PHARMAC's establishment, the cost to the tax payer of pharmaceuticals was rising by up to 10 per cent a year. It is now rising by about five per cent, or about $30 million a year.

In short, more people received more medicine in the year ended 30 June 1995 than in the year before. In an environment of capped health care budgets, PHARMAC has done well for the health care of New Zealanders. It is an achievement that many countries with health care systems partly- or wholly-funded from the public purse would like to emulate.

Denis Tait
Chairman
30 October 1995

John Hedley, Chairman of the Pharmacology and Therapeutics Advisory Committee (PTAC), says the ethical dilemma is between the needs of individual patients and duty to society.

The work programme for PTAC over the last year has been greater than ever before. The pressures on members have increased in part because of the number of therapeutic group reviews and the conduct of work in a more open environment with a more informed public.

Participation in PTAC or one of its sub-committees is often a salutary experience. At the very least it is instructive. A doctor, whether in specialist or general practice, soon finds that there is a world of difference between:

- making judgements based on years of practice (or bias) to write a script for a patient in need, and
- critically appraising a ten centimetre high stack of literature representing the sum of scientific knowledge about a particular drug.

Despite the imperfections of much of the data, and the divergence of opinions, we usually manage to reach a consensus view about the value of a drug for particular groups of patients. Occasionally, a PTAC member has a dissenting view and this is recorded in the minutes.

The forthcoming year will bring its own challenges. We don't want New Zealanders to regard pharmaceuticals as a lolly scramble. Clear heads are required in making resource allocation decisions of this complexity and substance. It is imperative that practising medical practitioners are involved in this. The ethical dimension needs to be explained and conflicts of interest uncovered.

I feel medical professionals tend to weight heavily the ethical responsibility they have to the individual patient, but of equal importance is the competing duty of care to society and the tax payer. To some extent responsibility is abandoned when resource allocation is left to non medical persons. It's not good enough to vacate the difficult debate and complain after the event.

SIX TYPES OF LISTING

To improve targeting

The Pharmaceutical Schedule provides for six categories of listing:

Listed

Most drugs are in this basic category. They may be prescribed by any qualified medical practitioner, and in some cases by dentists and midwives.

Retail pharmacy-specialist prescription

Prescriptions may be written only by a medical practitioner in the specialist category defined in the Schedule. Any retail pharmacy may dispense.

Retail pharmacy-specialist

Prescriptions may be written by a general practitioner on the recommendation of a specialist. Any retail pharmacy may dispense.

Hospital pharmacy-specialist prescription

Prescriptions may be written only by a medical practitioner in the specialist category defined in the Schedule. Only hospital pharmacies may dispense.

Hospital pharmacy-specialist

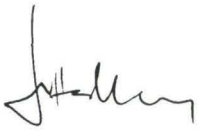
Prescriptions may be written by a general practitioner on the recommendation of a specialist. Any hospital pharmacy may dispense.

Special Authority

A prescription may be subsidised only after approval is obtained from Health Benefits Limited (HBL). This is granted, on the application of a practitioner (usually a specialist), to patients who meet the criteria defined in the Pharmaceutical Schedule. More than 90 per cent of applications are approved within a few days; and HBL is working on further improvements to its processes.

Far better to analyse the ethical dilemma, ensuring all perverse incentives and conflicts of interest are apparent, and to make a recommendation on interim resource allocation in the best interests of all patients. Until we reach that point, our decisions will lack the robust character necessary to argue for increases in resources.

I take this opportunity to thank all the members of PTAC and its sub-committees for their considerable contributions during the year. I also thank Gavin Kellaway for his contribution over many years.



John Hedley
Chairman
Pharmacology and Therapeutics Advisory Committee

PHARMAC's Decision Criteria

Seeking best health value for the pharmaceutical dollar

PHARMAC seeks to operate in an open, transparent and accountable way. Its reviews and changes to the Pharmaceutical Schedule are governed by its Operating Policies and Procedures – a public document developed in consultation with the pharmaceutical industry. The document emphasises the importance of basing decisions on the latest research-based clinical information, and it sets out criteria to be taken into account in decisions about the Schedule. These criteria are:

- the health needs of all New Zealanders,
- the availability and suitability of existing medicines, therapeutic medical devices or related products to meet health needs,
- the clinical benefits, risks and costs of new medicines, therapeutic devices or related products,
- the cost-effectiveness of meeting health needs by purchasing pharmaceutical services rather than by purchasing other health care and disability services,
- the overall budgetary impact of any changes to the Pharmaceutical Schedule,
- the direct cost of pharmaceuticals to users,
- any recommendations on core health and disability services made by the National Advisory Committee on Core Health and Disability Support Services (Core Services Committee), and any other matters that PHARMAC sees fit.

PTAC's Purpose and Structure

Independent, expert evaluation and advice

The primary purpose of the Pharmacology and Therapeutics Advisory Committee (PTAC) is to provide PHARMAC with independent advice on the pharmacological and therapeutic consequences of proposed amendments to the Pharmaceutical Schedule.

PTAC is a committee of medical specialists and general practitioners nominated by such professional bodies as the New Zealand Medical Association, the Royal New Zealand College of General Practitioners, the Royal Australasian College of Physicians, and the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists.

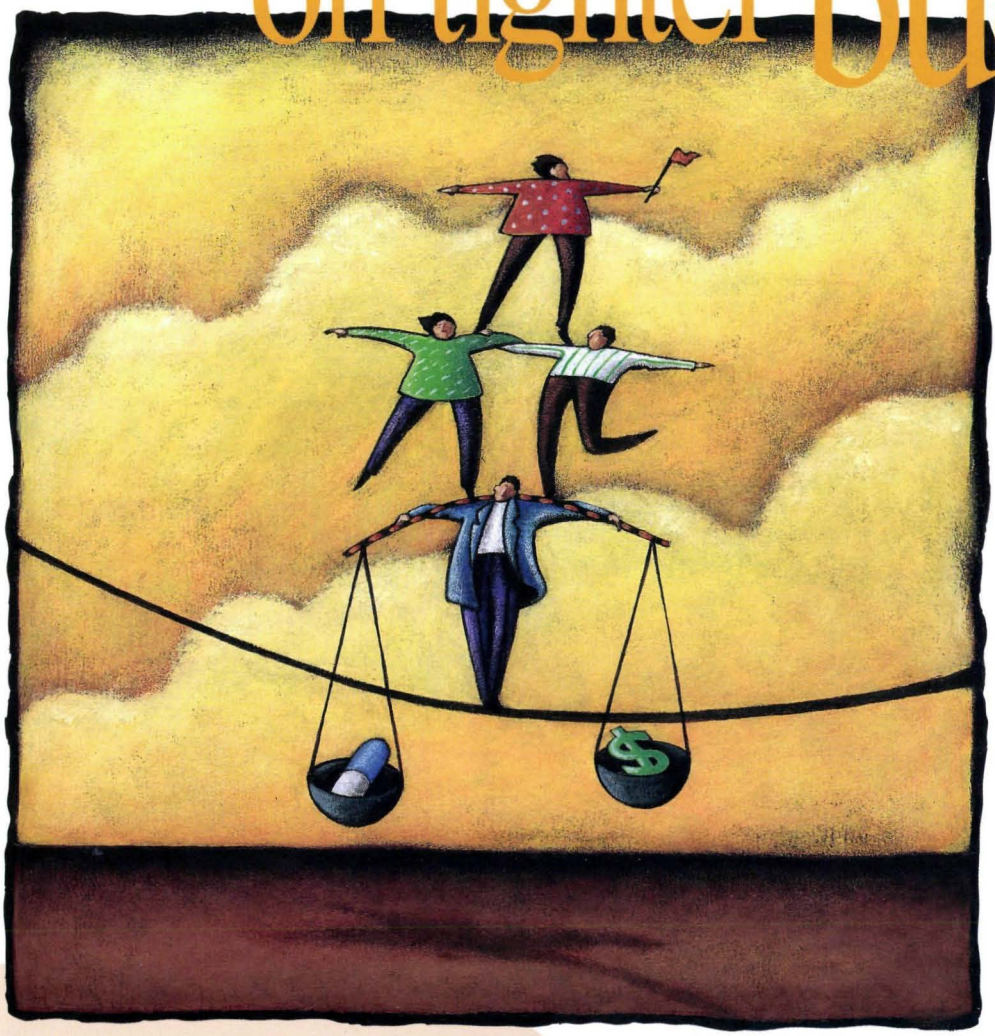
PTAC's work includes considering and making recommendations on the medical implications of:

- All significant applications by drug companies for inclusion on the Schedule, or amendment to it;
- Requests by PHARMAC for de-listing;
- The management of the Schedule; and
- The need for reviews of specific drugs, or groups of drugs.

PTAC's focus is on general medicine, but increasingly it seeks advice from known specialists or experts. It also consults with the Core Services Committee, sets up sub-committees for specific tasks, and sometimes undertakes its own literature searches.

PTAC members and those co-opted to sub-committees are paid an hourly rate plus expenses for attendance at meetings and time spent preparing for meetings. Full meetings of PTAC are usually held in Wellington at least four times a year.

A global issue – meeting patients' needs on tighter budg



Balancing care and cost.

It is ironic that, at a time when medical science is able to tackle human disease more effectively than ever before, health care has become one of the dominant topics on the political and media agenda of many western nations.

We take comfort from growing life expectancy and growing certainty that disease can be treated; but we worry about equity (*"is everybody getting fair and reasonable access"*), morality, and ethics (*"who decides the patient priorities on access to scarce resources?"*) Underlying the debate is concern about cost (*"can we meet the escalating bills"*).

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The following snippets, from international medical media, are illustrative:

- *In the UK*, a health committee of the House of Commons says that, although not a major cause for alarm, continuing escalation of costs in real terms will inevitably put mounting pressure on overall resources, and that there is scope for significant savings in drug expenditure.

- *In Canada*, a review Board conducts price reviews on patented medicines, recommends price guidelines and seeks voluntary compliance by drug companies.

- *In Germany,* legislation has been introduced on reference pricing; and budget reductions have been imposed on doctors.

- *In the Netherlands*, the pharmaceutical industry has sought to forestall legislative action by proposing price cuts to new reference price levels.

- *In Denmark*, a new government proposes to reduce pharmaceutical costs by obligatory generic substitution, and therapeutic substitution by pharmacists.

- *In Italy,* the drug budget is capped and a price-freeze imposed on non-reimbursed drugs pending discussions between the pharmaceutical industry and the government on a "correct policy for drugs and their prices."

- *In France*, the national health insurance agency, concerned at what it believes to be high prescribing levels and at a trend for French doctors to prescribe the more expensive drugs, initiates talks with doctors to see what arrangements can be made to encourage more cost-effective prescribing.

- *In Australia*, cost benefit guidelines and generic substitution have been introduced to control expenditure growth.

Multiple reasons for rising costs

The inexorable rise in the cost of pharmaceuticals is probably due to a combination of the following:

The "free good" phenomenon

A well-demonstrated economic phenomenon is that there is infinite consumer demand for a "free good." For several years, most prescriptions in New Zealand cost the patient nothing. There is anecdotal evidence that during these years (and subsequently, but probably to a lesser extent) doctors over-prescribed and prescribed more expensive medicines rather than lower-cost alternatives (although usually in those days they were not aware of the price).

Users want the best

Given a choice, especially when there is little difference in the price the end-user pays, prescribers and users will, understandably, opt for "the best." One manifestation of this is in the side-effect profile of a drug. A new drug that is known to have fewer side-effects in some patients, is often perceived to have fewer side effects in all or most patients. The result is rising demand for the new "clean" and "best" drug, even though the lower-priced drug used formerly may be adequate for many patients. An example is the use of SSRIs versus the older tricyclic antidepressants that have served us well for years. The international drug companies play to this phenomenon by heavily promoting "new" products, sometimes directly to the consumer. Recently, for example, a treatment for prostate conditions in men was advertised on television and in the press. There is also a continuous stream of experts, usually from overseas, who market their sponsor's wares to user groups and the medical media.

Greater use by aging populations

We know that medical care costs rise significantly among people aged 60 and over and we know that the mean age of the population in most western countries is rising. We might surmise therefore that aging populations are a reason for rising drug costs. Unfortunately, we do not have sufficient reliable data to enable us to quantify the impact of age on the cost spiral compared with the impact of other cost pressures.

The balance of market power

The international drug companies are large, sophisticated in their marketing, occupy a powerful position in research, and are protected by patent laws and regulatory barriers to free trade. The combination of these strengths means that the balance of market power between vendor and purchaser tends to be tilted in the vendor's favour. It means that purchasing agencies such as PHARMAC are often price takers. Although some competition occurs from me-too drugs, significant price competition does not occur until the patent expires.

The drug companies say they need high profit margins on patented medicines to recoup their substantial investment in research and development. However, the position may not always be as the companies say it is. There is no doubt that they seek to recover R&D costs through the price of each new drug, and their success in this is evident in the leading position many of them occupy on the performance tables of the world's share markets.

Drug companies are under pressure to maintain that performance and one consequence of this is industry rationalisation. Merger or takeover examples include: Glaxo and Wellcome, Hoechst, Roussel, and Marion Merrell Dow, Pharmacia and Upjohn, and Roche and Syntex. Where the rationalisation has market dominance as its goal, the outcome is likely to be improved profits for the merger partners, rather than lower prices for pharmaceutical users.

The contentious battleground

"The seemingly unending road to reform arises from the essential complexity of pharmaceuticals as an object of reform. The entire spectrum of social behaviour, in both its desirable and undesirable manifestations, is apparent in and through the domain of drugs; the acquisitiveness yet entrepreneurship of drug firms; the professional arrogance yet altruism of physicians; the self-righteousness yet selflessness of advocacy groups; the isolation yet intellectual integrity of academics; the confusion yet compassion of governments. All these tendencies, because of their inherent contradictions, operate, interact, and ultimately collide in the contentious battleground that is pharmaceuticals."

– From keynote address to a World Health Organisation (WHO) conference in Sydney, October 1995, by Alfredo R A Bengzon, MD, MBA.

New and changing diseases and therapies

The outstanding example of a new disease that has major implications for health costs is AIDS; but cost pressures are also coming from less visible sources. There is now, for example, greater recognition of mental health issues, and in particular depression. There is a growing dynamic between awareness of certain conditions, for example mental illness, the availability of new and helpful drugs and the use of more expensive and more aggressive therapies by prescribers. There are also new treatments emerging for degenerative diseases, such as Alzheimer's and motor neurone disease. The combination of these new, and costly, drugs and an aging population have the potential to cause major cost blow-outs.

Responses to rising costs

The outlook on rising costs is not, however, entirely gloomy. A number of trends seem to be emerging that hold promise for holding back the cost escalation, if not achieving real reductions. They include:

Government and health insurer pressures on price

Governments, government agencies such as PHARMAC, and health insurers are having varying degrees of success in their efforts to restrain the growth in pharmaceutical and health care costs. As these efforts increase, it is likely that new and innovative tools will be developed that improve the delicate balance between health needs and cost. A priority in most of these efforts is better targeting for a better fit between need, outcome and cost. Information technologies will play a growing role in targeting because they improve our ability to acquire, access, analyse and disseminate data.

Growth in availability of me-too or generic drugs

The growing availability of generics and me-too drugs is introducing new competitive pressure on price; but for the reasons outlined above, some of the cost-reduction potential is being lost in perceptions that such drugs are not always "the best."

A trend to cures instead of pills

Chronic disease is a fertile market for the pharmaceutical industry and a major segment of most countries' drug expenditure. At PHARMAC, and in other countries, we are therefore putting more emphasis on disease management and cure; on how best to achieve a given patient outcome, rather than amelioration of the condition. For example, because we know that the bacteria *H. pylori* is closely linked to stomach ulcers, an appropriate long-term strategy for reducing drug costs must be to treat the source rather than the symptoms.

Variations in prescribing behaviour

An issue that casts more gloom than light on any endeavour to balance health needs with cost is the wide variation in the way drugs are prescribed. A recent study by Professor Silvio Garattini of Italy's Mario Negri Pharmacological Research Institute, reported in the international pharmacological newsletter *Scrip*, identified striking anomalies in drug prescribing patterns between the UK, Germany, France and Italy. It found, for example, that only seven drugs appear in the top 50 by value in all four markets. They are acyclovir, captopril, enalapril, nifedipine, ranitidine, omeprazole and simvastatin. Professor Garattini concluded that this was probably due to "fads, cultural differences, and industry pressure" rather than any significant variation in disease patterns. "Despite all the complaints about excessive expenditure on health, at least 20 per cent of the sales of the top 50 drugs in Italy and France, and 12 per cent in Germany, are a waste of money. These three countries would do well to look at the reasons for this to see how they could spend their resources more wisely," he is reported to have said.

Professor Garratini's opinion highlights one of the key issues for the health sector: "How to use pharmaceuticals more effectively, efficiently, and equitably, for the benefit of more people."

We are confident, at PHARMAC, that we have started to achieve precisely that. As we acquire more and better data, develop better tools, and build the confidence of the medical profession and the drug industry that we share a common purpose, the gains should grow.

I also emphasise that I believe New Zealand doctors are now very much more aware of the need to carefully weigh patient needs with costs when prescribing. To this extent, Professor Garratini's view is less relevant to New Zealand than to Europe.

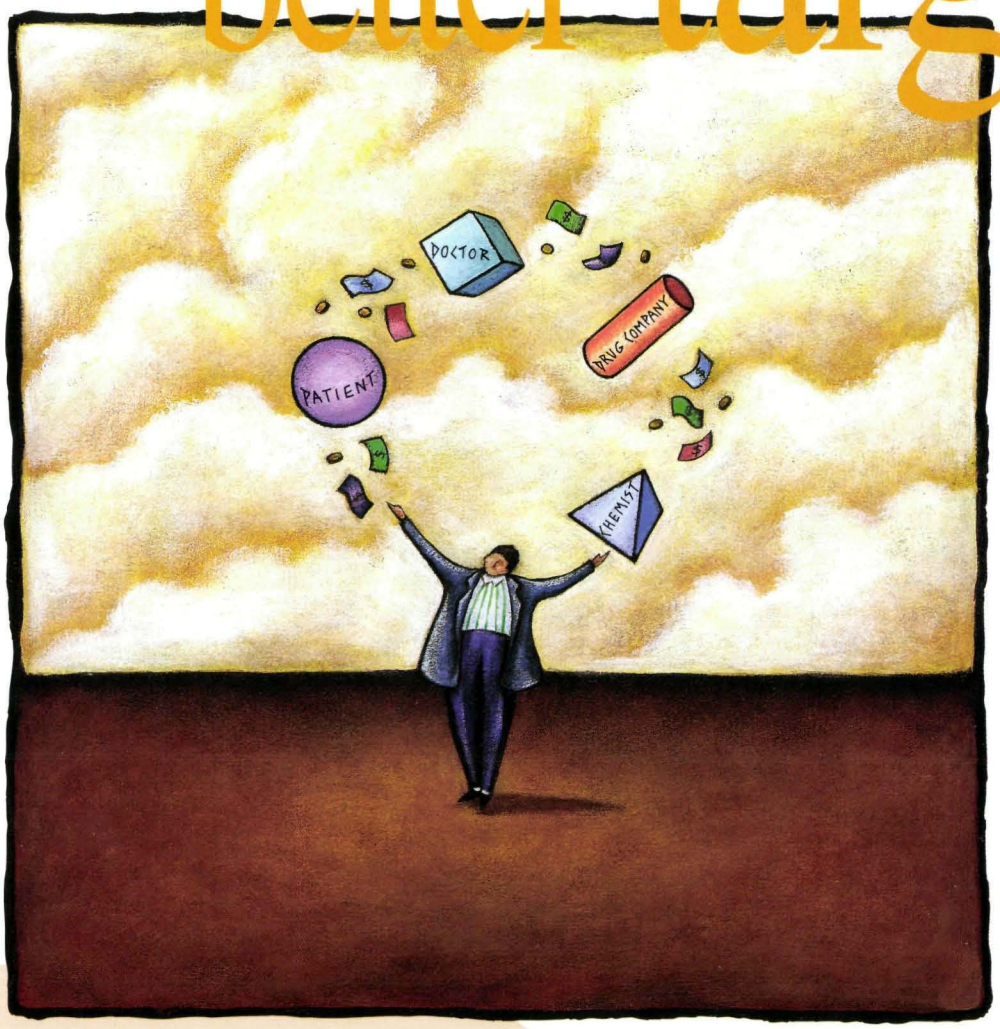
PHARMAC's position

From the outset, PHARMAC's preferred approach has been to work in partnership with medical practitioners, pharmacists and the pharmaceutical industry.

However, there are times when tough decisions have to be made, for example to decline subsidy to a new drug. Typically, this occurs when there is no evidence of improved efficacy over existing, lower-cost alternatives. On the other hand, if there is evidence of improved efficacy for some patients under particular circumstances, then we will make a subsidy available but only with criteria that ensure that the drug is used only by those to whom it will deliver maximum benefit. PHARMAC does not lack compassion. It has a job to do and that job is described, formally, in PHARMAC's statement of medium- and long-term goals: "To optimise pharmaceuticals' contribution to health status relative to other therapies."

David Moore
General Manager

Better access – better target



A review of the steps PHARMAC is taking to improve access to drugs, and encourage more effective use.

The core activity of PHARMAC is review and publication of regular Updates of the Pharmaceutical Schedule. This involves continual assessment of drug performance and cost, usually by reviewing trends within defined groups of drugs (therapeutic group reviews), and by processing applications from drug companies for listing of their products on the Schedule.

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Considerable emphasis is put on consultation, and the need for innovative solutions that either reduce the cost or the rate of growth in cost.

PHARMAC sets its review priorities by taking into account the reports of the Core Services Committee, known patient needs, the size of the therapeutic group relative to total drug usage, and cost trends within that therapeutic group.

The bill for subsidised pharmaceuticals has been growing by up to 10 per cent a year, but as a result of PHARMAC's efforts, this rate has slowed to about five per cent a year. *(See graph one).*

The total drug bill is dominated by cost in four major therapeutic groups. *(See graph two).*

Cardiovascular and blood

Cost trends *(See graph three)*

More than a quarter of the total annual subsidy cost of $161 million in cardiovascular drugs is in angiotensin converting enzyme (ACE) inhibitors. About a fifth is in calcium channel blockers (CCBs). The subsidy cost of both rose by more than 10 per cent over the year. The estimated subsidy cost in the year ahead of lipid modifying agents is $15 million, following a year of 26 per cent growth. If access is widened, an extra $30 million investment may be needed.

Issues

In the 1970s and 1980s, a major investment was made in treating large numbers of patients with expensive anti-hypertensives. With the benefit of hindsight, much of this investment may have been wasted, because considerable opinion now suggests that many could have been successfully treated with less costly drugs.

With the advent of new therapies, for example statins, and in particular simvastatin, PHARMAC is concerned to avoid a repeat of the mistake by ensuring that the new therapies are received only by those patients who will derive significant benefit from them.

Actions

Review of ACE inhibitors. A decision will be made in early 1996 on therapeutic sub-groups. Subsequent reference pricing should result in substantial cost savings.

Review of CCBs. A proposed therapeutic sub-grouping of CCBs has been sent to suppliers for comment prior to PHARMAC establishing reference pricing for these therapies. The committee studying CCB use is concerned that although CCBs are second or third line treatment agents in most situations, expenditure figures indicate that they are often being inappropriately prescribed as first-line treatment.

Listing of diltiazem. Savings of $575,000 a year resulted from negotiations with new suppliers and the application of reference pricing.

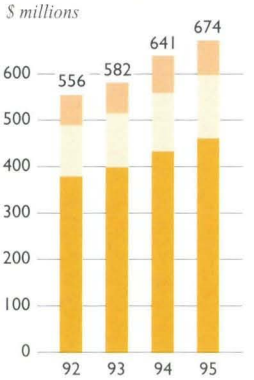
Dipyridamole. A review found that a combination of dipyridamole and aspirin is no more effective than aspirin alone, and resulted in savings of $3.0 million a year. Special criteria for subsidy were established and will be reviewed in the year ahead.

Lipid modifying agents. This priority review was initiated because of: rising costs; a shift in medical opinion about the management of dyslipidaemia; and some evidence that the agents are not being targeted to those people most at risk. Most of the recent growth is in the prescribing of statins, in particular simvastatin. A sub-committee of PTAC has reviewed the clinical literature and PHARMAC is modelling the economic impact of proposed new guidelines.

Graph one

SUBSIDISED DRUG INVESTMENT

Years ended 30 June
$ millions

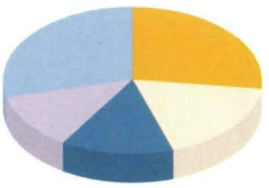


GST.
Estimated distributing margins and dispensing fees.
Cost, net of charges and tax.

Graph two

INVESTMENT BY THERAPEUTIC GROUP

Year ended 30 June 1995

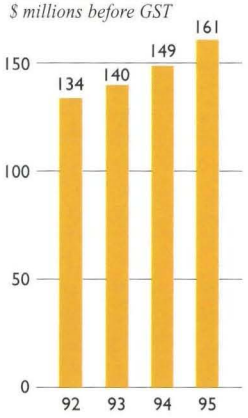


Cardiovascular and blood (27%)
Respiratory tract and allergies (18%)
Alimentary tract and metabolism (14%)
Nervous system (12%)
All other (29%)

Graph three

CARDIOVASCULAR AND BLOOD INVESTMENT

Years ended 30 June
$ millions before GST

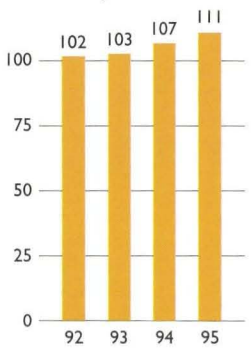


ACE inhibitors and CCBs are contributing significantly to recent growth.

Graph four

RESPIRATORY TRACT AND ALLERGIES INVESTMENT

Years ended 30 June
$ millions before GST



Improved targeting of new therapies should help hold costs.

Respiratory tract and allergies

Cost trends *(See graph four)*

New Zealand's high prevalence and high severity levels of asthma are reflected in the annual cost of respiratory tract and allergy drugs relative to other developed countries. These account for $111 million, or about 18 per cent of the total annual subsidy bill. The two largest areas of cost are in inhaled corticosteroids and bronchodilators.

Issues

Past investment in inhaled corticosteroids has delivered lower mortality rates and improved health to asthma sufferers. PHARMAC's view is that new drugs and therapies should be targeted to those patients with the most severe conditions; and that savings should be sought by encouraging more generics into the inhaled corticosteroid and bronchodilator markets, and through more cost-effective prescribing.

Actions

Asthma review. A review of asthma medications was started in June 1994 and completed in August 1995. This resulted in the establishment of new therapeutic groups based on clinical effects and a new reference pricing structure. In the five cases where product prices were not lowered to the new subsidy levels, fully subsidised alternatives are available. The estimated saving is $2.9 million a year, without compromising patient health.

Asthma spacers. A decision was taken, in advance of completion of the review, to subsidise a spacer device for children under six because there was strong evidence of the effectiveness of such devices in improving child asthma. This decision was widely publicised with the full support of the Asthma Foundation.

New listing. A contract for a new prophylactic, nedocromil (Tilade) was agreed for implementation from August 1995.

Pulmozyme. A decision was taken not to list this drug after PTAC advised that there was little evidence that it offers significant benefit to the cystic fibrosis population as a whole.

New generics were listed in the inhaled corticosteroid and bronchodilator markets with resultant savings of $4.9 million in a full year.

Peak flow meters. Quality standards are now defined and reference pricing introduced.

Nervous system

Cost trends *(See graph five)*

Total expenditure was $72 million, up 16 per cent on the previous year. The largest component of this growth was in the use of the new selective serotonin re-uptake inhibitors (SSRIs), where the current growth rate is about 30 per cent. PHARMAC agreed to meet the rising demand, and by year end, additional expenditure was nearly $5 million.

Issues

Significant trends include: the availability of new drugs for the treatment of depression, epilepsy, schizophrenia, and degenerative diseases; growing public awareness of depression; the adoption by some doctors of more aggressive therapies for the treatment of depression; a commitment by government to give a priority to expenditure on mental health services.

Actions

Antidepressants. Review of antidepressant drugs and the management of mental illness is now in its third year. PHARMAC is looking at prescribing patterns for SSRIs, taking into account evidence that there is some inappropriate prescribing for mild depression and other indications. PHARMAC is also working closely with psychiatrists and GPs in the preparation of prescribing guidelines to increase access.

Clozapine and risperidone. PHARMAC recommended that clozapine, a new drug for use in treatment-resistant schizophrenia, be subsidised through drug-inclusive contracts with providers of mental health services. Under consideration is a subsidy for risperidone, another new treatment for schizophrenia.

Antipsychotics. Patient premiums were removed on some antipsychotics as a result of PHARMAC increasing the subsidy for some drugs in this group and the pharmaceutical supplier reducing the price to match the current subsidy.

New listings. Two new drugs were listed for the treatment of epilepsy – lamotrigine (Lamictal), and vigabatrin (Sabril). The budget for the two has an annual cap and is controlled by prescribers. This is the first use of a novel system aimed at balancing patient needs and restraining cost.

Morphine liquid. Because of the potential for improving quality, it was decided that commercially-prepared morphine liquid should be subsidised by RHAs. The health benefits (stability and quality) should outweigh the increased cost to RHAs.

Alimentary tract and metabolism

Cost trends *(See graph six)*

Total expenditure was $84 million, up two per cent on the previous year. The largest areas of cost are H_2 antagonists which last year cost about $26 million in subsidies and had volume growth of 14 per cent, drugs for the management of diabetes, and proton pump inhibitors (about $8 million, with 53 per cent growth).

Issues

A marked shift appears to be taking place in prescribing patterns, particularly in the use of proton pump inhibitors and H_2 antagonists, for the treatment of gastro-oesophageal reflux disease (GORD). Currently, the guidelines for proton pump inhibitors include inappropriate criteria for access by income. PHARMAC is considering new Special Authority criteria that give access to patients most likely to benefit. Because the role of H. pylori in stomach ulcers is now well understood, a key strategy of PHARMAC is to provide access to treatment to eradicate or reduce the incidence of this bacteria.

Actions

Proton pump inhibitors. Lansoprazole (Zoton) was listed from October 1995 under improved access criteria that do not have income barriers.

H. pylori. PHARMAC called for expressions of interest from suppliers of eradication packs. A sub-committee is considering who should be treated and with what combination of drugs.

Vitamin D derivatives. PTAC is reviewing the efficacy of vitamin D derivatives. Guidelines for the treatment of osteoporosis are being considered.

Vitamin D and E liquids. Access to these preparations was extended to infants and children with liver disease and short gut syndrome.

Special foods. Another annual review was initiated by an advisory committee. This included consultation with paediatricians, dietitians, gastro-enterologists, and other specialists. The committee is considering: new Special Authority criteria to improve targeting, taking greater account of user needs and access; improved distribution; and review of recent applications for subsidy.

Diabetes test strips. A quality review has been commissioned to ensure that only reliable products are subsidised.

Diabetes review. The issues relating to the management of diabetes are being considered and a review is likely to start in the 1995-96 year.

Infections

Cost trends *(See graph seven)*

Total expenditure was $47 million, although growth slowed to 10 per cent in the year – from 20 per cent the previous year. Most of the growth appears to be related to an increase in the use of antibiotics.

Issues

PHARMAC is concerned that the volume of antibacterials prescribed continues to rise when there is no evidence of a change in the prevalence of bacterial infection. A slow-down in growth appears to be due to: a maturing, and therefore more competitive, market for several broad spectrum antibiotics, particularly roxithromycin and ciprofloxacin; no new antibiotics being listed (applications for new cephalosporins and a macrolide were declined because they offered little health gain for significantly increased costs); and the possible impact of prescriber budget holding. The latter appears to be bringing a more critical approach to prescribing. Evidence of this is in the recent increase in the use of phenoxymethylpenicillin and erythromycin.

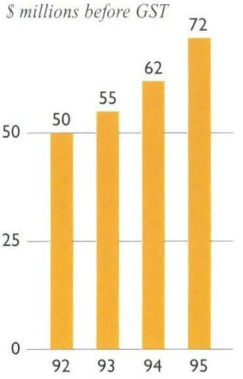
Actions

Antibiotics review. A series of reviews aims to maintain access to newer antibiotics while ensuring that older, cheaper alternatives are used where these will provide a successful cure. A proposed review of the macrolide group of antibiotics is scheduled for completion in December 1995.

Graph five

NERVOUS SYSTEM INVESTMENT

Years ended 30 June
$ millions before GST

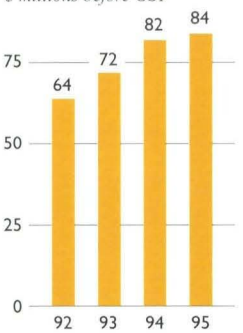


Increased funding is being provided for mental health therapies.

Graph six

ALIMENTARY TRACT AND METABOLISM INVESTMENT

Years ended 30 June
$ millions before GST

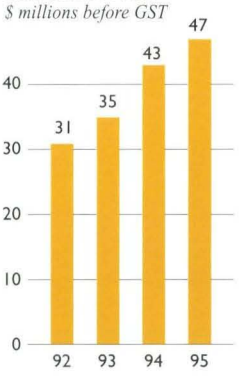


Potential exists for savings from new therapies.

Graph seven

INFECTIONS INVESTMENT

Years ended 30 June
$ millions before GST

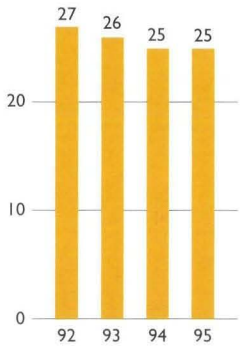


Some evidence of cost slow-down.

Graph eight

MUSCULO-SKELETAL INVESTMENT

Years ended 30 June
$ millions before GST

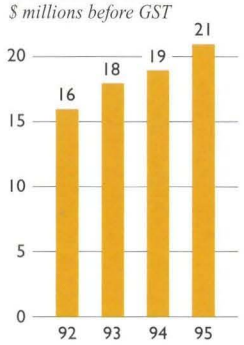


Generic competition has lowered costs.

Graph nine

HORMONE PREPARATIONS INVESTMENT

Years ended 30 June
$ millions before GST



Costs continue to rise.

Antivirals. Following a constructive negotiation with Glaxo-Wellcome, an arrangement was put in place to provide greatly increased access to acyclovir (Zovirax) tablets for the treatment of herpes in exchange for price reductions and a risk-sharing agreement. The result is increased patient access to treatment (40 per cent more volume in the year) without equivalent expenditure growth.

Development of prescribing guidelines. A forum comprising medical specialists, microbiologists, pharmacologists, general practitioners, and PreMeC is considering guidelines for prescribing antibiotics.

Lowered subsidies. Lowering of the subsidy on cefaclor (Ceclor) suspension resulted in potential savings of $550,000 a year; and on minocycline (Minomycin) tablets and capsules, potential savings of $200,000 a year.

Musculo-skeletal

Cost trends *(See graph eight)*

In contrast to most drug groups, current subsidy costs on drugs in this area – mainly nonsteroidal anti-inflammatories (NSAIDs) – are declining mainly due to competition from generics.

Issues

There is growing medical concern about the safety and inappropriate use of NSAIDs.

Actions

NSAID review. PHARMAC is seeking to establish new therapeutic sub-groups for reference pricing. The review is helped by a sub-committee comprising a sports medicine specialist, rheumatologist, a GP and other specialists. A recommendation on reference pricing is expected to go the board by early 1996. The sub-committee will then develop guidelines for the most appropriate use of NSAIDs to minimise medical risks.

Rheumatoid arthritis. PHARMAC is considering an application for the use of cyclosporin.

Hormone preparations

Cost trends *(See graph nine)*

Total expenditure on drugs in this area in the year was $21 million. The trend is for an annual increase of about $2 million.

Actions

Hormone replacement therapy (HRT) review. This priority review of hormones for the reduction of cardiovascular risk and osteoporosis in post-menopausal women started after the end of the year in response to a Core Services Committee report. A sub-committee of PTAC, comprising specialist clinicians, is evaluating all evidence and submissions in conjunction with the Core Services Committee's findings. An area of special attention is the use of transdermal treatments. The Core Services Committee said this was an expensive form of treatment at more than double the cost of oral oestrogen with no known advantage over oral oestrogen except for women with specific medical conditions such as significant liver disease.

New listing. A new listing was approved from July 1995 for leuprorelin (Lucrin) for the treatment of prostate cancer under Special Authority.

Other

Dermatologicals. Daivonex cream was listed at a price that enables the premium to be removed, thus easing access for psoriasis patients.

Oncology agents and immunosuppressants. Restrictions on interferon were amended to improve targeting.

Genito urinary. Price negotiations with suppliers led to savings of several hundred thousand dollars in subsidy costs. A priority for 1995-96 is to review the premiums on oral contraceptives.

THREE STRATEGIES FOR BALANCING HEALTH NEED AND COST

PHARMAC employs three strategies to balance patient needs and costs.

Price competition

Price competition is achieved mainly through *reference pricing*. This involves classifying pharmaceuticals into therapeutic groups and further into sub-groups. A therapeutic group is a set of pharmaceuticals used to treat the same or similar conditions. A sub-group is a set of pharmaceuticals that produce the same or similar therapeutic effect in treating the same or similar conditions.

For example, ulcer healing agents form a therapeutic group, while H_2 antagonists form a sub-group. This sub-group comprises cimetidine, ranitidine, famotidine and nizatidine. The subsidy for each is equivalent to the price of the least expensive brand of H_2 antagonist available.

Reference pricing is highly effective and is one of PHARMAC's most powerful tools. It reduces market segmentation based on brand marketing, which previously allowed suppliers to establish markets that were free from price competition.

Improved targeting

Some pharmaceuticals are more expensive than alternative treatments. Often they are slightly more effective than alternative treatments for many patients, perhaps because of better side effect profiles. Sometimes, they are much more effective for some patients than alternative treatments, for example the new anti-epileptic drugs.

One approach to such drugs is to develop, and widely disseminate, prescribing guidelines. These guidelines are drawn in cooperation with the relevant medical specialists and their professional colleges, and user groups. With acyclovir, for example, the Herpes Foundation was consulted, and the final guidelines were published in the Pharmaceutical Schedule, and the newsletters of the supplier company and the Foundation. With lamotrigine (Sabril) and vigabatrin (Lamictal), new anti-epileptic drugs, patients get access but the financial risk is managed through a capped budget and clear guidelines. For patients who do not show benefit, the therapy is discontinued.

Risk sharing

- *Price/volume contracts* between PHARMAC and the supplier recognise that rising volume invariably results in lower marginal costs for the supplier. Typically, the contract will be at a fixed (or diminishing) price for a fixed (or increasing volume). Many generics are in this category.
- *Average daily dose contracts* shift the risk of increasing dosages of a drug to the supplier. An example of such a contract was with paroxetine hydrochloride (Aropax). A contract was negotiated with the supplier that tied the subsidy at an average daily cost that, in this instance, also corresponded to an agreed average daily dose of 20mg. The supplier gave a rebate when the average daily dose was exceeded.
- *Capped maximum annual contracts.* Under these contracts, PHARMAC pays a maximum annual fee for patient and prescriber access to a drug regardless of the volume prescribed or the number of patients requiring treatment. It provides a good balance between incentives for doctors who want to prescribe the best drug for their patients, and suppliers who want to market enough volume to reach the maximum annual fee at a given price, but no more. An example is acyclovir (Zovirax), where subsidy expenditure is fixed for five years at a fixed growth rate, restrictions on lower-strength doses have been removed to allow dispensing from pharmacies, and prescribing guidelines introduced.

The operations of PHARMAC

PHARMAC considered a number of important policy issues during the year and continued its efforts to improve quality and efficiency.

Policy issues

Compassionate supply

Guidelines have been developed, and are being discussed with pharmaceutical companies, on the complimentary supply of new, unlisted, drugs. This is an important ethical issue because there can be problems when a supplier withdraws the complimentary supply. The Researched Medicines Industry Association of NZ Inc has been invited to adopt the guidelines. Meanwhile PHARMAC has had a positive response from some companies.

Expensive medicines

A process was developed for accurate assessment of need and equitable access by patients to drugs classified as "very expensive" (more than $25,000 a year per patient). This involves specialists, PTAC and the RHAs. Outcomes will be improved targeting and consistency of access across RHAs.

Exceptional circumstances

A policy was developed with RHAs for enabling access to a subsidy for drugs on a case-by-case basis where there is a proven need and the circumstances are exceptional.

Hospital drugs

Drugs for the treatment of diseases managed largely by Crown Health Enterprises (CHEs) are not part of PHARMAC's brief. These include paclitaxel and G-CSF (Neupogen). PHARMAC has supported hospital pharmacists in efforts to encourage information transfer between CHE medical committees.

Specialist recommendation

To overcome a lack of clarity in Retail Pharmacy-Specialist and Hospital Pharmacy-Specialist prescribing, PHARMAC introduced clearer definitions of what constitutes a specialist consultation, along with more precise rules and procedures.

Prescribing rights for non-specialists

A policy was developed with RHAs to provide access by doctors with special skills to specialist drugs. The appropriate drugs will be defined by PTAC and the RHAs are developing decision criteria on which practitioners should be included. Doctors in palliative care may be eligible shortly.

Applications for listing

PHARMAC considered 79 applications, listed 54, declined 20 and de-listed one. Four were withdrawn by suppliers.

Applications considered and decided

Years ended 30 June

Number	1995	1994
Total applications	**79**	**72**
Listed	**54**	52
Declined	**20**	20
Withdrawn	**4**	0
De-listed	**1**	0

Two thirds of applications resulted in listing on the Pharmaceutical Schedule.

Application decisions by type

Years ended 30 June

Number	1995	1994
Chemical not currently listed	**11**	25
De-restriction or easing of restriction	**5**	7
Presentation (line extension)	**21**	17
Significant price increase	**8**	1
Generic or new brand name	**34**	22

Nearly half of all applications in 1995 were for generics.

Pharmaceutical Schedule

The Schedule was re-printed three times during the year, and 12 monthly Updates distributed. The readability and accessibility of the Schedule will be further improved and the quality of information enhanced by the inclusion of average daily cost data from December 1995. The Schedule is distributed free to about 10,000 medical practitioners, pharmacists, medical libraries, professional bodies, and user and support groups, and offered for sale to a small subscription list, including drug suppliers.

Financial impact of PHARMAC decisions

PHARMAC decisions resulted in RHAs spending more than $25 million in the year less on pharmaceutical benefits than would have been spent if past trends continued. The reduction came mainly from encouraging price competition, and by reviewing the terms and conditions of subsidy of products already on the Schedule. Details by type of product are:

Cumulative annual savings by decision type

Estimates for years ended 30 June, before GST.

Number	1995	1994
New chemicals	**$500,000**	($200,000)
New presentations	**$500,000**	$100,000
New products	**$19,000,000**	$1,200,000
Reviews	**$5,300,000**	$1,100,000
Total saving	**$25,300,000**	$2,200,000

Most savings came from the introduction of price competition resulting from the listing of new products.

Streamlining the processes

A goal of PHARMAC is to streamline its decision and review processes. These processes include formal quality control procedures for decision papers presented to the PHARMAC Board, the main requirements being that appropriate consultation takes place and that sufficient time is available for papers to be peer-reviewed. Other requirements are that papers be signed off by managers, that there be written confirmation of consultation, advice to RHAs of Board agendas at least a month prior to meetings, and distribution of full agendas to RHAs, whenever possible, at least a week prior to meetings.

Widespread consultation

In taking decisions on the Schedule, PHARMAC seeks medical and commercial data and views relevant to the drug or drug family under review. This includes release of the views of PTAC to doctor groups and drug companies with invitations to comment; and a process through which the applicant is given an opportunity to comment both on the recommendation of PTAC and the proposed decision of PHARMAC.

Open communication

PHARMAC believes that a free, fair and open flow of information will play a vital role in the balancing of health needs and costs.

Newsletters are usually enclosed with the mailing of Updates to the Schedule. These provide information on the outcomes of reviews, new drugs listed, changes to prescribing guidelines, the lifting of restrictions on prescribing, and product price and subsidy changes.

Complementing the newsletters are contributions to specialist publications such as *GP Weekly, the New Zealand Medical Journal, Pharmacy Today*, patient magazines, and releases to the daily media where the information is of widespread interest, as for example, with the decision to subsidise asthma spacers for young children.

PHARMAC also seeks open dialogue with all participants in the health care industry. In the last year, it attended the annual conference of the New Zealand Hospital Pharmacists' Association, and met regularly with prescriber groups such as the New Zealand Medical Association, Royal New Zealand College of General Practitioners, the New Zealand General Practioners' Association, the Paediatric Society, diabetes specialists, groups of nurse educators, specialist care-givers, nurses and prescribers, patient support groups such as the Asthma Foundation, Herpes Foundation, and the Mental Health Coalition, and many others.

PHARMAC's relationships with the pharmaceutical supply industry were sometimes difficult, notwithstanding a desire on PHARMAC's part for dialogue and negotiation in pursuit of win-win type solutions. With some companies, the relationship was more constructive than with others.

Personnel and training

To ensure quality output at optimum efficiency, training is a priority. A workshop was held with PTAC to improve skills in critical appraisal of medical literature (a core skill in the assessment of pharmaceuticals), and a number of staff continued post-graduate education. All staff attended training sessions with the Ombudsman's Office on PHARMAC's responsibilities under the Official Information Act. Several staff attended short courses to update their computer and other technical skills, and all therapeutic group managers were trained in the principles of judicial review and procedural law.

Litigation

In June 1995, the Researched Medicines Industry Association of NZ Incorporated (RMI) and three pharmaceutical manufacturing and distributing companies, associated as the Independent Pharmaceutical Manufacturers Association, filed a claim with the High Court against PHARMAC and the four RHAs. The claim seeks relief on a variety of grounds for alleged actions by PHARMAC in contravention of various statutes and regulations. PHARMAC believes the claim has no merit and intends to vigorously defend it.

PHARMAC has also filed claims against the RMI and Adis International Limited for alleged publication of misleading information and contempt; and it is challenging applications for patent extensions for ranitidine (Zantac) and omeprazole (Losec).

Financial performance

PHARMAC completed the year slightly over budget, despite incurring significant un-budgeted legal costs. The following is a breakdown of costs.

The annual cost of PHARMAC

Years ended 30 June

	1995	1994
Staff costs *(includes Director's and professional fees)*	**804,000**	665,000
Office costs *(includes depreciation*, rent, phones, library, purchase of data)*	**575,000**	563,000
Consulting services *(includes legal, PTAC, PR, general consulting, audit fees, HRM and accounting)*	**1,047,000**	532,000
Schedule production *(printing and postage only)*	**260,000**	217,000
Total cost	**$2,686,000**	$1,977,000

** At balance date, PHARMAC's fixed assets comprised $229,000 of office and computer equipment, furniture and fittings.*

The major item of expenditure in 1995 was in fees paid for advice on medical, pharmacological, legal and communications issues.

Drug groups by subsidy cost

British National Formulary classification *Year ended 30 June 1995*	Cost before GST in year	Proportion of total cost
Antihypertensive drugs	$57,100,000	9.50%
Corticosteroids – respiratory system	$56,500,000	9.40%
Nitrates and other vasodilators, and calcium channel blockers	$45,100,000	7.50%
Antibacterial drugs	$38,800,000	6.50%
Ulcer-healing drugs	$34,800,000	5.80%
Bronchodilators	$33,000,000	5.50%
Antidepressant drugs	$23,100,000	3.80%
Drugs used in rheumatic diseases and gout	$21,900,000	3.70%
Beta-adrenoceptor blocking drugs	$21,300,000	3.60%
Analgesics	$18,900,000	3.20%
Drugs used in diabetes	$15,100,000	2.50%
Contraceptives	$14,800,000	2.50%
Drugs used in the treatment of hyperlipidaemia	$13,000,000	2.20%
Sex hormones	$11,500,000	1.90%
Drugs acting on the nose	$10,100,000	1.70%
Topical corticosteroids	$9,200,000	1.50%
Monitoring and diagnostic agents (blood plasma or sera)	$9,100,000	1.50%
Antiepileptics	$9,100,000	1.50%
Anti-infective skin preparations	$8,900,000	1.50%
Drugs used in Parkinsonism and related disorders	$8,900,000	1.50%
Drugs affecting the immune response	$8,500,000	1.40%
Prophylaxis of asthma	$8,100,000	1.40%
Sex hormones and antagonists in malignant disease	$7,000,000	1.20%
Preparations for acne	$6,700,000	1.10%
Laxatives	$6,000,000	1.00%
Drugs used in psychoses and related disorders	$5,900,000	1.00%
Antiviral drugs	$5,800,000	1.00%
Diuretics	$4,900,000	0.80%
Hypothalamic and pituitary hormones and anti-oestrogens	$4,400,000	0.70%
Treatment of chronic diarrhoeas	$4,300,000	0.70%
Treatment of glaucoma	$4,200,000	0.70%
Vitamins	$4,100,000	0.70%
Anti-arrhythmic drugs	$3,600,000	0.60%
Hypnotics and anxiolytics	$3,300,000	0.60%
Corticosteroids – endocrine system	$3,200,000	0.50%
Foods for special diets and nutritional support	$2,900,000	0.50%
Drugs used in other musculoskeletal disorders	$2,900,000	0.50%
Allergic disorders	$2,800,000	0.50%
Drugs used in anaemias	$2,600,000	0.40%
Emollient and barrier preparations	$2,300,000	0.40%
Antacids	$2,300,000	0.40%
Antifungal drugs	$2,300,000	0.40%
Drugs used in nausea and vertigo	$2,200,000	0.40%
Minerals	$2,000,000	0.30%
Preparations for psoriasis and eczema	$1,900,000	0.30%
Treatment of vaginal and vulval conditions	$1,700,000	0.30%
Drugs affecting intestinal secretions	$1,700,000	0.30%
Electrolyte and water replacement	$1,600,000	0.30%
Antiplatelet drugs	$1,600,000	0.30%
Rectal and colonic drugs	$1,600,000	0.30%
Other drugs	$27,900,000	4.70%
GST	$74,900,000	
Total cost in year including GST	**$674,100,000**	

Top 30 drug groups by increase in subsidy cost

British National Formulary classification *Year ended 30 June 1995*	Cost increase before GST in year	Proportion of total cost	Proportion of total cost increase
Antihypertensive drugs	$6,700,000	9.50%	22.40%
Antidepressant drugs	$5,000,000	3.80%	16.90%
Nitrates and other vasodilators, and calcium channel blockers	$3,300,000	7.50%	11.20%
Drugs used in the treatment of hyperlipidaemia	$2,700,000	2.20%	9.10%
Analgesics	$2,600,000	3.20%	8.80%
Antibacterial drugs	$2,600,000	6.50%	8.80%
Corticosteroids – respiratory system	$2,000,000	9.40%	6.80%
Antiviral drugs	$1,600,000	1.00%	5.30%
Bronchodilators	$1,600,000	5.50%	5.30%
Sex hormones	$1,600,000	1.90%	5.30%
Drugs used in diabetes	$1,400,000	2.50%	4.60%
Antiepileptics	$1,300,000	1.50%	4.20%
Anti-infective skin preparations	$1,100,000	1.50%	3.80%
Topical corticosteroids	$930,000	1.50%	3.10%
Monitoring and diagnostic agents (blood plasma or sera)	$880,000	1.50%	3.00%
Preparations for acne	$880,000	1.10%	3.00%
Vitamins	$840,000	0.70%	2.80%
Treatment of chronic diarrhoeas	$750,000	0.70%	2.50%
Beta-adrenoceptor blocking drugs	$720,000	3.60%	2.40%
Drugs affecting the immune response	$580,000	1.40%	2.00%
Sex hormones and antagonists in malignant disease	$500,000	1.20%	1.70%
Drugs used in anaemias	$470,000	0.40%	1.60%
Laxatives	$440,000	1.00%	1.50%
Allergic disorders	$300,000	0.50%	1.00%
Anti-arrhythmic drugs	$290,000	0.60%	1.00%
Drugs used in psychoses and related disorders	$270,000	1.00%	0.90%
Antifungal drugs	$260,000	0.40%	0.90%
Corticosteroids – endocrine system	$260,000	0.50%	0.90%
Foods for special diets and nutritional support	$260,000	0.50%	0.90%
Minerals	$200,000	0.30%	0.70%
Other increases	$3,100,000	12.51%	10.40%
Decreases	$15,600,000	14.49%	
Net increase	$29,700,000		
GST	$3,700,000		
Total increase in cost in year including GST	**$33,400,000**		

Directory

The PHARMAC Board

J D (Denis) Tait, *Independent Chairman.*

M K (Murray) Burns, BCA (Hons), *Chief Executive, Central RHA.*

G D (Graeme) Edmond, BCA (Hons), *Chief Executive Midland RHA.*

V J (Victor) Klap, BEcon, MBA, *Chief Executive, Southern RHA.*

G M (Garry) Wilson, BCA, BSc, DPA, FNZIM, *Chief Executive, North Health.*

The Pharmacology and Therapeutics Advisory Committee (PTAC)

John Hedley
MBChB, FRACP, FACCP, Member Thoracic, Cardiac and Gastroenterology societies of Australia and New Zealand, Chairman. Nominated by Royal Australasian College of Physicians.

Barry Bruns
MBChB, Dip Obst, MRACP, MRCP, FRACP, FRCP. Nominated by Royal Australasian College of Physicians.

Bruce Foggo
MBChB, Dip Obst, FRNZCGP. Nominated by Royal New Zealand College of General Practitioners.

Gavin Kellaway, CBE
MBChB, MD, FRACP, FRCP(Edin), FRCP(Lond). Retired during year.

Keith Humphries
MBChB, MRNZCGP. Nominated by New Zealand Medical Association.

Sharon Kletchko
BMS, MD, FRCPSC, FRACP. Nominated by Regional Health Authorities.

Tim Maling
BSc, MBChB, MRCP, FRACP, FRCP, MD. Nominated by Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists.

Peter Pillans
MBBCh, MD, FCP, FRACP. Nominated by Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists.

Les Toop
MBChB, MRCGP, FRNZCGP. Nominated by the Royal New Zealand College of General Practitioners.

PTAC sub-committees

ACE INHIBITORS
Barry Bruns (PTAC)
John Hedley (PTAC).
Tim Maling (PTAC).
Les Toop (PTAC)

ANTIBIOTICS
John Hedley (PTAC).
Keith Humphries (PTAC).
Tim Maling (PTAC).
Les Toop (PTAC).

ASTHMA
Innes Asher, paedeatrician.
Carl Burgess, pharmacologist.
Julian Crane, respiratory physician.
John Hedley (PTAC).
Les Toop (PTAC).
Ian Town, respiratory physician

CALCIUM CHANNEL BLOCKERS
Ron Easthope, cardiologist.
Bruce Foggo (PTAC).
John Hedley (PTAC).
Peter Pillans (PTAC).

HORMONE REPLACEMENT THERAPY
John Hutton, obstetrician and gynaecologist, professor.
Sharon Kletchko (PTAC).
Les Toop (PTAC).

H. PYLORI ERADICATION
Gil Barbezat, gastro-enterologist, professor of medicine.
Alan Fraser, gastro-enterologist.
Ian Griffiths, general practitioner.
Nigel Stace, gastro-enterologist, senior lecturer.
Barry Bruns (PTAC).

LIPIDS
Sir John Scott, professor of medicine.
Russell Scott, endocrinologist.
Boyd Swinburn, Medical Director, National Heart Foundation.
John Hedley (PTAC).
Keith Humphries (PTAC).

NSAIDS
Dave Gerrard, sports medicine specialist.
Gavin Kellaway, professor *(retired from committee during the year).*
Paul Trolove, rheumatologist.
Jon Wilcox, general practitioner.
Barry Bruns (PTAC).
Sharon Kletchko (PTAC).
Peter Moller, rheumatologist *(advisor).*
John Petrie, rheumatologist *(advisor, appointed since year end).*

PROTON PUMP INHIBITOR GUIDELINES
Gil Barbezat, gastro-enterologist, professor of medicine.
Mark Lane, gastro-enterologist.
Bruce Foggo (PTAC).
John Hedley (PTAC).
Peter Pillans (PTAC).

The PHARMAC team

David Moore, MCom, Dip Health Econ, *General Manager.*
Win Bennett, BMedSci, MBChB, MRNZCGP, *Medical Director.*
John Geering, BA, BSc, *information systems.*
James Harris, BSc (Hons), *analyst, company secretary.*
Lenore Jansen, BPharm, MPS, *therapeutic group manager.*
Kyle Jones, BA, BSc (Hons), *analyst.*
Jan McCombie, RCpN, *therapeutic group manager.*
Wayne McNee, BPharm, MPS, *therapeutic group manager.*
Scott Metcalfe, MBChB, DComH, FAFPHM, *epidemiologist/public health physician (on contract).*
Reinhard Pauls, PhD, *Manager Research and Analysis.*
Loryn Scanlan, Dip Pharm, MPS, *therapeutic group manager.*
Peter Sharplin, MSocSc, *analyst.*
Ailsa Surman, MSc, *therapeutic group assistant.*
Linda Whatmough, *office manager.*
Michelle McGuire, *office assistant/receptionist.*

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