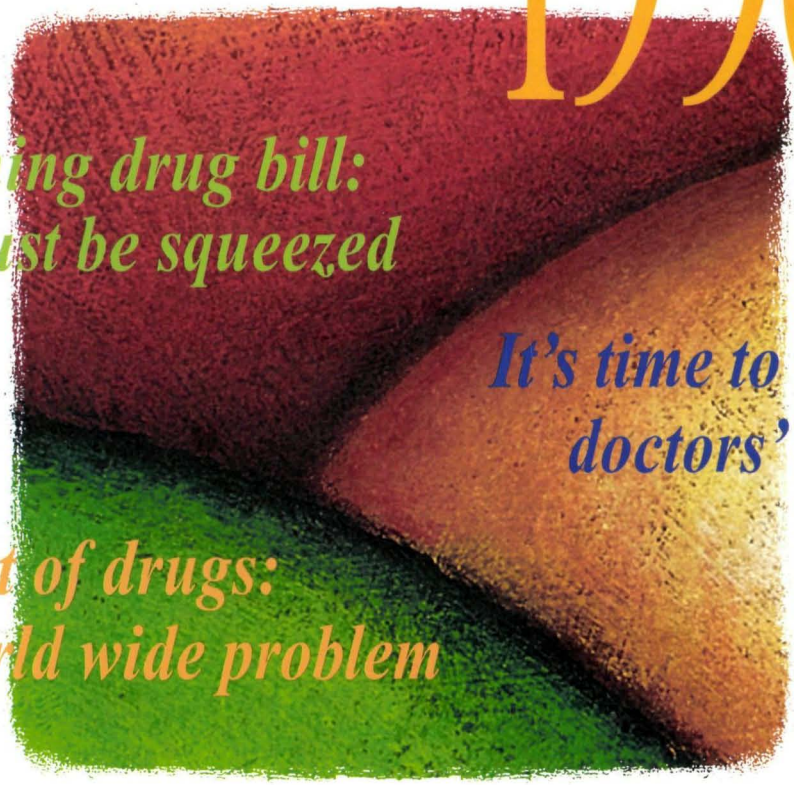
PHARMAC

Pharmaceutical Management Agency Ltd

Annual Review

for the year ended 30 June

1996



The ballooning drug bill: why it must be squeezed

It's time to dust off doctors' ethics

The cost of drugs: a world wide problem

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 company owned equally by the RHAs.*

The Schedule is a list, updated monthly and reprinted three times a year, of almost 3,000 subsidised prescription drugs 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

In this publication:

- *"Year" means years ending 30 June. For example: "this year" means the year ended 30 June 1996.; "last year" means the year ended 30 June 1995, "next year" means the year ended 30 June 1997.*
- *The word "drug" is generally used instead of the more cumbersome "pharmaceutical" or "medicine;" "doctor" is generally used instead of "physician," or "medical practitioner;" and "health professional" is used to describe all people engaged in health and patient care.*
- *Specific drugs are described by chemical entity with brand names in brackets where relevant; for example "lansoprazole (Zoton)."*
- *Unless otherwise stated all values are in New Zealand dollars. The exchange rate at 30 June 1996 was approximately NZ$1.00 = US$0.68*

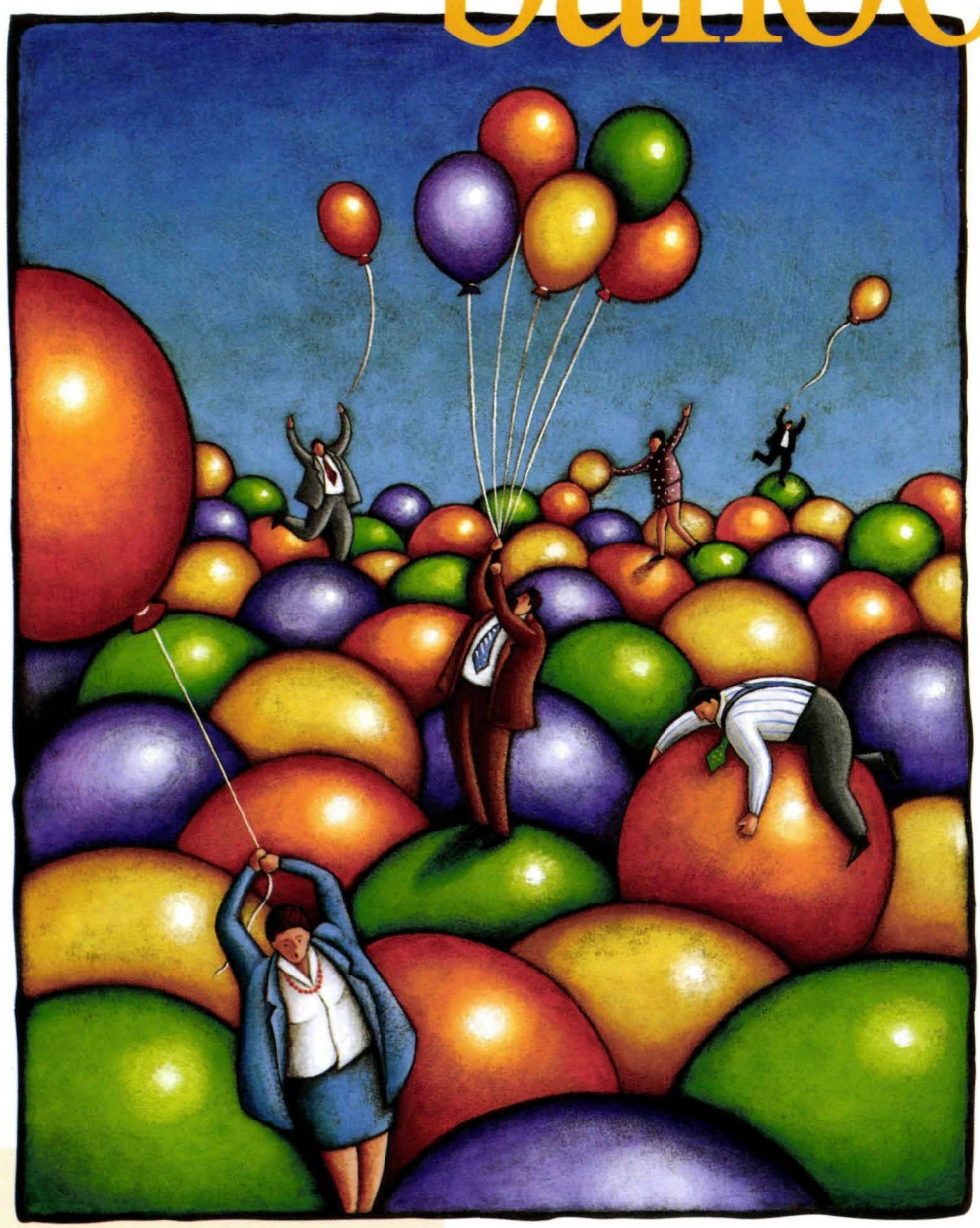
Sources of material:

The commentaries on pages 2 to 13 were written in July 1996 and are derived from numerous sources including:

- *the international pharmaceutical industry newsletter Scrip and its companion magazine – June 1995 to May 1996,*
- *clippings and transcripts from daily and periodical, consumer and specialist, New Zealand media on pharmaceutical topics over roughly the same period,*
- *the output of a library search of international data bases,*
- *and the seven most recent issues of the Journal of Medical Ethics.*

Fully-referenced and footnoted versions of each of these commentaries is available on word processor file from PHARMAC on request.

Why we must address the balloon



There's no value in squeezing cost, if it blows out elsewhere.

Denis Tait, PHARMAC's chairman, says we continue to use more drugs though the added health benefit from this extra volume is questionable. He urges more rigorous debate on how to get the greatest value from a finite resource.

ing cost

When PHARMAC was set up in 1993, New Zealand's drug subsidy bill was growing at around 10 per cent a year – or doubling about every seven years. This growth rate was similar to many other countries. Yet only a brave observer would say that the health benefit was doubling at the same rate. Our brief was to manage this ballooning cost and diminishing marginal benefit to the point where we are getting value for money.

Significant gains

In three years, we have made significant gains including:

- Improved access and wider choice through subsidies and de-restrictions on more than 200 drugs. These include antivirals for the treatment of genital herpes and AIDS/HIV, drugs for the treatment of stomach ailments, and new anticonvulsants.

- Cost savings of about $48 million with at least that amount to come in each of the next two years, thus freeing funds for reinvestment in better access and wider choice of health interventions *(see graph one, page 4)*.

- Substantial reductions in the risk of growth from, for example, caps on volume growth (acyclovir); limits on dosage creep (the proton pump inhibitor, lansoprazole); and the management of technological change (cfc-free salbutamol inhalers).

- More robust assessment systems, improved consultation on strategies for greater cost-efficiency, and the setting of explicit priorities.

Each dollar of the $4.6 million we spent this year managing a budget of $694 million yielded about $10 in savings. By 1998 we forecast this to increase to about $16. In addition, we have hauled back the growth so that the subsidy bill would double about every 10 to 12 years. Even this growth rate, however, may be unsustainable long-term, and we continue to have doubts that the extra cost each year is delivering an equivalent extra benefit in treatment outcomes.

Volume keeps growing

Analysis of trends in the price of subsidised drugs, prescription volume, prescription mix, and total subsidy cost over five years *(see graph two, page 4)* reveals a disturbing trend: the subsidy index is moving down, almost entirely as a result of PHARMAC's efforts, but the total cost is rising steadily. This data highlights the problem we face – that the volume of drugs consumed is rising faster than the price is falling. Two of the more spectacular examples are illustrative:

- In 1992 we consumed 6.4 tonnes of amoxycillin with clavulanic acid tablets, an antibiotic. This year consumption was 9.8 tonnes – an increase of over 50 per cent. The daily cost of amoxycillin with clavulanic acid is about $2.20. Many conditions, in our view, can be treated as effectively with amoxycillin alone at a daily cost of about $1.80 – or 18 per cent less.

- In 1992 we consumed 190 kilograms of 5mg, 10mg, and 20mg enalapril tablets, for the treatment of cardiovascular conditions. This year consumption was 270 kilograms – an increase of 42 per cent. Enalapril costs about $471 a year. Many conditions, in our view, can be treated as effectively with bendrofluazide for about $21 a year.

Volume growth is also reflected in the number of prescriptions – presently about 21.5 million a year. Between 1992 and 1995, annual growth averaged just under five per cent on a trend line that was rising to about seven per cent.

As we acquire more and better data we may better understand the reasons for volume and cost growth. Given that there does not appear to be any strong correlation between volume and average patient age, as is often assumed, we might consider two other possibilities: that doctors are being influenced by drug company promotions of new (and usually more expensive) drugs, and that demand is also being pulled up by a growing volume of marketing through television and print direct to the consumer, such as with Proscar for prostate conditions, Caverject for impotence, the H_2 antagonist Pepcid, and Cataflam and Nurofen for pain relief.

The decision pipeline

If all the applications now in the pipeline, or expected, are approved, the RHAs would eventually need to find an extra $100 to $200 million a year – beyond our forecast cost increases, and after taking into account the effects of substitution and savings from reference pricing. The effect could be to blow out the annual growth rate in costs.

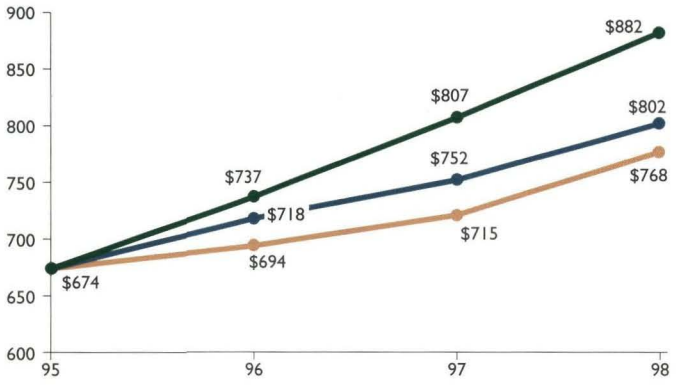
How we make choices

Our assessments tell us that the therapeutic benefit from some newer more expensive drugs is often little different from that of the drugs they replace, or that they are effective only for certain conditions. In these situations, our approach includes restricting access to those conditions where the new drug will clearly deliver therapeutic benefit. On the other

Graph one

EFFECT OF PHARMAC INTERVENTIONS

Total subsidised, non-CHE-funded, drug cost in $ millions for 30 June years.

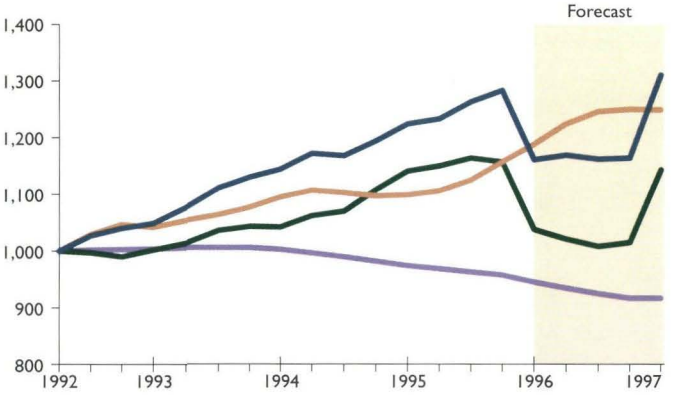


Estimated expenditure without PHARMAC interventions.
Actual and forecast expenditure with PHARMAC interventions only.
Actual and forecast expenditure with PHARMAC interventions and monthly dispensing.

Graph two

SUBSIDY, VOLUME, MIX AND COST INDICES

Four-quarterly moving averages; years end 30 June.
Base: June – Sept quarter 1992 = 1,000.



***Cost index** is the drug cost to RHAs ex manufacturer before GST.*
***Volume index** is the number of prescriptions multiplied by a standardised measure of the amount prescribed per prescription.*
***Mix index** is the residual from cost index divided by (volume index X subsidy index).*
***Subsidy index** is like the consumers price index but for subsidised pharmaceuticals only.*
***Forecast** is based on extrapolating previous years' changes and incorporating the estimated impact of monthly dispensing on future volume growth.*

The sharp decline in the cost and volume indices in the fourth quarter of 1996 is due to the introduction by the RHAs of monthly dispensing from 1 May 1996. This lowered the annual cash cost by an estimated $27 million. However, the one-off effect of this change is forecast to disappear in the fourth quarter of next year.

hand, some new drugs offer superior therapeutic benefit to the drug they seek to replace. In these situations, our approach is to approve a subsidy using funds released from savings elsewhere, or if the benefits justify it, to seek a diversion of funding from another area of the health budget.

New and better systems

Meanwhile, we continue to look for better ways to review the cost and therapeutic value of existing drugs, improve the rigour and quality of our assessments, improve our productivity and speed of delivery, and produce more transparent decisions. This year, we also looked at how we might reinforce PTAC's independence and streamline its assessment procedures. Some changes are already in place.

Our work is not popular

For our efforts:

- We face several court actions from pharmaceutical companies using every means available in pursuit of their commercial interests.

- We have been criticised by doctors on the grounds that we do not have the competence to limit their choice of prescription, or that our decisions are not ethical. For example, some said we should not have accepted a 40 per cent price reduction for the H_2 antagonist cimetidine (Tagamet) in exchange for listing another drug. Our view is that we would have been improvident if we had not. Such criticism also tends to ignore that our decisions are based on assessments by practising specialists of all available literature, and rigorous analysis of the therapeutic benefit and cost of a range of drug options.

- We have to respond to a growing number of requests from pharmaceutical companies for information under the Official Information Act.

- We face regular, detailed questioning in Parliament.

- We are lobbied by patient advocacy groups seeking more resources for their cause with little concern for the needs of other groups.

- And occasionally we are portrayed in news media stories as lacking concern for patient welfare because of a decision to restrict access to a particular drug.

An unfortunate consequence of these actions is that we are having to divert increasing resources to the defence of our position. Our legal bill this year was $680,000 on top of normal legal fees. That is money, and unquantifiable time, that could be better spent on drugs.

Resources are not unlimited

Underlying the criticisms of PHARMAC is usually an assumption that unlimited resources are available for drugs. The reality is that resources never have been, nor are, unlimited. The drug subsidy bill must compete with a host of other claims for that most scarce of resources – tax payers' funds. One way or another, we have no choice but to take cost into account in our decisions. Also, drugs are but a fraction of a much broader issue. There is no value in curtailing cost in one area if this leads to a blow-out in another, unrelated area, and the needs of individuals for health and well-ness will always have to be balanced against the social and economic aspirations of the community. Inevitably there will be challenges to firmly-held tenets such as equality of access and so-called inalienable rights to resources.

The ethical debate

Mindful of these issues, the PHARMAC Board concludes that there can be no enduring solution to the problem of competing claims for resources until there is widespread recognition and acceptance that there is a problem and there is a cooperative will and effort to resolve it. For this reason, we jointly sponsored with the National Health Committee, a lecture and workshop tour in May by a leading medical ethicist, Professor Raanan Gillon. We hope that this has stimulated the beginning of a rigorous debate in which doctors, consumer groups, drug companies, politicians and the media all seek to agree on how we might set our priorities for health care. In Professor Gillon's words, the answer is likely to be "more aesthetic than scientific."

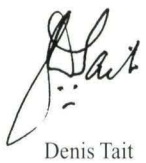
A changing environment

Since 1993, there has been growing recognition by RHAs that PHARMAC alone can not control the growth of drug subsidies; that the responsibility has to be shared with others, particularly prescribers. In future, we expect that more of the efficiency gains we believe to be possible will come from RHA initiatives. One of these was the introduction of monthly dispensing which was, in part, a response to a North Health campaign in 1994 to collect unused, unwanted and expired drugs from Auckland homes. One outcome was data which, when extrapolated nation-wide, indicated that about $80 million worth of redundant drugs could be in the medicine cabinets of New Zealand homes. Other initiatives include budget holding contracts with doctors (for example, through independent practitioner associations) containing improved contractual incentives, contracts with organisations involved in managed care, and various innovative regional measures.

Thanks

I record sincere thanks to my fellow directors for their support and to David Moore's fine team of managers and analysts; to the practising doctors at PTAC and its sub-committees who continue to provide invaluable, independent and practical advice to the PHARMAC Board, and to the many doctors, companies, professional medical associations and user groups who have taken the time to respond to requests for comment and feedback. The quality of our decisions is immeasurably improved by this wide range of inputs. I also pay tribute to two of our founding directors who retired during the year – Murray Burns, Chief Executive Central RHA, and Graeme Edmond, Chief Executive Midland RHA.

We will continue to do the job we are assigned. Increasingly, we hope our role will be as a catalyst to a more harmonious performance by the health "team."



Denis Tait
Chairman
22 August 1996

THIS YEAR

we made pleasing progress in . . .

- Improving patient access. For example, the listing of Famciclovir, a new treatment for Herpes; approval to subsidise a new combination therapy for treating AIDS/HIV; and the listing of inhaled corticosteroid products with spacers for asthma.
- Reducing the subsidy cost of several drugs. Reference pricing, price negotiations, for example 40 per cent on the H_2 antagonist cimetidine (Tagamet), and other strategies, released $48 million this year for reinvestment.
- Completing therapeutic group reviews on ACE inhibitors, asthma, antidepressants, CCBs, NSAIDs, and Vitamin D derivatives.
- Stimulating debate on the need for more cost-effective treatments through co-sponsorship of lectures and workshops by leading medical ethicist, Professor Raanan Gillon.

but faced pressure from . . .

- An underlying trend based on April years of rapid growth in the volume and cost of nervous system drugs (up 14 per cent), drugs for treating infections (up 12 per cent), and drugs for alimentary tract and gastrointestinal disorders (up 11 per cent).
- Low levels of doctor acceptance of our view that prescribing should take into account cost as well as therapeutic benefit.
- Legal challenges, and some refusals to cooperate with our decisions, by pharmaceutical companies.

and suffered disappointment because . . .

- Having decided to subsidise salmeterol for treating asthma, risperidone for treating schizophrenia, and dorzalamide for treating glaucoma, at a total cost of $7.5 million, we were unable to find the funds because of rapid growth in other areas.

It's time we doctors took a new, fresh

The ethical answer
may be more aesthetic
than scientific.

John Hedley, Chairman of the independent Pharmacology and Therapeutics Advisory Committee (PTAC), says that in the post-reform environment, traditional approaches to medical ethics need to be re-examined.

look at our ethics

New Zealand doctors are feeling the squeeze between administering and administrating medical treatment. It is a world-wide phenomenon arising from government efforts to ensure that public money spent on health care is efficiently employed. The causes of the phenomenon are unsustainable year on year increases in the volume and cost of drugs, and a growing debate about whether or not the added dollars are justified by the improvement, if any, in health status. Reasons for the increases in the volume and cost of drugs include:

- Replacement of older drugs with newer and usually more expensive drugs.
- "Medicalisation" of social problems such as isolation, drug addiction, and alcoholism.
- Increased public awareness of treatment options, often driven by heavy consumer advertising.
- The development of drugs for treating new and emerging areas of awareness, such as depression and anxiety.
- High dependency diseases such as AIDS, diseases associated with ageing, and drug dependency.

Should doctors fight change

I do not suggest that doctors should greet tight budgets in the public health service cheerfully, but there comes a time when the allocation of funds has been undertaken by an elected government, and then it is up to us to get on with things. I believe too much energy from some doctor groups has gone to trying to enlarge their own slice of the pie without recognition that ultimately the pie is finite. This energy might better be deployed looking for ways to help us make appropriate choices within the slice we each have. Only when our medical house is in order, will we reasonably be able to demand a larger slice.

Drug company influence

Consider the pervasive influence the pharmaceutical industry has in:

Published trial results. Much of the trial research for new drugs is financed by the manufacturer. If the results are not favourable to the drug, chances are the trial results do not see the light of day. The corollary is that often only favourable results get published. We need to be much more aware of the resulting bias in research literature especially that with which pharmaceutical companies are associated. An American study of published results of trials on nonsteroidal anti-inflammatory drugs (NSAIDs) in the treatment of arthritis concluded: "The manufacturer-associated NSAID is almost always reported as being equal or superior in efficacy and toxicity to the comparison drug. These claims of superiority, especially in regard to side effect profiles are often not supported by trial data. These data raise concerns about selective publication or biased interpretation of results in manufacturer-associated trials." In reviewing the published data on particular drugs, PTAC members often reach conclusions similar to that study:

- A lack of statistically significant support in manufacturers' claims of less toxicity.
- A dose rate for the manufacturer's drug higher than that of the comparative drug.
- Little or no disclosure of the nature and level of financial and material support given to the researcher by the manufacturer.

Advertising and sales promotions. How can we be objective when we, sometimes unknowingly, allow ourselves to be influenced by drug company advertising and sales promotions? Two studies highlight the problem:

- An Auckland study that medical practices have on their store room shelves and in their waiting and consulting rooms a mean of more than 1,000 promotional items from drug companies, including 373 drug samples and 35 pens, pads and trinkets bearing drug brand names.
- An American study that found a strong correlation between the level of interaction doctors had with drug companies and the number of requests they made for specific drugs to be added to a hospital formulary.

Education. It is also important that medical education be unbiased, up to date, and free of any suggestion of commercial influence. It is surprising therefore that post-graduate education is heavily dependent on drug company support. With improvements in CHE contracts, doctors are much better placed to fund their own post-graduate education. If medical conferences can not be run without company sponsorship, then the registration fees should be increased to allow financial independence.

Sponsored travel and research. Acceptance by doctors of fully or partially-paid air travel and accommodation to symposia around the world and of research grants is so common that it is almost embedded in our pysche as an entitlement.

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 Health Committee (previously known as the Core Services Committee), and any other matters that PHARMAC sees fit.

The motives behind sales promotions

"Some of the industry's post-marketing studies seem designed to ensnare a physician champion for a particular agent and to sell the rolls of the company's speakers' bureau"

– Dr Frank Riddick of the Alton Ochsner Medical Foundation.

Professional associations. The declaration by one drug company that the Arteriosclerosis Society could not exist without its sponsorship, must surely introduce ethical difficulties.

The cost issue

In most other sectors of the economy such influence is part of normal commercial arrangements. In the health sector the relationship is not so transparent because neither the doctor nor the patient usually bears the cost; it is diffused through taxes and subsidies. We also need to be more aware that the cost of every prescription inevitably has an impact on costs elsewhere. For example, an ACE inhibitor prescribed at an annual cost of $470, in preference to the diuretic, bendrofluazide, may deprive another patient of the opportunity to receive $450 of treatment a year. Expressed another way: that $450 could also pay for the treatment of one patient for about six months with salmeterol, a drug PHARMAC wants to make available but is presently unable to afford. There is no excuse for ignorance about the cost of competing prescriptions. The Pharmaceutical Schedule is rich in information on comparative costs and cost trends.

What exactly is being ethical

Questions about the relative cost of competing treatment options, and of drug company influence, raise significant ethical issues. Of course, what is ethical and what is not is frequently less than clear when one tries to balance competing moral claims. Seizing of the moral high ground by he or she who comes first with the pronouncement of unethical status is a superficial treatment of an ethical problem. The approach described by Professor Raanan Gillon *(see lower panel on page 9)* offers a helpful framework for the resolution of ethical dilemmas.

Where to from here?

Here are some random thoughts on how we might put professional integrity ahead of the short-term gravy train:

More recognition of patient autonomy. The granting to competent patients of sufficient information to enable them to make an informed judgement is a powerful ethical principle. How can patients' choices be truly autonomous when information is presented to them by a medical adviser with undeclared – or unrecognised – conflicts of interest? If a patient is not aware that a relationship exists between a doctor and a third party, then the patient's autonomy of decision-making is likely to be impaired. By not declaring conflicts of interest to the patient, we are guilty of paternalism or downright deception. Recognition of patient autonomy means not prescribing through arrangements that give us a direct financial incentive, either from the RHAs or drug companies. It means using a less expensive drug where there will be no difference in clinical outcome by making that choice, and not performing tests that have no influence on the treatment decision. It means not making prescribing decisions on the basis of subliminal advertising on our desks, or our last trip. It also means being aware that every business class air fare, trip to an overseas conference, or hotel tariff funded by a drug company can be regarded as being financed from the drug subsidy bill which, in turn, is met by tax payer patients.

Disclosing interests. Many specialists feel no burden of responsibility to declare a conflict of interest when one patently exists. For example, it's not on to receive a company sponsored trip and then speak to a New Zealand medical audience about that company's product without declaring that the conflict is present, and allowing the audience to make its own interpretation of the presented data. If no conflict is declared, then the audience should reasonably expect to conclude that no conflict is, in fact, present. Neither should a doctor receive research grants from a company but not disclose this fact when talking about, or publishing, the results of the research.

Dusting off our ethical rules. We should dust off the ethical codes and guidelines of each of the colleges, ensure their appropriateness, and consistency, then adhere to them. The guidelines should be revisited in the light of the new structures and relationships that have been created as part of the health reforms. The test here is that if the relationship between the doctor and another party could be construed by an outside observer as inappropriate if it became known, then probably it is inappropriate. We might consider the value of an ethical rule of the type adopted by hospital pharmacists in the UK – accept only the hospitality you are prepared to reciprocate. We might read the booklet published by the Royal Australasian College of Physicians in Sydney entitled *Relationships between Physicians and the Pharmaceutical Industry*, and the recommendations of each college on drug sampling, entertainment by companies, and overseas travel by specialists when sponsored by companies.

Colleges should take the initiative

In each of the above areas, it is important that the colleges take the initiative rather than leave it to a small group to deal with. A recent Canadian editorial suggested that colleges could assume a leadership role in the equitable allocation of resources. It said they could become a clearing house for outcome measures, and could coordinate the development of "an acceptable common metric" for quantifying the benefits of different health-care interventions. These roles, said the editorial, should have a high priority on college agenda.

If we don't others will

I have written this primarily from my perspective as chairman of PTAC, but also as a consultant physician in the trenches of front line general medicine. I have no doubt that it will ruffle a few feathers, but it is high time doctors had clear ethical guiding lights as we go into budget holding and a range of other ethical challenges. If we do not put our own professional house in order, I'm sure there will be plenty of non-medical people who will be willing to do it for us. We will only have ourselves to blame if that comes to pass.

John Hedley
Chairman
Pharmacology and Therapeutic Advisory Committee (PTAC)

WE SHOULD NOT WASTE RESOURCES

"Cost and its team mate, opportunity cost, are moral issues and central to distributive justice. We should not waste the resources at our disposal. If a cheaper drug is likely to produce as much benefit as a more expensive one, we should prescribe the cheaper one."

Raanan Gillon, visiting professor of medical ethics, Imperial College of Science, Technology and Medicine, London; from British Medical Journal, volume 309, 16 July 1994.

THE "FOUR PRINCIPLES PLUS SCOPE" APPROACH TO ETHICS

"The 'four principles plus scope' approach provides a simple, accessible, and culturally neutral approach to thinking about ethical issues in health care. The approach, developed in the United States, is based on four common, basic prima facie moral commitments – respect for autonomy, beneficence, non-malifecence, and justice – plus concern for their scope of application. It offers a common, basic moral analytical framework and a common, basic moral language. Although they do not provide ordered rules, these principles can help doctors and other health care workers to make decisions when reflecting on moral issues that arise at work."

Professor Raanan Gillon.

The drug problem is a world

Taking the moral high ground is a superficial treatment of an ethical issue.

PHARMAC General Manager David Moore reviews actions around the world to curtail drug budgets by squeezing prices and reducing waste.

wide one

There is a clash of viewpoints in New Zealand – and in many other countries – between those who want to spend more money each year on health and those who want health care costs brought under control. PHARMAC is at the front line of this clash of views in its role as the RHAs primary advisor on new drug technologies.

On the other hand, there seems to be agreement that our society's health care objectives should broadly reflect principles such as those on which the UK National Health Service is based:

- that all health needs should be met,
- that there should be a high standard of service for all, and
- that everybody should have equal access.

Unfortunately when "needs" come face to face with the resources available to deliver them, there is a conflict that takes us back full circle to the original clash of viewpoints.

The reality of finite resources

At present our drug subsidy bill is about $700 million a year – a small fraction of the $30 billion the government redistributes each year. The problem is that this fraction grows relentlessly despite efforts to contain it. Prior to PHARMAC the fraction was doubling about every seven years. PHARMAC has managed – not without controversy – to slow that down to a growth rate that would double the cost about every 10-12 years. Even at this rate of growth, by the time a baby born today reaches the end of an average life, the bill will rise to about $25 billion. Even after adjusting for inflation, it is clear that the conflict we now have between taxpayers and health care consumers will, at some point in the future, escalate.

The problem is universal. In the 1980s and early 1990s, the annual nominal growth rate of the world pharmaceutical market was in double figures but, largely as a result of government and private efforts to hold costs, it seems to have stabilised in the mid-1990s in high single figures.

Nor is the problem unique to the drug budget. Professor William Baumol in the 1995 OHE lecture, said that the share of national resources each country devotes to health will continue to increase because health care is a "handicraft" industry that can not be fully automated. Thus productivity will improve, but at a far slower rate than the rate of productivity improvement of the whole economy.

What other countries are doing

Perusal of the pharmaceutical industry newsletter Scrip over the last year shows clearly that New Zealand is not alone in its concerns about unfettered growth. From Australia to Zimbabwe, government, quasi-government and private bodies are using, or proposing, a wide variety of mechanisms to wrestle with the rising bill.

- ***Australia.*** Following a decade of eight per cent real growth in its Pharmaceutical Benefits Scheme, the government increases co-payments and cuts tax rebates.
- ***Belgium.*** Government and the drug industry agree on a package that includes a price freeze and an undertaking that if target cost reductions are not achieved, a two per cent price cut will be made.
- ***China.*** Government moves to rationalise and contain health care costs in the face of high growth in state spending on free medical care and labour health insurance schemes.
- ***Denmark.*** A new system reduces reimbursement on antibiotics from 75 per cent to 50 per cent, and negotiated price agreements with drug companies are estimated to save $US38 million.
- ***France.*** Following various attempts to curtail cost-escalation, a 2.1 per cent ceiling is set on annual growth in health spending generated by non-hospital doctors, and a new regime enables doctor prescribing to be curbed under threat of fines. In protest, the three main doctors' unions call for a one-day strike.
- ***Greece*** considers reference pricing and controls on drug promotion expenditure.
- ***Holland.*** Senate approves legislation to cut drug prices to the average of Belgium, France, Germany and the UK.
- ***Italy*** estimates that $US280 million a year could be saved from its new reference pricing system.
- ***Japan.*** The Central Social Insurance Medical Council (Chuikyo) issues a draft report on measures to rationalise drug expenditure, with an emphasis on pricing and to a lesser extent proper drug use.
- ***Kenya*** introduces a national drug policy under which pharmacists may dispense a generic equivalent unless the prescriber declares otherwise.
- ***Poland*** decides to reimburse only the cheapest drug in each category.
- ***South Africa.*** A report says pharmacists can contribute towards the detection, prevention and resolution of drug-related problems when reviewing doctor's prescriptions, contributing to improved patient outcomes and cost savings. The report estimates that if a single prescription intervention occurs daily in every South African pharmacy, there are potential savings of R124 million a year.
- ***USA.*** The Generic Pharmaceutical Industry Association says $US10 billion could be saved by using generics and: "If a consumer wishes to buy a more expensive brand-name drug when an equally effective generic is available, he shouldn't expect taxpayers to pay the difference."

- ***Zimbabwe*** seeks to improve rational drug use through formularies and therapeutic guidelines.

Dealing with waste

Clearly, a significant slice of the money we spend on drugs is wasted, a good deal of it in the way doctors prescribe. Why, for example, is the per capita cost of new-style antidepressants in Southern RHA more than two and a half times greater than in Northern RHA *(see graph three, page 13)*; and why is the per capita cost of acne drugs in Northern RHA nearly double that of Midland RHA *(see graph four, page 13)*, with no evidence of different health outcomes.

And why do attempts to develop predictive models for prescribing behaviour in terms of morbidity and demographic factors deliver inconclusive results? An uncharitable explanation is that prescriptions are influenced by fad and the elapsed time since the last visit of a drug company salesperson. The following are illustrative:

- An inquiry in Ontario concluded that there was no demonstrable improvement in the health of patients over 65 as a result of more prescriptions of more expensive drugs, and that costs would only be controlled by improving the appropriateness of doctors' prescribing.
- A study of GPs in New Brunswick found that high prescribers ordered on average 45 per cent more prescriptions than low prescribers.
- An experimental study of 30 GPs in Ireland found that the likely degree of generic prescribing was greatest in the areas where the potential savings were only moderate and the least generic prescribing was present in the group of drugs where the greatest potential savings might be made.
- A British study found that the age and sex profile of a medical practice did not explain inter-practice variation in prescribing patterns.
- In India, a consumer network studied 2000 prescriptions from six states, concluded that there is "irrational prescribing", and threatened to take action against doctors for medical negligence.

On the other hand there is evidence that when health professionals address the issue of waste and think about cost, worthwhile savings are available without compromise to patient needs.

- In Sweden, 125 GPs at 27 health centres sought to prescribe more rationally. They undertook surveys of their own behaviour, attended

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 practitioners 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.

workshops on drug use in primary health care, referred to a university hospital drug formulary, and enlisted the help of local pharmacies. Compared with the national prescribing pattern, they saved 20 per cent on drug costs through smaller volumes and costs per prescription item.

- And in Scotland the cost of drugs prescribed by an urban practice with five partners fell by 24 per cent in the first year of fund holding and the use of a generic formulary for all new and repeat scrips.

Evidence-based medicine

About a decade ago the term *evidence-based medicine* emerged to emphasise the need for better use of data in treatment decisions. The phrase has been derided on the grounds that there is no other type of medicine and that it is "a smokescreen for rationing." Nevertheless, several organisations around the world clearly see a demand for improved tools to help doctors prescribe more cost-effectively.

In the UK, the National Health Service is funding three research centres to produce evidence-based clinical protocols that reduce waste on ineffective treatments and decrease variations in treatment. The Department of Health has published a document "Promoting Clinical Effectiveness," and a National Prescribing Centre has been established to encourage "high quality, cost-effective" prescribing with goals that include training and education of doctors, coordinating information, disseminating best practice in prescribing, and shaping future information technology systems. The National Health Service is also trialling in 150 general practices a Dutch computer system, Prodigy (for Prescribing Rationally with Decision-Support in General Practice) that offers three treatment options for each condition. In Germany an obligatory evidence-based approach is being considered, and Belgium, Germany and France are either considering or trialling bar code systems for prescription monitoring. In Northern Ireland, some fund holding GPs are using a computerised on-line system named Compass for analysing prescription "science and stewardship" and are reported to find it valuable for planning improvement in cost-effectiveness and quality.

There has, however, been resistance to such systems. British drug companies objected to Prodigy because they were not consulted and it uses only generic names, and Belgium's bar code system "teetered," according to Scrip Magazine, because doctors refused to cooperate.

We can all contribute

Clearly, there is growing recognition around the world that there are limits to the availability of public funds for drugs just as there are, coincidentally, on organs for transplant. Thus having accepted that there is a limit, we all have a role (especially doctors) to ensure that the choice of drugs and services provided is as just and fair as we can make it.

The rigour of the debate about where the priorities lie will be improved by frank and open disclosure of interests. Voluntary action by doctors, as Dr John Hedley urges on pages 6 to 9, and by drug companies, to disclose all mutual financial arrangements in clinical trials or in assessments of the relative effectiveness of alternative drugs and treatment programmes could be a sensible first-step.

Doctors can not stand aside and say, as have some, that they are "being embroiled in pricing issues" or that their **only** responsibility is to their patient. Chances are that the patient also is, has been, or will be, a tax payer.

Graph three

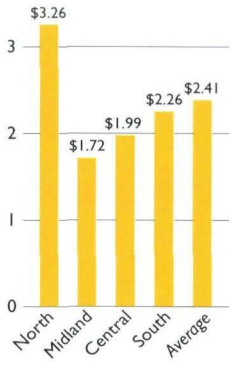
SSRI ANTIDEPRESSANTS

Expenditure per capita by RHA for year ended 31 December 1995

Graph four

ACNE DRUGS

Expenditure per capita by RHA for year ended 31 December 1995



Consumers can play a role by "thinking more about how they use family doctor services and by taking more responsibility for their health," to use the words of the UK's Department of Health at the launch of a multi-million dollar advertising campaign.

Consumer groups also have a role. In the US, for example, in response to a Federal Drugs Administration proposal for more information on drug package labels, a coalition of 330 health care-related organisations, consumer groups, voluntary health agencies and the drug industry, mounted a programme to "improve communication between consumers and healthcare providers about prescription drugs." Objectives include ensuring that patients receive useful information about new prescriptions, and are encouraged to ask questions and discuss treatment options.

PHARMAC will continue with its strategies of price competition, improved targeting, and risk sharing *(see panel page 12)*. At the centre of this work, we continue to build on and improve the core technology assessment skills that we have developed. These strategies are working for New Zealand and are being emulated in many countries; though in the face of taunts about heavy-handedness, bureaucracy, lack of concern for individuals, and court action by a litigious drug industry.

To paraphrase Dr David Seedhouse, Senior Lecturer in Medical Ethics at the University of Auckland, we might also:

- question the dominance of medicine in health care planning,
- challenge our politicians to do the same,
- compare medical systems with other systems in our society,
- question whether technology and pharmacology ought to be society's major weapons against disease,
- and actively debate the meaning of key words such as health, well-being, medicine and disease.

David Moore
General Manager

Review by therapeutic group

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

The core activity of PHARMAC is the assessment of health technologies. This involves continual assessment of drug performance and cost, usually by reviewing trends within defined groups of drugs (therapeutic group reviews), and appraisal of applications from drug companies for subsidy for their products. Every drug is reviewed from a therapeutic and economic perspective so that the Board of PHARMAC can take its decisions based on both medical and cost-benefit criteria.

Considerable emphasis is put on consultation, and the need for innovative solutions that either reduce the cost, the rate of growth in cost, or improve the health of New Zealand's populations. PHARMAC decides on which reviews will take place, and sets its review priorities by taking into account the reports of the National Health Committee (previously known as the Core Services Committee), known patient needs, the size of the therapeutic groups relative to total drug usage, and cost trends within therapeutic groups.

Cardiovascular and blood

Cost trends *(See graph eight, page 16)*

Total cost was $153 million, down one per cent on last year. However, the underlying trend, based on April years, is for growth of eight per cent. The major areas of investment were ACE inhibitors with or without diuretics ($45 million), calcium channel blockers (CCBs) ($32 million), and lipid modifying agents ($19 million).

Issues

The major issue is the continued use of more expensive agents where lower cost alternatives would suffice, particularly in the management of hypertension. In June 1995 the National Health Committee released a further report on the management of mildly-raised blood pressure. This highlighted the need for an assessment of absolute risk before patients receive either pharmacological or non-pharmacological treatment. The report also said that because there is randomised controlled trial evidence of reduction in cardiovascular morbidity and mortality with diuretics and beta blockers that these agents should be considered first. This evidence is lacking for ACE inhibitors and CCBs.

The annual cost per patient with an ACE inhibitor at $471, is more than double that for a beta blocker and 22 times the cost of the diuretic, bendrofluazide.

The lipid review is the largest ever investment appraisal for PHARMAC. The Board will have to consider whether the $40 million cost of lipid modifying agents represents the best use of the health care dollar.

Actions

Review of ACE inhibitors. These are treated as a single therapeutic sub-group, and from 1 February 1996 were reference priced at the same weighted average daily cost, with potential savings of $3 million a year. However, growth in the use of these agents virtually eliminated the savings. ACE inhibitors with diuretics are still being reviewed. On 1 July 1995, a new ACE inhibitor, trandolapril (Odrik and Gopten) was listed on the Schedule. This will result in further savings due to a lower weighted average daily cost for the whole ACE inhibitor market.

Review of CCBs. From 1 March 1996 the subsidies were aligned to the level of the lowest priced product in each therapeutic sub-group. CCBs were placed in six different therapeutic subgroups as follows: three antihypertensive (low, medium and high) – nifedipine, amlodipine, isradipine and felodipine; anti-anginal – diltiazem; refractory angina – perhexiline; and antihypertensive/anti-anginal/anti-arrhythmic – verapamil. Annual savings from the CCB review, and the listing of low strength felodipine

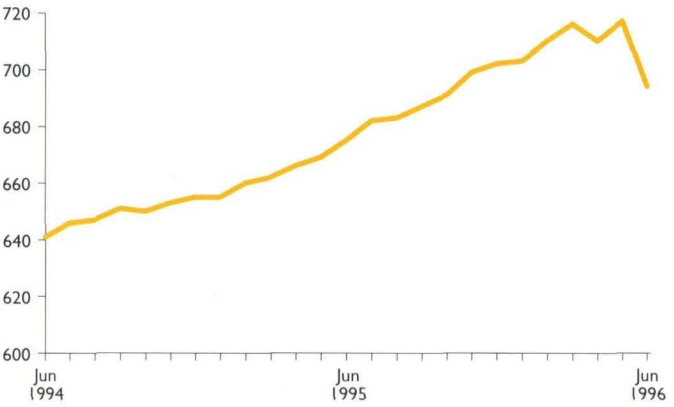
AN IMPORTANT NOTE ABOUT THE DATA IN THIS REVIEW

The data in this Review of total subsidised investment *(graphs six and seven, pages 15 and 16)* and investment by therapeutic group *(graphs eight to fourteen, pages 16 to 18)* and the tables on pages 22 and 23 are not indicative of real trends because of the introduction by RHAs from 1 May 1996 of monthly dispensing. The effect of this – which resulted in a sharp decline in total investment of $27 million this year – is clearly illustrated in graph five at right and in the price, volume, and mix indices graph *(graph two)* on page 4. As shown in graph two, PHARMAC forecasts the total investment to return to its trend line by June 1997. Monthly prescribing was an RHA initiative for which PHARMAC provided almost one person-year of consulting services prior to its introduction.

Graph five

CASH INVESTMENT ON DRUGS

12-month moving annual total RHA cash expenditure including mark-ups and GST – in $ millions for years ended 30 June.



(Plendil ER) 2.5 mg are estimated at $4 million. Unfortunately, while the reference pricing outcomes of the review have been implemented, two suppliers have initiated legal action.

Review of the criteria for lipid modifying agents. Since the start of this review medical opinion about the management of dyslipidaemia has shifted. The result is a significant increase in the use of the statin, simvastatin (Zocor). PHARMAC has modelled the economic impact of the new National Heart Foundation guidelines, and a PTAC sub-committee has made recommendations which, together, will be considered by the PHARMAC Board.

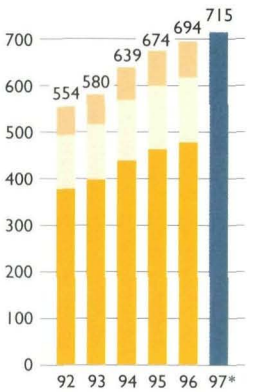
Dipyridamole. The Special Authority criteria for dipyridamole were reviewed, resulting in two small changes – extension from six months to two years for approvals for patients with transient ischaemic attacks despite aspirin therapy, and the addition of neurosurgeons to the list of specialists who can make applications. PHARMAC awaits the peer-reviewed, published clinical results of the ESPS-II study which had 6602 patients enrolled in four trial arms: dipyridamole/aspirin, dipyridamole, aspirin, and with placebo.

Other cardiovascular drugs. Subsidy reductions were made on two beta blockers – nadolol and sotalol, and the diuretic indapamide, which together, will result in savings of around $500,000 a year.

Graph six

SUBSIDISED DRUG COST

Years ended 30 June
$ millions



GST.
Estimated distributing margins and dispensing fees.
Cost, net of charges and tax.
** Forecast based on net growth of drugs on the Schedule at 30 June 1996. It does not include the effect of decisions on new listings, increases in subsidies, or de-restrictions, that may be taken in 1997.*

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.

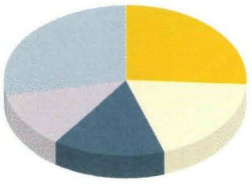
PTAC's focus is on general medicine, but increasingly it seeks advice from known specialists or experts. It also consults with the National Health Committee, sets up sub-committees for specific tasks, and sometimes undertakes its own literature searches.

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.

Graph seven

INVESTMENT BY THERAPEUTIC GROUP

Year ended 30 June 1996

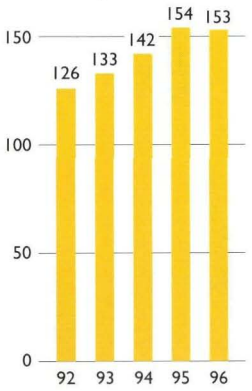


- *Cardiovascular and blood (26%)*
- *Respiratory tract and allergies (19%)*
- *Alimentary tract and metabolism (15%)*
- *Nervous system (12%)*
- *All other (28%)*

Graph eight

CARDIOVASCULAR AND BLOOD

Years ended 30 June
$ millions before GST

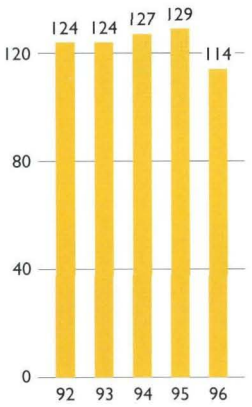


The underlying trend is for eight per cent annual growth.

Graph nine

RESPIRATORY TRACT AND ALLERGIES

Years ended 30 June
$ millions before GST



The asthma review has helped stabilise cost.

Respiratory tract and allergies

Cost trends *(See graph nine)*

Total cost was $114 million, down 12 per cent on last year. However, the underlying trend, based on April years, is for a reduction of just four per cent a year. The major area of investment ($68 million) is in inhaled corticosteroids. The respiratory system is the second largest therapeutic group by expenditure. Indications are that the annual cost has stabilised at around $125 million. Year to year fluctuations around this figure appear to be due to seasonal changes in the severity of asthma.

Issues

The Montreal agreement, which will see the phasing out of CFCs, has a significant impact on the asthma market as companies race to develop CFC-free propellants in inhalers with the expectation of higher prices. PHARMAC is looking at a number of new chemical entities in the asthma market. The Board resolved to fund one of these new agents – salmeterol (Serevent) when sufficient funds become available. It is frustrating that dry powder devices remain very expensive in comparison to metered dose inhalers. Another disappointment was that Ciba-Geigy withdrew from an agreement which would have seen a long-acting beta agonist (Foradil) available in the market.

Actions

Asthma review. The asthma review was completed in August 1995 and was well received. The success of its implementation was helped by a close working relationship with the Asthma Foundation.

Inhalers and spacers. Listing of the first CFC-free inhaler – Airomir, following lengthy negotiations with the supplier, was a significant milestone that established the principle of listing CFC-free inhalers at current levels of subsidy. The move to funding spacers continues and the RHAs invested $700,000 on spacers for an estimated 45,000 children in the past year. The expenditure greatly exceeded expectations but is expected to provide significant health benefit. Two new inhaled corticosteroid products with spacers were listed – Respocort S 100mg and 250mg with spacers.

Pulmozyme. PTAC modified its advice in light of new evidence – that there may be benefits for some patients. Guidelines are being developed that will identify those patients expected to benefit from treatment. A decision as to whether subsidy is warranted is expected later this year.

Combivent. A new combination bronchodilator for use by patients with chronic obstructive airways disease (COAD) was listed. This should result in lower patient costs as one inhaler will replace two. In addition, the new inhaler is expected to improve compliance as well as reduce RHA expenditure.

Nervous system

Cost trends *(See graph ten)*

Total cost was $74 million, up seven per cent on last year. However, the underlying trend, based on April years, is for growth of about 14 per cent a year. The largest area of investment ($17 million) is in selective serotonin reuptake inhibitors (SSRIs). The cost of these was up by more than 21 per cent. Investment in analgesics was $16 million, an increase of eight per cent.

Issues

Many new agents for psychiatric and neurologic disorders are being developed and we expect this to have an impact on expenditure. Some of this development is occurring in disorders where no treatment was previously available, or for conditions where existing medications, while effective, have less tolerable side effects. There is also increasing public awareness of mental disorders, reinforced by the Mason Inquiry into mental health. The government responded by promising to make more money available for new drugs, in particular for schizophrenia. The budget for these drugs, clozapine and risperidone, is currently managed individually by each RHA. Growth in expenditure on the newer antidepressants continues to be a concern. An increase in antidepressant prescriptions appears to be due to increased awareness of depression and possibly because newer antidepressants are being used for other disorders.

Actions

Antidepressants. The review was completed in January 1996 and led to a study of ways to widen access to the newer antidepressants. The Mental Health Sub-committee of PTAC is considering another new antidepressant.

Risperidone. Risperidone was assessed by PHARMAC for listing. Currently it is funded by the RHAs through drug inclusive contracts with CHEs or through specific budgets.

New listings. Commercial methadone solutions were listed in the interests of safety and consistency as recommended by the draft national Methadone Protocol.

Betaferon. Betaferon, a new adjunct in the treatment of multiple sclerosis is being considered for subsidy.

Alimentary tract and metabolism

Cost trends *(See graph eleven)*

Total cost was $88 million, up four per cent on last year. However, the underlying trend, based on April years, is for growth of about 11 per cent a year. The major areas of investment were diabetes products ($25 million), H_2 antagonists ($24 million), and proton pump inhibitors ($11 million). The annual growth trend for proton pump inhibitors is between 50 and 70 per cent. Investment in calcitriol (Rocaltrol) increased by 16 per cent ($5 million). However, the underlying trend is for 33 per cent growth.

Issues

More patients are being treated with ulcer healing drugs than ever before. This suggests greater public awareness of dyspepsia, possibly driven in part by television advertising by pharmaceutical suppliers. Increasingly, patients are being treated with more potent and expensive drugs as seen by the rapid growth in the use of proton pump inhibitors (PPIs). The challenge is to manage the growth yet ensure that patients get access to the appropriate therapies.

Available studies suggest that diabetes affects between 86,000 and 172,000 New Zealanders and that up to 50 per cent are not diagnosed. The landmark Diabetes Control and Complications Trial from 1993 found that more aggressive treatment for insulin-dependent diabetics improves health outcomes.

Expenditure on vitamin D derivatives continues to rise. A review of calcitriol found that the rate of use in New Zealand is greater than other parts of the world. PTAC considers that vitamin D derivatives have a place in a number of conditions, but notes that evidence of their effectiveness in osteoporosis – its main use – is less convincing, and that hormone replacement therapy is a more effective first line treatment.

Actions

H_2 antagonists. A 40 per cent reduction in the subsidy will save around $12 million a year. The savings will be reinvested in other areas. Unfortunately, the decision is subject to legal challenge *(see page 21)*.

Proton pump inhibitors. Following the listing of lansoprazole (Zoton), a new proton pump inhibitor, new Special Authority criteria were implemented. The new criteria aim to ensure that PPIs are targeted to patients with demonstrated need. Within one month of Zoton being listed, the supplier of omeprazole reduced the price to its current subsidy level, thus eliminating the manufacturer surcharge.

Diabetes. A review is under way which is looking at access to agents for the treatment and monitoring of diabetes: syringes; pen needles; glucose and ketone testing strips; oral agents for the treatment of diabetes and other products for the treatment and monitoring of diabetes. PHARMAC commissioned a review of blood glucose testing products because of the lack of quality research against which to evaluate them.

Vitamin D derivatives. A review of the relative subsidies on vitamin D derivatives was completed with the formation of therapeutic sub-groups and implementation of reference pricing. Expected savings from the review have been lost in the rapid growth of these agents. Further review of the appropriateness of vitamin D will be undertaken as part of a general review of osteoporosis.

Infections

Cost trends *(See graph twelve)*

Total cost was $50 million, up six per cent on last year. However, the underlying trend, based on the last April year, is for growth of 12 per cent a year. The major area of investment was in antibacterials ($40 million). The cost of antivirals rose by 25 per cent to $7 million, largely due to herpes and AIDS treatments becoming more available.

Issues

Internationally there is growing concern about antibiotic resistance. The importance of using pathogen-specific antibiotics was reinforced by an expert panel of infectious diseases specialists in New Zealand. Landmark trials on the use of combinations of drugs to treat patients with AIDS show significant benefits in terms of health outcomes for patients and radically change the pharmacological treatment for patients with AIDS. New therapies for AIDS treatment are expected in the near future. Protease inhibitors are expected to be assessed for subsidy next year.

Actions

Expert panel of infectious disease specialists. This panel, established in November 1995, highlighted many controversial issues in antibiotic prescribing, such as antibiotic resistance and its effect on choice of agent and level of dosing. The panel stressed that it was important to avoid unnecessary use of broad spectrum antibiotics since this is a contributing factor in the development of bacterial resistance worldwide.

Famciclovir. The listing of famciclovir (Famvir) sees more choice for patients with herpes and results in significant savings for the RHAs. Unfortunately, the decision is subject to legal challenge *(see page 21)*.

HIV/AIDS treatment. The decision to fund combination therapy of AZT plus either ddI or ddC represents a major advance in the management of this disease. The decision was taken after review of the preliminary results of the Delta and ACTG 175 trials which demonstrated significant benefit for patients.

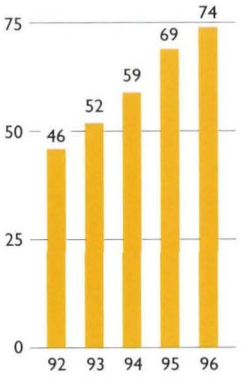
Antibiotic review. This was completed in early 1996. The macrolide therapeutic sub-group was formed in February 1996. One of the suppliers in this market, initiated legal action against PHARMAC over this review *(see page 21)*.

Coldsore creams review. A review was completed at the end of the year and implemented on 1 July 1996 of treatments for herpes labialis. Its focus was to look at the health benefit associated with the use of these agents against the cost of $2.3 million a year. It resulted in the delisting of acyclovir (Zovirax) cream and idoxuridine (Stoxil) lotion.

Graph ten

NERVOUS SYSTEM

Years ended 30 June
$ millions before GST

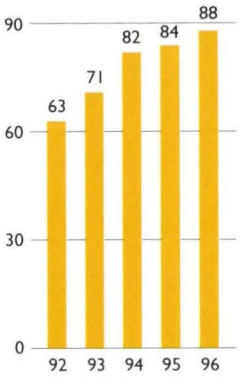


Costs have risen by 61 per cent since 1992, and the underlying trend is for 14 per cent annual growth.

Graph eleven

ALIMENTARY TRACT AND METABOLISM

Years ended 30 June
$ millions before GST

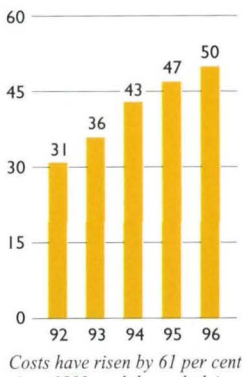


Costs have risen by 40 per cent since 1992, and the underlying trend is for 11 per cent annual growth.

Graph twelve

INFECTIONS

Years ended 30 June
$ millions before GST

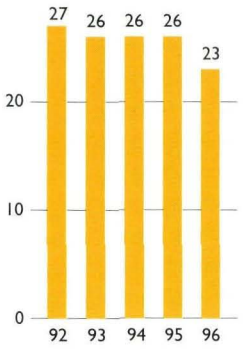


Costs have risen by 61 per cent since 1992, and the underlying trend is for 12 per cent annual growth.

Graph thirteen

MUSCULO-SKELETAL

Years ended 30 June
$ millions before GST

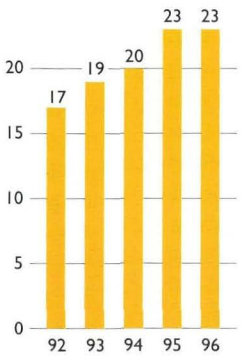


The review of NSAIDs has helped bring costs down.

Graph fourteen

HORMONE PREPARATIONS

Years ended 30 June
$ millions before GST



The underlying trend is for eight per cent annual growth.

Musculoskeletal

Cost trends *(See graph thirteen)*

Total cost was $23 million, down 11 per cent on last year. The decline was due mainly to monthly prescribing. The underlying trend is for costs in this therapeutic group to be relatively stable partly due to lower prices from generic competition. The largest area of investment is in nonsteroidal anti-inflammatories (NSAIDs) ($16 million), the use of which is declining.

Issues

The decline in the use of NSAIDs may in part reflect concerns raised about the safety of these agents. This year 38,000 fewer prescriptions were written than last year, although some of this decline was due to monthly dispensing. Few new products are expected in this area of medicine.

Actions

NSAID review. The first stage of the review was completed with the formation of several therapeutic sub-groups and subsequent reference pricing. A feature of the review was the initial reluctance of suppliers to reduce prices to the reference price levels. However, five months after the review was implemented, the majority of products are fully funded.

PHARMAC established an 0800 line to deal with patient, pharmacist and prescriber queries over the review, and with the help of the Arthritis Foundation sent a mail out to all members of the Arthritis Foundation advising them of the review outcome.

Hormone preparations

Cost trends *(See graph fourteen)*

Total cost was $23 million – no change on last year. However, the underlying trend, based on April years, is for growth of eight per cent. The major areas of cost were hormone replacement therapy (HRT) ($8 million), and cyproterone, an agent used mostly for prostate cancer ($3 million).

Issues

The significant volume growth in HRT is expected to continue. HRT is being advocated for the prevention of osteoporosis and coronary heart disease in addition to the management of menopause. HRT is expected to be in the top 20 most commonly prescribed drugs by the year 2000. A National Health Committee report concluded that transdermal oestrogen patches are an expensive form of treatment for women compared with oral oestrogen.

The number of patients being diagnosed with prostate cancer is on the increase. This may follow an increased awareness of the condition. There are contentious issues in the treatment of prostate cancer.

Controversy still surrounds the use of GnRH analogues in combination with other antiandrogens, and there is still debate about whether patients should be able to choose between orchidectomy or medical management of prostate cancer.

Actions

HRT review. A PTAC sub-committee, comprising specialist clinicians met twice to review therapeutic sub-groups, consider the recommendations of the National Health Committee and all submissions. The review is expected to be complete by December 1996.

Transdermal oestrogen patches. Listing of a new brand of transdermal oestrogen patch (Femtran) at 30 per cent lower subsidy than the existing brand reduced annual costs by about $500,000.

Other

Oral contraceptives. In May 1996 the Minister of Health announced a package of strategies to reduce the cost barriers to contraceptives. The package includes a direction to PHARMAC to use reasonable endeavours to ensure that at least one fully subsidised brand of contraceptive in each of the oral contraceptive therapeutic sub-groups is available. There is a manufacturer's surcharge on all oral contraceptives at present. PHARMAC will negotiate with suppliers to implement the Minister's decision during 1996 and 1997.

Acne treatment. A review of isotretinoin (Roaccutane) was started in consultation with dermatologists and the supplier. Of particular concern is the rapid growth of this agent (up $1.4 million to $6.9 million this year). The review will look at possible targeting mechanisms and negotiations with the supplier to manage the risk to the RHAs.

Oncology and immunosuppressants. An on-going review removed funding for interferon in Kaposi's sarcoma, as it was considered to have little patient benefit. On the other hand funding was approved for interferon in basal cell carcinoma where patients are unable to be treated surgically or by radiotherapy. A separate review considering the current guidelines for access to interferon in hepatitis C and hepatitis B is expected to end next year.

Benign prostatic hyperplasia. Strong growth continued in the use of alpha blockers, specifically terazosin for the management of this condition.

The operations of PHARMAC

PHARMAC's 15-person team faced considerable pressure during the year from an unprecedented number of legal challenges, and numerous requests for information.

PHARMAC completed six therapeutic group reviews, started two more, and continued to hone its systems and structure during a year in which its 15-person team faced considerable pressure from legal challenges and requests for information under the provisions of the Official Information Act, and further requests for information from Parliament and consumer groups.

Applications for listing

PHARMAC considered more than 70 applications from drug companies for listing or listing changes. As a result, it added more than 60 new or enhanced products to the Schedule and widened access to more than a dozen. About 15 per cent of applications were declined. As a result of reviews, access was restricted on only four drugs, and one was de-listed.

Applications declined by PHARMAC Board

Years ended 30 June

Number	1996	1995	1994	Total
New chemical entities	**3**	6	10	**19**
New presentations	**4**	3	5	**12**
New products	**4**	9	4	**17**
Totals	**11**	18	19	**48**

Only about 15 per cent of the applications by drug companies were declined.

Listing changes to the Pharmaceutical Schedule[1]

Years ended 30 June

Number	1996	1995	1994	Total
New chemical entity listed	**7**	8	11	**26**
New presentation listed	**23**	18	23	**64**
New product listed	**32**	46	40	**118**[2]
Total new listings	**62**	72	74	**208**
De-restriction or expanded access[3]	**13**	14	16	**43**
Changes that restrict or limit access	**4**	4	0	**8**
De-listing by decision date	**1**	1	0	**2**

In three years, more than 208 new or enhanced products have been listed; access has been widened to a further 43; and ten have been restricted or de-listed.

1. *The data in the tables above and at left do not reconcile with last year's PHARMAC annual review because the basis of disclosure has been changed to make it more comprehensive and meaningful. Also, the data is based on the time at which decisions became effective. Last year's data was based on the time of decision.*
2. *Does not represent the total number of products added to the Schedule, since the listing of one new chemical entity can result in the listing of more than one product. The total number of products added to the Schedule, as at 30 June 1996, is actually 213.*
3. *By decision, not necessarily the number of chemical entities affected.*

Pharmaceutical Schedule

The Schedule was re-printed three times, and 12 monthly updates distributed. A number of refinements to the content and readability were made following feedback from response cards and surveys. From December 1995, average daily cost data was included. The Schedule is distributed free to about 10,000 doctors, pharmacists, medical libraries, professional bodies, and user and support groups, and offered for sale to a small subscription list, including drug suppliers. A floppy disk version became available in early 1996 on request.

Financial impact of PHARMAC decisions

PHARMAC decisions resulted in RHAs spending nearly $48 million less in the year on pharmaceutical benefits than would have been spent if past trends continued. The reduction came mainly from price competition, and from Board decisions following therapeutic groups reviews. Details by type of product are:

Estimated cumulative annual savings by decision type[1]

Years ended 30 June, including GST

	1996	1995	1994
New chemicals	**1,052,000**	590,000	(200,000)
New presentations	**2,391,000**	1,163,000	100,000
New products	**28,240,000**	21,236,000	1,200,000
Reviews	**11,149,000**	6,050,000	1,100,000
Other[2]	**4,755,000**	0	0
Total saving	**$47,587,000**	$29,039,000	$2,200,000

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

1. *Prior year figures do not reconcile with last year's PHARMAC annual review because the figures for each year are estimated then updated as new data becomes available.*
2. *Includes de-restrictions and price changes.*

Streamlining the processes

In pursuit of a goal of continual improvement in its decision and review processes, PHARMAC adopted a number of new systems. These included the introduction of flexible working groups to manage specific projects and tasks, adoption of a formalised process for negotiations with drug companies, the setting of new priorities for therapeutic assessments, adoption in April 1995 of performance measurement, and review of the operations of PTAC. Outcomes include changes to the way PTAC and its sub-committees function, with clearer guidelines as to the independence of PTAC as an adviser to the board of PHARMAC, and improved liaison with RHAs. A goal in the year ahead is to establish a direct data link with Health Benefits Limited to improve the quality and speed of delivery of information about prescription drugs.

Widespread consultation

In taking decisions on the Schedule, PHARMAC seeks all available 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, drug companies and user groups, 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. This process provides valuable feedback that improves the quality of PHARMAC's decisions.

Open communication

Initiatives taken during the year to further improve the flow of information from PHARMAC included an 0800 telephone number, a freepost facility, a home page on the Internet, and publication of a periodic newsletter for Members of Parliament following a request from the Social Services Committee.

The practice of enclosing a newsletter with the mailing of updates to the Schedule continued, as did contributions to the specialist publications *GP Weekly*, the *New Zealand Medical Journal*, *Pharmacy Today*, patient magazines, and releases to the daily media when the information is of widespread interest.

Dialogue continued with other participants in the health care industry, including the New Zealand Hospital Pharmacists' Association, the New Zealand Medical Association, the Royal New Zealand College of General Practitioners, the New Zealand General Practitioners' Association, the Paediatric Society, the New Zealand Society of Gastroenterology, the Rheumatology Association, diabetes specialists, groups of nurse educators, specialist care-givers, nurses and prescribers, patient support groups such as the Asthma, and Arthritis foundations, the Gaucher Association, and the Mental Health Coalition.

Personnel and training

At 30 June 1996, PHARMAC employed 15 people. They comprised a general manager, a medical director, an epidemiologist on a 60 per cent contract, four therapeutic group managers, a manager of research and analysis, an information manager, four analysts, an office manager, and receptionist. Together, they possess three medical degrees, three pharmacy degrees, three science degrees, and ten other tertiary qualifications.

Three seminars were conducted by Professor Bruce Arroll for therapeutic group managers and analysts on the critical appraisal of medical literature (a core skill in the assessment of drugs), and most staff undertook further computer and technical training.

Litigation

In July 1995, the Researched Medicines Industry Association of NZ Inc (RMI) and three drug 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. PHARMAC believes the claim has no merit and intends to defend it vigorously.

PHARMAC is pursuing claims against the RMI and Health Consulting Group (HCG) for alleged publication of misleading information and contempt. The RMI and HCG have also made claims against PHARMAC in that proceeding.

Earlier this year several drug companies issued four sets of proceedings variously seeking judicial review of PHARMAC's decisions and alleging that PHARMAC was acting in breach of the Commerce Act. They include: the listing of a herpes drug and a subsidy reduction for H_2 antagonists, the subsidy on two calcium channel blockers, and an antibiotic.

PHARMAC is challenging a patent extension application for enalapril. PHARMAC's challenge to the patent extension application for omeprazole (Losec) for a ten year extension has been heard in the High Court and an extension of eight years granted by a decision dated 20 September 1996. PHARMAC's challenge to the Zantac patent extension application has been determined by the Commissioner of Patents who granted a five year extension term (with almost three years having elapsed by the time of the Commissioner's decision). The Commissioner has also made an order that no infringement of the patent will occur in respect of, amongst other things, the sale of ranitidine HCL made or imported into New Zealand prior to 17 May 1996 and sold in the ordinary course of business on or prior to 17 November 1996.

On 26 January 1996, Roussel Uclaf Australia Pty Limited and Roussel (NZ) Limited issued proceedings in the High Court against PHARMAC and PTAC seeking judicial review of PHARMAC's decision to reduce the subsidy for the macrolide antibiotic, Rulide, manufactured by Roussel (by reason of a change to the basis of reference pricing of Rulide). The reduction in the level of the subsidy was due to take effect on 1 February 1996. In the first instance, Roussel sought and were granted interim orders preventing PHARMAC from implementing its decision pending a full substantive hearing. This is expected early in 1997.

On 23 February 1996, Bayer New Zealand Limited and Pfizer Pty Limited each issued separate proceedings in the High Court in respect of PHARMAC's decision to alter the subsidy levels payable for the calcium channel blockers Adalat Retard and Adalat Oros (Bayer) and Norvasc (Pfizer). The effect of PHARMAC's decision was to alter the therapeutic sub-grouping of, and basis of reference pricing for, the calcium channel blocker group. The proceedings seek judicial review of the decision and allege breaches of the Commerce Act. These proceedings are effectively "on hold" pending the hearing of an application for the removal of Russell McVeagh McKenzie Bartleet & Co, solicitors for Bayer and Pfizer, on the basis of an apparent conflict of interest.

In February 1996, Merck Sharpe & Dohme (New Zealand) Limited, Glaxo Wellcome New Zealand Limited, Eli Lilly & Co (NZ) Limited, Douglas Pharmaceuticals Limited and Pacific Pharmaceuticals Limited issued proceedings against PHARMAC (first defendant) and SmithKline Beecham (NZ) Limited (second defendant). The plaintiffs seek judicial review of PHARMAC's decision to list Famvir, an antiviral, and to reduce the subsidy payable for H_2 antagonists by 40 per cent. They also allege that the decision breaches the Commerce Act. PHARMAC is hopeful that a substantive fixture will be allocated in the first half of 1997.

Broadcasting decision upheld

The Broadcasting Standards Authority upheld a complaint by PHARMAC against a 20/20 programme broadcast by TV3 in July 1995 on the use of Pulmozyme to treat cystic fibrosis. The Authority concluded that the programme was unbalanced because it failed to address adequately the ethical issues.

Financial performance

PHARMAC's costs increased by nearly 68 per cent over last year. This was due mainly to the recruitment of additional staff, and the costs of additional medical and pharmacological consulting services to cope with a greater number of therapeutic group reviews. Legal costs associated with litigation accounted for just over a quarter of the total cost increase.

The annual cost of PHARMAC

Derived from audited figures for years ended 30 June

Dollars	1996	1995	1994
Staff costs *(includes Directors' and professional fees)*	**1,170,000**	804,000	665,000
Office costs *(includes depreciation[1], rent, phones, library, purchase of data, ordinary legal costs)*	**925,000**	575,000	563,000
Consulting services *(includes PTAC, PR, general consulting, audit fees, HRM and accounting)*	**1,408,000**	1,047,000	532,000
Schedule production *(printing and postage only)*	**338,000**	260,000	217,000
Costs associated with litigation	**680,000**	0	0
Total cost	**$4,521,000**	$2,686,000	$1,977,000

1. At balance date, PHARMAC's fixed assets comprised $180,000 of office and computer equipment, furniture and fittings.

Pharmac ended the year three per cent below its operating budget, apart from the extraordinary legal costs of current litigation.

The major item of expenditure in 1996 was fees paid for advice on medical, pharmacological, and communications issues.

Top 50 drug groups by subsidy cost

Anatomical therapeutic classification *Years ended 30 June before GST*	1996 cost	Proportion of total 1996 cost	1995 cost
Asthma preventative medicines	$72,440,000	11.74%	$81,460,000
Angiotension converting enzyme (ACE) inhibitors	$44,850,000	7.27%	$45,330,000
Antibacterials	$36,940,000	5.99%	$36,320,000
Anti-ulcerants	$35,920,000	5.82%	$34,820,000
Calcium channel blockers	$32,310,000	5.24%	$34,360,000
Bronchodilators	$29,530,000	4.79%	$32,350,000
Antidepressants	$26,000,000	4.21%	$23,070,000
Beta adrenoceptor blockers	$18,840,000	3.05%	$19,870,000
Anti-inflammatory non steroidal drugs (NSAIDs)	$16,440,000	2.66%	$18,810,000
Hypolipidaemics	$16,200,000	2.63%	$12,850,000
Diabetes	$15,460,000	2.51%	$14,840,000
Analgesics	$15,840,000	2.57%	$14,690,000
Contraceptives	$13,150,000	2.13%	$14,730,000
Sex hormones non contraceptive	$11,830,000	1.92%	$11,690,000
Nitrates	$9,950,000	1.61%	$10,140,000
Diabetes management	$9,990,000	1.62%	$9,490,000
Anticonvulsants	$9,900,000	1.60%	$9,040,000
Immunosuppressants	$8,690,000	1.41%	$8,310,000
Corticosteroids topical	$8,160,000	1.32%	$8,440,000
Anti-acne preparations	$8,080,000	1.31%	$6,800,000
ACE Inhibitors with diuretics	$6,690,000	1.08%	$6,690,000
Antivirals	$6,990,000	1.13%	$5,600,000
Vitamins and minerals	$6,750,000	1.09%	$6,050,000
Endocrine therapy	$6,680,000	1.08%	$6,630,000
Eye preparations	$6,390,000	1.04%	$6,950,000
Antiparkinson agents	$6,390,000	1.04%	$6,980,000
Nasal preparations	$6,380,000	1.03%	$8,450,000
Laxatives	$5,920,000	0.96%	$6,030,000
Antidiarrhoeals	$5,840,000	0.95%	$5,430,000
Antipsychotics	$5,740,000	0.93%	$5,940,000
Diuretics	$4,980,000	0.81%	$5,560,000
Alpha adrenoceptor blockers	$4,860,000	0.79%	$4,310,000
Antimigraine preparations	$4,140,000	0.67%	$3,760,000
Trophic hormones	$3,800,000	0.62%	$3,790,000
Anti-arrythmics	$3,570,000	0.58%	$3,560,000
Antifungals	$3,400,000	0.55%	$2,630,000
Fluids and electrolytes	$2,940,000	0.48%	$2,750,000
Muscle relaxants	$2,640,000	0.43%	$2,740,000
Antianaemics	$2,740,000	0.44%	$2,310,000
Antifungals topical	$2,570,000	0.42%	$3,040,000
Other endocrine agents	$2,430,000	0.39%	$2,630,000
Psoriasis and eczema preparations	$2,520,000	0.41%	$1,910,000
Antithrombotic agents	$2,410,000	0.39%	$3,440,000
Hyperuricaemia and antigout	$2,220,000	0.36%	$2,340,000
Antihistamines	$2,210,000	0.36%	$2,080,000
Respiratory devices	$2,190,000	0.36%	$3,490,000
Sedatives and hypnotics	$2,160,000	0.35%	$2,220,000
Antacids and antiflatulants	$2,130,000	0.35%	$2,270,000
Corticosteroids and related agents for systemic	$2,110,000	0.34%	$2,160,000
Emollients and barrier creams	$2,140,000	0.35%	$2,150,000
Other drugs	$54,490,000	8.83%	$27,900,000
GST	$77,120,000		$74,900,000
Total cost in year including GST	**$694,100,000**		**$674,100,000**

Top 15 drug groups by increase and top 15 by decrease in subsidy cost

Anatomical therapeutic classification *Years ended 30 June*	1996	Proportion of total cost	Proportion of total cost increase	1995
Hypolipidaemics	$3,350,000	2.63%	19.54%	$2,690,000
Antidepressants	$2,940,000	4.21%	17.11%	$5,020,000
Antivirals	$1,390,000	1.13%	8.12%	$1,220,000
Anti-acne preparations	$1,280,000	1.31%	7.46%	$890,000
Analgesics	$1,150,000	2.57%	6.69%	$1,750,000
Anti-ulcerants	$1,100,000	5.82%	6.39%	($2,490,000)
Anticonvulsants	$850,000	1.60%	4.98%	$1,260,000
Antifungals	$760,000	0.55%	4.45%	$610,000
Vitamins and minerals	$700,000	1.09%	4.10%	$1,050,000
Diabetes	$630,000	2.51%	3.65%	$1,710,000
Antibacterials	$620,000	5.99%	3.62%	$2,380,000
Psoriasis and eczema preparations	$610,000	0.41%	3.56%	$130,000
Alpha adrenoceptor blockers	$550,000	0.79%	3.20%	$1,220,000
Oral supplements/complete diet (nasogastric/gastro)	$500,000	0.29%	2.93%	$520,000
Diabetes management	$500,000	1.62%	2.91%	$910,000
Total top 15 increases	$16,940,000			$18,870,000
Corticosteroids topical	($290,000)	1.32%	−1.68%	$960,000
Antifungals topical	($470,000)	0.42%	−2.74%	$420,000
Angiotension converting enzyme (ACE) inhibitors	($480,000)	7.27%	−2.79%	$4,620,000
Eye Preparations	($560,000)	1.04%	−3.24%	($10,000)
Antiparkinson agents	($590,000)	1.04%	−3.41%	$180,000
Diuretics	($590,000)	0.81%	−3.41%	$130,000
Antithrombotic agents	($1,030,000)	0.39%	−5.99%	($2,620,000)
Beta adrenoceptor blockers	($1,030,000)	3.05%	−6.01%	$750,000
Respiratory devices	($1,300,000)	0.36%	−7.56%	$1,200,000
Contraceptives	($1,570,000)	2.13%	−9.17%	$120,000
Calcium channel blockers	($2,040,000)	5.24%	−11.90%	$3,560,000
Nasal preparations	($2,070,000)	1.03%	−12.06%	($1,910,000)
Anti-inflammatory non steroidal drugs (NSAIDs)	($2,370,000)	2.66%	−13.80%	($560,000)
Bronchodilators	($2,810,000)	4.79%	−16.39%	$1,070,000
Asthma preventative medicines	($9,020,000)	11.74%	−52.55%	$1,010,000
Total top 15 decreases	($26,210,000)			$8,920,000
Net increase – others therapeutic groups	$1,770,000			$10,600,000
Adjustment to reconcile data with cash [1]	$25,290,000			($8,670,000)
Increase (net of GST) – cash figures	$17,790,000[2]			$29,690,000
GST	$2,220,000			$3,710,000
Total increase (cash figures)	$20,010,000			$33,410,000

1. *The above data is based on information from Health Benefits Limited (HBL), the RHA agency which processes pharmacists claims for reimbursement of prescription costs. HBL's data is prepared on an accrual basis. Data used elsewhere in this review is prepared on a cash basis. To reconcile the two data sets this adjustment is made this year and last year. The 1996 data includes a pro rata payment from HBL in June to pharmacists because not all prescriptions were processed by HBL at year end.*

2. *Discrepancy is due to rounding.*

Directory

PHARMAC Board

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

P J (Phil) Edgington, BSc(Hons), *Chief Executive, Central RHA.*

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

C P (Chris) Mules, BA(Hons), *Chief Executive, Midland RHA.*

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

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.

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).

ANTIBIOTIC EXPERT PANEL
Tim Maling (PTAC).
Bruce Foggo (PTAC).
Les Toop (PTAC).
Rod Ellis Pegler, infectious disease physician.
Selwyn Lang, microbiologist.
Graham Robinson, GP.
Ian St George, GP.
Stephen Chambers, infectious disease physician.

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).

DIABETES
Pat Carlton, diabetes nurse specialist.
Paul Drury, diabetologist.
Tim Kenealy, GP.
Sharon Kletchko (PTAC).
Peter Moore, general physician.
Russell Scott, endocrinologist.

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

INTERERON ALPHA
Bruce Chapman, gastroenterologist.
Sharon Kletchko (PTAC).
Nigel Stace, gastroenterologist.
Philip Wong, gastroenterologist.

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

MENTAL HEALTH
Peter Ellis, psychiatrist.
John Hopkins, psychiatrist.
Anne Welsh, psychiatrist.

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

SPECIAL FOODS
Rodney Ford, paedeatrician.
Gloria Le Compte, dietician.
Kerry Maher, dietician.
Jo Stewart, dietician.
Cliff Tasman-Jones, gastroenterologist.

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), *Manager Information, Company Secretary.*
Lenore Jansen, BPharm, MPS, *therapeutic group manager.*
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.*
Peter Sharplin, MSocSc, *analyst.*
Melissa Young, M Pharm, MPS, *therapeutic group manager.*
Annmarie Banchy, RN, *schedule analyst.*
Ingrid Sage, MA(Econ), DPH, *research analyst.*
Linda Whatmough, *office manager.*
Michelle McGuire, *office assistant/receptionist.*

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