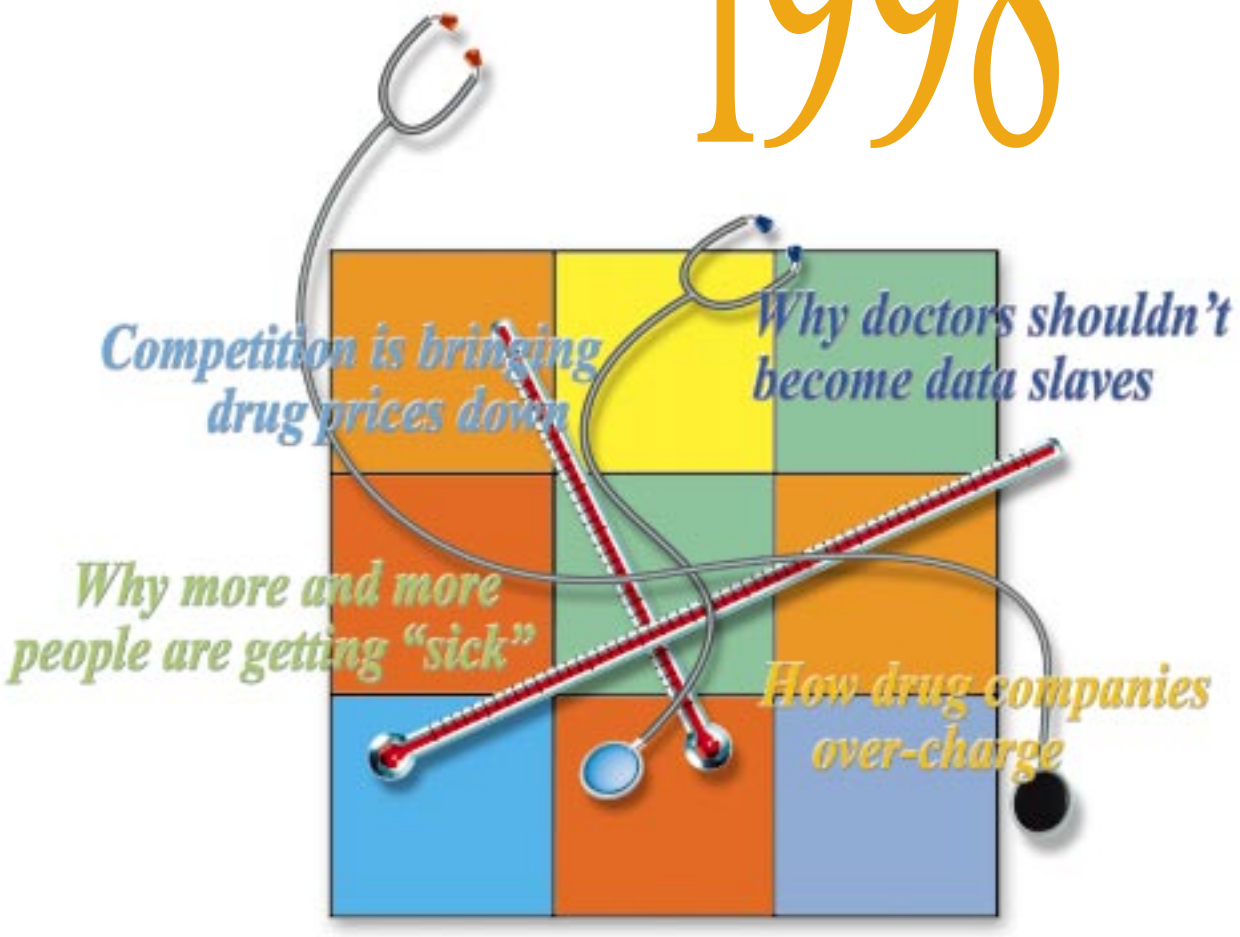
PHARMAC
Pharmaceutical Management Agency Ltd

Annual Review

for the year ended 30 June

1998



PHARMAC *(Pharmaceutical Management Agency Limited) is a not-for-profit company owned by the Health Funding Authority (HFA). Its role is to manage the national Pharmaceutical Schedule on behalf of the HFA.*

The Schedule is a list, updated monthly and reprinted three times a year, of over 3,000 subsidised prescription drugs and related products available in New Zealand. The Schedule also records the price of each drug, the subsidy it receives from public funds and the guidelines or conditions under which it may be funded.

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 its specialist sub-committees, 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.

The drug buying game

How to play –

Anybody may play – doctor, patient, politician, bureaucrat or drug sales rep. All you need is a dice and your own distinctive marker. If you're a doctor, your marker may be a paper weight from a drug company. If you're a patient, it may be a bottle of pills. If you're a bureaucrat, it may be your calculator. If you're a politician or a drug sales rep, a promise may get you through.

Assume that you have $750 million a year to spend on drugs, then throw the dice. Good luck.

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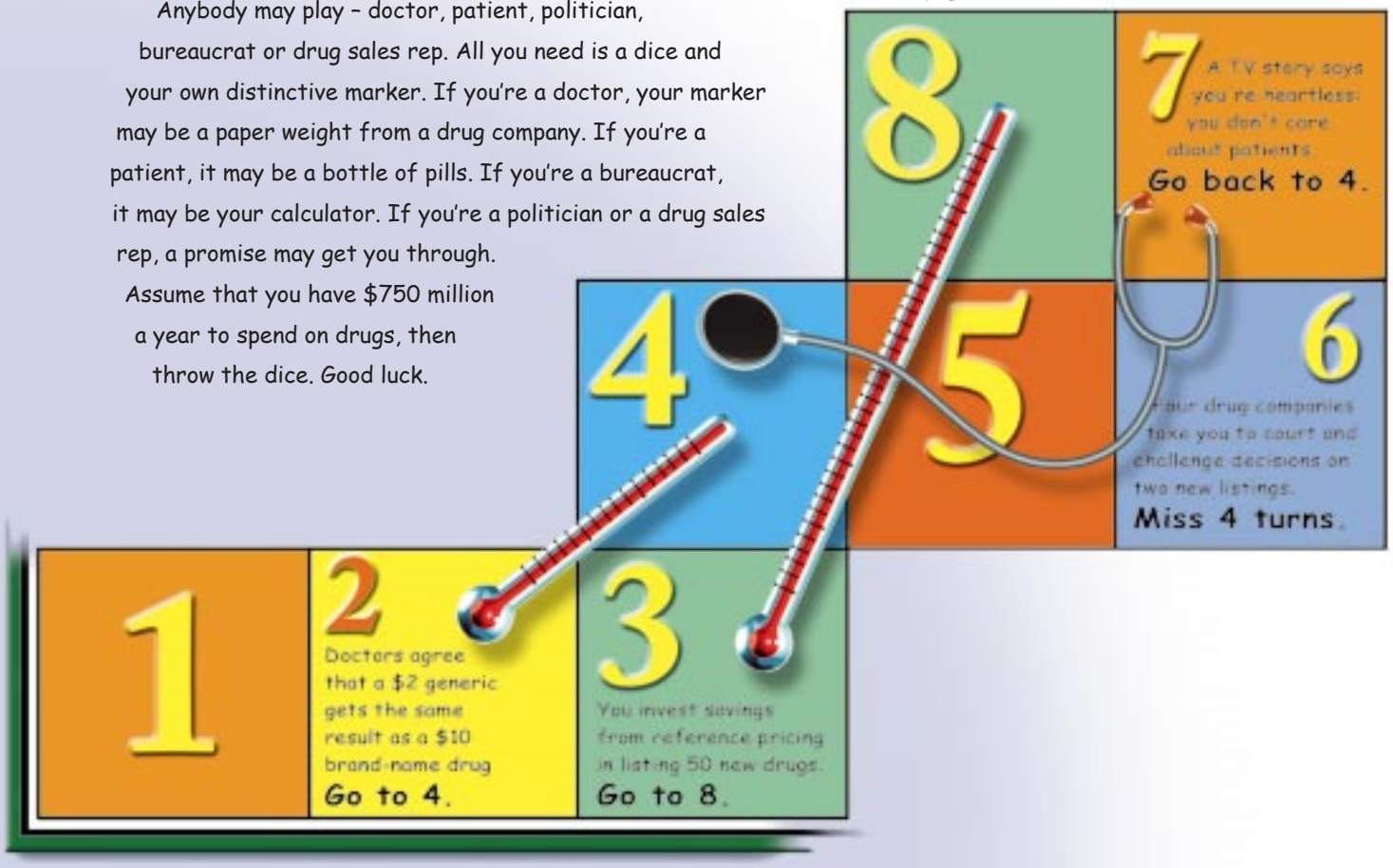

Effective competition is bringing

PHARMAC chairman, Denis Tait, says that tax payers and patients are now seeing real benefits from five years of persistent effort to bring competition into the New Zealand drug market.

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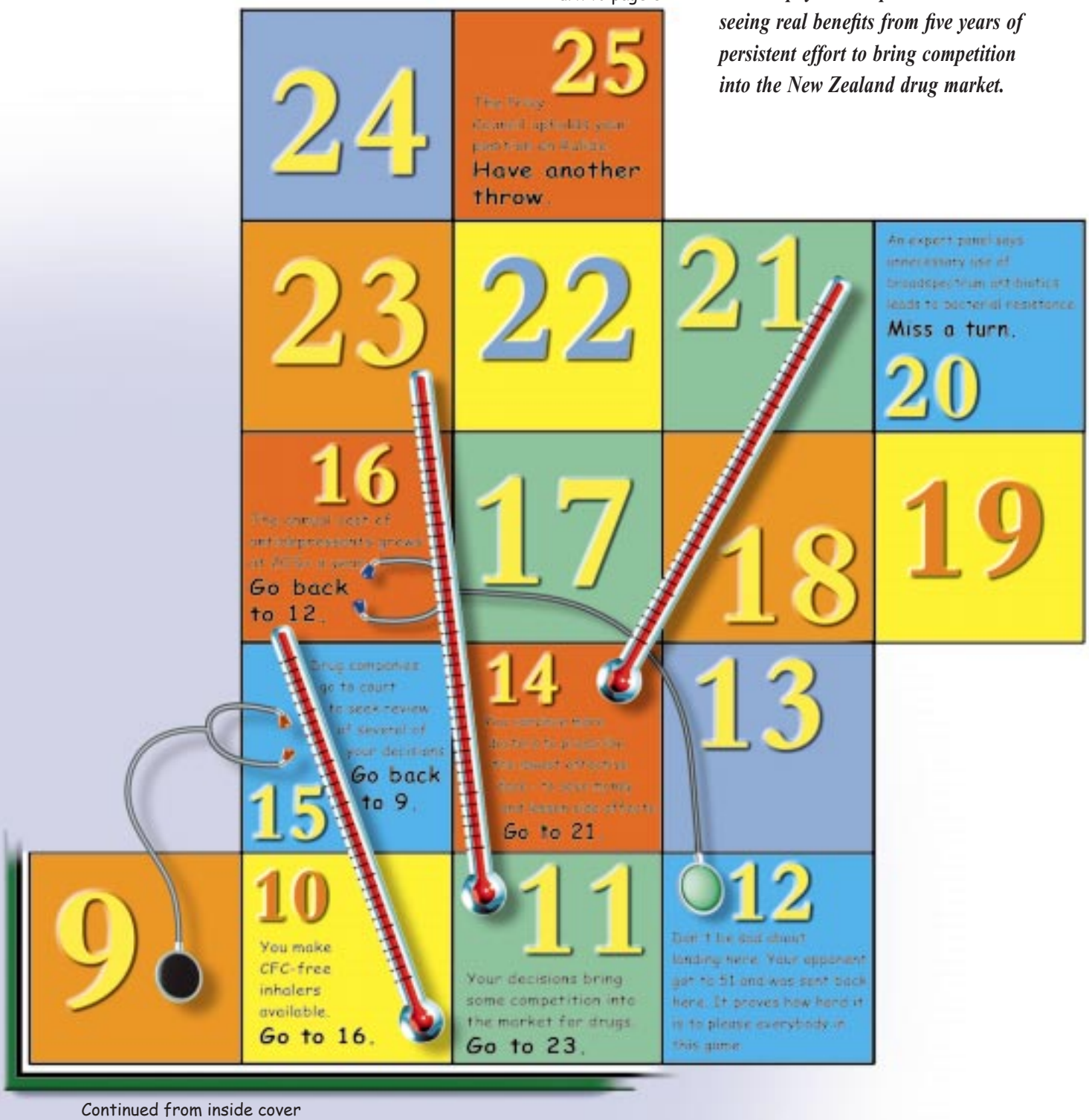


Continued from inside cover

prices *down*

This year, PHARMAC's fifth, was significant because we could see real pay-offs for the hard work we have put into bringing competition into the New Zealand drug market. We entered into new sole supply and preferred brand arrangements, and we brought down the cost of many treatments including ACE inhibitors and asthma drugs. We estimate that these and other initiatives will bring savings to tax payers of $35 million next year and nearly $150 million the following year.

Our objective has always been to achieve an acceptable balance between the needs of patients for equitable access to drugs and the needs of the rest of the health system.

Five years on

We are satisfied that over the last five years we have performed well. We have negotiated a number of innovative agreements with suppliers and reduced the subsidy of many drugs, to achieve savings over five years of about $284 million.

We have used more than $70 million of these savings to provide access to 363 new drugs including, this year, new treatments for glaucoma, Parkinson's disease and kidney transplant rejection. We have also released funds, that otherwise would not have been available, to serve greater health care priorities.

The battle against rising drug expenditure has had its ups and downs. We have faced strenuous opposition from the drug industry, in the media and in the courts, and we have had to work extremely hard to gain the support of prescribers.

It is inevitable that such activity will invoke an active response from special interest groups. There are two types of response – the *me first* (which, if successful, means *others second*), and the *win-win*. We regard the *me first* response as unhelpful and motivated by self interest. Our preference will always be for *win-win* solutions, in which the patient is one of the winners. We neither desire nor intend that drug companies, doctors or pharmacists be deprived of legitimate profits and business opportunities. We all have a mutual interest in patient health and in a robust health sector. We simply ask that special interest groups recognise that resources are finite and that we all have a role to play in spreading available resources as fairly and equitably as possible.

The drug industry's response

The *me first* approach often involves legal action (threatened or real), advocacy advertising, media publicity, and threats (and in two cases, decisions) to withdraw research funding. The most publicly visible example was in November 1997 when the Researched Medicines Industry Association (RMI) bought full page advertisements in major daily newspapers to question PHARMAC's plans to reduce waste and bring down the cost of a range of drugs.

This response led to a great deal of anxiety and confusion among patients. Intense media interest brought almost daily requests for interviews for television, radio and newspapers. To allay patient anxiety we set up an 0800 line and employed extra staff to handle hundreds of calls. A consequence was that we had to divert scarce resources from productive work to fighting a fire started by the drug industry.

What started as an attempt by the RMI to win public support ended in near-unanimous support for PHARMAC by politicians; and faced with a public backlash and a complaint by both PHARMAC and the Minister of Health to the Advertising Standards Authority, the RMI withdrew its campaign. The furore cost tax payers and the RMI money that could have been much better spent on health.

Direct to consumer advertising

A relatively new, and growing, phenomenon is direct-to-the-consumer advertising by drug companies. Television viewers have been told to see their doctor about Renitec for mild blood pressure, Flixotide for asthma, Havrix for hepatitis, and Xenical for obesity. Largely, the advertising is a response by the companies to the more competitive market created by PHARMAC. Our concern is that it is creating consumer demand for expensive drugs when often a much lower cost, fully-subsidised, clinically-appropriate alternative is available. There are also important issues about the emotional content and the quality of information in the advertisements, especially in the fine print which on TV is usually unreadable.

Getting prices down

We made pleasing progress in reducing costs in many therapeutic areas. An agreement with Astra saved $10 million on asthma drugs. A 60 per cent reduction in subsidy levels for ACE inhibitors is expected to save $150 million on anti-hypertension drugs over the next six years.
The success of this exercise was due, in part, to our implementation strategies. In addition to an education campaign aimed at patients, pharmacists and prescribers, subsidies for doctors' visits to consult about the changes were made available. It was the most comprehensive exercise of its type that we have undertaken and it highlights our commitment to decisions based on careful evaluation of all the evidence, wide consultation and thorough communication of our decisions.

The success of tenders, firstly for paracetamol and later for 23 other generic drugs resulting in 11 sole supply contracts, is noteworthy. These initiatives will save the tax payer more than $8 million a year. The products tendered were selected from a much longer list which was reduced through a combination of voluntary price reductions, preferred brand arrangements, and because of issues raised by suppliers and medical groups. Some of the results of tenders for the 23 agents are still to be implemented. Next year we expect to negotiate further sole supplier

and preferred brand arrangements and we will look for new ways to achieve win-win solutions for patients and suppliers.

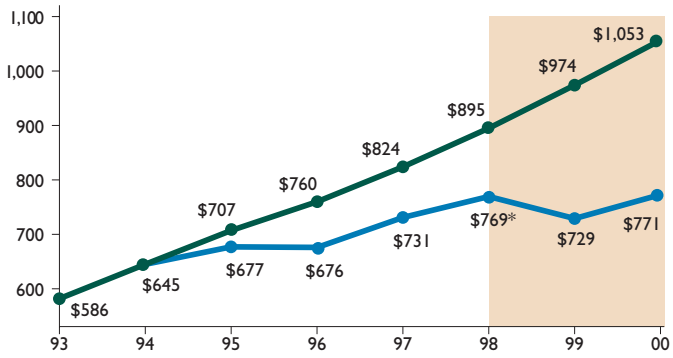
Improving asthma management

A joint effort with the Asthma and Respiratory Foundation and the Health Funding Authority aims to improve the effectiveness of asthma treatments and thus reduce the number of hospital admissions each year. The Foundation believes hospital admissions can be cut by 25 per cent within three years to yield cost savings of $7.5 million a year. The effort includes an audit of asthma services, revision by asthma experts of the current self-management programme, education and information campaigns to improve the quality of self-management. We expect it to be the forerunner of other initiatives that recognise that drugs cannot, alone, improve people's health.

Graph one

Effect of PHARMAC interventions

Total subsidised, non-CHE-funded, drug cost in $ millions including distribution and dispensing fees and GST, 30 June years.



Estimated expenditure without PHARMAC interventions.
Actual and forecast expenditure with PHARMAC interventions only.
Forecast

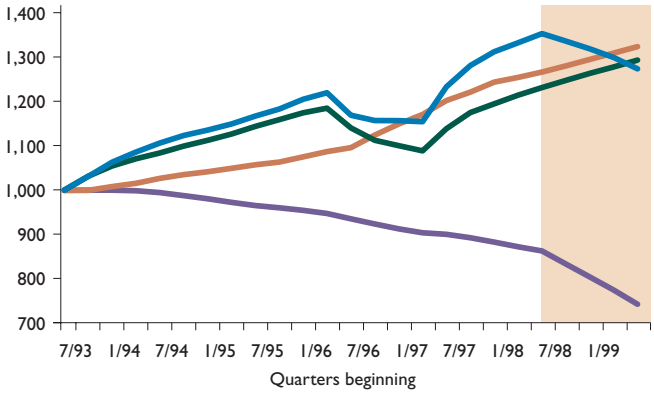
Without PHARMAC interventions the drug subsidy bill this year would have been $123 million higher, rising to $245 million higher next year.

** Lower boundary of range (upper range = 775).*

Graph two

Subsidy, volume, mix and cost indices

Four-quarterly moving averages
Base: December quarter 1992 = 1,000.



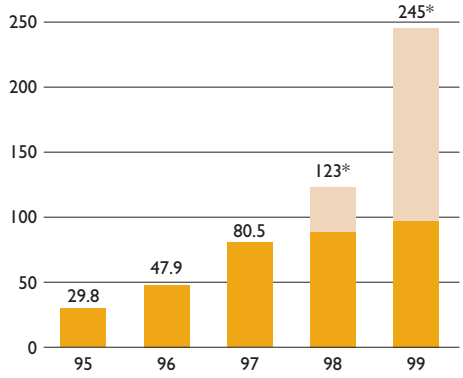
***Cost index** is the drug cost to the HFA ex manufacturer before GST.*
***Volume index** is the number of prescriptions multiplied by a standardised measure of the amount prescribed per prescription.*
***Mix index** is the residual from cost index divided by (volume index X subsidy index).*
***Subsidy index** is like the consumers price index but for subsidised pharmaceuticals only.*
Forecast

The subsidy index continues to fall while total costs continue to rise.

Graph three

Total cumulative savings

Years ended 30 June $ millions



Net savings from decisions made between 1 July 1993 and 30 June 1997.
Estimated savings from implemented and planned decisions made since 1 July 1997.

** Lower boundary of range.*

Improving decision-making

We continued to develop our ability to apply cost-utility analyses to our decisions. In our application of QALYs (Quality Adjusted Life Years) we believe we are at the forefront of the world's drug-subsidy agencies in analysis and application. This year we compiled a report called *Prescription for Pharmacoeconomic Analysis* in which we outline our views on the measurement of costs, health benefits and our priorities for reviewing drug investment. In preparing this document we consulted widely – with international and local experts, drug companies, doctor groups and HFA staff. The feedback we received was positive and led to helpful improvements.

Improving information quality

We made a number of changes to the format of the Pharmaceutical Schedule as a result of suggestions from users and to accommodate new arrangements such as sole supply and preferred brand. All of these changes are aimed at making the Schedule more "user-friendly" and at improving the quality of information about drug prices and subsidies.

Early this year we added to our internet site (www.pharmac.govt.nz) a drug cost calculator and the ability to search the Schedule. The site is now being accessed about 1,300 times a month – half of which is originating overseas. We are now re-designing the site to further improve the ability to search the Schedule, to report on monthly drug costs, and to offer policy papers, media releases and information brochures.

Litigation

PHARMAC is emerging from a watershed year in its litigation. A series of chapters have closed and there are signs that PHARMAC's relationship with pharmaceutical suppliers is moving to a more constructive footing. Highlights this year included:

- a Privy Council decision in favour of PHARMAC in a judicial review test case concerning our therapeutic sub-group and reference price decisions;

- a Court of Appeal decision in PHARMAC's favour, ruling that our statutory exemption from the Commerce Act applied and striking out Commerce Act claims in three cases;
- progression of four cases towards settlement;
- a new willingness by the courts to strike out judicial review claims against PHARMAC.

It is notable that the Privy Council, New Zealand's highest court, recognised in its judgment that:

- one of the objectives in enacting the Health and Disability Services Act was "to control escalating costs in health care, including expenditure on pharmaceuticals";
- there were "sound economic reasons" for PHARMAC's actions; and
- there was a "public interest in reducing expenditure on pharmaceuticals".

What we draw from this is that our decisions and processes have withstood multiple attacks on all fronts; that future judicial review claims and Commerce Act claims against us are unlikely to succeed; and that drug companies now appear to be accepting and adapting to the environment brought about by the health sector reforms.

I regret that in order to get to this point, we have had to spend more than $3 million on legal fees in the last five years. I would prefer that money to have been spent on treating patients.

Thanks

I record sincere thanks to my fellow directors for their support; to our fine team of managers and analysts and to the practising doctors on PTAC and its sub-committees who continue to provide invaluable, independent advice to the PHARMAC Board. I record special thanks and pay tribute to David Moore, who has managed PHARMAC for the five years since its inception. David deserves much credit for his frequently innovative and consistently high quality work. We wish him well in his new post as General Manager Personal Health at the HFA.

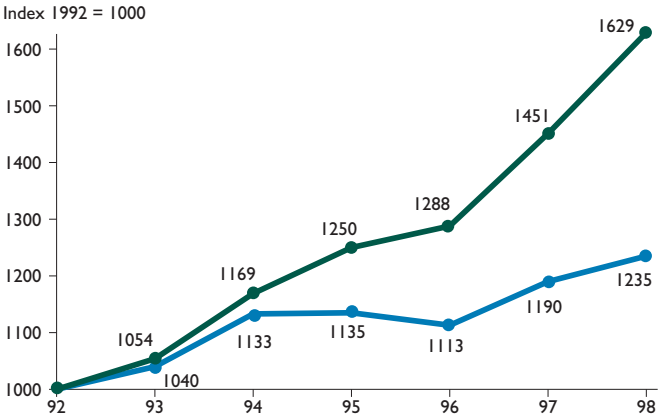
On behalf of PHARMAC, I also thank the patients, prescribers, pharmacists, drug companies, professional medical associations, user groups, and politicians, especially those who have taken the time to work with us and to respond to our many requests for information and help over the last five years. In particular, we acknowledge your patience and cooperation in dealing with the number and frequency of changes we have made in that time. We look forward to your continued support.

Denis Tait
Chairman
21 September 1998

Graph four

REAL DRUG EXPENDITURE GROWTH VERSUS POPULATION

Years ended 30 June. Base: 1 July 1992 = 1,000.



***Expenditure** at constant 1992 prices.*
***Expenditure adjusted** for general CPI inflation.*

Sources: Drug data from Health Benefits (NZ) Ltd. Drugs deflated by drug subsidy inflation and CPI inflation.

When adjusted for inflation drug costs have increased by 23 per cent over six years. However drug usage (volume) at 1992 prices increased by 63 per cent over the same period.

THIS YEAR

we made pleasing progress in . . .

- Bringing down the cost of treatments – without compromising patient health – for hypertension, stomach disorders and asthma.
- Cutting prices for generic drugs through preferred brand and sole supplier arrangements.
- Working with drug companies for mutually-beneficial outcomes.
- Listing new treatments for glaucoma, Parkinson's disease, and kidney transplant rejection.
- Strengthening our relationships with the New Zealand Medical Association (NZMA), the Royal NZ College of General Practitioners, the Independent Practitioners' Associations (IPAs), and the Preferred Medicines Centre (PreMec).

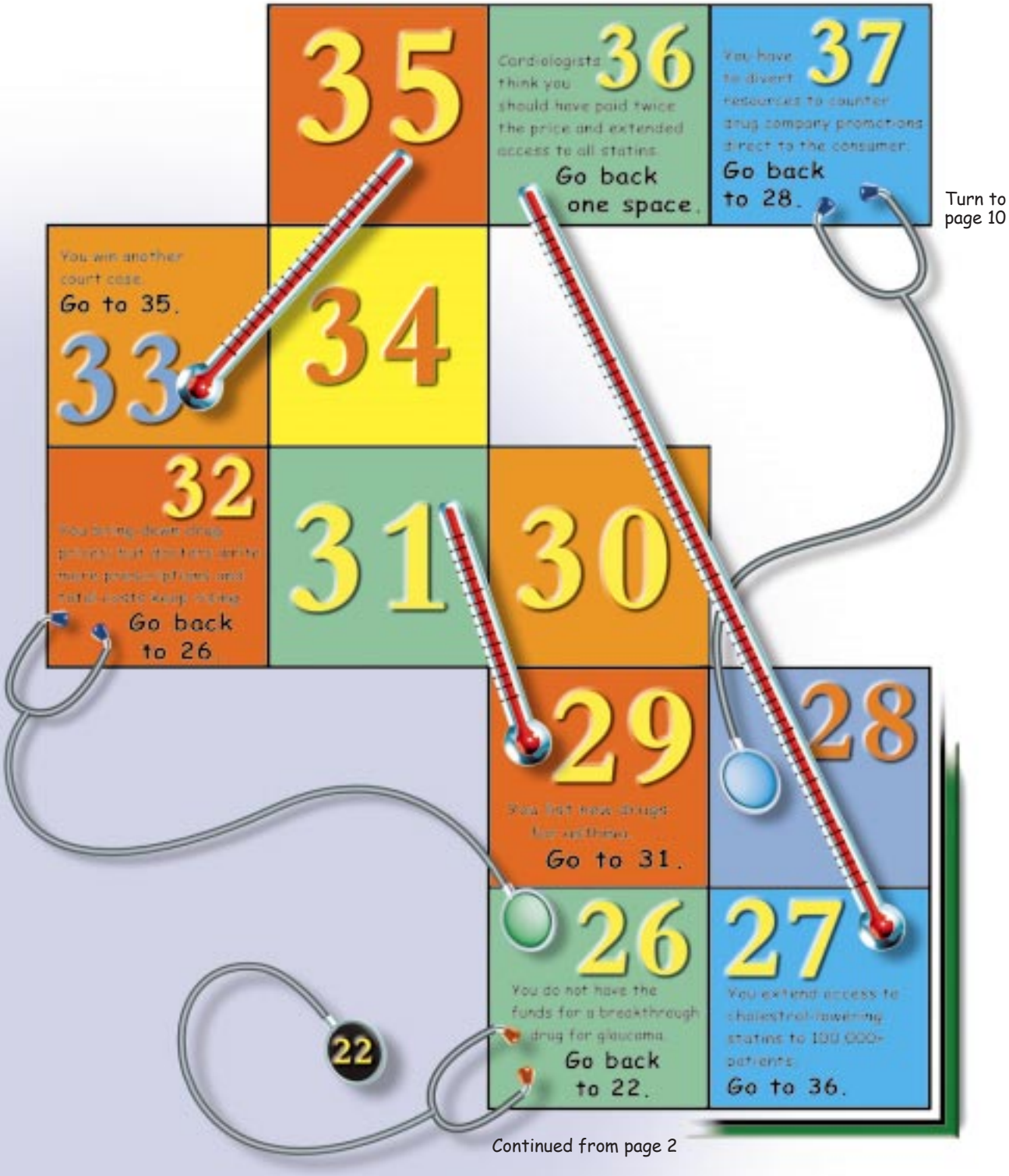
but faced pressure from . . .

- Continuing litigation and public advocacy advertising from the drug industry.
- A few doctor groups who refuse to accept the recommendations of the independent, expert, advisory committees of the Pharmacology and Therapeutics Advisory Committee (PTAC).

and suffered disappointment because . . .

Of the unnecessary anxiety among patients aroused by the abortive advertising campaign of the Researched Medicines Industry Association (RMI).

Doctors don't be data



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slaves – back your judgement

John Hedley, Chairman of the Pharmacology and Therapeutics Advisory Committee (PTAC), says evidence-based medicine has improved the quality of patient care but some doctors are becoming slaves to the data: they should use their analytical skills and have confidence in their experience and judgement.

About a decade ago the term *evidence-based medicine* (or EBM) emerged in the medical literature to emphasise the need for better use of data in treatment decisions. The term is now in common use, with a growing number of citations. Just a few minutes on the Internet, for instance, throws up scores of references.

But what, precisely, is meant by EBM? Is it a fad to be derided on the grounds that there is no other type of medicine? Is it, as some European lobby groups claim, a "smokescreen for rationing." Or is it a commonsense tool to help doctors choose the most cost-effective therapy for their patients?

David L Sackett, director of a UK National Health Service research centre on EBM is in the latter camp. He defines EBM as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. It means integrating individual clinical expertise with the best available external evidence from systematic research." To which he adds: "The practice of EBM is a process of lifelong self-directed learning in which caring for patients creates a need for clinically important information about diagnoses, prognoses, treatment, and other healthcare issues."

In New Zealand we are seeing a wave of enthusiasm for EBM and I have no doubt that its use is improving the standard of patient care. But the wave also has a backwash in which the latest published data can put blinkers on the doctor's judgement. The result can be slavish adherence to a treatment protocol because that is what is described in the methods section of the latest randomised control trial (RCT). Or it can mean using only one brand-name drug because that is the drug used in the latest RCT. Or it can mean prescribing only at the dose rate used in the latest RCT.

For example, some New Zealand doctors have asserted that in heart failure only certain brands of ACE inhibitor should be used because they are the only brands for which survival data is available. This ignores the fact that the absence of data for other brands of ACE inhibitor does not mean that they lack similar effects.

Surely, our training, experience and intuition tell us that RCT data must always be used with caution? Surely, also, we have an ethical duty to take the cost of each treatment option into account, and if we know from experience that a lower-cost drug will do the job just as well as a higher-cost alternative, then we must prescribe the lower-cost drug. And if our patient is under the influence of information conveyed via the Internet and direct-to-the-consumer TV advertising by the vendor of the higher-cost drug, then it is our ethical duty to explain why we believe that the only difference between the two options is price, not effectiveness.

Using RCT data with caution

At PTAC we rely heavily on RCT data. A drug that comes to us for subsidy has an advantage if the application is supported by reputable, quality RCT data. On the other hand, lack of such data does not necessarily disqualify a drug. Our decisions are based – in accordance with EBM principles – on the integration of *expertise* and quality *data*.

Steps necessary to practise EBM

- Convert the need for information into clinically relevant, answerable questions.
- Find, in the most efficient way, the best evidence with which to answer these questions (whether this evidence comes from clinical examination, laboratory tests, published research, or other sources).
- Critically appraise the evidence for its validity (closeness to the truth) and usefulness (clinical applicability).
- Integrate the appraisal with clinical expertise and apply the results to clinical practice.
- Evaluate your performance.

David L Sackett, director NHS Research and Development Centre for EBM, UK.

We temper our assessment of the data with reminders that there are many reasons why it can never be conclusive. For example:

- RCTs often contain a group of patients selected using multiple exclusion criteria. They may bear little resemblance to the patients who appear in our surgery.

- The ethnic mix of patients in RCTs may differ from that in New Zealand. This may skew the results significantly where there is a strong correlation between ethnicity and predisposition to certain diseases.

- Patients in RCTs are usually cooperative, are subject to intense follow-up and are likely to comply fully with every aspect of the treatment. That is often not the case in the real world.

- The outcomes for individual patients in a trial are often quite different, particularly at the margins of the bell-shaped curve. Clearly, we can not use a one-size-fits-all approach for these patients. We must modify the treatment using our *expertise*, intuitions and personal knowledge of their attitudes, beliefs and condition.

- The dose rate in RCTs is usually set at the level most likely to ensure the desired outcome. In prescribing for a particular patient, the dose rate of the RCT should be used only as a guide. There are proponents of EBM in New Zealand who insist that ACE inhibitors be prescribed in the doses used in the RCT. However, the average dose rates for ACE inhibitors used in congestive heart failure in New Zealand are well below the rates used overseas and in the RCTs. So clinical judgement is playing a part: taking into account factors such as hypertension, age, body weight, renal impairment, and so on.

- The potential for bias and conflict of interest in drug company-sponsored RCTs which is a subject that deserves its own heading.

Conflict of interest and disclosure

If it were not for the support of drug companies we would have far fewer RCTs and that would mean that doctors would have less data available to them. The consolation would be that the remaining data would tend to be free of bias towards the sponsor's product. Last year, in PHARMAC's *Annual Review* I looked at this subject at some length under the question: "Are doctors deafened by drug company persuasion?" The evidence that the answer is "yes" continues to mount. The core of the issue, in my view, is the conflict of interest between a researcher's duty to the science and the reliance of the research on commercial funding.

An editorial in the Journal of Applied Physiology said: "Some people have taken the view that conflict of interest is a lot of fuss about nothing or, worse, that identifying people's conflicts of interest is a form of McCarthyism. Those who argue against concerns about conflict of interest say that science is science, methods are transparent, data either support the conclusions or do not, and it is neither here nor there whether researchers have, for example, shares in a company that manufactures a drug included in a trial.

"This argument is becoming steadily less tenable as evidence accumulates on the influence of conflict of interest. Several studies have shown that financial benefit will make doctors more likely to refer patients for tests, operations, or hospital admission, or to ask that drugs be stocked by a hospital pharmacy. Now we are beginning to have data on the effects of conflict of interest on publications."

Striving for balance

"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."

Professor Raanan Gillon, Imperial College of Science, Technology and Medicine, London.

The editorial cites two "important studies" that "mean we must take conflict of interest more seriously":

- A study of 70 articles, mostly reviews or letters, in medical journals about the use of calcium channel antagonists for treating cardiovascular disorders. It concluded that the authors were much more likely to be supportive of calcium channel antagonists if they had a financial relationship with manufacturers of the drugs.

- A study of 106 review articles on passive smoking. It found that three quarters of the articles that concluded that passive smoking was not harmful were written by tobacco industry affiliates. The authors commented: "The tobacco industry may be attempting to influence scientific opinion by flooding the scientific literature with large numbers of review articles supporting [their position]." Only 23 per cent of the articles disclosed the sources of funding for research. The authors had to use their own database of researchers linked with the tobacco industry to determine whether authors had such links.

The scandal of poor research

"… many papers published in medical journals are misleading because of methodological weaknesses … This is surely a scandal … We need less research, better research, and research done for the right reasons."

Douglas G Altman, Medical Statistics Laboratory, London.

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 professional bodies including, amongst others, 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, where there are clinical issues to consider;
- 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.

Says the editorial: "These two papers and their predecessors begin to build a solid case that conflict of interest has an impact on the conclusions reached by papers in medical journals. They also show convincingly that medical journals are failing to get authors to declare conflicts of interest."

When we use RCTs to aid our clinical decisions we need to recall these two studies and to remind ourselves that drug companies sponsor research for marketing reasons not academic curiosity. We need, also, to remind ourselves that the goal of drug companies is to create wealth for their shareholders – a goal that sometimes conflicts with society's need for maximum health benefit from available tax dollars.

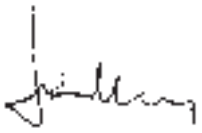
Another consideration is the tendency for trials containing negative results to never see the light of day. An editorial in the American Heart Association journal says: "Hundreds of small, carefully conducted, randomised trials ... have been completed, but many of them (especially those with negative results) have never been reported in the medical literature."

At PTAC we would like to see many more RCTs based on generic drugs and much more research comparing the bio-equivalent drugs of different manufacturers. The funds for such research can come only from benevolent, philanthropic or tax payer sources. Regrettably, these sources are all under pressure.

Meanwhile, doctors must continue to use judgement, wisdom and expertise and take much of the data available with a grain or two of salt.

Thanks

I thank my fellow PTAC members for their contributions to the committee and their support. My thanks also to the sub-committees of PTAC without whose input we could not properly operate. Thanks also to the increasing numbers of doctors and other health professionals who have taken the time to respond to our requests for comment and information.



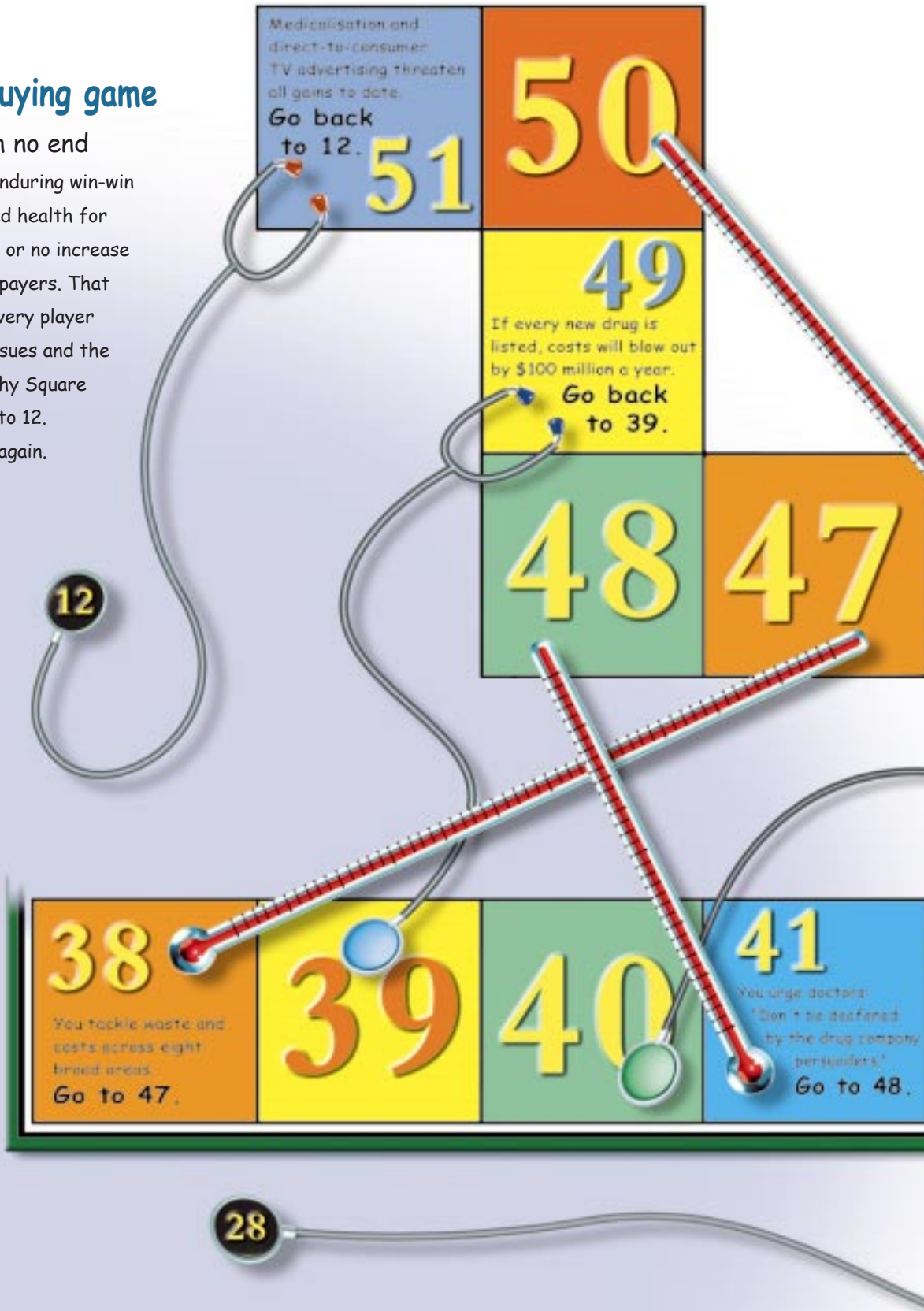
John Hedley
Chairman
Pharmacology and Therapeutics Advisory Committee (PTAC)

Why are more and mo

The drug buying game

The game with no end

PHARMAC wants enduring win-win solutions – improved health for patients with little or no increase in real cost to tax payers. That will happen when every player understands the issues and the problems. That's why Square 51 sends you back to 12. So you may all try again.



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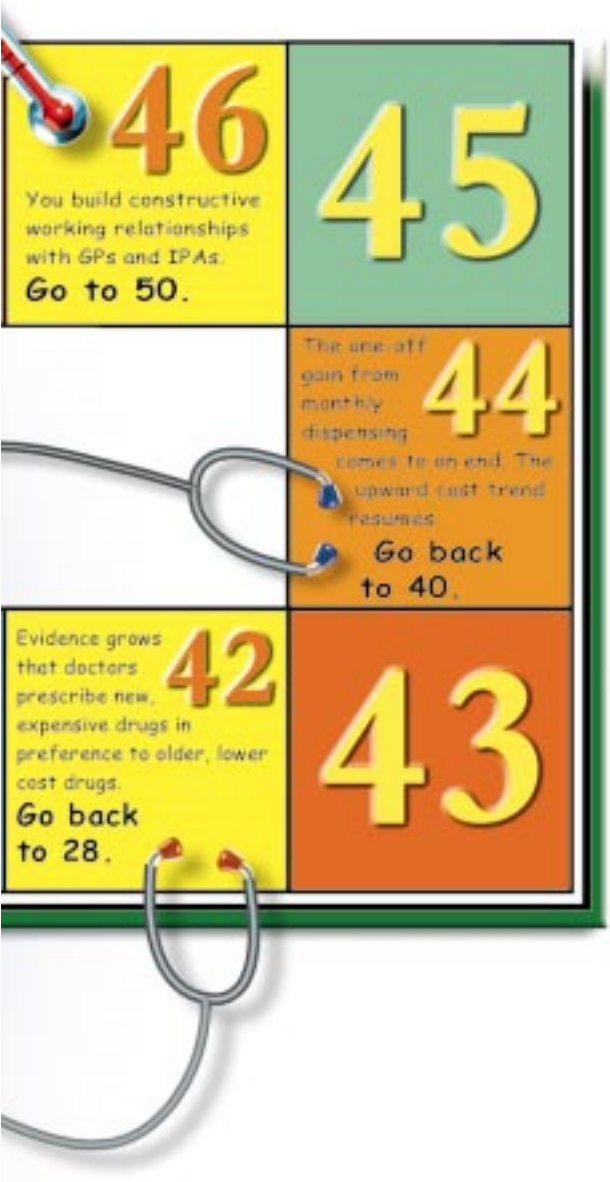
re people getting "sick?"

PHARMAC General Manager David Moore says the newest threat to the drug budget is the phenomenon known as "medicalisation," where common human conditions are defined as "illnesses" that need to be treated with drugs.



In 1995, two American academics, Kawachi and Conrad, said that the next human condition that would become "medicalised" was obesity. In 1998, Xenical burst on to the New Zealand drug market.

The two academics made their prediction in a paper in which they discussed how "natural life processes," such as sexuality, childbirth, child development, menstrual discomfort (PMS), menopause, and aging are brought into medical jurisdiction and treated as if they are an illness or disease. The phenomenon has been dubbed "medicalisation."

Three years earlier, in 1992, an American medical journalist, Lynn Payer, wrote a book entitled *Disease Mongers – how doctors, drug companies and insurers are making you feel sick*. Payer described 17 "tactics" used to "make us feel sick" and so require "treatment."

The phenomena described by Payer, Kawachi and Conrad are a major cause of pressure on the annual drug budget of every agency – including PHARMAC – that seeks to get value for money from drugs.

In New Zealand, obesity is merely the latest of several common human conditions to be medicalised. Others include: mild hypertension, high cholesterol, menopause, anxiety and mild depression. The "treatment" of these conditions is a large contributor to our rising drug bill. Around the corner lurks male impotence and its highly-vaunted saviour, Viagra.

Drug companies as drivers

The main driver of medicalisation is the drug industry, supported (often with the best intentions) by doctors, pharmacists, and researchers – and (often unknowingly) by the public. The potential gains for the drug companies are huge. When the blood pressure threshold for drug treatment of hypertension was lowered from 105 to 90mmHg (as in USA in 1972 when a government-sponsored education programme agreed with drug company overtures) the number of people recommended for treatment trebled. Overnight, an already large market, became three times larger. Most businesses merely dream of gift horses of this size. Kawachi and Conrad take a cynical view: "Fortunately for the medical care and pharmaceutical industries, the ultimate success of an innovation frequently has little to do with its intrinsic worth, but depends on the power of the interests that sponsor and maintain it."

Two preconditions

There are two preconditions for medicalisation – the existence of an easy-to-use, objective system to measure the extent of the "problem" and the availability of an easily-administered drug to "treat" it. Kawachi and Conrad cite hypertension as a classic, and early, example of medicalisation springing from these two preconditions.

They point out that there are more than 240 risk factors for cardiovascular disease, including short stature, baldness and being married to women in white collar jobs. "Yet only a tiny fraction of these risk factors has been medicalised so far, one reason being that there are no drugs available to treat the majority of identified risk factors."

As effective, easily-tolerated drugs became available in the sixties, the way was opened for mass medication of the population. "…hypertension was (and continues to be) regarded as incurable, and hence drug treatment is lifelong. The discovery of hypertension in a patient is the starting point for decades of profitable drug therapy," say Kawachi and Conrad.

While effective, easily-administered drugs met the first precondition for medicalisation of hypertension, the second precondition was met by the sphygmomanometer. "[Its] non-invasive portable nature meant that blood pressure screening could be carried out just as easily in the corner drug store, or street corner, as in the physician's office."

How the mood is moved

With the preconditions in place, the marketers take over. Their goal is to shift a solution that is often under the control of the individual into the hands of a doctor. But to succeed, the marketers need credible trial data. This usually comes from "independent" academic research funded by the drug manufacturer. Armed with "independent" data, the sales reps go to work on doctors, and the PR people and lobbyists go to work on politicians and opinion-formers in quest of regulatory favours or official endorsements – like the lowering of a blood pressure or cholesterol threshold, or a politically-sponsored "disease prevention" campaign (sold to the public under the slogan: prevention is better than cure). The latter, say Kawachi and Conrad, is what happened with hypertension in the US in the fifties and sixties.

The newest marketing strategy taps into the shifting public mood by emphasising "quality of life." Xenical and Viagra fit well within this strategy.

The trial data problem

A problem with the trial data that the drug companies use to support their sales efforts is that the data is often short-term and the outcomes are surrogate measures. Such data do not answer the questions that need to be answered such as: "What is the long-term impact of this drug on morbidity and mortality, and are there side effects from lifelong consumption?"

The value of education

"In a society requiring a high quality of health care that is also cost effective, policy makers would do well to support successful programmes of educational intervention in the practice environment."

Flora M Haaijer-Ruskamp, University of Groningen, The Netherlands.

An editorial in the American Heart Association Journal says: "In this modern era, in which the possibilities for medical care exceed society's willingness to pay, it is vital to the interests of our patients that we admit that gaining definitive knowledge about the therapies we prescribe is our professional responsibility. Until we shoulder that responsibility, our patients will suffer needlessly from damage done by the over-use of detrimental but inadequately understood therapies and the under-use of beneficial but inadequately understood therapies. In the case of calcium channel blockers, many years and thousands of patients later we still do not know which problem, over-use or under-use, we have created."

For another view on researcher "independence," and the credibility of trial data, read Dr John Hedley on page 6.

An array of tactics

In addition to trial data, the drug companies employ an array of other tools. Payer's list of 17 tactics include:

Taking a normal function and implying that there's something wrong with it. Stress is an example. Payer cites a drug company news release that advises a visit to the doctor for people who feel "emotional and social isolation," who are "not taking time for oneself in terms of leisure, proper diet, rest and exercise," or who suffer from "job frustration, [or] chronically hostile or angry feelings." She comments that most doctors have not been trained to deal with job frustration or not taking enough time for oneself and that some would undoubtedly prescribe a tranquiliser, rather than address the cause of the perceived problem.

Defining as large a proportion of the population as possible as suffering from the "disease." Says Payer: "Pharmaceutical companies seem to love this tactic, particularly because it is more 'gentlemanly' than attacking the drugs of a competitor. Defining the pie as large as possible, rather than fighting for your share of it, can be masked as a noble attempt to educate the public about their health rather than cut-throat competition." The tactic is particularly evident, she says, in "threshold diseases" such as hypertension and high cholesterol where the line between normal and "diseased" is arbitrary. She adds that journalists are particularly susceptible to this tactic, since it is much easier to sell an editor on a disease that affects 25 per cent of the population than on a drug that is useful to only one per cent.

Make liberal use of the word "fatigue." Says Payer: "Nearly all disease-mongering messages include fatigue as a symptom of the disease in question – and it usually is. The posters in the subway touting fatigue as a symptom of lupus erythematosus, the milk cartons saying it could be a sign of diabetes, and the press release saying it could be a sign of liver disease, are all technically correct. But it's probably not going to help depressed people to think that they may have a chronic and possibly fatal disease in addition to their depression."

Serious questions

All of this raises serious questions:

- *Is it ethical or rational to define large numbers of people as "sick?"* Hypertension, for example, can be defined as an "illness" affecting as much as 40 per cent of the population. Menopause, requiring hormone replacement therapy, ultimately affects 50 per cent of the population. Too often, it seems, cardiovascular risk is identified and treated using just one risk factor, when intuition and experience indicates clearly that treatment should be based on multiple risk using coronary risk scores such as those developed by the National Heart Foundation.

- *Why is the whole of an "at-risk" population being "treated"* when the likelihood is that only a few will derive measurable long-term benefits?"

- *Why are we exposing large numbers of people to "chemicals,"* sometimes for the rest of their lives, when long-term data on morbidity, mortality and side-effects are scarce or non-existent. Why does mild hypertension continue to be treated with ACE inhibitors and CCBs when there is no convincing evidence that these drugs influence morbidity or mortality? Was there an early warning of future hazard in Psaty's conclusion in 1995 that patients taking calcium antagonists face a 60 per cent higher risk of heart attack than those taking other antihypertensives? Since Psaty, other studies have cast new doubts. Is there another benzodiazepine calamity over the horizon? Three decades ago Valium and Librium were sold as non-addictive "treatments" for anxiety. We got it wrong.

- *Is informed consent taking place fully* when doctors advise long-term treatments for "medicalised" conditions? It seems reasonable to assume that a significant number of patients would decline "treatment" if presented with all the relevant information.

- *Is too much reliance being placed on the machine* that measures the condition? In taking blood pressure, for example, to what extent is the patient getting in the way of accuracy. In JAMA three years ago, Richard Reeves identified ten such factors, including distended bladder, white coat syndrome, and acute caffeine, as causing mis-readings of up to 28mmHg.

- *Are all the implications of "treatment" being considered*, including the potential to make a patient feel more sick simply because they are told they are sick? Kawachi and Conrad's view is that: "By designating hypertension as an illness, an entire population of people who previously had not defined themselves as ill (since they had no symptoms) can at least theoretically take on the sick role. While this may be beneficial, in at least not blaming them for their condition, it also has other consequences. For example, studies have shown that after individuals are diagnosed with high blood pressure they report more illness symptoms and have higher rates of absenteeism at work … Thus by medicalising the blood pressure of larger segments of the population, we might be increasing the social incidence of illness and adoption of the sick role."

IPAs – A REVOLUTION IN GENERAL PRACTICE

"The development of IPAs (Independent Practitioners' Associations) signal a revolution in general practice, with a new doctor accountability structure for both cost as well as quality. IPAs have demonstrated savings of 10 to 23 per cent in laboratory and pharmaceutical expenditure. They are likely to be the main factor in the future in controlling the growth in the government's bill for pharmaceuticals."

Professor Emeritus Laurence Malcolm, Auckland.

- *Is it ethical* to put substantial resources into "treatments" for medicalised conditions when these resources could be used for new drugs that are known to offer cures for illnesses that are clearly-defined? Perhaps doctors should put in a prominent place the conclusion of the US Centres for Disease Control that 53 percent of our health outcomes are due to lifestyle, 19 per cent to environment, 18 per cent to our genetics and only 10 per cent to medical care.

Conclusion

PHARMAC wants to ensure that sick people are restored to health. Our efforts are thwarted because the number of people defined as "sick" keeps growing and the volume of drugs they take, and the cost of those drugs, keeps rising. That is unhelpful to tax payers, and unhelpful to both the genuine sick and those defined by medicalisation as "sick." It's time to debate these issues widely and robustly.

David Moore
General Manager

New drug prices are and g

Washington DC-based consumer rights advocate James Love, who visited New Zealand in July at PHARMAC's invitation, says consumers are paying a high price for new drugs even though much of their development is government-funded.

We are now seeing new drug prices far above anything we have seen before. The new high tech medical technologies are very important, but it is also important that we find ways to control or manage their costs. Indeed, prices for many of the new drug technologies are so high that consumers in many countries will be denied access to treatments altogether unless we find ways to address important pricing and intellectual property issues.

What does it cost to develop a drug?

Drug companies say they need to charge high prices to recover R&D costs of $690 to $1,000 million for each new chemical entity (NCE) brought to the market. The most widely quoted support for this is a February 1993 paper by the now defunct, US Office of Technology Assessment (OTA) which sets an upper bound of $690 million as the cost of developing a new drug.

The data used for this study came from an earlier industry study that said it cost $47 million for the clinical trials that are needed for regulatory approval of a drug. But after adjustments, this number grew 14-fold. What exactly was done?

The industry study, published in 1991 in the Journal of Health Economics is often referred to as the Tufts study. Tufts used a data set of expenditures on human-use clinical trials and animal testing for 93 NCEs, and concluded that the average total out-of-pocket costs of human-use clinical trials was $47 million. Since not all drugs that enter clinical trials are approved for marketing, this figure was then adjusted to include the costs of failures. This increased the "expected" outlays on clinical trials to $105 million per approved drug.

The authors then made assumptions about some more general data on the costs of pre-clinical research. They concluded that risk-adjusted outlays for pre-clinical research were $180 million, or about 63 per cent of the total risk-adjusted outlays, which had grown to $285 million. To this, the authors added the profits that were needed to compensate investors for the "time value of money." In the US government's review of the Tufts study, a sensitivity study of the industry analysis used a variable rate of profit of 14 per cent plus the rate of inflation for the pre-clinical research and 10 to 14 per cent for the clinical trials. This added a whopping $438 million in profits that were accounted as "costs" in the original OTA study. The new total of $723 million (in 1995 dollars) can be broken down as follows:

high oing higher and the justification is thin

	$ millions	per cent of total
Out of pocket outlays on clinical trials	47	6
Risk adjustment for clinical trials	58	8
Risk-adjusted outlays for pre-clinical research	180	25
Profits needed for time value of money	438	61
Total	**723**	

One of the policy problems one confronts is that few people understand what was done in the Tufts/OTA study. In particular, many believe the $723 million figure is the cost of the clinical trials themselves, which were only reported to be $47 million, or six per cent of the total, and few understand that the largest cost element by far is for profits that are reported as "capital costs."

There is another issue that is also largely misunderstood. These estimates were based on the assumption that the company does everything itself and does not license technology from the government or a university. In fact, for many new drugs the research is paid for by tax payers rather than the industry. There is also some doubt that the data used in the Tufts/OTA study is reliable, given some other data that indicates the costs are far lower.

Our own study of the costs of clinical trials by the National Institutes of Health indicated that outlays were only 30 per cent of those reported by the industry-sponsored Tufts study. More surprising was data from a study of the development of drugs that qualify for the US government's Orphan Drug tax credit. According to the US Treasury Department, over an 11 year period, the entire global pharmaceutical industry reported spending a mere $410 million on clinical trials during which some 93 new Orphan Drugs were approved for marketing by the US FDA, or about $4.5 million per approved drug. Even after adjusting for inflation and pipeline lags, this was less than six per cent of the Tufts estimates. Much of the difference is because of the enormous role of the government in funding the development of drugs for cancer, AIDS and other severe illnesses which qualify for the Orphan Drug tax credit. Consider the following:

- Of 37 new cancer drugs invented between 1955 and 1993, 34 were developed with significant Federal US support.

- According to a 1998 study by the Boston Globe of 35 top-selling "priority" drugs approved by the FDA over the previous five years, 33 were developed with public support.

- According to the same Boston Globe study, 12 of the 15 top-selling Orphan Drugs also benefited from the support of tax payers for development.

Another surprising finding is that drugs developed with government funds are typically more expensive than drugs developed with only private funding. We looked at the 30 FDA "priority" new drugs, developed between 1987 and 1991 and found that the median cost of the least of one year's treatment, or a completed treatment of the NCEs developed with government funding was $9,335, while drugs developed without government funding cost $3,127. That is to say, the drugs developed with government funding were about three times more expensive than the drugs developed with private funding. Clearly, the drug companies were not passing on the benefits of government funding to the US consumers who pay for the research.

That research contribution is large: in 1992 it amounted to about $90 for a four-member US household. That year, US tax payers paid nearly $12 billion for 28,000 research grants through the National Institutes of Health.

James Love is an economist at the Center for Study of Responsive Law, a public interest organisation established by Ralph Nader. He has a Masters degree in public and international affairs from Princeton University, and a Masters degree in public administration from Harvard University. He has been senior economist at The Frank Russell Company, a large pension fund consulting firm, an economist at the National Bureau of Economic Research, and has held teaching and research posts at Rutgers and Princeton Universities.

Review by therapeutic group

A review of the work by PHARMAC within each of its main therapeutic groups 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 of their products. Every drug is reviewed from both 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 improve the health of New Zealanders or reduce the cost or the rate of growth in cost. PHARMAC sets its review priorities by taking into account the reports of the National Health Committee, known patient needs, the size of the therapeutic group relative to total drug usage, and cost trends within that therapeutic group.

Cardiovascular system

Cost trends *(see graph seven)*

Total cost was $167 million, down slightly on last year. The major areas of investment were angiotensin converting enzyme (ACE) inhibitors including in combination with diuretics, calcium channel blockers (CCBs), and lipid modifying agents. We expect that following subsidy reductions in some areas, expenditure will fall next year.

Issues

In line with current thinking, we continue to focus on patient groups with higher absolute risks. This includes consideration of risk factors such as smoking, exercise, diet, raised blood pressure, dyslipidaemia, and the ways in which these risks can be reduced, by both pharmacological and non pharmacological means.

An ongoing issue is the use of more expensive drugs for lowering blood pressure – ACE inhibitors and calcium channel blockers (CCBs) – when the cheaper, yet effective thiazide diuretics and beta blockers are available. We note that the evidence for the management of raised blood pressure is mainly based on these agents. In conjunction with the recent changes to the funding of ACE inhibitors we have promoted the use of thiazide diuretics as first line agents, in line with the National Health Committee's guidelines.

The derestriction of lipid modifying drugs, from specialist to GP use, reflects our view that drugs should be targeted to the patient rather than to prescriber groups. This change has seen the use of lipid modifying drugs increase substantially. We will consider further widening of access to these drugs during the coming year.

Actions

ACE inhibitor use, mainly in the treatment of hypertension, continues to grow. The weighted average daily cost was reviewed this year and subsidies re-aligned. PTAC also advised that all ACEs offer similar benefits for the management of blood pressure and that for many patients a diuretic is at least as effective. In light of this advice and after issuing a request for proposals, subsidy levels for ACE inhibitors were reduced by 60 per cent as a result of price reductions offered by two suppliers. While ACE inhibitors continue to be expensive for managing raised blood pressure, the cost differences between them and other drugs such as beta blockers and diuretics are now less marked.

Calcium channel blockers. Despite doubt over the benefits of CCBs, particularly the dihydropyridine agents in the treatment of mild to moderately raised blood pressure (World Health Organisation report February 1997), use of these agents continues to grow. We are continuing to review expenditure in this area.

Diuretics. We are considering further ways to improve access for patients to these inexpensive agents which have proven effectiveness, and side effect profiles similar to other antihypertensives. This year we made bendrofluazide available on Medical Practitioner Supply Order to encourage its use for patients with mildly-raised blood pressure.

*Lipid modifying agen*ts. This year access to statins was widened to a potential 115,000 people, and reference pricing introduced. Next year we expect to further widen access to statins. This money will come in part from reductions in the subsidy for these drugs, but additional funds may need to be made available from elsewhere. There are now two fully subsidised statins.

Respiratory system

Cost trends *(see graph eight)*

Total cost was $92 million, down three per cent on last year. The major area of investment ($49 million) is in inhaled corticosteroids. The respiratory system is the third largest therapeutic group by expenditure. Indications are that the annual cost has stabilised at around $90 million. Year to year fluctuations around this figure appear to be due to seasonal changes in the severity of asthma.

Issues

Many asthma products remain expensive compared with their cost in other countries, despite a recent reduction in the price of some breath activated devices. The market is dominated by a few multinational drug companies with patent protection on devices. This makes it difficult for generic suppliers to enter the market and offer better prices. Therefore the big players are able to set their own price.

An opportunity exists to educate and inform prescribers and patients about appropriate prescribing – for instance the need to back titrate inhaled corticosteroid doses in the stable patient. We look forward to working with organisations such as the Asthma and Respiratory Foundation to promote value for money prescribing.

Actions

Breath activated devices. A request for proposals on breath activated devices resulted in a reduction in price of a number of breath activated inhaled corticosteroids and bronchodilators. All products remain fully subsidised. At the same time another strength of Bricanyl Turbuhaler was listed.

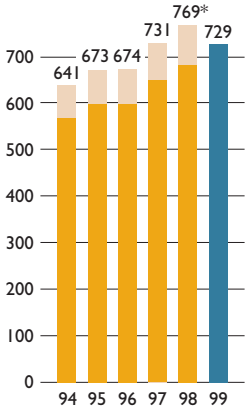
CFC products. The number of CFC-free formulations of currently listed products increased with the listing of CFC-free Flixotide 125mcg and 250mcg.

Lower priority respiratory listings rationalised. We consulted on delisting a number of products with lower priority health gain such as oral and nasal decongestants and cough preparations. Following consultation some products remain listed while others were delisted.

Graph five

SUBSIDISED DRUG COST

Years ended 30 June
$ millions

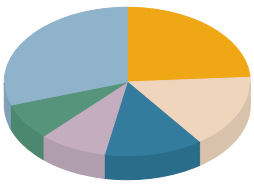


GST.
Cost, including estimated distributing margins and dispensing fees.
Forecast.
* *Lower boundary of range (upper range = 775).*

Graph six

INVESTMENT BY THERAPEUTIC GROUP

Year ended 30 June 1998

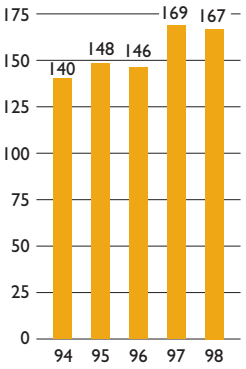


Cardiovascular and blood (24%)
Nervous system (16%)
Respiratory tract and allergies (13%)
Infections (9%)
Alimentary tract and metabolism (8%)
All other (30%)

Graph seven

CARDIOVASCULAR SYSTEM

Years ended 30 June
$ millions before GST

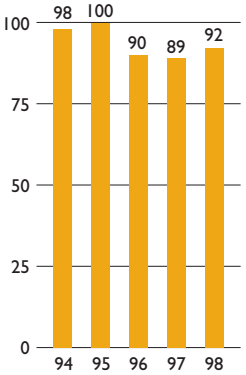


The trend line appears to have stabilised.

Graph eight

RESPIRATORY SYSTEM

Years ended 30 June
$ millions before GST



Costs appear to have stabilised.

Central nervous system

Cost trends *(see graph nine)*

Total cost was $107 million, up 11 per cent on last year. The largest area of investment (more than 25 per cent) is in the newer antidepressants. The cost of these was up by more than 45 per cent. Investment in analgesics was $19 million, an increase of 10 per cent.

Issues

New drugs for neurologic and psychiatric illnesses have been developed for schizophrenia, multiple sclerosis, Alzheimers disease, epilepsy and Parkinson's disease. For some of these conditions there has been no effective treatment until now so the new drugs are embraced eagerly. A concern is that they may raise the expectations of patients unreasonably. We are starting to assess the health benefit versus the cost of some of these drugs.

Expenditure in migraine and epilepsy continues to increase. This, together with the place of therapies for these conditions, needs to be reviewed.

Nervous system expenditure continues to rise rapidly. The challenge will be to target therapies in this area appropriately to ensure that the patients most likely to benefit can have access to treatments.

Actions

Preferred brand status was awarded to PSM for paracetamol liquid, pethidine and codeine phosphate. This arrangement allows subsidised access to the other brands to continue while also providing savings to the HFA.

Wider access for antidepressants.Nefazodone (Serzone), another new antidepressant, was listed to provide still wider choice for prescribers treating depression. The budget cap agreement with Eli Lilly for fluoxetine hydrochloride (Prozac 20) was exceeded so that Eli Lilly had to rebate the HFA $700,000. A similar if not larger rebate is expected next year. A 300mg strength of moclobemide (Aurorix) was listed. A number of newer antidepressants are on the horizon.

Tolcapone (Tasmar) was listed for the treatment of Parkinson's disease as part of a multiproduct agreement with Roche. Tasmar reduces "off" time significantly for more severely disabled patients with this condition and has been heralded as the biggest breakthrough in the treatment of Parkinson's Disease since Levo-dopa.

Interferon beta 1b (Betaferon) and interferon beta 1a (Avonex) are to be considered by the PTAC Neurology sub-committee. We have been waiting for further evidence of benefits and how patients, who may benefit from Betaferon may be identified. The supplier has provided information and this will be assessed shortly.

Other. We are reviewing access to methylphenidate (Ritalin) and dexamphetamine.

Gastro-intestinal system

Cost trends *(see graph ten)*

Total cost was $57 million, up six per cent on last year. The major areas of investment were H_2 antagonists ($17 million), and proton pump inhibitors ($14 million). The annual growth rate for proton pump inhibitors has slowed.

Issues

Rapid growth of proton pump inhibitors continued to put pressure on funding. The listing of pantoprazole (Somac) at the end of last year provided some savings but volume growth continued. The slow uptake of H. pylori eradication therapy was also a source of frustration. Listing of a standard triple therapy pack, Helidac was expected to improve access to eradication therapies but uptake is reported to have been limited.

The use of oral colonic and rectal anti-inflammatory drugs which are used to treat inflammatory bowel diseases such as Crohn's Disease and Ulcerative Colitis (and also to some extent rheumatoid arthritis), has been steadily increasing. The major cause of this growth has been increased expenditure on mesalazine. The entire market has been growing steadily for the last four years and in 1997 growth over the previous year was almost 25 per cent (more than $1 million additional expenditure).

Actions

Proton pump inhibitors. An agreement under which Astra agreed to manage a cap on expenditure for the PPI and H_2 antagonists market has helped to relieve pressure on funding in this area. Astra agreed to rebate PHARMAC for any expenditure above the agreed level in exchange for wider access to omeprazole (Losec). The cap level was set below that forecast for these markets combined, resulting in savings for the HFA. The agreement greatly improved access to PPIs by enabling GPs to prescribe omeprazole without a Special Authority, thus relieving some pressure on demand for endoscopy services, and reducing the financial risk to the HFA.

Antacids and alginates. A review of antacids and alginates resulted in the application of reference pricing to the newly-established therapeutic sub-groups and yielded savings of $1.3 million a year. Fully subsidised solid and liquid dosage forms remained available.

Oral and rectal colonic anti-inflammatories. A review of these agents was initiated in May 1998 and is expected to be completed by the end of next year.

Infections

Cost trends *(see graph eleven)*

Total cost was $58 million, up nine per cent on last year. Annual spending on AIDS drugs nearly doubled (annual growth of 80 per cent). Spending on herpes treatments grew by around 17 per cent. Annual growth on antivirals was about 23 per cent. Spending on antibiotics grew by about one per cent and may have declined without the under-sixes programme (spending on some antibiotics used for children nearly doubled). Spending on anti-fungals also grew by about one per cent.

Issues

The Ministry of Health's planned consideration of antibiotics resistance issues did not eventuate. In the absence of a national policy, we now plan to develop our own guidelines to help inform future antibiotic funding decisions.

The under-sixes programme resulted in close to a doubling of spending on antibiotic syrups such as amoxycillin and co-trimoxazole. Spending on amoxycillin clavulanate and cefaclor syrups also increased dramatically. This raises the question of whether the increased spending improved the health of those children or increased the risk of antibiotics resistance developing in the community. It is heartening, however, that the increase in spending was greater for the narrower spectrum than the broad spectrum antibiotics.

As expected, there was a dramatic increase in spending on HIV/AIDS drugs, with the listing of protease inhibitors and the addition of these drugs to combination therapy. Demands to fund the addition of a fourth drug to combination therapy emerged.

Actions

HIV/AIDS therapies. There were no new listings. A review of nucleoside analogues was completed.

Antivirals. Valaciclovir (Vatrex) for use in the treatment of first episodes of genital herpes was listed on the Schedule. Access to interferon alpha for the treatment of hepatitis C was extended from a six month treatment course to 12 months.

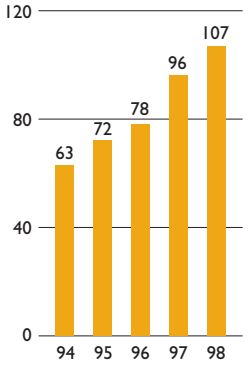
Antibiotics. Prices on a number of antibiotics were significantly reduced thanks to increased price competition among generic suppliers. For example, cefaclor monohydrate (Ceclor) prices were reduced in May 1997 by about 30 per cent by the tender for sole supply, flucloxacillin prices were reduced by 10 per cent by the listing of dicloxacillin (Diclocil) and then by an additional 33 per cent by Pacific, and amoxycillin prices were reduced by 40 per cent by the listing of Apo-amoxi and further price reductions from Pacific. Further price reductions on antibiotics are anticipated.

Macrolide antibiotics. The review was completed. Roxithromycin (Rulide) and clarithromycin (Klacid) were reference priced with erythromycin on the basis that these drugs had the same or similar effect in treating the same or similar conditions.

Graph nine

CENTRAL NERVOUS SYSTEM

Years ended 30 June
$ millions before GST

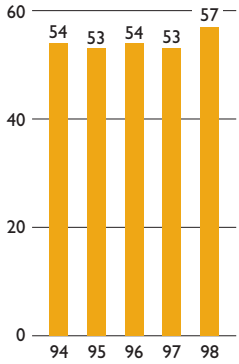


Costs are rising at a level that is quite unsustainable.

Graph ten

GASTRO-INTESTINAL SYSTEM

Years ended 30 June
$ millions before GST

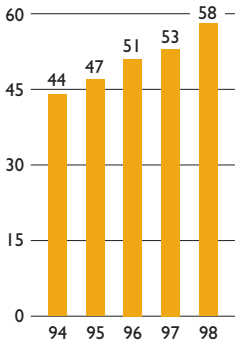


Costs rose by six percent.

Graph eleven

INFECTIONS

Years ended 30 June
$ millions before GST

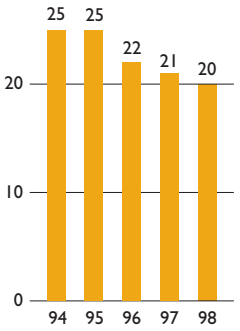


Costs appear to be rising.

Graph twelve

MUSCULO-SKELETAL AND JOINT DISEASES

Years ended 30 June
$ millions before GST



Costs continue to fall.

Musculoskeletal and joint diseases

Cost trends *(see graph twelve)*

The overall trend is for declining cost in this therapeutic group, largely due to lower prices from preferred brand arrangements and reference pricing. The largest area of investment ($11 million) is in nonsteroidal anti-inflammatory drugs (NSAIDs), the use of which is declining.

Issues

We continue to be concerned about the high use of these drugs for sport injuries where more conventional treatments such as "RICE" may be more beneficial long-term. Newer NSAIDs are being developed.

There are a good number of fully subsidised drugs in this area, which include the most popular brands. However, in order to maintain the widest possible choice of drugs for rheumatoid patients, a Special Authority is also in place to waive the manufacturer's surcharge for these patients.

Actions

Reference pricing. Significant reductions in subsidy levels were achieved through reference pricing and, more recently, preferred brand arrangements. Novartis agreed to lower the price of the diclofenac (Voltaren) range by 25 per cent on average and the reference pricing structure meant that subsidies for most NSAIDs consequently dropped to the new level. Roche also offered low prices for tenoxicam (Tilcotil), naproxen (Naprosyn) and naproxen sodium (Synflex) in exchange for preferred brand status. Through these arrangements we were able to make significant savings with minimal disruption to patients while maintaining access to a wide range of fully subsidised products.

Endocrine system

Cost trends *(see graph thirteen)*

Total cost was $45 million, up seven per cent on last year. The major area of expenditure is drugs for diabetes. Other areas are hormone replacement therapy ($9 million), and corticosteroids and male sex hormones, mainly cyproterone ($3 million). A further $12 million is spent on diabetes monitoring systems but is not included in the endocrine group.

Issues

Diabetes continues to be a cause of significant morbidity especially given its long-term complications. The cost of these complications is high. Management can be complex and requires the input of a number of professionals, services, medications and devices. Diabetes diagnosis and management has been identified by various groups, including the Ministry of Health, as requiring attention. The disease is particularly common among Maori and Pacific Islanders. The move away from insulin vials (syringes) towards insulin cartridges (pen needles) continues. The cartridges are more expensive but generally more convenient.

Osteoporosis. Volume growth in hormone replacement therapy (HRT) is expected to continue. Expenditure on treatments for osteoporosis is expected to grow with the ageing population and with more drugs and data on the benefits of treatment available. The most common osteoporosis drugs are HRT, etidronate disodium (Didronel) and calcitriol (Rocaltrol). However, newer second generation bisphosphonate drugs are being introduced into the market for both prevention and treatment of osteoporosis. Current evidence suggests that they are equal to HRT in terms of fracture prevention, but their prices are considerably higher. Expenditure on vitamin D derivatives for the treatment of osteoporosis remains a concern, with the move towards HRT a preferred option.

Actions

Diabetes review. A recommendation of the diabetes review was increased access to syringes and pen needles. This has occurred with an increased number of syringes available under subsidy and the subsidisation of pen needles for the first time. A new blood test strip, Glucometer esprit was listed and resulted in savings for the HFA. Diabetes New Zealand continues to run a scheme that allows cheaper access to test strips.

Other

Dermatology. The main drivers for growth in anti-acne were isotretinoin (Roaccutane) and cyproterone acetate with ethinyloestradiol (Diane-35). Growth in Roaccutane slowed considerably because of an expenditure cap which limits growth to 5 per cent per annum. Expenditure for Diane-35 is expected to decrease from $2.4 million to about $1.5 million per year now that it is only fully subsidised for patients affected by polycystic ovary syndrome, hirsutism or androgenic alopecia.

Topical treatments for mild acne were de-listed from 1 July 1997 but subsidies for systemic treatments for moderate and severe acne continue.

Oncology and immunosuppressants. Access to octreotide was widened to include the palliative treatment of carcinoid syndrome. Mycophenolate mofetil (Cellcept) for prophylaxis of acute kidney rejection after kidney transplantation was listed. Tacrolimus (Prograf), indicated for use as a primary immunosuppressant in liver transplants, was listed. Tacrolimus for use in the rescue of kidney transplants was also considered for listing and is to be reconsidered shortly.

Cyclosporin A (Sandimmun Neoral). Novartis reduced the price of cyclosporin by 10 per cent for the listing of a new formulation of Cyclosporin A, giving savings of $600,000. These savings were used to fund Cyclosporin for rheumatoid arthritis. The new formulation was expected to result in a reduction in the average daily dose of Cyclosporin A required and give further savings of 10 per cent with which we intended to fund atopic eczema. However, evidence of any dose reduction is not yet apparent.

Sensory agents: Further applications for the listing of new treatments for glaucoma were received. Additional funding was made available to list dorzolamide (Trusopt) from the beginning of next year. Savings of around $500,00 a year were generated from a preferred brand arrangement with Pacific for timolol maleate eyedrops.

Special foods: A new review of special foods was initiated. We called for applications to list new products. These applications are likely to be considered next year. Proposals from some suppliers may result in savings for the HFA. The review will also cover an examination of access to special foods including consideration of alternative funding and distribution systems.

PHARMAC's Decision Criteria

Seeking best health value for the pharmaceutical dollar

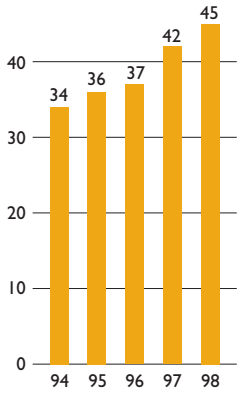
PHARMAC seeks to operate in an open, transparent and accountable way. Its reviews and changes to the Pharmaceutical Schedule are governed by its Operating Policies and Procedures – a public document developed in consultation with the pharmaceutical industry. The document emphasises the importance of 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.

Graph thirteen

Endocrine system

Years ended 30 June
$ millions before GST



Much of the increase comes from diabetes treatments.

The operations of PHARMAC

PHARMAC's fifth year was its busiest year, with 100 drugs listed out of 115 applications.

Listing changes to the Pharmaceutical Schedule[1]

Years ended 30 June

Number	1998	1997	1996	1995	1994	Total
New chemical entities listed	**14**	11	7	8	11	**51**
New presentations listed	**33**	24	23	18	23	**121**
New products listed	**53**	20	32	46	40	**191**
Total new listings[2]	**100**	**55**	**62**	**72**	**74**	**363**
Derestrictions or expanded access[3]	**14**	10	13	14	16	**67**
Changes that restrict or limit access	**7**	6	4	4	0	**21**
De-listing	**106**	14	0	0	0	**120**

In five years 363 new or enhanced products have been listed; access has been widened for a further 67; and 141 products have either been restricted or de-listed.

1. *Based on the date on which decisions are implemented.*
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 1998, is actually 400 for the last five years and 110 for this year.*
3. *By decision, not necessarily the number of chemical entities affected.*

Applications declined by PHARMAC Board[1]

Years ended 30 June

Number	1998	1997	1996	1995	1994	Total
New chemical entities	**2**	14	5	8	15	**44**
New presentations	**10**	3	8	3	5	**29**
New products	**2**	11	5	9	4	**31**
Derestrictions	**1**	1	1	1	4	**8**
Totals	**15**	29	19	21	28	**112**

This year, the PHARMAC Board considered 115 applications for subsidy, of which 100 were listed and 15 declined. The acceptance rate is therefore 87 per cent.

1. *Based on the date on which decisions are implemented.*

In five years PHARMAC has yielded cumulative savings to the tax payer of $284 million, listed 363 new drugs and widened access to 67. Next year, the cumulative value of the savings will nearly double. PHARMAC has also rationalised the Schedule by de-listing 120 drugs that are either of low value, or are duplications. Thirty-eight of the latter were eliminated by sole supply arrangements. The overall result is a significant improvement in the quality of drugs receiving a subsidy.

The year's work

It was PHARMAC's busiest year. A record number of applications were processed, and pleasing progress was made in lowering the price of several drugs. Four therapeutic group reviews were completed (nucleoside analogues, Rulide – No 2, antacids and alginates, and special foods). Four more reviews were started (CNS stimulants, special foods No 2, extemporaneously compounded preparations and oral rectal and colonic anti-inflammatories). Three reviews continued at year end (anti-haemorrhoidals, osteoporosis, and hormonal contraceptives).

Progress with eight strategies

Last year PHARMAC embarked on an eight pronged initiative, with the then Transitional Health Authority (THA: now the Health Funding Authority, HFA) and special interest groups, to tackle costs on a broad front. Considerable progress was made in each area:

- *Encouraging prescribers to move patients to the lowest, effective dose* using the lowest cost, suitable drug. Initial work was in two areas of high cost and high growth – hypertension and asthma.

- *Making the drug market more competitive* through sole supply and preferred brand arrangements for generics.

- *Making consumers more aware of prices*. Activity included support for a visit to New Zealand by Washington DC-based consumer advocate James Love *(see page 14)*, changes to the way price information is presented in the Schedule, and dissemination of educational brochures and videos.

- *Improving the information flow*. The *PharmHouse* national prescription database, a joint effort between PHARMAC, the HFA and the National Health Information Service, is now running and delivering more accurate data, faster, and at lower cost.

- *Working with doctors*. Our relationships with most medical colleges and doctors' associations, the Independent Practitioners' Associations (IPAs), and the Preferred Medicines Centre (PreMec) developed and led to more joint efforts to improve prescribing behaviours and bring costs down without impairing patient health.

- *Using fewer high cost, low utility drugs*. The work with ACE inhibitors is likely to become a model for action against other moves to high cost drug categories.

Two other strategies – *providing pharmacists with incentives to reduce transaction costs*, and *investigating fraudulent claims* are being pursued by other agencies.

Financial impact of PHARMAC decisions

PHARMAC's decisions this year resulted in the HFA spending an estimated $35 million in the year less on pharmaceuticals than would have been spent if past trends continued. The savings next year from the decisions taken this year are estimated at $148 million. The main contributor to the savings was price competition. Details by type of product are shown in the table below.

Estimated cumulative annual savings[1]

Years ended 30 June. In thousands of dollars

	1998	1997	1996	1995	1994
New chemical entities	**12,765**	2,236	927	590	(200)
New presentations	**4,708**	3,553	2,391	1,163	100
Subsidy changes	**34,171**	17,440	5,100	(11)	0
New products	**40,870**	32,532	27,740	21,276	1,200
Reviews	**26,948**	21,644	11,119	6,350	1,100
Derestrictions	**(742)**	(687)	(170)	0	0
De-listings	**4,182**	3,850	800	450	0
Total saving	**$122,902***	$80,568	$47,907	$29,818	$2,200

Most savings came from price competition, and reviews that aligned subsidies for similar products.

1. *Derived from estimates of savings as a result of decisions taken between 1 July 1994 to 30 July 1998. The estimates are based on full subsidised cost, which includes wholesale and retail mark-ups, dispensing fees and GST. The estimates under-estimate real savings because current data from the North Health pharmaceuticals payment system was not available at the time of calculation and was therefore not incorporated.*

* *Lower boundary of range.*

PharmHouse on line

The PharmHouse decision support system went live in late 1997. This provides PHARMAC staff with up-to-date, accessible information on all subsidised prescriptions and is used to forecast and track expenditure, monitor contracts with suppliers, and predict the effects of listing new products.

Other agencies are also subscribing to PharmHouse. The HFA's Southern office uses it to estimate the effects of new dispensing contracts for each pharmacy. The Midland office uses it to monitor prescriber and pharmacy contracts. The Best Practice Advocacy Centre (BPAC) and Pegasus IPA support prescribers in the South Island by giving doctors information about their prescribing relative to their peers. PharmHouse is based on a data warehouse hosted by the New Zealand Health Information Service.

Pharmaceutical Schedule

The Schedule was re-printed three times, and 12 monthly updates distributed. As a result of input from response cards, further refinements were made to content and readability. The Schedule is distributed as a book free to doctors, pharmacists, and other health professional groups, and sold to all others on annual subscription of $120 for the book. Single copies of the book are $22.22.

The Schedule database is also available to software vendors via the Internet (*www.pharmac.govt.nz*).

Schedule systems

The *Search the Schedule* prescription cost calculator on PHARMAC's web site *www.pharmac.govt.nz* was updated and completely re-written so that it can be easily modified to meet users' needs and follow changes in pharmacy contracts.

Subscriptions to the Schedule Database, a comprehensive electronic copy of the information published in the Schedule, were taken up by all the major vendors of pharmacy and general practice software. This means that pharmacists and prescribers can have on their desktop the latest information on the drugs available at any time, enabling better service to patients and streamlining the prescribing and claims processes.

PHARMAC continued to enhance the Schedule Database and its supporting maintenance programmes. The database was extended to track all the pack sizes of each product; the coding of subsidy conditions was enhanced; and all products are now fully cross-referenced to the HBL and pharmacy coding systems.

In April, PHARMAC instituted a new information service called the Pharmaceutical Schedule Dispatch. This is faxed or fast-posted to pharmacies at the time of sign-off of the Update. It provides pharmacists with earlier information about the changes to the Schedule each month.

Open communication

PHARMAC continued to offer an 0800 number, freepost, and a home page on the internet. To handle the increased volume of calls to the 0800 number following the RMI's advertising campaign, and the changes to subsidy levels for statins and ACE inhibitors, extra staff were hired. To explain some of the more complicated changes made this year, special leaflets and bulletins were distributed to pharmacists and doctors. Media releases were issued on all significant decisions and in response to topical issues. Media activity was stepped up to explain the changes relating to ACE inhibitors and to improve understanding among a large patient group of the decision. On this issue, and others, there were regular demands on senior PHARMAC staff for radio and newspaper interviews, radio talk back, and for attendance at meetings of patient groups.

Consultation systems were improved and the networks for routine consultation extended. This activity included attendance at medical, pharmacy, and hospital pharmacy conferences in New Zealand, meetings with special interest doctor and patient groups and Independent Practitioners' Associations.

Introduction of a Smartfax system facilitated the consultation process. In addition to more than 80 drug suppliers now consulted on all major proposals and decisions, PHARMAC is able to reach interested clinical groups and relevant organisations using this simple system. PHARMAC continues to consult with other groups on specific issues.

Personnel and training

At 30 June 1998, PHARMAC employed 18 people. They comprised a general manager, a medical director, five therapeutic group managers (plus one on maternity leave), a strategic development manager, an information technology manager, four analysts, a business group manager (a new appointment), an epidemiologist, an office manager, and a group secretary. Together, they possess over 30 qualifications in medicine, pharmacy, and other tertiary disciplines.

Many staff undertook additional training in economics or pharmacoeconomics. All staff were trained in the use of the new data warehouse system, and some attended courses on project management, media skills, and negotiation skills.

Financial performance

Total operating costs (including just over $1 million on litigation) fell slightly. Litigation costs were down on last year but staff and office costs rose, as a result of a higher work load and the need to deal with patient anxiety following the RMI's advertising campaign.

The annual cost of PHARMAC

Derived from audited figures for years ended 30 June

Dollar 000s	**1998**	1997	1996	1995	1994
Staff costs *(includes Directors' and professional fees)*	**1,440**	1,245	1,170	804	665
Office costs *(includes depreciation, rent, phones, library, purchase of data, ordinary legal costs)*	**1,176**	855	925	575	563
Consulting services *(includes PTAC, PR, general consulting, audit fees, HRM and accounting)*	**1,409**	1,517	1,408	1,047	532
Schedule production *(printing and postage only)*	**479**	345	338	260	217
Costs associated with litigation	**1,039**	1,607	680	0	0
Total cost	**$5,543**	$5,569	$4,521	$2,686	$1,977

At balance date, fixed assets comprised $282,000 of office and computer equipment, furniture and fittings.

The top 15 expenditure groups†

By BNF group by claim date

Dollars in millions, GST exclusive	**1998**	1997	1996	1995	1994
Cardiovascular system	**167**	169	146	148	140
Central nervous system	**107***	96	78	72	63
Respiratory system	**92**	89	90	100	98
Infections	**58**	53	51	47	44
Gastro-intestinal system	**57**	53	54	53	54
Endocrine system	**45**	42	37	36	34
Skin	**30**	30	31	30	27
Musculoskeletal and joint diseases	**20**	21	22	25	25
Obstetrics, gynaecology, and urinary-tract disorders	**18**	18	17	18	18
Nutrition and blood	**18**	17	16	15	12
Malignant disease and immunosuppression	**17**	17	17	16	16
Monitoring and diagnostic agents	**15**	13	12	10	10
Ear, nose, and oropharynx	**9**	11	11	12	12
Drugs acting on the eye	**8**	8	7	6	6
Galenicals	**2**	1	1	1	1

* *Unadjusted for a $2 million Prozac rebate.*

† *Some figures differ slightly from last year due to the inclusion of North Health ProNet data in this year's figures.*

Increases of more than $400,000 in 1998

By BNF groups *Dollars in millions, GST exclusive*	Dollar change 1998 over 1997	Percentage change 1998 over 1997	Percentage change 1998 over 1991
Proton pump inhibitors	5.10	32	491*
Angiotensin-converting enzyme inhibitors	4.62	7	45
Antiviral drugs	4.06	40	270
Other antidepressant drugs	3.95	14	564**
Corticosteroids	2.48	5	–3
Control of epilepsy	1.77	13	86
Management of diabetes mellitus	1.32	10	81
Penicillins	1.24	6	32
Drugs affecting the immune response	1.19	13	37
Alpha-adrenoceptor blocking drugs	1.17	18	304
Insulin	1.16	9	63
Treatment of chronic diarrhoeas	1.14	18	127
H_2 antagonists	0.92	5	–35
Antifungal drugs	0.57	13	190
Antipsychotic drugs	0.57	15	25
Sulphonamides and trimethoprim	0.55	31	39
Antimigraine drugs	0.54	10	153
Drugs used in anaemias	0.52	18	97
Galenicals	0.51	39	60
Amphetamines and cocaine	0.48	34	1,902
Biphosphates	0.48	48	325
Drugs for supraventricular arrhythmias	0.47	10	43
Antiplatelet drugs	0.45	79	–81

* *Subject to a rebate arrangement.*

** *Unadjusted for a $2.07 million Prozac rebate.*

Decreases of more than $200,000 in 1998

By BNF groups *Dollars in millions, GST exclusive*	Dollar change 1998 over 1997	Percentage change 1998 over 1997	Percentage change 1998 over 1991
Treatment of vaginal and vulval conditions	–0.23	–14	–27
Antipsychotic depot injections	–0.26	–11	–7
Diuretics	–0.28	–4	12
Anti-infective skin preparations	–0.32	–5	5
Tricyclic and related antidepressant drugs	–0.34	–5	–6
Tetracyclines	–0.47	–15	–8
Female sex hormones	–0.51	–5	41
Drugs used in rheumatic diseases and gout	–0.58	–3	–27
Sex hormones and antagonists in malignant diseases	–0.66	–8	14
Antacids	–0.70	–27	–29
Emollient and barrier preparations	–0.77	–27	–15
Vitamin D	–1.27	–24	82
Laxatives	–1.30	–17	–1
Beta-adrenoceptor blocking drugs	–1.63	–6	7
Nitrates	–2.54	–20	–13
Drugs used in nasal allergy	–2.83	–29	–32

THREE STRATEGIES FOR BALANCING HEALTH NEED AND COST

PHARMAC employs three main strategies to balance patient needs and costs.

Price competition

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

PHARMAC's range of ways to achieve lower prices now also includes two-part pricing, sole supply and preferred brand arrangements. Under two-part pricing contracts, PHARMAC pays suppliers the first part of the price on listing the pharmaceutical. The second part of the price is the listed price per unit. The aim of two-part pricing is to enhance competition in those markets where entry costs are high and where it is difficult for suppliers to gain market share. Sole supply (tendering) and preferred brand arrangements offer lower prices in return for increased market share for the supplier.

Improved targeting

Some pharmaceuticals are more expensive than alternative treatments. Often they are slightly more effective than alternative treatments for many patients or have better side effect profiles. Sometimes, they are much more effective for some patients than alternative treatments, and in these cases PHARMAC may use targeting mechanisms to provide access for those patients.

One such mechanism is to develop, and widely disseminate, prescribing guidelines. Use of Special Authority numbers is another way of targeting access to the patients who would most benefit from some treatments.

Access and financial risk is sometimes managed through capped budgets under which clinicians decide who gets access to drugs according to clear guidelines.

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. In such contracts the subsidy of a drug may be tied at an average daily cost and the supplier usually agrees to give a rebate when the average daily dose is 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.

Directory

PHARMAC Board

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

L (Lynne) Lane, *Central division, HFA.*

C (Carolyn) Gullery, *Southern division, HFA.*

D (Dermot) McNerney, *Midland division, HFA.*

D (Dwayne) Crombie, *Northern division, HFA.*

Pharmacology and Therapeutics Advisory Committee (PTAC)

John Hedley, MBChB, FRACP, FACCP, Member Thoracic, Cardiac and Gastroenterology Societies of Australia and New Zealand, Chairman.

Peter Black, MBChB, FRACP, physician and pharmacologist.

Robin Briant, MD, FRACP, physician and pharmacologist.

Bruce Foggo, MBChB, Dip Obst, FRNZCGP, general practitioner.

Allan Moffitt, BHB, MBChB, Dip Obs, general practitioner.

Peter Pillans, MBChB, FCP, FRACP, pharmacologist.

Tom Thompson, MBChB, FRACP, physician.

Paul Tomlinson, MBChB, MD, MRCP, FRACP, BSc, paediatrician.

PTAC sub-committees

Antibiotics
Robin Briant (PTAC).
John Hedley (PTAC).
Sandy Smith, microbiologist.
Mark Thomas, infectious diseases specialist.
Paul Tomlinson (PTAC).

Asthma
Innes Asher, paediatrician.
Carl Burgess, pharmacologist.
Julian Crane, respiratory physician.
John Hedley (PTAC).
Les Toop, general practitioner.
Ian Town, respiratory physician.

Cardiovascular
Peter Black (PTAC).
Gary Gordon, cardiologist.
John Hedley (PTAC).
Lannes Johnston, general practitioner.
Tim O'Meegan, cardiologist.

CNS stimulants
John Hedley (PTAC).
Martin Pollock, neurologist.
Catherine Stedman, clinical pharmacologist.
Paul Tomlinson (PTAC).
John Werry, psychiatrist.

Diabetes
Pat Carlton, diabetes nurse specialist.
Paul Drury, diabetologist.
Tim Kenealy, general practitioner.
Peter Moore, general physician.
Russell Scott, endocrinologist.
Tom Thompson (PTAC).

Extemporaneously compounded preparations
Allan Moffitt (PTAC).
Sue Peacock, pharmacist.
Bruce Taylor, dermatologist.
Brian Walker, pharmacist.
David Woods, pharmacy lecturer.

Mental health
Robin Briant (PTAC).
Carl Burgess, pharmacologist.
Peter Ellis, psychiatrist.
Janet Holmes, general practitioner.
John Hopkins, psychiatrist.
Anne Walsh, psychiatrist.

Neurology
Peter Black (PTAC).
Alistair Dunn, general practitioner.
Lindsay Haas, neurologist.
John Hedley (PTAC).
William Wallis, neurologist.

Nucleosides
Evan Begg, clinical pharmacologist.
Stephen Chambers, infectious diseases specialist.
John Hedley (PTAC).
Richard Meech, infectious diseases specialist.
Mark Thomas, infectious diseases specialist.

Osteoporosis
Peter Black (PTAC).
Anna Fenton, endocrinologist.
Ian Reid, endocrinologist.
Richard Sainsbury, geriatrician.
Les Toop, general practitioner.

Special foods
Kerry McIlroy, dietician.
Jo Stewart, dietician.
Paul Tomlinson (PTAC).
John Wyeth, gastroenterologist.

The PHARMAC team

David Moore, MCom, Dip Health Econ, *general manager – resigned (now general manager personal health, HFA).*
Annmarie Banchy, RN, *schedule analyst.*
Win Bennett, BMedSci, MBChB, MRNZCGP, *medical director.*
Richard Braae, BCom (Hons), MA, *strategic development manager.*
Matthew Brougham, MSc (Hons), Dip Health Econ, *therapeutic group manager.*
Cristine Della Barca, Dip Pharm, Dip Bus Admin, MPS, *therapeutic group manager.*
John Geering, BA, BSc, *information systems.*
James Harris, BSc (Hons), *manager, information.*
Kyle Jones, BA BSc (Hons), *senior analyst.*
Luca LiBassi, Medical Doctor, Dip Mgt, *therapeutic group manager.*
Peter Macdonald, MSc (Hons), *business group manager.*
Jan McCombie, RCpN, *therapeutic group manager (maternity leave).*
Lele Ma'auga, *group secretary.*
Scott Metcalfe, MBChB, D Com H, FAFPHM, *epidemiologist/public health physician (on contract).*
Wayne McNee, BPharm, MPS, *therapeutic group manager.*
Dilky Rasiah, MBChB, DPH, *therapeutic group manager.*
Peter Sharplin, MSocSc, *forecast analyst.*
Linda Whatmough, *office manager.*

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Prepared by Clulee & Associates and Creative Services

ISBN 0-958 3510-1-5