Pharmaceutical Management Agency: Changes to the frequency of medicine dispensing

Report of the

Controller and Auditor-General

Tumuaki o te Mana Arotake

Office of the Auditor-General
Private Box 3928, Wellington
Telephone: (04) 917 1500
e-mail: *reports@oag.govt.nz*
web site: *www.oag.govt.nz*

Report of the

Controller and Auditor-General

Tumuaki o te Mana Arotake

Pharmaceutical Management Agency: Changes to the frequency of medicine dispensing

May 2005

This is the report of a performance audit we carried out under section 16 of the Public Audit Act 2001.

ISBN 0-478-18134-5

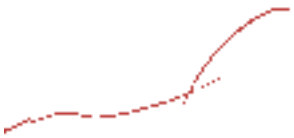
Foreword

In October 2003, the Pharmaceutical Management Agency (Pharmac) changed the rules for dispensing medicines. It let doctors prescribe that a 90-day supply of certain medicines be dispensed all at once, rather than spread over 3 visits to the pharmacist. Pharmac projected that this could reduce district health boards' spending on the dispensing fees paid to pharmacists by $132 million over 5 years.

I considered it important to audit this, because of the large savings projected, and the effects of the change on patients, doctors, and pharmacists. One year into the new dispensing regime, I thought it timely to compare Pharmac's calculation of the savings achieved against Pharmac's original projection of $5.42 million in savings for the period 1 October 2003 to 30 June 2004. My audit has found that Pharmac's calculation of the savings was reasonable, although the calculations did not cover the implementation period.

During my audit I identified opportunities for Pharmac, and the wider public sector, to improve the quality of the information underpinning decision-making. It is important that public entities make transparent decisions, based on reliable information. I have recommended that initiatives address in more detail the assumptions and levels of uncertainty associated with them.

I thank the staff of Pharmac, district health boards, and the Ministry of Health for their help and co-operation.



K B Brady
Controller and Auditor-General

20 May 2005

Contents

CONTENTS

Page

Figures

Glossary

Additional medicine to patients	The difference between giving the whole prescription to a patient and the amount of a medicine patients would collect, on average, under monthly dispensing.
All-at-once dispensing (also known as stat dispensing)	Dispensing a 90-day supply of medicine (or, in some cases, a 180-day supply) all at once. "Stat" is an abbreviation of the Latin word *statim*, which means immediately.
Close control	Lets health professionals prescribe medicines more often than the *New Zealand Pharmaceutical Schedule* normally allows. Certain conditions must be met before health professionals can use close control.
District health boards	Entities set up by the New Zealand Public Health and Disability Act 2000. Their purpose is to, among other roles, fund individuals and organisations to provide health and disability services for the district's population. All district health boards have contracts with pharmacists to dispense medicines.
District Health Boards New Zealand	An organisation formed by all 21 district health boards. It co-ordinates, on selected issues, to help district health boards meet their objectives and accountabilities to the Crown.
Health Payments, Agreements and Compliance (HealthPAC)	A business unit of the Ministry of Health that pays the contracted providers of health and disability services. It also provides audit and compliance services for district health boards and the Ministry of Health.
New Zealand Health Information Service (NZHIS)	A group within the Ministry of Health, responsible for collecting and sharing health-related data.
New Zealand Medicines and Medical Devices Safety Authority (Medsafe)	A business unit of the Ministry of Health, responsible for regulating medicines.
***New Zealand Pharmaceutical Schedule* (the *Schedule*)**	A document that lists medicines the Government subsidises, and medicines that are not subsidised, and the rules that must be followed to prescribe and dispense them.

GLOSSARY

Non-stat medicines	Medicines that the *Schedule* says can only be dispensed as a 30-day (or less) supply. A prescription for a 90-day supply would be dispensed on 3 occasions. (There is a small group of non-stat medicines that can, if the prescription says so, be dispensed in greater supply. This can happen if the patient needs continuous access to their medicine).
Pharmaceutical Information Database	A data warehouse managed by NZHIS. It collects data from pharmacists' claims for reimbursement for the cost of medicines and dispensing fees, as well as other data from the pharmacists' contracts with district health boards.
Pharmacology and Therapeutics Advisory Committee	A committee set up to provide Pharmac with independent and objective advice on the consequences of proposed amendments to the *Schedule*.

Summary

In 2002, the Pharmaceutical Management Agency (Pharmac) reviewed its approach to dispensing medicines. In October 2003, it partially reintroduced the ability for a 90-day supply of medicines to be dispensed to patients in one quantity. Pharmac projected that, by partially reintroducing all-at-once dispensing, it could reduce district health boards' spending on dispensing fees paid to pharmacists by $132 million over 5 years.

We report on the extent to which the projected savings have been achieved, and how well Pharmac managed the risks to savings and the effects of all-at-once dispensing on patients and others.

What is Pharmac, and what does it do?

Pharmac is a Crown Entity, established by the New Zealand Public Health and Disability Act 2000. Pharmac's main objective is to secure for eligible people the best health outcomes that are reasonably achievable from medicines, from within the funding available. Pharmac manages and maintains the *New Zealand Pharmaceutical Schedule* (the *Schedule*) and promotes the responsible use of medicines. The *Schedule* sets out the rules that health professionals and pharmacists must follow to prescribe and dispense medicines, and states the maximum quantity of each medicine that health professionals can prescribe, and pharmacists can dispense, at a time.

What is all-at-once dispensing?

Doctors[1] usually prescribe a 90-day supply of medicine at a time. If patients are dispensed the full 90-day supply on one visit to a pharmacy, this is "all-at-once" dispensing or "stat" dispensing. This dispensing regime was used from 1989 to April 1996. From 1 May 1996, a monthly dispensing regime was put in place because

1 Doctors are the health professionals who most commonly prescribe a 90-day supply of medicine. (Not all health professionals who are able to prescribe medicines are able to prescribe a 90-day supply of medicines.) For the purposes of this report, "doctor" refers to health professionals who are able to prescribe a 90-day supply of medicines.

dispensing fees were low and medicine costs were high. Under monthly dispensing, a 90-day supply of medicine was dispensed in three 30-day quantities. Because the cost of many medicines came down, and dispensing increased, monthly dispensing began to cost more than it was saving. It was replaced on 1 October 2003 by the partial reintroduction (covering some, but not all medicines) of all-at-once dispensing.

How did we carry out our audit?

We examined the assumptions underlying Pharmac's business case to partially reintroduce all-at-once dispensing, and the risks and uncertainties associated with those assumptions and savings projections. We compared Pharmac's projections for savings from 1 October 2003 to 30 June 2004 with Pharmac's calculation of the savings achieved. We also looked at whether Pharmac had managed the potential risk to savings from the flexibility provisions in the *Schedule*, which allow doctors to prescribe a 90-day supply of medicine to be dispensed in smaller quantities. We evaluated Pharmac's actions to manage and mitigate some of the effects of all-at-once dispensing on patients and others.

Were the projected savings from the partial reintroduction of all-at-once dispensing realised?

There is no question that all-at-once dispensing results in a saving to district health boards; pharmacists are paid fewer fees for dispensing each 90-day supply of medicine than was the case under monthly dispensing. This saving is partially offset by ongoing and once-only costs.

Pharmac had identified the factors that could influence savings under all-at-once dispensing, and reasonably projected and calculated the savings from the partial reintroduction of all-at-once dispensing. However, there were some small omissions in the original projections.

Pharmac originally projected a saving of $5.24 million from 1 October 2003 to 30 June 2004. We cannot give assurance over the savings achieved between 1 October 2003 and 31 December 2003, because Pharmac did not calculate the savings for this period. The implementation costs were incurred during the period that Pharmac did not monitor.

Pharmac calculated the ongoing savings to district health boards from 1 January 2004, and concluded that savings were likely to meet their projections. The calculation under this model is reasonable. However, if any calculation is made of savings in the period 1 October 2003 to 30 June 2004, it should include all the implementation costs that reduce the total. If the implementation costs of $17.96 million are taken into account, the savings by district health boards in this period would reduce, from an estimated $22.4 million to $4.24 million.

District health boards will continue to realise savings from all-at-once dispensing, so long as the contractual relationships between district health boards and pharmacists do not change significantly. However, there is much uncertainty in calculating savings 5 years into the future. We have made recommendations to improve the quality and transparency of estimates of the effect of efficiency proposals. These recommendations are as relevant to the wider public sector as they are to Pharmac.

How did Pharmac manage the risks to savings and the financial effects of all-at-once dispensing?

Before all-at-once dispensing was implemented, Pharmac provided information to doctors and pharmacists that adequately addressed the risk that the flexibility provisions in the *Schedule* (close control) could affect projected savings.

Pharmac worked to ensure that pharmacy claims could be paid without interrupting the normal payment cycle. The major supplier of software that pharmacists use to make pharmacy claims did not finish testing its software until 16 October 2003, so the transitional period might have been too short.

Patients who only collect medicines that are dispensed all at once have fewer visits to pharmacies. Patients who also collect medicines dispensed in smaller quantities have the same number of visits, or sometimes fewer, than they did with monthly dispensing. All-at-once dispensing did not increase patients' travel costs to collect medicines.

Close control enables, among other benefits, the costs of prescription charges and any manufacturers' surcharges to be spread over, for example, 3 months for those patients who have difficulty paying them all-at-once. Activating close control relies on doctors and patients discussing the issue.

Patients are financially disadvantaged by the partial reintroduction of all-at-once dispensing when they pay additional fees to get their medicines (for example, fees to get medicines after-hours), or pay for "blister" packaging that they were not charged for under monthly dispensing. More pharmacists are charging after-hours fees, to recover some of the revenue lost from the partial reintroduction of all-at-once dispensing.

Minimising the quantity of unused dispensed medicines

All-at-once dispensing increases the quantity of medicines dispensed to patients. We expected Pharmac to have minimised the portion of the additional medicines that patients would not use. The method Pharmac used to identify medicines that would save district health boards money, if dispensed all at once, minimised the

potential increase in the quantity of unused dispensed medicines. We agree with Pharmac's view that it is difficult to estimate how much of the additional medicines provided to patients would go unused.

It is not clear which organisation – Pharmac, district health boards, or the Ministry of Health – is responsible for funding the collection and disposal of unused medicines. District health boards hold little or no data about the quantity and type of unused dispensed medicines. In November 2004, 40% of district health boards funded the collection and disposal of unused medicines, and another 30% intended to do so in future. Several district health boards were to gather data during 2004-05 to help them choose the most effective arrangements to prevent and manage medicine waste. Collecting nationally consistent data about unused dispensed medicines would help to improve the quality of prescribing and the effective use of medicines, and reduce waste.

Minimising risks to patients

During the consultation about all-at-once dispensing, some submissions noted that all-at-once dispensing could pose a safety risk because more medicines would be in homes for 60 days of a 90-day treatment period. Adequate mechanisms are available in the *Schedule* (for example, close control) to manage the risk of poisoning, theft, and any difficulties patients might have managing larger quantities of medicines. The mechanisms rely on the doctor, patient, and pharmacist actively considering the risks.

Concerns were also raised about the ability of residential care services to safely manage larger quantities of medicines. However, the *Schedule* lets residential care services store the same quantities as they did under monthly dispensing.

Recommendations

We recommend that:

1. the Pharmaceutical Management Agency ensure that reports on the savings under all-at-once dispensing reflect the sensitivity in the model for calculating savings;
2. when the forecast effects of any efficiency proposals are put to decision-makers, a breakdown of the important assumptions, uncertainties, and limitations around the estimates is included;
3. ranges of likely results be given when efficiency proposals are put to decision-makers, or released to the public, to reflect any uncertainty in the calculations;

4. the Pharmaceutical Management Agency use its existing powers to ensure that independent research is undertaken to determine what effect, if any, dispensing medicines to patients in 30-day or 90-day quantities has on patients' use of those medicines;

5. the Ministry of Health take the lead in discussing and agreeing with district health boards and the Pharmaceutical Management Agency, and other organisations as required, where the responsibilities will lie for monitoring unused medicine, and for funding the collection and disposal of publicly and privately funded unused medicines; and

6. district health boards collect consistent data about the quantity and type of unused dispensed medicines funded by them, to improve the quality of prescribing, the effective use of medicines, and reduce waste.

Part One

Introduction

What is Pharmac, and what does it do?

1.1 The Pharmaceutical Management Agency was established by section 46 of the New Zealand Public Health and Disability Act 2000. The Agency is referred to, both commonly and by the Act, as Pharmac.

1.2 Pharmac's main objective is to secure for eligible people the best health outcomes that are reasonably achievable from medicines, from within the funding Pharmac has available. The amount of funding available to Pharmac each year is agreed in its contract with the Minister of Health.

1.3 Pharmac's roles are to manage and maintain the *New Zealand Pharmaceutical Schedule* (the *Schedule*), and promote the responsible use of medicines. The Act allows Pharmac to undertake research, within its budget, to help it meet its objectives.

1.4 The *Schedule* lists subsidised and unsubsidised medicines. It sets out the rules that doctors and pharmacists must follow to prescribe and dispense medicines to obtain subsidies, and states the maximum quantity of each medicine that doctors can prescribe. Most patients who take medicines regularly are prescribed a 90-day supply at a time. The *Schedule* also limits the maximum quantity of each medicine that pharmacists can dispense at a time.

1.5 To achieve its objectives, Pharmac interacts with other organisations and groups that have their own responsibilities for managing medicines. These other organisations and groups include medicines suppliers, health professionals, pharmacists, district health boards, New Zealand Medicines and Medical Devices Safety Authority (Medsafe), Health Payments, Agreements and Compliance (HealthPAC), and New Zealand Health Information Service (NZHIS).[2]

2 Appendix 1 gives an overview of how pharmacists' claims for reimbursement of the cost of medicines and dispensing fees are dealt with, and the role of district health boards, HealthPAC, and NZHIS in this.

What is all-at-once dispensing?

1.6 Doctors usually prescribe, for patients who take medicines regularly, a 90-day supply of medicine. If patients are dispensed the full 90-day supply on one visit to the pharmacy, this is "all-at-once" or "stat" dispensing. If patients must visit the pharmacy 3 times, and are dispensed a 30-day supply each time, this is "monthly" dispensing.

1.7 Pharmac introduced monthly dispensing in 1996, then partially reintroduced all-at-once dispensing in 2003. The new regime was a partial reintroduction of all-at-once dispensing because only some medicines listed in the *Schedule* can be dispensed all at once.

Monthly dispensing – 1996 to 2003

1.8 In 1996, Pharmac's main reason for introducing monthly dispensing was to reduce the cost to regional health authorities of medicines and their supply. (Regional health authorities were the organisations responsible, in 1996, for funding these costs.) Pharmac knew that patients do not always take all of the medicines dispensed to them – regional health authorities were paying for medicines that patients were not taking. The unused medicines were expensive when compared to the relatively low average dispensing fee.

1.9 Pharmac estimated that, although pharmacists would earn 3 dispensing fees instead of one, the cost of the extra dispensing fees would probably be less, on average, than the amount of money regional health authorities were paying for medicines that patients were not using.

1.10 Pharmac amended the *Schedule*, from 1 May 1996, to require a prescription for a 90-day supply of medicine to be dispensed in 30-day quantities (with a few exceptions). This meant that patients had to go to pharmacies 3 times to obtain the full supply and pharmacists earned 3 dispensing fees.

1.11 If patients had difficulty getting to a pharmacy, they could be dispensed the 90-day quantity all at once.

Partial reintroduction of all-at-once dispensing – 2003 onwards

1.12 In 2002, Pharmac concluded that monthly dispensing was costing more than it was saving. The cost of medicines was lower, and the dispensing fee was higher, than had been the case in 1996. For example, the cost of a monthly supply of a medicine to treat stomach ulcers had reduced from $106 to $30. The cost of a monthly supply of a medicine to lower blood cholesterol levels had reduced from $187 to $17.

1.13 Since 1996, the average dispensing fee paid to pharmacists had doubled, and more medicines were being prescribed (so more dispensing fees were being paid). In 1998, pharmacists were paid $90 million in dispensing fees, and in 2002 they were paid $180 million. By July 2003, Pharmac was estimating that dispensing fees would reach $207 million for 2003.

1.14 Pharmac calculated that it would be cheaper for district health boards if the amount they were paying pharmacists to dispense medicines could be reduced – even if this meant that patients took home more medicines than they were under monthly dispensing.

1.15 District health boards agreed to Pharmac amending the *Schedule* and partially reintroducing all-at-once dispensing. Pharmac's Board made the final decisions, and the new *Schedule* came into effect on 1 October 2003.

1.16 If a medicine on the all-at-once dispensing list is prescribed for 90 days, it must be dispensed to patients all at once – unless the doctor writes on the prescription that they want the pharmacist to dispense the medicine in 30-day quantities (or more frequently). The instruction doctors write on the prescription to make this happen is called "close control".

1.17 Pharmacists earn one dispensing fee for dispensing a 90-day supply of medicine all at once. They earn 3 dispensing fees if a 90-day supply of medicine is dispensed 3 times under close control. They can earn 90 dispensing fees if a doctor prescribes that a medicine on the all-at-once dispensing list be dispensed daily.

1.18 Pharmac calculated the financial benefit of all-at-once dispensing by analysing the effect of dispensing a 90-day quantity of medicine in one quantity instead of 3.

Why did we audit the partial reintroduction of all-at-once dispensing?

1.19 Government agencies, responsible for introducing changes to the way public funds are distributed, need to be able to account for the reasonableness of the costs and benefits projected for those changes.

1.20 Pharmac projected that partially reintroducing all-at-once dispensing could reduce district health boards' spending on dispensing fees paid to pharmacists by $132 million over 5 years.

1.21 In our view, it was important to audit this decision. The change involved a large amount of money, had a widespread effect on patients, doctors, and pharmacists, and was of interest to both the public and the Health Committee of the House of Representatives.

How did we carry out our audit?

1.22 We examined the assumptions underlying Pharmac's business case to partially reintroduce all-at-once dispensing, and the risks and uncertainties associated with those assumptions and savings projections.

1.23 We compared Pharmac's projections for savings from 1 October 2003 (the day all-at-once dispensing was reintroduced) to 30 June 2004 (the end of Pharmac's and district health boards' financial year) with Pharmac's calculation of the savings achieved. We assessed whether the savings were attributable to all-at-once dispensing.

1.24 Close control, if inappropriately used, could reduce the projected savings to district health boards. We expected that Pharmac had provided guidance to doctors and pharmacists to adequately address this risk.

1.25 Changes to the *Schedule* can require changes to the information technology used to make and pay pharmacy claims. We expected that Pharmac would have ensured that the information technology changes were made in time to implement all-at-once dispensing from 1 October 2003, without interrupting the claims payment cycle. We also decided to review Pharmac's actions to inform the prescribing software suppliers of the changes needed to implement all-at-once dispensing.

1.26 We expected that Pharmac would have considered and quantified the flow-on financial effect of all-at-once dispensing for patients, identified any untoward consequences, and taken effective mitigating actions.

1.27 All-at-once dispensing means that some patients take home more medicines than they did under monthly dispensing. We expected that Pharmac would have taken steps to minimise the quantity of medicines dispensed to patients but not used. We expected that they would have agreed, with district health boards, who would be responsible for collecting unused medicines from pharmacies for disposal.

1.28 We did not ask district health boards how they had used any savings. We did not evaluate the effect, if any, of all-at-once dispensing on patients' health.

1.29 We reviewed Pharmac's internal papers and external communications and interviewed staff. We also interviewed staff from the Ministry of Health.

1.30 We surveyed district health boards to get information about issues related to all-at-once dispensing for which they had accepted responsibility. These were preserving patients' access to pharmacies, and collecting and disposing of unused medicines.

1.31 To assess Pharmac's method for estimating savings, we contracted Dr Stephen Haslett (Professor of Statistics at the Institute of Information Sciences and Technology, and Director of the Statistics Research and Consulting Centre, Massey University) in an advisory role.

Part Two

Were the projected savings realised?

2.1 In this part, we set out Pharmac's:

- projection of savings to district health boards from all-at-once dispensing, and the factors Pharmac did not include in the projections; and
- calculation of the savings achieved under all-at-once dispensing, and the factors Pharmac did not include in the calculations.

2.2 We discuss the difficulties in comparing Pharmac's projected and calculated savings figures in year one, and we discuss factors to be considered when making comparisons in future years.

Our expectations

2.3 We expected that:

- Pharmac would have identified the factors that could affect achieving the projected savings from all-at-once dispensing;
- the principles used by Pharmac to project, and calculate, the savings for all-at-once dispensing would have been reasonable;
- there would have been reduced spending on dispensing fees, as at 30 June 2004, consistent with Pharmac's projected savings; and
- calculated savings would have been attributable to all-at-once dispensing.

WERE THE PROJECTED SAVINGS REALISED?

How all-at-once dispensing makes savings

2.4 Under monthly dispensing, pharmacists earned 3 dispensing fees for dispensing a 90-day supply of medicine, in three 30-day quantities, to patients. With the partial reintroduction of all-at-once dispensing, patients can receive the full 90-day quantity of their medicine on their first visit to the pharmacy. The pharmacist earns only one dispensing fee.

2.5 All-at-once dispensing results in a clear saving, in dispensing fees, for district health boards, at the individual prescription level and nationally. Using a notional dispensing fee of $5, a 90-day quantity of medicine that under monthly dispensing would have cost $15 in dispensing fees, would cost only $5 under all-at-once dispensing.

2.6 In the rest of this Part, we discuss whether the savings were as Pharmac projected, given that all-at-once dispensing had associated ongoing and once-only costs.

Pharmac's projection of savings from all-at-once dispensing

2.7 In July 2003, Pharmac's Board approved a proposal to partially reintroduce all-at-once dispensing from 1 October 2003. The proposal set out the projected savings for district health boards that were expected because of the change.

2.8 Because of the cost of implementing all-at-once dispensing, the first 9 months of the regime were only projected to save district health boards $5.42 million. Annual savings from then on were expected to increase from $37.69 million in year 2, to $43.47 million in year 5. The savings were expected to increase because dispensing volumes were expected to grow by 4% each year.

2.9 To work out the total savings in present value terms, Pharmac applied a discount factor[3] rate of 10% each year. It projected that all-at-once dispensing would save a total of $132.98 million for the years ending 30 June 2004 through to 2008, as shown in Figure 1.

3 Discount factors translate expected benefits or costs in any given future year into present value terms. The discount factor is equal to $1/(1 + i)^t$ where i is the interest rate, and t is the number of years from the date of initiation for the programme or policy until the given future year.

Figure 1
Projected district health board savings from all-at-once dispensing ($m)

	2004	2005	2006	2007	2008	Total
Net dollar savings	5.42	37.69	39.36	41.37	43.47	167.31
Savings in 2004 dollars	5.42	34.26	32.53	31.08	29.69	132.98

Source: Pharmac data.

2.10 Our audit looked at the first 9 months since the partial reintroduction of all-at-once dispensing. We sought to provide assurance on whether Pharmac's projected savings of $5.42 million for this period were achieved, and were attributable to all-at-once dispensing.

Factors Pharmac did not include in the projections

2.11 Where possible, Pharmac used conservative assumptions in reaching its savings projections. These assumptions, and the methods Pharmac used in reaching its projections, were reasonable.

2.12 Pharmac identified the most significant costs to district health boards that would occur under all-at-once dispensing. These were:

- implementing the partial reintroduction of all-at-once dispensing;
- the additional medicine provided to patients (because under monthly dispensing, patients would not, on average, collect all of the 90-day supply); and
- financial support for some remote pharmacies (those unable to remain open, following the reduction in their income from dispensing fees).[4]

2.13 However, Pharmac's savings projections did not include the total cost of implementing all-at-once dispensing. Pharmacists had to increase their stock to manage the overlap between the phasing out of the monthly dispensing regime, and the partial reintroduction of all-at-once dispensing. Pharmac's analysts estimated that this stock increase would cost district health boards $17.46 million, but this was rounded down to $17 million in the July 2003 proposal to the Pharmac Board.

4 District health boards are required to maintain local access to pharmacy services.

WERE THE PROJECTED SAVINGS REALISED?

2.14 Further, Pharmac's savings projections did not include the $0.5 million that district health boards had allocated for the cost of the all-at-once dispensing communications campaign, information technology changes,[5] and legal costs. We note that these costs were mentioned separately in the July 2003 proposal to the Board, and the Board was aware of them.

2.15 These 2 omissions are small compared to the projected total savings over 5 years, but they have a significant effect on the projected savings for the period 1 October 2003 to 30 June 2004. Instead of $5.42 million, Pharmac's savings projection should have been $4.46 million for this period, and this is the figure we audited against. The breakdown of this amount is shown in Figure 2 below.

Figure 2
Projected savings, from 1 October 2003 to 30 June 2004, including all implementation costs

Costs and savings for district health boards	Projected savings ($m)
Dispensing fee savings	36.23
Ongoing costs	
- additional medicine to patients	10.06
- maintaining access to pharmacies*	3.75
Total ongoing costs	**13.82**
Savings minus ongoing costs	**22.42**
Once-only implementation costs	
- medicine supply	17.46
- communication/other	0.50
Total implementation costs	**17.96**
Savings minus ongoing costs and implementation costs	**4.46**

* Pharmac estimated the cost of maintaining access to pharmacies at $5 million. For the 9-month period to 30 June 2004, Pharmac estimated a cost of $3.75 million to allow for the shorter period.

Source: Our analysis of Pharmac's data.

5 The cost of updating the information technology used by pharmacies and doctors.

Pharmac's calculation of the savings from all-at-once dispensing

2.16 Pharmac did not calculate the savings from all-at-once dispensing for 1 October to 31 December 2003. It was considered too difficult to isolate the savings because of the phased introduction of all-at-once dispensing.

2.17 Instead, Pharmac sought to calculate the savings achieved from 1 January 2004, when the all-at-once dispensing regime was fully established. To do this, Pharmac used information from the Pharmaceutical Information Database.

2.18 At the time of our audit, Pharmac had calculated the savings for the period from 1 January 2004 to 30 June 2004. The calculation was based on all pharmacy claims made during this period. Because of the verification undertaken by the Ministry of Health, complete data was not available to Pharmac until September 2004.[6]

2.19 Pharmac's analysts constructed a model to calculate what the costs of the monthly regime would have been if the dispensing regime had not changed.

2.20 The model was based on dispensing fee spending. While it included the costs of additional medicine to patients, the model did not take into account all of the other factors that act to reduce savings.

Factors Pharmac did not include in the calculations

2.21 Pharmac prepared its model to monitor the ongoing savings to district health boards from 1 January 2004. It did not take into account the costs of implementation (medicine costs, communications, information technology, and legal costs) and maintaining access to pharmacies.

2.22 However, implementation costs should be taken into account, because Pharmac's original projection of savings covers the 9 months to 30 June 2004, and district health boards incurred these costs because of the partial reintroduction of all-at-once dispensing.

2.23 In the case of the medicine costs of implementation, Pharmac's best estimate of the cost is the original forecast of $17.46 million. Pharmac considered it too difficult, due to the effect of other policy changes, to isolate all-at-once dispensing implementation costs from other medicine cost information during the period 1 October 2003 to 31 December 2003.

2.24 Other implementation costs included the $704,417 that Pharmac spent from July 2003 on the all-at-once dispensing communications campaign, information technology changes, and legal costs.

6 It takes approximately 3 months for verified data on pharmacy claims to become available from the Ministry of Health's Pharmaceutical Information Database.

WERE THE PROJECTED SAVINGS REALISED?

2.25 In addition, Pharmac did not monitor the ongoing cost to district health boards of maintaining access to pharmacies. We surveyed district health boards to establish the amount spent from 1 October 2003. District health boards had allocated $779,666 to the costs of maintaining access to pharmacies in the year to 1 October 2004.

2.26 Figure 3 shows Pharmac's calculated savings for the period from 1 January 2004 to 30 June 2004, alongside the other factors reducing savings (see paragraphs 2.21-2.25).

Figure 3
Calculated savings, from 1 January 2004 to 30 June 2004

Costs and savings for district health boards	Calculated savings ($m)
Dispensing fee savings	30.91
Ongoing costs	
- additional medicine to patients	8.12
- maintaining access to pharmacies*	0.39
Total ongoing costs	**8.51**
Savings minus ongoing costs	**22.40**
Once-only implementation costs	
- medicine supply (estimate)**	17.46
- communication/other	0.70
Total implementation costs	**18.16**
Savings minus ongoing costs and implementation costs	**4.24**

* As the table above relates to a 6-month period, 1 January 2004 to 30 June 2004, we have included half of the amount allocated for the 12-month period from 1 October 2003 to 1 October 2004.

** Pharmac's best estimate of the cost.

Source: Our analysis of Pharmac's data, and the results of our survey of district health boards.

Comparing Pharmac's projected and calculated savings

2.27 There are factors that prevent any direct comparison between the projected savings and the calculated savings. These are the:

- different periods used;
- value of the dispensing fee used to project and calculate savings;
- estimated and actual rate of dispensing under close control;
- use of historical ratios; and
- sensitivity of Pharmac's model for calculating savings.

Different timescales used

2.28 We are not able to provide assurance on the savings achieved in the first 3 months of all-at-once dispensing beyond our statement of in-principle savings made in paragraph 2.5 and illustrated in Figure 1. Therefore, no clear comparison can be made against Pharmac's projections for this period.

Value of the dispensing fee

2.29 Pharmac's model for projecting savings used the average dispensing fee, for January to March 2003, of $4.72. Pharmac's model for calculating savings, however, uses the average dispensing fee that relates to the latest claims data. From 1 January to 30 June 2004, the average dispensing fee was $5.04.

2.30 If the original figure of $4.72 were used to calculate savings, the savings would drop by $1.56 million.

Rates of dispensing under close control

2.31 Pharmac's projected savings assumed a close control rate of 5%. Pharmac expected the rate to be less than this, but to be conservative it decided to reduce projected dispensing fee savings to 95% of its original estimates. Savings are higher if close control rates are lower.

2.32 However, monthly reports to Pharmac's Board between January and September 2004 showed that the rate of dispensing under close control from 1 January to 30 June 2004 was closer to 20%.

Use of historical ratios

2.33 Pharmac's model for calculating savings uses historical data, known as pickup ratios, to generate its results. Pickup ratios are, for each medicine, the average amount of a medicine that patients collected under monthly dispensing. This data is used to model what the monthly dispensing regime would have cost, based on actual all-at-once dispensing data, and to calculate the cost of the additional medicine provided to patients under all-at-once dispensing.

2.34 This historical data cannot be updated, because the partial reintroduction of all-at-once dispensing has changed patterns of dispensing. Because these ratios are fixed, savings forecasts over 5 years have greater uncertainty the further out from 2003 that a projection is made.

Sensitivity of Pharmac's model for calculating savings

2.35 We carried out statistical testing using a formally designed simulation study, to see how sensitive Pharmac's model for calculating savings was to changes in certain variables, including:

- average number of dispensings each month;
- current dispensing fee[7];
- pickup ratios; and
- cost of the additional medicine to patients[8].

2.36 The results showed that the model is most sensitive to changes in the volume of dispensing, and changes in the dispensing fee. Simultaneous changes of plus or minus 5% across these variables gave savings results that varied by, at most, plus or minus 8.6% (95% confidence level).

2.37 Savings were still seen when the variables were all changed markedly, so we are satisfied that all-at-once dispensing results in savings for district health boards.

2.38 However, Pharmac's statements on the calculated savings only sometimes reflect the level of sensitivity in the model. Further, any calculation of savings in the period 1 October 2003 to 30 June 2004 must take into account all the factors reducing savings.

7 Pharmac's model multiplies the number of dispensings that would have occurred under monthly dispensing by the current dispensing fee, in order to calculate dispensing fee savings.

8 This cost is subtracted from the dispensing fee savings to give the net savings as reported by Pharmac.

Examining the savings projections over 5 years

2.39 Pharmac forecasts all of its savings and investment analyses over a 5-year period. In keeping with this, Pharmac projected that all-at-once dispensing would save district health boards $132.98 million over 5 years.

2.40 However, as shown in paragraphs 2.27 to 2.38, it is difficult to directly compare Pharmac's initial projections and the calculated results – even in the first year.

2.41 As with any statistical model, Pharmac's model for calculating savings is based on certain assumptions. One important assumption is that contractual relationships between district health boards and pharmacists remain as they were under monthly dispensing, with pharmacists earning a negotiated fee for dispensing medicine.

2.42 If, because of the partial return to all-at-once dispensing, the contractual relationship changes significantly, then a comparison with the monthly dispensing regime would not be valid. Such changes might include lump sum payments for services, or significant increases in dispensing fees in order to increase pharmacy revenue.

2.43 In future years, the dispensing fee used to calculate savings may fluctuate further from that used in the projections. The rate of dispensing under close control is similarly subject to change, and other health initiatives, such as the introduction of Primary Healthcare Organisations, could influence dispensing volumes.[9]

2.44 Although a certain amount of savings can be assumed, quantifying the amount of savings annually, or a net amount for 5 years, is difficult. Comparisons between any such figure and Pharmac's original projections would be of questionable validity.

2.45 In partially reintroducing all-at-once dispensing, Pharmac was very clear that savings of $132 million over 5 years could be expected. In our opinion, this expected result should have been presented to Pharmac's Board, and to the public, as being clearly qualified by the uncertainties inherent in reaching such a goal.

Our conclusions

2.46 There is no question that all-at-once dispensing results in a saving for district health boards, as pharmacists are paid fewer fees for dispensing each 90-day supply of medicine than was the case under monthly dispensing. This saving is partially offset by ongoing and once-only costs.

9 Primary Healthcare Organisations are expected to increase the volumes of medicine dispensed nationally. As noted earlier, in Pharmac's model an increase in dispensing leads to an increased dollar value of savings.

WERE THE PROJECTED SAVINGS REALISED?

2.47 Pharmac took a reasonable approach to projecting the total value of savings to district health boards, despite some small omissions.

2.48 Pharmac's calculation of savings to district health boards under all-at-once dispensing is reasonable. However, if any calculation of savings in the period 1 October 2003 to 30 June 2004 is made, it should take all the implementation costs into account.

2.49 Making a direct comparison between Pharmac's projected and calculated savings figures for the first 9 months of the partial reintroduction of all-at-once dispensing would be of limited use. This is because Pharmac did not monitor savings or implementation costs between 1 October and 31 December 2003, and because of differences in the dispensing fee and the rates of dispensing under close control used to project and calculate savings.

2.50 Savings will occur in years 2 to 5 after the partial reintroduction of all-at-once dispensing, as long as the contractual relationships between district health boards and pharmacists do not change significantly. However, calculating a net 5-year value of these savings is open to much uncertainty.

2.51 We make 3 recommendations about presenting the expected effect of efficiency initiatives. These are relevant for Pharmac, although we acknowledge that it is likely that Pharmac's Board was aware of the inherent uncertainties in the estimates of savings under the partial return of all-at-once dispensing. Recommendations 2 and 3 apply equally to other public entities, and other policy initiatives.

Recommendation 1
We recommend that the Pharmaceutical Management Agency ensure that reports on the savings under all-at-once dispensing reflect the sensitivity in the model for calculating savings.

Recommendation 2
We recommend that when the forecast effects of any efficiency proposals are put to decision-makers, a breakdown of the important assumptions, uncertainties, and limitations around the estimates is included.

Recommendation 3
We recommend that ranges of likely results be given when efficiency proposals are put to decision-makers, or released to the public, to reflect any uncertainty in the calculations.

Part Three

How well did Pharmac manage risks and flow-on effects?

Our expectations

3.1 We expected that Pharmac would have:

- provided guidance to doctors and pharmacists to adequately address the risk that close control could affect projected savings to a greater extent than expected;
- ensured that the necessary changes to the information technology to make and pay pharmacy claims were made to implement all-at-once dispensing from 1 October 2003;
- considered and quantified the flow-on financial effect of all-at-once dispensing on patients, identified any untoward consequences, and taken effective mitigating actions;
- taken steps to minimise the quantity of medicines dispensed to patients but not used; and
- agreed, with district health boards, who would be responsible for collecting and disposing of any unused medicines.

Guidance to doctors and pharmacists

3.2 Section 49(b) of the New Zealand Public Health and Disability Act 2000 requires Pharmac to take measures, when appropriate, to inform the public, groups, and individuals of its decisions about the *Schedule*.

3.3 As part of its plans to implement all-at-once dispensing, Pharmac identified doctors and pharmacists as important audiences, among others. Pharmac identified specific messages for them within its overall implementation objective, which was to ensure a smooth transition to all-at-once dispensing.

Part Three

HOW WELL DID PHARMAC MANAGE RISKS AND FLOW-ON EFFECTS?

3.4 Pharmac set out a timeline for implementing each stage of its communication plan. Pharmac announced its Board's decision to implement all-at-once dispensing in the days immediately following the July Board meeting, which involved contacting doctors and pharmacists directly, and issuing media releases.

3.5 Each doctor and pharmacist on Pharmac's mailing list was written to when announcements were made. Pharmac's communications to doctors informed them that over two-thirds of all medicines dispensed could be dispensed all at once. Doctors were also advised that close control was available if all-at-once dispensing was unsuitable for individual patients. Letters to pharmacists informed them of the implications of all-at-once dispensing for pharmacy practice.

3.6 In addition, Pharmac promoted the benefits of all-at-once dispensing to patients by running a multi-media campaign from September to December 2003. The campaign included posters, brochures, and leaflets in several languages, an 0800 number, and a web page. It also included advertising in newspapers and on radio. Doctors were sent posters, brochures, and leaflets to display on their premises and give to patients.

3.7 Pharmac gave communication packs to district health boards, to help them work with affected individuals and groups within their area (including doctors and pharmacists), and respond to queries.

3.8 In addition to Pharmac's planned announcements, it contacted doctors and pharmacists if their feedback to Pharmac indicated a need for additional information or to clarify information previously provided.

3.9 After implementation, Pharmac's monitoring of the effect of all-at-once dispensing showed that, between January and July 2004, the national average rate of dispensing under close control varied between 20% and 23%. Rates for individual district health boards ranged between 12% and 36%.

3.10 It is clear that Pharmac's initial estimate of 5% was too low, at least for the first financial year. Once the effect of higher than anticipated rates of close control became apparent, Pharmac highlighted the issue to district health boards for their action. In May 2004, Pharmac provided detailed information to district health boards to allow them to work with specific pharmacies and doctors to improve the rates of all-at-once dispensing. Pharmac noted an improvement in June 2004, but at the time of our audit it was too early to say whether this improvement indicated a trend.

Ensuring pharmacy claims were paid on time

3.11 All-at-once dispensing meant that changes were needed to the commercial software that pharmacists use to submit their claims to HealthPAC, and the claims validation and payments software used by HealthPAC to administer pharmacy claims.

3.12 During the consultation phase, Pharmac had advised HealthPAC and the commercial software suppliers that changes would need to be made quite quickly once Pharmac's Board decided to go ahead with all-at-once dispensing.

3.13 In the days following the Board's decision to partially reintroduce all-at-once dispensing, Pharmac notified HealthPAC and the commercial software suppliers of the specific changes to the software that were needed to implement the new rules. Pharmac worked with the suppliers to answer queries as they arose.

3.14 HealthPAC updated and tested its software in time to deal with the first fortnightly batch of pharmacy claims after 1 October 2003. The major supplier of software to pharmacists had installed and fully tested its updated software by 16 October 2003. Pharmac does not know when smaller suppliers installed their updated software.

3.15 After we started our audit, we decided to review Pharmac's actions to inform the commercial suppliers of prescribing software (used by doctors) of the changes needed to implement all-at-once dispensing. We did this because the prescribing software prompts doctors to prescribe to comply with the *Schedule*. It reduces the work pharmacists need to do to clarify any prescriptions, including dispensing instructions, which could be inconsistent with the *Schedule*.

3.16 Pharmac knew, during the transitional period, that fully updated prescribing software could not be installed in doctors' surgeries before 1 October 2003. This was partly because suppliers also needed to accommodate changes to primary health care funding. Pharmac's main concern was to ensure that pharmacists knew how to interpret prescriptions if doctors' prescriptions conflicted with the *Schedule* from 1 October 2003. Pharmac arranged for transitional measures to apply until the software could be updated. The detail of these changes is contained in Appendix 2. The interim measures were a reasonable response to take to accommodate the suppliers.

Financial effects on patients

3.17 We identified 4 potential financial effects on patients of all-at-once dispensing:

- fewer visits to pharmacies;
- cash flow issues;
- additional "blister" packaging[10] costs; and
- additional fees.

Visits to pharmacies

3.18 Pharmac's information to doctors, pharmacists and the public, stated that a benefit to patients of all-at-once dispensing could be fewer visits to pharmacies to collect their medicines. This is correct for patients who only use medicines that are dispensed all at once, but may not be true for all patients.

3.19 All-at-once dispensing created, for some patients, what Pharmac calls "mixed prescriptions" – items that pharmacists dispense in different quantities. For example, if a patient collects 2 medicines, one may be dispensed in a 90-day quantity, and another in three 30-day quantities. Pharmac identified that this group of patients could have the same number of visits as they did with monthly dispensing or, in some circumstances, fewer visits.

3.20 All-at-once dispensing did not increase patients' travel costs to collect medicines and could have reduced them if they had fewer visits to pharmacies.

Cash flow issues

3.21 When patients collect their medicines, they also pay any prescription charges[11] and any manufacturers' surcharges[12]. All-at-once dispensing does not affect the total amount patients pay for either charge, but Pharmac and others were aware that some patients could have difficulty paying the full amount all at once (instead of spreading the charges over 3 months).

3.22 Pharmac conducted detailed analysis to determine which patients could be required to pay higher charges all at once. Their analysis showed that over 80% of patients without community services cards, and over 94% of people with community services cards, would not be paying higher charges all at once. Increases would be less than

10 When pharmacists put medicines into disposable trays that are divided into clear blister bubbles. Each bubble holds a complete dose of the tablets that the patient needs at particular times of the day.
11 Prescription charges are also called co-payments.
12 Manufacturers' surcharges are the portion of the cost of a medicine that is not subsidised.

$10 for each medicine for most of those patients who would be affected. However, the cost of collecting a 90-day supply all at once could be prohibitive for a small number of patients who have to pay a manufacturers' surcharge.

3.23 The *Schedule* allows doctors to prescribe a 90-day supply of medicine to be dispensed more frequently, under close control, if patients have difficulty paying charges all at once. Activating this mechanism relies on the doctor and patient discussing the issue.

Blister packaging costs

3.24 Pharmac projected that all-at-once dispensing would reduce most pharmacists' income from dispensing fees. Consequently, Pharmac anticipated that some pharmacists could introduce charges for blister packaging, which helps patients take, and caregivers administer, the right medicines at the right time. Some pharmacists may have provided this service "free" to patients, and to residential care services, under monthly dispensing.

3.25 Pharmac also anticipated that charges for blister packaging could be passed on, by residential care services, to patients. Pharmac considered that some or all district health boards might fund the cost of blister packaging after all-at-once dispensing was reintroduced when they had not previously done so. If they did, this could reduce their savings from all-at-once dispensing. Pharmac did not quantify the potential cost to district health boards, or the potential effect on savings, because there was insufficient information available.

Additional fees

3.26 Pharmacists are restricted by their contracts with district health boards from charging patients additional dispensing fees. But they are able to charge a fee, for example, for filling prescriptions after normal business hours.

3.27 Some pharmacists charged these fees under monthly dispensing. More pharmacists have been reported as charging fees of $1-2 after all-at-once dispensing was reintroduced. Pharmacists have stated that more pharmacists are charging these fees more frequently in an attempt to recover some of the revenue lost from the partial reintroduction of all-at-once dispensing. We did not attempt to survey pharmacists to determine how widespread the practice had become.

3.28 Pharmac did not identify an increase in additional fees to patients as a potential consequence of the decision to partially reintroduce all-at-once dispensing.

Minimising the quantity of unused dispensed medicines

3.29 Before all-at-once dispensing was reintroduced, Pharmac received submissions supporting all-at-once dispensing and arguing that patients would use more of the medicines that doctors had prescribed for them. Other submissions argued the opposite; that patients would not use all the medicines dispensed, or take them as prescribed, unless patients returned to pharmacies monthly to have their compliance with the prescription reviewed.

3.30 It is not clear whether the quantity of medicine available to patients affects how much medicine patients actually use. Pharmac accepted that some patients would, and some would not, use the additional medicines provided to them under all-at-once dispensing. Pharmac estimated that the additional medicines to patients was equivalent to a 6% increase in dispensing, and surmised that the amount of unused dispensed medicines could increase by the same amount (under certain assumptions). Pharmac was unable to get sufficient information to determine how realistic this figure was.

3.31 The medicines approved for all-at-once dispensing at 1 October 2003 were those that, under monthly dispensing, patients had been collecting, on average, more than 60 days of a 90-day supply. For example, if a patient had collected all three 30-day quantities of their medicine, the collection rate would be 3. All the medicines on the all-at-once dispensing list had average collection rates of 2.3 or more, and 79% of these medicines had collection rates of more than 2.75.

3.32 Average collection rates can hide a lot of variation, so the quantity of a medicine used by individual patients will vary. However, the method that Pharmac used to identify medicines that would make savings for district health boards, when dispensed all at once, minimised the potential increase in the quantity of unused dispensed medicines. In addition, when clinically appropriate, the *Schedule* allows medicines on the all-at-once dispensing list to be dispensed under close control, and for periods less than 90 days. If used, these provisions act to reduce the quantity of unused medicines.

3.33 We could find no agency that collects reliable national or regional trend data about the quantity of medicines dispensed to patients that were subsequently returned to pharmacies for disposal. This meant we could not assess the reasonableness of Pharmac's estimate by comparing the quantity of medicines returned to pharmacies before and after the partial reintroduction of all-at-once dispensing on 1 October 2003.[13]

13 Medicines returned to pharmacies are only a portion of unused dispensed medicines. The remainder are disposed of into the sewerage system or landfills.

Collecting and disposing of unused medicines

3.34 Pharmac recognised all-at-once dispensing could lead to more unused dispensed medicines in the community, and that these would need to be disposed of safely. Pharmac discussed the issue with the district health boards. Pharmacists already had disposal methods in place; the concern was whether the existing arrangements would be sufficient to cope with any increase in the quantities of waste medicine caused by the partial reintroduction of all-at-once dispensing. Given that the quantity of waste could be increased, the expected reduction to pharmacists' dispensing fee income generated discussion among district health boards about the adequacy of the payment to pharmacists within existing, publicly funded, revenue.

3.35 It is not clear who – Pharmac, district health boards, or the Ministry of Health – is responsible for funding the collection and disposal of publicly and privately funded unused medicines. District health boards have identified that the Accident Compensation Corporation and local government have some responsibilities for funding medicine waste management, as do patients and service providers.

3.36 Pharmac informed interested parties, during the consultation period before the decision to partially reintroduce all-at-once dispensing was made, that district health boards had agreed that the safe disposal of unused dispensed medicines would be their responsibility. Pharmac stated that district health boards proposed to run local DUMP (Disposing of Unused Medicine Properly) campaigns.

3.37 The wider issues of health promotion, the need to reduce the amount of medicines in the community, and the potential hazards of waste medicines to the environment were not raised with pharmacists during consultation on the partial reintroduction of all-at-once dispensing.

3.38 We surveyed all district health boards to ask them what they were doing about managing waste medicines, including:

- waste generated from district health board-funded activity (that is, unused dispensed medicines); and
- privately generated and funded waste, such as expired medicines, damaged medicines that have not been dispensed, and waste over-the-counter medicines.

3.39 The responses showed that the district health boards take different approaches to funding the collection and disposal of waste medicines, and are at different stages of active involvement.

3.40 Eight district health boards paid for waste medicines to be collected, and a further 6 intended to fund collection services in future. Nine district health boards funded

the disposal of waste medicine, and a further 6 intended to. One of the larger district health boards considered that pharmacists were already funded for waste collection and disposal through the pharmacy claims process.

3.41 No district health boards held reliable trend information about the quantity and type of waste medicine before and after the partial reintroduction of all-at-once dispensing. A few district health boards had begun to collect data about the quantity and type of waste medicine collected for disposal; most held no information about waste medicines, or knew how much of that waste was hazardous.

3.42 Several district health boards told us they had projects planned for 2004-05 to collect data about waste medicines, and some projects included trial DUMP campaigns. Others had already completed projects and were using the data to work with pharmacists and doctors to identify effective medicine (including waste) management solutions for the problems identified. District health boards indicated to us that some solutions could be to encourage more effective prescribing, and health and disability support services to assist patients to take medicines effectively, so that the potential for unused dispensed medicines is reduced.

3.43 The district health boards that did not intend to fund waste medicine collection and disposal told us that medicine waste management was not a problem that pharmacists had raised with them. They were giving priority to other medicine management issues, and would continue to monitor the situation.

Minimising risks to patients

3.44 Several safety concerns were raised with Pharmac during consultation about the proposal to partially reintroduce all-at-once dispensing. These included concerns about the potential for increased rates of poisoning and thefts of medicines from patients' homes, patients' ability to cope with having more medicines at home, and the safe management of medicines in residential care services.

3.45 After we started our audit, we decided to comment on these issues because they have the potential to disadvantage patients. They do not relate directly to achieving savings or the financial effects of all-at-once dispensing on patients.

Poisoning and theft

3.46 All-at-once dispensing results in more medicines being in homes for two-thirds of the days of a 90-day treatment period. This creates the potential for more poisoning (accidental or deliberate) and thefts of medicines from patients' homes.

3.47 Pharmac concluded, within the limits of the data available, that because monthly dispensing had not decreased poisoning when it was introduced in 1996, all-at-once dispensing was unlikely to increase poisoning. Pharmac's conclusion was reviewed by the Pharmacology and Therapeutics Advisory Committee, which considered that the data was limited and it was difficult to form a view.

3.48 To be safe, Pharmac excluded from all-at-once dispensing those medicines that it, on the advice of the Pharmacology and Therapeutics Advisory Committee, judged to have abuse potential and significant safety issues. However, if doctors continue to have concerns about larger quantities of medicines being in particular patients' homes, then they can prescribe the medicines to be dispensed under close control, or prescribe them for shorter periods.

3.49 The Police advised Pharmac that medicines with abuse potential are targets for theft, but were comfortable with the partial reintroduction all-at-once dispensing – as long as particular medicines could be removed from the list if concerns were identified.

Patients' ability to manage more medicines at home

3.50 During the consultation period, Pharmac received submissions arguing that some patients, in particular the elderly, would not be able to safely manage a 90-day quantity of medicine at home, which could lead to a reduction in compliance. The *Schedule* allows doctors to use close control to restrict the quantity of medicines dispensed to patients if they cannot safely manage a 90-day quantity of medicine. This relies on the doctor and patient discussing the issue.

3.51 Alternatively, if a doctor prescribes a 90-day supply of a medicine to be dispensed in one quantity, and the dispensing pharmacist believes the patient cannot manage that quantity of medicine safely, the pharmacist can ask the doctor to amend the prescription to have the medicine dispensed under close control.

Safe storage of medicines in residential care services

3.52 When all-at-once dispensing was reintroduced, the existing rules for residential care services were reinforced; medicines could not be dispensed under close control for patients residing in these services. This is because residential care services are legally responsible for managing medicines safely. If doctors prescribed a 90-day supply of medicine for a patient, the full amount would be dispensed. Some residential care services were concerned about their ability to manage the larger quantities of medicines safely.

3.53 Residential care services can avoid having larger stocks of medicine by asking doctors to write new prescriptions each month (rather than 3-monthly) for patients requiring a 90-day supply of a medicine on the all-at-once dispensing list. (The doctor may charge more for this service, because it is for administrative rather than clinical reasons.) Another option is for the residential care service to pay to have more frequent dispensing.

3.54 After discussions with district health boards and the Ministry of Health, Pharmac presented a proposal in November 2004 for the *Schedule* to be amended. The change would introduce a new rule that allows all-at-once and monthly dispensing for patients in residential care services. It would give the residential care services having difficulties with safe medicines management another option, and return to the situation existing from 1996 to 2003. If Pharmac's proposal is accepted, its implementation depends on funding being made available, and HealthPAC being able to collect enough information to identify pharmacy claims for patients who live in residential care services.

Our conclusions

3.55 Pharmac's communications to doctors and pharmacists adequately addressed the risk that close control could affect projected savings, by promoting the benefits of all-at-once dispensing for patients.

3.56 Pharmac took reasonable steps to ensure that changes to the information technology for pharmacy claims were made in time to deal with the first fortnightly batch of pharmacy claims after 1 October 2003. The transitional period might have been too short, because the major supplier of software that pharmacists use to make pharmacy claims did not install its software until 16 October 2003.

3.57 Patients who only collect medicines that are dispensed all at once will have fewer visits to pharmacies. Patients who also collect medicines dispensed in smaller quantities will have the same number of visits, or in some cases fewer, as they did with monthly dispensing. All-at-once dispensing did not increase patients' travel costs to collect medicines, and could have reduced them if they had fewer visits to pharmacies.

3.58 Patients pay no more in prescription charges and manufacturers' surcharges under all-at-once dispensing. For patients having difficulty paying these charges all at once, the *Schedule* provides a mechanism (close control) to spread the charges over 3 months. However, using close control relies on doctors and patients discussing the issue.

3.59 Patients are financially disadvantaged by the partial reintroduction of all-at-once dispensing if they are paying additional fees to obtain their medicines, or paying for blister packaging that pharmacists may not have charged for under monthly dispensing.

3.60 The method that Pharmac used to identify medicines for all-at-once dispensing minimised the potential increase in the quantity of unused dispensed medicines. Pharmac did not have credible information indicating, with any certainty, whether patients take more medicines if they have more dispensed to them. We agree with Pharmac's view that it is difficult to estimate how much of the additional medicines provided to patients would go unused.

3.61 In our view, research should be undertaken to identify what effect, if any, giving medicines to patients in 30-day or 90-day quantities has on patients' compliance with the prescription. The research should focus on those patients who are perceived to be at risk of harm from all-at-once dispensing. (Submissions to Pharmac during consultation on the partial reintroduction of all-at-once dispensing indicate this would include the elderly, and patients taking medicines to treat mental illness.) The results of this research should be used to inform future changes to dispensing regimes, and allow changes to be made for effectiveness reasons as well as to achieve efficiencies.

3.62 Pharmac should be responsible for considering this issue because it determines the maximum quantities of each medicine that can be dispensed (within the limits set by regulation).

Recommendation 4
We recommend that the Pharmaceutical Management Agency use its existing powers to ensure that independent research is undertaken to determine what effect, if any, dispensing medicines to patients in 30-day or 90-day quantities has on patients' use of those medicines.

3.63 There is a lack of clarity among Pharmac, District Health Boards New Zealand, and the Ministry of Health about who is responsible for funding the collection and disposal of publicly and privately funded unused medicines. The lack of clarity of the roles of the various entities in funding the collection and disposal of medicine waste should be addressed.

Recommendation 5
We recommend that the Ministry of Health take the lead in discussing and agreeing with district health boards and the Pharmaceutical Management Agency, and other organisations as required, where the responsibilities will lie for monitoring unused medicine, and for funding the collection and disposal of publicly and privately funded unused medicines.

3.64 District health boards hold little or no data about the quantity and type of unused dispensed medicines. At the time of our survey of district health boards, in November 2004, 40% of district health boards funded the collection and disposal of unused medicines (which includes unused dispensed medicines), and another 30% intended to do so. Several district health boards were to gather data during 2004-05 to help them choose the most effective arrangements to prevent and manage medicine waste. Collecting nationally consistent data about unused dispensed medicines helps to identify the reasons for, and types of, medicines being returned for disposal.

Recommendation 6
We recommend district health boards collect consistent data about the quantity and type of unused dispensed medicines funded by them, to improve the quality of prescribing, the effective use of medicines, and reduce waste.

3.65 District health boards could consider the actions other countries have taken to encourage the return of unused medicines. For example, Australia[14] has a scheme to encourage the return of unwanted medicines (whether publicly or privately funded) for safe disposal. The scheme enables monthly reporting, for instance, of the total kilograms collected for disposal. France[15] introduced its medicine collection and disposal scheme primarily for environmental reasons; it needed to reduce the quantity of all waste going into landfills.

3.66 Adequate mechanisms are available in the *Schedule* to manage the potential risks of having larger quantities of medicines in homes and residential care services as a result of all-at-once dispensing. The mechanisms rely on the doctor, patient, pharmacist, and residential care services manager actively considering the risks and taking mitigating actions.

14 www.returnmed.com.au.
15 Macarthur, D 2000, *Any old drugs? Two schemes for the disposal of unwanted medicines in Europe,* The Pharmaceutical Journal, vol. 264, no. 7082, pp223-4, February 5.

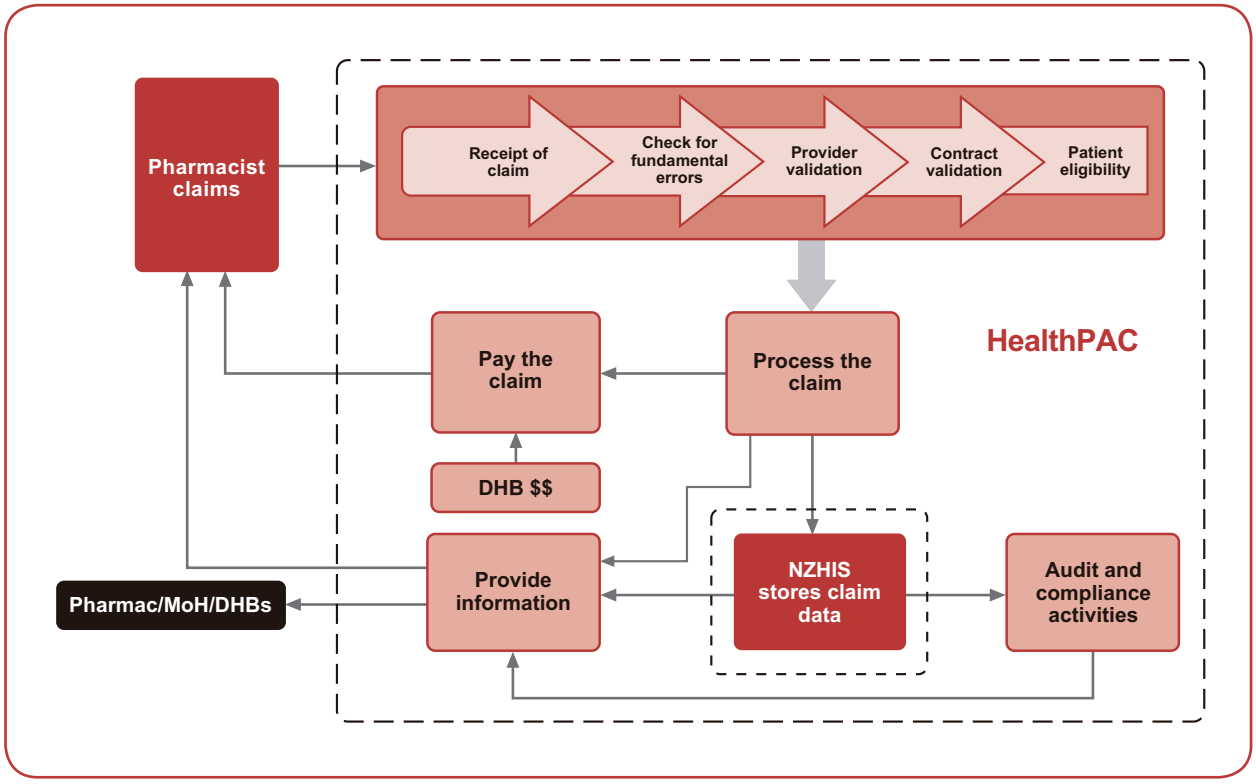
APPENDIX ONE

Paying pharmacists' claims

Figure 4 gives an overview of how pharmacists' claims are paid. Pharmacists make claims to be paid dispensing fees, and to be reimbursed for the cost of medicines dispensed to patients. Pharmacists make claims to HealthPAC, which takes various steps to ensure that claims are valid before paying pharmacists on behalf of district health boards.

The information from pharmacists' claims has other data added to it and the combined data is collected by NZHIS into a data warehouse called the Pharmaceutical Information Database. Pharmac and others use the Pharmaceutical Information Database to monitor the usage of publicly funded medicines, including the frequency of dispensing.

Figure 4
Overview of how pharmacy claims are paid



Source: Adapted from a chart on the Ministry of Health's website.

APPENDIX TWO

Transitional arrangements to ensure that prescriptions were consistent with the Medicines Regulations 1984

The first transitional measure Pharmac took was to advise doctors to add a standard notation to all prescriptions that instructed pharmacists to apply the new rules for medicines on the all-at-once dispensing list unless doctors had specifically requested that the medicines be dispensed under close control.

However, the notation could mean that prescriptions could contain 2 conflicting statements about how often pharmacists were to dispense medicines to patients. The notation would achieve compliance with the *Schedule* (which pharmacists are obliged to do in their contracts with district health boards) but could be regarded as being in conflict with regulation 42(3) of the Medicines Regulations 1984, which requires pharmacists to dispense medicines as doctors prescribe.

To prevent pharmacists being given conflicting statements, Pharmac asked the Director-General of Health to authorise a departure from the regulation to ensure that regulation 42(3) and the *Schedule* were consistent. The Director-General agreed and her decision was notified to doctors and pharmacists before all-at-once dispensing came into effect on 1 October 2003. The authorisation would apply continuously, but become redundant once the software was updated.

In the last 2 weeks of the transitional period, it became apparent to Pharmac that an unexpected problem had arisen due a change in the way that some pharmacists intended to interpret regulation 42(3) for dispensing non-stat medicines after 1 October 2003. The new interpretation being discussed was a reversal of the interpretation accepted by pharmacists, Pharmac, Medsafe, and HealthPAC from 1996 to 2003.

Pharmac acted quickly to clarify the situation with pharmacists. It wrote to them on 1 October 2003 explaining how to interpret doctors' instructions to comply with the *Schedule* so that pharmacists and patients could obtain public funding for dispensing and obtaining non-stat medicines.

However, this meant Pharmac needed to make a second request to the Director-General of Health for her authorisation to depart from regulation 42(3) until the updated prescribing software could be installed in doctors' surgeries. The request was formally made on 8 October 2003 and the authorisation was signed on 28 October 2003.

In our view, Pharmac acted promptly to resolve an unanticipated potential conflict between the *Schedule* and regulation 42(3). Nonetheless, because the Director-General's authorisations are not retrospective, some prescriptions written by doctors between 1 and 28 October 2003 might have complied with the *Schedule* but not regulation 42(3).

Recent Publications by the Auditor-General

Other publications issued by the Auditor-General in the past 12 months have been:

- Horizons and Otago Regional Councils: Management of freshwater resources
- The Auditor-General's audting standards
- Annual Plan 2005-06
- Central Government: Results of the 2003-04 audits – B.29[05a]
- Progress in implementing key recommendations of the 1996 Transport Committee inquiry into truck crashes
- An assurance audit of the Annual Performance Report of the Electricity Commission for the period ended 30 June 2004
- Department of Conservation: Administration of the Conservation Services Programme – follow-up audit
- Ministry of Defence and New Zealand Defence Force: Further report on the acquisition and introduction into service of Light Armoured Vehicles
- New Zealand Trade and Enterprise: Administration of grant programmes
- New Zealand Trade and Enterprise: Administration of the Visiting Investor Programme
- Christchurch Polytechnic Institute of Technology: Management of conflicts of interest regarding the Computing Offered On-Line (COOL) programme
- NZ On Air's funding of NZ Idol: Letter to Deborah Coddington MP
- Annual Report 2003-04 – B.28
- Summary Annual Report 2003-04
- Inquiry into the Ministry of Education's monitoring of scholarships administered by the Maori Education Trust
- Local Government: Results of the 2002-03 audits – B.29[04b]

Web Site

All these reports are available in PDF form on our web site ***www.oag.govt.nz***. They can also be obtained in hard copy on request – ***reports@oag.govt.nz***. A cost may apply for hard copies.

Subscription for Notification of New Reports

We offer a subscription facility for people to be notified by e-mail when new Reports and Latest News are added to the web site. The link to this subscription service is on our Home Page and also in the Reports section of the web site.

Pharmaceutical Management Agency: Changes to the frequency of medicine dispensing

Controller and Auditor-General

Tumuaki o te Mana Arotake

ISBN 0-478-18134-5