

The Members of the Legislative Assembly
Parliament House
SYDNEY NSW 2000

In compliance with Section 38E of the *Public Finance and Audit Act 1983*, I present a report to the Legislative Assembly titled:

Immunisation in New South Wales

- **Implementing the Immunisation Register**
- **Vaccine Distribution**

A C HARRIS

Sydney
June 1997

Performance Audit Report

Immunisation in NSW

- **Implementing the
Immunisation Register**
- **Vaccine Distribution**

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Executive Summary

Executive Summary

- The Policy** Improving immunisation levels has been a policy priority for NSW and Commonwealth governments since the early 1990s. Along with other States they are pursuing a range of initiatives aimed at reaching immunisation target levels above 95% by the year 2000. At such levels, the occurrence of vaccine preventable diseases is minimised and their spread prevented.
- Widespread Support** There is considerable support for this policy from the public, the medical profession and all levels of government. However, like much in public health, it depends for its success on effective cooperation between many participants, both nationally and locally, with competing demands on their time and resources.
- Management** In this context, the relatively informal arrangements that have characterised the management of immunisation programs in the past, and even some recent initiatives, do not appear strong enough to deliver the high levels of coverage that are now sought. The audit has examined two areas of the immunisation program that exhibit weakness in management arrangements:
- the implementation of a national register of children's immunisation history
 - vaccine distribution.
- The Register** The Register is a collaborative development of Commonwealth and State governments. There are formal agreements between them over funding. However the responsibilities of all parties in managing the successful implementation of the Register are much less clear.
- No user requirements, plans or timetables have been formally agreed between the major participants on the information to be provided from the Register, for example. As a result, there have been significant delays in generating reliable and relevant information for management and also for the immunisation providers upon whose widespread commitment the success of the Register ultimately depends.
- In turn this has delayed the development and implementation of local strategies to fill real gaps in immunisation coverage. Although the Register offers considerable potential, unless the basic reliability and completeness of the information it contains can be improved, and quickly, its value remains uncertain.

The next six months will be critical in this respect. Establishing a clearer delineation of responsibilities between participants, including service levels agreements and action timetables, is now a priority at both national level and locally.

Vaccine Distribution

In vaccine distribution, the informal management arrangements are longer established, with General Practitioners, local councils and hospital pharmacies all playing a role along with the NSW Health in collecting and storing vaccines. These arrangements, though economical for NSW Health, do not lend themselves to high standards of accountability. They also increase the risk of vaccine failure, given the need for constant low temperatures to maintain vaccine efficacy.

What resources NSW Health does provide for vaccine storage and distribution go to the State Vaccine Centre, whose role as a central distribution point appears unnecessary, based on experience in other States. The audit recommends NSW Health redirect these resources:

- in the short term, supporting a system of delivery direct from vaccine suppliers to existing storage points in councils and hospitals (and possibly to larger medical practices); and investing in improvements in accountability and storage at these sites
- for the longer term, NSW Health should keep the merits of direct distribution to all medical practices under review, perhaps as an incentive to encourage full provider participation in the Register and in its further development.

The report contains more details and specific recommendations in each of these areas. A summary of these recommendations, and NSW Health's responses to them, follows.

Response from New South Wales Health

Letter from the Director-General

I refer to your letter of 6 May 1997 requesting comments on the draft Performance Audit Report on Immunisation in New South Wales and thank you for the opportunity to comment on this important report. Immunisation is one of the single most important public health strategies known, and its effective delivery to the people of this state is a high priority for NSW Health.

NSW Health was pleased to assist your office in undertaking the Audit which has examined two areas of the immunisation program: the implementation of the Australian Childhood Immunisation Register, and vaccine distribution in NSW.

The report was circulated to departmental officers, the State Vaccine Centre, public health unit staff, and members of the NSW Immunisation Advisory Committee for comment. We have received several submissions from these groups and have summarised these in the attached response.

I appreciate the good work of the Audit Office in preparing this important document, and feel sure it will assist in the efficient delivery of public health services in NSW.

Signed

MICHAEL REID
DIRECTOR-GENERAL

Date: 5 June 1997

NSW Health response to specific recommendations.

The Report makes a number of recommendations regarding the implementation of the Australian Childhood Immunisation Register and vaccine distribution in NSW. The report is generally supported, and provides useful advice for NSW Health in preventing childhood diseases through the promotion of immunisation.

Comments (*in italics*) on the Report's recommendations are provided below.

The Register

Recommendation 2.6, page 24.

The Australian Childhood Immunisation Register is the cornerstone of a long term immunisation improvement process. The Audit Office recommends that NSW Health should promote the following arrangements, through the National Childhood Immunisation Committee, and with the Commonwealth where necessary:

- a single decision making body to manage the Register and its information system, with a budget to match

NSW Health supports the formation of a single decision-making body and Registrar to manage the Register and its information, financed by the Commonwealth.

- clearer delineation of the roles and responsibilities of the participants in the maintenance of the Register nationally, including GP Divisions, States, Commonwealth and HIC

NSW Health supports formalisation of contracts and service level agreements between the Commonwealth, Health Insurance Commission, States, territories and GP Divisions.

- the development of participant-specific performance indicators that match those responsibilities, in the form of targets and service level agreements

NSW Health supports performance indicators so that General Practitioners, Councils, Community health centres, hospitals as well as state and Territory health departments meet targets within these service agreements.

- local analysis and follow up strategies which provide equivalent delineation of responsibilities, targets and time scales for all stakeholders in the Register locally

NSW Health has provided guidelines to Area Health Services for the follow up of under immunised children, either through targeted population promotion of immunisations, follow up with last reported providers, or follow up with parents of under immunised children. CEOs of Area Health Services have performance agreements that specify targets for implementation of follow up strategies.

NSW Health believes that the success of the Register will depend on the rapid improvement of the quality of the data to justify the Department's continued commitment to the cost-share agreement with the Commonwealth.

Vaccine Distribution

Recommendation 3.3, page 34.

NSW Health consider abandoning the warehouse role of the State Vaccine Centre and, in the short term at least, using the resources to provide delivery direct to hospital pharmacies and local council stores, supported by improvements in vaccine supply information and accountability there and for the state as a whole.

Such a move would be predicated on:

- the state negotiating with vaccine suppliers to accept orders from, and organise delivery to, sub-depots in hospitals and councils across NSW
- these sub-depots, including councils be allowed by regulation to order and receive such vaccines
- their having efficient and auditable ordering procedures.

NSW Health should consider formalising its arrangements with councils and hospital pharmacies to ensure that standards of administration and storage are maintained and rewarded.

NSW Health acknowledges that better systems of vaccine delivery and auditing procedures are essential to ensure the delivery of potent vaccine to all immunisation service providers. The suggested strategies for achieving this goals are supported.

In the short run the priority for NSW Health and the staff of public health units is to make the Register comprehensive and accurate. They should consider making a special effort now to collate what supply information is available manually from council and pharmacy records, as a way of identifying the biggest gaps in the Register for follow up.

Since the start of the Audit, NSW Health has developed an alternative and more efficient method for evaluating the Register in partnership with public health units and providers, to determine barriers to the successful implementation of the Register at the local level. Immunisation providers (including GPs, councils, community health centres and hospitals will be interviewed regarding the accuracy of the data supplied to the Register. In addition, HIC has provided to NSW Health information about immunisations provided supplied by these groups. These data will enable NSW Health to evaluate and make recommendations for the improvement of the Register and its data.

In the long run, NSW should explore the costs and benefits of a wider range of distribution options in the light of its experience with the direct supply to sub-depots, including:

- direct distribution by vaccine suppliers to providers and/or to retail pharmacies
- (wider) use of pathology couriers for direct distribution.

NSW Health supports these recommendations, but the best methods for distribution will be better determined after trial of distribution to sub-depots.

Therefore, it is recommended that NSW seek NCIC support for an examination of vaccine supply and distribution options, once the Register has been successfully implemented.

NSW Health supports this recommendation.

1. Introduction

Introduction

Immunisation is the single most cost effective means of preventing a number of serious diseases. Achieving high rates of immunisation in the population as a whole prevents the spread of such diseases.

National Childhood Immunisation Program

Immunisation rates in NSW, and in Australia generally, have been lower than international best practice and outbreaks of vaccine preventable disease have been common. In 1993, a National Childhood Immunisation Program (NCIP) was established by all State and Federal Health ministers to increase immunisation rates. By the year 2000, the target is to achieve greater than 90% immunisation rates for children at age 2 and near 100% coverage at school entry.

The National Program has 5 major components:

- free vaccines and better distribution
- a national register of every child's immunisation status
- certification of immunisation status at school entry
- surveillance of disease and adverse events
- an education program.

Audit Scope and Criteria

The audit examines progress on two of these in NSW:

- **the implementation of the national register**
- **vaccine distribution.**

It aims to assess the efficiency, effectiveness and accountability of the current arrangements in these areas, and to make recommendations for improvement where appropriate.

Cost Of Audit The approximate total cost of the audit is \$75,000, made up as follows:

Planning and preliminary study	\$22,000
Audit conduct	\$25,000
Reporting and Consultation	\$23,000
Printing and travel costs	\$ 5,000

Staff costs are based on standard hourly rates. The above figures include approximately \$6,000 in unpaid overtime.

Acknowledgment The audit could not have been completed without the active cooperation of staff from NSW Health's Aids and Infectious Diseases Branch, the NSW Immunisation Advisory Committee and the NSW Immunisation Coordinators Committee. Their support is acknowledged. The audit also benefited from information supplied by health officials in Queensland, Victoria, the Commonwealth and the UK, and from vaccine suppliers.

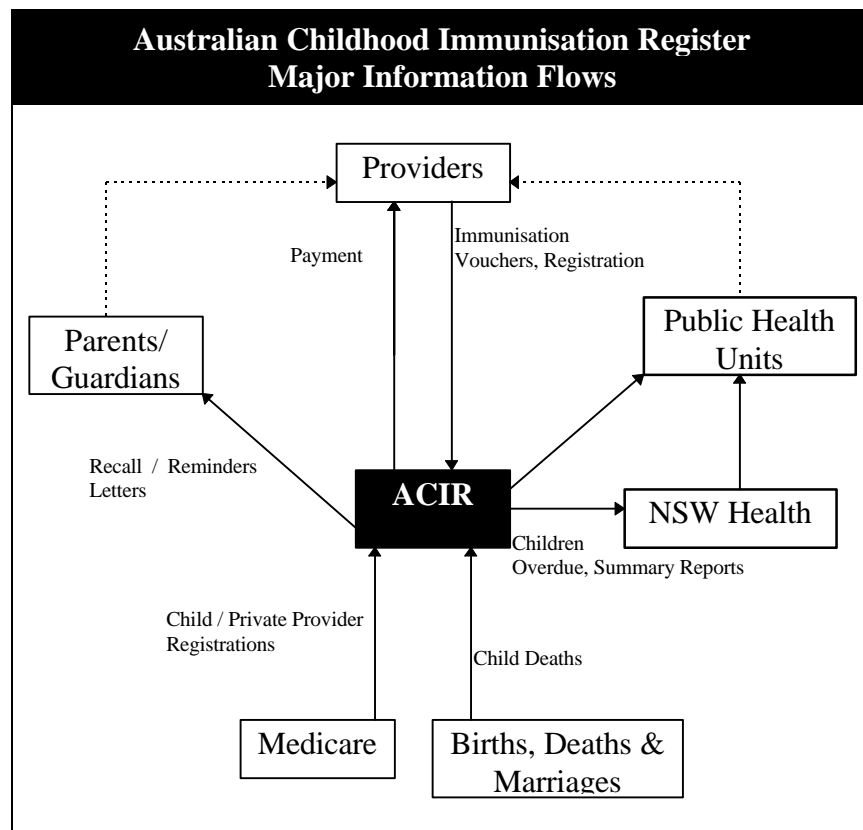
2. Implementing the National Register

2.1 The Decision to have a National Register

The National Program	<p>Since 1993, the National Program has supported the development of registers to record the immunisation status of children. This was based on overseas experience which showed they help to improve immunisation rates. They do so in two ways. They provide:</p> <ul style="list-style-type: none">• reminders to parents and providers• information on immunisation coverage to help public health managers target programs.
Local Registers	<p>Local registers, which had been tried in NSW and elsewhere in Australia, had been less than fully successful. Without being able to maintain complete information on all the children in an area (as families move in and out), such initiatives tend not to provide the comprehensive reminder systems or coverage figures needed to support target rates of immunisation close to 100%.</p>
National Register	<p>Recognising the limitations of local registers, NSW Health wrote to the Commonwealth in 1995 suggesting a national system. The Commonwealth supported the idea and, in the 1995/6 budget, proposed a two-year trial of an Australian Child Immunisation Register (ACIR). All States and Territories agreed to cooperate, and to contribute to the cost of data collection.</p> <p>The total cost of the 2-year trial was estimated at \$12m, with over \$7m coming from the Commonwealth. With the development continuing beyond the trial period, NSW has now set aside \$2m p.a. to support the Register and to promote the use of its information. Of this, \$1.6m goes on data collection.</p>
Objectives	<p>The objectives of ACIR were wide-ranging. They covered the needs of individual parents and providers on the one hand, and Commonwealth and State decision-makers on the other:</p> <ul style="list-style-type: none">• to form the basis for a recall/reminder scheme which will inform parents when their child's next vaccination is due• to enable parents and immunisation providers to check on the immunisation status of an individual child, regardless of where the child was immunised

- to provide an effective management tool for monitoring service delivery and immunisation coverage
- to identify areas at high risk because of large numbers of unimmunised children
- to provide a measure of immunisation coverage data at national, state, territory and local levels.¹

It would do this through assembling information for parents, providers and agencies in three levels of government, as the following diagram illustrates.



¹ Source: Draft Strategy for the Implementation of an Australian Childhood Immunisation Register, 16 May 1995, p1

2.2 Progress on Implementation

The timetable for implementation was ambitious, with the Register to be operational (to receive its first vaccination details) on 1 January 1996, only six months from the date of the announcement.

Achievements

That this deadline was met says much for the efforts of all concerned:

- at the Health Insurance Commission (HIC) where the ACIR computer system was developed
- at the Commonwealth Dept of Health and Human Services who coordinated the wider systems development (privacy issues, promotional material, inquiry service) in consultation with the National Childhood Immunisation Committee, parents, providers and other stakeholders
- at State Health Departments, in public health services, and providers generally, who integrated the Register's implementation into the local context.

It is thus disappointing that now, more than a year later, the Register is yet to fulfil at least two of its major objectives.

- It has still to provide an effective management tool for monitoring service delivery
- It has yet to provide accurate information on immunisation coverage, as the following table illustrates.

The Importance of Comprehensive and Timely Data

The target is 90% immunisation rates

In 1995, a sample survey estimated a rate of 77% for Triple Antigen coverage (Diphtheria, Tetanus, Pertussis) in NSW.

After 12 months operation, the Register's figures for Triple Antigen coverage in NSW indicated:

- 58% of children immunised at six months of age
- 18% not fully immunised but not yet overdue
- 24% not fully immunised and overdue.

Follow-up of a sample of the 24% found all had been fully immunised but the Register had not been updated because of mistaken, slow, or forgotten data returns from providers.

The Register suggests, probably incorrectly, a decline in immunisation rates. More important, it will never be able to demonstrate that target levels as high as 90% are met (even when they are), if data returns are less than 90%.

For staff in Public Health Units and General Practice Divisions responsible for auditing returns and chasing missing data, it will involve substantial extra work before they can target the real immunisation shortfalls.

For ACIR it will mean producing a large number of reminder and recall letters inappropriately (perhaps as many as 100,000 per year in NSW alone)

For parents and providers this will cause confusion and annoyance, and will not encourage confidence in the Register as a whole.

Sources:

State Immunisation Plan 1995

Audit interviews with Immunisation Coordinators

ACIR: An Evaluation after 12 months, Human Capital Alliance 1997, p96

NSW Public Health Bulletin, Vol 6 No 1 1996, p114

Like much in public health, the success of the Register depends on a high level of participation from a large number of individuals (parents and providers). They need to feel the system is responsive to their needs and to see their efforts translated into demonstrable benefits for public health, if participation is to be maintained.

A recent evaluation of the Register for the Commonwealth Government suggests this is still not assured.

... A majority of immunisation providers believe the Register is an important component of a comprehensive approach to improved immunisation service provision in Australia ... Most providers however believe that the ACIR is not yet functioning effectively ...

Source:

ACIR: An Evaluation after 12 months, Human Capital Alliance 1997, p91

This is not to doubt significant progress made by ACIR towards meeting its objectives. However, the development process has exhibited a number of management, planning and design weaknesses. These have contributed to delays and confusion in the gathering of data and production of information from the system, which continue to threaten the long-term effectiveness of the Register.

Weaknesses

These weaknesses are:

- a lack of clarity in the division of responsibilities between the Commonwealth and State agencies involved in developing and implementing the Register
- no user requirement agreed by all parties for the information system that is to be one of the major outputs from the Register, and no development plan or timetable published (beyond the initial implementation of the Register in January 1996)
- inadequate attention in the design and implementation of the system for:
 - ◇ a major effort early on with providers to achieve accuracy and comprehensiveness of data inputs
 - ◇ reporting flexibility, both for establishing data quality and for meeting the evolving needs of all participants.

Each of these is outlined in more detail below.

2.3 Lack of Clear Responsibilities

NCIC

There is no single body with unambiguous responsibility for the management of ACIR. The National Implementation Strategy for the Register, published in 1995, had the National Childhood Immunisation Committee (NCIC) responsible for *overseeing* the HIC's administration of the Register.

But in practice, this Committee, made up of representatives from Commonwealth, States and Royal Australian College of General Practitioner (RACGP), and meeting quarterly, has performed little more than an advisory role.

- It does not control the budget for the Register
- It has not designed the system itself, nor explicitly approved the work of the designers who have
- It has no form of contract or service level of agreement with HIC, which is acting as its agent in developing the system
- It has not commissioned an evaluation of the Register (the Commonwealth has, in consultation with NCIC).

Commonwealth and State

In practice, the Commonwealth, HIC and the States individually have more control. But their respective responsibilities are poorly defined. In the agreements signed between the Commonwealth and State governments:

- The Commonwealth had the responsibility initially for *co-ordinating* the implementation of the Register and then for *liaising* with the HIC to ensure [its] maintenance.
- The States were charged with *participating* in the development and implementation and then *co-operating* in [its] operation.

Misunderstanding As a result there have been significant misunderstandings between the various participants about what was expected and when. Individual States have ended up negotiating directly with HIC for information, with mixed success. A number, including NSW, have threatened withdrawal of funding because of perceived lack of progress and poor management by HIC. On the other hand, the Commonwealth and HIC have complained of inefficiencies from the States making similar but uncoordinated requests for information beyond what was anticipated; thus delaying other priorities.

Only in October of 1996 was a Memorandum of Understanding mooted for managing the development of the Register by HIC (and this came from the Commonwealth rather than from the NCIC itself). As far as The Audit Office has been able to establish, the terms of such a memorandum have yet to be discussed or agreed by NCIC.

2.4 Lack of a Plan

Implementation Strategy The publication of a National Implementation Strategy on the eve of the Register's introduction at the end of 1995, might have been expected to provide a plan for future development. But it did not. It was largely backward-looking and seemed to regard the implementation of the Register as substantially complete or automatic beyond that point. In practice, planning to realise the benefits of the Register had only just begun for those in the States and the Commonwealth who were relying on the outputs to "provide a management tool to monitor service delivery and

Specifying Outputs NSW had particularly high hopes for outputs from the Register, because of the difficulties in otherwise obtaining information on immunisation coverage from its large number of providers. Along with other members of the NCIC, NSW submitted its initial request for outputs to the HIC in July 1995. NCIC (or NSW) received in response:

- no specification of the information system to be provided by HIC, nor an outline of the individual reports to be produced
- no timetable for delivery of specific reports.

Delays and Competing Priorities

It was not until July 1996 that the first set of report specifications was distributed by HIC. It took another six months of negotiation and testing on technical details before versions of the report with logic and data reliable enough for dissemination were available. This level of effort, by both HIC and NSW Health, was unexpected, and prompted complaints from other parties at NCIC about competing priorities. It also raised issues about the boundaries between HIC and State (and Commonwealth) responsibilities for wider system developments.

The lack of an agreed user requirement or plan for information development exacerbated these conflicts. The lack of a proper contract or service level agreement between NCIC (or NSW) and HIC made their resolution more difficult.

State and Local Plans in NSW

The lack of a plan and timetable agreed at the national level has encouraged limited attention to planning at the State and local levels in NSW. At the State level, NSW Health does produce an annual Immunisation Plan to meet the terms of its agreement with the Commonwealth under the NCIP. However, like those from other States, they appear to lack specifics on targets, deadlines and resources which would make such a plan useful locally.

At the Area Health Service and local level, a planning framework is especially important to bring together the many participants involved in making the register, and immunisation generally, effective. Here too, with some notable exceptions, plans, targets and responsibilities have not been formalised, and the process often lacks the involvement of some key participants. The following example shows what can be achieved in establishing an effective planning framework, although it rarely has been.

Extract from <i>Strategic Plan for Childhood Immunisation in SW Sydney 1996</i>				
GOAL 1: Achieve a 95% Immunisation Rate for Children in SWS by 2000.				
SERVICE OBJECTIVE: Create environments that are supportive to immunisation				
STRATEGY	OUTCOME/PERFORMANCE INDICATOR	RESPONSIBILITY	TIME FRAME	RESOURCE REQUIREMENTS
8. Establish mechanisms in SWS hospital maternity units to ensure timely enrolment of newborns on the Australian Childhood Immunisation Register (ACIR)	100% enrolment of newborns on the ACIR	GMs, DDPH	December 1996	Cost of staff time allocated to this strategy
9. Develop mechanisms to follow-up unimmunised children identified from the ACIR consistent with Department of Health Circular	Improved immunisation coverage	GMs, DDPH, all public and private immunisation providers	December 1996	Costs associated with active follow-up
10. Involve hospital based services in review of immunisation status of all children presenting for care and arrange appropriate follow-up of children overdue for immunisation	Increased role of SWS paediatric units, paediatric and neonatal discharge follow-up programmes, emergency services and outpatient clinics in review of immunisation status and arrangement of follow-up	GMs, HPS, HES, DGPs	December 1996	Staff time allocated to this strategy. Costs associated with staff education
11. Incorporate immunisation record in all paediatric and emergency medical records	All immunisations recorded	GMs, DPS, DGPs	June 1997	Staff time
12. Implement the SWS Immunisation Strategic Plan	Plan implemented	DCEO, GMs	1997/98	

2.5 Design Weaknesses

a) Obtaining Quality Inputs

Payment For Data

Experience with earlier registers, both in NSW and in the UK, emphasised the need for commitment from all those supplying the data inputs, if the outputs were to be reliable. A payment to providers for data on immunisation encounters was the major approach ACIR adopted to gain this commitment.

Reports Feedback

The importance of reporting back to providers on their immunisation (recording) activity was also stressed at least by the States, as a way of encouraging commitment. Such reports would help all agencies to monitor service delivery and target follow-up.

However, the National Implementation Strategy downplayed this issue and made little provision for providing early feedback to providers, or to States and Commonwealth, about the adequacy of data. It assumed the payment for data would be sufficient incentive for providers, and promotion efforts nationally were focused primarily on parents.

It is hoped that parents will remind providers about the Register and ensure that a record of their child's immunisation is included. This will have the added benefit of promoting the Register to providers and encouraging their participation.

Source:

Implementation of the ACIR, Commonwealth Department of Health and Family Services 1995 p17.

Incomplete Data Returns From Providers

In practice, initial testing of the accuracy of Register information in NSW indicates that apparently low immunisation rates are explained largely by slow or missing returns from providers; not parents' inaction. The user-unfriendly Encounter Forms for data input, and report layouts, have not encouraged provider participation.

... The main sources of vexation from general practitioners are the format of the Encounter Form and the statement of payments with their confusing rejection codes .. There is little doubt that the Encounter Form requires revision; indeed it would be an affront to providers if it were not revised ...

Source:

ACIR: An Evaluation ... 1997 op cit, p91 and 99.

Follow-Up Responsibilities Unclear Where the responsibility lies for chasing non-returning providers has also been unclear. HIC commissioned a survey to assess the extent and reasons for the problems here in 1996, but undertook no active follow-up. In NSW, any such follow-up by the State was constrained by the lack of a clear mandate to query provider actions in this area or of provider-specific information. Privacy concerns at HIC on producing outputs which identified individual providers, delayed the production of any such reports. The absence of provider phone numbers on most records in the Register also made the practicalities of follow-up more difficult.

Change Of Approach It was only in February/March 1997, that the Commonwealth responded to the threat these posed to the integrity of the Register. It accepted the need for amendments to the Encounter Form. It also encouraged publication of comparative information on provider performance and by offering incentives to Divisions of General Practice for reaching immunisation targets locally. However, the lack of attention to these issues in the first year of the Register means that the efforts to change provider practices is likely to take correspondingly longer, especially in areas where Divisions of General Practice have little influence over provider practices.

Local Agreements Needed Here particularly, it will be important that there is an agreed framework locally which defines the responsibilities for information provision to providers, and ensure efficient follow-up.

b) Obtaining Quality Outputs

Initial Reports Limited The emphasis of the outputs initially produced by HIC was to provide a limited number of standard reports to satisfy the coverage objective of the Register (and the program management objectives of the Commonwealth). More flexible reporting to meet the “management of service delivery” objective of the Register seems to have been regarded as secondary, in part because the split of responsibility between States, Commonwealth and HIC for delivering on this objective was unclear.

More Flexible Information System NSW made repeated representations to the Commonwealth for access to identified information for active follow-up. This came to a head in May 1996, when HIC agreed to NSW’s request for the development of an information system capability wider than a limited number of standard reports. In March 1997, this is just beginning to yield the first accurately-specified and action-orientated outputs for local management to test.

The initial results from this testing in NSW suggest that output (and input) requirements will continue to evolve as local experience with the Register grows. Other States are likely to evolve in similar ways but from different starting points.

**More Formal
Management
Arrangements**

In these circumstances, the efficiency of a central source of information needs to be balanced by flexibility to meet changing local needs. Achieving this balance will require active

outputs and a clear understanding on all sides of the costs and benefits involved. The more the experiences of different participants can be pooled and common needs identified, the more the benefits of a centralised reporting arrangement can be realised. The loose and arms-length management arrangements between NSW, NCIC and the HIC do not, yet, offer a satisfactory long-term arrangement in this regard.

2.6 Conclusions and Recommendations

The Register has moved from a two year trial to become the cornerstone of a long-term immunisation improvement process. Further developments in the Register can be expected as a result. Its management arrangements need to be formalised to reflect this, and to clarify the roles of the various players. The Audit Office recommends that NSW Health should promote the following arrangements, through NCIC, and with the Commonwealth where necessary:

- a single decision-making body to manage the Register and its information system, with a budget to match
- clearer delineation of the roles and responsibilities of the participants in the maintenance of the Register nationally, including GP Divisions, States, Commonwealth and HIC
- the development of participant-specific performance indicators that match those responsibilities, in the form of targets and service level agreements
- local analysis and follow-up strategies which provide equivalent delineation of responsibilities, targets and timescales for all stakeholders in the Register locally.

3. Vaccine Distribution

3.1 Introduction

Free Vaccines The National Childhood Immunisation Program has sought to provide easier access to vaccines and so promote immunisation rates. Partly this has been through financial support. The Commonwealth has, since 1994, covered the costs of all vaccines on the recommended schedule for childhood immunisation.

Distribution Issues For their part, the States have sought to ensure that these vaccines are always available when and where they are needed. Under the NCIP they are responsible for the distribution of these vaccines to providers.

Vaccines are heat (and freeze) -sensitive so distribution requires careful, refrigerated, transport to maintain a consistent “cold chain” throughout. They also lose their potency with age, so regular restocking is also important if immunisation is to be effective. The more time and stages there are between vaccine manufacture and use, the greater the risk of breaks in the cold chain and spoilage.

Interstate Differences These factors pose different problems across States because of their different distributions of population and the different ways that vaccination is organised. In NSW, 80% of vaccinations are delivered by general practitioners, of which there are nearly 6000 in total. Whereas in Victoria more than 60% are delivered from less than 100 local councils clinics. Other States fall between these extremes.

Distribution Costs In NSW The larger number of providers in NSW means that its population should have easier accessibility to vaccination, particularly for infants, as part of regular visits to their local GP. However the large number of providers also means that vaccine distribution is likely to be more complex, risky and costly than in other States.

More delivery points mean more people who need to be aware of cold chain requirements, more refrigerators to maintain, more shipment stages, smaller orders, more buffer stocks to cover unexpected peaks of demand, and greater risk of spoilage and wastage (or of administering low potency doses). Many of these characteristics can also be expected to produce higher costs overall in refrigerators, transport and stocks of vaccine.

Despite this, in NSW the cost to the State Government of handling and distributing vaccines is relatively low in comparison with its neighbour States.

State Government Vaccine Distribution Costs 1995-96			
	NSW	Victoria	Queensland
Transport	\$12,000	\$45,000	\$115,000
Labour	\$55,000	\$30,000	\$80,000
Other Costs	\$15,000	\$5,000	\$45,000
Total	\$82,000	\$80,000	\$270,000
Delivery Points	100	200	1500
Providers	5700	4000	1500
Sources:	Interviews with vaccine distribution staff in 3 states NSW Review of State Vaccine Centre (the Scott report) 1996 p9 ACIR evaluation at 12 months, 1997 op cit p34,35		

This is not because of any particular efficiency in NSW, but rather because most of the distribution and storage costs are absorbed by the providers (general practitioners and local councils) themselves. Indeed the audit concludes that even the resources the State currently spends on storage and distribution could be used to obtain better outcomes and with more accountability. The reasons for this, and the options for better use, are outlined in more detail below.

3.2 State Distribution Arrangements Compared

New South Wales

In the current distribution system in NSW, vaccine suppliers deliver to a central depot, the State Vaccine Centre in Sydney. The State funds the State Vaccine Centre (at a “real” cost estimated at over \$80,000 pa) and through it the delivery of vaccines to 100 sub-depots across NSW (mostly in local councils and hospital pharmacies). The general practitioners mostly organise their own pick-up of vaccines from these sub-depots.²

Participants replenish stock every month or two according to their expected need. There is no check on the volume of vaccine ordered and no accountability for stock used by individual providers, although many of the stock control and ordering systems used in these sub-depots could provide such information. The only questioning of orders tends to occur when stocks are low.

² There are exceptions to this, as in the Illawarra and Central Coast, where the Area Health Service organises courier delivery to local clinics and GP surgeries.

The current system involves at least four handling stages between manufacturer and end user. At each stage, refrigeration and stock control need to work effectively if the vaccine is to retain its potency. Handling at each stage involves resources and time, and adds to the risks. There is no audit trail that, easily, allows the supply of vaccines going to individual providers to be monitored. Other States operate different arrangements which serve to reduce the risks of wastage and increase accountability.

**Victoria:
Delivery To
Sub-Depots**

In Victoria, there is no central depot (no State Vaccine Centre). The three manufacturers deliver directly to 200 or so sub-depots every month. There is some onward delivery or pick-up by providers but most vaccinations are administered at the depot sites (78 in local councils, the remainder in hospitals and clinics). One manufacturer delivers vaccines free to these sub-depots; another charges the State a standard \$12.50 per consignment, regardless of the destination within Victoria.

**Queensland:
Delivery To GPs**

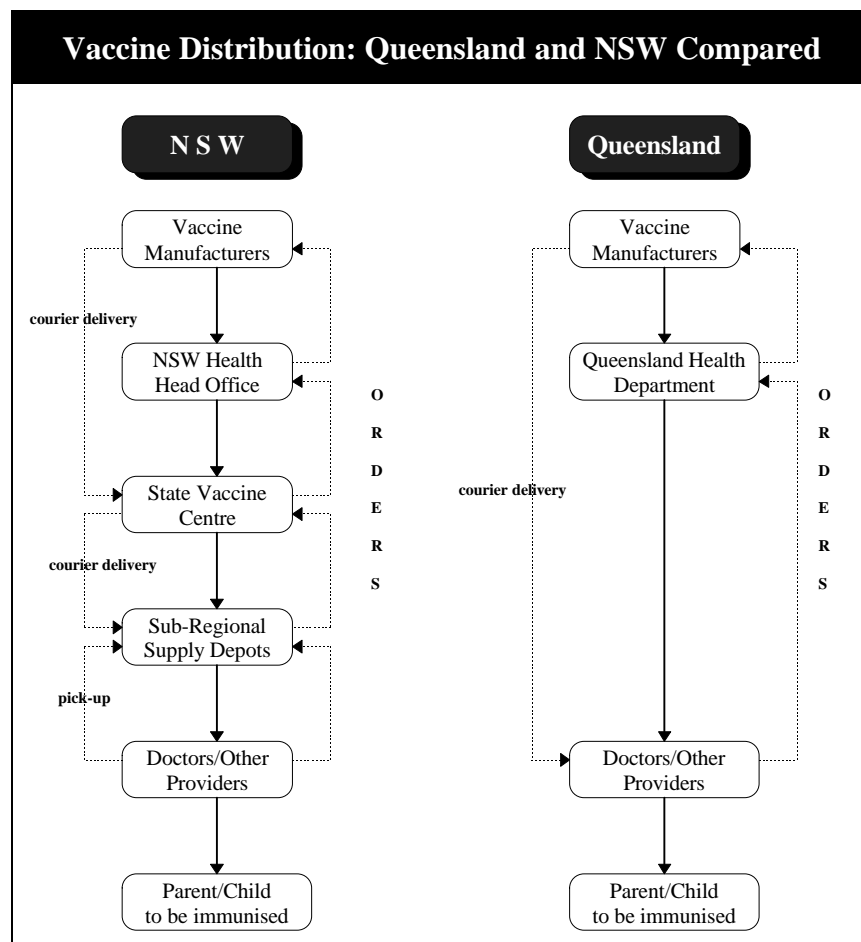
In Queensland, the State contracts with its pathology courier service to deliver vaccines directly from the manufacturer's depot's to 1500 providers (predominantly GPs). Providers receive 3 deliveries per annum and the State is charged \$32 per consignment, regardless of destination within Queensland.

**Implications for
NSW**

The audit draws two major conclusions for NSW from these comparisons.

**The Need for a
Central
Warehouse**

First, the "warehouse" role played by the State Vaccine Centre does not appear to be an essential part of a vaccine distribution system. The manufacturers or distributors themselves are prepared to take on that role and the storage/order processing involved. In this way handling, and therefore cost overall, ought to be reduced. The following diagram illustrates this point by comparing the NSW and Queensland systems.



The Costs Of Direct Distribution

Second, the transport, storage and administration costs of vaccine distribution are considerable, although under the current NSW arrangements they are dispersed between the State, local councils and a large number of general practitioners. The table following provides an initial estimate of these costs to the State Government if the Victorian and Queensland approaches were adopted in NSW.

Alternative Distribution Arrangements Cost Implications for NSW Government			
Model	Distribution details	Cost to State \$pa	Other costs and benefits
Current NSW approach	SVC sends average six-weekly to 100 sub-depots (\$15 per consignment)	\$12,000	3 stage shipment and cost of storage etc at SVC. GPs organise and bear cost of pick-up.
Victorian approach applied in NSW	Manufacturers monthly to 100 sub depots (2 manufacturers, \$12.50 each per consignment)	\$30,000	2 stage shipment. GPs still organise and bear cost of pick up. Risk of undisciplined ordering
Queensland approach applied in NSW	Courier 3 times per year to 5000 provider sites (\$20 per consignment)	\$300,000	1 stage shipment. Easier accountability. GPs need stock control and larger refrigerator?
Combination Monthly direct delivery to GPs	Courier 12 times per year to 5000 provider sites (\$20 per consignment)	\$1.2m	1 stage shipment. Easier accountability.

Are the benefits of direct distribution worth the costs involved for the State Government? This is not a question on which the audit can reach a definitive conclusion.

Provider Satisfaction

They might be if the current arrangements seriously inhibited providers' access to vaccines and discouraged immunisation as a result. But there is little evidence for this. Most providers in NSW say, perhaps surprisingly, that they are satisfied with the current arrangements, although their level of satisfaction is less than their colleagues in Queensland who receive direct delivery of vaccines, as the following table shows.

Provider Satisfaction with Delivery Arrangements	
STATE	% SATISFIED
NSW	70%
Victoria	70%
Queensland	94%

Source:
A Survey of Immunisation Provider's views of the Effectiveness of the National Childhood Immunisation Program, 1995, p17-19

Wastage

- They might be if there was substantial wastage of vaccines as a result of the current distribution arrangements. But there is no clear evidence of high wastage overall, despite local concerns from individual Immunisation Coordinators.

Wastage Estimates for 3 Infant Vaccines 1995-96	
VACCINE	WASTAGE ESTIMATE³
DTP	0-10%
HIB	0-20%
Polio (Sabin)	80-85% ⁴

Source: ACIR Reports for Individual vaccines for December 31 1996, State Vaccine Centre monthly supply returns for 1995/96

Distribution Cost

- They might be if distribution costs in NSW proved significantly lower than elsewhere. But this seems unlikely, if Queensland's experience is representative. There, the cost the State was charged for distribution increased by 50% after the contractor's first year of operation.

³ The estimates are calculated using the total supply of vaccines in 1995/6 and comparing against two population measures from the Register for 1996:

- the total eligible child population for this vaccine
- the total eligible child population for this vaccine that the Register showed as immunised or "not yet overdue"

These two population measures provide the range of estimates included in the table.

⁴ The high wastage rate for Polio (Sabin) relates to the fact that the polio vaccine is only supplied in 10 dose vials whose contents do not keep longer than 24 hours after opening. This is also by far the cheapest of these three vaccines. The 10 dose vial costs less than a single dose of the others.

3.3 Conclusions and Recommendations

If direct distribution is difficult to justify, the comparisons with other States do suggest there may be a case for some general change in vaccine distribution arrangements short of that.

Short-run

Direct distribution to hospitals and councils

The audit recommends NSW Health consider abandoning the “warehouse” role of the State Vaccine Centre and, in the short term at least, using the resources released (the equivalent of perhaps \$50,000 pa) to provide delivery direct to hospital pharmacies and local council stores, supported by improvements in vaccine supply information and accountability there and for the State as a whole.

Such a move would be predicated on:

- the State negotiating with vaccine suppliers to accept orders from, and to organise delivery to, sub-depots in hospitals and councils across NSW
- these sub-depots (including councils) being allowed by regulations to order and receive such vaccines
- their having efficient and auditable ordering procedures.

NSW Health should consider formalising its arrangements with councils and hospital pharmacies to ensure that standards of administration and storage are maintained, and rewarded.

Short-run

Better information to compare supply and usage

Better information on the supply of vaccines to providers will also have important benefits for maintaining the Register. At the moment, there is no information easily available in NSW to compare vaccine supply and usage by individual providers. The lack of such regular information prevents Public Health Units or GP Divisions from identifying quickly where the Register records are incomplete, ie providers who are receiving regular supplies of vaccines but who do not show a corresponding number of vaccinations on the Register.

In the short run, the priority for NSW Health and the staff of Public Health Units is to make the Register comprehensive and accurate. They should consider making a special effort now to collate what supply information is available manually from councils and hospital pharmacy records, as a way of identifying the biggest gaps in the Register for follow-up.

Long run

Examination of other options for distribution

In the long run, NSW Health should explore the costs and benefits of a wider range of distribution options in the light of its experience with the direct supply to sub-depots, including:

- direct distribution by vaccine suppliers to providers and/or to retail pharmacies
- (wider) use of pathology couriers for direct distribution.

Such an investigation is likely to benefit from a national perspective because of:

- the potential that the ACIR offers for improving the accountability and efficiency of vaccine ordering and usage by individual providers
- the impact this may have on the national tendering arrangements for vaccine supply.

Therefore, it is recommended that NSW seek NCIC support for an examination of vaccine supply and distribution options, once the Register has been successfully implemented.

Performance Audit Reports

Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
Department of Housing	<i>Public Housing Construction: Selected Management Matters</i>	5 December 1991
Police Service, Department of Corrective Services, Ambulance Service, Fire Brigades and Others	<i>Training and Development for the State's Disciplined Services: Stream 1 - Training Facilities</i>	24 September 1992
Public Servant Housing	<i>Rental and Management Aspects of Public Servant Housing</i>	28 September 1992
Police Service	<i>Air Travel Arrangements</i>	8 December 1992
Fraud Control	<i>Fraud Control Strategies</i>	15 June 1993
HomeFund Program	<i>The Special Audit of the HomeFund Program</i>	17 September 1993
State Rail Authority	<i>Countrylink: A Review of Costs, Fare Levels, Concession Fares and CSO Arrangements</i>	10 December 1993
Ambulance Service, Fire Brigades	<i>Training and Development for the State's Disciplined Services: Stream 2 - Skills Maintenance Training</i>	13 December 1993
Fraud Control	<i>Fraud Control: Developing an Effective Strategy</i> (Better Practice Guide jointly published with the Office of Public Management, Premier's Department)	30 March 1994
Aboriginal Land Council	<i>Statutory Investments and Business Enterprises</i>	31 August 1994
Aboriginal Land Claims	<i>Aboriginal Land Claims</i>	31 August 1994
Children's Services	<i>Preschool and Long Day Care</i>	10 October 1994
Roads and Traffic Authority	<i>Private Participation in the Provision of Public Infrastructure</i> (Accounting Treatments; Sydney Harbour Tunnel; M4 Tollway; M5 Tollway)	17 October 1994
Sydney Olympics 2000	<i>Review of Estimates</i>	18 November 1994
State Bank	<i>Special Audit Report: Proposed Sale of the State Bank of New South Wales</i>	13 January 1995
Roads and Traffic Authority	<i>The M2 Motorway</i>	31 January 1995
Department of Courts Administration	<i>Management of the Courts: A Preliminary Report</i>	5 April 1995
Joint Operations in the	<i>A Review of Establishment, Management</i>	13 September 1995

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Education Sector	<i>and Effectiveness Issues (including a Guide to Better Practice)</i>	
Department of School Education	<i>Effective Utilisation of School Facilities</i>	29 September 1995
Luna Park	<i>Luna Park</i>	12 October 1995
Government Advertising	<i>Government Advertising</i>	23 November 1995
Performance Auditing In NSW	<i>Implementation of Recommendations; and Improving Follow-Up Mechanisms</i>	6 December 1995
Ethnic Affairs Commission	<i>Administration of Grants (including a Guide To Better Practice)</i>	7 December 1995
Department of Health	<i>Same Day Admissions</i>	12 December 1995
Environment Protection Authority	<i>Management and Regulation of Contaminated Sites: A Preliminary Report</i>	18 December 1995
State Rail Authority of NSW	<i>Internal Control</i>	14 May 1996
Building Services Corporation	<i>Inquiry into Outstanding Grievances</i>	9 August 1996
Newcastle Port Corporation	<i>Protected Disclosure</i>	19 September 1996
Ambulance Service of New South Wales	<i>Charging and Revenue Collection (including a Guide to Better Practice in Debtors Administration)</i>	26 September 1996
Department of Public Works and Services	<i>Sale of the State Office Block</i>	17 October 1996
State Rail Authority	<i>Tangara Contract Finalisation</i>	19 November 1996
NSW Fire Brigades	<i>Fire Prevention</i>	5 December 1996
State Rail	<i>Accountability and Internal Review Arrangements at State Rail</i>	19 December 1996
Corporate Credit Cards	<i>The Corporate Credit Card (including Guidelines for the Internal Control of the Corporate Credit Card)</i>	23 January 1997
NSW Health Department	<i>Medical Specialists: Rights of Private Practice Arrangements</i>	12 March 1997
NSW Agriculture	<i>Review of NSW Agriculture</i>	27 March 1997
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NSW Health	<i>Immunisation in New South Wales</i>	June 1997



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