



PERFORMANCE AUDIT

7 DECEMBER 2022

New South Wales COVID-19 vaccine rollout

NEW SOUTH WALES AUDITOR-GENERAL'S REPORT

THE ROLE OF THE AUDITOR-GENERAL

The roles and responsibilities of the Auditor-General, and hence the Audit Office, are set out in the *Government Sector Audit Act 1983* and the *Local Government Act 1993*.

We conduct financial or 'attest' audits of state public sector and local government entities' financial statements. We also audit the Consolidated State Financial Statements, a consolidation of all state public sector agencies' financial statements.

Financial audits are designed to add credibility to financial statements, enhancing their value to end-users. Also, the existence of such audits provides a constant stimulus to entities to ensure sound financial management.

Following a financial audit the Audit Office issues a variety of reports to entities and reports periodically to Parliament. In combination, these reports give opinions on the truth and fairness of financial statements, and comment on entity internal controls and governance, and compliance with certain laws, regulations and government directives. They may comment on financial prudence, probity and waste, and recommend operational improvements.

We also conduct performance audits. These examine whether an entity is carrying out its activities effectively and doing so economically and efficiently and in compliance with relevant laws. Audits may cover all or parts of an entity's operations, or consider particular issues across a number of entities.

As well as financial and performance audits, the Auditor-General carries out special reviews, compliance engagements and audits requested under section 27B(3) of the *Government Sector Audit Act 1983*, and section 421E of the *Local Government Act 1993*.



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In accordance with section 38EC of the *Government Sector Audit Act 1983*, I present a report titled '**New South Wales COVID-19 vaccine rollout**'.

A handwritten signature in black ink, appearing to read 'Margaret Crawford'.

Margaret Crawford
Auditor-General for New South Wales
7 December 2022

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RECONCILIATION COMMITMENT STATEMENT

The Audit Office of New South Wales pay our respect and recognise Aboriginal people as the traditional custodians of the land in NSW.

We recognise that Aboriginal people, as custodians, have a spiritual, social and cultural connection with their lands and waters, and have made and continue to make a rich, unique and lasting contribution to the State. We are committed to continue learning about Aboriginal and Torres Strait Islander peoples' history and culture.

We honour and thank the traditional owners of the land on which our office is located, the Gadigal people of the Eora nation, and the traditional owners of the lands on which our staff live and work. We pay our respects to their Elders past and present, and to the next generation of leaders.

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Section one

New South Wales
COVID-19 vaccine rollout

Executive summary

The first three cases of COVID-19 in New South Wales were diagnosed in January 2020. By 30 June 2021, 128 people were being treated in hospital and one person was in intensive care. By the end of December 2021, 187,504 total cases and 663 deaths were reported in New South Wales. As at 27 October 2022, NSW Health reported more than three million total cases and 5,430 deaths.

The COVID-19 pandemic continues to have a significant impact on the people and the health sector of New South Wales. The Australian, state, territory, and local governments have directed significant resources towards health responses and economic recovery.

On 13 November 2020, National Cabinet (comprised of the Australian, state, and territory governments) endorsed the Australian COVID-19 Vaccination Policy. Australia's vaccination program was launched on 21 February 2021 with the goal of providing safe and effective vaccines to the people who most needed them as quickly as possible, to support the physical, mental and economic wellbeing of the nation.

The Australian Government led and implemented the Australian vaccine rollout, with the support of state and territory governments. As part of the Australian Government's vaccine rollout, NSW Health launched its vaccination program on 22 February 2021, with responsibility for distributing and administering COVID-19 vaccine stock provided by the Australian Government.

The overall objective of this audit was to assess the effectiveness and efficiency of NSW Health's contribution to the Australian COVID-19 vaccine rollout. It is important to note that in New South Wales, primary care providers (GPs and pharmacies) and aged care providers administered the majority of vaccines. Primary care providers and aged care providers are the responsibility of the Australian Government.

The audit had a particular focus on whether NSW Health:

- set clear vaccination targets underpinned and/or guided by evidence
- managed the rollout of the vaccination program effectively and efficiently
- managed demand of vaccines effectively and efficiently.

The audit examined the period 1 January 2021 to 31 December 2021 and focused on NSW Health's contribution to the Australian Government led vaccine rollout in four local health districts (LHDs), in particular the administration of two doses of vaccine to people aged 16 and over. We did not audit the subsequent rollout for ages five to 15, or the booster rollout (third and fourth doses) as these activities mostly occurred outside the date of our review.

This audit also did not assess the Australian Government's allocation of vaccine supplies to New South Wales because we do not audit the Australian Government's activities. On 17 August 2022, the Australian National Audit Office completed a performance audit which assessed the Australian Department of Health and Aged Care's effectiveness in the planning and implementation of Australia's COVID-19 vaccine rollout.

This audit is one of a series of audits that have been completed or are in progress regarding the New South Wales COVID-19 emergency response. This includes the planned performance audit 'Coordination of the response to COVID-19 (June to November 2021)', and financial audit assurance activities focusing on Local Health District processes and controls to manage the receipt, distribution and inventory management of vaccine stock. The Audit Office New South Wales 2021–2024 Annual Work Program details the ongoing focus our audits will have on providing assurance on the effectiveness of emergency responses.

Conclusion

By 12 December 2021, NSW Health had administered two doses of vaccines to one third of eligible people in New South Wales aged 16 and over – contributing significantly to the achievement of the NSW Government vaccination target of 80% fully vaccinated before 31 December 2021. Despite challenges such as uncertain supply and changes to clinical advice affecting vaccine eligibility, NSW Health's overall delivery of vaccination services was effective and efficient.

NSW Health implemented its own booking system after it identified that the Australian Government's system would not manage bookings. There were problems with NSW Health's interim vaccine booking system, and NSW Health fully resolved these issues by September 2021.

Vaccination levels in some vulnerable populations remain below the 95% double dose target currently in place. Access to quality data to regularly measure vaccination rates in some vulnerable populations remains an ongoing challenge for the NSW and Australian Governments. As a result, NSW Health is unable to fully ensure it has delivered on its shared responsibility with the Australian Government to vaccinate vulnerable people.

NSW Health managed challenges regarding the uncertain supply of vaccines from the Australian Government and filled gaps beyond its agreed responsibilities in the National Partnership on COVID-19 Response. During the Delta outbreak of the pandemic, NSW Health sought to achieve the best possible public health outcome from limited vaccine supply by opening up additional vaccination clinics in highly affected areas and redistributing vaccine supplies from areas with fewer cases to highly affected local government areas in south west Sydney.

During the audit period, NSW Health implemented effective strategies to allocate vaccines and reduce wastage to optimise the number of vaccines available. Our upcoming financial audit report, Health 2022, will include additional information on vaccine supply stock held by NSW Health.

NSW Health demonstrated agility by using a range of strategies to promote vaccination, including direct engagement with communities to develop culturally appropriate services such as pop-up clinics. NSW Health recruited prominent community members, such as faith leaders, elders and sportspeople, to promote vaccination within their communities. However, at the date of this report, there are still vulnerable populations with vaccination rates lower than the current 95% double dose vaccination target. There is also a lack of regularly updated data for some cohorts which prevents NSW Health from accurately monitoring vaccination rates in some populations it has identified as vulnerable.

In March 2021, NSW Health identified that the booking system provided by the Australian Government was an online directory of vaccine clinics and would not manage bookings. To overcome this, NSW Health amended an internal-use system to be publicly facing. This solution was not user-friendly for staff or those seeking to make an appointment. Between June to September 2021, NSW Health progressively resolved booking system related issues, by developing and rolling out a new purpose-built booking solution for NSW Health vaccination clinics.

1. Key findings

Overall NSW Health met its key vaccination targets

In May 2021, NSW Health set a target of achieving 80% double dose vaccination of the adult population (in conjunction with the Australian Government) by the end of December 2021.

In August 2021, to support this target, and incentivise the people of New South Wales to get vaccinated, the NSW Government set an interim target of 70% double dose of the adult population to ease some restrictions for fully vaccinated people.

In November 2021, the NSW Government announced a target of 95% double dose for the population aged 16 and over, or 15 December, whichever came first, to remove restrictions for unvaccinated people in New South Wales.

NSW Health, in partnership with the Australian Government led vaccination program, achieved its first objective to fully vaccinate 80% of the eligible New South Wales population (people aged 16 and over) on 16 October 2021. In December 2021, demand for the vaccine reduced, and NSW Health did not reach its target of 95% fully vaccinated for people aged 16 and over until June 2022.

NSW Health adapted its approach to the COVID-19 vaccine rollout over short timelines to meet and respond to a challenging and rapidly evolving pandemic

Following the announcement of the Australian Government's strategy, NSW Health commenced planning NSW's vaccine rollout with the establishment of the COVID-19 vaccination program implementation group. The COVID-19 vaccination program implementation group is chaired by the Chief Health Officer, and includes representatives from Public Health, the State Health Emergency Operations Centre (SHEOC), Local Health Districts (LHDs) and Specialty Health Networks (SHNs), and other NSW Health organisations. NSW Health produced its first framework in November 2020. NSW Health then developed an implementation plan in December 2020, which was endorsed by the Australian Government in January 2021.

When the vaccine rollout commenced in February 2021, NSW Health had responsibility for vaccinating a portion of the New South Wales population, including:

- Phase 1a:
 - quarantine facility workers (including dedicated patient transport for quarantine)
 - border workers (air and sea)
 - frontline health care workers
 - NSW Health residential aged care and disability care facility staff and residents, including multipurpose services.
- Phase 1b:
 - clinical and non-clinical support staff working in public and private hospitals, and other community and primary health facilities
 - correction centre workers
 - household contacts of quarantine, border and airline workers.

Following a National Cabinet agreement on 22 April 2021 to change the delivery model for the COVID-19 vaccine rollout, NSW Health's responsibilities expanded to include the administration of Pfizer to people under 50 who were previously going to receive AstraZeneca through the Australian Government's vaccination program.

NSW Health's implementation of the vaccine rollout was reliant on vaccine supplies and a booking system provided by the Australian Government. Vaccine supply was initially constrained, and NSW Health identified that the Australian Government's booking system would be insufficient to meet needs. Despite these challenges, NSW Health quickly established implementation plans to support the vaccination rollout.

NSW Health developed workforce models to minimise the risk of an insufficient workforce to support the vaccination program, and effectively reallocated staff resources from across the NSW Health network to help administer the program. It also implemented an interim vaccine booking solution. While the interim solution was inefficient and impacted on customer experience, this was resolved when NSW Health rolled out a new purpose-built vaccine booking system.

NSW Health responded with agility and scalability to increase access to the vaccine across the state. Mass vaccination hubs such as Sydney Olympic Park increased vaccination rates substantially, while mobile, drive-through and pop-up clinics targeted vulnerable populations and cohorts. Altogether, NSW Health administered around one third of total vaccinations in New South Wales.

While demand for the COVID-19 vaccine outstripped supply, NSW Health monitored and managed this to prioritise vaccines to the areas it identified as most critical

Public demand for COVID-19 vaccines outstripped supply during early phases of the vaccine rollout. The COVID-19 vaccine stock NSW Health received from the Australian Government was often at levels below confirmed supply numbers, and the advance notice provided to NSW Health regarding future vaccine allocation varied. Despite these challenges, LHDs carefully managed vaccine bookings to ensure second doses could be administered within the recommended window.

In the period April through September 2021, Pfizer vaccine stock was scarcer than AstraZeneca. In July and August 2021, Australian Technical Advisory Group on Immunisation (ATAGI) revised its health advice, and NSW Health ran targeted campaigns to encourage uptake of the more readily available AstraZeneca vaccine. These steps were intended to relieve pressure on Pfizer supply shortages and support efforts to minimise the impact of the Delta strain outbreak in New South Wales.

On 28 July 2021, NSW Health reallocated 46,000 doses of Pfizer from rural and remote areas of New South Wales, which did not have high case numbers, to local government areas (LGAs) of concern. This action was taken to support targeted vaccination efforts, such as vaccinating metropolitan year 12 students undertaking final examinations, people from these LGAs working in supermarket chains and distribution networks, and school staff.

This required some regional and rural LHDs to cancel and reschedule some first dose Pfizer appointments to a later date. LHDs we spoke to for this audit expressed the strain this put on their communities.

Vaccination levels in some vulnerable populations are below the 95% double dose target and NSW Health does not have sufficient data to measure the vaccination rate of other vulnerable populations

As at 19 October 2022, vaccination rates for Aboriginal people and Culturally and Linguistically Diverse people remained below the 95% target. NSW Health continues to use mobile and outreach clinics to increase vaccination coverage in the New South Wales Aboriginal and Culturally and Linguistically Diverse populations.

Due to a lack of data, NSW Health is unsure of vaccination rates for other vulnerable populations. NSW Health has a shared responsibility with the Australian Government to vaccinate vulnerable populations but is unable to measure the vaccination status of:

- those living with chronic and/or complex conditions
- pregnant women
- people experiencing or at risk of homelessness
- people belonging to culturally and linguistically diverse communities
- refugees.

In the absence of detailed data, NSW Health is unable to fully understand where it needs to target efforts to achieve effective vaccination coverage of these populations.

NSW Health monitored risks to the COVID-19 vaccine rollout, however it is yet to complete a formalised, in-depth review of the program

NSW Health monitored the progress of the COVID-19 vaccine rollout program through weekly vaccination program performance reporting. This included data supplied by LHDs and other NSW Health entities. The weekly performance monitoring reports covered topics such as vaccine supply usage numbers, booking system operation data (including data on how much time the booking system was operational), and vaccination rates for the New South Wales population.

The Ministry of Health also monitored risks to the vaccine rollout using its State Health Emergency Operations Centre (SHEOC) risk register. SHEOC tracked strategic risks across the program and also used the risk register to track action items arising from meetings to ensure their completion, but did not incorporate LHD risk registers to identify trends across regions.

NSW Health advises it is currently completing a System Response Debrief which commenced in April 2022 and will include a review of the implementation and monitoring of the COVID-19 vaccination program. NSW Health expects the Debrief report in November 2022. At the time of completing this performance audit report, NSW Health had not finalised this review and, as a result, we cannot validate their findings against our own observations.

2. Recommendations

By June 2023, NSW Health should:

1. complete a comprehensive review of the COVID-19 vaccine rollout which:
 - invites contribution from all key stakeholders
 - identifies vaccine rollout strategies and practices which were effective
 - identifies vaccine rollout strategies and practices which were ineffective.
2. incorporate these lessons into pandemic response plans to ensure that there is improvement in the event of another public health emergency.

1. Introduction

1.1 COVID-19 in New South Wales

As defined by the World Health Organisation (WHO), coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The first reported infection was in December 2019. The WHO declared COVID-19 a worldwide pandemic on 11 March 2020.

The first three cases of COVID-19 in New South Wales were diagnosed in January 2020. On 30 June 2021, 128 people were being treated in hospital and one person was in intensive care. By the end of December 2021, total cases reported were 187,504, including 663 deaths. As at 14 September 2022, total confirmed cases were 3,549,106 and COVID-19 related deaths were 5,430.

The COVID-19 pandemic continues to have a significant impact on the people and the health sector of New South Wales. The Australian, state and local governments have directed significant resources towards health responses and economic recovery.

1.2 Vaccinating for COVID-19

Making safe and effective COVID-19 vaccines available to all Australians was a key priority of the Australian, state and territory governments. On 13 November 2020, National Cabinet (comprised of the Australian, state, and territory governments) endorsed the Australian COVID-19 Vaccination Policy.

Australia's vaccination program was officially launched on 21 February 2021 with the goal of providing safe and effective vaccines to the people who most needed it as quickly as possible, to support the physical, mental and economic wellbeing of the nation.

The vaccine rollout was led and implemented by the Australian Government. NSW Health worked closely with Australian Government agencies to plan for the various phases of the COVID-19 vaccination program rollout across New South Wales. The Australian COVID-19 Vaccination Policy outlines the approach to providing COVID-19 vaccines in Australia including the roles and responsibilities as shown in Exhibit 2.

At the 31 May 2021 NSW Vaccination Strategy Committee Meeting, NSW Health established an initial target of vaccinating 80% of the adult population with two doses by the end of December 2021. On 9 September 2021, during the Delta outbreak, the NSW Government announced additional vaccination targets as part of the 'Reopening NSW Roadmap to Freedom' (also known as 'NSW's Roadmap to Recovery') of:

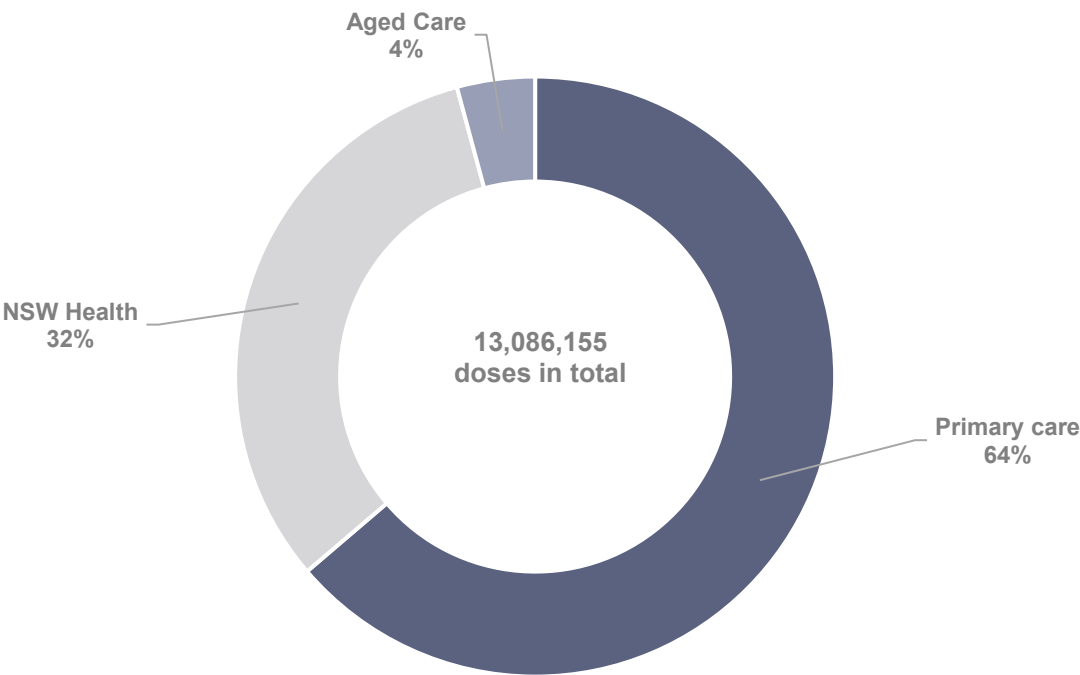
- 70% double dose (ages 16 and over) to lift fully vaccinated people out of lockdown
- 80% double dose (ages 16 and over) to relax restrictions further.

The NSW Government announced a third target on 2 November 2021:

- 95% double dose (ages 16 and over), or 15 December, whichever happens first to lift unvaccinated people out of lockdown.

It is important to note that in New South Wales, primary care providers (GPs and pharmacies) and aged care providers administered the majority of vaccines to the population of New South Wales. Primary care providers and aged care providers are the responsibility of the Australian Government. Exhibit 1 shows that primary care providers administered almost two thirds of the total 13 million vaccines (up to 12 December 2021), followed by NSW Health, which administered almost one third.

Exhibit 1: Number of vaccines administered by health channels



Note: Primary care and the majority of aged care vaccinations are Australian Government responsibilities.
Source: Audit Office from SHEOC Vaccination Summary Report as of 12 December 2021 (unaudited).

1.3 Roles and Responsibilities

The Australian Government led Australia's COVID-19 vaccination program, with states and territories responsible for implementing parts of the program. The Australian COVID-19 Vaccination Policy outlines the approach to providing COVID-19 vaccines in Australia including the roles and responsibilities as shown in Exhibit 2.

Exhibit 2: Roles and responsibilities of the Australian and New South Wales Governments

Australian Government and NSW	NSW Government
Selecting and purchasing vaccines.	Developing jurisdictional implementation plans that give effect to agreed national policy and legislative requirements.
Formally accepting vaccines from suppliers and ensuring that they meet the required standards.	Ensuring appropriately qualified and trained workforce to support delivery of its jurisdictional implementation plan, in collaboration with relevant peak bodies and training providers.
Safely transporting vaccine doses to storage and administration sites within each state and territory, and between these sites and vaccination locations where it determines necessary.	Authorising, under State legislation, the selected workforce identified in the jurisdictional implementation plans to possess and administer COVID-19 vaccines.
Specifying priority populations, drawing from advice from ATAGI.	Identifying specific vaccination sites (including in external territories) in accordance with the Australian COVID-19 Vaccination Policy and in line with the Australian Government COVID-19 Vaccination Program Implementation Plan that meet or exceed the minimum requirements.
Establishing overarching principles for immunisation scheduling.	Ensuring that immunisation providers remain compliant at all times with their safety, ethical, and reporting obligations.
Establishing a single, national booking system for patient access.	Any other activity agreed between the Australian Government and a state, agreed by the National Cabinet, or recommended by the Australian Health Protection Principal Committee (AHPPC).
Specifying minimum training requirements for the immunisation workforce.	Under state and territory legislation, enabling the authorising of all the selected workforce to possess and administer COVID-19 vaccines.

Australian Government and NSW	NSW Government
<p>Specifying types of, and minimum requirements for, vaccination locations.</p>	<p>Where the vaccination site is the responsibility of the NSW Government:</p> <ul style="list-style-type: none"> • ensuring an appropriately qualified and trained workforce to support delivery of the NSW Implementation Plan • ensuring that immunisation providers remain compliant at all times with their safety, ethical, and reporting obligations • implementing clinical governance requirements at vaccination sites • implementing and reporting on the required cold chain, waste management and stock security requirements at storage and administration sites • collaborating with the Australian Government to establish linkages and integration between current and future data systems to enable effective participation and use of relevant systems • provision of real time program data and reporting requirements to relevant coordinating bodies (for example, the Therapeutic Goods Administration (TGA)).
<p>Setting data collection and reporting requirements and adverse event monitoring via the TGA, in collaboration with the NSW Government.</p>	
<p>Developing and delivering the national communications campaign.</p>	
<p>Where the vaccination site is also the responsibility of the Australian Government:</p> <ul style="list-style-type: none"> • ensuring that immunisation providers remain compliant at all times with their safety, ethical, and reporting obligations • implementing clinical governance requirements at vaccination sites • implementing and reporting on the required cold chain, waste management and stock security requirements at storage and administration sites • establishing linkages and integration between current and future data systems to enable effective participation and use of relevant systems • provision of real time program data and reporting requirements to relevant coordinating bodies (for example, the TGA, NSW Government). 	

Source: Audit Office from Australian COVID-19 Vaccination Policy, NSW COVID-19 Vaccination Program Implementation Plan.

1.4 The New South Wales COVID-19 vaccine rollout

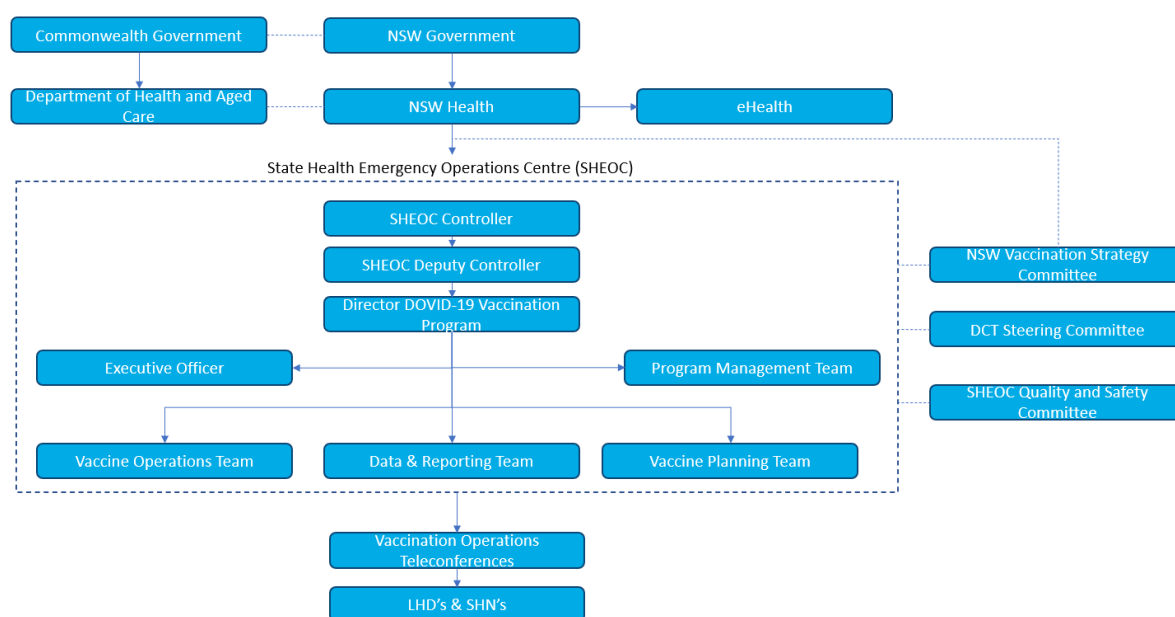
NSW Health commenced the COVID-19 vaccination rollout on 22 February 2021 with broad responsibilities of:

- ensuring an appropriately qualified and trained workforce to support delivery of its jurisdictional implementation plan
- authorising the selected workforce to possess and administer COVID-19 vaccines
- identifying specific vaccination sites
- ensuring that immunisation providers remain compliant at all times with their safety, ethical, and reporting obligations.

The first recipients of the vaccine included quarantine facility workers, border workers (air and seaports) and frontline health care workers. The COVID-19 vaccine rollout was then expanded progressively through further phases to vaccinate the population of New South Wales through the 15 Local Health Districts (LHDs), three Specialty Health Networks (SHNs) and primary care providers across New South Wales.

The State Health Emergency Operations Centre (SHEOC) COVID-19 Vaccination Team was responsible for supporting the COVID-19 vaccination program through the LHDs and SHNs. Exhibit 3 shows the governance structure of the New South Wales COVID-19 vaccination rollout program.

Exhibit 3: NSW Health governance structure for the vaccination rollout program

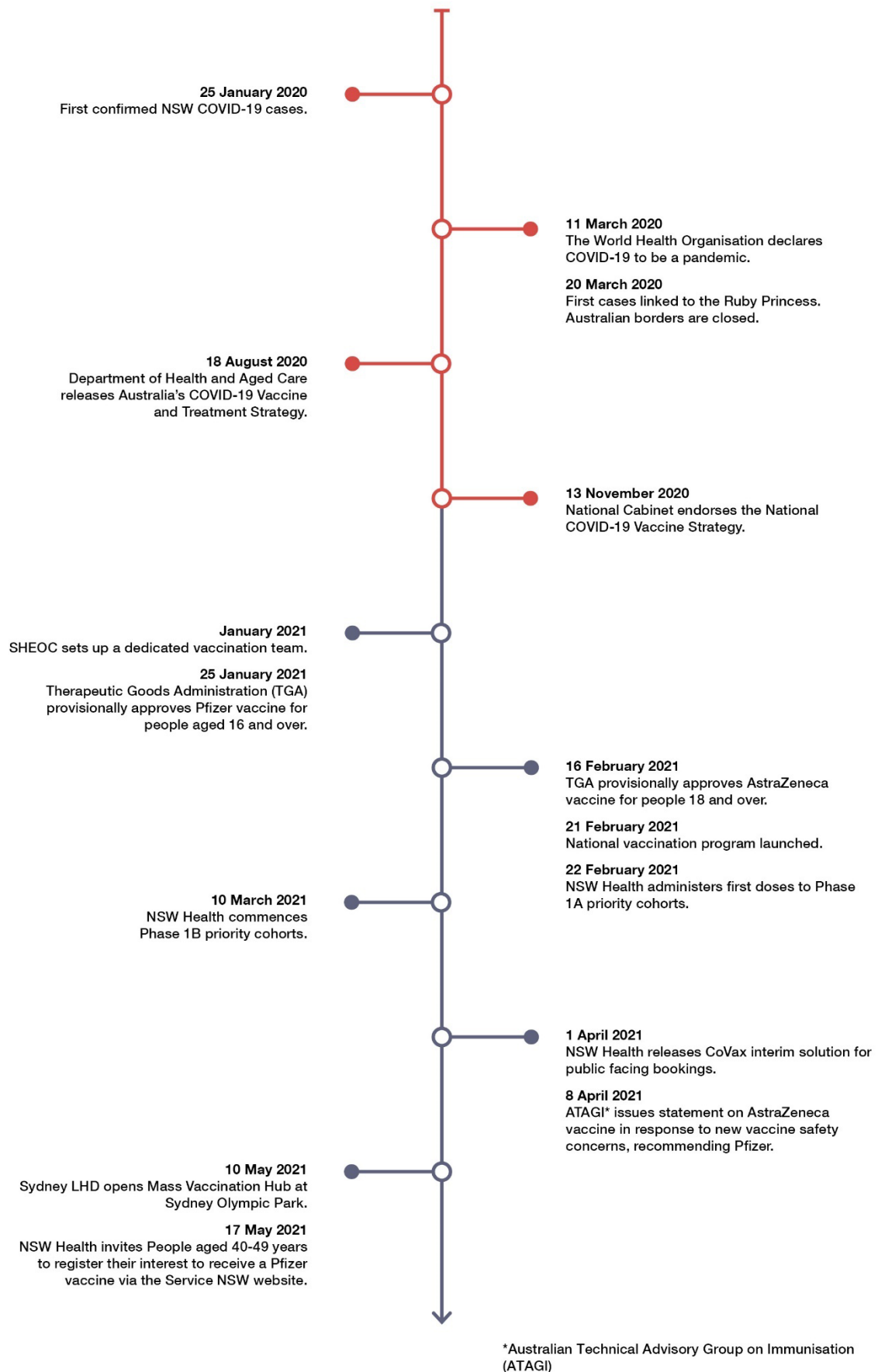


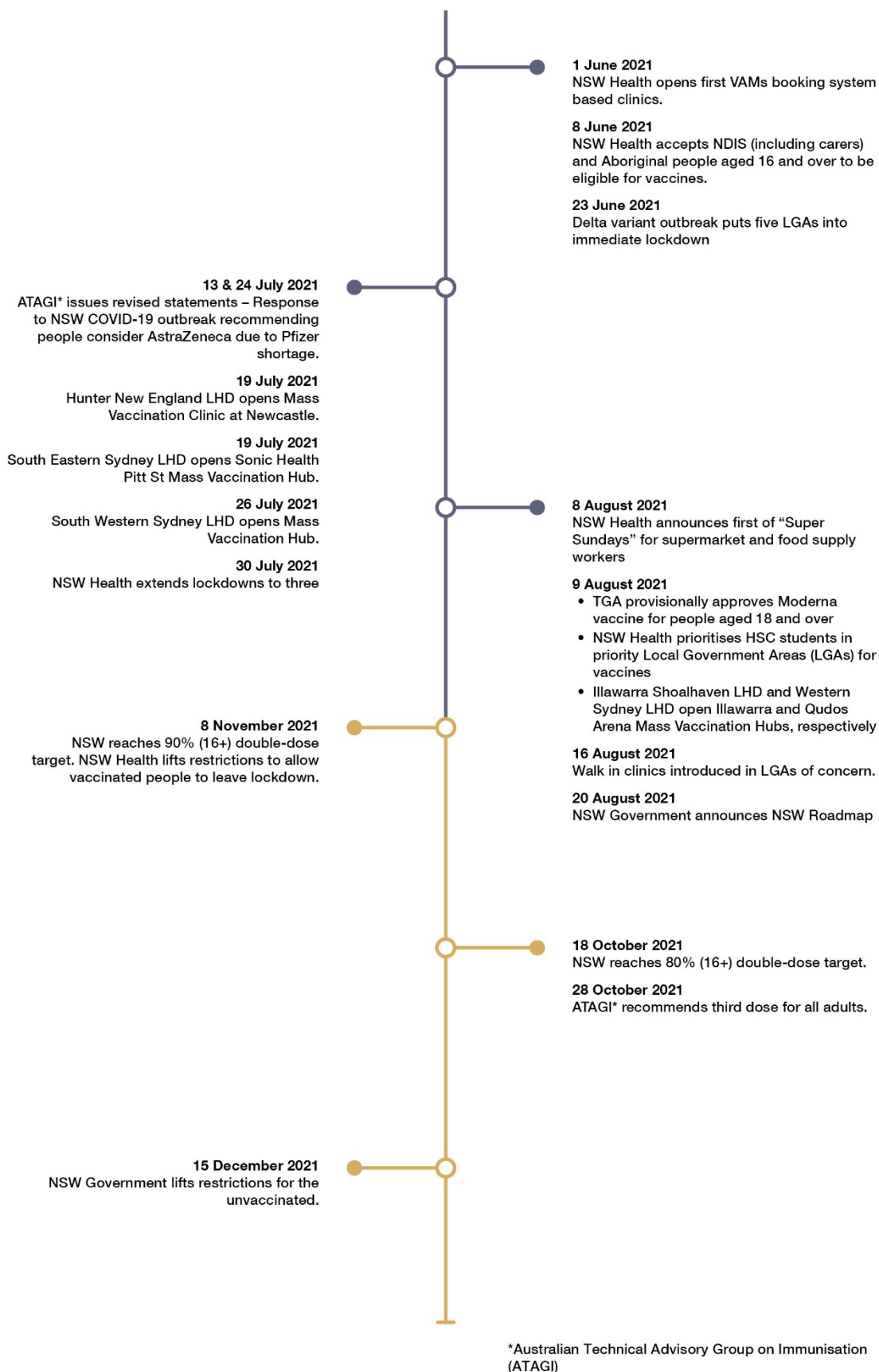
Source: NSW Health COVID-19 Vaccination Program Response Framework, Page 5.

Appendix three outlines the memberships for the committees within this governance structure, which included LHD representatives.

Exhibit 4 shows a timeline of major events from the first cases in New South Wales to the achievement of New South Wales's targets.

Exhibit 4: Vaccination program timeline





Source: Audit Office analysis from NSW Health documents, data and media releases.

1.5 About the audit

This audit considered whether NSW Health's COVID-19 vaccine program was rolled out effectively and efficiently. The audit examined whether NSW Health:

- set clear vaccination targets underpinned and/or guided by evidence
- managed the rollout of the vaccination program effectively and efficiently
- managed demand of vaccines effectively and efficiently.

This audit did not assess the Australian Government's allocation of vaccine supplies to New South Wales.

This audit scope focused on the following Local Health Districts (LHDs):

- Sydney (SLHD)
- South Western Sydney (SWSLHD)
- Western NSW (WNSWLHD)
- Mid North Coast. (MNCLHD).

The audit covers 1 January 2021 to 31 December 2021 which incorporates the period in which the vaccine was rolled out to those aged 16 and up. We did not audit the subsequent roll out for ages five to 15, or the majority of the booster rollout (third and fourth doses).

This audit is part of a series of audits which have been completed or are in progress regarding the New South Wales COVID-19 emergency response. The Audit Office of New South Wales Annual Work Program 2022–2025 details the ongoing focus our audits will have on providing assurance on the effectiveness of emergency responses.

2. Establishing a mass vaccination program

2.1 Planning for the New South Wales vaccination rollout

NSW Health was hindered by Australian Government delays when planning for NSW Health's contribution to the vaccination rollout

On 20 October 2020, NSW Health began planning the state's vaccine rollout, with the establishment of the COVID-19 vaccination program implementation group chaired by the NSW Chief Health Officer (CHO). The Australian and NSW Governments jointly developed an implementation plan for New South Wales in December 2020, which was endorsed by the Australian Government in January 2021.

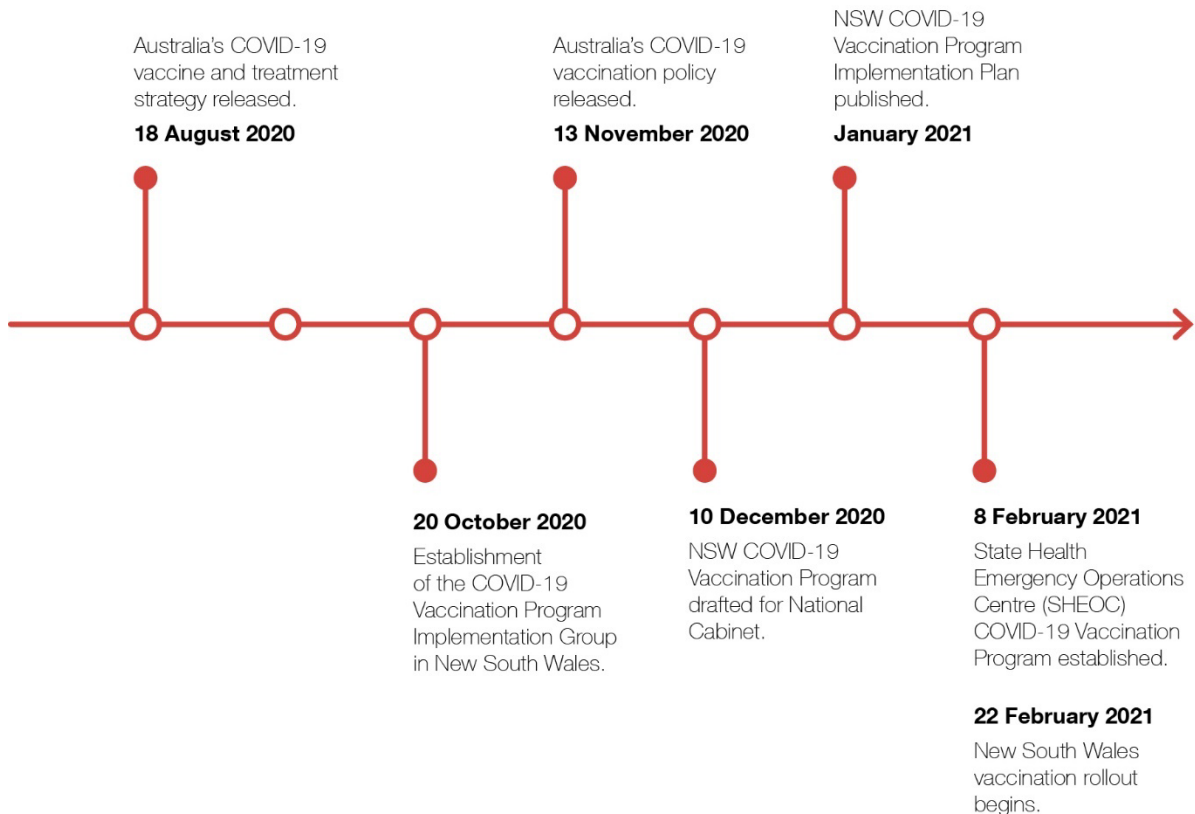
NSW Health relied on information from the Australian Government to finalise its implementation plans. Throughout the recorded minutes of meetings of the NSW Vaccination Strategy Committee it is evident that the states and territories were waiting on responses from the Australian Government to finalise their plans. The Australian National Audit Office (ANAO) also found in its audit of Australia's COVID-19 Vaccine Rollout (Report 3: 2022–23) that the Department of Health and Aged Care's:

Initial planning was not timely, with detailed planning with states and territories not completed before the rollout commenced.

The NSW COVID-19 Vaccination Program Implementation Plan (published in January 2021) includes details of initial vaccination locations, workforce and training requirements, vaccine management, vaccine monitoring, and communication strategies. The Plan distinguishes between national, state and shared responsibilities for managing and operating vaccination sites.

Exhibit 5 shows NSW Health delivered its implementation plan once the Australian Government had finalised the release of Australia's COVID-19 vaccination policy in November 2020.

Exhibit 5: Lead time for planning the rollout



Source: Audit Office from Australian Government and NSW Health policy documents.

NSW Health's role in the vaccine rollout was governed by the Australian Government's vaccination strategy

The NSW COVID-19 Vaccination Program Implementation Plan, finalised on 20 January 2021, articulated the phases of the vaccination rollout (Phase 1a, 1b, 2a, 2b and 3) and their corresponding timing, which were governed by Australia's COVID-19 Vaccine National Rollout Strategy (the National Strategy).

The NSW COVID-19 Vaccination Program Implementation Plan included details of initial vaccination locations, workforce and training requirements, vaccine management overview, vaccine monitoring and overview, and communication strategies.

The Australian Government established strict eligibility criteria in the initial phases of the vaccine rollout, which states and territories adhered to. In phases 1a and 1b, the Australian Government's priorities were focused on those at the greatest risk of exposure (priority cohorts).

Phase 1a participants were considered most at risk of exposure to COVID-19 at the time. NSW Health was responsible for vaccinating a portion of the Phase 1a cohort including:

- quarantine facility workers (includes dedicated patient transport for quarantine)
- border workers (air and sea)
- frontline health care workers
- NSW Health residential aged care and disability care facility staff and residents, including multi-purpose services.

In Phase 1b, NSW Health's responsibilities for vaccination expanded to include:

- clinical and non-clinical support staff working in public and private hospitals, and other community and primary health facilities
- correction centre workers
- household contacts of quarantine, border and airline workers.

The Australian Government retained the primary responsibility for all other priority and vulnerable cohorts during these initial phases.

A summary of the roles and responsibilities of each of the operational stakeholders in the vaccine rollout (Australian Government, eHealth NSW, Public Health, SHEOC and LHDs) was presented at the weekly NSW Vaccination Strategy Committee Meeting on 1 February 2021.

While not formally defined until November 2021, Local Health Districts understood their roles and responsibilities as part of NSW Health's vaccine program

LHDs advised they were clear on their roles and responsibilities and came to understand them through informal channels such as SHEOC meetings, rather than documented strategies and frameworks.

On 22 February 2021, SHEOC started holding Vaccination Operations Teleconferences with LHD representatives. As set out in the Terms of Reference for the SHEOC and LHD Operations Teleconference, the key objectives of these meetings were to discuss key updates within the vaccination program, facilitate information sharing between LHDs, discuss and manage emerging risks, provide access to key liaison teams and general support and leadership from SHEOC to the LHDs. LHDs found the daily meetings with SHEOC vital, and that communication was timely.

NSW Health completed the COVID-19 Vaccination Program Response Framework in November 2021 to detail the establishment of SHEOC and provide the functions, purpose and responsibilities for each team within SHEOC.

Changes in ATAGI advice led to an unplanned expansion in NSW Health's role in the vaccine rollout

National Cabinet agreed on 22 April 2021 to recalibrate the delivery model for the COVID-19 Vaccination Rollout Strategy as a result of ATAGI advice recommending Pfizer as the preferred vaccine for people under 50. As a result of this change and due to the cold chain storage requirements for the Pfizer vaccine, states and territories were best placed to administer COVID-19 vaccines to vulnerable people aged under 50 who were previously going to receive AstraZeneca through the Australian Government's vaccination program. In the revised model states and territories took on shared responsibilities for administering the Pfizer vaccine supplies.

It was agreed:

- the Pfizer vaccine be limited to:
 - people aged under 50 years old eligible in phases 1a and 1b (pending commencement of subsequent phases)
 - residential aged care facility residents (through completion of the Australian Government's existing in-reach program)
 - disability care residents with complex needs who require in-reach vaccination services
 - people in remote and very remote communities where it makes sense to use a single vaccine for all or most of the community
 - in very limited circumstances, quarantine, border and frontline health care workers who are 50 years of age or over and not already vaccinated.
- access to the AstraZeneca COVID-19 vaccine would be brought forward. Phase 2a would begin for eligible people aged 50–69 years in state and territory COVID-19 vaccination sites from 3 May 2021 and General Practice (GP) clinics from 17 May 2021.

The Australian Government was to concentrate on populations aged 50 and over through the Primary Health Networks and residential aged care facilities. NSW Health was to concentrate on those aged under 50 for which Pfizer was the preferred vaccine.

NSW Health quickly developed strategies to vaccinate vulnerable cohorts

The recalibration of the Australian COVID-19 Vaccine Strategy meant that NSW Health, in addition to its original obligations, began its planning for vulnerable cohorts in May 2021, developing initial plans and frameworks for prioritising access to vaccines in the following sub-populations:

- the homeless and those at risk of homelessness
- social housing
- people living with disabilities.

NSW Health developed the COVID-19 Vaccinations Vulnerable Populations Strategy in June 2021 (published in August 2021) which provided the overall strategic framework for vulnerable populations and a strategy for each of the seven vulnerable populations for each LHD. NSW Health and the LHDs built strategies for their communities based on their local knowledge and conducted research on inhibitors and opinions towards vaccination for vulnerable communities.

Exhibit 6 shows how these priority cohorts differed from traditional vulnerable cohorts who are those at greatest risk of adverse health outcomes.

Exhibit 6: Definitions of priority cohorts/populations and vulnerable cohorts/populations

Priority cohorts/populations	Vulnerable cohorts/populations
Those at greatest risk of exposure.	Those at greatest risk of adverse health outcomes from contracting the virus.
Examples:	Examples:
<ul style="list-style-type: none"> • Front line health workers • Border force employees • Quarantine facility workers • Aged care workers 	<ul style="list-style-type: none"> • Aboriginal people • People with disabilities • Pregnant women • People living with chronic and/or complex illnesses

Source: Audit Office analysis.

LHDs identified outreach services as a key part of their strategy to vaccinate priority cohorts. The NSW COVID-19 Vaccination Program Implementation Plan highlighted the provision of in-reach services was a key consideration for culturally and linguistically diverse (CALD) communities and those in residential disability settings. The COVID-19 Vaccinations Vulnerable Populations Strategy formalised the combination of outreach strategies for each of the vulnerable cohorts in August 2021 and identified customised data and potential strategies for the LHDs to consider.

The LHDs took an agile approach in targeting vulnerable cohorts, as they did not have access to formalised strategies at the commencement of the vaccine rollout. The LHDs described working with their communities and advisory groups to recalibrate their approach based on available information at the time.

LHDs engaged with community leaders and other community stakeholders such as religious leaders, local government representatives and Aboriginal Medical Services (AMS), conducting community focus groups and collaborating with the Department of Communities and Justice (DCJ) to identify populations within social housing. LHDs were able to demonstrate their ability to directly engage with these communities and improve vaccination rates.

2.2 Selecting vaccination locations

Vaccination hub and clinic locations were based primarily in highly populated areas with appropriate vaccine storage requirements

The Australian Government held discussions with each state and territory in the week commencing 15 February 2021 to finalise the initial Australian Government funded locations for Phase 1a and Phase 1b of the vaccine rollout. NSW Health established these initial vaccination clinics within larger hospitals as the majority of the Phase 1a and 1b cohorts were frontline healthcare workers.

When it selected sites for vaccination hubs located outside hospitals, NSW Health focussed on highly populated areas and considered accessibility and transport requirements such as access to public transport or parking. NSW Health also considered storage requirements for the Pfizer vaccine to ensure that the cold chain would not be broken. Vaccination facilities had to meet the Pfizer vaccine cold chain storage conditions requirements.

NSW Health established six mass vaccination hubs as shown in Exhibit 7.

Exhibit 7: NSW Health mass vaccination hubs and opening dates

Mass vaccination hub	Date opened	Local Health District responsible
NSW Health Vaccination Centre at Sydney Olympic Park	10 May 2021	Sydney
Sonic Healthcare Vaccination Clinic Pitt Street	19 July 2021	South Eastern Sydney
Newcastle Vaccination Centre in Lake Macquarie	19 July 2021	Hunter New England
South Western Sydney Vaccination Centre	26 July 2021	South Western Sydney
Qudos Bank Arena NSW Health Vaccination Centre	9 August 2021	Western Sydney
Wollongong Vaccination Centre	9 August 2021	Illawarra Shoalhaven

Source: Audit Office analysis of NSW Health data.

NSW Health responded with agility and scalability to increase access to the vaccine

NSW Health used a combination of mass vaccination hubs to achieve widespread vaccination across the New South Wales population, and pop-up clinics to achieve depth in communities of concern. Once the Australian Government extended eligibility of the vaccine to the general public (Phase 2a onward), NSW Health established mass vaccination hubs to vaccinate eligible people as quickly and efficiently as possible. For example, by 12 December 2021, Sydney LHD used Sydney Olympic Park vaccination hub to provide approximately 25% of the total vaccines administered by NSW Health.

For people unable to access mass vaccination hubs due to distance, 51 LHDs established smaller suburban and mobile clinics. NSW Health used a combination of outreach strategies for those in rural and vulnerable communities and individuals, particularly those with physical or chronic illnesses restricting them from visiting hubs and clinics. These included mobile clinics, community pop-ups and home visits within social housing and disability homes.

NSW Health also provided vaccination to people in cohorts it was not responsible for under the recalibrated vaccine strategy. For example, NSW Health vaccinated aged care residents and people with disabilities who were not vaccinated in Phases 1a and 1b by the Australian Government.

2.3 Implementing a fit-for-purpose booking system

NSW Health adapted quickly when the Australian Government did not provide a national booking system, but the interim solution it used was labour intensive and inaccessible for some populations

Under the New South Wales COVID-19 Vaccination Program Implementation Plan, the Australian Government was responsible for establishing a nationally consistent booking system.

During the first phase of the vaccination program, the national booking system was not available so NSW Health (through eHealth NSW) developed an interim solution (CoVax) which utilised existing patient record and admission systems.

eHealth NSW, a NSW Health shared service agency, intended for CoVax to be used for staff bookings only during phases 1a and 1b, assuming that the national booking system would be available for publicly facing bookings. eHealth NSW completed testing and implemented the CoVax system on 22 February 2021, the same day the vaccination rollout commenced. Throughout February 2021, NSW Health continued to engage with the Australian Government with regards to the implementation, planning and site readiness of the national booking system.

On 1 March 2021, the Australian Government informed NSW Health that it was providing a COVID-19 Vaccine Clinic Finder as the national booking system. The COVID-19 Vaccine Clinic Finder was an online directory which did not manage bookings, but could link to booking systems used by individual clinics. NSW Health determined that the national booking system provided by the Australian Government was not fit for the purpose of managing bookings for NSW Health's vaccination activities.

By 22 March 2021, NSW Health considered several potential booking system solutions and decided to adapt CoVax for use by the general public as a short-term solution until a fit-for-purpose system was developed.

When Phase 2a commenced on 3 May 2021, work on the CoVax booking system was ongoing. NSW Health reported 21 Pfizer clinics and 26 AstraZeneca clinics were successfully live on the CoVax booking system on 24 May 2021. The CoVax system was labour intensive, requiring NSW Health staff to take phone bookings, send invitation-only emails and manually correct errors. When booking systems were unavailable, staff used hard copy forms to capture information.

During the use of CoVax, NSW Health and LHDs received multiple complaints from the public. In particular, older people experienced difficulties using the system. Booking systems were available in a limited number of languages, and as a result LHDs used interpreters to improve access to CALD communities.

NSW Health planned to have CoVax operational for use as a publicly facing booking system by 30 April 2021 while simultaneously working to implement an integrated booking system solution (VAMs) by 31 May 2021. The VAMs system went live at two sites in Western Sydney in early June 2021. Starting in June 2021, in collaboration with LHDs, NSW Health performed a phased rollout of the VAMs system. The phased approach concluded with the remaining CoVax sites migrating to VAMs on 19 September 2021.

3. Managing and monitoring the program

3.1 Managing supply and demand

Public demand for Pfizer, as the preferred vaccine, far outstripped supply during the earlier stages (phases 1 and 2) of the vaccine rollout. LHDs needed to plan their bookings carefully to ensure second doses were available to be administered within the recommended window—usually eight weeks after the first dose. Additionally, NSW Health did not have control over when the Australian Government allocated vaccines to New South Wales and lead times were often short.

By week six of the rollout, the NSW Vaccination Strategy Committee received reports on the number of bookings against the number of doses available by site. At this time, the demand for both AstraZeneca and Pfizer vaccines far outweighed the supply. This reporting continued until the end of April 2021, when National Cabinet recalibrated the delivery model for the COVID-19 Vaccination Rollout Strategy. Phase 2a began on 3 March 2021 which put increased pressure on national supply.

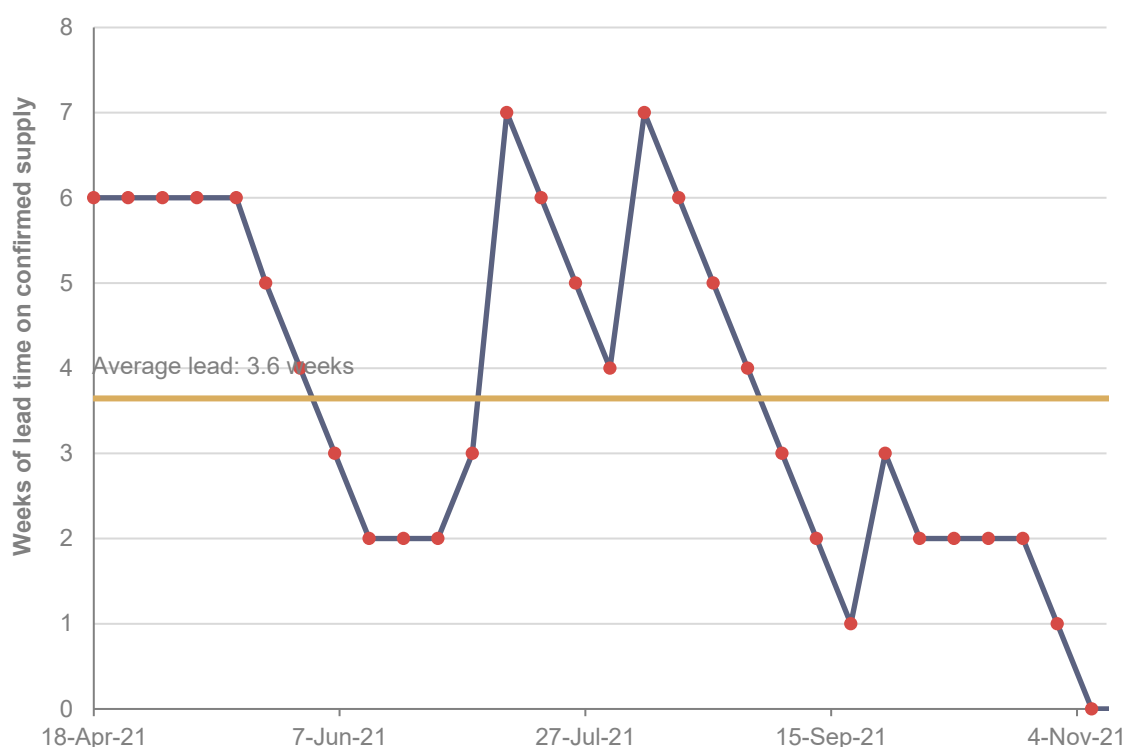
Uncertain vaccine supply challenged NSW Health's ability to effectively plan

NSW Health received Pfizer vaccine stock from the Australian Government at levels often below confirmed supply numbers. The Australian National Audit Office's report on Australia's COVID-19 Vaccine Rollout (Report 3: 2022–23) found in the preliminary stages of the rollout, the Department of Health and Aged Care had challenges distributing the Pfizer vaccine. The ANAO report notes that the Australian Department of Health and Aged Care was unable to split trays of Pfizer when frozen to distribute to smaller states and territories. As a result, these states received more of the vaccine than their assigned allocations and larger states like New South Wales received fewer doses.

Additionally, the advance notice regarding New South Wales vaccine allocations that SHEOC received from the Australian Department of Health and Aged Care was not consistent. At the commencement of the New South Wales vaccine rollout, SHEOC was informed of vaccine allocation six weeks in advance, but by week nine (13 June 2021), SHEOC only received allocation information for the next two weeks. Exhibit 8 shows the lead time averaged 3.6 weeks.

The uncertainty of future vaccine supply impacted LHDs ability to plan future bookings. Additionally, LHDs had to hold reserve Pfizer stocks for eight weeks to ensure that bookings for second doses could be administered within the recommended timeframe. If supplies were below the anticipated levels, LHDs would be required to cancel or reschedule some first dose Pfizer bookings to ensure they could provide second doses within the recommended timeframe.

Exhibit 8: Lead time (weeks) in confirmed vaccine supply allocations



Source: SHEOC Vaccination Summary Reports, KPI reports and minutes as of 16 April 2021 to 5 December 2021 (unaudited).

Pfizer supplies eventually stabilised and from late October 2021, NSW Health ordered vaccine supplies from the Australian Government on an 'on-demand' basis, as vaccine supplies were at satisfactory levels to address community demand in the immediate future.

NSW Health supplemented its workforce to meet demand

In June 2021, the NSW Vaccination Strategy Committee identified a critical risk of an insufficient workforce to support the expansion of the vaccination program. In response, it established a workforce steering committee to explore workforce solutions. The Committee developed workforce models to ensure sufficient ongoing staffing capacity, particularly in rural and regional areas and created a central recruitment pipeline supported by HealthShare, eHealth and recruiting student groups. Authorised health practitioners and health practitioner students administered vaccines.

LHDs established multidisciplinary teams to use a broad range of staff capacity, inside and outside of NSW Health, including:

- community health services
- recently retired staff
- medical students doing clinical placements
- staff from oral health services
- St Johns Ambulance
- other government agencies.

NSW Health's agile approach to resourcing was critical to its work to progress the COVID-19 vaccination rollout.

During the Delta pandemic, NSW Health responded to the need to prioritise supply to LGAs of concern by redirecting vaccine doses from regional NSW

On 28 July 2021, the Deputy Premier of New South Wales, announced alongside NSW Health that Pfizer doses were to be redirected from across the state to vaccinate year 12 students in LGAs of concern so they could return to face-to-face teaching before their Higher School Certificate (HSC). As a result, NSW Health added year 12 students, primary and secondary school staff and supermarket workers within LGAs of concern as sub-populations not previously considered 'priority cohorts'. SHEOC's COVID-19 Vaccination Pfizer Redistribution Operational Plan stated that upwards of 50,000 appointments in regional and remote areas would need to be rescheduled or offered AstraZeneca as an alternative due to this decision. LHDs expressed the strain this put on their communities.

NSW Health boosted Pfizer supply through reallocations from LHDs (46,000 doses from regional and rural NSW) and additional supplies from the Australian Government to the priority LHDs which accelerated the vaccination progress. These occurred in the weeks ended 25 July 2021 (150,000 additional doses), 8 August 2021 (50,130 additional doses), 15 August 2021 (183,690 additional doses) and 22 August 2021 (530,010 additional doses over three weeks).

NSW Health rapidly opened additional vaccination sites to respond to the Delta outbreak

On 14 July 2021, in response to rapidly rising cases, the Minister for Health issued a public health order designating Fairfield local government area (LGA) as an 'affected area', and restricted workers from affected areas attending work outside their LGA of residence unless they could demonstrate a negative test result for COVID-19 within the preceding 72 hours. By 12 August 2021, 12 Sydney Metropolitan LGAs were designated 'affected areas'.

NSW Health opened mass vaccination hubs to support LGAs of concern during the Delta outbreak including additional outreach clinics as shown in the initiative in Exhibit 9.

In July 2021, in response to the spike in infections across the Greater Metropolitan Sydney area, the NSW Police Force (in its role as the State Emergency Operations Controller for the COVID-19 response) requested the support of the Australian Defence Force to assist with:

- community compliance activities, including COVID compliance checks
- vaccination centres
- welfare and wellbeing support, including the delivery of care packs.

Following this request, the NSW Police Force (NSWPF) and Australian Defence Force (ADF) provided logistical assistance to NSW Vaccination Centres in South-West Sydney and Western NSW. In August 2021, the Chief Health Officer and Local Health Districts flagged additional support for pop up vaccination centres in Western NSW as a priority and the NSWPF requested further support from the ADF for this purpose. In response, the ADF provided five outreach teams (which included clinical staff) to augment NSW Health capacity in Western NSW.

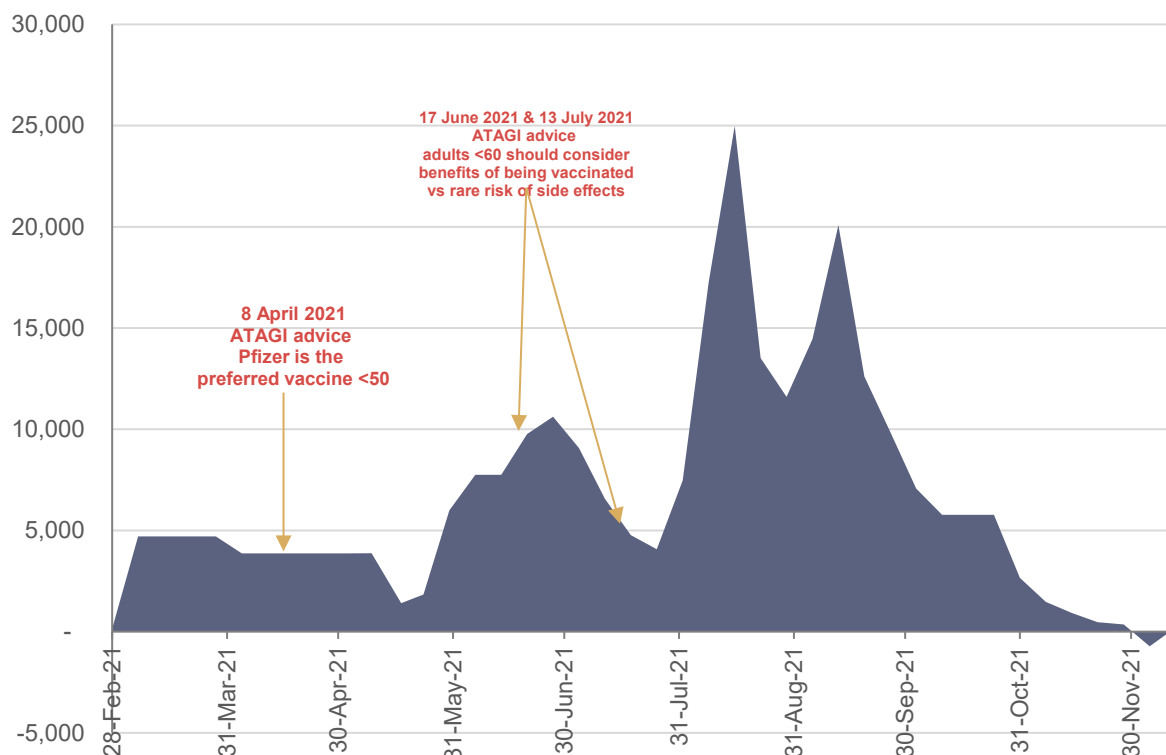
Exhibit 9: Key initiatives in response to the Delta outbreak in selected Local Health Districts

Local Health District	Key initiatives
South West Sydney LHD	<ul style="list-style-type: none"> Commenced a pop-up vaccination clinic at Prairiewood on 16 July 2021. Commenced a pop-up vaccination clinic at Bankstown Sports Club 30 July 2021. Commenced Macquarie Fields Vaccination Centre on 26 Jul 2021. Mobilised outreach clinics for seven targeted sites in Liverpool, Bankstown and Fairfield LGAs with a capacity to vaccinate 160 people per day as walk in appointments.
Sydney LHD	<ul style="list-style-type: none"> Commenced a Pfizer priority vaccination pod at Sydney Olympic Park Mass Vaccination Centre for identified groups requiring priority vaccination on 16 Jul 2021. Invited 12,455 school staff from Liverpool and Canterbury Bankstown LGA to Sydney Olympic Park priority vaccination hub. Vaccinated 13,000 supermarket workers in the five LGAs of concern through Sydney Olympic Park. Mobilised five walk up clinics to support vaccination of vulnerable community members. Opened additional clinics at Exodus, Ashfield and Common Ground, Camperdown.

Source: NSW Health.

Exhibit 10 shows NSW Health's effort to offer the AstraZeneca vaccine as an alternative due to the supply shortages for Pfizer. Whilst NSW Health's efforts are noticeable, the data suggests most people were willing to wait for Pfizer.

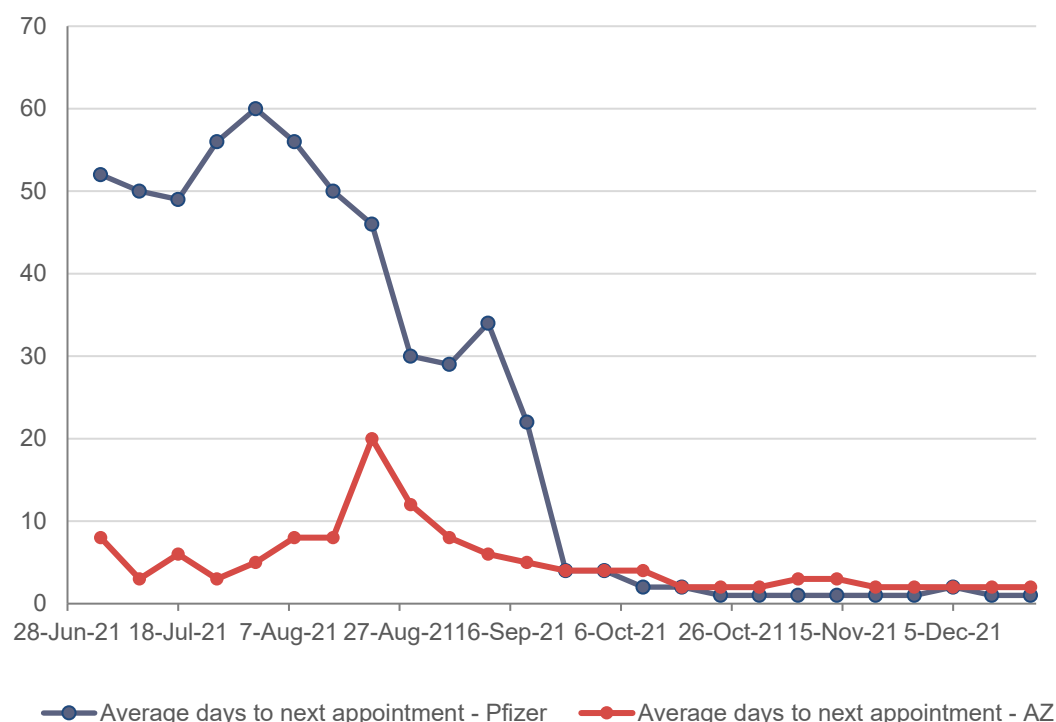
Exhibit 10: Number of AstraZeneca doses delivered by NSW Health per week during 2021



Source: Audit Office from SHEOC Vaccination Summary Reports as of February 2021 to December 2021 (unaudited).

During the Delta outbreak, waiting times for a Pfizer appointment at a NSW Health vaccination facility extended to 60 days. Exhibit 11 shows the average number of days to the next appointment at a NSW Health vaccination facility for both Pfizer and AstraZeneca. By September 2021, waiting times for Pfizer reduced significantly as NSW Health received several large allocations from the Australian Government.

Exhibit 11: Average days until vaccine booking at a NSW Health vaccination facility by vaccine type - 28 June to 12 December 2021



Source: Audit Office from SHEOC Vaccination Summary Reports as of June 2021 to December 2021 (unaudited).

3.2 Monitoring progress

Vaccination reporting aligned to the overall objectives of the vaccination rollout strategy

SHEOC weekly reporting included the NSW Health Vaccination Program Performance Summaries. These reports included the following key performance indicators (KPIs):

- vaccine supply usage of Pfizer and AstraZeneca stock
- number of week advanced notice of vaccine supplies
- vaccine delivery by a percentage of clinic time utilisation across the program
- proportion of the population partially and fully vaccinated by age group and LHD
- booking system uptime
- average days to the next available appointment by vaccine.

Reporting was not at a more granular level for all vulnerable cohorts. Additionally, the audit team found discrepancies in SHEOC's weekly vaccination dashboard reports, including instances where:

- supply metrics did not add up to the total number of vaccines on hand
- population numbers changed
- reports were not refreshed from the prior periods.
- progress was reported and then reversed later down the track
- cohorts had more double doses recorded than first doses.

Overall, we did not find that these discrepancies would have made a significant impact to NSW Health's decision making but were a result of the cumulation of large data sets and manual entries.

LHDs were unable to reliably measure progress when vaccinating some vulnerable cohorts

At the end of June 2021, NSW Health identified data limitations which impact its ability to accurately assess vaccination levels in some vulnerable cohorts. NSW Health regularly reported on the vaccination progress of Aboriginal people however there was limited data available for other vulnerable cohorts until August 2021, almost six months into the rollout.

The Australian Government produced weekly reports which contained state-level vaccination rates for Commonwealth primary care, Aboriginal people, CALD individuals, residential aged care facilities, and people with access to the National Disability Insurance Scheme (NDIS). Overall population vaccination rates were also publicly available by LGA, and statistical geographic areas.

LHDs advised the audit team that this data was not readily available at the level required to ensure effective targeting of mobile and popup clinics. Exhibit 12 shows data availability for vulnerable cohorts.

Exhibit 12: Availability of data for vulnerable cohorts

Vulnerable cohorts	Data availability	Reporting
Residential aged care facilities - residents	✓	Australian Government reports on a weekly basis publicly and makes by facility data available to NSW Health.
Residential aged care facilities - workers	✓	Australian Government reports on a weekly basis publicly and makes by facility data available to NSW Health.
People with a disability	—	Data sets held by multiple agencies but statewide reporting is provided in Australian Government daily updates.
Carer for people with a disability	—	Data sets held by multiple agencies but statewide reporting is provided in Australian Government daily updates.
People with chronic and/or complex conditions	!	Vaccination status cannot be easily linked as this information sits generally with General Practitioners.
Aboriginal people	✓	Data in immunisation register.
Older people	✓	Data in immunisation register.
People in regional and remote areas	✓	Data in immunisation register.
People experiencing or at risk of homelessness	—	Data sets held by multiple agencies. NSW Health accessed Department of Communities and Justice data for limited periods. Not readily available.
Pregnant women	!	Vaccination status cannot be easily linked as this information sits generally with General Practitioners.
People belonging to culturally and linguistically diverse communities	—	Data sets held by multiple agencies but statewide reporting is provided in Australian Government daily updates.
Refugees	!	Data sets held by multiple agencies and not easily linked to vaccination status.
Key	✓ Available	— Partially available ! Not available

Source: Audit Office from Australian Government's daily COVID-19 Vaccine Rollout Updates.

As NSW Health has an ongoing role in ensuring that vulnerable populations are vaccinated, it has an ongoing need for access to sufficient data.

LHDs had varying opinions on the usefulness of the data and strategies that the Ministry provided

LHDs advised the audit team that vaccination rate data was not readily available for the following vulnerable cohorts:

- CALD communities (particularly refugees)
- people with disabilities
- people with chronic and complex conditions (such as immunocompromised)
- people experiencing or at risk of homelessness
- pregnant women.

These restrictions limit our ability to conclude on the effectiveness of the vaccine rollout in ensuring people in the above groups are vaccinated. LHDs further noted they found large discrepancies (variations of around 20%) between the data LHDs sourced locally and the data and intelligence provided by NSW Health.

One LHD compiled a variance report on data it used to monitor its communities' vaccination progress. To do this, the LHD combined:

- two publicly available datasets (Australian Immunisation Register and weekly National Vaccine Report)
- one Australian Government data set not available to the public
- one LHD internal dataset.

This LHD noted significant variances relative to its size of up to ten per cent regarding vaccination progress for the majority of LGAs. The LHD noted the most significant issue was the use of 2016 ABS census data to estimate population size. As a work around, the LHD used a hybrid average to inform decisions regarding which communities to target.

LHDs engaged directly with communities to develop culturally appropriate and effective strategies for the vaccination rollout. LHDs considered these community partnerships necessary to manage the limitations of the data provided by the Ministry.

NSW Health developed a strategy to guide vaccination of vulnerable populations

In August 2021, NSW Health developed a COVID-19 Vaccinations Vulnerable Populations Strategy, which set out a tiered approach and timeline for the vaccination of identified vulnerable populations (people in aged care, people with disability, Aboriginal and Torres Strait Islander people, people experiencing or at risk of homelessness, people with chronic and complex conditions, pregnant people and people from culturally and linguistically diverse backgrounds) in New South Wales, focusing on three considerations:

1. how to enable access and encourage uptake of vaccinations in the vulnerable population group.
2. how to ensure the vaccination experience is appropriate for the vulnerable population group.
3. how to ensure the provision of the second dose.

NSW Health provided LHDs with a Vulnerable Populations Implementation Guide to complement the Strategy. The guide contains quick reference guides, including a definition, potential service models, key considerations and an action checklist for each of the identified vulnerable populations.

LHDs reported they often used informal strategies or 'trial and error' to identify the best approach to engage vulnerable communities. LHDs advised that they shared insights and lessons across the NSW Health system. A popular strategy used by NSW Health was the engagement of prominent community members, such as faith leaders, elders and sportspeople, to promote vaccination within their community.

3.3 Maximising vaccine usage and reducing waste

As public demand for Pfizer exceeded the supply of the vaccine during the earlier stages (phases 1 and 2) of the vaccine rollout, it was critical for NSW Health to optimise doses. When defrosted, Pfizer has a limited shelf life and cannot be refrozen. At the commencement of the program on 22 February 2021, Pfizer had a refrigerated shelf life (once defrosted) of five days. On 24 May 2021, the TGA approved an extension of refrigerated shelf life to 31 days.

The Pfizer vaccine is transported undiluted, and must be reconstituted for administering through dilution with 1.8mL of sterile sodium chloride. Diluted vaccines must be administered within six hours from the time of dilution due to the lack of preservatives. NSW Health developed procedures consistent with ATAGI advice which recommended that six doses per Pfizer vial be drawn and administered within an hour.

These timeframes were challenging for LHDs, which reported examples of using daily 'leftover' supplies for appointment 'no shows' on emergency staff, patients in nearby health facilities or walk-ins. Medical supplies to administer the vaccines were also in short supply, particularly a specific type of syringe used by NSW Health staff when drawing up vaccine from the vial. These syringes were critical to ensure that aeration (bubbles) did not occur which could lead to wastage of vaccine. LHDs provided examples of using paediatric needles as a replacement for the preferred medical supplies.

NSW Health set targets and monitored daily usage to reduce vaccine wastage

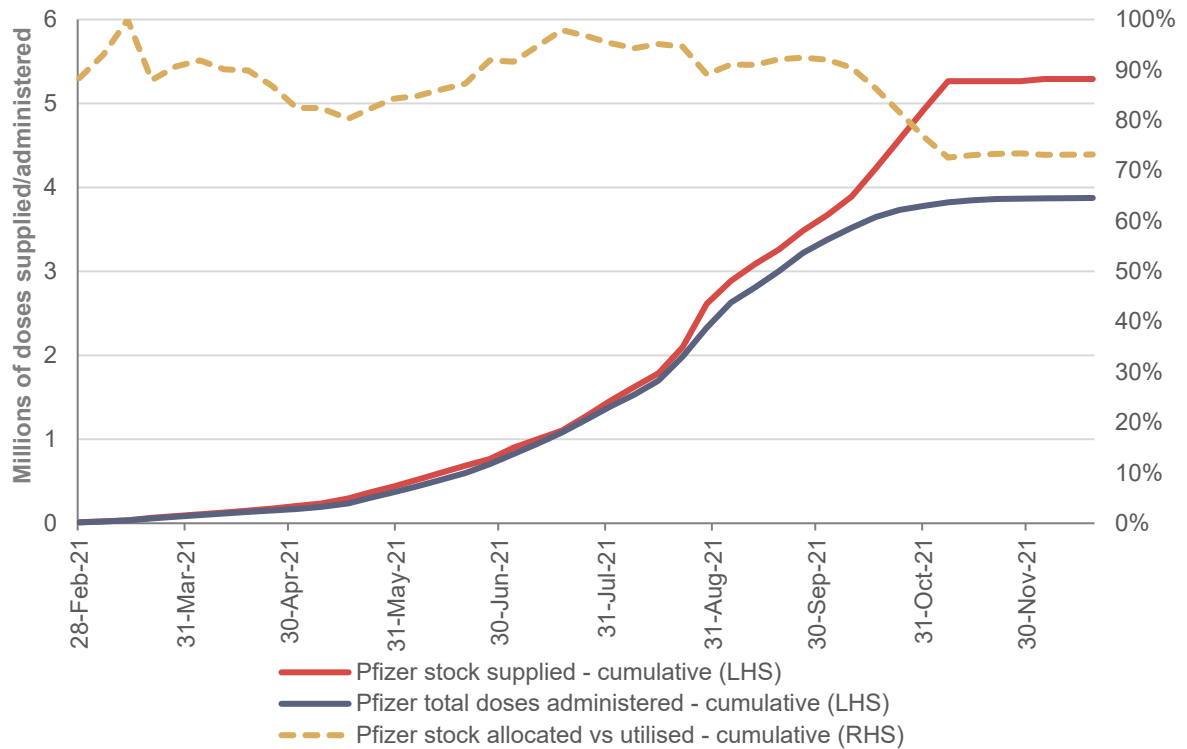
NSW Health implemented strategies to allocate vaccines and reduce wastage to optimise the number of doses available. NSW Health established a SHEOC and LHD/SHN Pharmacists COVID-19 Vaccine and Consumables Forum (the Forum) which had a focus on reducing vaccine wastage. The Forum had a standing agenda item to discuss and action the redistribution of vaccines (and other consumables associated with administering the vaccines) which were approaching expiration. Minutes for the SHEOC and LHD Vaccination Operations teleconferences demonstrate that vaccine redistribution was used effectively by LHDs to minimise wastage.

SHEOC and LHDs tracked wastage rates in their daily and weekly KPI reporting. The Australian Government set thresholds for 'major' wastage of vaccines being five or more vials in a single incident and revised this threshold of reporting to ten or more vials in a single incident post 1 April 2021.

Unutilised vaccines are at risk of expiry and will become wastage unless NSW Health can redistribute them to GPs and pharmacies, or the Australian Government finds a re-distribution solution.

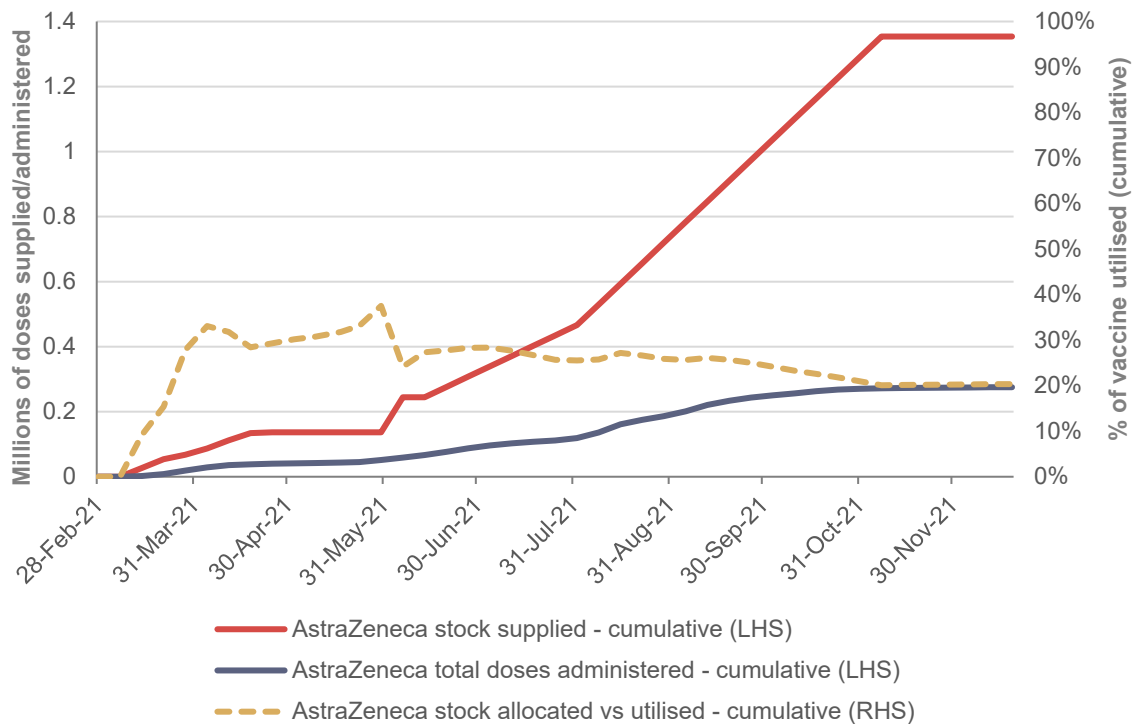
Exhibits 13 and 14 show utilisation of each vaccine received by NSW Health.

Exhibit 13: Utilisation of Pfizer vaccines from 28 February to 12 December 2021



Source: Audit Office from SHEOC Vaccination Summary Reports as of February 2021 to December 2021 (unaudited).

Exhibit 14: Utilisation of AstraZeneca vaccines from 28 February to 12 December 2021



Source: Audit Office from SHEOC Vaccination Summary Reports as of February 2021 to December 2021 (unaudited).

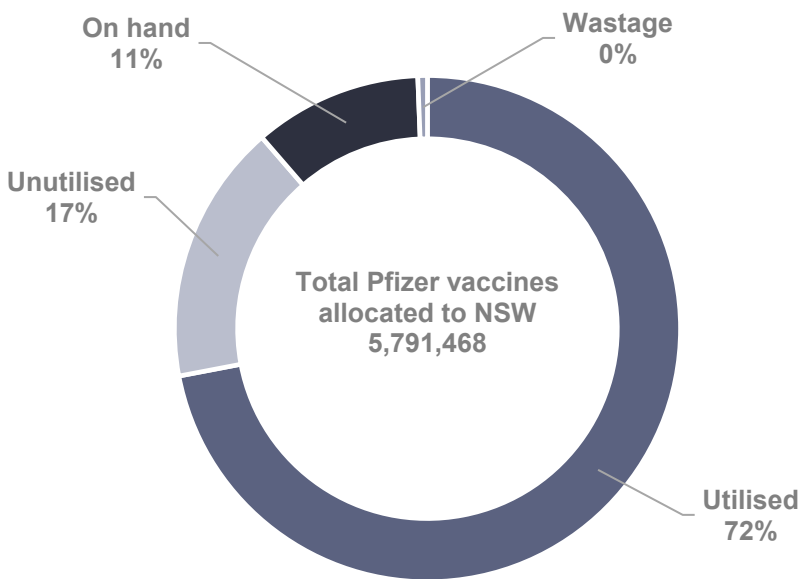
Exhibits 15 and 16 show, as at 12 December 2021, the percentage of Pfizer and Astra Zeneca doses allocated to NSW that were wasted. The wastage rates are relatively small reflecting the high levels of community demand for vaccine, with 29,080 doses (0.6% of total vaccines allocated) of Pfizer wasted and 9,789 doses (3.1% of total vaccines allocated) of AstraZeneca wasted.

As at 31 December 2021, NSW Health had the following vaccines on hand:

- AstraZeneca – 6,319 doses
- Pfizer – 498,489 doses
- Moderna – 73,630 doses.

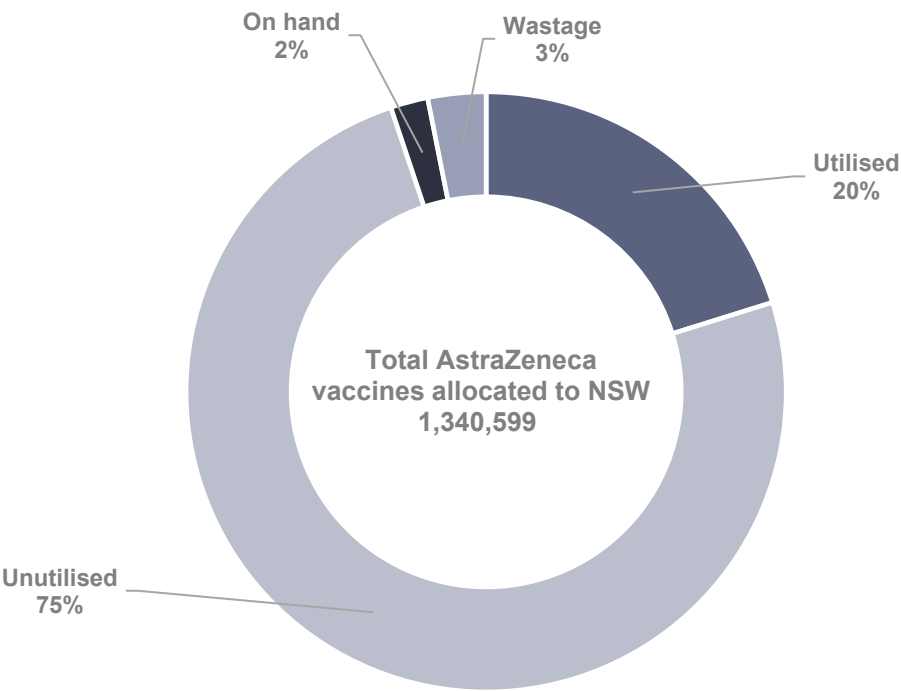
The upcoming NSW Audit Office financial audit report, Health 2022, will include additional information on vaccine stock held by NSW Health.

Exhibit 15: Total Pfizer vaccines utilised as at 12 December 2021



Source: Audit Office analysis of SHEOC Vaccination Summary Report as of 12 December 2021 (unaudited).

Exhibit 16: Total AstraZeneca vaccines utilised as at 12 December 2021



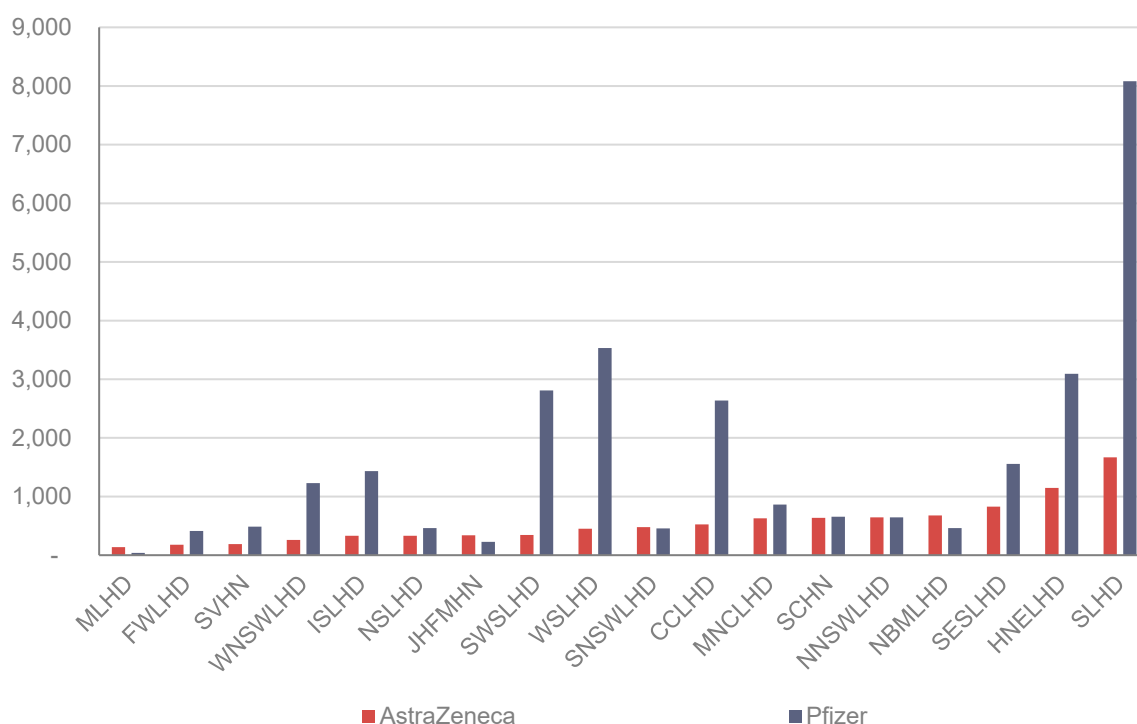
Source: Audit Office analysis of SHEOC Vaccination Summary Report as of 12 December 2021 (unaudited).

Exhibit 17 shows that LHDs with the greatest wastage were primarily ones with Mass Vaccination Hubs located in their Districts:

- Sydney LHD (SLHD)
- Western Sydney LHD (WSLHD)
- South Western Sydney LHD (SWSLHD)
- Illawarra Shoalhaven LHD (ISLHD)
- Hunter New England LHD (HNELHD)
- South Eastern Sydney LHD (SESLHD).

The exception was Central Coast LHD (CCLHD) which had the fifth largest wastage in the state.

Exhibit 17: Total LHD wastage of doses by vaccine as at 12 December 2021



Source: Audit Office analysis of SHEOC Vaccination Summary Report as of 12 December 2021 (unaudited).

NSW Health promoted AstraZeneca as a readily available vaccine during the Delta outbreak when Pfizer stocks were limited

On 11 July 2021, the average waiting time for a Pfizer vaccine appointment in a NSW Health vaccination facility was 50 days. In contrast, the waiting time for an AstraZeneca appointment was three days. This is mostly due to 17 June 2021 ATAGI advice that Pfizer was the preferred vaccine for people aged 16 to 60 years. On 24 July 2021, noting the increasing risk of COVID-19 in New South Wales and ongoing constraints of Pfizer supply, ATAGI advised all adults in Greater Sydney should strongly consider the benefits of earlier protection with COVID-19 Vaccine AstraZeneca rather than waiting for alternative vaccines.

The Department of Customer Service, with the input and advice of NSW Health, led the development and distribution of communications and campaigns to promote the availability of AstraZeneca through paid and unpaid channels. LHDs issued emails to people whose initial bookings were rebooked or cancelled due to the Pfizer reallocation. NSW Health also provided public fact sheets describing the risks and benefits of vaccination with AstraZeneca.

3.4 Managing and monitoring risks

NSW Health identified and centrally managed strategic risks to the vaccine rollout

During the audit period, SHEOC held a regularly updated central risk register which identified ten strategic risks for the program. The risks focused on the following themes:

- vaccine and medical consumable supplies (under- and over-allocation)
- responses to requests from key stakeholders in a timely manner
- insufficient staff available to administer vaccines
- risk of priority cohorts and vulnerable people being unable to access a vaccination at NSW Health vaccination clinics
- information technology failures
- safety concerns around the vaccines
- inaccurate reporting.

While the SHEOC's strategic risk register was adequately documented, given the emergency situation, the audit identified several areas for improvement, noting that the vaccination program is ongoing. SHEOC did not document revisiting all the previously closed risks when the risks re-emerged, such as the risk that NSW Health would be unable to reach set targets in vulnerable populations and rural and regional areas. This risk was last reviewed in October 2021. The SHEOC COVID-19 vaccination program was active after this time and maintained a live risk register. NSW Health advised that closed risks were reopened as they re-emerged.

NSW Health took a reactive approach to managing emerging risks throughout the vaccine rollout. Action plans resulting from daily SHEOC meetings and weekly NSW Vaccination Strategy meetings were the most common practice amongst statewide and LHD operations for managing risk. As risks emerged, SHEOC developed strategies to mitigate and informally shared information across the teams. SHEOC could have incorporated LHD risk registers to identify trends across regions.

The SHEOC risk register also omitted some emerging strategic risks to the program, such as public complacency towards the program. However, NSW Health included vaccination as a distinct workstream of the Delta Microstrategy when it was established and held its first executive committee meeting on 29 July 2021. The Delta coordination team continued to meet twice weekly to discuss emerging risks and issues relating to each of the workstreams, including issues such as Pfizer shortfalls and need for access to timely data for richer and deeper insights.

LHDs approached risk management with varying levels of risk maturity

LHDs demonstrated varying risk maturity. Some LHDs used well-documented risk management processes, while others would have benefited from guidance on project risk management. For example, some LHDs maintained a clinical risk register and did not consider program risk exposing a significant gap in risk monitoring. Generally, LHDs' risk registers showed evidence of regular review and monitoring of identified risks.

Capturing and monitoring risks is important to ensure that teams and/or staff assigned with responsibility for mitigation actions are held accountable for the delivery of those actions. While NSW Health and the LHDs captured discussions of risks in minutes at various levels of the program, risks were not always captured in a way that was easy to track and communicate. These processes could be strengthened to improve the effectiveness of risk management in future emergencies.

4. Reaching the target and looking forward

4.1 Measuring key outcomes

At the 31 May 2021 NSW Vaccination Strategy Committee meeting, NSW Health established an initial target of vaccinating 80% of the adult population with two doses by the end of December 2021. On 9 September 2021, during the Delta outbreak, the NSW Government announced additional vaccination targets as part of the 'Reopening NSW Roadmap to Freedom' (also known as 'NSW's Roadmap to Recovery') of:

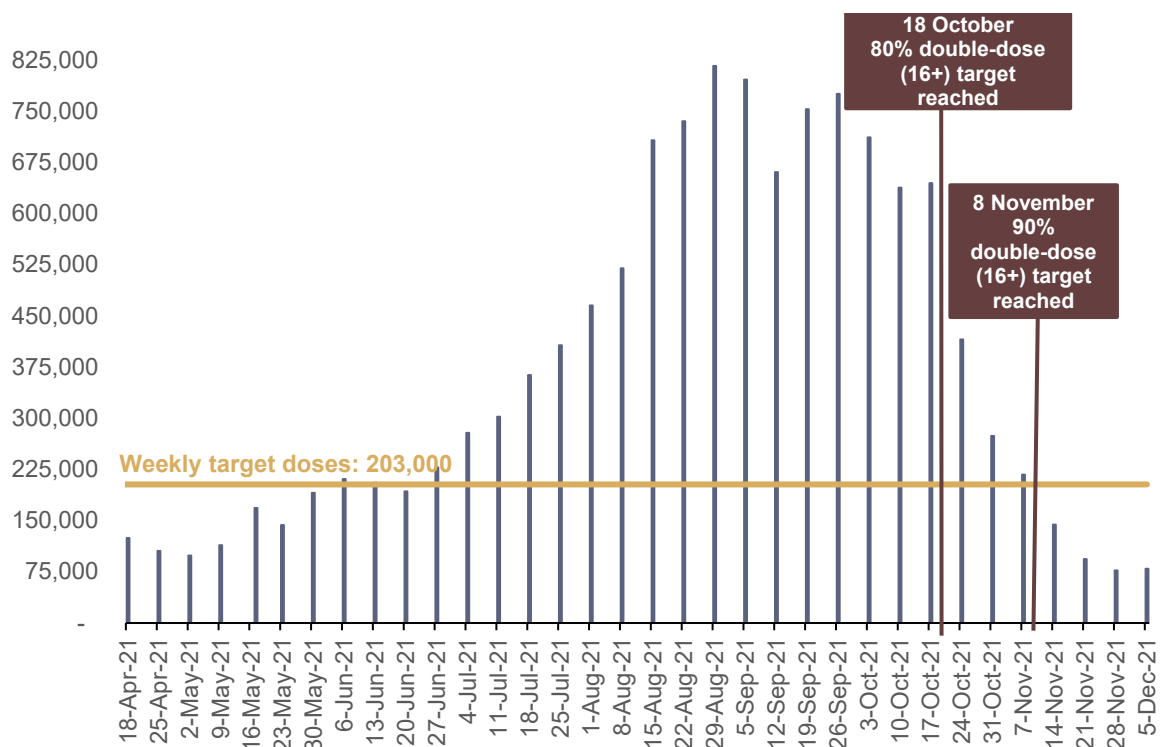
- 70% double dose (ages 16 and over) to lift fully vaccinated people out of lockdown
- 80% double dose (ages 16 and over) to relax restrictions further.

The NSW Government announced a third target on 2 November 2021:

- 95% double dose (ages 16 and over), or 15 December, whichever happens first to lift unvaccinated people out of lockdown.

To reach its targets, NSW Health needed to administer 203,000 vaccines per week. Exhibit 18 shows the weekly dosages administered from April to December 2021.

Exhibit 18: Weekly dosages administered versus the weekly target of 203,000 dose









Source: Audit Office from SHEOC Vaccination Summary Reports as of 16 April 2021 to 5 December 2021 (unaudited).

NSW Health achieved its initial vaccination target ahead of the planned timeframe but not the revised target

Exhibit 19 shows the targets NSW Health set throughout the vaccination program and the date that it achieved the targeted vaccination rate. The 70% target was achieved on 6 October 2021. The 80% (double-dose) Reopening NSW Roadmap to Freedom target was achieved on 16 October 2021, more than two months before it was due.

The third and final target set by the NSW Government was 95% fully vaccinated (ages 16 or over) or the 15 December 2021, to lift the restrictions on unvaccinated people. On 15 December 2021, the vaccination rate was 93.3%. The NSW Government lifted restrictions on this date, but the 95% fully vaccinated target was not achieved until 1 June 2022, more than six months after the target was announced. As at 9 September 2022, NSW Health reports that 95.4% of the New South Wales population over the age of 16 are fully vaccinated (two doses).

Exhibit 19: Key milestones in vaccination progress (two doses)

Target	Target status	Key Dates
Initial overall target to vaccinate 80% of the adult population with two doses by the end of December 2021.	 Achieved on 16 October 2021	On 31 May 2021, NSW Health circulated its statewide target of vaccinating 80% of the adult population by the end of 2021 at the NSW Vaccination Strategy committee meeting.
70% double dose (ages 16 and over) to lift fully vaccinated people out of lockdown.	 Achieved on 6 October 2021	Target announced in 'Reopening NSW Roadmap to Freedom' (also known as 'NSW's Roadmap to Recovery') on 9 September 2021.
80% double dose (ages 16 and over) to relax restrictions further.	 Achieved on 16 October 2021	Target announced in 'Reopening NSW Roadmap to Freedom' (also known as 'NSW's Roadmap to Recovery') on 9 September 2021.
95% double dose (ages 16 and over), or 15 December, whichever happens first to lift unvaccinated people out of lockdown.	 Restrictions were eased on 15 December 2021 with the vaccination rate at 93% - 95% double dose was achieved on 1 June 2022	NSW Government announced as a third target for 'Reopening NSW Roadmap to Freedom' on 2 November 2021.
Key	 Achieved	 Not achieved

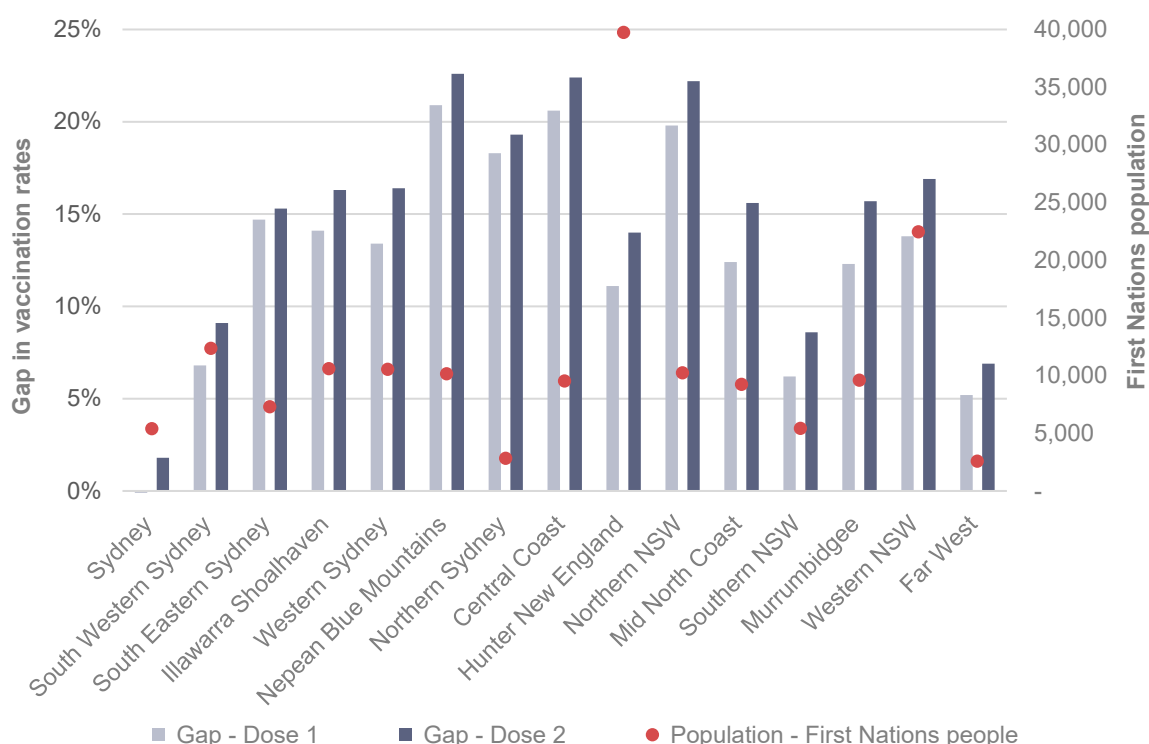
Source: Audit Office analysis from Australian Government COVID-19 Vaccine Rollout daily reporting, NSW Health documents, data and media releases.

NSW Health continues to progress vaccinating vulnerable cohorts

NSW Health developed tailored strategies for vaccinating Aboriginal people which acknowledged the known challenge regarding hesitancy within target populations and mistrust in government agencies. To maximise the effectiveness of the vaccine rollout, LHDs reported that they used a variety of strategies such as engaging with elders to identify the best locations for pop-up and mobile clinics.

Despite these efforts, there is a clear gap between vaccination rates of Aboriginal people and the general population in New South Wales. Exhibit 20 shows as at 12 December 2021 that vaccination rates for Aboriginal people are between zero per cent to 22% lower than the overall population vaccination rates for each LHD.

Exhibit 20: Gap between vaccination rates for Aboriginal people by Local Health District



Source: Audit Office analysis of SHEOC Vaccination Summary Report as at Sunday 12 December 2021 (unaudited).

As at 19 October 2022, 86% of Aboriginal people in New South Wales aged over 16 years have received two doses. As at 9 October 2022, 94.4% of people born overseas and 93.5% of people who speak a language other than English at home in New South Wales have received two doses. As at 16 October 2022, 86.4% of NDIS participants in New South Wales aged over 16 years have received two doses.

4.2 Looking forward

NSW Health has developed a strategy specifically for increasing uptake for boosters for people aged 16 and over and for vaccinations for children aged five to 11 years

In February 2022, NSW Health updated its vaccination strategy to include a specific focus on increasing uptake for boosters (third doses of the vaccine) and vaccinations for children aged five to 11 years old. The focus describes three distinct approaches:

- targeted campaigns to increase uptake of booster doses for those eligible and vaccination for children aged five to 11 years
- focused strategies targeting vulnerable populations
- dedicated communication strategy.

NSW Health's current strategy to promote vaccine uptake primarily utilises a pull model to encourage vaccination in the community and increase booster uptake. Progress in this stage of the vaccination rollout is comparatively slow, particularly with uptake on boosters, children aged five to 15 and previously unvaccinated populations.

NSW Health is yet to capture lessons learned for future public health emergencies

NSW Health has not yet completed a review to capture the lessons learned from the New South Wales vaccination rollout. Project evaluations are helpful in providing insights into the effectiveness of the vaccination rollout and for capturing lessons learnt for future scenarios in which a mass vaccination or similar emergencies scenarios may be required in the future.

NSW Health advises it is currently undertaking a NSW Health COVID-19 System Response Debrief. The debriefs terms of reference describe the following objectives:

- examine the suitability of the Human Influenza Emergency Sub Plan (NSW whole-of -government plan) and NSW Health Influenza Pandemic Plan – PD 2016_016 (NSW Health plan), as well as existing and introduced emergency response structures to the COVID-19 pandemic in New South Wales in 2020–2022
- define the lessons learned from the pandemic response stage (including the action stage of the National Health Sector Emergency Response to Novel Coronavirus Plan and phases A-C of the National Transition Plan), including the operational and public health response
- identify system improvements and any required amendments to the pandemic plan and any associated emergency management plans, structures and arrangements.

The debrief includes a review of the implementation and monitoring of the COVID-19 vaccination program. NSW Health expects the debrief report in November 2022. At the time of completing this performance audit report, NSW Health had not finalised this review and, as a result, we cannot validate their findings against our own observations.

NSW Health reported to the audit that the COVID-19 vaccination program remains an active program, noting lessons learned and insights from the Department of Customer Service, Behavioural Insights Unit and sentiments data were actively integrated into the program. NSW Health has used this information to develop its:

- COVID-19 Vaccinations Vulnerable Populations Strategy released in September 2021
- NSW Health COVID-19 Vaccination Booster and 5-11 Strategy (inclusive of vulnerable populations) released February 2022.

Section two

Appendices

Appendix one – Response from agency



Health

Ms Margaret Crawford
Auditor-General
NSW Audit Office
SYDNEY NSW 2000

Your ref D2222724 / PA6706
Our ref H22/95489

Response to Performance Audit Report – NSW COVID-19 Vaccine Rollout

Dear Ms Crawford

I refer to your letter of 31 October 2022 seeking NSW Health's response to the performance audit report on the NSW COVID-19 Vaccine Rollout.


NSW Health worked closely with the Commonwealth Government in coordinating access to COVID-19 vaccines and to distribute the available supply across the NSW population and I note that NSW was the first Australian state to reach over 90 per cent double-dose vaccination. The COVID-19 vaccination program commenced in NSW on 22 February 2021 and within eight months reached 80% double-dose vaccination rates for people aged 16 and over. Nine months after commencing, on 8 November 2021, NSW reached 90% double-dose vaccination and ultimately achieved its target of 95% double-dose vaccination for all populations in NSW.

A key contributor to this success was NSW Health's accelerated vaccination program. This program was enabled by considered forward planning and data analysis, tailored delivery strategies, targeted campaigns, and through ensuring convenient access to vaccines for vulnerable populations and in geographic areas experiencing low vaccine take-up. The accelerated program was successful in preventing serious illness and death from COVID-19 in our vulnerable populations and mitigated the economic impacts of strict lockdowns in these areas.

NSW Health accepts the recommendations made in the audit report. NSW Health will undertake the review of the COVID vaccination program in 2023 as recommended in the report. In addition, the vaccination content in the NSW Health Influenza Pandemic Plan and associated documents will be updated to incorporate lessons learned following the review.

I appreciate the time taken by the audit team to engage with NSW Health representatives over the course of this audit program.

Yours sincerely



Susan Pearce
Secretary, NSW Health
2/12/22

NSW Ministry of Health
ABN 92 697 899 630
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Tel (02) 9391 9000 Fax (02) 9391 9101
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Appendix two – Australian audits on the vaccine rollouts

The Australian Government's initiative to provide safe and effective vaccines to the people who most needed it as quickly as possible, to support the physical, mental and economic wellbeing has been examined by other audit offices. The following reports were completed prior to our audit:

Australian and state government Performance Audits

Jurisdiction/report	Key findings
Office of the Auditor-General, Western Australia (WA) WA's COVID-19 Vaccine Rollout Tabled 18 November 2021	<p>The vaccination target has changed during the rollout, but it has not been an effective mechanism in identifying low vaccination rates in higher risk groups.</p> <p>Roles and responsibilities were not clearly defined.</p> <p>Even if WA achieves its 80% vaccination target by December as predicted, at-risk groups will have lower vaccination rates.</p> <p>The Department is confident that it can achieve its 80% vaccination target by the end of 2021.</p> <p>Some areas of WA have vaccination rates that are much lower than the 80% target.</p> <p>Community vaccination clinics reached large numbers of people but have left gaps.</p> <p>Vaccination rates through in-reach clinics are likely to be lower and less predictable and require more resources.</p>
Australian National Audit Office Australia's COVID-19 Vaccine Rollout Tabled 17 August 2022	<p>The Department of Health and Aged Care's (Health's) planning and implementation of the COVID-19 vaccine rollout has been partly effective.</p> <p>Health's approach to planning became more effective as the rollout progressed.</p> <p>The final governance arrangements established to manage the COVID-19 vaccine rollout have been largely effective.</p> <p>Implementation of the COVID-19 vaccine rollout has been partly effective, with Health's administration of vaccines to priority populations and the general population not meeting targets.</p>

Appendix three – Committee members

Below are the memberships of the committees with roles for the NSW COVID-19 Vaccination Rollout.

NSW Vaccination Strategy Committee

- Secretary, NSW Health
- Deputy Secretary Patient Experience and System Performance
- Chief Health Office & Deputy Secretary Population and Public Health
- Deputy Secretary, Health System Strategy and Planning/Communities of Practice
- Deputy Secretary, Finance and Asset Management and CFO
- Deputy Secretary, People, Culture and Governance
- Chief Executive, Sydney Local Health District
- Chief Executive, eHealth NSW
- Executive Director, COVID-19 Response
- Deputy SHEOC Controller
- Manager, Immunisation
- Director, COVID-19 Communications
- Manager, COVID Vaccination Program
- Executive Director, Centre for Epidemiology and Evidence
- Executive Director, Strategic Program Management Office

DCT Steering Committee

- Executive Director, NSW Health
- Secretary, NSW Health
- Deputy Secretary, NSW Health
- Senior Medical Advisor, Office of the Chief Health Officer
- Chief Health Officer
- CEO, Multicultural NSW
- NSW Treasury Representative
- NSW Public Service Commissioner
- Deputy Secretary, Department of Customer Service
- Chief Executive, NSW Health Critical Intelligence Unit

SHEOC Quality and Safety Committee

- Deputy Controller, SHEOC (Chairperson)
- Executive Support, SHEOC (Secretariat)
- Director of Operations, SHEOC
- Deputy Director Operations, SHEOC
- Director Patient Safety First Unit, Ministry of Health
- Airport and Surveillance Lead, SHEOC
- Hotel Lead, SHEOC
- Maritime Lead, SHEOC
- Exemption Lead, SHEOC
- Testing Clinic Lead, SHEOC
- Vaccination Director, SHEOC
- Director Operational Workforce, SHEOC
- Medical Representative, SHEOC or Public Health Unit
- Representative, Sydney Local Health District
- Director of Patient Safety, Clinical Excellence Commission
- NSW Chief ICP & HAI Advisor, Clinical Excellence Commission
- Executive Director COVID-19 Public Health Response Branch, NSW Ministry of Health or delegate
- HealthShare Patient Transport Lead
- Clinical Executive Support Manager, SHEOC
- Other members of the SHEOC operations as required.

Appendix four – About the audit

Audit objective

The overall objective of this audit was to assess the effectiveness and efficiency of NSW Health's COVID-19 vaccine rollout. The audit had a particular focus on whether NSW Health had:

- set clear vaccination targets underpinned and/or guided by evidence
- managed the rollout of the vaccination program effectively and efficiently
- managed demand of vaccines effectively and efficiently.

This audit did not assess the Australian Government's allocation of vaccine supplies to New South Wales.

The audit covers 1 January 2021 to 31 December 2021 which incorporates the period in which the vaccine was rolled out to those aged 16 and up. We did not audit the subsequent rollout for ages five to 15, nor the majority of the booster rollout (third and fourth doses).

Audit criteria

We addressed the audit objective by considering the following audit criteria and sub criteria:

1. NSW Health set clear vaccination targets, that were supported by evidence.
 - a) NSW Health defined its role in achieving vaccine targets
 - b) NSW Health developed strategies to vaccinate vulnerable cohorts, priority workers and remote communities
 - c) NSW Health identified and managed risks to meeting its vaccine targets
 - d) NSW Health tracked and reported vaccination progress transparently, both internally and externally.
2. NSW Health effectively and efficiently managed the rollout of the COVID-19 vaccine.
 - a) NSW Health planned bookings to align with anticipated supply, and the recommended intervals for doses
 - b) Booking systems were easy to use and accessible
 - c) NSW Health had a plan to consistently match capacity to anticipated supply
 - d) NSW Health conducted appropriate analysis to ensure hubs were in the right locations
 - e) NSW Health monitored wastage rates for vaccines and took steps to minimise this.
3. NSW Health effectively and efficiently managed demand.
 - a) NSW Health monitored demand in a comprehensive way
 - b) NSW Health had strategies to target areas or groups with lower demand to increase uptake
 - c) NSW Health is planning for future demand, including booster shots and vaccine rollout to children.

Audit scope and focus

This audit scope focussed on the following Local Health Districts (LHDs):

- Sydney LHD
- South Western Sydney LHD
- Western NSW LHD
- Mid North Coast LHD.

The scope of this audit considered the role of NSW Health in the COVID-19 vaccine rollout, namely whether NSW Health:

- established effective governance arrangements, that are accountable, transparent in decision making, and have clearly defined roles in the COVID-19 vaccine rollout program
- decision-making was evidence backed and based on the best information available at the time. This includes accountable and transparent decisions to vaccinate vulnerable cohorts, priority workers and remote communities, and appropriately used this information to inform decision-making and meet vaccination targets
- requested information from the Commonwealth regarding the supply of COVID-19 vaccines and appropriately used information received from the Commonwealth to inform decision-making and meet vaccination targets
- identified and appropriately managed risks in relation to vaccination targets
- monitored the demand for, and supply of, vaccines throughout the vaccine rollout and appropriately used information to effectively manage the flow of vaccines across New South Wales
- tracked and reported on the progress of vaccinations across New South Wales in a transparent and consistent manner, both internally and externally
- used information regarding anticipated supply and the recommended intervals for vaccine doses to plan vaccination bookings
- ensured consistency and suitability of booking systems
- sought input, feedback from user groups (through intent and sentiment surveys, or other tools) and used the best available information to ensure, develop or influence:
 - the ease of use and accessibility of vaccine booking systems (including private booking systems for example, HotDoc)
 - strategies to target groups or cohorts with lower vaccine demand
 - the location of vaccination hubs.
- monitored vaccine wastage rates and took appropriate steps to minimise wastage
- leveraged information and/or lessons learned from the vaccine rollout to inform decision-making for the booster rollout and rollout of vaccines to children.

To form a conclusion against the overall audit objective, the audit team:

- interviewed key staff within NSW Health and the four LHDs to develop an understanding of NSW Health's role in relation to the vaccine rollout program
- identified sources of information or evidence that may inform the nature, timing and extent of procedures to be performed during the audit
- performed data analysis over vaccination figures to verify whether the data was transparently reported, reasonably accurate, complete, compliant with the NPA Schedule C requirements, and fit for the purpose of decision-making purposes.

The audit team corroborated facts and information provided by key NSW Health staff against documentary evidence such as internal reports, manuals, policies, operating procedures and internal/external correspondence. Examples of documentary evidence we inspected are documented in our audit approach section below.

Audit exclusions

The audit did not seek to:

- assess the Australian Government's responsibilities including allocation of vaccine supplies
- assess the accuracy nor completeness of vaccines as an inventory
- assess the COVID-19 multi-agency coordination of non-vaccination activities
- question the merits of government policy objectives.

Whilst these items were excluded from the scope of our audit, we have provided commentary on these issues where they affected our findings and/or provided necessary context to our report.

Audit approach

Our procedures included:

1. Interviewing Ministry of Health staff with key roles and responsibilities for:
 - setting vaccination targets
 - providing advice to decision makers regarding vaccination targets
 - defining the role and responsibilities
 - developing strategies to vaccinate vulnerable cohorts, priority workers and remote communities
 - liaising and creating actions for plans to vaccinate vulnerable communities
 - identifying and managing risks relating to the vaccine rollout
 - managing vaccine bookings
 - liaising with the Commonwealth regarding anticipated vaccine supply
 - tracking and reporting on vaccination progress internally and externally
 - developing, testing and implementing vaccine booking systems
 - monitoring vaccine wastage rates and/or responsible for developing strategies to minimise vaccine wastage
 - monitoring vaccine demand and/or collating data to monitor vaccine demand
 - planning future vaccine rollout programs including the booster shot program and vaccinations for children

Interviewing Local Health District staff at a sample of locations.

Examined the following documentary evidence that was available:

- strategy documents (such as terms of reference, charter, memorandum of understanding) outlining NSW Health's role in the vaccine rollout program
- internal NSW Health vaccine program meeting minutes related to vaccine rollout (such as Vaccination Committee, Delta Microstrategy Executive Committee, State Emergency Management Committee)
- specific strategies and analysis for vulnerable cohorts, priority workers and remote communities
- agreements relevant to the vaccine program between NSW Health and the Commonwealth and/or other states and territories
- relevant NSW Health vaccine related public media releases
- evidence of internal or external advice, communications, correspondence or consultation regarding the vaccine rollout
- NSW Health COVID-19 risk management documents
- NSW Health vaccine program risk register/s
- daily/weekly vaccination results reports
- internal reports regarding vaccination rates submitted to the NSW Health/Ministry executive
- guidance received from ATAGI and/or the TGA regarding recommended intervals and doses
- any advice/formal correspondence from the Commonwealth regarding the anticipated supply of vaccines
- internal reports regarding the development and testing of booking systems (including user testing, feedback/workshop sessions, user surveys and/complaints etc)
- formal advice/correspondence from key vaccine suppliers regarding the anticipated supply of vaccines (including delays, surplus)
- internal allocation spreadsheets used to determine the allocation of vaccines
- internal reports regarding vaccine wastage rates and/or the shelf life' of vaccines
- educational and awareness documentation directed at increasing uptake
- demand management strategies and plans (past and present for future booster shots).

Analysed data and analysis performed by NSW Health, including:

- examining the anticipated vaccine supply data against the vaccine bookings
- examining NSW Health's records associated with allocation of vaccines to LHDs and hubs and the alignment to vulnerable communities and health priorities
- comparing internal and externally reported vaccination target progress
- comparing internal vaccine inventory records against externally reported vaccination rates
- examining internal management reports regarding vaccine wastage rates.

We also examined:

- documentation from other stakeholders obtained throughout the audit such as research and studies, statistical data and analysis
- information from other jurisdictions for comparison where relevant.

The audit approach was complemented by quality assurance processes within the Audit Office to ensure compliance with professional standards.

Audit methodology

Our performance audit methodology is designed to satisfy Australian Audit Standard ASAE 3500 Performance Engagements and other professional standards. The standards require the audit team to comply with relevant ethical requirements and plan and perform the audit to obtain reasonable assurance and draw a conclusion on the audit objective. Our processes have also been designed to comply with requirements specified in the *Public Finance and Audit Act 1983* and the *Local Government Act 1993*.

Acknowledgements

We gratefully acknowledge the co-operation and assistance provided by NSW Health.

Audit cost

The estimated cost of this audit is \$480,000.

Appendix five – Performance auditing

What are performance audits?

Performance audits determine whether state or local government entities carry out their activities effectively, and do so economically and efficiently and in compliance with all relevant laws.

The activities examined by a performance audit may include a government program, all or part of an audited entity, or more than one entity. They can also consider particular issues which affect the whole public sector and/or the whole local government sector. They cannot question the merits of government policy objectives.

The Auditor-General's mandate to undertake performance audits is set out in section 38B of the *Government Sector Audit Act 1983* for state government entities, and in section 421B of the *Local Government Act 1993* for local government entities.

Why do we conduct performance audits?

Performance audits provide independent assurance to the NSW Parliament and the public.

Through their recommendations, performance audits seek to improve the value for money the community receives from government services.

Performance audits are selected at the discretion of the Auditor-General who seeks input from parliamentarians, state and local government entities, other interested stakeholders and Audit Office research.

How are performance audits selected?

When selecting and scoping topics, we aim to choose topics that reflect the interests of Parliament in holding the government to account. Performance audits are selected at the discretion of the Auditor-General based on our own research, suggestions from the public, and consultation with parliamentarians, agency heads and key government stakeholders. Our three-year performance audit program is published on the website and is reviewed annually to ensure it continues to address significant issues of interest to parliament, aligns with government priorities, and reflects contemporary thinking on public sector management. Our program is sufficiently flexible to allow us to respond readily to any emerging issues.

What happens during the phases of a performance audit?

Performance audits have three key phases: planning, fieldwork and report writing.

During the planning phase, the audit team develops an understanding of the audit topic and responsible entities and defines the objective and scope of the audit.

The planning phase also identifies the audit criteria. These are standards of performance against which the audited entity, program or activities are assessed. Criteria may be based on relevant legislation, internal policies and procedures, industry standards, best practice, government targets, benchmarks or published guidelines.

At the completion of fieldwork, the audit team meets with management representatives to discuss all significant matters arising out of the audit. Following this, a draft performance audit report is prepared.

The audit team then meets with management representatives to check that facts presented in the draft report are accurate and to seek input in developing practical recommendations on areas of improvement.

A final report is then provided to the head of the audited entity who is invited to formally respond to the report. The report presented to the NSW Parliament includes any response from the head of the audited entity. The relevant minister and the Treasurer are also provided with a copy of the final report. In performance audits that involve multiple entities, there may be responses from more than one audited entity or from a nominated coordinating entity.

Who checks to see if recommendations have been implemented?

After the report is presented to the NSW Parliament, it is usual for the entity's Audit and Risk Committee / Audit Risk and Improvement Committee to monitor progress with the implementation of recommendations.

In addition, it is the practice of Parliament's Public Accounts Committee to conduct reviews or hold inquiries into matters raised in performance audit reports. The reviews and inquiries are usually held 12 months after the report received by the NSW Parliament. These reports are available on the NSW Parliament website.

Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian standards.

The Public Accounts Committee appoints an independent reviewer to report on compliance with auditing practices and standards every four years. The reviewer's report is presented to the NSW Parliament and available on its website.

Periodic peer reviews by other Audit Offices test our activities against relevant standards and better practice.

Each audit is subject to internal review prior to its release.

Who pays for performance audits?

No fee is charged to entities for performance audits. Our performance audit services are funded by the NSW Parliament.

Further information and copies of reports

For further information, including copies of performance audit reports and a list of audits currently in-progress, please see our website www.audit.nsw.gov.au or contact us on 9275 7100.

OUR VISION

Our insights inform and challenge government to improve outcomes for citizens.

OUR PURPOSE

To help Parliament hold government accountable for its use of public resources.

OUR VALUES

Pride in purpose

Curious and open-minded

Valuing people

Contagious integrity

Courage (even when it's uncomfortable)

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