Australian Government
Department of Health, Disability and Ageing

Methodology Guide for Vaccination Dashboards

1. Document Information

Item	Details
Document Title	Data Modernisation Methodology Paper
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2. Purpose of This Paper

This methodology paper outlines the rules and methods that have been applied in developing the five Power BI dashboards that contain *Australian Immunisation Register* (AIR) information. The paper is broken into two sections; the first contains global definitions and rules that have been applied to each dashboard, while the second contains rules and methods that are specific to individual dashboards.

3. Global Definitions, Rules and Methods

This section discusses methods, definitions and limitations that apply to all four of the Power BI dashboards.

3.1 Definitions

Gender

Gender refers to the response an individual or provider has recorded in the Australian Immunisation Register. Gender has been broken into three categories; male, female and non-binary.

First Nations Status

First Nations refers to individuals in the Australian Immunisation Register which have an answer of “Y” on the indigenous indicator. Individuals with no entry or those with an answer of “N” are defined as non-First Nation in the dashboards.

Location

Location refers to either the state, statistical area level 3 (SA3) or Public Health Network (PHN) that an individual is assigned based on their Medicare address. The location of an individual is determined from their latest Medicare record (see definition below in section 3.2).

To determine the state, PHN or SA3 of an individual, the Medicare address of a record is translated into latitude and longitude coordinates. These latitude and longitude coordinates are then assigned into mesh blocks that match the ABS mesh block definitions. Once mesh blocks for individuals are determined, the mesh blocks are linked to different geospatial levels (SA3, State and Territory, PHNs and more).

The national total will be larger than the sum of the states, as some people reside in other territories, and some people's address details fail to geocode to a state, PHN or SA3.

Vaccination Status

Vaccination Status refers to the status imposed by Services Australia after a record has been entered into the Australian Immunisation Register by a provider. Vaccination statuses are used to identify errors in the entry of records, remove duplicate records and seek further clarification from providers.

Each of the four dashboards only considers vaccinations that have been approved by Services Australia. The statuses included in these dashboards are A (Accepted), C (requires clarification), or Y (has been clarified).

Provider Type

A provider is any eligible health professional or organisations who can register with the AIR. The AIR categorises each individual or business who register to provide immunisations a provider type code. These codes while useful do not provide full insight into the setting in which vaccinations are administered.

Provider categories have been developed in these dashboards to summarise the setting in which a vaccination was administered. The following table summarises which provider type codes were included in each provider category.

Table 1: Categorisation of AIR Providers used in Power BI Dashboards

Provider Category (Dashboards)	**Provider Type Code (AIR)**	**Provider Type Name**
GP	G, L	General Practice, Medical General Practitioner
Pharmacy	U	Pharmacy
Private Hospital	R	Private Hospital
Public Hospital	P	Public Hospital
State Health / PHU	D,Z	State Health Department
Private Health Network	E	Private Health Network
Nurses	K, N, ANI	Nurse Practitioner, Community Nurse, Authorised Nurse Immuniser
Council	C	Council
Community Health	N, T	Community Nurse, Community Health Centre
Aboriginal Health	S , W	Aboriginal Health Service, Aboriginal Health Worker
Commercial	COMM	Commercial
Residential Care Facility	RCF	Residential Care Facility

Other	A, B, F, H, J, M, V, Y	Division of General Practice, Information Requestor – Group, Flying Doctor Service, Medicare Local, Information Requestor - Individual , Midwife, Vacant, Information Provider - Division of General Practice

Overseas Vaccinations

Overseas Vaccinations refers to vaccines that individuals have received overseas. Australian providers can update records to historically input vaccinations that an individual may have received overseas. They are identified by a provider code of A92009H.

Overseas vaccinations are included in coverage calculations but are not included in doses administered or people vaccinated figures.

Historical Vaccinations

Historical Vaccinations refers to cases where providers report vaccinations that were given in Australia by another vaccination provider. Historical vaccinations occur when records have not been inputted into the Australian Immunisation Register at the time of vaccination event. Historical vaccinations are by a provider code of A56801A.

Historical vaccinations are included in coverage, people vaccinated and doses administered information.

Suppression Rules

People Vaccinated and Doses Administered data

- All figures have been rounded up to the nearest 10

Coverage data

- ≥95.00 indicates that the number of individuals for that row is between 25 and 100, and the coverage rate for that population is equal to or greater than 95%.
- ≥99.00 indicates that the number of individuals for that row is greater than 100, and the coverage rate for that population is equal to or greater than 99%.
- ≤5.00 indicates that the number of individuals for that row is between 25 and 100, and the coverage rate for that population is equal to or less than 5%
- ≤1.00 indicates that the number of individuals for that row is greater than 100, and the coverage rate for the population is equal to or less than 1%.

3.2 Methods in Calculations

NIP Schedule and Fully Vaccinated Definitions

The dashboards that have been developed reference a point in time copy of the National Immunisation Program (NIP). The dashboards consider vaccinations that were added to the National Immunisation Program by the 31/03/2026.

Changes in Historical Coverage

The Australian Immunisation Register is a dynamic database that actively updates an individual's personal details based on changes that occur in Medicare. Changes that are made can update doses administered/coverage rates that are reported in the AIR.

For example, if an individual is vaccinated for Influenza in NSW in 2025 and then migrates to QLD in 2026 and updates their Medicare address, that individual's vaccination for 2025 will then be assigned to QLD. Another key example of this issue is immigration. Individuals that immigrate to Australia and don't have historic vaccinations recorded will be assigned as non-vaccinated and decrease previous years coverage rates.

These dashboards make no attempt to capture point-in-time Australian Immunisation Register information. They allow for personal details of individuals to change retrospectively and thus allow for changes in reported numbers

Latest Medicare Number

Latest Medicare Number refers to the method imposed to deduplicate individuals that may have multiple Medicare records and multiple entries in the Australian Immunisation Register Person table. The latest Medicare number is determined through a multistep process.

1. Individuals' entries are ranked such that the most recent end dated record is categorised as the most recent record. Most records most recent end date will be '9/9/9999' unless the individuals Medicare identity has been ended (due to migration to another country, death, etc.)
2. Some individuals have multiple records with the same end date. In this case, the largest Medicare number is used as the most recent record.

The below table details the result of using this method to deduplicate records. Please note that all details in the table have been created for this explanation and do not relate to the identity of any individual in the AIR.

Table 2: Latest Medicare Definition Example

Person ID	End Date	Medicare Card Number	Latest Medicare Card Number Flag
101	9999-09-09	C54321678	Y
101	9999-09-09	A12345678	N
101	2024-11-15	B98765432	N
102	2024-10-10	A11111111	Y
102	2024-09-05	B22222222	N

Doses Administered

Doses Administered refers to the total number of vaccination records in the Australian Immunisation Register. This includes all records, including vaccine administration errors, doses that were administered to people who are no longer active in Australia (relocated or passed away), and doses administered to people overseas who have since interacted with the Australian health system.

Doses Administered only counts the number of vaccination encounters that occur in a given year. It does not retroactively calculate the number of doses an individual would have received in their life.

People Vaccinated

People Vaccinated refers to the total number of unique individuals who have received a vaccination and had it noted in the Australian Immunisation Register during any selected period. People vaccinated is measured by distinctly counting the number of unique Person IDs.

People vaccinated only records the number of unique people that are administered a given vaccination in a given year. It does not represent the number of doses administered to the individual and does not match the numerator utilised in coverage calculations.

Calculation of the AIR Population (Denominator for Coverage)

Each of the four dashboards measures the population eligible for vaccinations by utilising the Medicare Registered Population. The Medicare registered population data is used to populate the AIR population when individuals/providers do not make a change in detail for the Australian Immunisation Register. The Medicare and subsequent AIR population is dynamic and changes daily due to end dating of Medicare records, change of Medicare address or the assignment of new Medicare numbers.

- The AIR population of a given reporting period or reference year considers individuals who have not been end dated by the end of the calendar year.
- It removes duplicate records of individuals by only reporting the latest Medicare number an individual has received
- Age cohorts are calculated depending on the needs of the dashboard. Please refer to the age cohort section of each dashboard for more information
- Residential location is based on the current Medicare residential address of the individuals latest Medicare number.

4. Definitions and Methods for Individual Dashboards

Each dashboard has unique logic based on design and requirements of the National Immunisation Program. Dashboards calculation of age cohorts, and coverage is specific to the requirements of the antigen being measured. The following subsections detail the logic that has applied to the respiratory, childhood, adolescent, and older Australian dashboards.

4.1 Respiratory Vaccination Dashboard

This section summarises the methodology and coding logic that has been applied to the respiratory vaccination dashboard. It contains information on how coverage is calculated, the two methods used to calculate age, and antigen/page specific logic.

Age Calculation for Doses Administered/ People Vaccinated Views

The doses administered and people vaccinated measures utilise the age of the individual when they receive the vaccination. Age for these measures are calculated by subtracting the encounter date of the vaccination from the date of birth of the recipient.

Once the individual's age is calculated, it is grouped into age brackets of 5 year intervals. These age brackets are visible as a filter in the dashboard.

Coverage Age Calculation

Coverage uses a different measure of age than the doses administered and people vaccinated views. For coverage, age is defined as the age of the individual on the 1st of July of a given year. This age reference period is used as there is a necessity to calculate people that are eligible for a vaccination in a season (to estimate coverage). The 1st of July reference date represents the central point of the seasonal respiratory window and aligns with how current influenza reports have been developed. Once the individual's age is calculated, it is grouped into age brackets of 5 year intervals.

Difference in Age Calculations

The two methods used to calculate age do limit the ability to match the people vaccinated and coverage measures. Some individuals may show in one age bracket for the doses administered/people vaccinated views and a different age bracket for the coverage views.

For example, consider someone who is currently aged 64 that receives their Influenza vaccine in May and has a birthday in June of a given year. For doses administered and people vaccinated views, this individual will be considered as 64 and will be bracketed in the 60-64 category. Conversely for coverage, the individual will be considered as 65 on the 1st of July and will be bracketed in the 65-69 age bracket.

Influenza Coverage

Coverage for influenza is measured for each calendar year within the respiratory vaccination dashboard. Individuals are considered covered if they have received 1 or more influenza vaccination in a given calendar year. Coverage in the current year is rolling and will update throughout the calendar season.

Vaccinations for Influenza are identified by looking at the Australian Immunisation Register records that have an antigen name of 'Influenza'

COVID-19 Coverage

Coverage for COVID-19 is measured for each calendar year within the respiratory vaccination dashboard. Individuals are considered covered if they have received 1 or more COVID vaccination in a given calendar year. Coverage in the current year is rolling and will update throughout the calendar season and aligns with Influenza reporting.

Note this is a change from current COVID-19 reporting. Previously the Estimated Residential Population was used to estimate the denominator. In addition, coverage was previously measured from if an individual had received a vaccination in the last 6 months or 12 months.

Vaccinations for COVID-19 are identified by looking at the Australian Immunisation Register records that have an antigen name of 'COVID-19'

RSV Coverage

Coverage for RSV is currently not reported due to changes in recommendations. At the time of developing the dashboards, RSV was not recommended/funded on the NIP outside of for antenatal protection.

RSV Coverage for antenatal protection is not estimated in the dashboard due to the inability to accurately measure the number of pregnant individuals in a given year. Infant coverage rates for Nirsevimab are similarly not measured due to inability to identify babies that had received Abrysvo.

Vaccinations for RSV are identified by looking at the Australian Immunisation Register records that have an antigen name of 'Respiratory Syncytial Virus'.

Antenatal Indicator

The antenatal page filters RSV and Influenza vaccinations to those that have an 'Y' response to the antenatal field in the Australian Immunisation Register. COVID-19 vaccination information is unavailable due to it not being recommended for antenatal protection.

The antenatal field was added to the Australian Immunisation Register in December 2024. Utilisation in early 2025 was limited while software providers incorporated system changes to support reporting. No formal assessment of completeness or data quality has been undertaken for this field and it should be interpreted with caution.

An additional page filter has been applied to restrict the population to individuals aged 15–54 years, to better align with the expected population for antenatal vaccination.

4.2 Adolescent Vaccination Dashboard

This section summarises the methodology and coding logic that has been applied to the adolescent vaccination dashboard. It contains information on how coverage is calculated, and the two methods used to calculate age.

Age Calculation for Doses Administered/ People Vaccinated Views

The doses administered and people vaccinated measures utilise the age of the individual when they receive the vaccination. Age for these measures are identified by calculating the difference between an individual's date of birth and the date of encounter field in the Episode table. This field is calculated by subtracting the encounter date of the vaccination from the date of birth of the recipient.

Coverage Age Calculation

Coverage uses a different measure of age than the doses administered and people vaccinated views. For coverage, age is defined as the age of the individual on the 31st of December of a given year. Age is calculated at this point as it allows evaluations of coverage rates of individuals who reached the recommended age to receive a vaccination in the calendar year. This method also aligns with previous HPV reporting methods undertaken on the department's website.

Difference in Age Calculations

The two methods used to calculate age limit the ability to match the people vaccinated and coverage measures. Individuals may show as one age for the doses administered/people vaccinated views and a different age for the coverage views.

For example, consider a person aged 14 at the start of the year who has a birthday in September and received their HPV vaccination in March. In the adolescent dashboard, this individual will be categorised as 14 for the doses administered and people vaccinated view. However, in coverage views they will be defined as 15.

DTP Coverage

Coverage for DTP is measured by considering adolescents that have received one or more vaccination tagged with an antigen code of ‘DIP’, ‘TET’, “PER’. Early vaccinations before 10 years of age have been considered as not meeting adolescent requirements and thus excluded from coverage.

The coverage tab of the adolescent dashboard looks at DTP coverage for individuals who have turned 15 in the reference year. Coverage rates of other age cohorts are also measured in the demographics tab.

HPV Coverage

Coverage for HPV is measured by considering adolescents that have received one or more vaccination tagged with an antigen code of ‘HPV‘. Early vaccinations before 9 years of age have been considered as not meeting adolescent requirements and thus excluded from coverage.

The coverage tab of the adolescent dashboard looks at HPV coverage for individuals who have turned 15 in the reference year. Coverage rates of other age cohorts are also measured in the demographics tab.

Men ACWY Coverage

Coverage for Men ACWY is measured by considering adolescents that have received one or more vaccination tagged with an antigen code of ‘MCY‘. Early vaccinations before 10 years of age have been considered as not meeting adolescent requirements and thus excluded from coverage.

The coverage tab of the adolescent dashboard looks at Men ACWY coverage for individuals who have turned 17 in the reference year. Coverage rates of other age cohorts are also measured in the demographics tab.

4.3 Older Australian Vaccination Dashboard

This section summarises the methodology and coding logic that has been applied to the older Australian vaccination dashboard. It contains information on how coverage is calculated, and the two methods used to calculate age.

Age Calculation for Doses Administered/ People Vaccinated Views

The doses administered and people vaccinated measures utilise the age of the individual when they receive the vaccination. Age for these measures is identified by subtracting the encounter date of the vaccination from the date of birth of the recipient.

Once the individual’s age is calculated, it is grouped into age brackets of 5 year intervals. These age brackets are visible as a filter in the dashboard.

Age Calculation Coverage

Coverage uses a different measure of age than the doses administered and people vaccinated views. For coverage, age is defined as the age of the individual on the 31st of December of a given year. The measure of coverage for the current year shows the current

performance for the calendar years result. Once age is calculated, age brackets of 5 year intervals are visible as a filter in the dashboard.

Difference in Age Calculations

The two methods used to calculate age limits the ability to match the people vaccinated and coverage measures. Some individuals may show in one age bracket for the doses administered/people vaccinated views and a different age bracket for the coverage views.

For example, consider someone who is currently aged 69 that receives a Shingles vaccine in May and has a birthday in June of a given year. For doses administered and people vaccinated views, this individual will be considered as 69 and will be bracketed in the 65-69 category. Conversely for coverage, the individual will be considered as 70 at the end of the calendar year and will be bracketed in the 70-74 age bracket.

Shingles (Herpes Zoster) Coverage

Coverage for Shingles (Herpes Zoster) is considered for individuals aged over 65 for non-indigenous individuals and individuals aged over 50 for indigenous. A person is considered covered if they have received two doses of Shingrix. The dashboard considers individuals who have Australian Immunisation Records that have a vaccine code of ‘SGX’.

The dashboard does not consider waning protection from prior Zostavax vaccinations in its calculation of coverage. The Australian Immunisation Handbook states if you previously received a free Zostavax® shingles vaccine under the NIP, you are not eligible to receive Shingrix® through the NIP until 5 years after the Zostavax dose. Shingrix was introduced to the NIP on 1 November 2023. There are two years of individuals who have received Zostavax in late 2021, 2022 and 2023 who are not eligible to receive Shingrix through the NIP who are counted as not covered.

Pneumococcal Coverage

The Older Australian dashboard considers coverage from Pneumococcal for non-indigenous individuals aged over 65 and indigenous individuals aged over 50 (note that this reference date refers to previous NIP recommendations. The inclusion of an over 50 criteria will be revised in future enhancements). A person is considered covered if they have received one dose of Pneumococcal. The dashboard considers individuals who have Australian Immunisation Records that have an antigen name of Pneumococcal.

4.4 Childhood Vaccination Dashboard

This section summarises the methodology and logic that has been applied to the childhood vaccination dashboard. It contains information on cadence of data updates, how coverage is calculated, and the two methods used to calculate age.

Coverage Source and Update Cadence

The childhood coverage dashboard relies on quarterly reports provided by Services Australia, which are produced on the final day of each quarter and typically made available within the first few weeks of the following quarter.

Doses Administered/People Vaccinated Source and Update Cadence

Information on doses administered and people vaccinated is produced directly from the Australian Immunisation Register. Updates for these statistics will be provided monthly.

Age Calculation Doses Administered/ People Vaccinated

The doses administered and people vaccinated measures utilise the age of the individual when they receive the vaccination. Age for these measures are calculated by subtracting the encounter date of the vaccination from the date of birth of the recipient.

Coverage Age Calculation

Childhood coverage reports are developed by looking at quarterly cohorts of individuals who have had their 1st birthday, 2nd birthday and 5th birthday in the previous quarter. Coverage only considers individuals age in three brackets 1 year olds (12-<15 Months), 2 year olds (24-<27 Months), and 5 year olds (60-<63 Months)

The below table summarises the method for determining individuals that are included in the 01/07/2025 quarter 2 report.

Table 3: Method for determining individuals included in each quarterly report

	1 Year Olds (12 - <15 months)	**2 Year Olds (24 - <27months)**	**5 Year Olds (60 - <63 months)**
Date of Birth Range	01/01/2024-31/03/2024	01/01/2023-31/03/2023	01/01/2020-31/03/2020
Age Calculated	31/03/2025	31/03/2025	31/03/2025
Date of Processing	30/06/2025	30/06/2025	30/06/2025

Coverage Annualisation

Childhood coverage measures are calculated by aggregating 4 quarterly reports to provide a rolling average coverage rate. Aggregating 4 quarters of information gives a full picture of individuals who have reached an age milestone in the last year and removes seasonality of vaccinations

For example, the reporting period shown in the dashboard that states December 2025 will include and aggregate information from the March 2025, June 2025, September 2025 and December 2025 Services Australia reports

Antigen Coverage

The childhood coverage reports utilised in this dashboard apply the higher dose rule when measuring if someone is fully vaccinated for a given antigen. Coverage considers individuals who have received the latest vaccine in their schedule for the milestone and does not consider previous vaccinations. Dose requirements for each antigen and age group are summarised in Table 4 below.

Table 4: Current Childhood Coverage rules for AIR as at February 2026

12 -<15 Month Cohort (1 Year Milestone)	
DTP	Diphtheria dose 3 + Tetanus dose 3 + Pertussis dose 3
POLIO	Polio dose 3
HIB	Haemophilus type B (Pathway B) dose 2 or Haemophilus type B (Pathway A) dose 3

HEP B	Hepatitis B (Birth dose) + dose 2 OR dose 3
Pneumo	Pneumococcal dose 2 OR dose 3
MMR	Not assessed
Men C/Men ACWY	Not assessed
Varicella	Not assessed
24-<27 Month Cohort (2 Year Old Milestone)	
DTP	Diphtheria dose 4 + Tetanus dose 4 + Pertussis dose 4
POLIO	Polio dose 3
HIB	Haemophilus type B (Pathway B) dose 3 OR dose 4 Haemophilus type B (Pathway A) dose 4 OR dose 3 given greater than 11 ½ months of age
HEP B	Hepatitis B (Birth dose) + dose 2 or dose 3
Pneumo	Pneumococcal dose 3 OR dose 4
MMR	Measles dose 2 + Mumps dose 2 + Rubella dose 2
Men C/Men ACWY	Meningococcal C dose 1
Varicella	Varicella dose 1 OR dose 2
60-63 Month Olds (5 Year Olds Milestone)	
DTP	Diphtheria dose 5 + Tetanus dose 5 + Pertussis dose 5 OR Diphtheria dose 4 + Tetanus dose 4 + Pertussis dose 4 (if given to individual after 3.5 years of age).
POLIO	Polio dose 4
HIB	Not Assessed
HEP B	Not Assessed
Pneumo	Not Assessed
MMR	Not Assessed
Men C/Men ACWY	Not Assessed
Varicella	Not Assessed

4.5 Residential Aged Care Vaccination Dashboard

This section summarises the methodology and logic that has been applied to the Residential Aged Care Dashboard. It includes information on data update frequencies, the data linkage process, and the methods used to calculate vaccination coverage.

Coverage Source and Update Cadence

The Residential Aged Care Vaccination Dashboard differs from the four previously published dashboards because it is based on a custom data linkage between the Australian Immunisation Register (AIR) and residential aged care facility data. This linkage dataset is refreshed every six weeks.

Doses Administered/People Vaccinated Source and Update Cadence

Information on doses administered and people vaccinated is sourced directly from the Australian Immunisation Register. These statistics are updated every two months.

Age Calculation Doses Administered/ People Vaccinated

The doses administered and people vaccinated measures utilise the age of the individual when they receive the vaccination. Age for these measures are calculated by subtracting the encounter date of the vaccination from the date of birth of the recipient.

Antigen Coverage

This dashboard reports on two categories of vaccinations:

- Respiratory vaccinations (RSV, influenza and COVID-19).
- National Immunisation Program (NIP)-recommended vaccinations for older Australians (Shingrix and pneumococcal vaccines).

The methodology used to calculate coverage for each antigen is described in the relevant sections of this guide.

Coverage for respiratory antigens can be reported for either the previous six-month or twelve-month period.

Facility Coverage

Facility coverage represents the proportion of residents within a facility who have received a vaccination for a given antigen. It is calculated by dividing the number of vaccinated residents identified through the RACF data linkage by the total resident population identified within the same facility.

The Coverage tab provides summary statistics on facility vaccination coverage at different geographic levels. Coverage statistics can be aggregated at either Statistical Area Level 3 (SA3) or Primary Health Network (PHN) level.

The Services tab provides vaccination coverage statistics for individual residential aged care facilities across all antigens included in the dashboard.