## Affordability of Medicare-Supported Primary Healthcare for Australian Residents

## Background

### Medicare:

Medicare is Australia’s national public health insurance scheme. The scheme provides free or subsidised healthcare to all Australians and most permanent residents. It includes visits to doctors, specialists, optometrists and, in some cases, other healthcare professionals such as dentists. Medicare also covers the cost of treatment in public hospitals.

The government subsidises more than 5,700 different health services and countless medications. Each service that is offered by the health professional is assigned a Medicare Benefits Schedule (MBS) item number and MBS Fee. The government decides what it believes to be a reasonable fee for the medical services and sets the MBS Schedule Fees accordingly. How much a patient is then reimbursed by Medicare is governed by the Schedule Fee for that service or treatment.

In some circumstances, Medicare reimburses 100 per cent of the Schedule Fee and at other times it is a smaller percentage. The amount and the percentage of reimbursement depends on which healthcare provider (public or private) is providing the treatment, and what the service or treatment is.

Medicare pays 85 per cent of the MBS fee for a specialist and 100 per cent for a general practitioner. Some doctors bulk-bill, which means they accept the MBS fee as full payment. However, doctors, specialists and other healthcare professionals are free to charge more than the MBS fee for services if they wish. In this case, the patient will be required to pay the difference between the MBS fee and the service fee (out of pocket costs).

### Primary Health Care

In Australia, primary care is often the first point of contact for individuals with the health system and most widely used part of the healthcare system. It relates to the treatment of non-hospitalised patients in the community that encompasses general practitioners, primary health care nurses and allied health. The services provided by these health professionals fall under the non-hospital Medicare-subsidised services, which will be the focus of the analysis.

## Objective:

Determine if non-hospitalised Medicare subsidised primary health care services are affordable to Australians in Australia. The services include:

1. GP
2. Nursing and Aboriginal health worker services
3. Allied health
4. Diagnostic imaging
5. Specialist Diagnostic

## Scope:

Focus is on non-hospitalised primary health care services subsidised by the government through the Medicare Benefit Schedule program.

## Out of Scope:

## Datasets

### Cost of Living Measurement Dataset

**Dataset**: Selected Living Cost Indexes, Australia

**Date Range**: Jun 2007 to Sep 2023 (Quarterly)

**Description**: The Selected Living Cost Indexes (SLCIs) provide quarterly information about price change on the out-of-pocket living expenses for four population sub-groups:

1. Employee households
2. Age pensioner households
3. Other government transfer recipient households
4. Self-funded retiree households

Also included is the Pensioner and Beneficiary Living Cost Index (PBLCI) which provides quarterly information about the combined price change on out-of-pocket living expenses for two population sub-groups; age pensioner households and other government transfer recipient households.

The SLCIs inform users of the extent to which the impact of price change varies across these different sub-groups of the Australian population.

**Data Source**: The data is an external source from Australian Bureau of Statistics (ABS). ABS is Australia’s national statistical government agency that provides statistical services to Australian states and territory governments. As government data and source, the data source is considered trustworthy.

**Data Collection Method:** The SLCIs data is constructed using Household Expenditure Survey, Household Final Consumption Expenditure and CPI data. Outlay approach (*payments made to gain access to goods to services*) is used to calculate the change in prices of goods or services.

There are three stages to constructing SLCI:

1. Calculating expenditure weights representing the expenditure patterns of defined household types. This involves determining the proportion of total spending that each category of goods and services occupies for specific types of households. This uses HES and/or HFCE data.
2. Involves identifying appropriate measures of price change for each of the expenditure weights. The measures of price change, except for Interest charges, are sourced from the CPI. Interest charges are measured separately for SLCIs.
3. The third and final stage is to use the weights to aggregate or average the price change measures.

From 1998 to 2018, HES (Household expenditure survey) data was used to construct the indexes. Household expenditure data is collected by ABS and run every 6 years. Approximately 10,046 households (23 626 persons) are surveyed via computer interview questionaries. Surveys that were partially completed had values imputed using similar demographic groups.

From 2018-19 onwards HFCE (*Household final consumption expenditure*) data from the National Accounts was used to construct the indexes. The HFCE data is available annually. HFCE is determined quarterly using survey and administration data from:

1. Retail Trade survey, Retail and Wholesale Industries Surveys,
2. Scanner data from supermarket chains,
3. information on rents from the Census of Population and Housing,
4. Building Activity data, Survey of Income and Housing,
5. Various other ABS publications and government departments like Services Australia and the Department of Health

HFCE data is more reliable since it uses wider set of sources with combination of administration and survey data.

SLIC utilizes CPI data to determine price movements of goods. Prices are collected in the kinds of retail outlets and other places where metropolitan households purchase goods and services. This involves collecting prices from many sources such as supermarkets, restaurants, travel agents and schools. Prices are collected by personal visits, telephone or internet as appropriate by ABS staff. The ABS is also utilising administrative and transactions datasets as a method of obtaining prices for use in the CPI. The frequency of price collection by item varies as necessary to obtain reliable price measures.

As the SLCIs aim to measure price changes for a fixed basket of goods and services over time, identical or equivalent items must be priced in successive periods. However, as items available in stores are constantly changing, these changes in the quality must be identified and adjusted for to ensure that the index reflects only 'pure' price changes. These adjustments take place during the compilation of the CPI and are also used in the SLCIs price movements.

**Data Limitation**:

1. The Selected Living Cost Indexes are published at the national level only using averages of 8 capital cities.
2. SLCI was first published in 2000. The SLIC is backdated to 1998 for all household types.
3. SLIC was not back dated for individual good and services between 1998 and 2007.
4. HES is regularly reviewed, and sample sizes are updated to include more households within the household groups. This means 6-yearly HES are not consistent.
5. Index on Health does not differentiate between non hospitalised and hospitalised services.

**Relevancy**: The dataset was collected by trustworthy data source; government agency. As the data was collected ABS and is used by other government organisations, it’s the most reliable and complete set of data available on cost of living in Australia.

SLCI data can be used to determine the proportions of expenditure by household spent on healthcare historically, change in trends quarterly/annually and predict future expenditure trends of different household groups.

SLCI dataset is also crucial to conduct necessary analysis to assess the affordability of healthcare. This dataset will be used for the project.

### Census Datasets

**Datasets**:

1. 2011 Australian Census of Population and Housing,
2. 2016 Australian Census of Population and Housing
3. 2021 Australian Census of Population and Housing

**Date Range**: 2011, 2016, 2021

**Description**: The Australian Census of Population and Housing is the official count of population and dwellings and collects details of age, sex and other characteristics of the population.

The Census measure the number and key characteristics of people in Australia on Census Nights:

1. 2011 - Tuesday 9th August 2011
2. 2016 - Tuesday 9th August 2016
3. 2021 - Tuesday 10th August 2021

Census data extracted for each year was population by sex, age, personal income and household income for statistical area level 3 geographical area.

**Data Source**: The data is an external source from Australian Bureau of Statistics (ABS). ABS is Australia’s national statistical government agency that provides statistical services to Australian states and territory governments. As government data and source, the data source is considered trustworthy.

**Data Collection Method:**

Census Collection & Processing in 2011

1. **Inclusion**: All people in Australia, except foreign diplomats and their families, were included. Visitors were counted regardless of their length of stay, while Australian residents abroad were excluded.
2. **Distribution**: Census Management Units were tasked with providing every household with either eCensus access information or a paper Census form prior to Census Night.
3. **Collection**: Households could complete the Census online via eCensus or use the paper form. Assistance was available through the Census Collector or the Census Inquiry Service. In some urban areas, interviews were conducted to collect data. Collectors were responsible of collecting census forms after the Census Night.
4. **Follow-up**: If a household used the paper form or did not include all members in the eCensus, Collectors would visit up to five times within 20 days post-Census Night to retrieve the form.
5. **Processing**: Paper forms were checked and prepared for scanning, with damaged forms transcribed. Data capture and processing technologies such as intelligent forms processing and automatic coding were utilised.
6. **Data Repair and Coding**: Manual intervention was used to 'repair' unrecognizable characters. Manual coding was used when automatic determination was not possible.
7. **Data Derivation and Imputation**: Some data was derived from other responses on the form, like labor force status. Imputation was used for critical demographic data items when responses were not provided.
8. **Census Output Data Release**: Output data is released in stages over the course of 2 years.

Census Collection & Processing 2016: 2016 Census included the same population criteria as 2011 but the census form, distribution, data collection and follow-up methods were changed as follows. Due to the below changes, higher percentage of households completed the form online in 2016 than 2011

**Distribution & Collection**:

1. Around 80% of Australian dwellings were mailed information containing a unique login number for the online form, instead of Census Field Officers visiting every dwelling in 2011.
2. The online form was redesigned for easy and secure use on various devices, from smartphones to desktop computers.
3. Households not responding online had option to request a paper form to complete and return via a prepaid envelope.
4. Reminder letters and subsequent visits by Census Field Officers were reserved for households that did not initially participate.
5. In some regions, Field Officers delivered materials and contacting residents. Follow-up visits were made to non-responding dwellings.

Census Collection & Processing 2021:

2021 Census included the same population criteria as 2011 and 2016. Similar distribution and collection strategy was used as 2016 with 85% of Australian dwelling receiving mail containing instruction and login letter. Some received the form. 15% of householders had Census field staff deliver paper forms containing census form and login details. These householders were in rural areas where small towns that no street delivery service.

Census Digital Service was introduced in 2021 which allowed users to request the form, report they would not be home on census night and login without Census letter, improving the number of responses and accuracy of the data.

2021 Census was the first time that the ABS actively encouraged households to complete and submit their Census form as soon as they received their materials, meaning this could be done before Census Night on 10 August.

**Data Limitation**:

1. Census form is manually completed by respondents via paper or online form which is susceptible to manual errors or purposeful incorrect input of data.
2. Census is conducted every 5 years, resulting in missing data. Population data of missing years will need to be imputed.
3. Census data includes everyone present in Australia on the census night. This includes individuals who don’t receive Medicare benefits such as visitors, temporary residents, international students etc.
4. Census data does not consider Australian residents that were out of the country on the census night but used MBS services during the year.
5. Census data does not consider changes in population due to migration.
6. In 2011, approximately 1.7% of the population was missed from the census due to travels, unreturned forms or mistakenly not completing the census form. There could be instances some people are counted more than once.
7. Computer editing procedures are used to detect and correct obvious errors made by individuals in completing the form, but the procedures cannot detect and correct all householders' errors, and some remain in final output.
8. There were minor differences in census form questions in 2011, 2016 and 2021 that may result in respondents answering questions differently in each census for the same topic. Below is the list affecting the current project.
   1. Additional option for sex was added to enable people to report neither male nor female in 2016.
   2. Additional option was added to sex to allow respondents to identify themselves as non-binary in 2021
   3. Targeted supplementary questions and supporting text were added in 2016 and increased the usage in 2021 to improve accuracy of responses
   4. Households were asked questions that applied to them, based on their previous answers in 2016 and 2021. For example, if a respondent reported that they were not in the labour force, they were sequenced out of questions relating to labour force.
   5. In 2021 census, long term health conditions topic questions were added.
9. Inconsistent geographical statistical area level 3 between 2011, 2016 and 2021 whereby additional areas were added or removed based on population growth.
10. In 2021, there was declined in response rate of regional areas, possibly due to census staff recruiting and moving difficulties due to COVID-19 restrictions.

**Relevancy**: The dataset was collected by trustworthy data source; government agency. As the data was collected ABS and is used by other government organisations, it’s the most reliable and complete set of data available of the Australian population.

Census data enables the segmentation of the population by state, statistical area levels, gender, and age, allowing analysis of the impact of out-of-pocket costs of primary healthcare on these demographics from 2014 through 2022.

While absent census data requires estimation, the census dataset remains vital for performing the required analyses to evaluate the impact of primary healthcare across different demographics and income. This data will be used for the project.

### Medicare Subsidised Services Dataset

**Datasets**:

1. Medicare-subsidised GP, allied health and specialist health care across locals 2021-22
2. Medicare-subsidised GP, allied health and specialist health care across local areas: 2019–21
3. Medicare-subsidised GP, allied health and specialist health care across local areas: 2013–14 to 2018–19

**Date Range**: 2013 to 2022 (financial year)

**Description**: Dataset contains data on Medicare benefits paid and total provider fees of residents in specified geographical areas (state, PHN, SAL3 areas) by different demographics (gender and age)

**Data source**: The data is from the Australian Institute of Health and Welfare (AIHW), a government agency responsible for providing statistics that inform policy and service delivery. AIHQ collected the administrivia data from Australian Government Department of Health and Aged Care (DOHAC) and estimated resident population data from Australian Bureau of Statistics (ABS) to generate these datasets. Since all the source used are government source, AIHW data is considered a reliable.

**Data Collection**:

The MBS subsidised reports were created from Medicare Benefits Schedule claims data managed by Department of Health and Aged Care. The claims data was derived from administrative information on services that qualify for a Medicare benefit under the Health Insurance Act 1973 and for which a claim has been processed by Services Australia.

Administrative information is submitted by the healthcare partitioner when a clinically relevant service to a Medicare-eligible person is provided and claim for rebate or benefit is made to cover all or part of the cost of the service.

The claims data records persons Medicare enrolment postcode, not where the service was administered.

Data is reported by the financial year in which they are processed.

**Data limitations**:

1. Does not include services where no Medicare benefit was claimed such as services subsidised by the Department of Veterans’ Affairs, compensation arrangements, or jurisdictional salaried GP services provided in remote outreach clinics.
2. Government expenditure associated with bulk billing incentives for non-hospital non-referred expenditures is not included.
3. There are instances where patient have used service outside their enrolled postcode but the claims data was recorded under the Medicare enrolment postcode
4. Records with missing postcode are included in the National total but not allocated a PHN or SA3
5. Medicare patients is higher than the Estimated Resident Population, the proportion of the population who had the service is reported as 100%
6. Patient’s Medicare enrolment postcode as recorded on the last service rendered (for any MBS service) in the reporting year was used. If a patient had more than one postcode listed on their last date of service in the year, then the postcode was taken from the last date of processing on that date of service.
7. Patients with an invalid age (less than zero or older than 117 years old) are excluded from the age demographic groupings but are included in the total patient’s category. These cases include a patient with an incorrect date of birth recorded in the Medicare Consumer Directory at Services Australia.
8. Over time MBS items are added, removed or amended which can affect the analysis done over time.
9. Providers sometimes bill a general item like 'GP Standard (Level B)' instead of a more specific service such as 'GP Health Assessment,' potentially leading to underreported usage of specific services.
10. The Australian population's official estimate, the ERP, is calculated by the ABS using Census data and records of births, deaths, and migration. This means population estimation does not consider population changes throughout the year.

**Relevancy**: The dataset was provided by trustworthy data source AIHW, a government agency. As the AIHW data is used by government organisations to advice on policies and service delivery, it’s the most reliable data available on Medicare subsidised primary health care services.

Medicare subsidised services datasets facilitate the analysis of provider charges, Medicare reimbursements, and the out-of-pocket expenses borne by patients, considering various demographics, geographic distributions, and temporal changes.

The dataset is crucial to assess the affordability of Medicare subsidised primary healthcare services in Australia and will be used for the project.

### Patient Experience

**Datasets**:

1. Experience of GP services 2022-2023
2. Experience of GP services 2022-2023
3. Experience of after-hours GP care

**Date Range**: 2011 to 2023 (financial year)

**Description**: The dataset includes yearly responses to a survey about the accessibility, obstacles, and patient experiences with healthcare services from general practitioners and medical specialists. It is organized by gender, age, and location.

**Data source**: The data is an external source from Australian Bureau of Statistics (ABS). ABS is Australia’s national statistical government agency that provides statistical services to Australian states and territory governments. As government data and source, the data source is considered trustworthy.

**Data Collection**:

Patient experience data is gathered via a survey, which is a topic on the Multipurpose Household Survey (MPHS) conducted by the ABS.

Information was collected from 25,934 fully responding persons in 2022-23, 23,949 in 2021-22, 28,386 in 2020-21, 29,793 in 2019-20 and 28,719 in 2018-19.

The data was collected monthly from a subset of the Labour Force Survey (LFS) sample. Each month, one-eighth of the LFS sample was chosen for the Multi-Purpose Household Survey (MPHS) through a random selection of a resident aged 15 or older using a computer algorithm.

Interviews were conducted personally, with parental consent required for participants aged 15 to 17. In cases where the selected individual was incapacitated, a proxy could respond on their behalf.

The Computer Assisted Interviewing (CAI) method was utilized, with responses entered in an electronic questionnaire via notebook computers, primarily through telephone interviews.

**Data Limitations**:

1. The patient survey was conducted on a sample, not on the population. Unknowingly there could be a sampling bias and sampling error.
2. Patient experience contains experience of patients of GP services and medical specialists, not all subsidised services that are part of the analysis.
3. There was a change in method of proxy interviews in 2023. Prior to 2022-23, proxy interviews were conducted for individuals aged 15 to 17 year and were not asked the below questions. But in 2022-23 all proxy interviews were not asked these questions.
   1. self-assessed health status
   2. experience with health professionals (listened to carefully, shown respect, enough time spent with person)
   3. whether waited longer than felt acceptable for a GP or medical specialist appointment
   4. whether would use telehealth again.
4. Since the method of collection was via telephone interviews, there is risk of data being entered incorrectly.
5. The tone, inflection, or mannerisms of the interviewer could have influenced the responses, which could have introduced bias into the data.
6. Survey answers reflect a population at a specific point in time. It does not consider any changes between the answers and the release of the results.

**Relevancy:** The data is an external source from Australian Bureau of Statistics (ABS) that provides data to other government agency and hence its considered a reliable source

The patient experience dataset will help analyse the perceived affordability of healthcare across different genders, ages, and geographic locations year on year.

Even though the dataset is a sample, it will be used for the analysis.

## Questions:

1. What percentage of the population use MBS primary health care?
2. Have out of pocket costs of primary health care Medicare services increased in Australia?
3. How much is an individual paying out of pocket per year (by state, gender, age, SAL3)
4. What percentage is that of their overall earnings? Has that increased or decreased over time?
5. What demographic is impact the most by the cost of primary health care? Has this changed over time? Reduced or increased?
   1. Gender?
   2. Age?
   3. Geographic?
   4. Income segment?
6. Why are this demographic group impacted the most?

## Definitions:

**General practice:** A general practitioner (GP) is likely the first point of contact for personal health and is important in the coordination of care of patients and referral to other health care services. A GP cares for patients in a whole of person approach, in the context of their work, family and community.

**Primary health care nurses:** Primary health care nurses play a key role in keeping people healthy by providing proactive care and health promotion. They work in a range of settings, including community health, general practice, aged care and schools.

**Allied health**: The allied health sector represents a broad range of health professionals who are not doctors, dentists, nurses or midwives, and includes psychologists, optometrists and physiotherapists. Allied health professionals use evidence-based practices to prevent, diagnose and treat a range of conditions and illnesses.

## References

Medicare information: <https://www.betterhealth.vic.gov.au/health/servicesandsupport/understanding-medicare>

Primary health care: <https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>

**Dataset Information:**

2011 Fact Sheet: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/factsheets?opendocument&navpos=450>

2011 Collection Method Information**:** <https://www.abs.gov.au/ausstats/abs@.nsf/mf/2903.0>

2016 Collection Method Information: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2008.0~2016~Main%20Features~Collection%20operations~93>

Datasets Links for Medicare Subsidised Data

2021-2022 [: https://www.aihw.gov.au/reports/primary-health-care/medicare-subsidised-gp-allied-health-and-specialis/data](:%20https://www.aihw.gov.au/reports/primary-health-care/medicare-subsidised-gp-allied-health-and-specialis/data)

2019-2021 : <https://www.aihw.gov.au/reports/primary-health-care/medicare-subsidised-health-local-areas-2021-22/data>

2013 – 2019 - <https://www.aihw.gov.au/reports/primary-health-care/medicare-subsidised-health-local-areas-2019/data>