

Reporting on the health of culturally and linguistically diverse populations in Australia

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Key findings

Australia is one of the most culturally and linguistically diverse countries in the world (ABS 2017). Measuring how the health care system responds to the needs of culturally and linguistically diverse (CALD) Australians is challenging, as information to identify CALD people in health data is limited, is not collected consistently, and is not routinely reported on.

Linked data can provide a solution to some of these challenges as data are linked at the level of the individual. Information from one data set – such as CALD information from the Census of Population and Housing (Census) – can be used to supplement information in datasets that do not collect this information – such as the Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS).

This article explores variations in the use of 2 common and important health services in Australia – non-referred visits to general practitioners (GPs) and practice nurses and blood pressure lowering medicines – using country of birth and proficiency in spoken English as indicators of cultural and linguistic diversity. The analyses in these case studies are only possible with the use of linked data, as no CALD information is collected in the MBS and PBS.

Results from these 2 case studies indicate that there are:

- variations in non-referred attendances in Australia by country of birth, and by country of birth *and* English proficiency.
- differences by country of birth in the use of blood pressure lowering medicines; only 2 countries had differences by English proficiency.

These case studies demonstrate the value of linked data in providing richer information on CALD groups and their use of health services in Australia. Measuring these variations is an important first step to identify possible issues and prompt further investigation.

Combining aspects of cultural and linguistic diversity, such as country of birth and proficiency in spoken English, highlighted the diversity that exists within CALD groups. There are many dimensions of cultural and linguistic diversity that affect health status and the ability to navigate the health system; hence a range of variables may be required depending on the issue being explored.

Future analyses will explore in more detail the interaction of other sociodemographic factors with health service use and outcomes for CALD groups, including how these differ for males and females. The 2021 Census, which included a question on long-term health conditions for the first time, will provide valuable information on the health needs of CALD groups which will help to explain variations in health care use.

Australia is one of the most culturally and linguistically diverse countries in the world (ABS 2017). As at 30 June 2020, 3 in 10 people living in Australia were born overseas, with Australia's population including people born in nearly every country of the world (ABS 2021a).

Patterns of migration to Australia are driven by historical and political contexts. Currently there are 2 distinct programs to settling permanently in Australia:

- the Migration Program which includes the skilled and family streams
- the Humanitarian Program for refugees and people in humanitarian need.

Over the past 20 years nearly 3.4 million people have migrated to Australia, the majority of whom have done so via the skilled (61%) and family (30%) streams, with 9% via the Humanitarian Program (Department of Home Affairs 2020).

Table 7.1 shows the 10 countries with the largest number of migrants to Australia as at 30 June 2020, and the median age of migrants from each country. Older migrants are most likely to have been born in European countries, while younger migrants are more likely to have come from Asian countries or New Zealand.

Table 7.1: Australia's estimated resident population, by country of birth, 30 June 2020

Country of birth	Persons	Per cent	Median age (years)
England	980,360	3.8	58
India	721,050	2.8	35
China	650,640	2.5	38
New Zealand	564,840	2.2	44
Philippines	310,050	1.2	40
Vietnam	270,340	1.1	47
South Africa	200,240	0.8	44
Italy	177,840	0.7	72
Malaysia	177,460	0.7	41
Sri Lanka	146,950	0.6	41
<i>All overseas born</i>	<i>7,653,990</i>	<i>29.8</i>	<i>44</i>
<i>Australian born</i>	<i>18,043,310</i>	<i>70.2</i>	<i>34</i>
Total population	25,697,300	100.0	38

Note: China excludes Special Administrative Regions and Taiwan.

Source: ABS 2021a.

A 'healthy migrant effect' has been observed in some migrants due to the combination of health screening checks and strict eligibility requirements under the skilled migration stream, as well as immigrant self-selection (Kennedy et al. 2014). However humanitarian migrants may experience worse health due to pre- and post-arrival factors such as a lack of high-quality care and public health programs in their country of origin, trauma, possibly prolonged detention, and barriers to appropriate care on arrival (Au et al. 2019). These barriers include language difficulties, the perceived or actual cost of care, unemployment, cultural difficulties, and a workforce unfamiliar with the health needs of refugees (Murray and Skull 2005). For people living in Australia temporarily, their visa type influences their access to free or Medicare-subsidised public health care (Services Australia 2021).

A key role of the Australian health system is to respond to individual health care needs by providing safe, effective, accessible and appropriate treatment and other services; see 'Health system overview' at <https://www.aihw.gov.au/reports/australias-health/health-system-overview>. It is therefore important to understand the health status and service needs of all Australians and whether that differs for different groups. However, measuring how the health care system responds to the needs of CALD Australians has traditionally been challenging. This is because information to identify CALD people in health data is limited, is not collected consistently, and is not routinely reported on.

Cultural and linguistic diversity can encompass a range of aspects including a person's country of birth, their ancestry, where their parents were born, what language/s they speak, and their religious affiliation. Defining the 'CALD' population is complex, and often a range of information is required to identify the unique characteristics of a person that may affect their health care needs.

Using linked data can provide a solution to some of these challenges. By combining different sources of information, it is possible to tell a rich story of a person's demographic profile and interactions with various services. For example, the Multi-Agency Data Integration Project (MADIP) combines information from data sets such as the Census, the Australian Bureau of Statistics' (ABS) National Health Surveys, MBS, PBS and Deaths Registrations (ABS 2021b). Because the data are linked at the level of the individual, information from one data set (for example, CALD information from the Census) can be used to supplement information in data sets that do not collect this information (such as the MBS and PBS).

While some CALD groups (such as those with limited proficiency in English) might experience difficulties when accessing health care, measuring access to health care is inherently complex. For instance:

- the concept of access incorporates physical aspects (availability and accessibility), financial aspects (affordability) and cultural aspects (acceptability) and is strongly related to the needs of the individual
- the concept of need incorporates both an individual's perceived need, and/or their needs as defined by experts, carers or family (AIHW 2014).

Ideally, any measure of access to health care would incorporate all aspects of access and need. However, there is a lack of robust data to enable this, and much of the research in this area is limited to small, qualitative studies and focus groups.

For this reason, measuring variations in the use of health care is sometimes done to identify groups that may be missing out on necessary care or, conversely, receiving unnecessary care. While some variation is to be expected due to differences in health needs or personal preferences, variation may also be due to differences in access to care and warrant further investigation (AIHW 2020).

This article explores variations in the use of 2 common and important health services in Australia between CALD groups, using country of birth and English proficiency as indicators of cultural and linguistic diversity.

- The first case study explores variations in non-referred visits to GPs and practice nurses, as general practice is central to primary care in Australia as well as being the gateway to specialist health services.
- The second case study investigates variations in prescriptions dispensed for blood pressure lowering medicines, which are among the most dispensed medicines in Australia (NPS Medicinewise 2021).

These analyses are made possible only with the use of linked data, as no CALD information is collected in the MBS and PBS.

The forthcoming AIHW report *Reporting on the health of culturally and linguistically diverse populations in Australia: an exploratory paper* will provide a detailed discussion of many of the issues and technical considerations for using linked data that are summarised in this short article. See <https://www.aihw.gov.au/reports-data/population-groups> for more information.

Variations in health service use

The case studies presented in this article use claims data from the MBS and PBS linked with demographic data from the 2016 Census to provide information on health service use for CALD groups. The studies explore whether a person's country of birth and/or proficiency in spoken English is associated with differences in their use of the health care system in Australia.

There is no ideal rate of health care use. This article draws no conclusions about whether a higher or lower rate of service use is desirable for a particular group, nor does it try to assess the degree to which patient needs are being met.

The MBS contains information on all Medicare services subsidised by the Australian Government to people in Australia who are eligible for and registered with Medicare. This includes Australian and New Zealand citizens and holders of permanent residence visas. Some applicants for permanent residency and people from countries with which Australia has reciprocal health care agreements may also be entitled to benefits under MBS arrangements (AIHW 2021c). The MBS data were used to identify people who claimed an MBS rebate for a non-referred attendance between 1 January and 31 December 2016. This included any one of the following services:

- non-referred attendances by a GP or a Vocationally Registered General Practitioner (VRGP). These are Medicare-subsidised patient-doctor encounters, such as visits and consultations, for which the patient has not been referred by another doctor
- non-referred attendances – enhanced primary care. These refer to a range of services – such as health assessments, medication management reviews, the creation and review of treatment plans, and the coordination of care for people living with complex health conditions who require multidisciplinary, team-based care from a GP and at least 2 other providers
- non-referred attendances – other. These include professional attendance at consulting rooms, nursing homes or hospitals, family group therapy, and examination by a specialist in preparation for the administration of anaesthetic
- non-referred attendances – practice nurse items. These include services provided by a practice nurse or Aboriginal and Torres Strait Islander Health Practitioner on behalf of a medical practitioner.

The PBS contains information on medicines listed on the PBS that are dispensed to people in Australia with an active Medicare card. The PBS data were used to identify people who were dispensed one of the following blood pressure lowering medicines between 1 January and 31 December 2016:

- antihypertensives: these suppress signals that make the heart beat harder, or open and relax peripheral arteries
- diuretics: these increase urination, helping rid the body of water and salt and thus reducing blood volume
- beta-blockers: these suppress signals that cause the heart to beat fast and hard
- calcium channel blockers: these block a conduction pathway in the heart, reducing the force of contraction and widening blood vessels
- renin-angiotensin system agents: these block effects of the renin-angiotensin system, a hormone system that regulates blood pressure and the volume of fluids in the body. The group includes ACE inhibitors (plain and in combinations), angiotensin II receptor blockers (plain and in combinations), and other agents acting on the renin-angiotensin system (AIHW 2021b).

Relevant MBS and PBS records were identified and then linked to the Census data set in MADIP, using the Spine ID to provide demographic information, including age, country of birth and proficiency in spoken English (Table 7.2). These records formed the numerator for the analyses, with Census data used to create corresponding denominator populations.

The crude and age-standardised proportions (Box 7.1) of adults aged 18 and over who had a non-referred attendance, or a prescription dispensed for blood pressure lowering medicine in 2016 were calculated by:

- country of birth
- proficiency in spoken English and
- country of birth *and* proficiency in spoken English.

As Australia is home to migrants from more than 200 countries of birth, results have been presented for the 10 countries of birth with the largest number of migrants to Australia, as well as for those with the 5 highest and 5 lowest age-standardised proportions for non-referred attendances or prescriptions dispensed for blood pressure lowering medicines (noting that these categories are not mutually exclusive).

Table 7.2: Overview of data analysed in the case studies

Variables	Measurement
BTOS	Broad type of service (BTOS) is a broad classification of the MBS used for reporting. The following BTOS groups were included: 0101 Non referred attendances - General Practitioner/Vocationally Registered General Practitioner (VRGP), 0102 Non referred attendances - enhanced primary care, 0103 Non referred attendances – other, 0110 Non referred attendances - practice nurse items.
ATC4	The Anatomical Therapeutic Chemical (ATC) Classification allocated to the PBS medicine at the item code level, is listed in the PBS Schedule and reflects the therapeutic use of the medicine on the PBS. The following ATC2 groups were included: C02 Antihypertensives, C03 Diuretics, C07 Beta-blocking agents, C08 Calcium channel blockers and C09 Agents acting on the Renin-angiotensin system.
Country of birth	The country in which the respondent was born, coded to the Standard Australian Classification of Countries (SACC), 2016 (ABS 2016) as reported in the Census.
Proficiency in spoken English	Obtained from the Census. People who nominate speaking a language other than English at home are asked 'How well does the person speak English?'. Possible responses are 'Very well', 'Well', 'Not well' and 'Not at all'. For these analyses, the following groupings are used: 'Very well/well', 'Not well/not at all', 'Speaks English only'. Self-assessed proficiency in spoken English can be useful for identifying people who may experience barriers in accessing services (ABS 1999).
Age	Obtained from the Census, which reports the age (in years) of the respondent. Limited to people aged 18 and over at the time of the Census.
Spine ID	This variable is the Person Linkage Spine identification key used to enable linkage between datasets in the MADIP. The spine is based on the combined population from the Medicare Consumer Directory, Centrelink Administrative Data (the Department of Social Services Data Over Multiple Individual Occurrences [DOMINO] dataset), and Personal Income Tax. Only records with a Spine ID were used to create the denominator populations from the Census.

Limitations of the data

The information presented in the 2 case studies described in this article includes data only for people who were an Australian resident on the night of the Census in August 2016 and who had a relevant MBS or PBS claim in 2016.

This is particularly relevant for some CALD populations, who may not be eligible for Medicare through their current visa, or who may not have a record on the other datasets used to create the Person Linkage Spine (Centrelink and Australian Tax Office).

There were large differences in linkage rates between the Census and the Person Linkage Spine by country of birth (range 70–98%) and proficiency in spoken English (range 82% for low proficiency to 95% for people who spoke English only), which may have affected the results presented in these case studies. To limit the inclusion of people in the denominator who were not eligible for Medicare (and therefore PBS medicines), only Census records with a Spine ID were included.

Due to the nature of the development of the Person Linkage Spine, all relevant records from the MBS and PBS had a Spine ID. However around 85% of the records for non-referred services in the MBS and 88% of the records for blood pressure lowering medicines identified in the PBS then linked to a record in the Census.

Box 7.1: Age standardisation

Health service use is associated with age. This means that comparisons between population groups can be confounded by differences in their age distributions. This is particularly important when comparing CALD groups in Australia, as migration patterns have varied over time including both the number of migrants, and the types of visas and countries from which people have arrived. These variations have influenced the age structure and the socioeconomic composition of Australia's CALD population (Wilson et al. 2020). See Table 7.1 for the median age of migrants from the 10 countries with the largest number of migrants to Australia as at 30 June 2020.

Age-standardised rates are often used to compare outcomes for populations with different age structures. As the purpose of this article is solely to compare health service use for different populations, age-standardised results have been used throughout. Unadjusted (crude) rates reflect the true rate of service use, and these are available in the supplementary tables which accompany *Australia's health 2022* online. See <https://www.aihw.gov.au/reports/australias-health/australias-health-2022-data-insights/data>.

For the analyses in this article, rates were directly age standardised using the 2001 Australian population. Age-adjusted rates that are based on a small number of events are unreliable and can exhibit a large amount of random variation. The results presented in this article have been limited to those with a sufficiently sized numerator and denominator.

Case study 1: Non-referred attendances

Primary health care is the front line of Australia's health care system, and general practice is often the first point of contact a person has with the system. The types of services delivered under primary health care are broad ranging and include health promotion, prevention and screening, early intervention, treatment and management. Effective primary health care is associated with improved population health outcomes for all-cause mortality, all-cause premature mortality, and cause-specific premature mortality from major respiratory and cardiovascular diseases (AMA 2021).

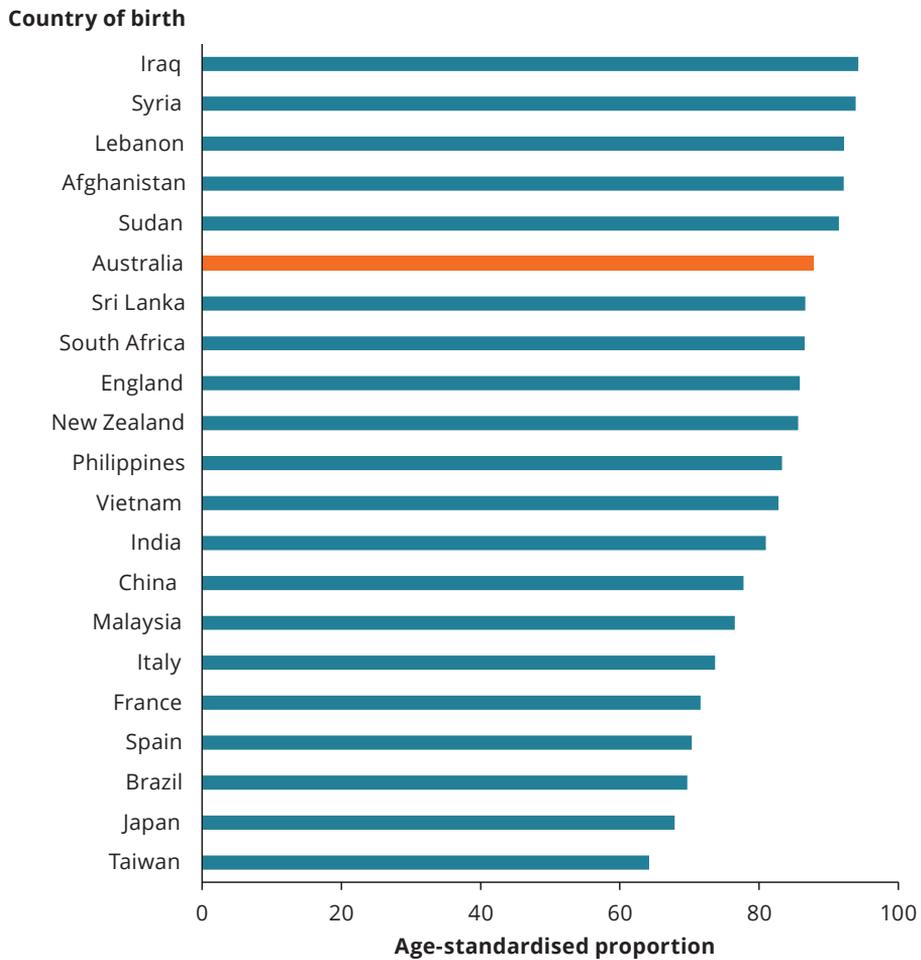
In 2016, almost 9 in 10 (88%) Australians aged 18 and over had a non-referred Medicare-subsidised patient-doctor or patient-practice nurse encounter (non-referred attendance), according to linked Census and MBS data.

Country of birth

Figure 7.1 shows the proportion of Australians with a non-referred attendance for the 10 countries of birth with the largest numbers of migrants to Australia in 2016 and the top 5 and bottom 5 countries (after adjusting for age). The proportion for people born in Australia is also shown for comparison.

After adjusting for age, people born in Taiwan had the lowest proportion of people who had a non-referred attendance (64%), and people born in Syria and Iraq the highest (both 94%).

Figure 7.1: Proportion of Australians aged 18 and over with a non-referred attendance, by country of birth, 2016



Note: Directly age-standardised to the 2001 Australian Standard Population.

Source: AIHW analysis of ABS 2020; Table S7.1.

Country of birth and proficiency in spoken English

Some differences were observed in the proportion of people who had a Medicare-subsidised non-referred attendance in 2016 by proficiency in spoken English, after adjusting for age:

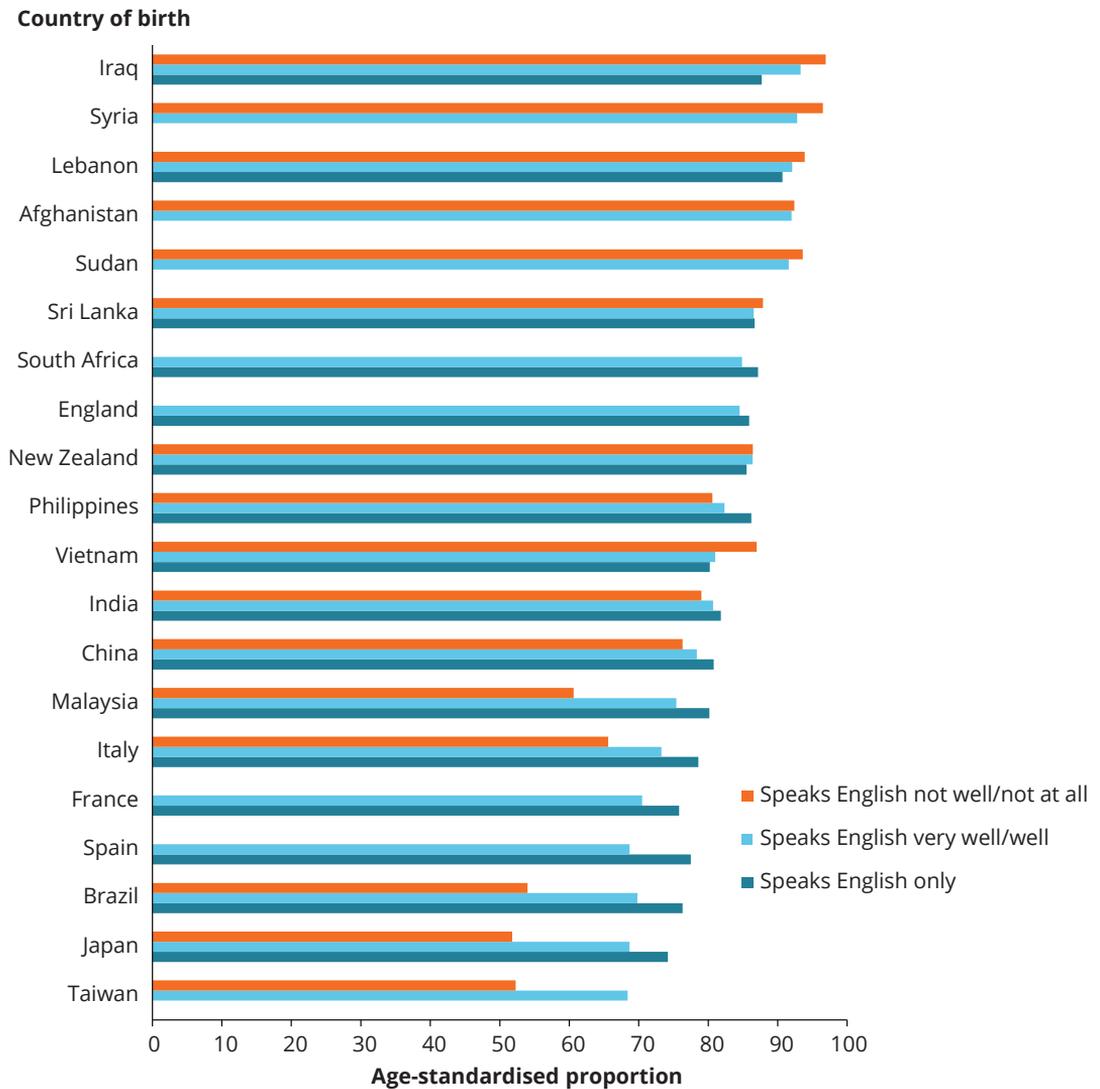
- speaks only English at home (87%)
- speaks a language other than English at home but speaks English well or very well (83%)
- speaks a language other than English at home and does not speak English well or at all (81%).

However, greater differences were apparent for some countries when the data were analysed by both country of birth and English proficiency combined. Figure 7.2 shows the same countries of birth as in Figure 7.1, further disaggregated by proficiency in spoken English.

For the countries of birth with the highest age-standardised proportions of people with a non-referred attendance overall, only small differences were observed by English proficiency. For these countries, people who did not speak English well or at all had a slightly higher proportion of people with a non-referred attendance than people who spoke another language at home but spoke English well or very well, or who spoke only English at home.

However, the opposite pattern was observed for countries with the lowest proportions of non-referred attendances. For these countries, people who did not speak English well or at all had the lowest proportion of non-referred attendances – up to 22 percentage points lower for Brazil and Japan – than those who spoke only English at home.

Figure 7.2: Proportion of Australians aged 18 and over with a non-referred attendance, by country of birth and proficiency in spoken English, 2016



Notes:

1. Directly age-standardised to the 2001 Australian Standard Population.
2. Some categories of proficiency in spoken English are not presented due to small sample sizes.

Source: AIHW analysis of ABS 2020; Table S7.2.

Discussion

This case study shows that there are variations in non-referred attendances in Australia by country of birth, and by country of birth and English proficiency.

Interestingly, 4 of the countries of birth with the highest proportion of people with a non-referred attendance (Iraq, Syria, Afghanistan and Sudan) also have some of the highest proportions of humanitarian entrants (based on results from the linked Census and Migrants Integrated Dataset 2016 (ABS 2018)). For these countries, only small differences were seen in the use of non-referred attendances by proficiency in spoken English. This was also largely the case for the countries of birth with the largest number of migrants to Australia, the exceptions being Malaysia and Italy.

In comparison, the countries of birth with the lowest proportions of non-referred attendances had very few or no humanitarian entrants. However, people born in these countries who did not speak English well or at all were the least likely to have a non-referred attendance, in the main driven by people aged under 55.

There is no ideal rate of health care use, nor robust national data on the health needs of CALD Australians. It is therefore not possible to draw any conclusions about whether a higher or lower rate of service rate is desirable for a particular CALD group, or whether their particular health needs are being met.

Variation in the use of health services presented in this article may reflect factors such as differences in need, availability and use of services not covered by the MBS, or accessibility and availability of appropriate health care providers. For example, lower rates of non-referred attendances for people born in Japan and Taiwan may reflect a lower rate of need (for example the 'healthy migrant effect') and/or barriers to access. Conversely, the higher rates of non-referred attendances for people born in Iraq and Syria may reflect a higher rate of need, and/or more accessible services (for example through services tailored specifically to refugees and humanitarian entrants).

Case study 2: Use of blood pressure lowering medicines

High blood pressure is a common risk factor to health, and it is important to ensure medicines that help to reduce it are available and accessible for all Australians

Based on measured and self-reported data from the 2017–18 ABS National Health Survey, about 1 in 3 people aged 18 and over (34%) have high blood pressure (hypertension) (AIHW 2019). High blood pressure can increase the risk of several chronic conditions including stroke, coronary heart disease, heart failure and chronic kidney disease (AIHW 2019). In 2018, 5.1% of the total burden of disease in Australia, and 35% of the burden of cardiovascular disease, was due to high blood pressure (AIHW 2021a).

Some medicines can help to reduce high blood pressure through a range of mechanisms such as regulating the heartbeat, dilating blood vessels and altering fluid volume in the body (AIHW 2021b). In 2019–20, more than 61 million prescriptions for blood pressure lowering medicines were dispensed to the Australian population under the PBS, more than half (57%) of all cardiovascular medicines (AIHW 2021b). Blood pressure lowering medicines are also used to prevent cardiovascular disease in at-risk patients.

However, it is important to note that the PBS data provides information only on prescriptions filled (dispensed). Unfilled prescriptions (where a person received a prescription but did not fill it) are not included in the PBS data. There may be a range of financial, practical, cultural or other reasons why people do not get their prescriptions filled, which may be particularly relevant for some CALD populations.

Burden of disease

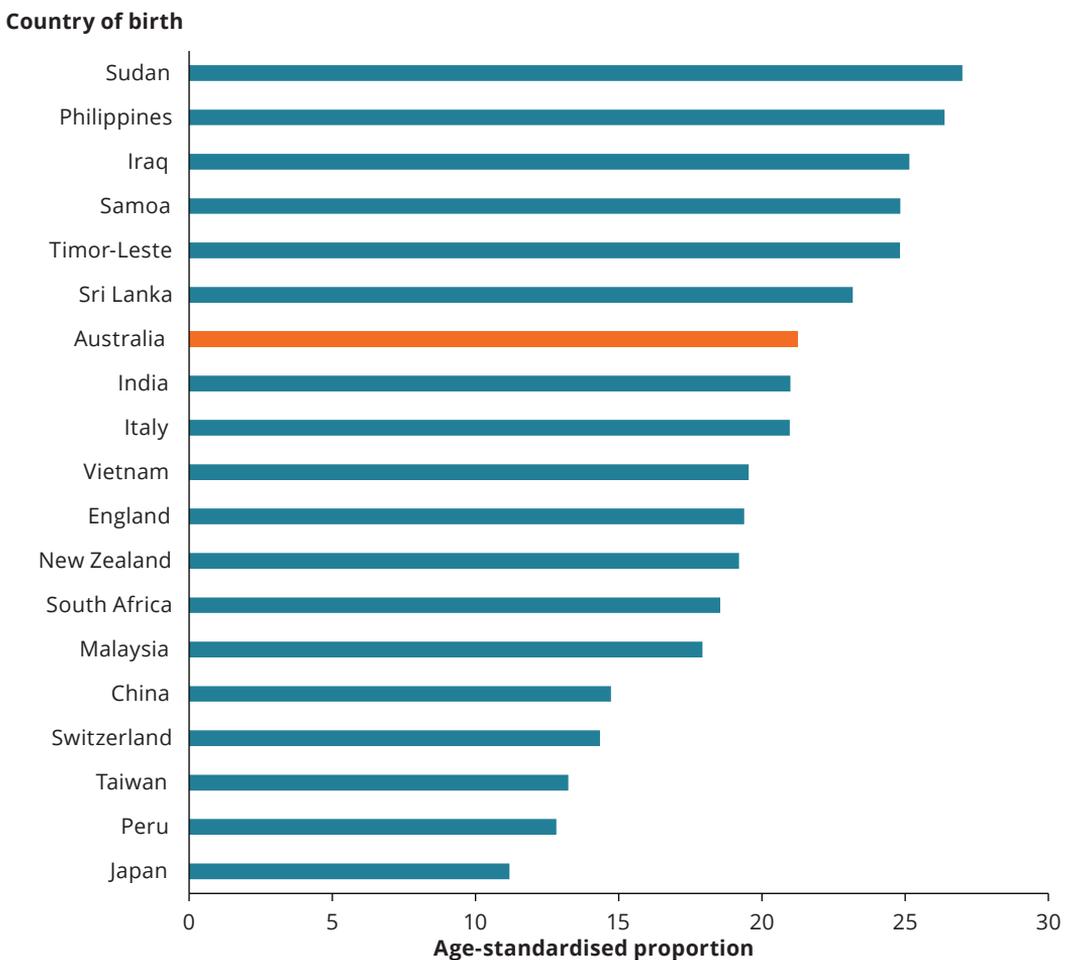
The burden of disease is the quantifiable impact of a disease, injury or risk factor on a population, using the disability-adjusted life year (DALY) measure. A DALY is a year of healthy life lost, either through premature death or, equivalently, through living with ill health due to illness or injury.

Country of birth

Figure 7.3 shows the 10 countries of birth with the largest number of migrants to Australia, and those with the 5 lowest and 5 highest age-standardised proportions of people who were dispensed a prescription for blood pressure lowering medicines in 2016 (with some overlap between the two). The proportion for people born in Australia is also shown for comparison.

After adjusting for age, people born in Japan had the lowest proportion of people who were dispensed a prescription (11%), and people born in Sudan the highest (27%).

Figure 7.3: Proportion of Australians aged 18 and over with a prescription dispensed for blood pressure lowering medicine, by country of birth, 2016



Note: Directly age-standardised to the 2001 Australian Standard Population.

Source: AIHW analysis of ABS 2020; Table S7.3.

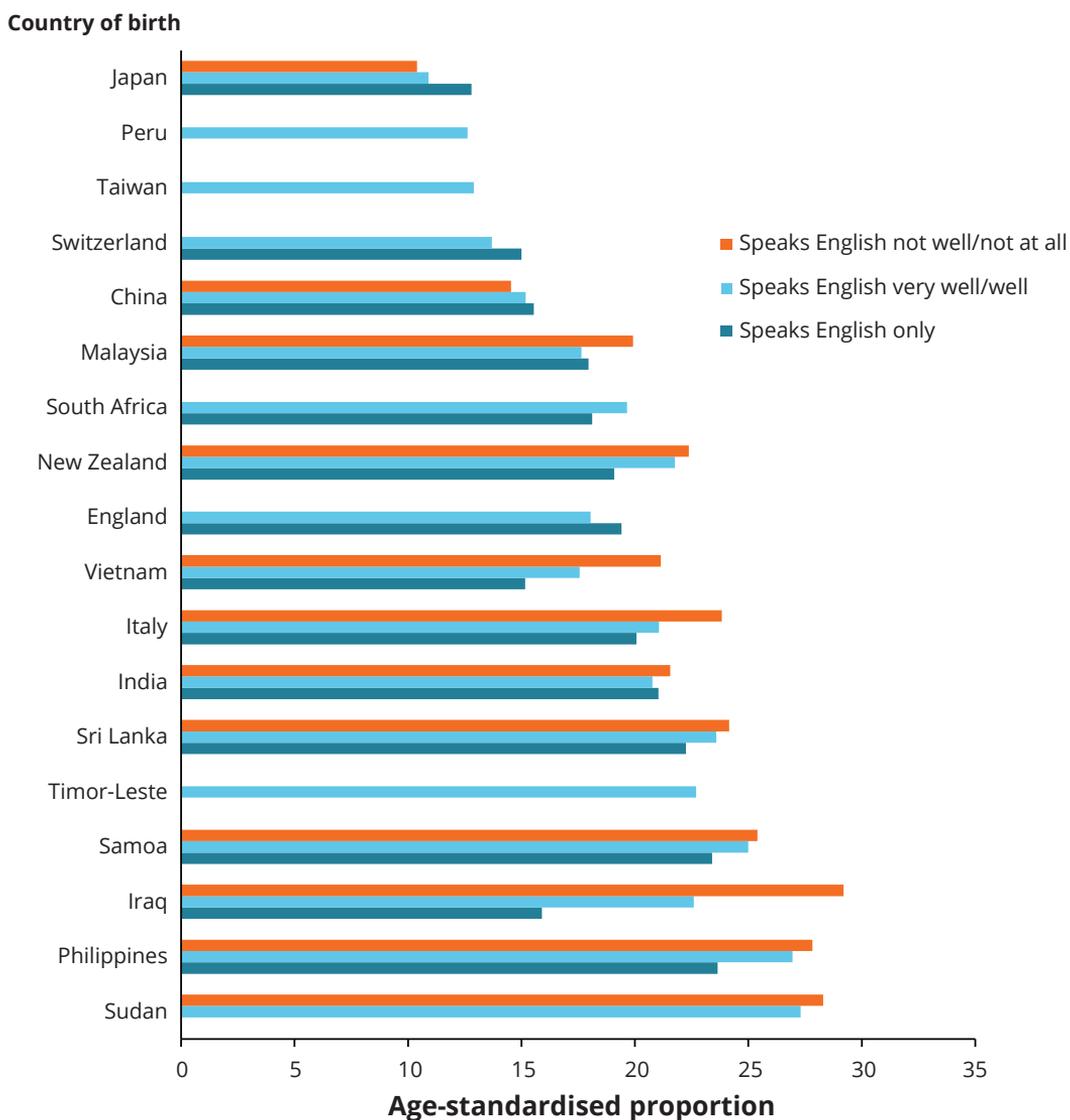
Country of birth and proficiency in spoken English

When analysing the PBS prescription data by proficiency in spoken English, and after adjusting for age, there was little difference in the proportion of people who had a blood pressure lowering medicine dispensed in 2016:

- speaks English only (20.9%)
- speaks English well or very well (20.5%)
- does not speak English well or at all (20.8%).

Figure 7.4 shows the countries of birth as in Figure 7.3 further disaggregated by English proficiency. For most of the countries, only small differences were seen in the age-standardised proportions of people who had a blood pressure lowering medicine dispensed in 2016 by English proficiency, though the proportion for people who did not speak English well or at all tended to be slightly higher. The greatest differences were for Iraq – where the proportion dispensed a blood pressure lowering medicine was nearly twice as high for people who do not speak English well or at all (29%) as for people who spoke only English at home (16%) – and for Vietnam (21% and 15% respectively).

Figure 7.4: Proportion of Australians aged 18 and over with a prescription dispensed for blood pressure lowering medicine, by country of birth and proficiency in spoken English, 2016



Notes:

- 1 Directly age-standardised to the 2001 Australian Standard Population.
2. Some categories of proficiency in spoken English are not presented due to small sample sizes.

Source: AIHW analysis of ABS 2020; Table S7.4.

Discussion

Large differences were seen by country of birth in the use of blood pressure lowering medicines. However, only 2 of the countries presented (Iraq and Vietnam) had differences in the proportion of people dispensed a blood pressure lowering medicine by spoken English proficiency.

As with non-referred attendances, interpreting these variations is complex. There is no information on the number of people who require blood pressure lowering medicines for CALD groups. This situation is further compounded by potential variations in access to health care services, and whether people receive and fill a prescription. A low rate of use could indicate a low need for blood pressure lowering medicines, or that people need them but are not using them. For example, a relatively low proportion of people who were born in Japan and Taiwan had a non-referred attendance or prescription dispensed for blood pressure lowering medicines. However, it is not possible to tell from these analyses whether this is due to their being in better health than people born in other countries, or that they are not accessing the services they need.

Conclusion

These 2 case studies demonstrate the value of linked data in providing richer information on CALD groups and their use of health services in Australia. Linking information from the Census to large data sets such as the MBS and PBS provides an opportunity to explore differences in health service use by the many dimensions of cultural and linguistic diversity, both separately and in combination. Measuring these variations is an important first step to identify possible issues and prompt further investigation.

It is also possible to report in much greater detail using large data sets such as the MBS and PBS than smaller data collections. For example, the ABS National Health Survey collects a range of information on CALD people, together with their health status and outcomes. However, the survey includes a relatively small sample of the Australian population only, which limits its usefulness for reporting on smaller populations.

Combining aspects of cultural and linguistic diversity, such as country of birth and proficiency in spoken English highlights the diversity that exists within CALD groups. There are multiple aspects to cultural and linguistic diversity: even where people have one aspect in common, such as their country of birth, there may be considerable differences in other dimensions such as language spoken, their ancestry, or how long they have spent in Australia. These aspects can affect their health status and their ability to navigate the health system. For this reason, it is not possible to have one definition of cultural and linguistic diversity that suits every purpose; a range of variables may be required depending on the issue being explored.

Information on migration pathways and socioeconomic factors (such as income and education) was not included in the analyses in this article. It is hoped that future analyses will explore the interaction of these factors with health service use and outcomes for CALD groups in more detail, including how these differ for males and females.

The 2021 Census included a question on long-term health conditions for the first time, which will provide valuable information on the health needs of CALD groups. This information will help to explain variations in health care use, as well as providing an opportunity to explore differences in health status by aspects of cultural and linguistic diversity in greater detail than has previously been possible.

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