

March 2023

## Chapter 3

Queensland Health

# Exploring the health of culturally and linguistically diverse (CALD) populations in Queensland: 2016–17 to 2019–20



**Queensland**  
Government

## 3. Potentially preventable hospitalisations

### 3.1 Summary

Potentially preventable hospitalisations (PPH) are specific hospital admissions that potentially could have been prevented by timely and adequate health care, through the provision of appropriate preventative health interventions and early disease management in primary care and community-based care settings (including by general practitioners, medical specialists, dentists, nurses and allied health professionals)<sup>24</sup>. There are various health conditions for which hospitalisation is considered potentially preventable across three broad categories (vaccine-preventable, chronic and acute conditions).

In most cases, primary and community health care is usually a person's initial encounter with the health system. It involves a range of activities and services such as health promotion and prevention, as well as management and treatment of acute and chronic conditions. The rate of PPH in a particular area may reflect access to primary health care, as well as sociodemographic factors and health behaviours of the population<sup>25</sup>.

PPH rates are often used as indicators of primary care accessibility and effectiveness as higher rates may suggest a lack of timely, accessible and adequate health care in the community. In Australia, the National Healthcare Agreement uses PPH as a performance indicator of primary and community health services to ensure the overall sustainability of the health system<sup>26</sup>. PPH are a valuable tool for identifying and investigating variation of health outcomes between different populations to better understand health inequalities. Evaluating PPH by conditions and population subgroups can help identify priorities for targeted policy interventions<sup>27</sup>. Trends over time can be used to monitor for improvements or identify emerging problem areas. PPH can also assist in guiding further research about how different groups access health services, including possible barriers they may face and areas of unmet demand.

<sup>24</sup> Australian Institute of Health and Welfare. Disparities in potentially preventable hospitalisations across Australia, 2012-13 to 2017-18. AIHW; 2020 100p. Available from: [www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-australia/summary](http://www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-australia/summary)

<sup>25</sup> Falster MO, Jorm LR, Douglas KA, Blyth FM, Elliott RF, Leyland AH. Sociodemographic and health characteristics, rather than primary care supply, are major drivers of geographic variation in preventable hospitalizations in Australia. *Med Care*. 2015; 53 (5): 436-45. Available from: [pubmed.ncbi.nlm.nih.gov/25793270/](http://pubmed.ncbi.nlm.nih.gov/25793270/)

<sup>26</sup> Australian Institute of Health and Welfare. National Healthcare Agreement: PI 18—Selected potentially preventable hospitalisations, 2018. AIHW: 2018. Available from: [meteor.aihw.gov.au/content/658499](http://meteor.aihw.gov.au/content/658499)

<sup>27</sup> Falster M, Jorm L. A guide to the potentially preventable hospitalisations indicator in Australia. Centre for Big Data Research in Health, University of New South Wales in consultation with Australian Commission on Safety and Quality in Health Care and Australian Institute of Health and Welfare. Sydney: Australian Commission on Safety and Quality in Health Care; 2017. Available from: [www.safetyandquality.gov.au/sites/default/files/migrated/A-guide-to-the-potentially-preventable-hospitalisations-indicator-in-Australia.pdf](http://www.safetyandquality.gov.au/sites/default/files/migrated/A-guide-to-the-potentially-preventable-hospitalisations-indicator-in-Australia.pdf)

PPH are common and increase the burden on already stretched healthcare services. Between 2017 and 2018, nearly 10 per cent of all hospital bed days in Australia were for PPH<sup>28</sup>. A recent report by the Australian Institute of Health and Welfare (AIHW) on disparities in PPH across Australia, highlighted that several geographical areas in Queensland had higher PPH rates in comparison to other states in Australia<sup>29</sup>. An increasing body of evidence suggests that migrants who identify as culturally and linguistically diverse (CALD) in host countries are at a greater risk of poorer health outcomes due to PPH, when compared to the native population<sup>30,31</sup>. Therefore, there is a pressing need to further explore PPH to guide the development of evidence-based policies and interventions that improve access to and the quality of healthcare for all Queenslanders, including people from CALD backgrounds.

The current Queensland Health study explored PPH and compared the rates between the overseas-born (CALD background) and Australian-born (non-CALD background) populations in Queensland. The PPH were analysed based on three broad sub-categories: vaccine-preventable conditions, acute conditions and chronic conditions. Further analysis of these conditions was undertaken using the broader categories of country of birth (MESB and NESB), region of birth, sex and the specific country of birth.

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<sup>28</sup> Australian Institute of Health and Welfare. Admitted patient care 2017–18: Australian hospital statistics. Canberra: AIHW; 2019. Available from: [www.aihw.gov.au/getmedia/df0abd15-5dd8-4a56-94fa-c9ab68690e18/aihw-hse-225.pdf](http://www.aihw.gov.au/getmedia/df0abd15-5dd8-4a56-94fa-c9ab68690e18/aihw-hse-225.pdf)

<sup>29</sup> Australian Institute of Health and Welfare. Disparities in potentially preventable hospitalisations across Australia, 2012-13 to 2017-18. Canberra: AIHW; 2020. Available from: [www.aihw.gov.au/getmedia/df0abd15-5dd8-4a56-94fa-c9ab68690e18/aihw-hse-225.pdf](http://www.aihw.gov.au/getmedia/df0abd15-5dd8-4a56-94fa-c9ab68690e18/aihw-hse-225.pdf)

<sup>30</sup> World Health Organisation. World report on the health of refugees and migrants. Geneva; 2022. 344p. Available from: [www.who.int/publications/i/item/9789240054462](http://www.who.int/publications/i/item/9789240054462)

<sup>31</sup> Cacciani L, Canova C, Barbieri G, Dalla Zuanna T, Marino C, Pacelli B, et al. Potentially avoidable hospitalization for asthma in children and adolescents by migrant status: results from the Italian Network for Longitudinal Metropolitan Studies. *BMC Public Health*. 2020; 20. Available from: [bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-020-09930-9](http://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-020-09930-9)

## Key findings

At an aggregate population level, both MESB and NESB populations showed lower rates of PPH than the Australian-born population. However, further analysis at the region and country of birth level highlighted disparities in health outcomes for NESB populations across all categories. This indicates that analysing data at aggregated levels in broad categories potentially masks the differences of health outcomes for individual NESB population groups observed when data is analysed at the most detailed level.

At the level of country of birth, people born in Syria (Middle East) were observed to have the highest rates in six categories (total PPH rates, all chronic conditions, congestive cardiac failure, diabetes, urinary tract infections and dental conditions) when compared to the Australian-born population. People born in Sudan (North African) had the highest rates in four categories (all acute conditions, pelvic inflammatory disease, convulsions/epilepsy and ear, nose and throat) while people born in Somalia (Sub-Saharan Africa) had the highest rates in three categories (all vaccine-preventable conditions, vaccine-preventable influenza and pneumonia and other vaccine-preventable conditions) when compared to the Australian-born population. Similarly, people born in Serbia (Southern and Eastern Europe) had the highest rates in chronic obstructive pulmonary disease (COPD), hypertension and gangrene, when compared to the Australian-born population.

## PPH (All categories)

- Rates of total PPH were significantly higher for people born in three regions (NESB population), compared with the Australian-born population: Other Oceania and Antarctica, North African and Middle East.
- Highest rates were seen in Queensland residents born in Syria (Middle East), Somalia (Sub-Saharan Africa), Sudan (North African), Samoa and Cook Islands (Other Oceania and Antarctica).

## PPH (Vaccine-preventable conditions)

- Overall NESB population had significantly higher rates of PPH due to vaccine-preventable conditions than the Australian-born population.
- Most regions with NESB populations had higher rates than the Australian-born population.
- Highest rates were seen in Queensland residents born in Somalia (Sub-Saharan Africa), Sudan (North African), Tonga, Samoa, Cook Islands (Other Oceania and Antarctica) and Eritrea (Sub-Saharan Africa).

## PPH (Chronic conditions)

- Overall MESB and NESB populations had lower rates of PPH due to chronic conditions than the Australian-born population.
- Three regions had significantly higher rates of total chronic conditions than the Australian-born population: Other Oceania and Antarctica, North African and Middle East regions.
- Highest rates were seen in Queensland residents born in Syria (Middle East), Somalia (Sub-Saharan Africa), Serbia (Southern and Eastern Europe), Samoa, Tonga and Cook Islands (Other Oceania and Antarctica).

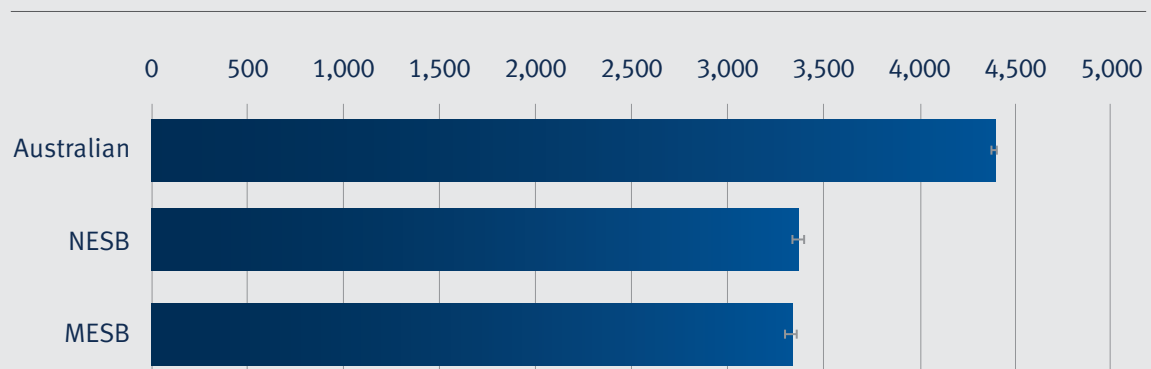
## PPH (Acute conditions)

- Overall NESB and MESB populations had lower rates of PPH due to acute conditions than the Australian-born population.
- No region had significantly higher rates of acute conditions than the Australian-born population.
- Highest rates were seen in Queensland residents born in Sudan (North African), Syria (Middle East), Somalia (Sub-Saharan Africa), Samoa and Cook Islands (Other Oceania and Antarctica) and Afghanistan (Southern and Central Asia).

### 3.2 Potentially preventable hospitalisations by region of birth, sex and country of birth

In the current study, when total PPH rates were analysed at an aggregate population level, both NESB and MESB populations showed lower rates of PPH than the Australian-born population (Figure 1).

**Figure 1: Age-standardised rates for total potentially preventable hospitalisations (PPH) by broad country of birth category, Queensland, 2016–17 to 2019–20**



However, further analysis by region of birth and sex revealed that rates of total PPH were significantly higher for three regions (NESB populations), compared with the Australian-born population: Other Oceania and Antarctica, North African and the Middle East (Figure 2). This is consistent for both males and females across these regions.

**Figure 2: Age-standardised rates for total potentially preventable hospitalisations (PPH) by region of birth and sex, Queensland, 2016–17 to 2019–20**

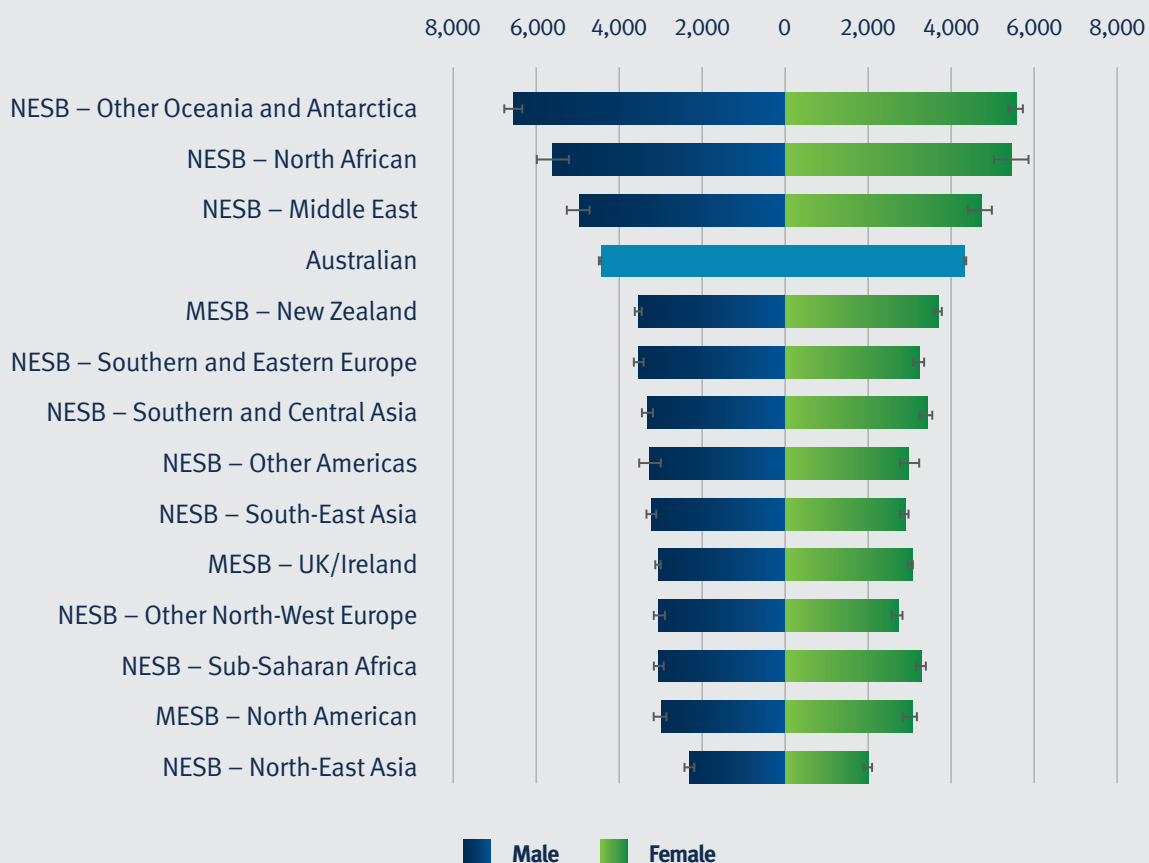


Table 1 shows countries with higher rates of PPH than the Australian-born population. The top five countries with the highest rates of PPH include Syria, Somalia, Sudan, Samoa and the Cook Islands.

**Table 1: Age-standardised rates for total potentially preventable hospitalisations (PPH) by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	639,999	4,386.5	4,375.6	4,397.3	1.00
<b>NESB – Middle East</b>					
Syria*	243	10,845.6	9,511.3	12,313.2	2.47
Iraq*	503	6,788.1	6,054.1	7,572.3	1.55
Lebanon*	514	5,523.3	4,945.0	6,140.7	1.26
Turkey	301	5,063.8	4,374.5	5,814.6	1.15
Jordan	69	4,989.3	3,819.2	6,389.2	1.14
Israel	133	4,530.5	3,745.0	5,424.2	1.03
<b>NESB – North African</b>					
Sudan*	675	9,873.1	8,625.8	11,193.5	2.25
Libya	34	4,584.4	3,021.4	6,604.0	1.05
Egypt	855	4,575.5	4,213.4	4,956.5	1.04
<b>NESB – Other Americas</b>					
Mexico	80	4,826.7	3,611.8	6,261.7	1.10
<b>NESB – Other North-West Europe</b>					
Austria	997	5,132.0	3,646.3	6,688.9	1.17
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	3,428	9,109.6	8,759.2	9,469.0	2.08
Cook Islands*	746	8,739.0	8,057.7	9,458.3	1.99
Tonga*	688	8,345.3	7,462.9	9,279.0	1.90
Fiji*	2,887	4,994.9	4,788.8	5,206.9	1.14
Vanuatu	75	4,689.3	3,310.5	6,326.9	1.07
Papua New Guinea*	3,017	4,609.6	4,418.1	4,806.3	1.05
<b>NESB – South-East Asia</b>					
Myanmar*	668	5,430.6	4,911.3	5,980.6	1.24
<b>NESB – Southern and Central Asia</b>					
Afghanistan*	453	6,139.5	5,366.6	6,968.1	1.40
Pakistan*	536	6,045.1	5,375.5	6,759.0	1.38
Bangladesh	241	4,923.4	3,959.7	5,983.8	1.12
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	1,232	8,055.2	7,337.9	8,803.3	1.84
Ukraine	347	4,928.0	4,048.4	5,880.6	1.12
Romania	536	4,616.4	3,957.6	5,318.8	1.05
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	326	10,433.0	8,770.6	12,237.6	2.38
Eritrea*	178	7,679.0	6,413.0	9,094.0	1.75
Uganda	108	5,367.3	4,302.4	6,596.0	1.22

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

Rates of PPH were then analysed for each of the three broad sub-categories: 1) vaccine-preventable conditions, 2) chronic conditions and 3) acute conditions.

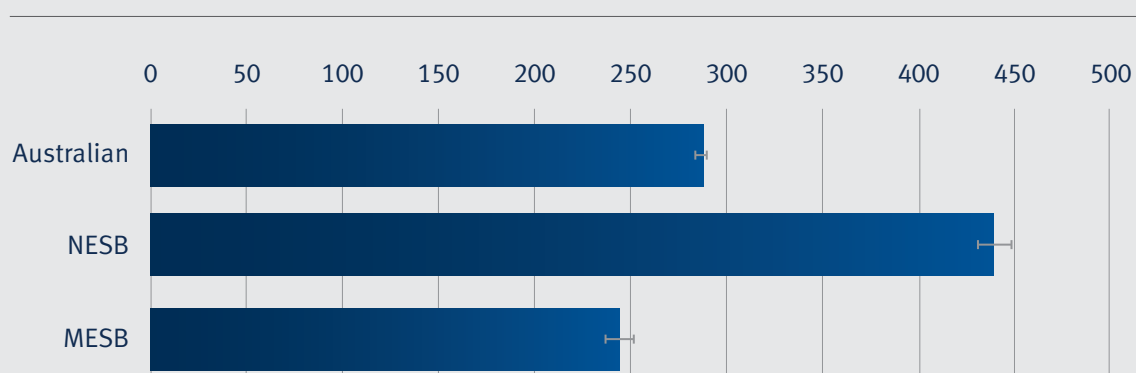


### 3.2.1 PPH (Vaccine-preventable conditions)

A vaccine-preventable condition is defined as an infectious condition for which an effective vaccine exists. A study that reviewed literature published between 2006 and 2016 to explore differences in the burden of vaccine-preventable conditions and immunisation coverage between migrants and non-migrants found that migrant populations generally experienced a higher burden of vaccine-preventable conditions than non-migrant populations<sup>32</sup>.

In the current study, the NESB population was found to have a significantly higher rate of vaccine-preventable conditions than the Australian-born population (Figure 3).

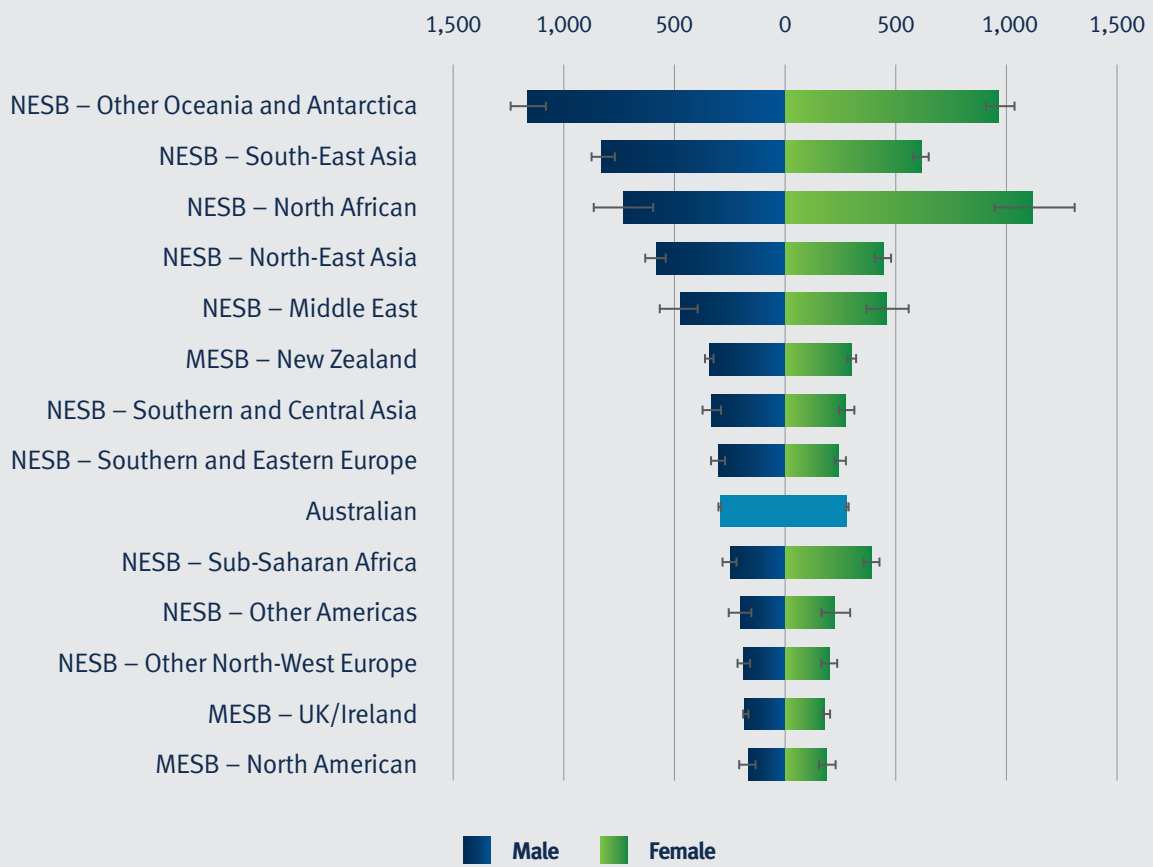
**Figure 3: Age-standardised rates for PPH sub-category of total vaccine-preventable conditions by broad country of birth category, Queensland, 2016–17 to 2019–20**



A detailed analysis of vaccine-preventable conditions by region of birth and sex showed that most regions with NESB populations had significantly higher rates than the Australian-born population. The top five regions with the highest rates of PPH for vaccine-preventable conditions include: Other Oceania and Antarctica, North African, South-East Asia, North-East Asia and the Middle East (Figure 4). Males from Other Oceania and Antarctica, South-East Asia and North-East Asia had significantly higher rates than females from these regions, while North African females had significantly higher rates than North African males. New Zealand (MESB population) also reported higher rates of vaccine-preventable conditions in comparison to the Australian-born population.

<sup>32</sup> Charania NA, Gaze N, Kung JY, Brooks S. Vaccine-preventable diseases and immunisation coverage among migrants and non-migrants worldwide: A scoping review of published literature, 2006 to 2016. *Vaccine*. 2019; 37 (2). Available from: [pubmed.ncbi.nlm.nih.gov/30967311/](https://pubmed.ncbi.nlm.nih.gov/30967311/)

**Figure 4: Age-standardised rates for PPH sub-category of total vaccine-preventable conditions by region of birth and sex, Queensland, 2016–17 to 2019–20**



When PPH rates due to vaccine-preventable conditions were further analysed at the level of country of birth, people from many countries with NESB populations reported significantly higher rates when compared to the Australian-born population. The top six countries were Somalia, Sudan, Tonga, Samoa, Cook Islands and Eritrea (Table 2).

**Table 2: Age-standardised rates for PPH sub-category of total vaccine-preventable conditions by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	41,837	287.2	284.4	290.0	1.00
<b>MESB – New Zealand</b>					
New Zealand*	2,996	321.9	309.6	334.4	1.12
<b>NESB – Middle East</b>					
Syria*	24	941.8	598.2	1,408.3	3.28
Lebanon*	52	539.4	381.9	733.0	1.88
Turkey*	33	526.4	306.9	811.2	1.83
Iran*	80	397.0	300.9	510.5	1.38
Iraq	35	383.8	245.2	562.1	1.34
Israel	133	4,530.5	3,745.0	5,424.2	1.03
<b>NESB – North African</b>					
Sudan*	228	2,541.5	2,042.1	3,092.4	8.85
<b>NESB – North-East Asia</b>					
Taiwan*	330	757.0	659.3	863.0	2.64
China (excludes SARs and Taiwan)*	985	597.3	557.4	639.2	2.08
Hong Kong (SAR of China)*	219	512.8	438.2	595.3	1.79
Korea, Republic of (South)	129	290.9	220.6	371.0	1.01
<b>NESB – Other North-West Europe</b>					
Sweden	34	288.1	199.4	402.7	1.00
<b>NESB – Other Oceania and Antarctica</b>					
Tonga*	178	1,998.4	1,683.7	2,350.2	6.96
Samoa*	804	1,987.5	1,837.9	2,145.2	6.92
Cook Islands*	158	1,826.8	1,534.2	2,156.1	6.36
Papua New Guinea*	676	1,004.2	921.8	1,091.3	3.50
Solomon Islands*	26	565.1	344.4	861.0	1.97
Fiji*	221	376.9	326.3	432.8	1.31

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>NESB – South-East Asia</b>					
Myanmar*	251	1,642.7	1,436.4	1,869.2	5.72
Cambodia*	142	1,599.2	1,309.5	1,927.4	5.57
Vietnam*	1,220	1,303.5	1,222.6	1,388.0	4.54
Thailand*	189	710.8	557.1	882.1	2.48
Philippines*	765	550.0	504.0	598.6	1.92
Indonesia	123	327.0	267.2	395.3	1.14
Malaysia	205	292.3	251.0	338.0	1.02
<b>NESB – Southern and Central Asia</b>					
Pakistan*	95	886.9	671.0	1,138.3	3.09
Afghanistan*	70	712.8	493.1	975.2	2.48
Bangladesh*	43	687.6	377.1	1,077.6	2.39
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	123	775.7	640.0	930.8	2.70
Romania*	90	621.3	496.9	766.9	2.16
Cyprus	39	332.9	134.9	584.3	1.16
Ukraine	30	330.8	210.8	488.5	1.15
Greece	127	298.0	217.9	389.4	1.04
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	88	3,245.8	2,288.5	4,367.8	11.30
Eritrea*	45	1,846.5	1,289.0	2,543.0	6.43
Uganda*	33	1,385.5	912.7	1,998.9	4.82
Kenya	36	342.2	236.9	477.2	1.19

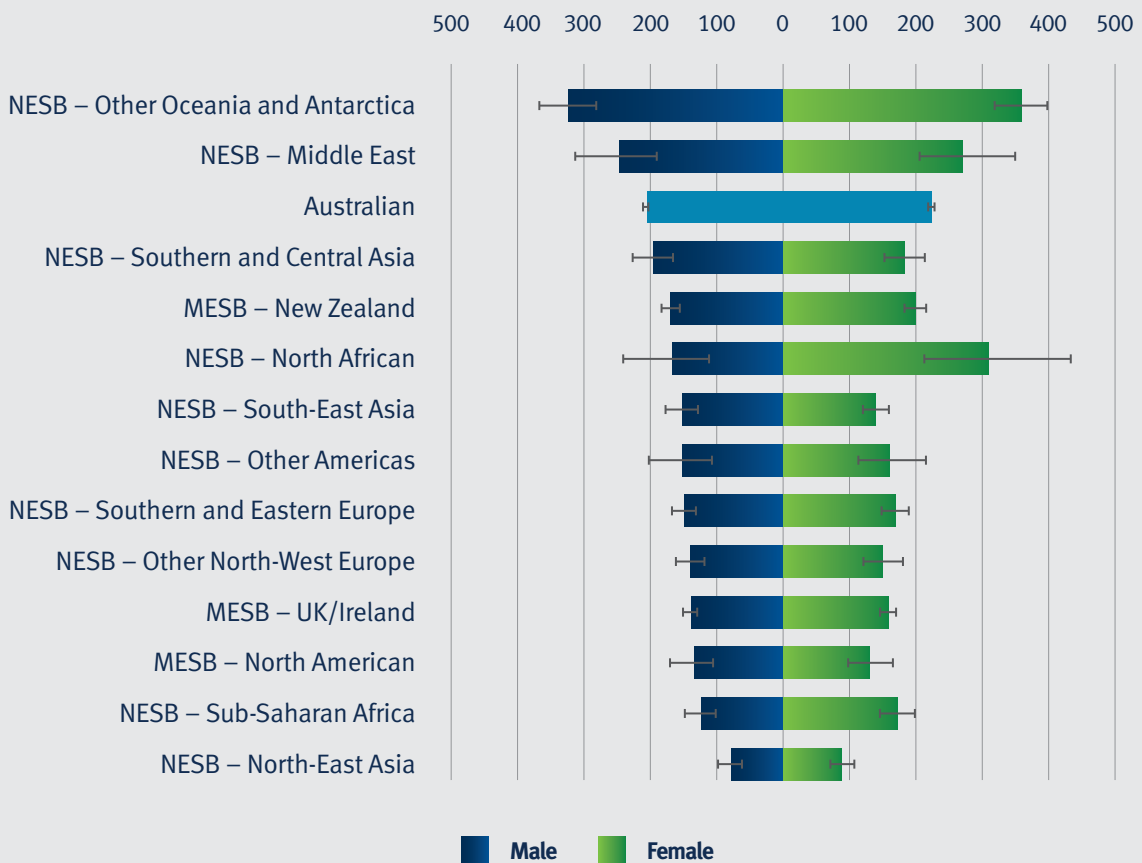
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.1.1 PPH (Vaccine-preventable influenza and pneumonia)

PPH due to vaccine-preventable conditions are further classified into two groups: those related to vaccine-preventable influenza and pneumonia; and those related to other vaccine-preventable conditions such as whooping cough, acute poliomyelitis, varicella (chicken pox), measles, tetanus, mumps and rubella.

As shown in Figure 5, those from the Other Oceania and Antarctica region had a significantly higher rate of vaccine-preventable influenza and pneumonia when compared to the Australian-born population.

**Figure 5: Age-standardised rates for PPH sub-category of vaccine-preventable conditions: vaccine-preventable influenza and pneumonia by region of birth and sex, Queensland, 2016–17 to 2019–20**



Further analysis at the level of country of birth revealed that people born in Somalia, Samoa, Sudan, Serbia, Cook Islands and Tonga had significantly higher rates of vaccine-preventable influenza when compared to the Australian-born population (Table 3).

**Table 3: Age-standardised rates for PPH sub-category of vaccine-preventable conditions: vaccine-preventable influenza and pneumonia by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	31,417	215.1	212.7	217.5	1.00
<b>NESB – Middle East</b>					
Syria*	24	941.8	598.2	1,408.3	3.28
Lebanon	27	317.1	186.4	491.3	1.47
Iran	48	230.0	158.9	318.2	1.07
Iraq	24	229.3	130.8	363.0	1.07
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	244	675.1	585.5	773.7	3.14
Cook Islands*	37	449.6	307.4	631.4	2.09
Tonga*	41	409.2	283.4	568.1	1.90
Fiji	144	257.1	214.7	305.0	1.20
Papua New Guinea	152	217.3	180.6	258.7	1.01
<b>NESB – South-East Asia</b>					
Cambodia	24	357.2	206.2	562.2	1.66
Myanmar	31	241.0	159.9	347.1	1.12
<b>NESB – Southern and Central Asia</b>					
Pakistan	33	262.5	143.1	417.4	1.22
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	79	481.9	377.8	605.0	2.24
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	31	1,140.1	602.3	1,843.7	5.30

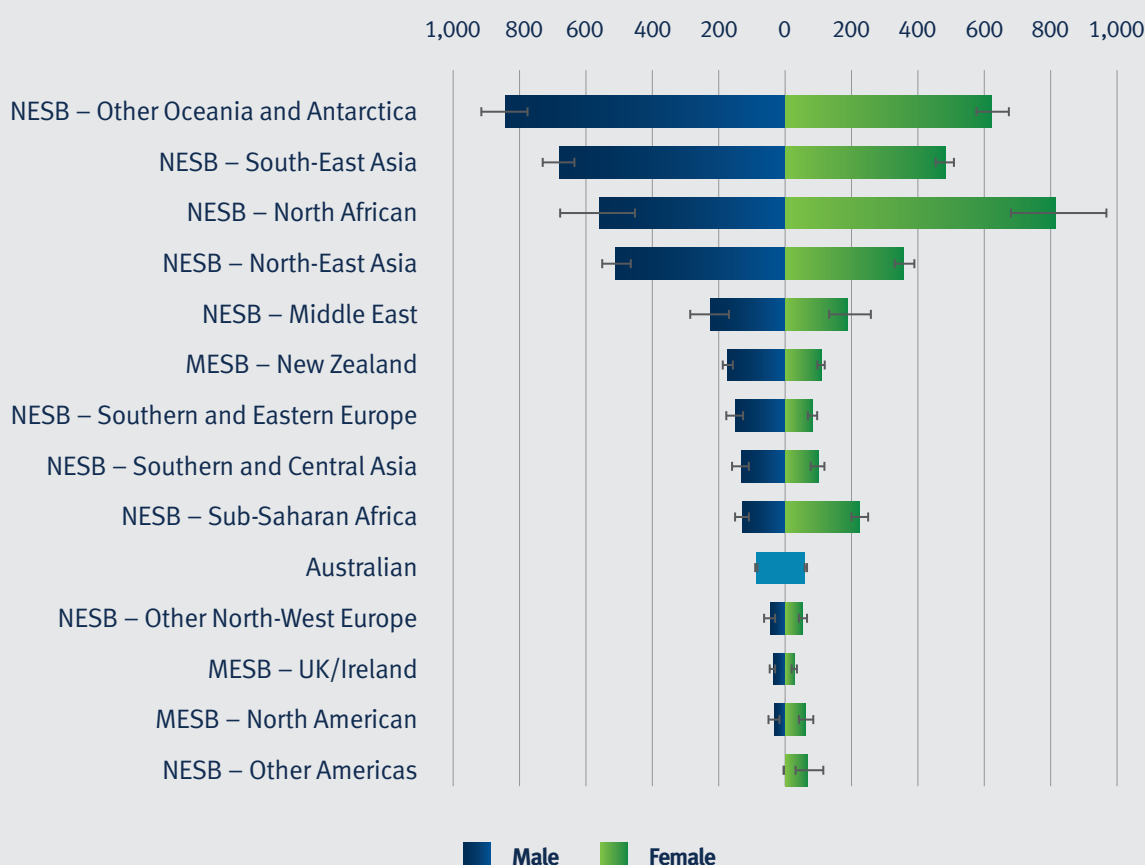
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.1.2 PPH (Other vaccine-preventable conditions)

Other vaccine-preventable conditions in the PPH category include most diseases covered by childhood immunisation such as rotaviral enteritis, tetanus, diphtheria, whooping cough, acute poliomyelitis, varicella (chickenpox), measles, rubella, hepatitis B, mumps and haemophilus meningitis.

In the current study, the rate of vaccine-preventable conditions was significantly higher for people from a majority of regions with NESB populations in comparison to the Australian-born population (Figure 6). The highest rates were seen in Other Oceania and Antarctica, South-East Asia, North Africa, North-East Asia and Middle East regions. While males from many regions had significantly higher rates than females, females from North African and Sub-Saharan Africa regions had significantly higher rates than males.

**Figure 6: Age-standardised rates for PPH sub-category of vaccine-preventable conditions: other vaccine-preventable conditions by region of birth and sex, Queensland, 2016–17 to 2019–20**



*Age-standardised rates are omitted for male population where cell counts are insufficient. See Appendix C for details.*

Further analysis of other vaccine-preventable conditions at the level of country of birth showed that the top five countries having significantly higher rates were Somalia, Sudan, Tonga, Cook Islands and Myanmar (Table 4).

**Table 4: Age-standardised rates for PPH sub-category of vaccine-preventable conditions: other vaccine-preventable conditions by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	10,571	73.2	71.8	74.6	1.00
<b>MESB – New Zealand</b>					
New Zealand*	1,451	139.6	132.3	147.3	1.91
<b>NESB – Middle East</b>					
Turkey*	25	338.2	214.0	505.8	4.62
Lebanon*	25	222.3	143.3	328.9	3.04
Iran*	32	167.0	105.9	246.5	2.28
<b>NESB – North African</b>					
Sudan*	202	1,941.0	1,560.7	2,363.1	26.53
<b>NESB – North-East Asia</b>					
Taiwan*	312	712.5	618.0	815.3	9.74
China (excludes SARs and Taiwan)*	855	494.3	459.8	530.6	6.76
Hong Kong (SAR of China)*	198	453.2	383.9	530.3	6.20
Korea, Republic of (South)*	105	240.4	176.3	314.5	3.29
<b>NESB – Other North-West Europe</b>					
Sweden*	25	209.8	135.7	309.7	2.87
Denmark	20	92.9	55.1	145.9	1.27
<b>NESB – Other Oceania and Antarctica</b>					
Tonga*	139	1,616.0	1,328.8	1,941.8	22.09
Cook Islands*	127	1,438.2	1,183.0	1,729.4	19.66
Samoa*	562	1,315.9	1,197.4	1,442.1	17.99
Papua New Guinea*	528	792.5	719.2	870.8	10.83
Solomon Islands*	23	491.5	287.3	770.4	6.72
Fiji*	78	122.1	95.3	153.9	1.67
<b>NESB – South-East Asia</b>					
Myanmar*	223	1,424.3	1,235.5	1,632.8	19.47
Cambodia*	122	1,288.4	1,044.2	1,567.8	17.61
Vietnam*	1,124	1,158.6	1,085.7	1,234.8	15.84
Thailand*	155	510.5	390.7	645.6	6.98
Philippines*	580	398.5	360.3	439.1	5.45
Malaysia*	160	227.7	191.2	268.8	3.11
Indonesia*	78	201.4	155.9	255.1	2.75
Singapore*	37	141.4	94.6	201.2	1.93



Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>NESB – Southern and Central Asia</b>					
Pakistan*	62	624.4	450.0	835.1	8.53
Afghanistan*	45	530.8	331.5	779.8	7.26
Bangladesh*	32	500.2	248.9	827.6	6.84
<b>NESB – Southern and Eastern Europe</b>					
Romania*	65	421.7	323.9	539.4	5.76
Serbia*	44	293.8	211.0	397.4	4.02
Cyprus	20	218.6	33.3	477.6	2.99
Greece*	50	126.7	84.1	179.4	1.73
Malta	22	105.3	-4.9	257.0	1.44
Italy	99	92.8	66.1	123.9	1.27
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	57	2,105.7	1,339.5	3,039.2	28.78
Eritrea*	31	1,376.8	889.4	2,014.3	18.82
Uganda*	29	1,203.8	769.9	1,776.7	16.45
Zimbabwe*	73	143.7	112.1	181.3	1.96

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

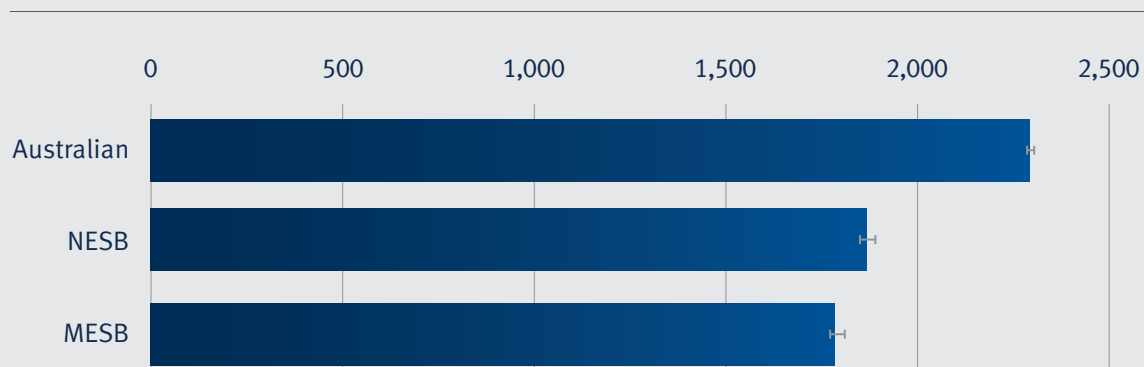
### 3.2.2 PPH (Chronic conditions)

A health condition is considered chronic when it is long lasting with persistent effects and their social and economic consequences can impact on peoples' quality of life<sup>33</sup>. These conditions may be prevented through behaviour and lifestyle modification but can also be managed effectively through timely care to prevent deterioration and hospitalisation<sup>34</sup>.

Chronic conditions are on the rise among CALD and migrant populations due to various factors including migration journeys, challenges in navigating the health system of their host countries and language difficulties<sup>35 36</sup>.

In the current study, both MESB and NESB populations were found to have lower rates of chronic conditions than the Australian-born population (Figure 7).

**Figure 7: Age-standardised rates for PPH sub-category of total chronic conditions by broad country of birth category, Queensland, 2016–17 to 2019–20**



Further analysis at the level of region of birth showed that people born in the following three regions had significantly higher rates of chronic conditions than the Australian-born population: Other Oceania and Antarctica, North African and Middle East (Figure 8).

<sup>33</sup> Australian Institute of Health and Welfare. Chronic conditions and multimorbidity. Canberra: AIHW: 2021.

Available from: [www.aihw.gov.au/reports/chronic-disease/chronic-condition-multimorbidity/contents/chronic-conditions-and-multimorbidity](http://www.aihw.gov.au/reports/chronic-disease/chronic-condition-multimorbidity/contents/chronic-conditions-and-multimorbidity)

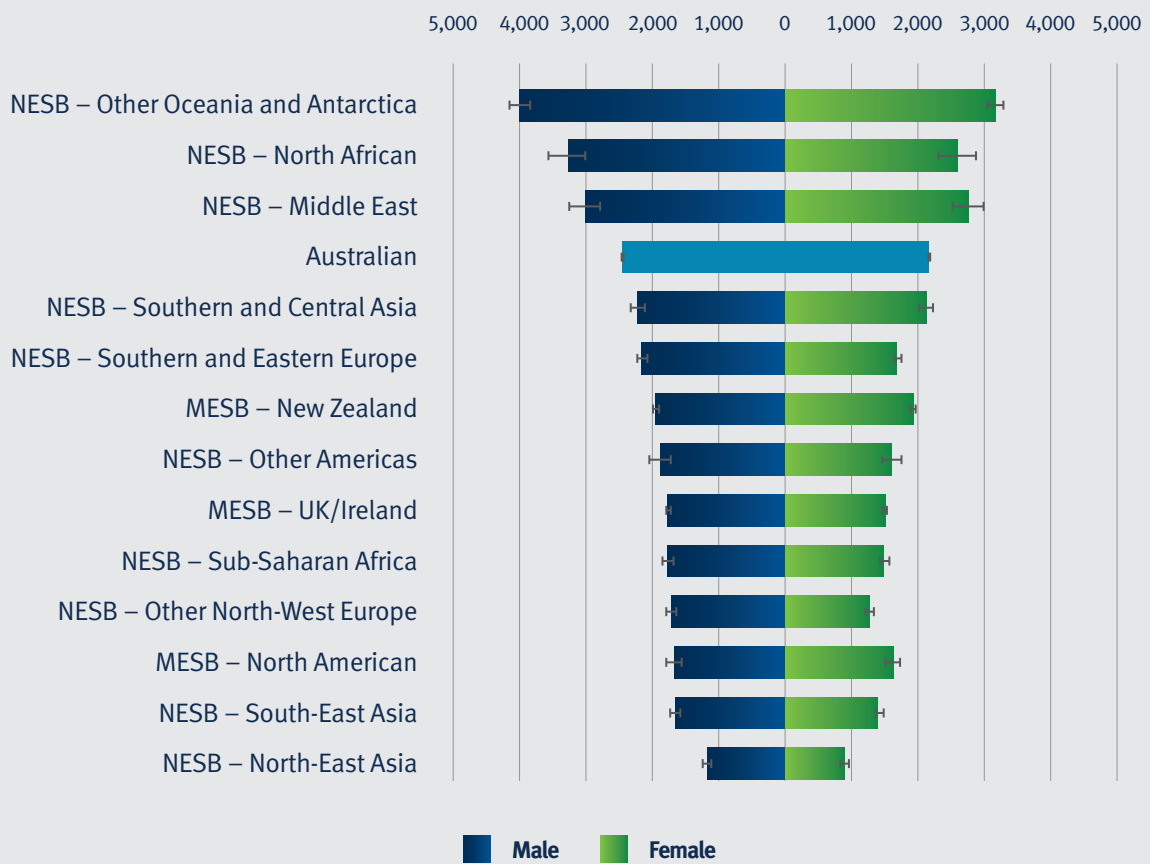
<sup>34</sup> Australian Institute of Health and Welfare. Potentially preventable hospitalisations in Australia by age groups and small geographic areas, 2017–18. Canberra: AIHW; 2019.

Available from: [www.aihw.gov.au/reports/primary-health-care/potentially-preventable-hospitalisations/contents/overview](http://www.aihw.gov.au/reports/primary-health-care/potentially-preventable-hospitalisations/contents/overview)

<sup>35</sup> Lane G, Farag M, White J, Nisbet C, Vatanparast H. Chronic health disparities among refugee and immigrant children in Canada. *Appl Physiol Nutr Metab.* 2018; 43 (10): 1043-58. Available from: [pubmed.ncbi.nlm.nih.gov/29726691/](http://pubmed.ncbi.nlm.nih.gov/29726691/)

<sup>36</sup> Terasaki G, Ahrenholz NC, Haider MZ. Care of Adult Refugees with Chronic Conditions. *Med Clin North Am.* 2015; 99 (5): 1039-58. Available from: [www.ncbi.nlm.nih.gov/pmc/articles/PMC7127301/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7127301/)

**Figure 8: Age-standardised rates for PPH sub-category of total chronic conditions by region of birth and sex, Queensland, 2016–17 to 2019–20**



At the level of country of birth, people born in a number of countries with NESB populations had significantly higher rates of chronic conditions when compared to the Australian-born population. The top six countries were Syria, Somalia, Serbia, Samoa, Tonga and Cook Islands (Table 5).

**Table 5: Age-standardised rates for PPH sub-category of total chronic conditions by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	336,724	2,293.7	2,285.9	2,301.5	1.00
<b>NESB – Middle East</b>					
Syria*	141	6,538.6	5,496.3	7,719.9	2.85
Iraq*	260	4,261.9	3,644.0	4,939.4	1.86
Jordan*	46	3,579.8	2,584.5	4,820.1	1.56
Lebanon*	342	3,434.6	3,039.3	3,862.9	1.50
Turkey*	184	2,877.7	2,461.0	3,342.6	1.25
Israel	72	2,372.3	1,835.9	3,011.6	1.03
<b>NESB – North African</b>					
Sudan*	174	3,997.1	3,088.8	5,013.7	1.74
Egypt*	639	3,070.7	2,801.8	3,355.9	1.34
Libya	22	2,983.7	1,755.9	4,673.5	1.30
<b>NESB – Other North-West Europe</b>					
Austria	684	2,393.1	1,604.5	3,227.6	1.04
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	1,897	4,927.0	4,686.0	5,176.3	2.15
Tonga*	392	4,831.0	4,071.3	5,649.7	2.11
Cook Islands*	425	4,815.0	4,327.7	5,338.7	2.10
Fiji*	2,120	3,675.4	3,504.4	3,852.0	1.60
Papua New Guinea	1,592	2,381.3	2,249.3	2,518.3	1.04
<b>NESB – Southern and Central Asia</b>					
Pakistan*	317	4,075.4	3,513.5	4,686.1	1.78
Bangladesh*	136	3,621.2	2,741.5	4,620.6	1.58
Afghanistan*	169	3,199.4	2,607.8	3,862.7	1.39
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	842	4,934.9	4,603.7	5,283.4	2.15
Ukraine	210	2,562.6	2,102.2	3,072.8	1.12
Romania	317	2,467.1	2,196.2	2,761.6	1.08
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	119	4,991.8	3,812.6	6,343.3	2.18
Eritrea*	81	4,198.1	3,213.2	5,360.1	1.83

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

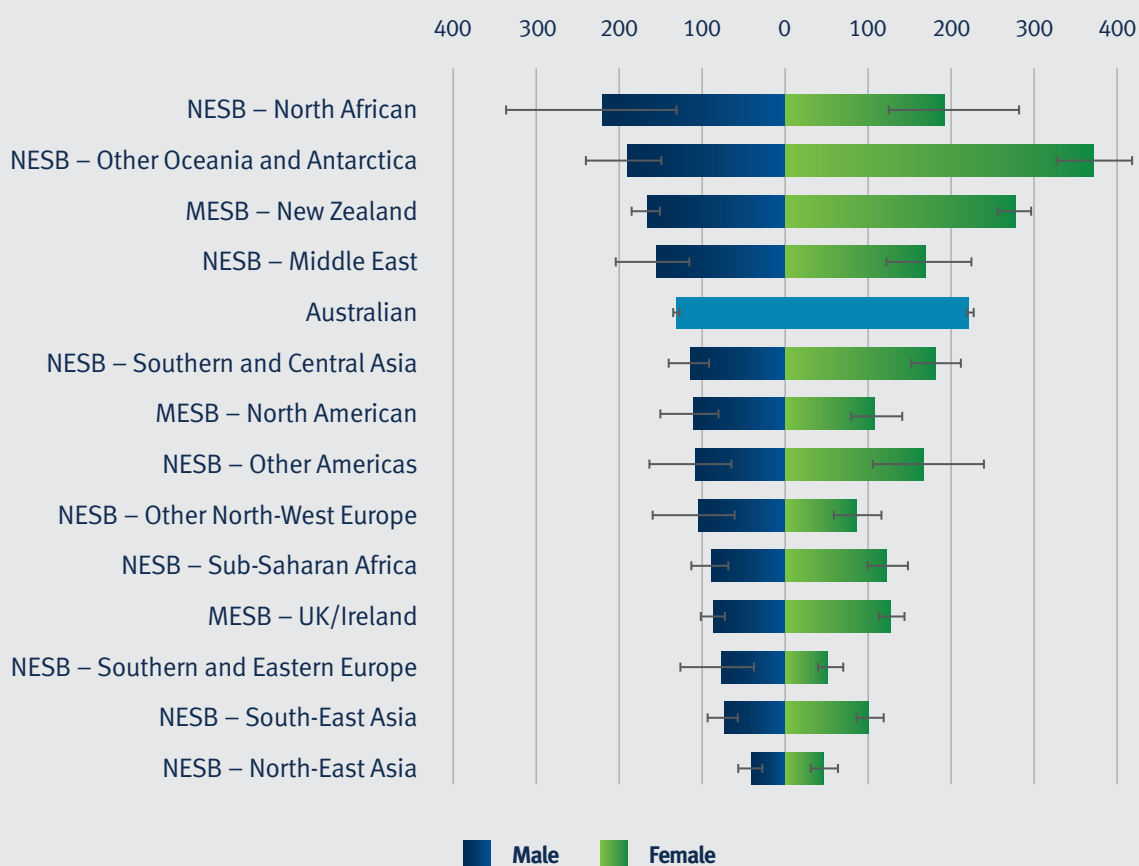
To gain a better understanding of the health issues and needs of people from various backgrounds, the report further explores the PPH rates for selected chronic conditions: asthma, angina, COPD, congestive heart failure, diabetes complications, hypertension, iron deficiency anaemia, rheumatic heart disease and bronchiectasis.

### 3.2.2.1 PPH rates (Chronic condition – Asthma)

Asthma is a common chronic condition that affects the airways. It has various impacts on the physical, psychological and social wellbeing of people living with the condition, depending on the severity of the disease and the level to which it is controlled. People with asthma are more likely to describe themselves as having a poor quality of life, which is more pronounced among people with severe or poorly controlled asthma<sup>37</sup>.

In the current study, when compared to the Australian-born population, people who were born in Other Oceania and Antarctica and New Zealand regions had significantly higher rates of asthma (Figure 9). Females in both regions had significantly higher rates than males.

**Figure 9: Age-standardised rates for PPH sub-category of chronic conditions: asthma by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>37</sup> Australian Institute of Health and Welfare. Chronic respiratory conditions. Canberra; AIHW. 2023.

Available from: [www.aihw.gov.au/reports/chronic-respiratory-conditions/chronic-respiratory-conditions/contents/asthma](http://www.aihw.gov.au/reports/chronic-respiratory-conditions/chronic-respiratory-conditions/contents/asthma)

At the level of country of birth, those born in Cook Islands, Tonga, Samoa, Fiji, Somalia and New Zealand had significantly higher rates of asthma when compared to the Australia-born population (Table 6).

**Table 6: Age-standardised rates for PPH sub-category of chronic conditions: asthma by country of birth, Queensland, 2016–17 to 2019–20**

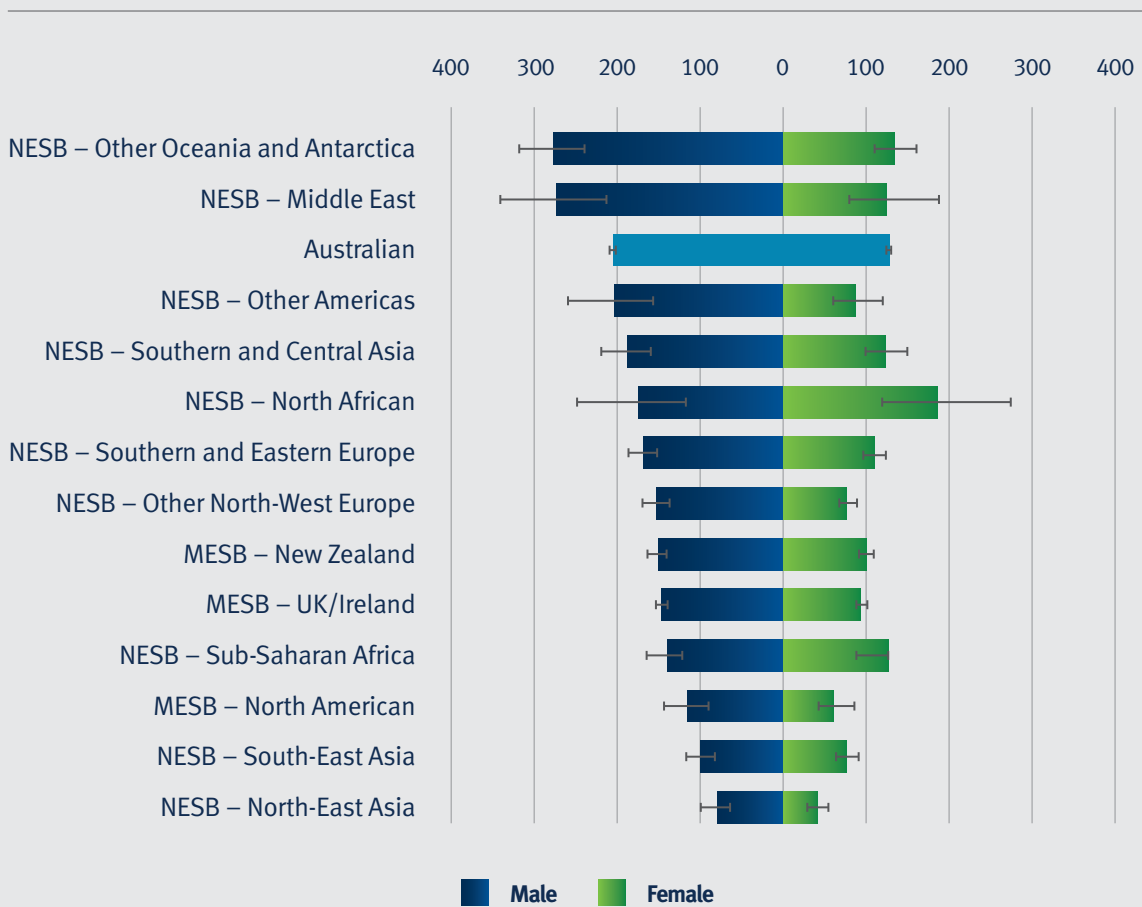
Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	25,799	178.3	176.1	180.5	1.00
<b>MESB – New Zealand</b>					
New Zealand*	1,642	222.8	210.3	235.7	1.25
<b>NESB – Middle East</b>					
Iraq	22	196.1	106.1	319.9	1.10
<b>NESB – North African</b>					
Sudan	27	264.2	160.5	402.4	1.48
<b>NESB – Other Americas</b>					
Colombia	24	267.4	89.5	509.0	1.50
Chile	20	227.2	114.8	384.3	1.27
<b>NESB – Other Oceania and Antarctica</b>					
Cook Islands*	46	530.4	374.1	725.2	2.97
Tonga*	43	409.9	288.7	562.1	2.30
Samoa*	137	365.4	296.6	443.5	2.05
Fiji*	149	304.6	233.8	384.7	1.71
Papua New Guinea	136	195.0	154.6	240.9	1.09
<b>NESB – South-East Asia</b>					
Myanmar	27	211.4	136.9	310.8	1.19
<b>NESB – Southern and Central Asia</b>					
Sri Lanka	75	199.4	150.2	257.7	1.12
Pakistan	33	185.7	123.6	266.2	1.04
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	23	432.6	217.8	726.1	2.43

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.2.2 PPH rates (Chronic condition – Angina)

Angina is characterised by chest pain caused by reduced blood flow to the heart. In this current study, only males from Other Oceania and Antarctica and Middle East regions were found to have significantly higher rates of angina when compared to the Australian-born population. In most regions, males had significantly higher rates of angina than females (Figure 10).

**Figure 10: Age-standardised rates for PPH sub-category of chronic conditions: angina by region of birth and sex, Queensland, 2016–17 to 2019–20**



When PPH rates due to angina were further explored at the level of country of birth, people born in Pakistan, Serbia, Tonga, Cook Islands and Fiji had significantly higher rates in comparison to the Australian-born population (Table 7).

**Table 7: Age-standardised rates for PPH sub-category of chronic conditions: angina by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	24,065	163.3	161.2	165.4	1.00
<b>MESB – UK/Ireland</b>					
Ireland	117	165.3	136.0	198.8	1.01
<b>NESB – Middle East</b>					
Iran	41	212.3	146.9	294.8	1.30
<b>NESB – North African</b>					
Egypt	43	213.2	146.3	297.2	1.31
<b>NESB – North Americas</b>					
Chile	23	180.5	114.1	271.3	1.11
<b>NESB – Other North-West Europe</b>					
Belgium	21	192.2	117.6	295.7	1.18
<b>NESB – Other Oceania and Antarctica</b>					
Tonga*	25	289.6	176.5	442.1	1.77
Cook Islands*	26	273.4	168.4	414.3	1.67
Fiji*	150	240.3	201.6	284.0	1.47
Samoa	67	185.0	139.6	239.5	1.13
<b>NESB – Southern and Central Asia</b>					
Pakistan*	34	390.1	249.6	571.8	2.39
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	59	350.5	265.2	454.1	2.15
Slovenia	20	269.4	143.5	445.6	1.65
Poland	99	204.2	164.3	250.6	1.25
Romania	24	172.7	109.1	259.0	1.06
Russian Federation	20	172.0	103.8	267.2	1.05

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

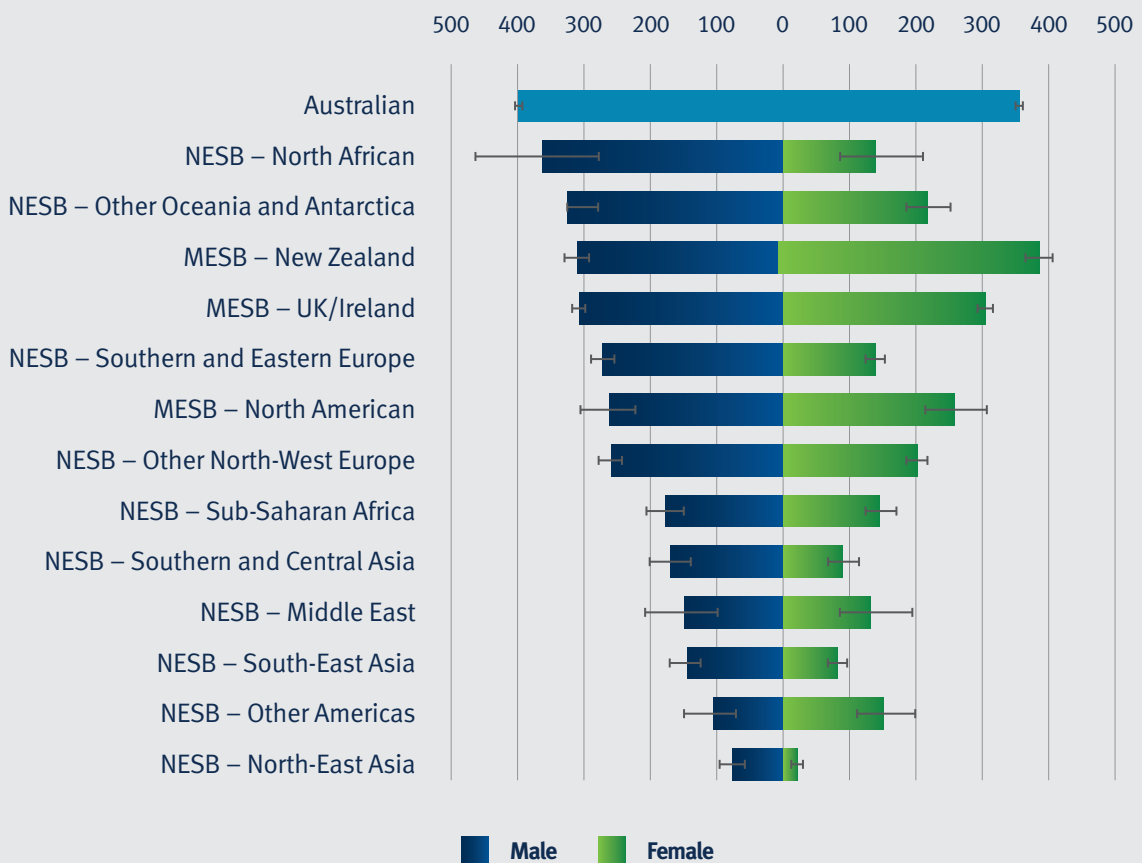


### 3.2.2.3 PPH rates (Chronic condition – Chronic obstructive pulmonary disease)

Chronic obstructive pulmonary disease (COPD) is a preventable and treatable condition that affects the lungs and leads to chronic obstruction of lung airflow that interferes with normal breathing. COPD can interrupt day-to-day activities, sleep patterns and the ability to exercise among other things, subsequently affecting the overall quality of life.

Analysis at the level of region of birth showed that females from New Zealand were the only population with significantly higher rates of COPD than the Australian-born population (Figure 11).

**Figure 11: Age-standardised rates for PPH sub-category of chronic conditions: chronic obstructive pulmonary disease (COPD) by region of birth and sex, Queensland, 2016–17 to 2019–20**



When further investigations were done at the level of country of birth, people born in Serbia, Samoa and Scotland had significantly higher rates of COPD when compared to the Australian-born population (Table 8).

**Table 8: Age-standardised rates for PPH sub-category of chronic conditions: chronic obstructive pulmonary disease (COPD) by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	56,058	374.4	371.3	377.6	1.00
<b>MESB – UK/Ireland</b>					
Ireland	306	411.0	365.2	460.8	1.10
Scotland*	1,004	403.9	378.4	430.7	1.08
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	178	541.8	459.1	634.3	1.45
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	118	695.9	575.2	834.4	1.86

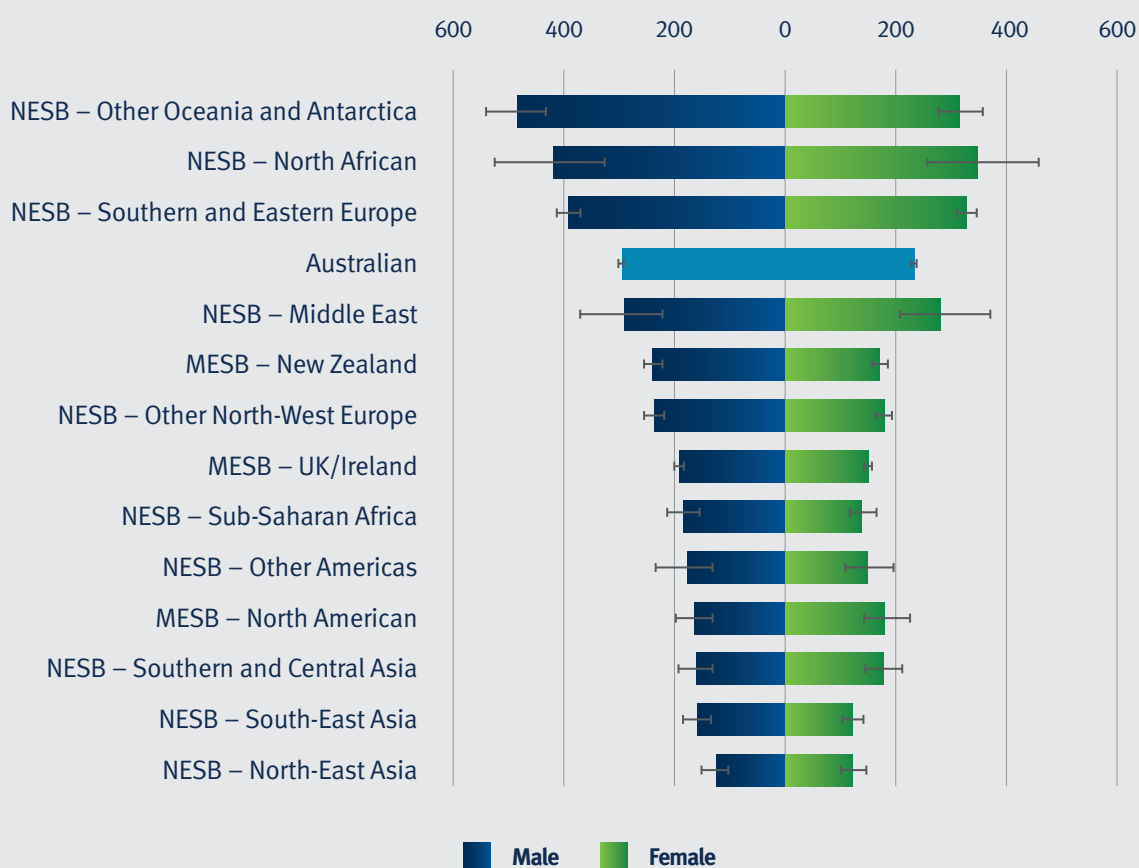
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.2.4 PPH rates (Chronic condition – Congestive cardiac failure)

Heart failure, also sometimes known as congestive cardiac failure, occurs when the heart begins to function less effectively in pumping blood around the body. It is a major cause of morbidity and mortality in Australia and causes a significant burden for patients as well as health systems<sup>38</sup>.

Analysis by region of birth in the current study highlighted that the following three regions had significantly higher rates of congestive cardiac failure than the Australian-born population: Other Oceania and Antarctica, North African and Southern and Eastern Europe (Figure 12). Males from many regions were found to have significantly higher rates than females.

**Figure 12: Age-standardised rates for PPH sub-category of chronic conditions: congestive cardiac failure by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>38</sup> Sahle BW, Owen AJ, Mutowo MP, Krum H, Reid CM. Prevalence of heart failure in Australia: a systematic review. BMC Cardiovasc Disord. 2016; 16 (32). Available from: [bmccardiovascdisord.biomedcentral.com/articles/10.1186/s12872-016-0208-4](http://bmccardiovascdisord.biomedcentral.com/articles/10.1186/s12872-016-0208-4)

At the level of country of birth, a number of countries were found to have significantly higher rates of congestive cardiac failure when compared to the Australia-born population. The top five countries were Syria, Serbia, Cook Islands, Ukraine and Samoa (Table 9).

**Table 9: Age-standardised rates for PPH sub-category of chronic conditions: congestive cardiac failure by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	38,627	263.0	260.4	265.7	1.00
<b>NESB – Middle East</b>					
Syria*	26	1,255.3	818.4	1,841.3	4.77
Lebanon*	48	462.2	340.1	613.7	1.76
<b>NESB – North African</b>					
Egypt*	104	400.2	326.9	485.0	1.52
<b>NESB – Other North-West Europe</b>					
Finland	101	279.9	228.0	340.1	1.06
<b>NESB – Other Oceania and Antarctica</b>					
Cook Islands*	54	758.0	555.7	1,005.8	2.88
Samoa*	203	604.5	517.8	700.8	2.30
Tonga*	36	537.3	365.7	757.5	2.04
Fiji*	168	331.9	282.1	387.8	1.26
Papua New Guinea	156	277.8	231.5	329.9	1.06
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	148	857.8	724.7	1,008.1	3.26
Ukraine*	83	754.0	592.1	944.7	2.87
Romania*	64	565.7	433.9	724.5	2.15
Slovenia*	48	485.0	333.9	672.4	1.84
Portugal*	27	433.1	285.3	630.1	1.65
Croatia*	228	405.2	351.1	464.9	1.54
Italy*	1,003	382.8	352.8	414.3	1.46
Greece*	246	344.1	296.0	397.1	1.31
Spain*	81	337.1	266.8	420.1	1.28
Hungary*	159	332.7	281.7	390.2	1.26
Poland*	173	330.2	282.2	383.9	1.26
Cyprus	53	304.8	228.3	398.8	1.16
Malta	141	290.5	241.7	345.8	1.10
Russian Federation	32	290.5	198.3	410.7	1.10

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.2.5 PPH rates (Chronic condition – Diabetes complications)

Diabetes is a chronic condition characterised by high levels of glucose in the blood. Type 2 diabetes is the most common and is largely preventable by maintaining a healthy lifestyle. Diabetes may lead to complications affecting major body organs, pregnancy and other longer-term negative outcomes<sup>39</sup>.

Some CALD populations have been shown to have a higher risk of developing diabetes and having poorer outcomes than the Australian-born population. This can be due to genetic, stress and lifestyle changes associated with migration as well as a poorer profile on the social determinants of health<sup>40 41 42</sup>. A recent report from AIHW identified that people born overseas had a higher prevalence of diabetes than the Australian-born population, particularly for people born in countries from regions such as Polynesia, South Asia and the Middle East<sup>43</sup>.

In the current study, the regions with significantly higher rates of diabetes complications than the Australian-born population were Other Oceania and Antarctica, Middle East, North African and Southern and Central Asia regions (Figure 13). Males from all regions had significantly higher rates than females.

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<sup>39</sup> Australian Institute of Health and Welfare. Diabetes: Australian facts. Canberra; AIHW. 2023. Available from: [www.aihw.gov.au/reports/diabetes/diabetes/contents/summary](http://www.aihw.gov.au/reports/diabetes/diabetes/contents/summary)

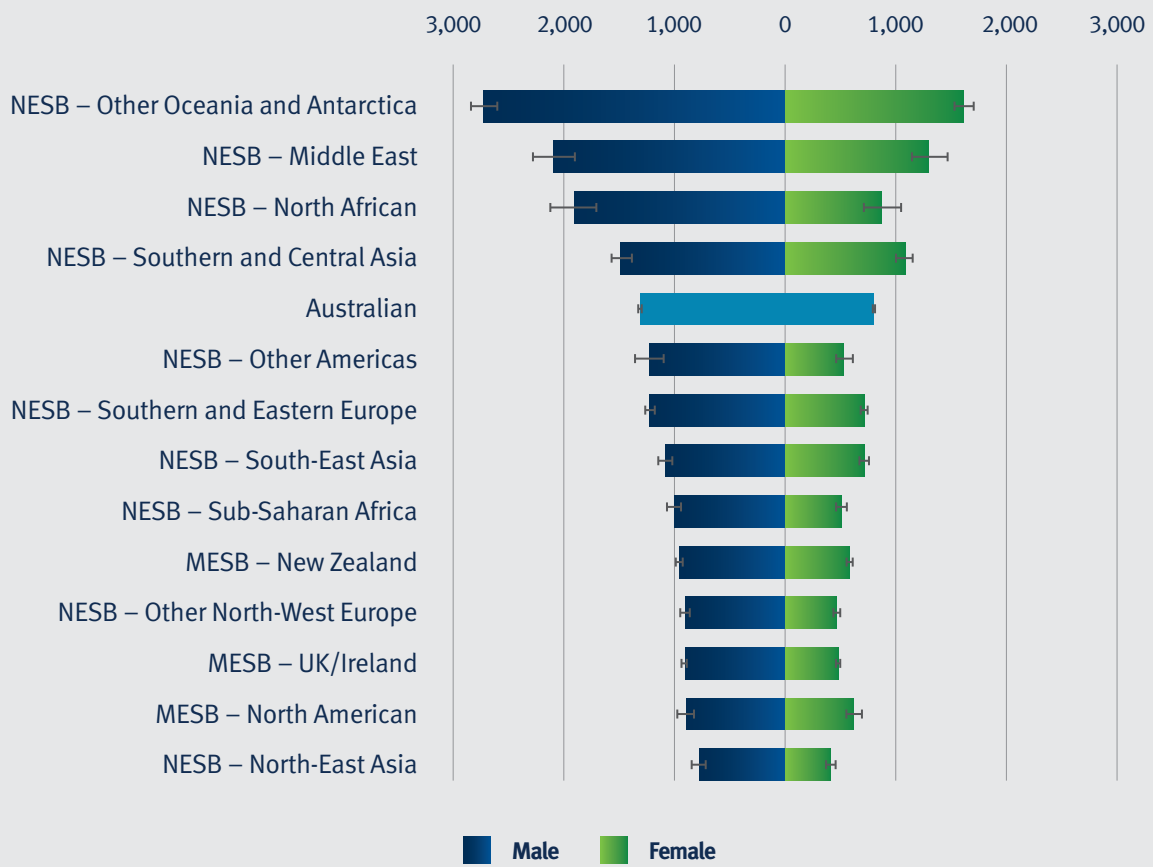
<sup>40</sup> Colagiuri R, Thomas M and Buckley A. Preventing Type 2 Diabetes in Culturally and Linguistically Diverse Communities in NSW. Sydney: NSW Department of Health. 2007. Available from: [www.diabetesaustralia.com.au/wp-content/uploads/Preventing-Type-2-Diabetes-in-Culturally-and-Linguistically-Diverse-Communities-in-NSW.pdf](http://www.diabetesaustralia.com.au/wp-content/uploads/Preventing-Type-2-Diabetes-in-Culturally-and-Linguistically-Diverse-Communities-in-NSW.pdf)

<sup>41</sup> Dunbar J, Reddy P, Davis-Lameloise N, Boak R, Hernan A, Thurston C. A discussion document for the development of a diabetes prevention strategy for Culturally and Linguistically Diverse populations in Australia. Victoria: Deakin University. 2008. Available from: [dro.deakin.edu.au/articles/book/A\\_discussion\\_document\\_for\\_the\\_development\\_of\\_a\\_diabetes\\_prevention\\_strategy\\_for\\_Culturally\\_and\\_Linguistically\\_Diverse\\_CALD\\_populations\\_in\\_Australia/20902555](http://dro.deakin.edu.au/articles/book/A_discussion_document_for_the_development_of_a_diabetes_prevention_strategy_for_Culturally_and_Linguistically_Diverse_CALD_populations_in_Australia/20902555)

<sup>42</sup> Shailja T, Shanshan S. Managing Diabetes in CALD Communities. *Endocrinology Today*, 2019; 8(1). Available from: [www.researchgate.net/publication/332173734\\_Managing\\_diabetes\\_in\\_CALD\\_community](http://www.researchgate.net/publication/332173734_Managing_diabetes_in_CALD_community)

<sup>43</sup> Australian Institute of Health and Welfare. Chronic health conditions among culturally and linguistically diverse Australians. AIHW; 2021 (updated 08 February 2023). Available from: [www.aihw.gov.au/reports/cald-australians/chronic-conditions-cald-2021/contents/background](http://www.aihw.gov.au/reports/cald-australians/chronic-conditions-cald-2021/contents/background)

**Figure 13: Age-standardised rates for PPH sub-category of chronic conditions: diabetes complications by region of birth and sex, Queensland, 2016–17 to 2019–20**



Further analysis at the level of country of birth showed that several countries had significantly higher rates of diabetes complications compared to the Australian-born population. The top five countries were Syria, Samoa, Cook Islands, Iraq and Eritrea (Table 10).

**Table 10: Age-standardised rates for PPH sub-category of chronic conditions: diabetes complications by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	153,742	1,041.2	1,036.0	1,046.4	1.00
<b>NESB – Middle East</b>					
Syria*	99	4,622.0	3,750.9	5,633.7	4.44
Iraq*	150	2,698.1	2,206.8	3,252.7	2.59
Jordan*	32	2,531.9	1,723.1	3,585.2	2.43
Lebanon*	204	2,037.0	1,728.1	2,379.7	1.96
Turkey*	119	1,871.2	1,537.4	2,253.8	1.80
<b>NESB – North African</b>					
Sudan	58	1,554.9	1,008.9	2,219.0	1.49
Egypt*	322	1,483.9	1,306.2	1,676.9	1.43
<b>NESB – Other Americas</b>					
Peru	36	1,165.7	775.6	1,666.0	1.12
<b>NESB – Other North-West Europe</b>					
Belgium	100	1,077.2	854.7	1,335.4	1.03
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	1,225	3,068.2	2,882.3	3,262.1	2.95
Cook Islands*	256	2,913.0	2,535.6	3,327.1	2.80
Fiji*	1,430	2,450.4	2,318.9	2,587.2	2.35
Tonga*	240	2,385.9	2,066.0	2,737.9	2.29
Papua New Guinea*	806	1,176.5	1,087.5	1,270.3	1.13
Solomon Islands	31	1,158.1	730.0	1,718.2	1.11
<b>NESB – South-East Asia</b>					
Myanmar	130	1,163.8	967.0	1,388.0	1.12
Cambodia	94	1,133.5	906.5	1,398.3	1.09
<b>NESB – Southern and Central Asia</b>					
Pakistan*	158	2,411.5	1,976.8	2,900.7	2.32
Bangladesh*	64	2,167.7	1,499.4	2,972.9	2.08
Afghanistan*	72	1,849.3	1,390.0	2,396.6	1.78
India*	1,305	1,241.1	1,172.8	1,312.3	1.19
Sri Lanka*	533	1,173.6	1,074.8	1,278.9	1.13

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	433	2,488.3	2,258.5	2,735.1	2.39
Romania*	170	1,326.8	1,130.3	1,547.0	1.27
Malta*	544	1,252.3	1,091.7	1,423.5	1.20
Portugal	94	1,248.2	1,001.5	1,535.9	1.20
Croatia*	559	1,171.0	1,059.6	1,289.6	1.12
Greece	648	1,116.3	1,013.8	1,224.9	1.07
Ukraine	95	1,079.7	845.2	1,352.9	1.04
<b>NESB – Sub-Saharan Africa</b>					
Eritrea*	50	2,561.8	1,840.1	3,452.9	2.46
Somalia*	52	2,418.8	1,603.3	3,421.6	2.32

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

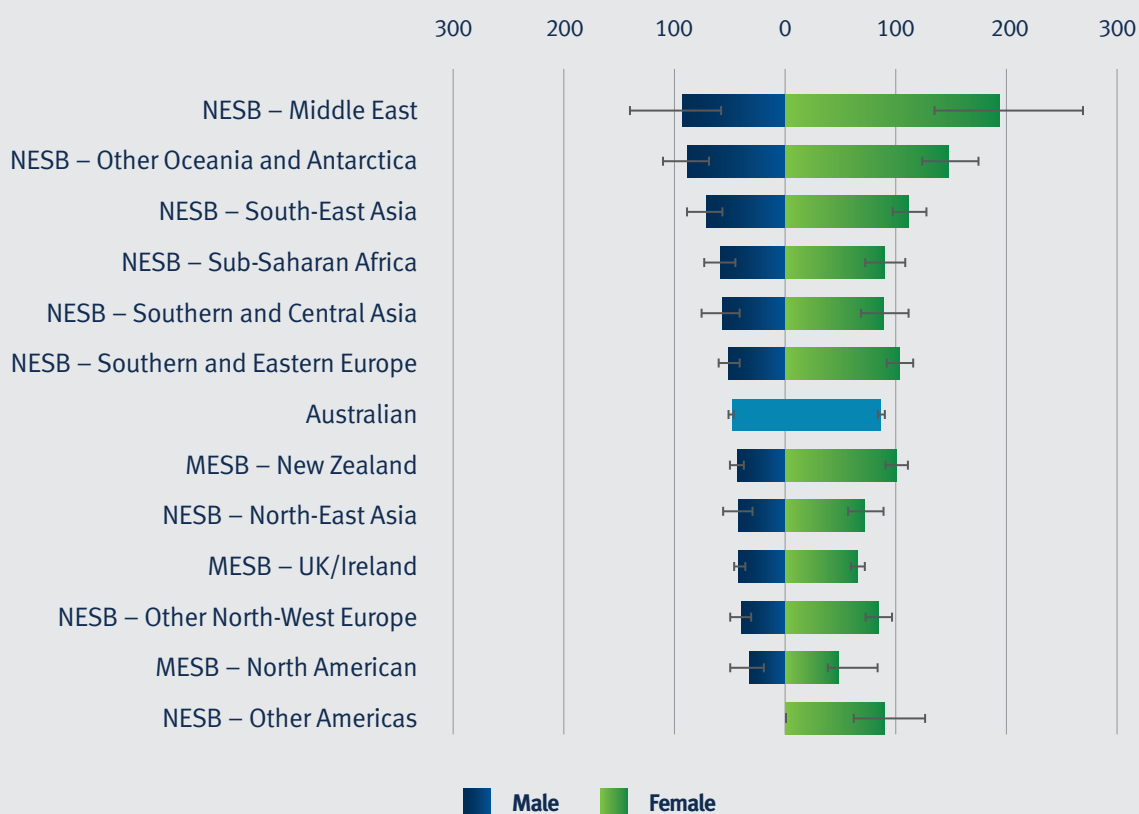


### 3.2.2.6 PPH rates (Chronic condition – Hypertension)

High blood pressure, also referred to as hypertension, is a major risk factor for various chronic conditions including stroke, coronary heart disease, heart failure and chronic kidney disease<sup>44</sup>. Low health literacy among some CALD populations is a potential barrier to accessing appropriate care. This is associated with a lack of understanding of health information, undesirable health behaviours or negative beliefs regarding aspects of hypertension management, such as medication adherence. This subsequently poses a huge risk for this cohort<sup>45</sup>.

In the current study, many regions had higher rates of hypertension when compared to the Australian-born population (Figure 14). Females from all regions had higher rates than males, with many being significantly higher.

**Figure 14: Age-standardised rates for PPH sub-category of chronic conditions: hypertension by region of birth and sex, Queensland, 2016–17 to 2019–20**



*Age-standardised rates are omitted for male population where cell counts are insufficient. See Appendix C for details.*

<sup>44</sup> Australian Institute of Health and Welfare. High blood pressure. AIHW: 2019.

Available from: [www.aihw.gov.au/reports/risk-factors/high-blood-pressure/contents/high-blood-pressure](http://www.aihw.gov.au/reports/risk-factors/high-blood-pressure/contents/high-blood-pressure)

<sup>45</sup> Shahin W, Kennedy GA, Stupans I. A qualitative exploration of the impact of knowledge and perceptions about hypertension in medication adherence in Middle Eastern refugees and migrants. *Explor Res Clin Soc Pharm.* 2021.

Available from: [www.ncbi.nlm.nih.gov/pmc/articles/PMC9030275/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC9030275/)

Further exploration of the data at the country of birth level showed that those born in Serbia, Poland, Hungary, Samoa, Fiji, Papua New Guinea and the Philippines had significantly higher rates of hypertension when compared to the Australian-born population (Table 11).

**Table 11: Age-standardised rates for PPH sub-category of chronic conditions: hypertension by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	10,024	69.2	67.8	70.5	1.00
<b>MESB – New Zealand</b>					
New Zealand	666	72.3	66.8	78.2	1.05
<b>NESB – Other North-West Europe</b>					
Finland	34	120.5	69.0	187.0	1.74
Austria	28	82.0	44.8	131.3	1.19
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	77	176.9	137.4	223.7	2.56
Fiji*	69	118.2	90.7	151.1	1.71
Papua New Guinea*	70	101.1	76.2	131.0	1.46
<b>NESB – South-East Asia</b>					
Philippines*	205	165.6	139.3	194.9	2.39
Singapore	21	95.1	54.5	151.4	1.38
<b>NESB – Southern and Central Asia</b>					
India	97	80.4	63.9	99.6	1.16
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	47	271.8	199.6	361.7	3.93
Poland*	79	164.5	128.1	207.6	2.38
Hungary*	41	107.0	72.0	151.2	1.55

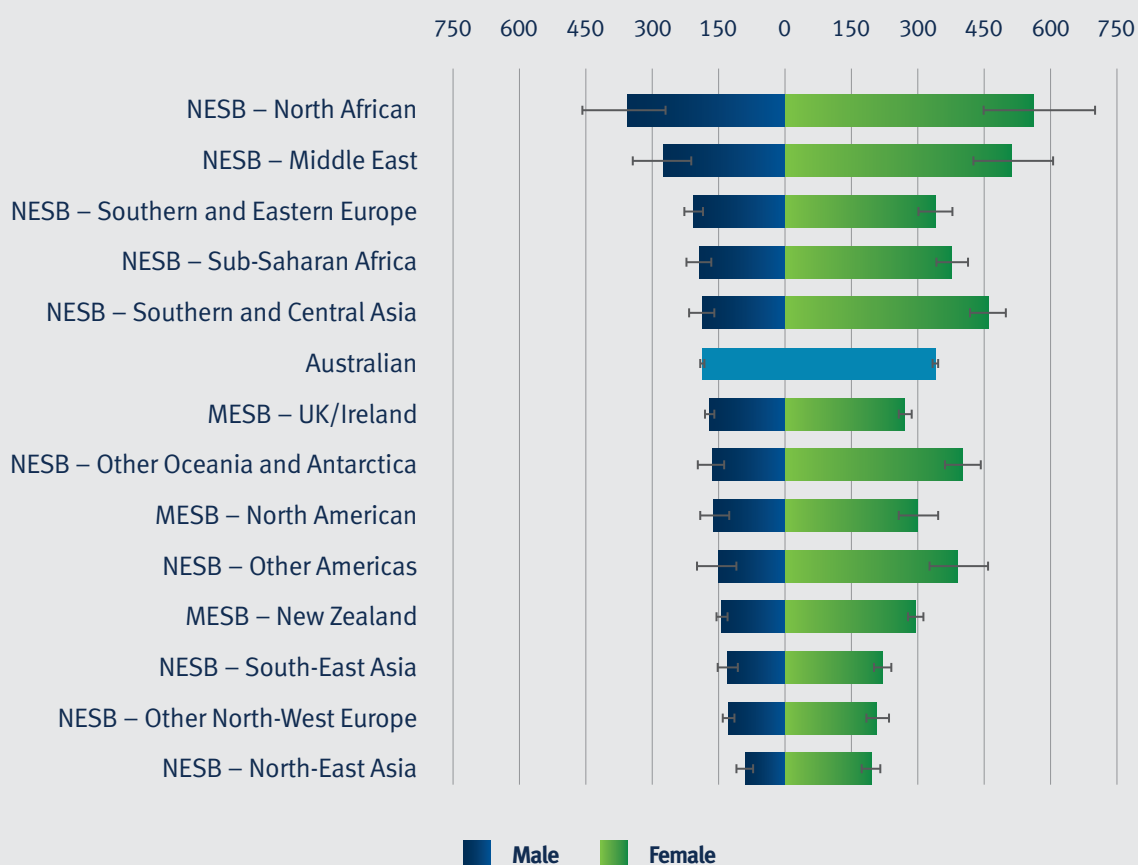
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.2.7 PPH rates (Chronic condition – Iron deficiency anaemia)

Anaemia is a major cause of morbidity and mortality worldwide. Iron deficiency anaemia occurs after iron stores become severely depleted. Some CALD sub-populations in Australia are known to be at a higher risk of having iron deficiency anaemia due to several factors including complex migration journeys<sup>46</sup>.

In the current study, analysis at the level of region of birth showed that four regions had significantly higher rates of iron deficiency anaemia when compared to the Australian-born population (Figure 15). These were North African, Middle East, Southern and Central Asia and Other Oceania and Antarctica regions. Females had significantly higher rates than males in all regions except North African region.

**Figure 15: Age-standardised rates for PPH sub-category of chronic conditions: iron deficiency anaemia by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>46</sup> Furnival A, McGovern C. Iron Deficiency Collaborative: The economic impact of iron deficiency in Australia. Victoria: Evaluate. 2021. Available from: [static1.squarespace.com/static/57bfc0498419c24a01318ae2/t/607fc2e06ace2f22d5ca9a43/1618985699483/20210421+-+IDC+-+economic+impact+of+iron+deficiency+-+FINAL.pdf](https://static1.squarespace.com/static/57bfc0498419c24a01318ae2/t/607fc2e06ace2f22d5ca9a43/1618985699483/20210421+-+IDC+-+economic+impact+of+iron+deficiency+-+FINAL.pdf)

When the level of country of birth was further explored, results highlighted that people born in a number of countries with NESB populations had significantly higher rates of iron deficiency anaemia when compared to the Australian-born population. The top five countries were Israel, Serbia, Sudan, Peru and Pakistan (Table 12).

**Table 12: Age-standardised rates for PPH sub-category of chronic conditions: iron deficiency anaemia by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	37,099	262.8	260.1	265.5	1.00
<b>NESB – Middle East</b>					
Israel*	24	772.1	486.9	1,159.3	2.94
Iraq*	46	444.9	286.5	642.4	1.69
Turkey	26	344.3	219.4	511.9	1.31
Iran	81	341.5	256.8	441.3	1.30
Lebanon	30	309.0	205.2	445.3	1.18
<b>NESB – North African</b>					
Sudan*	48	611.0	322.9	968.3	2.32
Egypt*	89	500.2	380.7	640.0	1.90
<b>NESB – Other Americas</b>					
Peru*	24	598.2	349.0	936.5	2.28
Colombia	41	280.4	178.8	408.8	1.07
<b>NESB – Other Oceania and Antarctica</b>					
Fiji*	237	390.0	339.0	446.2	1.48
Cook Islands	30	287.7	188.5	418.0	1.09
<b>NESB – Southern and Central Asia</b>					
Pakistan*	70	542.2	360.9	758.8	2.06
Bangladesh*	47	525.3	269.2	843.8	2.00
Afghanistan	47	381.1	237.5	559.6	1.45
India*	605	302.7	274.1	333.1	1.15
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	106	663.9	539.5	807.7	2.53
Ukraine*	28	475.0	291.6	718.4	1.81
Russian Federation*	55	423.4	313.8	557.5	1.61
Greece	100	334.6	186.6	506.4	1.27
<b>NESB – Sub-Saharan Africa</b>					
Mauritius	37	377.8	253.6	536.5	1.44

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

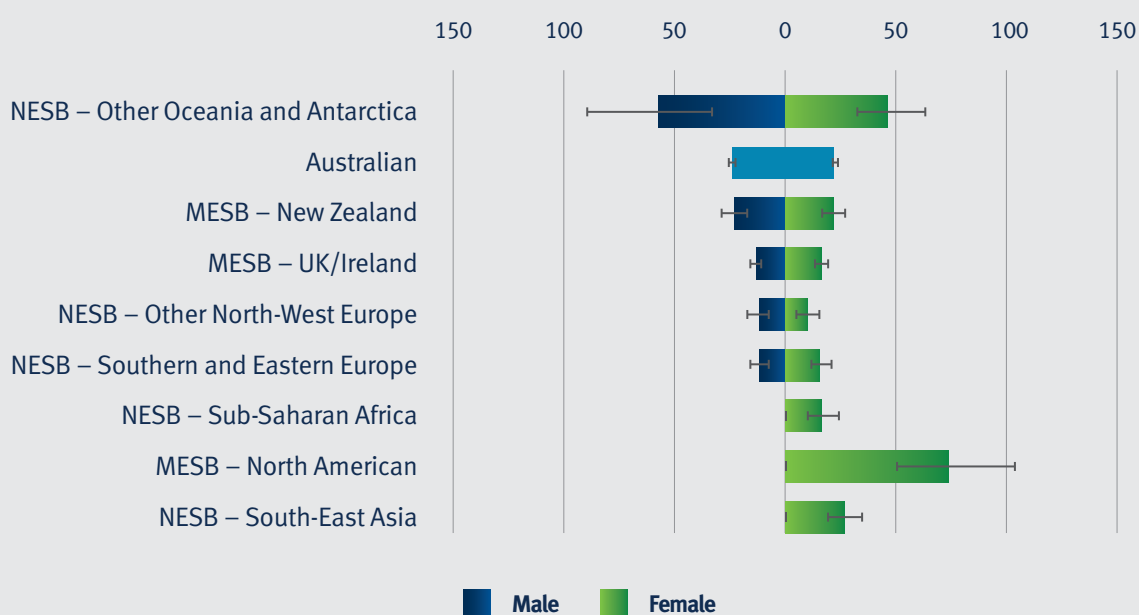
### 3.2.2.8 PPH rates (Chronic condition – Rheumatic heart disease)

Rheumatic heart disease (RHD) is a significant cause of cardiac morbidity and mortality. It is caused by damage to the valves of the heart from one or more episodes of acute rheumatic fever (autoimmune response to infection of the upper respiratory tract and possibly of the skin by bacteria).

In high income countries like Australia, RHD is mostly found in certain cohorts including CALD and migrant populations from countries with endemic RHD as well as people with Māori or Pacific Islander ancestry<sup>47</sup>.

In the current study, the only region with significantly higher rates of rheumatic heart disease when compared to the Australian-born population was the Other Oceania and Antarctica region (Figure 16). Additionally, females from the North American region had significantly higher rates than Australian-born females.

**Figure 16: Age-standardised rates for PPH sub-category of chronic conditions: rheumatic heart disease by region of birth and sex, Queensland, 2016–17 to 2019–20**



*Age-standardised rates are omitted for male population where cell counts are insufficient. See Appendix C for details.*

<sup>47</sup> Katzenellenbogen JM, Bond-Smith D, Seth RJ, Dempsey K, Cannon J, Stacey I, et al. Contemporary Incidence and Prevalence of Rheumatic Fever and Rheumatic Heart Disease in Australia Using Linked Data: The Case for Policy Change. *Journal of the American Heart Association*. 2020; 9 (19). Available from: [www.ahajournals.org/doi/full/10.1161/JAHA.120.016851](http://www.ahajournals.org/doi/full/10.1161/JAHA.120.016851)

Further analysis at level of country of birth revealed that those born in two countries had significantly higher rates of rheumatic heart disease when compared to the Australian-born population: Egypt and the United States of America (Table 13).

**Table 13: Age-standardised rates for PPH sub-category of chronic conditions: rheumatic heart disease by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	3,401	23.1	22.3	23.9	1.00
<b>MESB – North American</b>					
United States of America*	39	59.6	42.3	81.5	2.58
<b>MESB – UK/Ireland</b>					
Ireland	23	31.3	19.8	47.0	1.35
<b>NESB – North African</b>					
Egypt*	21	80.6	49.9	123.3	3.49
<b>NESB – South-East Asia</b>					
Vietnam	21	31.7	19.0	49.4	1.37
Malaysia	20	25.9	15.5	40.4	1.12

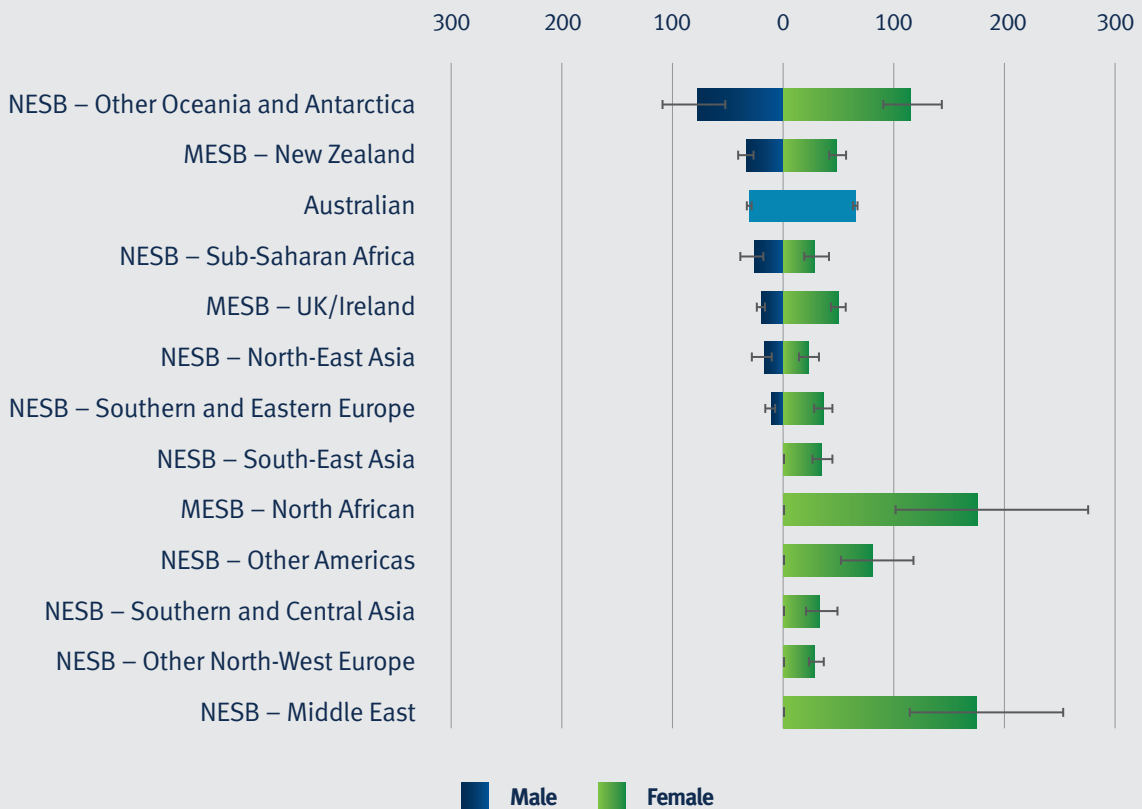
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.2.9 PPH rates (Chronic condition – Bronchiectasis)

Bronchiectasis is a lung disease that occurs when the walls of the breathing tubes or airways widen because of chronic inflammation and/or infection.

When compared to the Australian-born population, bronchiectasis was observed to be significantly higher in males and females from Other Oceania and Antarctica region. Females from the North African and Middle East regions also had significantly higher rates than Australian-born females (Figure 17).

**Figure 17: Age-standardised rates for PPH sub-category of chronic conditions: bronchiectasis by region of birth and sex, Queensland 2016–17 to 2019–20**



*Age-standardised rates are omitted for male population where cell counts are insufficient. See Appendix C for details.*

At the level of country of birth, people born in these countries with NESB populations had significantly higher rates of bronchiectasis in comparison to the Australian-born population: Colombia, Lebanon, Papua New Guinea and Samoa (Table 14).

**Table 14: Age-standardised rates for PPH sub-category of chronic conditions: bronchiectasis by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	7,326	49.1	48.0	50.2	1.00
<b>NESB – Middle East</b>					
Lebanon*	27	278.3	183.4	405.0	5.67
<b>NESB – Other Americas</b>					
Colombia*	20	459.5	280.6	709.8	9.36
<b>NESB – Other Oceania and Antarctica</b>					
Papua New Guinea*	83	143.5	107.5	185.9	2.92
Samoa*	35	96.3	64.5	137.2	1.96

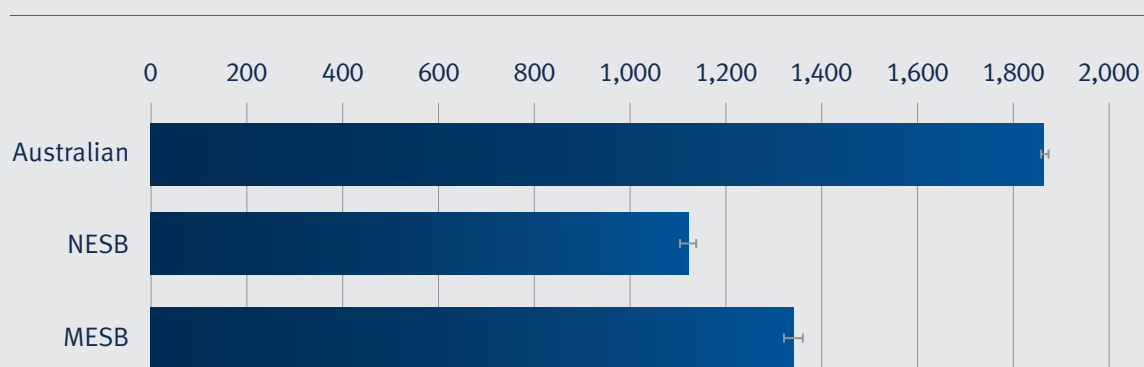
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.3 PPH (Acute conditions)

An acute condition is a health condition that develops suddenly and lasts for a limited time. Hospitalisation can be prevented with timely and adequate care (usually non-hospital).

In this section, the age-standardised rates for the PPH sub-category of total acute conditions and selected conditions were analysed. Findings revealed that at an aggregate level, NESB and MESB populations had lower rates of acute conditions when compared to the Australian-born population (Figure 18).

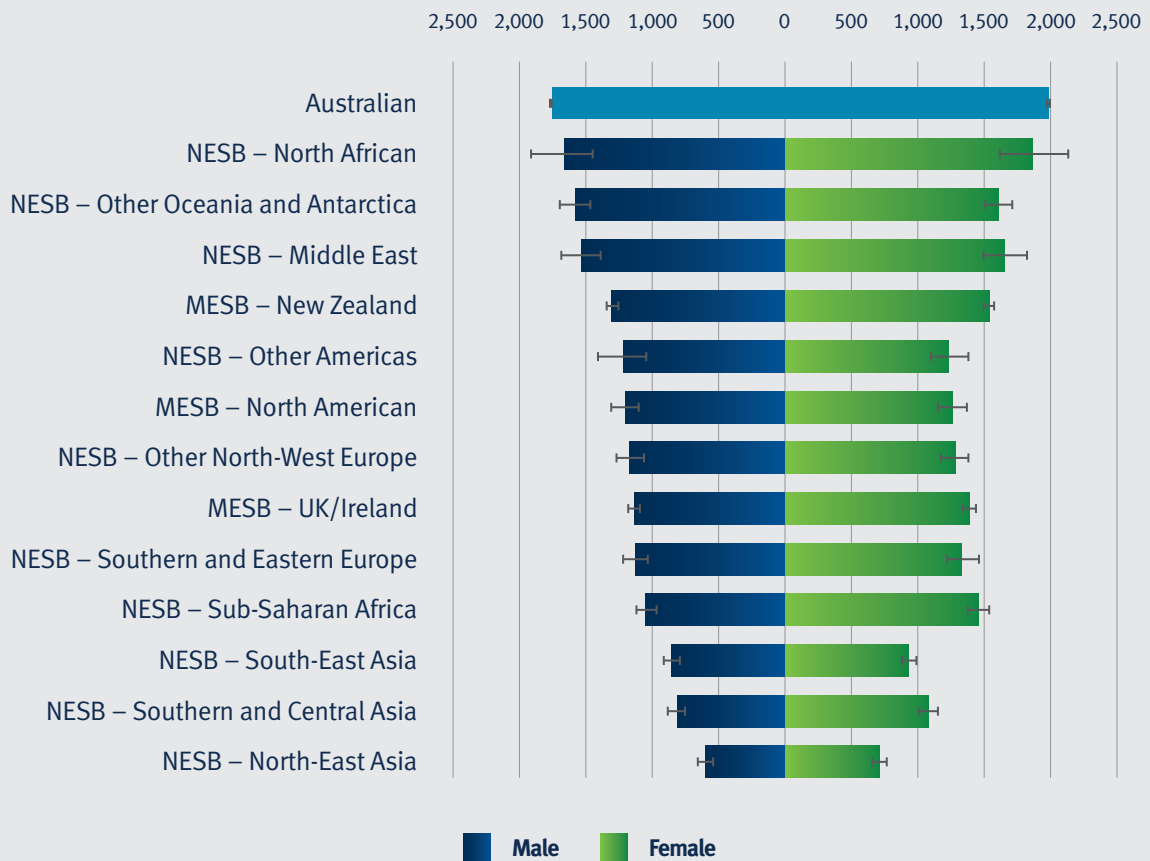
**Figure 18: Age-standardised rates for PPH sub-category of total acute conditions by broad country of birth category, Queensland, 2016–17 to 2019–20**





Analysis at the level of region of birth revealed that no region had significantly higher rates of acute conditions when compared to the Australian-born population (Figure 19).

**Figure 19: Age-standardised rates for PPH sub-category of total acute conditions by region of birth and sex, Queensland, 2016–17 to 2019–20**



However, when further analysis was conducted at the level of country of birth, people born in several countries with NESB populations had significantly higher rates of acute conditions when compared to the Australian-born population: Sudan, Syria, Somalia, Samoa, Cook Islands and Afghanistan (Table 15).

**Table 15: Age-standardised rates for PPH sub-category of total acute conditions by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	269,858	1,863.6	1,856.6	1,870.7	1.00
<b>NESB – Middle East</b>					
Syria*	82	3,524.8	2,795.5	4,384.5	1.89
Iraq	215	2,212.5	1,854.7	2,608.4	1.19
<b>NESB – North African</b>					
Sudan*	292	3,639.7	2,962.0	4,378.9	1.95
<b>NESB – Other Americas</b>					
Mexico	48	2,675.5	1,776.6	3,790.5	1.44
<b>NESB – Other North-West Europe</b>					
Austria	268	2,596.9	1,359.3	3,952.0	1.39
Sweden	150	1,989.5	1,591.5	2,438.8	1.07
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	869	2,540.2	2,329.0	2,762.3	1.36
Vanuatu	29	2,355.6	1,256.4	3,806.6	1.26
Cook Islands*	185	2,325.0	1,952.2	2,740.8	1.25
Tonga	162	1,972.1	1,643.4	2,341.5	1.06
<b>NESB – Southern and Central Asia</b>					
Afghanistan*	221	2,368.1	1,924.7	2,858.0	1.27
<b>NESB – Southern and Eastern Europe</b>					
Serbia	287	2,463.3	1,850.5	3,132.2	1.32
Ukraine	115	2,102.1	1,379.4	2,932.4	1.13
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	128	2,634.3	1,934.6	3,432.2	1.41
Uganda	42	1,936.6	1,339.4	2,688.5	1.04
Eritrea	58	1,912.5	1,375.2	2,566.0	1.03

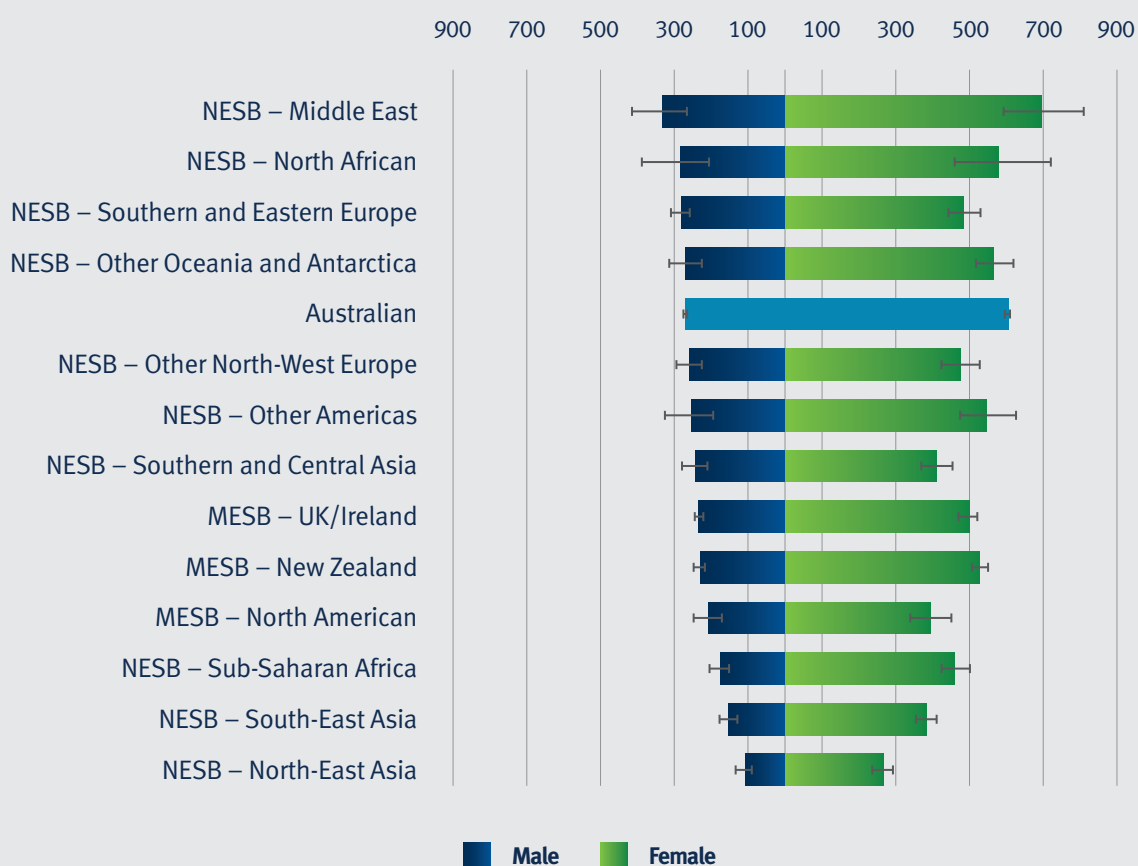
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

To further understand the health issues and outcomes of people from various regions, the current study explored the PPH rates for selected acute conditions: urinary tract infections, gangrene, pelvic inflammatory disease, perforated/bleeding ulcer, convulsions and epilepsy, dental conditions, ear nose and throat infections and cellulitis.

### 3.2.3.1 PPH rates (Acute condition – Urinary tract infections including pyelonephritis)

Urinary tract infections (UTIs) are a common cause of hospitalisations that are potentially preventable. In the current study, no region had significantly higher rates of UTIs (including pyelonephritis) when compared to the Australian-born population (Figure 20). Females in all regions (including Australia) had significantly higher rates than males.

**Figure 20: Age-standardised rates for PPH sub-category of acute conditions: urinary tract infections (including pyelonephritis) by region of birth and sex, Queensland, 2016–17 to 2019–20**



Further analysis at the level of country of birth revealed that people born in several countries with NESB populations had significantly higher rates of urinary tract infections. The top five countries were Syria, Somalia, Afghanistan, Sudan and Turkey (Table 16).

**Table 16: Age-standardised rates for PPH sub-category of acute conditions: urinary tract infections (including pyelonephritis) by country of birth, Queensland, 2016–17 to 2019–20**

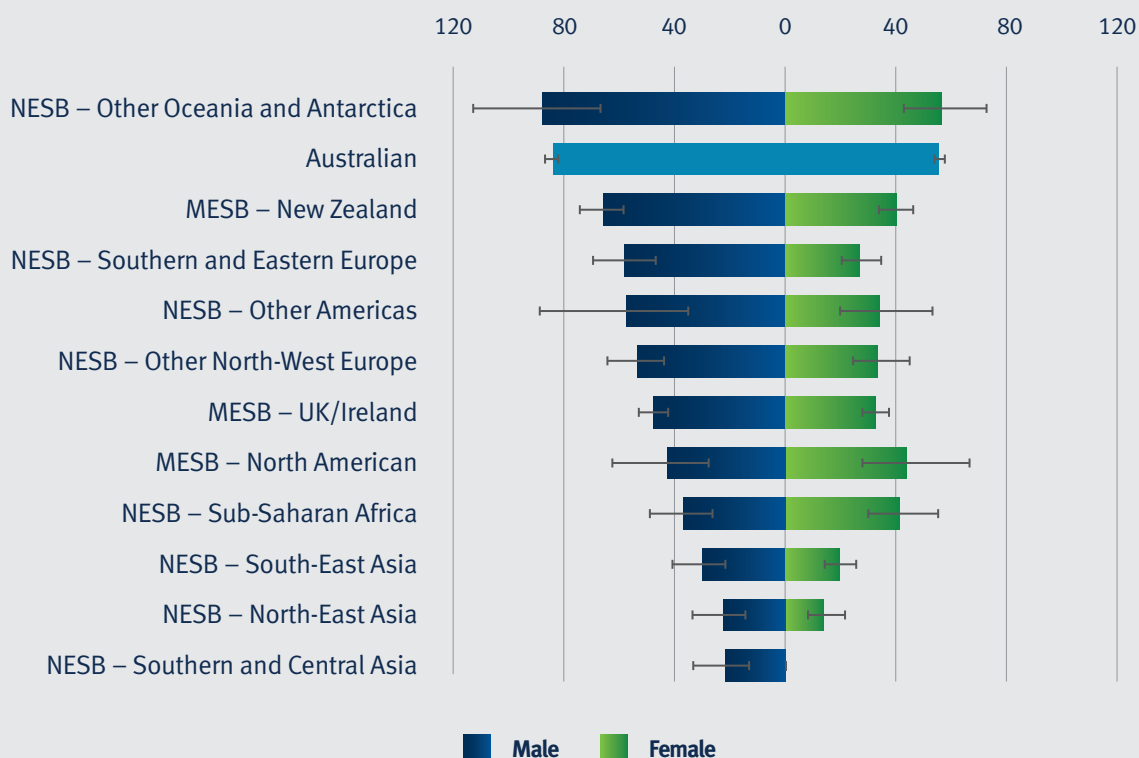
Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	63,239	438.2	434.8	441.7	1.00
<b>NESB – Middle East</b>					
Syria*	24	1,000.5	637.2	1,493.7	2.28
Turkey*	45	906.7	580.1	1,314.8	2.07
Lebanon*	60	710.1	516.7	944.5	1.62
Iraq	48	629.1	409.7	901.2	1.44
<b>NESB – North African</b>					
Sudan*	52	919.7	487.7	1,451.0	2.10
<b>NESB – Other Americas</b>					
Chile	58	451.9	341.9	585.6	1.03
<b>NESB – Other North-West Europe</b>					
Sweden*	65	765.6	541.5	1,035.3	1.75
Austria	97	753.4	184.4	1,415.3	1.72
Finland	81	510.2	284.5	776.5	1.16
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	232	648.4	551.1	755.7	1.48
Tonga*	46	628.3	446.6	854.6	1.43
Cook Islands	39	499.7	344.3	697.1	1.14
<b>NESB – South-East Asia</b>					
Myanmar*	100	681.3	548.4	835.4	1.55
<b>NESB – Southern and Central Asia</b>					
Afghanistan*	66	929.5	631.8	1,287.3	2.12
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	122	763.5	615.4	933.0	1.74
Croatia	195	536.8	427.4	658.4	1.22
Ukraine	49	496.9	359.2	667.3	1.13
Romania	42	495.5	180.8	891.7	1.13
Poland	199	450.0	379.4	528.4	1.03
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	32	951.3	469.1	1,579.5	2.17

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.3.2 PPH rates (Acute condition – Gangrene)

Gangrene is death of body tissue due to a lack of blood flow or a threatening bacterial infection. In the current study, no region had significantly higher rates of gangrene when compared to the Australian-born population (Figure 21).

**Figure 21: Age-standardised rates for PPH sub-category of acute conditions: gangrene by region of birth and sex, Queensland, 2016–17 to 2019–20**



Age-standardised rates are omitted for male population where cell counts are insufficient. See Appendix C for details.

At the country of birth level, only those born in Serbia had significantly higher rates of gangrene when compared to the Australian-born population (Table 17).

**Table 17: Age-standardised rates for PPH sub-category of acute conditions: gangrene by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	9,855	69.2	67.9	70.6	1.00
<b>NESB – Other Oceania and Antarctica</b>					
Samoa	41	95.0	66.4	131.2	1.37
<b>NESB – Southern and Eastern Europe</b>					
Serbia*	21	154.1	92.8	239.2	2.23

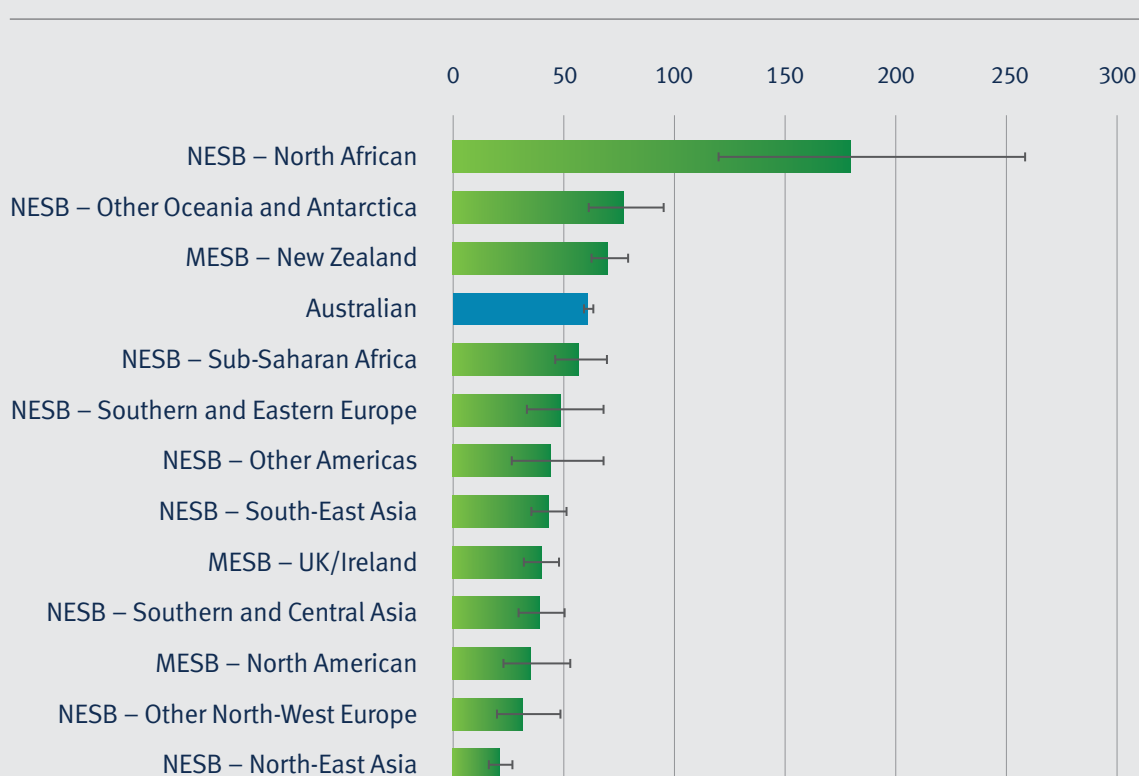
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.3.3 PPH rates (Acute condition – Pelvic inflammatory disease)

Pelvic inflammatory disease is an infection of the upper female reproductive tract, which can result in infertility, ectopic pregnancy and chronic pelvic pain. Most infections are due to sexually transmitted diseases. Some CALD populations have been shown to have limited knowledge around sexual health literacy, poor attitudes towards contraception and cultural/ religious factors such as myths regarding contraceptives and condoms that contribute to increased rates of sexual and reproductive health conditions<sup>48</sup>.

Please note that pelvic inflammatory disease is only a female condition. Therefore, analysis is female specific. In the current study, when compared to the Australian-born females, females from North African and New Zealand regions had significantly higher rates of pelvic inflammatory disease (Figure 22).

**Figure 22: Age-standardised rates for PPH sub-category of acute conditions: pelvic inflammatory disease by region of birth and sex (females only), Queensland, 2016–17 to 2019–20**



<sup>48</sup> Mengesha ZB, Perz J, Dune T, Ussher J. Challenges in the Provision of Sexual and Reproductive Health Care to Refugee and Migrant Women: A Q Methodological Study of Health Professional Perspectives. *Journal of Immigrant and Minority Health*. 2018; 20 (2); 301-16. Available from: [www.jstor.org/stable/48709342](http://www.jstor.org/stable/48709342)

When further analysis was conducted at the level of country of birth, results showed that females born in Sudan and New Zealand had significantly higher rates of pelvic inflammatory disease when compared to Australian-born females (Table 18).

**Table 18: Age-standardised rates for PPH sub-category of acute conditions: pelvic inflammatory disease by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	3,960	30.3	29.4	31.3	1.00
<b>MESB – New Zealand</b>					
New Zealand*	326	35.3	31.5	39.4	1.16
<b>NESB – North African</b>					
Sudan*	21	152.2	89.1	239.7	5.02
<b>NESB – Other Oceania and Antarctica</b>					
Papua New Guinea	30	43.0	28.4	62.2	1.42
Fiji	25	39.4	24.8	59.0	1.30
<b>NESB – South-East Asia</b>					
Thailand	21	35.0	21.4	53.8	1.15

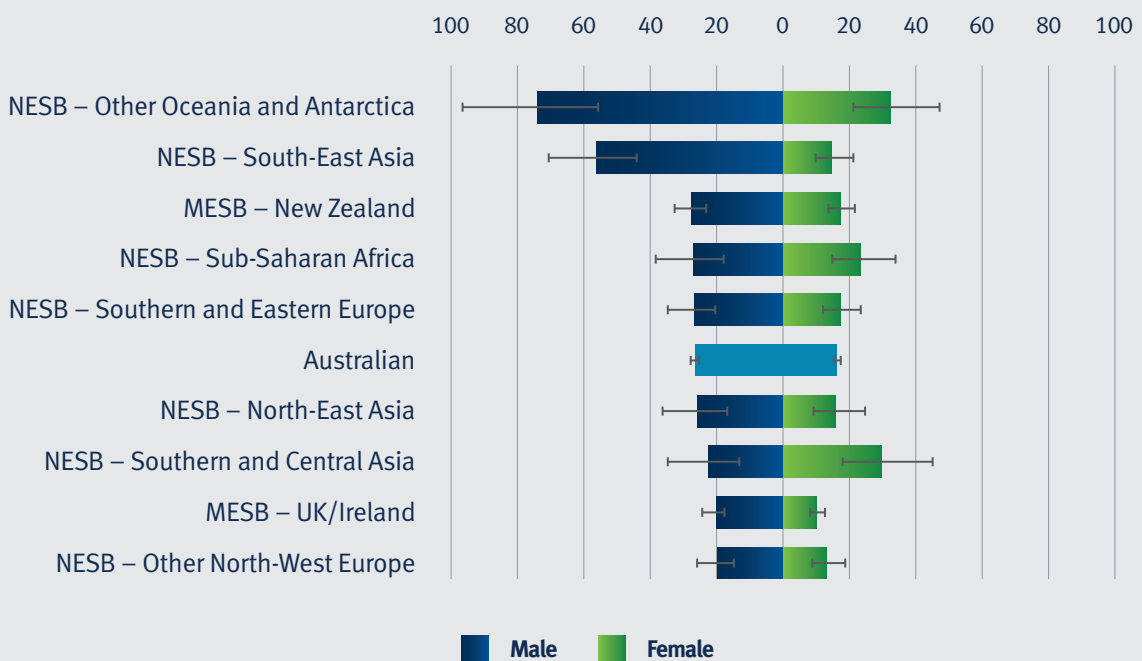
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.3.4 PPH rates (Acute condition – Perforated/bleeding ulcer)

A perforated ulcer is a serious medical condition in which a hole forms in an ulcer, allowing the contents of the digestive tract to leak into the abdominal cavity. This condition may require immediate surgery.

In the current study, males and females from Other Oceania and Antarctica, males from South-East Asia and females from Southern and Central Asia had significantly higher rates of perforated/bleeding ulcer when compared to the Australian-born population (Figure 23).

**Figure 23: Age-standardised rates for PPH sub-category of acute conditions: perforated/bleeding ulcer by region of birth and sex, Queensland, 2016–17 to 2019–20**





Further analysis at the level of country of birth revealed that only those born in Samoa, Vietnam and Ireland had significantly higher rates of perforated/bleeding ulcer when compared to the Australian-born population (Table 19).

**Table 19: Age-standardised rates for PPH sub-category of acute conditions: perforated/bleeding ulcer by country of birth, Queensland, 2016–17 to 2019–20.**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	3,064	21.2	20.5	22.0	1.00
<b>MESB – New Zealand</b>					
New Zealand	206	22.3	19.3	25.7	1.05
<b>MESB – North American</b>					
United States of America	23	29.0	18.1	44.0	1.37
<b>MESB – UK/Ireland</b>					
Ireland*	26	38.9	25.0	57.5	1.83
<b>NESB – North-East Asia</b>					
China (excludes SARs and Taiwan)	35	22.9	15.5	32.5	1.08
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	37	100.0	67.9	141.1	4.71
Papua New Guinea	20	33.5	19.2	53.4	1.58
<b>NESB – South-East Asia</b>					
Vietnam*	42	50.7	35.2	70.2	2.39
Philippines	33	27.1	16.9	40.3	1.28
<b>NESB – Southern and Central Asia</b>					
India	27	23.2	14.6	34.7	1.09
<b>NESB – Southern and Eastern Europe</b>					
Italy	38	21.6	11.2	34.8	1.02
<b>NESB – Sub-Saharan Africa</b>					
South Africa	33	23.3	15.8	33.0	1.10

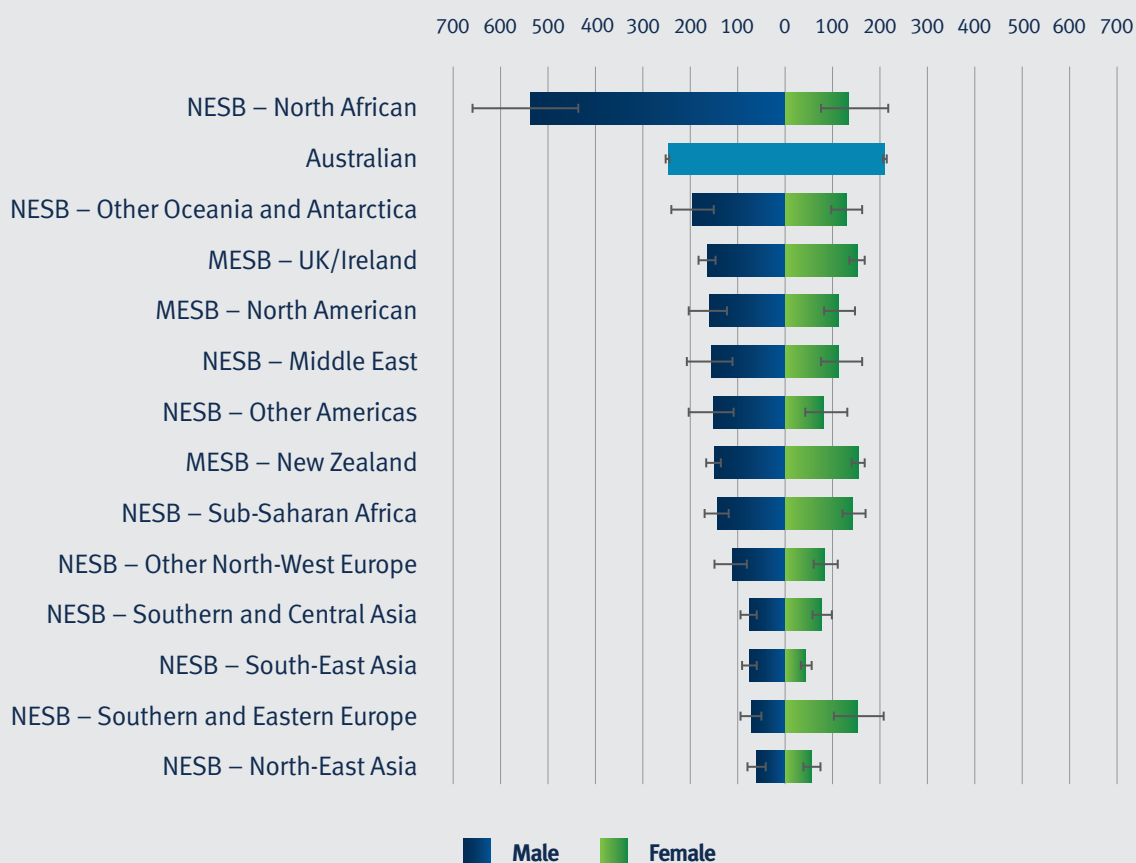
\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

### 3.2.3.5 PPH rates (Acute condition – Convulsions and epilepsy)

A convulsion is a type of seizure that involves a change in brain function, causing loss of consciousness and involuntary jerking of the body. Epilepsy is a common long-term brain condition where a person has repeated seizures. Epilepsy is one of the most prevalent neurological conditions worldwide. Yet it remains subject to enormous cultural misinterpretation and ethnographic bias, especially for some CALD populations such as the vulnerably or forcibly displaced<sup>49</sup>.

In the current study, analysis at the region of birth level showed that only males from the North African region had a significantly higher rate of convulsions and epilepsy when compared to the Australian-born population. In addition, males from the North African region had a higher rate than females from the same region (Figure 24).

**Figure 24: Age-standardised rates for PPH sub-category of acute conditions: convulsions and epilepsy by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>49</sup> Hallab A, Sen A. Epilepsy and psychogenic non-epileptic seizures in forcibly displaced people: A scoping review. *Seizure*. 2021; 92: 128-48. Available from: [www.clinicalkey.com.au/#!/content/playContent/1-s2.0-S1059131121002727?returnurl=https%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1059131121002727%3Fshowall%3Dtrue&referrer=https%2F%2Fwww.researchgate.net%2F](https://www.clinicalkey.com.au/#!/content/playContent/1-s2.0-S1059131121002727?returnurl=https%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1059131121002727%3Fshowall%3Dtrue&referrer=https%2F%2Fwww.researchgate.net%2F)

When further analysis was done at the level of country of birth, people born in Sudan and Somalia had significantly higher rates of convulsions and epilepsy when compared to the Australian-born population (Table 20).

**Table 20: Age-standardised rates for PPH sub-category of acute conditions: convulsions and epilepsy by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	32,648	228.3	225.8	230.8	1.00
<b>NESB – North African</b>					
Sudan*	103	728.3	503.7	988.4	3.19
<b>NESB – Sub-Saharan Africa</b>					
Somalia*	30	543.6	278.8	891.5	2.38

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

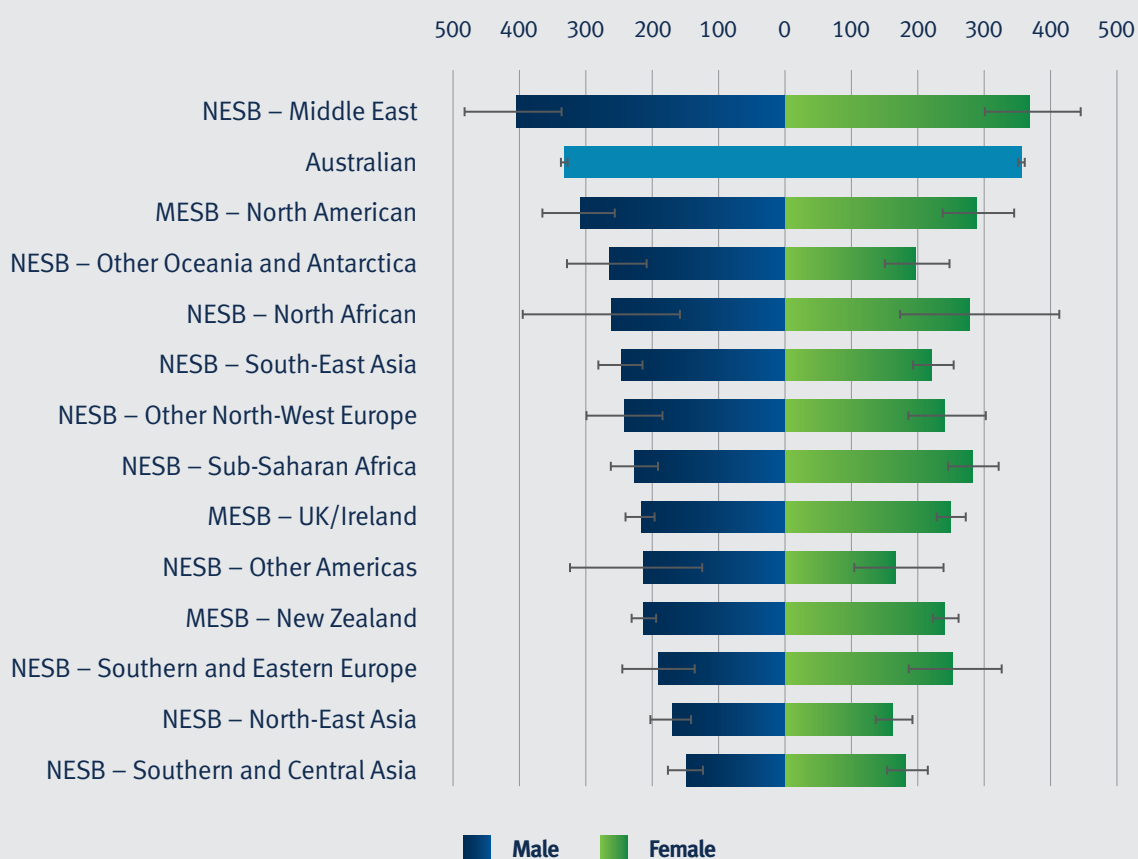
### 3.2.3.6 PPH rates (Acute condition – Dental conditions)

Potentially preventable dental hospitalisations are general anaesthetic procedures for dental treatment, where hospitalisation could have been avoided through primary prevention of oral disease or by providing timely and adequate non-hospital care. Poor oral health may be caused or exacerbated by factors such as poor oral hygiene, diet, smoking, alcohol, lack of fluoridation in water supplies and inadequate access to appropriate dental care.

In a study that explored cultural diversity in oral health promotion and prevention, findings showed that in most developed countries, significant oral health inequalities exist in some CALD populations<sup>50</sup>.

In the current study, when data was analysed at the level of region of birth, only the male population from Middle East had a higher rate of dental conditions when compared to the Australian-born population, although the result was not significant (Figure 25).

**Figure 25: Age-standardised rates for PPH sub-category of acute conditions: dental conditions by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>50</sup> Riggs E, van Gemert C, Gussy M, Waters E, Kilpatrick N. Reflections on cultural diversity in oral health promotion and prevention. *Glob Health Promot.* 2012; 19 (1): 60-3. Available from: [pubmed.ncbi.nlm.nih.gov/24801316/](http://pubmed.ncbi.nlm.nih.gov/24801316/)

Further analysis at the level of country of birth showed that those born in Syria and Iraq were found to have significantly higher rates of dental conditions when compared to the Australia-born population (Table 21).

**Table 21: Age-standardised rates for PPH sub-category of acute conditions: dental conditions by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	50,285	343.9	340.8	346.9	1.00
<b>NESB – Middle East</b>					
Syria*	28	1,278.6	846.6	1,851.8	3.72
Iraq*	61	572.1	426.5	748.3	1.66
Lebanon	25	429.2	158.3	794.5	1.25
<b>NESB – North African</b>					
Sudan	27	527.7	302.1	828.7	1.53
<b>NESB – Other North-West Europe</b>					
Austria	30	749.4	25.3	1,700.8	2.18
Sweden	20	401.7	209.9	669.9	1.17
<b>NESB – South-East Asia</b>					
Myanmar	26	463.4	204.4	810.8	1.35
<b>NESB – Southern and Eastern Europe</b>					
Romania	23	362.1	51.6	786.4	1.05

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

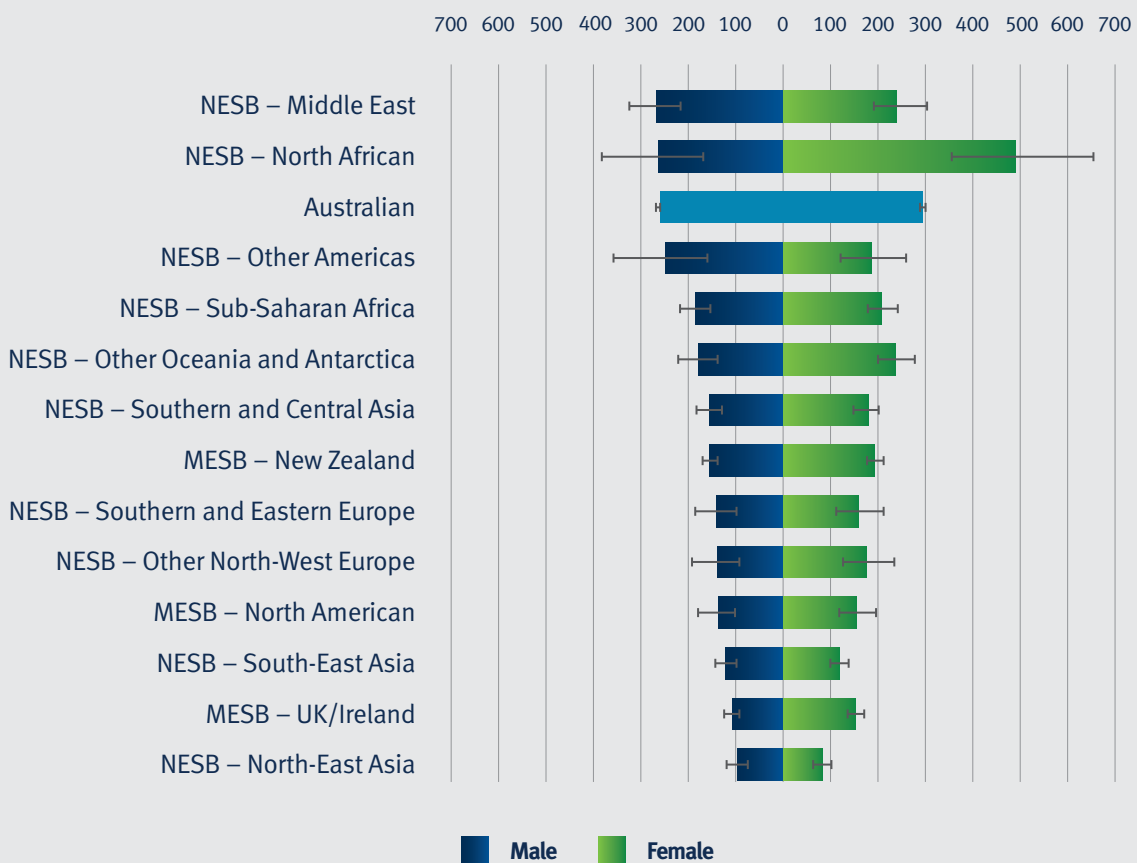
### 3.2.3.7 PPH rates (Acute condition – Ear, nose and throat infections)

Ear, nose and throat (ENT) infections are caused by a bacterial or viral infection of the upper respiratory tract, which results in inflammation of the ear and surrounding tissue, the sinus passages and the throat. ENT infections are usually non-severe and readily treatable in primary care settings.

A five-year descriptive analysis of potentially preventable hospitalisations for ear, nose and throat conditions was conducted from 2015 to 2020 in regional Victoria, Australia. The study revealed that people from culturally and linguistically diverse backgrounds, especially those who speak a language other than English and require an interpreter, had higher rates of ENT infections<sup>51</sup>.

In the current study, only females from the North African region had significantly higher rates of ENT infections when compared to the Australian-born population (Figure 26).

**Figure 26: Age-standardised rates for PPH sub-category of acute conditions: ear, nose and throat infections by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>51</sup> O'Neill S, Begg S, Spelten E. A five-year descriptive analysis of potentially preventable hospitalisations for Ear, Nose, and Throat conditions in regional Victoria, Australia, from 2015 to 2020. Research Square. 2022. Available from: [europepmc.org/article/ppr/ppr559845](https://europepmc.org/article/ppr/ppr559845)

Analysis by country of birth showed that people born in only two countries did not have significantly higher rates of ENT infections when compared to the Australian-born population: Cook Islands and Serbia (Table 22).

**Table 22: Age-standardised rates for PPH sub-category of acute conditions: ear, nose and throat infections by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	42,640	278.4	275.8	281.1	1.00
<b>NESB – Middle East</b>					
Iraq*	64	532.2	395.1	697.4	1.91
<b>NESB – North African</b>					
Sudan*	63	924.8	606.4	1,309.0	3.32
<b>NESB – Other Oceania and Antarctica</b>					
Samoa*	154	465.5	377.8	564.4	1.67
Cook Islands	22	342.3	182.9	561.5	1.23
<b>NESB – Southern and Central Asia</b>					
Afghanistan*	75	654.0	451.1	894.9	2.35
<b>NESB – Southern and Eastern Europe</b>					
Serbia	37	487.2	138.1	933.5	1.75
<b>NESB – Sub-Saharan Africa</b>					
Eritrea*	20	606.7	320.0	1,007.5	2.18
Somalia*	42	563.6	382.6	791.5	2.02

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals

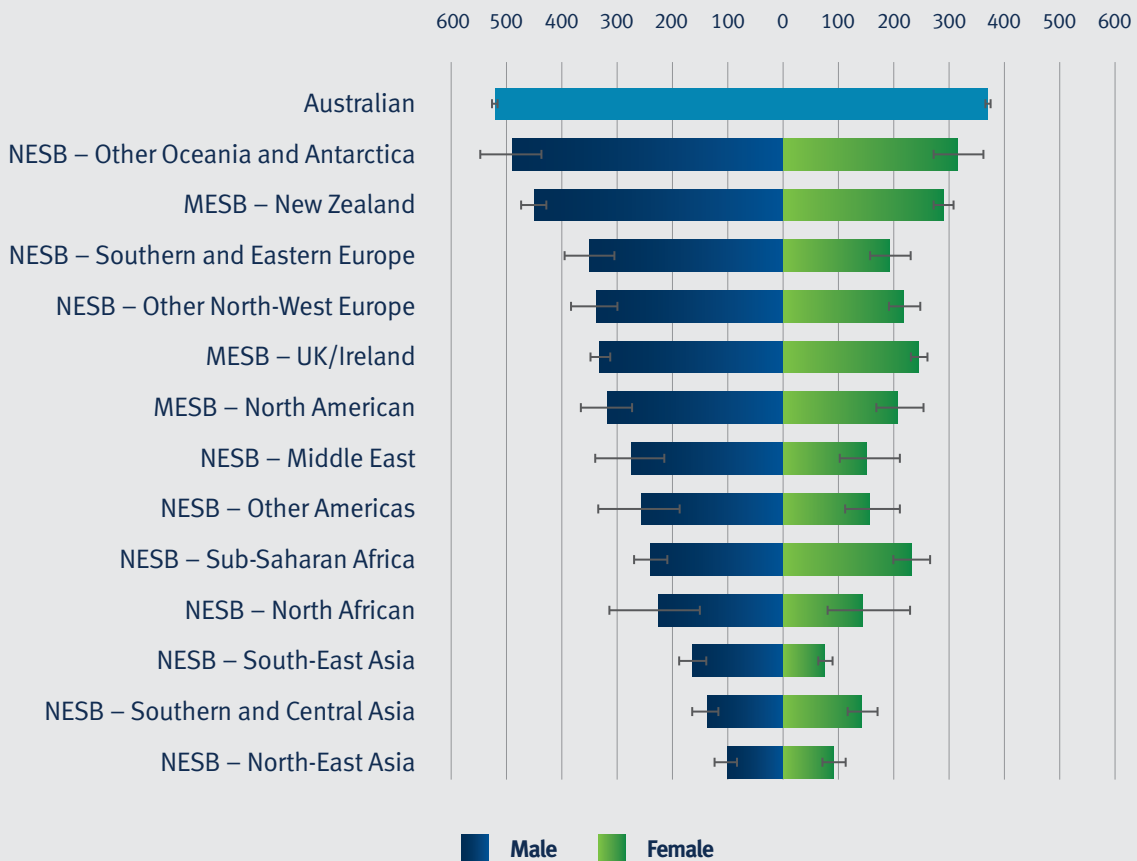
### 3.2.3.8 PPH rates (Acute condition – Cellulitis)

Cellulitis is a serious bacterial infection of the skin and subcutaneous tissues (tissues directly under the skin).

Some CALD populations are at a higher risk of developing dermatological conditions due to factors such as their movement within and across international borders, various environmental exposures during their migration journey, armed conflict and violence, limited access to dermatology expertise and lack of appropriate therapeutic options<sup>52</sup>.

In the current study, the findings showed that there were no regions with higher rates of cellulitis when compared to the Australian-born population (Figure 27).

**Figure 27: Age-standardised rates for PPH sub-category of acute conditions: cellulitis by region of birth and sex, Queensland, 2016–17 to 2019–20**



<sup>52</sup> Padovese V, Knapp A. Challenges of Managing Skin Diseases in Refugees and Migrants. *Dermatologic Clinics*. 2021. 39 (1): 101-115. Available from: [https://www.researchgate.net/publication/347488722\\_Challenges\\_of\\_Managing\\_Skin\\_Diseases\\_in\\_Refugees\\_and\\_Migrants](https://www.researchgate.net/publication/347488722_Challenges_of_Managing_Skin_Diseases_in_Refugees_and_Migrants)



However, further analysis at the level of country of birth revealed that people born in Cook Islands, Samoa and Tonga were found to have significantly higher rates of cellulitis when compared to the Australian-born population (Table 23).

**Table 23: Age-standardised rates for PPH sub-category of acute conditions: cellulitis by country of birth, Queensland, 2016–17 to 2019–20**

Country of birth	Count	ASR	(95% CI)		Rate ratio
<b>Australian</b>					
Australia	62,617	443.4	439.9	446.9	1.00
<b>NESB – Other North-West Europe</b>					
Austria	86	543.8	13.6	1,166.4	1.23
<b>NESB – Other Oceania and Antarctica</b>					
Cook Islands*	77	833.0	643.9	1,056.9	1.88
Samoa*	274	728.8	627.9	839.1	1.64
Tonga*	55	663.3	476.1	892.0	1.50

\* Statistically significant difference from the Australian population based on non-overlap of 95% confidence intervals