

Pacific peoples health - Gout data insights

Establishing the baseline: April 2022

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Foreword

Kia ora, tālofa lava, kia orana, mālo e lelei, fakaalofa lahi atu, ni sa bula, mālō nī, and greetings,

Pharmac is developing a medicines access equity monitoring and outcomes framework to track progress and identify trends and patterns in medicine access to funded medicines across multiple conditions and priority populations.

This report looks at medicine access inequities for Pacific peoples in New Zealand, specifically in the prescribing and dispensing of medicines for gout. Key findings outline where inequities lie in access to preventive gout medicines.

Pacific peoples in Aotearoa New Zealand

‘Pacific peoples’ is a collective term for diverse ethnic groups that have Pacific nations descent. Statistics New Zealand lists more than 17 Pacific ethnicities; Cook Islands Māori, Fijian, Tongan, Tokelauan, Tuvaluan, Niuean, and Samoan have the largest populations in Aotearoa New Zealand (see Appendix A for the level 4 category of the New Zealand Standard Classification of Ethnicity).

Aotearoa New Zealand is home to approximately 381,600 New Zealanders of Pacific descent, two-thirds of whom were born in New Zealand. Approximately 68% of Pacific peoples are under 40 years of age compared to 54% of the entire New Zealand population.¹

Language, culture, beliefs, worldviews, and aspirations shape how Pacific peoples see their health and wellbeing. Therefore, understanding diversity amongst Pacific peoples is critical to addressing medicine access inequities.

Pacific peoples are disproportionately affected by gout

Gout is a form of arthritis that affects an estimated 6% of New Zealanders older than 20 years (1). It occurs when high levels of urate in the blood causes crystals to form in the joints, which can cause severe pain and damage to the joints. Gout is a life-long condition that reduces someone’s life expectancy and quality of life (2, 3). Importantly, gout symptoms and risk of complications are preventable if people have access to preventive medicine to reduce serum urate levels (3).

Biological factors such as kidney disease, genetic variants, and some medicines contribute to Pacific peoples having a higher prevalence of gout compared to non-Māori, non-Pacific peoples in Aotearoa New Zealand (4, 5). Pacific peoples also have an earlier age of onset of gout and experience higher flare frequency, and more features of joint inflammation and severe disease (2).

Pacific peoples older than 20 years are approximately three times more likely to live with gout when compared to non-Māori, non-Pacific peoples. What’s more, those aged between 20 and 44 years are seven times more likely to experience gout than non-Māori, non-Pacific populations in that age group. The risk is compounded again for males, who are three times more likely to experience gout than females (1).

We are committed to improving Pacific peoples health

Gout’s prevalence in Pacific peoples continues to climb, but access to preventive gout medicine is not. Medicine access inequities like this result in many Pacific peoples not receiving an appropriate level of treatment to prevent gout, which we think is unacceptable.

Our Pacific Responsiveness Strategy aims to support Pacific peoples in Aotearoa New Zealand to live healthy lives through improved and timely access to, and use of, medicines and related products. Understanding Pacific health data is an essential tool for improving health outcomes for Pacific peoples. With the medicines access equity monitoring and outcomes framework and these new measures, we can holistically and comprehensively measure Pacific peoples access to funded medicines for gout.

These insights and the wider framework will be useful across the health system and Pacific communities, including health practitioners, health workers, policy makers, and groups who have an interest in addressing the health needs of Pacific peoples.

Empowering positive action and change

Our intention is for the data and insights in this report to empower positive action towards equitable access to medicines for Pacific peoples. This means removing the barriers that prevent some populations getting the same access to medicines. But driving change for Pacific peoples must recognise their strengths, values, and diversity. Pacific people's realities, worldviews, and aspirations of health and wellbeing must be central to driving interventions and developing solutions.

Our funding decisions must lead to better health outcomes for our priority populations, including Pacific peoples. We are examining our own processes, including how we assess and prioritise medicines, to improve access to funded medicines for Pacific peoples. For example, ethnicity-based criteria have reduced barriers for Pacific peoples to access medicines for diabetes type-2 diabetes.

We're also working with organisations across the health and disability system to provide resources to support health professionals. Our partnership continues with Matui, a collaboration between The Health Media and Airmed. Through He Ako Hiringa, Matui is providing equity-focused education for clinicians delivering primary care (akohiringa.co.nz).

We welcome your thoughts and ideas

We are incredibly grateful for the support in developing this report from clinical specialist Professor Nicola Dalbeth, Associate Professor Lianne Parkin and Dr Simon Horsburgh, and the fantastic team from Moana Research, Jacinta Fa'alili-Fidow, Nalei Taufua, Samuela 'Ofanoa, Dr Malakai Mahunui 'Ofanoa, and Dr Susan Reader.

We want these insights to positively influence the health outcomes of Pacific peoples. We hope this report prompts discussion and action around tackling health inequities for Pacific peoples, strengthening Pacific health excellence, and ensuring culturally safe and competent practice and decision making.

If you have any thoughts, ideas, or feedback, please get in touch with us at accessequity@pharmac.govt.nz

Key findings

An estimated 8,700 more Pacific peoples need preventive gout medicine each year

Our primary finding is that, to help achieve equity in access to medicines, we need more Pacific peoples started on preventive gout medicine, and at a younger age. We estimate that 8,700 more Pacific peoples need to be dispensed preventive gout medicine each year to achieve equity of access to medicines.

We know there are many barriers in the health system that make it harder for Pacific peoples to access medicines for gout. All stewards and practitioners of the health system, including Pharmac, play an important role in creating a more responsive health system. This includes addressing the barriers that impact negatively on the health outcomes of Pacific peoples and working in partnership with Pacific peoples themselves.

Findings demonstrate inequities between Pacific peoples and non-Māori, non-Pacific peoples

1. While Pacific peoples are approximately three times as likely to be dispensed medicine for gout compared to non-Māori, non-Pacific peoples (1), this is still not enough to meet health need for Pacific peoples.
2. Pacific peoples start being dispensed preventive gout medicine 13 years earlier than non-Māori, non-Pacific peoples. Given the much higher gout disease burden, Pacific peoples may need to start even earlier.
3. The prescribing for and dispensing of non-steroidal anti-inflammatory drugs (NSAIDs) for Pacific peoples receiving specific gout medicines is approximately three and a half times higher than that of non-Māori, non-Pacific peoples.
4. Of the people previously dispensed a preventive medicine for gout, 64% of Pacific peoples and 59% of non-Māori, non-Pacific peoples are not continuing to receive it regularly.
5. For both Pacific peoples and non-Māori, non-Pacific peoples, the younger the person, the less likely they are to be regularly dispensed preventive gout medicine. Only 22% of Pacific peoples and 19% of non-Māori, non-Pacific peoples aged between 20 and 44 have regular dispensing after being initially dispensed these medicines.
6. Pacific peoples have similar rates of being dispensed at least one prescription for a preventive gout medicine a year (any dispensing) but have lower rates of medicine possession compared to non-Māori, non-Pacific peoples.
7. Pacific peoples are more likely to live with both gout and other long-term conditions, such as type 2 diabetes, than non-Māori, non-Pacific peoples.
8. Pacific peoples are 13.8 times more likely to be hospitalised with a primary diagnosis of gout compared with non-Māori, non-Pacific peoples.
9. In 2018/2019, 47% of Pacific peoples hospitalised for gout were not receiving preventive gout medicine in the six months prior to hospitalisation.
10. Practitioners are encouraged to start prescribing more preventive gout medicines earlier for Pacific peoples.

Recommendations

Our insights support the following recommendations



If young Pacific peoples, particularly those aged between 20 and 44, present with joint pain, practitioners should consider gout as a cause.



Practitioners should be aware of the harms of long-term use of NSAIDs for Pacific peoples with gout. Practitioners should consider other medicines for gout treatment and prevention.



Practitioners should follow up with young Pacific men aged between 20 and 44 years and repeat prescribe preventive gout medicine as needed.



People who work with patients and whānau should create a care-plan for gout (for example encompassing health promotion, talanoa, and support) and regularly review.



People and organisations that work with whānau can work together to raise awareness of the biological factors that contribute to gout in Pacific peoples. Studies have found that what people eat and drink only makes a small contribution to high uric acid levels (6). Understanding this can reduce stigma and embarrassment associated with gout and encourage better access to preventive gout treatment.



Programmes and quality improvement initiatives should be co-designed with Pacific peoples to improve outcomes for Pacific peoples living with gout.

Methodology and data

The full methodology used to implement Pharmac’s Medicines Access Equity Framework is available online (7).

Data compared in this report

These insights use data from the national collections maintained by The Ministry of Health, the Pharmaceutical Collection,¹ and the National Minimum Dataset (hospital events).² Health data contains a National Health Index (NHI),³ which allows for linking of information across health datasets and the inclusion of demographic information. Where indicated, direct age standardisation was used.⁴

The data in this report mainly focuses on pharmaceutical dispensings or hospitalisations between 1 July 2018 and 30 June 2019. Some of the insights draw from a longer period of data, which is identified in the text or the List of Figures provided at the end of this report.

For ethnicity comparisons, prioritised self-identified ethnicity was used. This involves each person being allocated to a single ethnic group based on the ethnic groups they have identified with, which are in order of priority Māori, Pacific, Asian and NZ European/Other (Ministry of Health 2004). The data of people who identified as Pacific peoples (and not prioritised to Māori) was compared to that of people who identified as a non-Māori, non-Pacific peoples ethnicity (and not prioritised to another ethnicity). Therefore, all figures in this report do not include Māori (refer to [Gout insights – impact on Māori](#)).

Medicines and gout disease classification

The gout medicines considered in this report have been listed in Appendix B. Note that, for the prevalent population with gout (5), we have included either gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine. For any dispensing, possession, and regular dispensing, we have confined these to be gout-specific urate lowering preventive therapy (allopurinol, febuxostat, benzbromarone, probenecid) alone, as these are the medicines people should be prescribed long term (as colchicine is used to treat acute attacks of gout).

Gout events in hospital have been identified using the International Classification of Diseases (ICD) codes. The ICD codes related to gout considered in this report have been listed in Appendix C.

External review process

An established external review process is in place to ensure the data used within each report of this series is robust and has credibility with experts in the field before it is released. External review of these insights included pharmacoepidemiology, clinical specialist (condition specific), and Pacific Health (including epidemiology, Pacific data sovereignty, research, and Pacific clinicians).

¹ The Pharmaceutical Collection is a data warehouse that supports the management of pharmaceutical subsidies. It contains claim and payment information from pharmacists for subsidised dispensings.

² The National Minimum Dataset (NMDS) is a national collection of public and private hospital discharge information, including coded clinical data for inpatients and day patients.

³ The National Health Index number (NHI number) is a unique identifier that is assigned to every person who uses health and disability support services in New Zealand.

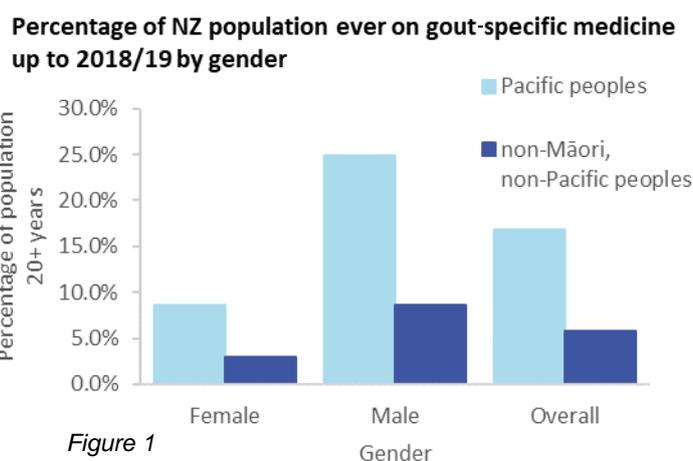
⁴ Where indicated, direct age standardisation with the 2013 Māori population as the standard was used in these comparisons.

Data insights

1. Pacific peoples are approximately three times more likely to be dispensed a gout-specific medicine compared to non-Māori, non-Pacific peoples. This is still not enough according to need

Dispensing data from 2018/19 identifies that, overall, 17% (34,900) of Pacific peoples and 6% (167,600) of non-Māori, non-Pacific peoples (20 years and over) have ever been treated with a gout-specific medicine.⁵

However, Pacific peoples are still not being dispensed enough gout-specific medicine according to need, as indicated by hospitalisation rates for gout (see figure 9). Furthermore, dispensing data represents only the medicated population group. Prevalence of gout is therefore likely to be higher than what is indicated by dispensing data alone, particularly for Pacific peoples where there are known inequities in access to the prescribing and dispensing of preventive medicines for long-term conditions (8). In addition, there will be people who have been prescribed but not dispensed a preventive gout medicine.



Many barriers contribute to inequities in medicine access. For example, the NZ Health Survey shows that Pacific peoples are less likely to access primary health care and prescription medicines due to the cost compared to non-Māori, non-Pacific peoples (9). Other barriers include:

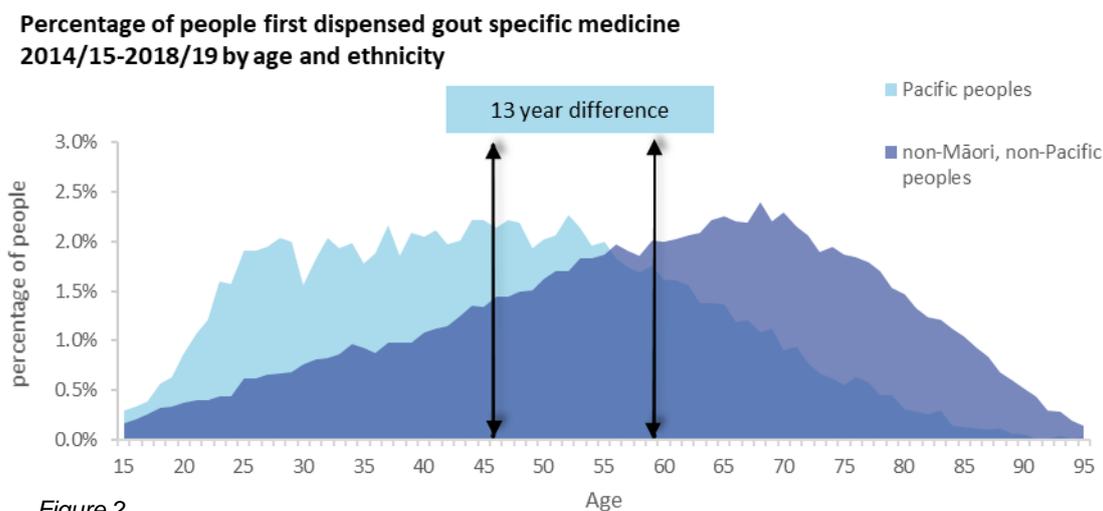
- structural barriers created through the colonial history of Aotearoa New Zealand
- prescribing bias
- racism
- background social determinants of health

2. Pacific peoples start preventive gout treatment earlier than non-Māori, non-Pacific peoples

The black arrows indicate the mean age of people aged 15+ years who were started on preventive gout medicine for the first time: 46 years for Pacific peoples and 59 years for non-Māori, non-Pacific peoples. The arrows show that between 2015 and 2019, Pacific peoples were started on preventive gout medicine on average 13 years earlier than non-Māori, non-Pacific peoples. This indicates there is higher need in Pacific peoples earlier in life.

⁵ Gout-specific medicines include urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine.

Given the much higher gout disease burden and hospitalisation rates in Pacific peoples (10), it is possible that Pacific peoples should be started on preventive gout medicine even earlier relative to non-Māori, non-Pacific peoples.



3. The prescribing and dispensing of NSAIDs for people with gout is high, especially for Pacific peoples

15,600 of Pacific peoples and 62,500 of non-Māori, non-Pacific peoples in Aotearoa New Zealand aged 20+ have been dispensed specific gout medicine and were dispensed NSAIDs in the year ending 30 June 2020, this was either a year before initiating gout specific medicine or after initiating gout specific medicine.

NSAIDs, such as diclofenac and naproxen, are used to manage the pain of gout when it flares up. However, they do not stop urate crystal deposition or joint damage.

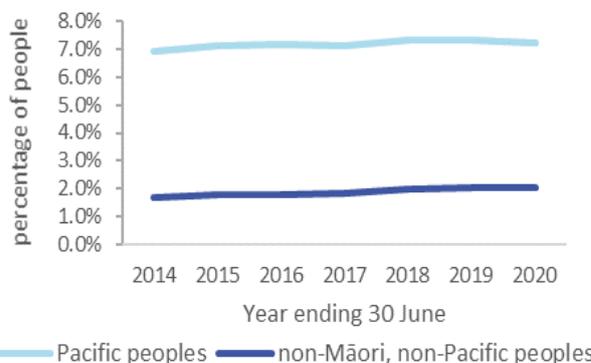
The long-term use of NSAIDs for gout also causes harm, such as by increasing risk of upper gastrointestinal bleeding, kidney damage, and heart failure.

The rate for Pacific peoples being dispensed a preventive gout medicine and a NSAID is still approximately three and a half times higher than that of non-Māori, non-Pacific peoples. Pacific peoples also have higher incidence of hospitalisation for NSAID-related harms compared to the New Zealand European population (11).

Pacific people with gout should be moved away from NSAIDs to long-term preventive gout medicines as early as possible to:

- reduce the risk of flares and the need for NSAIDs
- help prevent urate crystal deposition and joint damage.

Percentage of population 20+ dispensed any gout specific medicine and a NSAID 2014-2020 by ethnicity



Addressing the overprescribing of NSAIDs often requires awareness and behavioural change from prescribers (12). Support is also needed for people taking these medicines to understand the impacts of long-term use.

Note that this data covers people dispensed preventive gout medicine who have also been dispensed a NSAID for any condition. It does not include NSAIDs purchased over the counter, nor does it look at alternative colchicine or oral corticosteroid use for severe gout attacks.

Definitions: Any dispensing and Regular dispensing

Dispensing data can be used to determine whether a person has had access to medicines to allow them to take those medicines on a regular basis

Dispensing of medicines can be measured in two ways:⁶

- (1) **Any dispensing** (persistence): The percentage of people who have started a medicine who continue to be dispensed at least one prescription for the condition in the year.
- (2) **Possession**: The average proportion of time that individuals, with 'any dispensing', had medicine dispensed over the last two years.

Regular dispensing is a combination of **any dispensing** and **possession**. High rates of regular dispensing would indicate better access to preventive medicine.

Note: This data has not included dose appropriateness.

4. 64% of Pacific peoples and 59% of non-Māori, non-Pacific peoples that were previously dispensed a preventive medicine for gout are not continuing to receive it regularly

Continuation and regular use of preventive medicines for gout are low for both Pacific peoples and non-Māori, non-Pacific peoples.⁷ We know that gout is a controllable disease. Initial flares usually involve a single joint and can be treated in the community and followed up by starting a preventive treatment programme.

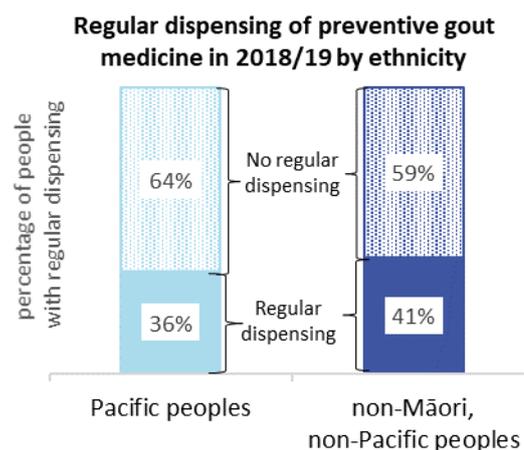


Figure 4 ethnicity

⁶ These two ways can also be defined using the pharmaco-epidemiological terms persistence and possession

⁷ Preventive medicines for gout are gout-specific urate lowering therapy, allopurinol, febuxostat, benzbromarone, probenecid.

5. For both Pacific peoples and non-Māori, non-Pacific peoples, the younger the person, the less likely they are to be regularly dispensed preventive gout medicine

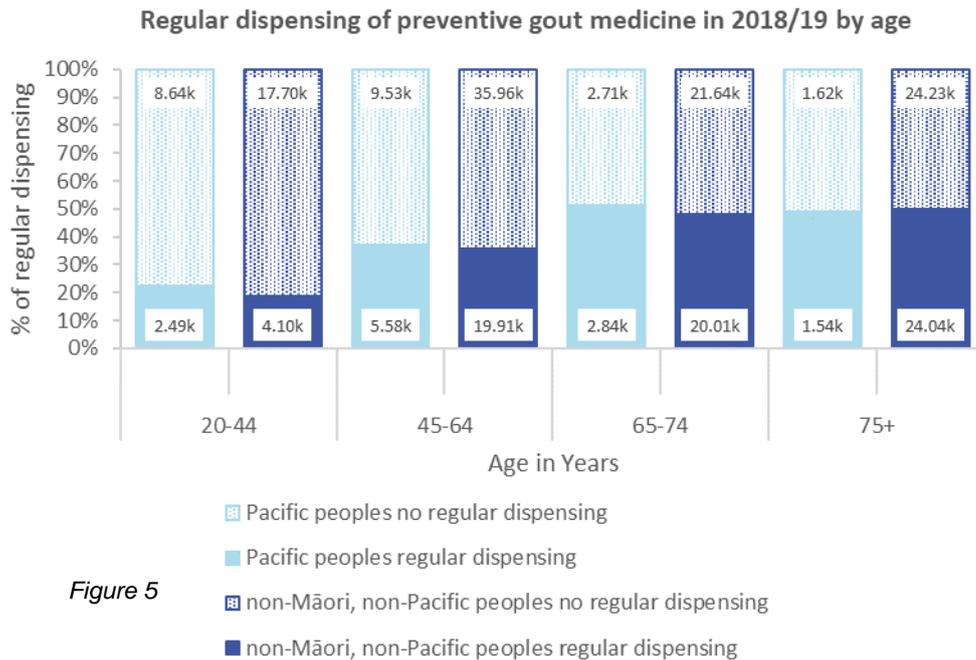


Figure 5

Younger people, particularly those aged 20 to 44, are less likely to be regularly dispensed preventive gout medicine, irrespective of ethnicity, compared with older people. Only 22% of Pacific peoples and 19% of non-Māori, non-Pacific peoples aged between 20 and 44 have regular dispensing after being initially dispensed these medicines. A greater proportion of Pacific peoples are in the younger age groups, which impacts the overall rate of regular dispensing for Pacific peoples (see figure 4).

Pacific peoples start preventive gout treatment earlier (see figure 2), therefore at any age they are likely to have had gout for a longer period of time – this may have relevance for disease severity.

6. Pacific peoples have less medicine possession of preventive gout medicine than non-Māori, non-Pacific peoples

When ‘regular dispensing’ is broken down to ‘any dispensing’ and ‘possession’, we see that Pacific peoples have similar rates of ‘any dispensing’, but lower rates of ‘possession’ compared to non-Māori, non-Pacific peoples.

High rates of possession are important as it indicates better access to preventive gout medicine.

Differences in ‘any dispensing’, ‘possession’, and ‘regular dispensing’ between Pacific peoples and non-Māori, non-Pacific peoples do not take into account:

- the very high relative gout disease burden encountered by Pacific peoples
- disease severity and dose appropriateness
- the need for more Pacific peoples to be prescribed preventive medicines earlier.

In 2019, 52% (18,100) of Pacific peoples aged 20+ years who have ever been treated with a gout-specific medicine were persisting with preventive gout medicine. Of these people, the average proportion of time they had preventive gout medicine dispensed over the last two years was 69%.

However, 48% (16,800 people) were no longer receiving any dispensing of preventive gout medicine in that year.

Similarly in 2019, 51% (86,100 people) of non-Māori, non-Pacific peoples aged 20+ were persisting on preventive gout medicine over the last two years. Of these people, the average proportion of time they had preventive gout medicine dispensed for was 79%. However, another 49% (81,500 people) were no longer receiving any dispensing of preventive gout medicine in that year.

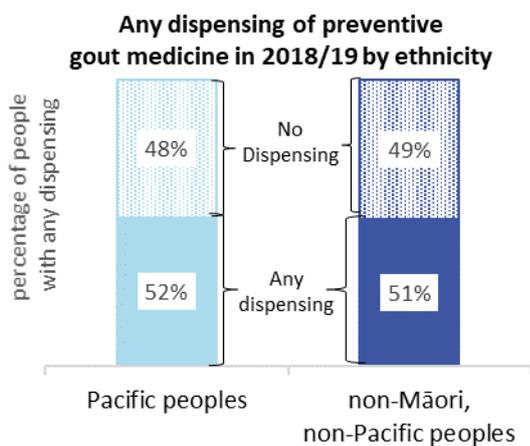


Figure 6 ethnicity

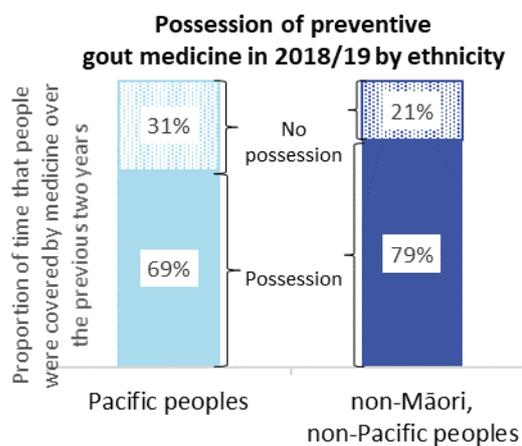


Figure 7 ethnicity

7. Pacific peoples are more likely to live with both gout and other long-term conditions, such as type 2 diabetes, than non-Māori, non-Pacific peoples

Gout is associated with a number of multi-morbidities, including hypertension, cardiovascular disease, renal impairment, diabetes, obesity, hyperlipidaemia and frequently in a combination known as the metabolic syndrome (13).

Multi-morbidity disproportionately impacts Pacific peoples. For example, a higher proportion of Pacific peoples with gout have been identified as having gout and diabetes compared to non-Māori, non-Pacific peoples (14).

Living with gout and another long-term condition, such as diabetes, adds to the overall disease burden experienced by Pacific peoples. The presence of gout may also be a marker of health risk, which has important implications for clinical practice (14).

Dispensing data for 2018/19 indicates that 29% of Pacific peoples and 15% of non-Māori, non-Pacific peoples have been dispensed preventive gout medicine and medicine to treat type 2 diabetes. Higher rates of co-morbidity for Pacific peoples with gout also occurs for cardiovascular disease (14).

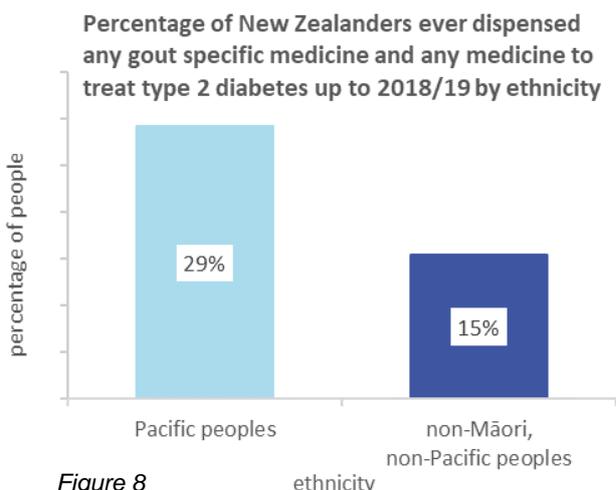


Figure 8 ethnicity

8. Pacific peoples are 13.8 times more likely to be hospitalised with a primary diagnosis of gout than non-Māori, non-Pacific peoples

Across all age groups, differences are evident in gout hospitalisation rates between Pacific peoples and non-Māori, non-Pacific peoples.⁸ This highlights the need to better understand the use of preventive medicine to manage gout and the experiences and needs of Pacific peoples with gout.

If Pacific peoples were hospitalised for gout at the same rate as non-Māori and non-Pacific peoples, there would have been 350 fewer hospitalisations in 2019.

In 2019, a total of 1,450 people were hospitalised for gout, 380 were Pacific peoples, 470 were Māori, and 600 were non-Māori, non-Pacific peoples.

Hospitalisations are likely to represent only a small part of the burden of gout in the Pacific community.

Rate of hospitalisations with a primary diagnosis of gout 2014/15-2018/19 by age and ethnicity

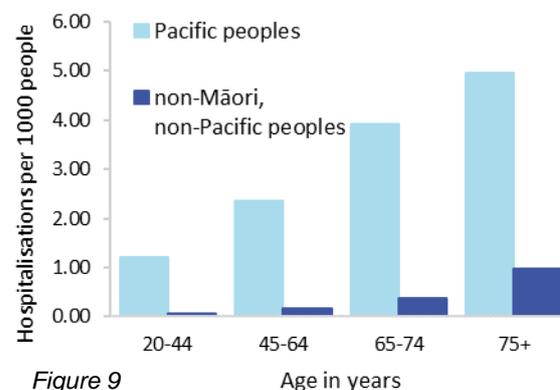


Figure 9

9. In 2018/19, almost half of Pacific peoples hospitalised for gout were not receiving preventive gout medicine in the six months prior to hospitalisation

On preventive medicine up to 6 months before and up to 6 months after being hospitalised for a gout event in 2018/19. **(187 Pacific peoples)**

Not on preventive medicine up to 6 months before being hospitalised for a gout event, in 2018/19, but initiated after being in hospital for gout. **(103 Pacific peoples)**

Hospitalised primarily for gout with **no** evidence of preventive medicine within 6 months either before or after hospitalisation in 2018/19. **(85 Pacific peoples)**

On preventive medicine up to 6 months before being hospitalised for a gout event in 2018/19 but not on preventive medicine in the 6 months after being hospitalised for a gout event in 2018/19. **(23 Pacific peoples)**

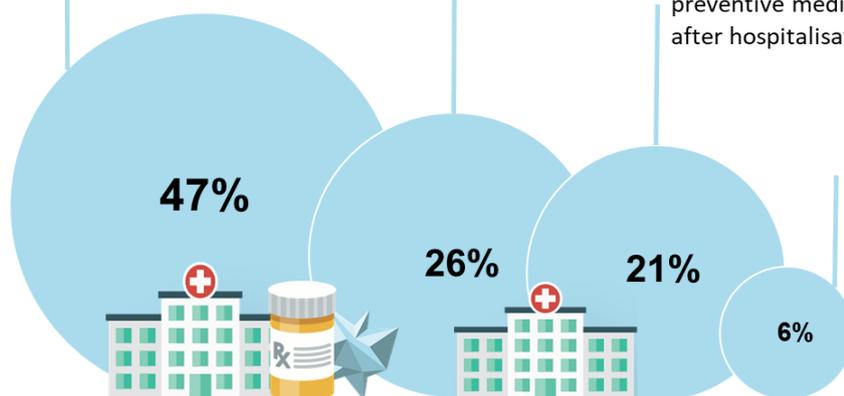


Figure 10

Hospitalisations might be avoided if access to preventive gout medicine is improved. For example, 21% of Pacific peoples hospitalised for gout did not receive a preventive gout medicine before or

⁸ Gout is the primary diagnosis; that is the main reason for the hospitalisation.

after hospitalisation. A further 6% had a prescription for a preventive gout medicine in the six months before hospitalisation but not afterwards.

The fact that Pacific peoples are still not on preventive medicine in the 6 months after hospitalisation for gout shows there is unmet need and that the health system needs to do more. Interventions and solutions need to better support Pacific peoples with gout across their life course.

10. Practitioners are encouraged to start prescribing more preventive gout medicines earlier for Pacific peoples

There are significant equity gaps in hospitalisations that cannot be sufficiently explained by the rates of regular dispensing of preventive gout medicines between population groups.

It is likely the excess hospitalisations are partly because practitioners are not prescribing preventive gout medicines to enough Pacific peoples, particularly in the younger age groups. Barriers to preventive medicines being dispensed to Pacific peoples also need to be removed.

To achieve equity an estimated 8,700 more Pacific peoples need to be started on preventive gout medicine each year.

Number of Pacific peoples dispensed any gout specific medicine and those needing to start to achieve equity in 2018/19

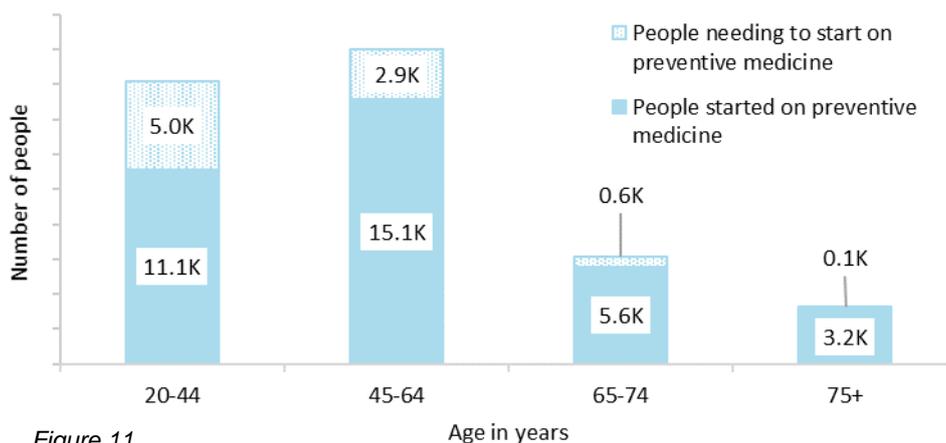


Figure 11

Afterword

The vision and aspirations for wellbeing for Pacific peoples and their families are made clear in the Ministry for Pacific Peoples report, *Pacific Aotearoa Lalanga Fou* (15). The report calls for:

“a different approach to thinking and decision-making, and to the way Pacific development initiatives work. Pacific communities want an approach tailored to Pacific values and aspirations – one that recognises communities themselves can drive their own innovative solutions.”

We hope the insights in this report encourage positive action and influence individual and collective practice at a community and policy level. We want to emphasise that Pacific peoples’ voices and experiences must drive the solutions for system change.

Pharmac, as part of the health and disability sector, has a critical role to play to raise awareness of Pacific peoples’ realities and support the aspirations of Pacific peoples for their health and wellbeing. This includes:

- routinely and transparently reporting on Pacific peoples access to medicines
- examining our own processes for improving access to funded medicines for gout for Pacific peoples.
- working with our partners across the health and disability sector to influence prescribing and dispensing behaviour in primary care
- engaging authentically with Pacific communities.

If you have any thoughts, ideas, or feedback, please get in touch with us at accessequity@pharmac.govt.nz

List of figures

- Figure 1:* Percentage of population that has ever been on gout medication previously and is still alive. *Source:* People identified as ever being on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine on or before Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 2:* Age of people starting gout-specific medicine. *Source:* People starting gout specific medicine for the first time between 1 July 2014 and 30 June 2019 aged 15+ years as identified from the NZ Pharmaceutical Collection.
- Figure 3:* Percentage of people ever on gout-specific medicine that are receiving NSAIDs either up to one year before initiating gout-specific medicine or after initiating gout-specific medicine. *Source:* Currently on NSAIDs for the years ending 30 June 2014 through to year ending 30 June 2020 that have been identified as taking gout-specific medicine, in the past or currently, aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 4:* Percentage of people who have had any preventive gout medication dispensed in the year (persistence) and have had enough medicine dispensed to cover that year (possession) broken down by Pacific peoples vs non-Māori, non-Pacific peoples. *Source:* People on current preventive gout medicines and people ever on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 5:* Figure 4, broken down by age. *Source:* People on current preventive gout medicines and people ever on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 6:* Figure 4, focused on any dispensing *Source:* People on current preventive gout medicines and people ever on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 7:* Figure 4 focused on the proportion of time that individuals, with 'any dispensing', had gout medicine. *Source:* People on current preventive gout medicines and the average time they were on treatment in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 8:* Percentage of people ever on gout specific medicine that have also ever been on medicine to treat type 2 diabetes. *Source:* People identified as ever being on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) and ever being on diabetes medication (for type 2 diabetes) in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection.
- Figure 9:* Pacific peoples versus non-Māori, non-Pacific peoples age specific rates of people hospitalised primarily for gout. *Source:* Age specific primary hospitalisations for gout aggregated over a five-year period from 1 July 2014 to 30 June 2019 as identified from the National Minimum dataset.
- Figure 10:* Pacific peoples hospitalisations primarily for gout in the Year Ending 30 June 2019 compared with pharmaceutical dispensings for preventive gout medicine in the six months before an event or the six months after an event. The dispensing data can then be examined to see if a person was dispensed any preventive medicines relevant to the condition in the six months before; six months after; both six months before and six months after; or neither six months before or six months after.
- Figure 11:* Pacific peoples that have ever been on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) and the extra Pacific peoples that are estimated to need to start treatment based on the need derived from hospitalisations. *Source:* Pacific peoples identified as ever being on specific gout medicines (gout-specific urate lowering therapy (allopurinol, febuxostat, benzbromarone, probenecid) or colchicine) in the Year Ending 30 June 2019 aged 20+ years as identified using the NZ Pharmaceutical Collection. The number of extra Pacific peoples starting identified through matching the ratio of age-specific new starters on preventive gout medication to the ratio of age specific gout hospitalisations has been added. Hospitalisations are identified from the National Minimum Dataset.

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Appendix A: Pacific peoples specific ethnicities

ETHNIC GROUP AVAILABLE IN HEALTH DATA	ETHNIC GROUP LEVEL 4 FROM CENSUS
Pacific Peoples, not further defined	Pacific Peoples, not further defined
Samoan	Samoan
Cook Islands Māori	Cook Islands Māori
Tongan	Tongan
Niuean	Niuean
Tokelauan	Tokelauan
Fijian	Fijian
Other Pacific Peoples	Indigenous Australian
Other Pacific Peoples	Hawaiian
Other Pacific Peoples	Kiribati
Other Pacific Peoples	Nauruan
Other Pacific Peoples	Papua New Guinean
Other Pacific Peoples	Pitcairn Islander
Other Pacific Peoples	Rotuman
Other Pacific Peoples	Tahitian
Other Pacific Peoples	Solomon Islander
Other Pacific Peoples	Tuvaluan
Other Pacific Peoples	Ni Vanuatu
Other Pacific Peoples	Pacific Peoples, not elsewhere classified

Appendix B: Medicines

Gout medications

Table 1 Gout medications included in baseline analysis

MONITOR GROUP	CHEMICAL NAME	PREVENTIVE / ACUTE
Allopurinol	allopurinol	Preventive
Benzbromarone	benzbromarone	Preventive
Colchicine	colchicine	Acute
Febuxostat	febuxostat	Preventive
Probenecid	probenecid	Preventive
Non-steroidal anti-inflammatory drugs (NSAIDs)	celecoxib	Acute
	diclofenac sodium	Acute
	diflunisal	Acute
	fenbufen	Acute
	fenoprofen calcium	Acute
	flurbiprofen	Acute
	ibuprofen	Acute
	indomethacin	Acute
	ketoprofen	Acute
	mefenamic acid	Acute
	meloxicam	Acute
	naproxen	Acute
	naproxen sodium	Acute
	phenylbutazone	Acute
	piroxicam	Acute
	rofecoxib	Acute
	sulindac	Acute
tenoxicam	Acute	
tiaprofenic acid	Acute	

Appendix C: ICD-10 codes

Gout ICD-10 codes

Table 2 ICD-10 codes for gout baseline analysis

CODE	DESCRIPTION
M100	Idiopathic gout, ankle and foot
	Idiopathic gout, forearm
	Idiopathic gout, hand
	Idiopathic gout, lower leg
	Idiopathic gout, multiple sites
	Idiopathic gout, other site
	Idiopathic gout, pelvic region and thigh
	Idiopathic gout, shoulder region
	Idiopathic gout, site unspecified
	Idiopathic gout, upper arm
M109	Gout, unspecified, ankle and foot
	Gout, unspecified, forearm
	Gout, unspecified, hand
	Gout, unspecified, lower leg
	Gout, unspecified, multiple sites
	Gout, unspecified, other site
	Gout, unspecified, pelvic region and thigh
	Gout, unspecified, shoulder region
	Gout, unspecified, site unspecified
	Gout, unspecified, upper arm