

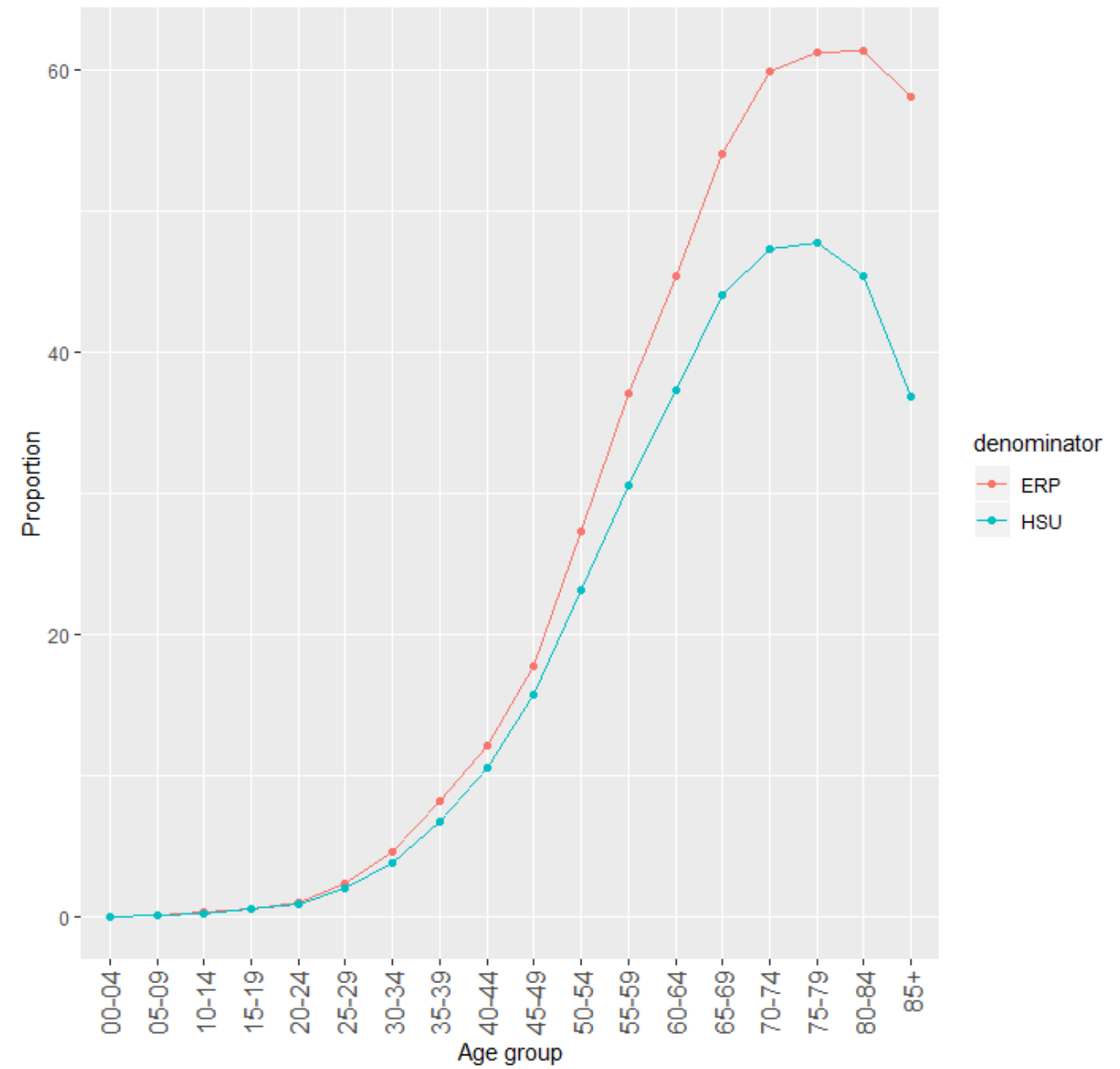
The Health Service Utilisation Population (HSU).

Estimates of the NZ Population using
health data.

Laura Cleary, Ministry of Health, June 2019

Why would you estimate a HSU?

Proportion of Pacific population who have diabetes, 2017 VDR

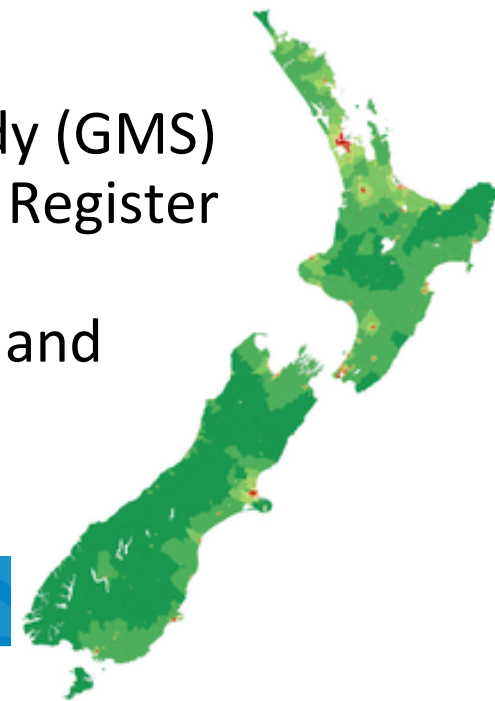


What is the HSU?

- Individual-level estimate of the NZ population using health data
- Inclusion criteria: receives health services, or enrolled in a Primary Health Organisation (PHO) in a 12 month period.

Datasets used:

- PHO enrolment
- Hospital admissions: public and private (NMDS)
- Laboratory tests
- Pharmaceuticals dispensing
- Outpatient and emergency department events (NNPAC)
- Cancer registry
- Mortality data
- General Medical Subsidy (GMS)
- National Immunisation Register (NIR)
- Maternity data: babies and mothers



Advantages to the HSU for health data

- Classification of individuals (eg ethnicity, DHB) same in the numerator and the denominator.
 - Numerators and denominators internally consistent to calculate rates
 - Counteracts numerator denominator bias
- Captures a large proportion of the NZ population, including good capture for:
 - high socio-economic deprivation,
 - living in crowded housing,
 - children,
 - elderly.



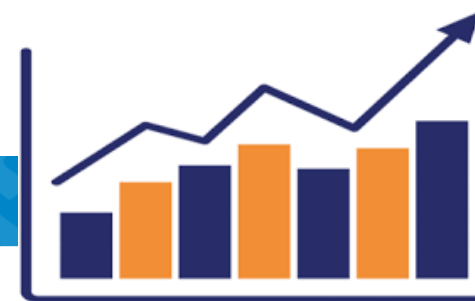
What would you use the HSU for?

Why our team wanted the HSU:

Health statistics: define a population denominator linked to the numerator.

Other things it could be useful for:

- Identify people eligible for health services
- Proactive opportunistic health service, and to ensure universal services.
- Identify the burden of disease or need for healthcare services
- Population estimates using government data



Limitations: population capture

- The HSU only captures people who use health services.
- Not everybody accesses health services, eg:
 - Healthy people and people who don't get pregnant
 - Marginalised groups
- Some people enrolled in a PHO are not currently in New Zealand (three year grace period for enrolment)
 - People emigrating
 - People who die overseas
 - HSU will overestimate the total population.



Limitations: data limitations / caveats

- Completeness
 - Some contributing datasets not complete: eg privately funded hospital data.
 - Some contributing datasets do not always record individual users: eg bulk prescriptions in pharmaceuticals data
- Accuracy:
 - Data entry errors: eg some people with no discharge date from hospital will be errors, others will be long-stay patients
 - Duplicate NHIs



Limitations:

- Ethnicity.
 - Ethnicity as recorded in health data may be inconsistent with how people self-identify in the Census.
 - If each contributing dataset has a different ethnicity recorded, which one do you pick?
- Population movement:
 - People registered at addresses where they don't live
 - Identifying immigrants and emigrants
 - Determining NZ Residency status



Quality checking the HSU

How much each dataset contributed to the HSU

- PHO enrolment

96% enrolled in a PHO

11% enrolled with a PHO, and did not receive any health services

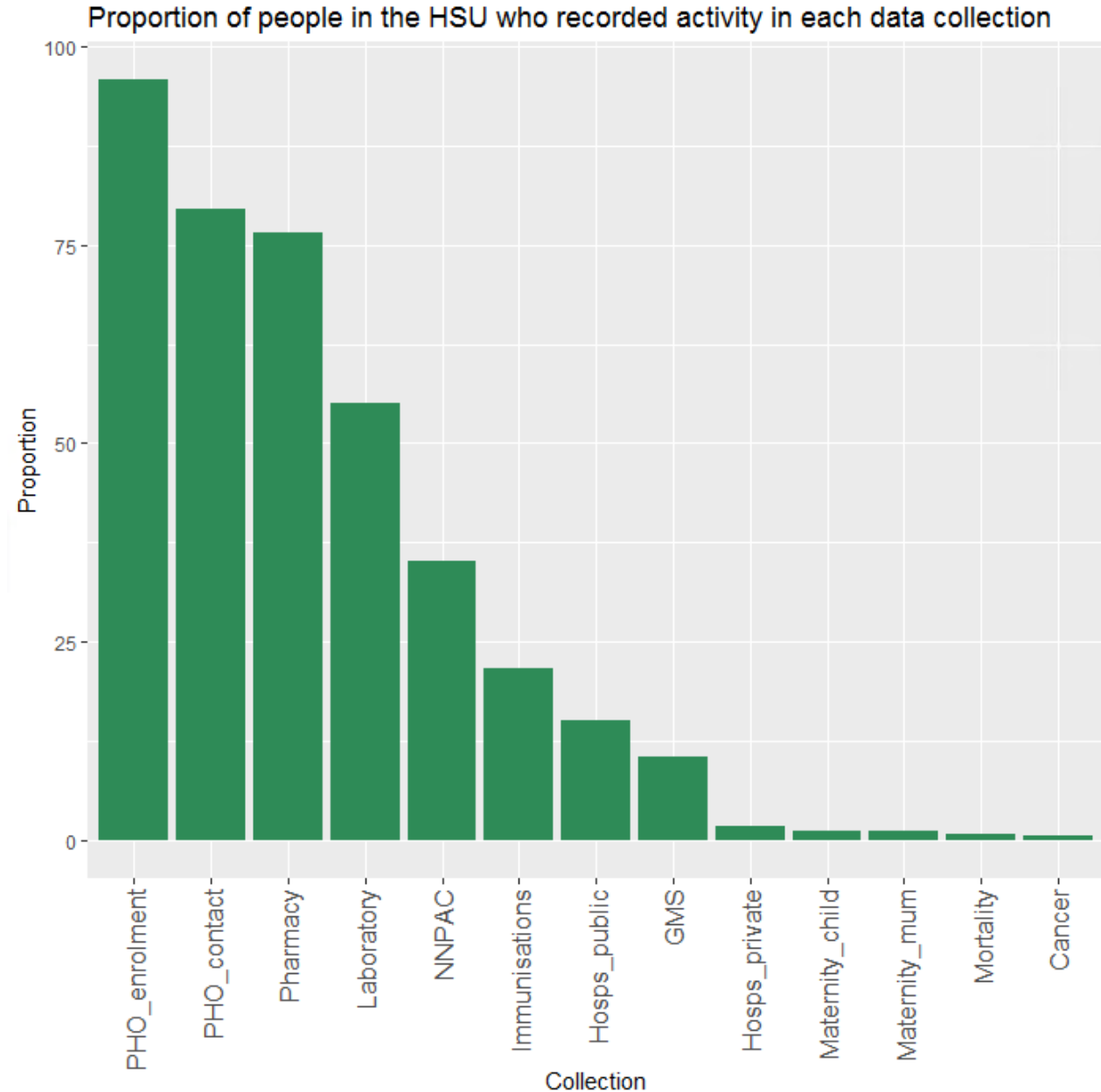
- PHO contact

79% had contact with a primary health care provider

- Other datasets

77% dispensed a prescription

55% had a community lab test



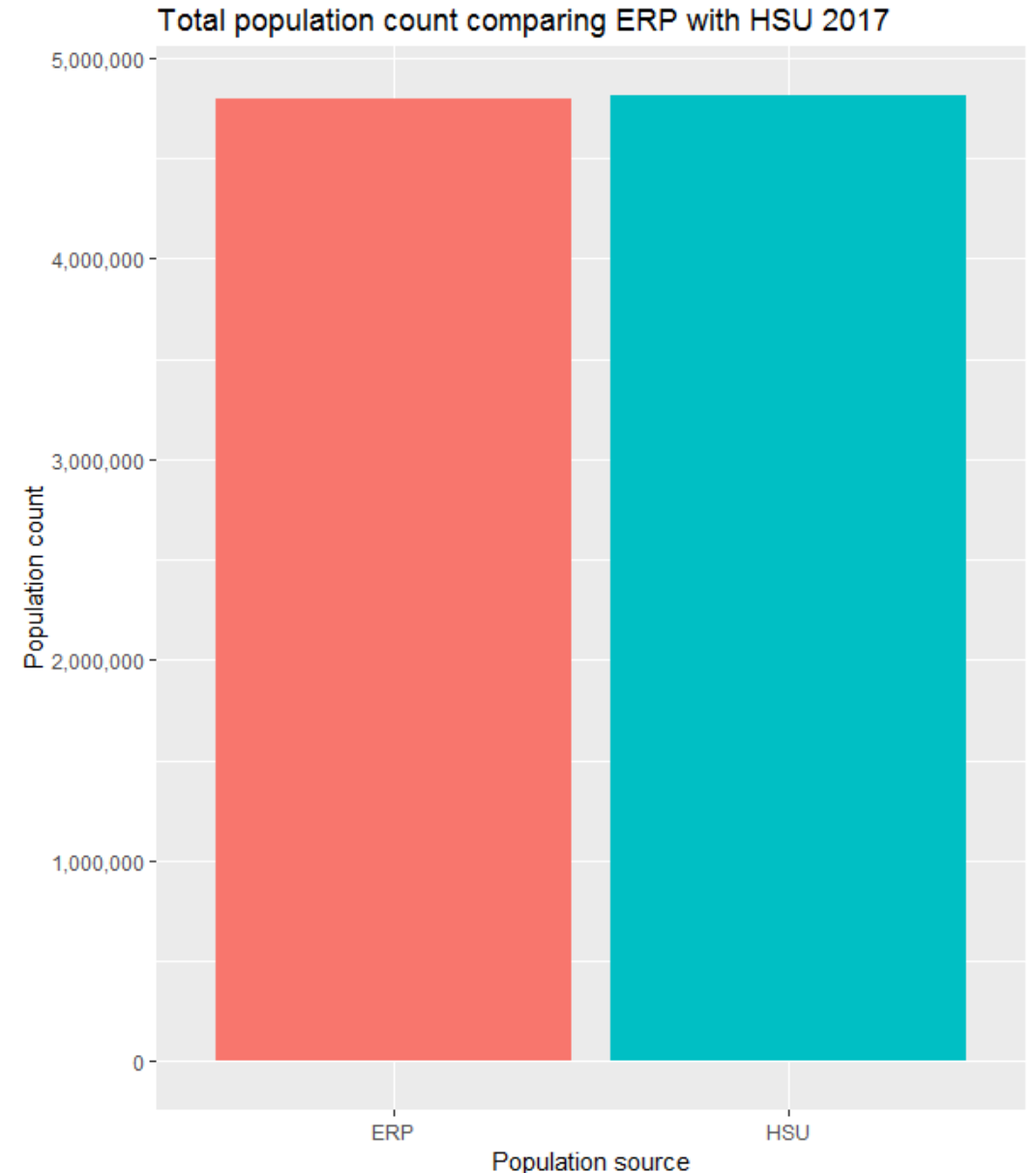
Differences between HSU and the Estimated Resident Population (ERP)

Total population estimates are close:

HSU: 4,816,875

ERP: 4,793,155

Difference: 23,720 (0.5%)



Differences between HSU and ERP: sex

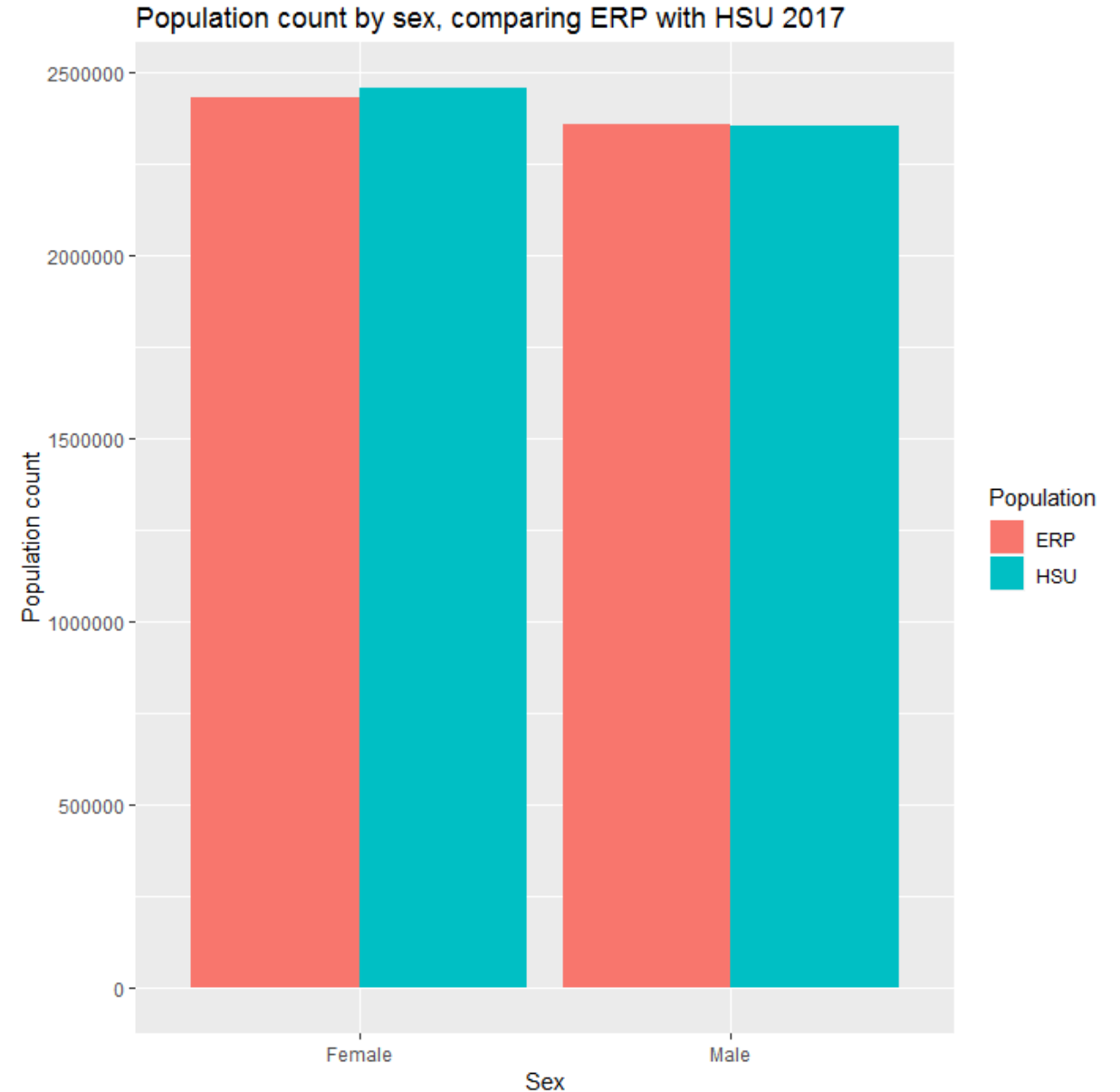
They are also similar by sex

Male

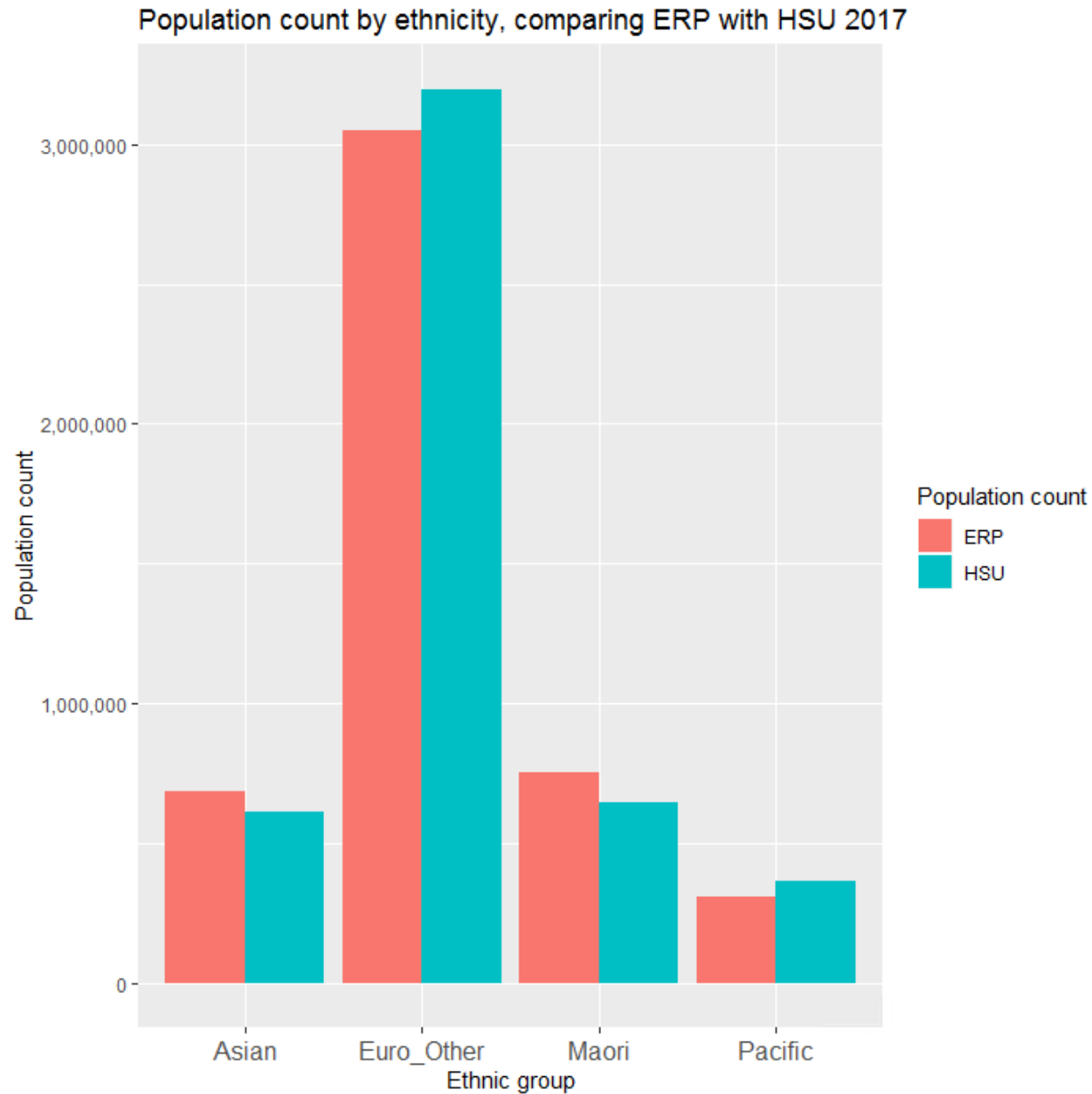
Difference: -4,214 (-0.02%)

Female

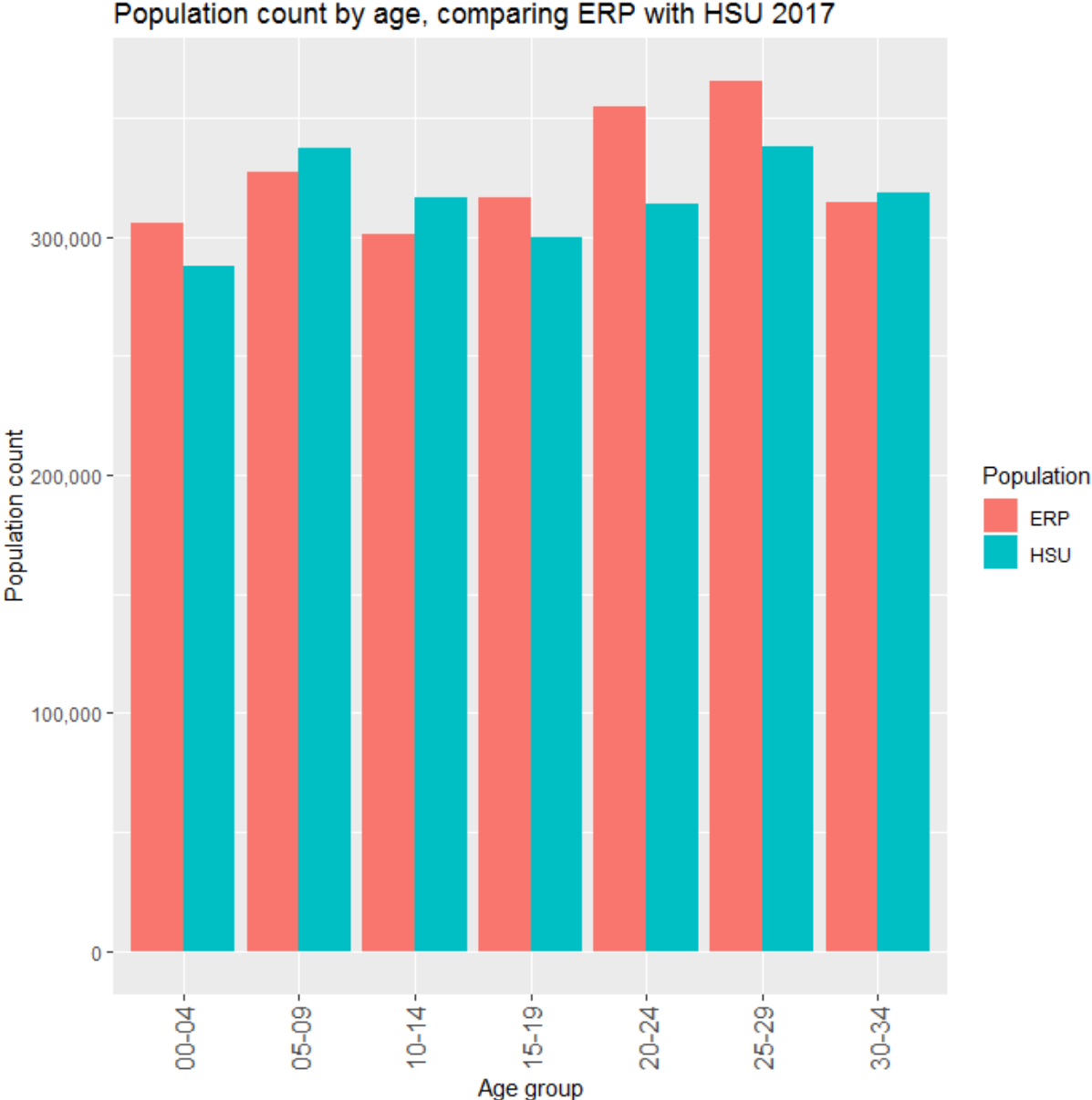
Difference: 27,632 (1.14%):



Differences between HSU and ERP: ethnicity

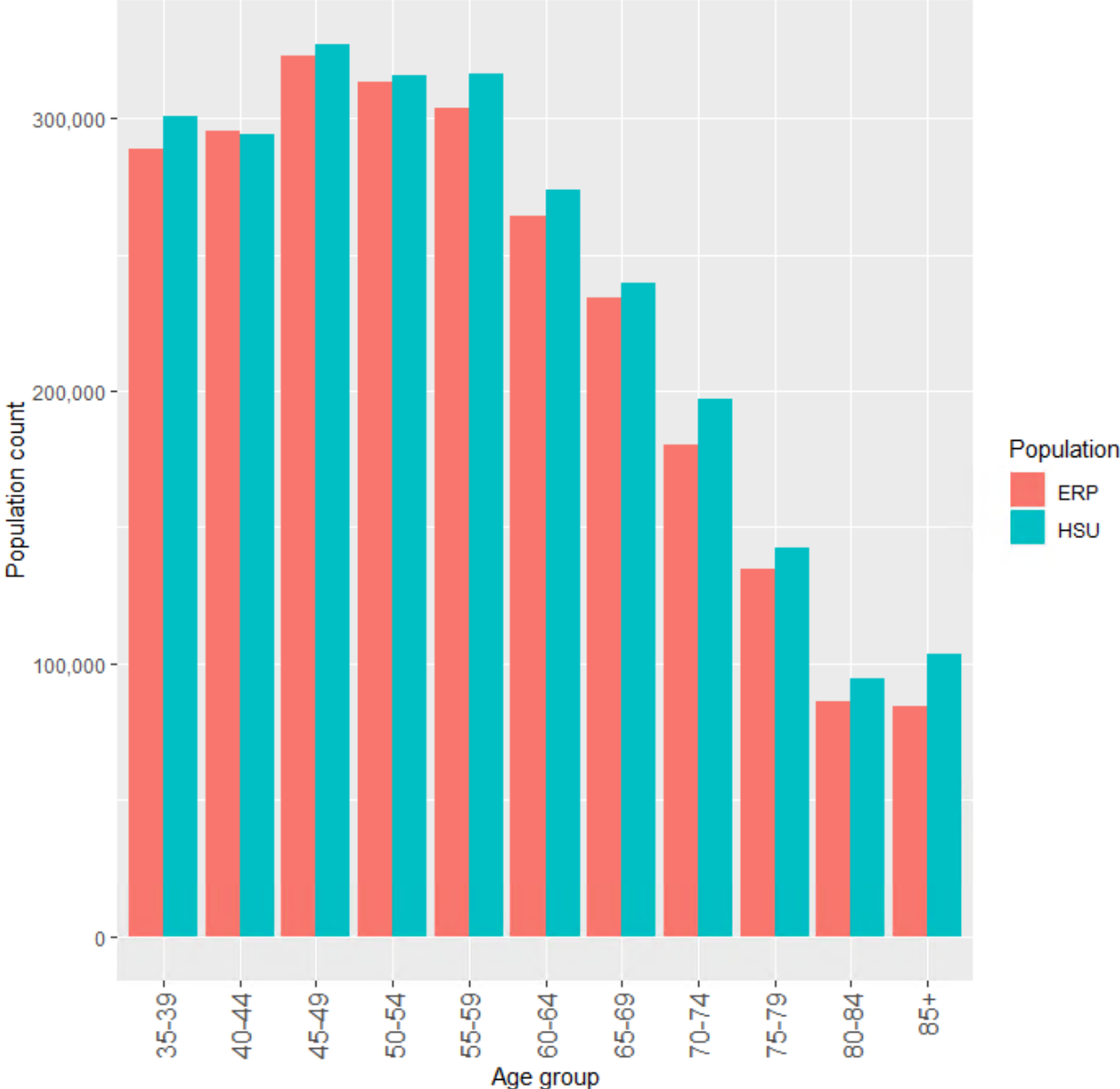


Differences between HSU and ERP: age



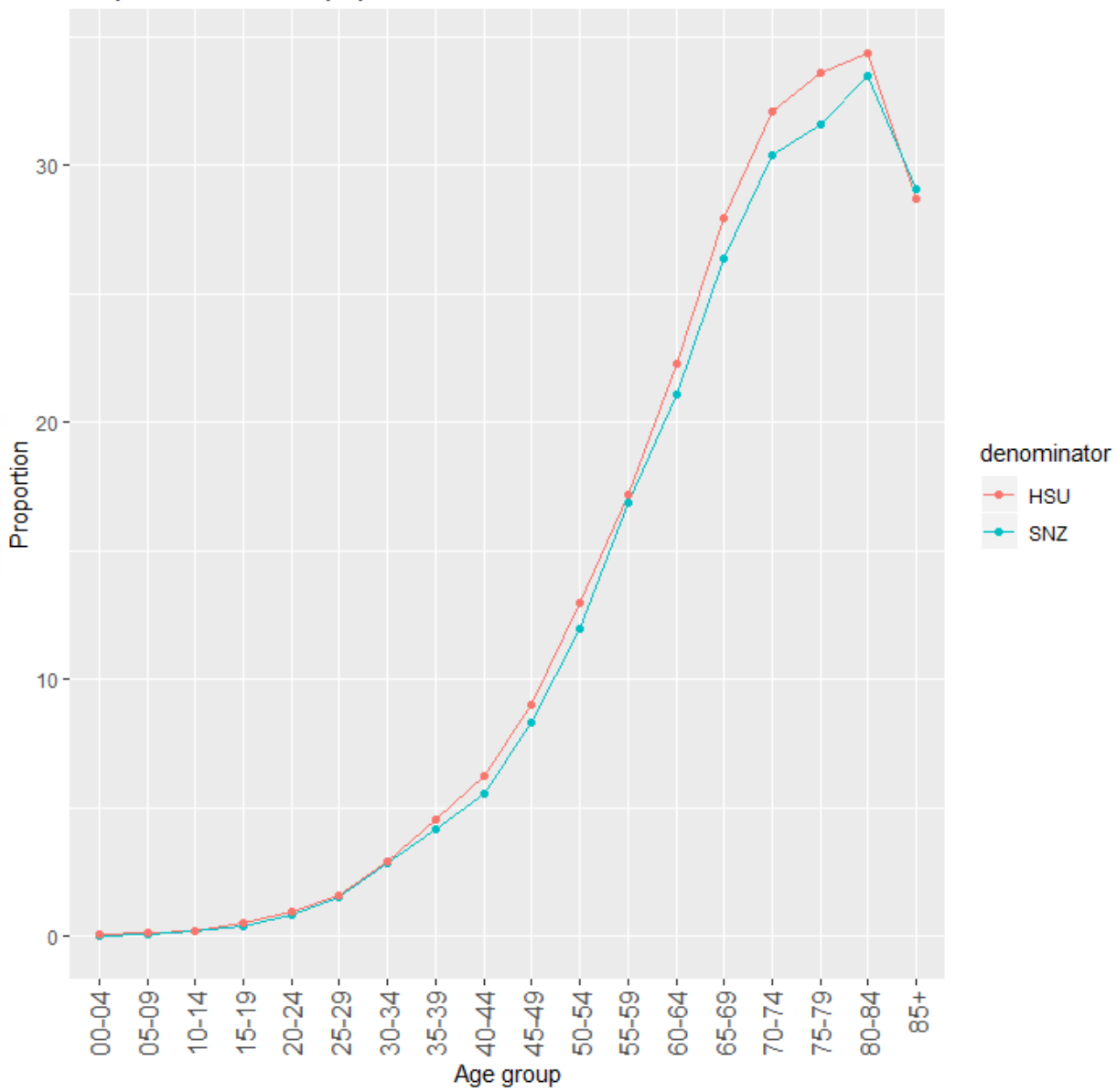
Differences between HSU and ERP: age

Population count by age, comparing ERP with HSU 2017

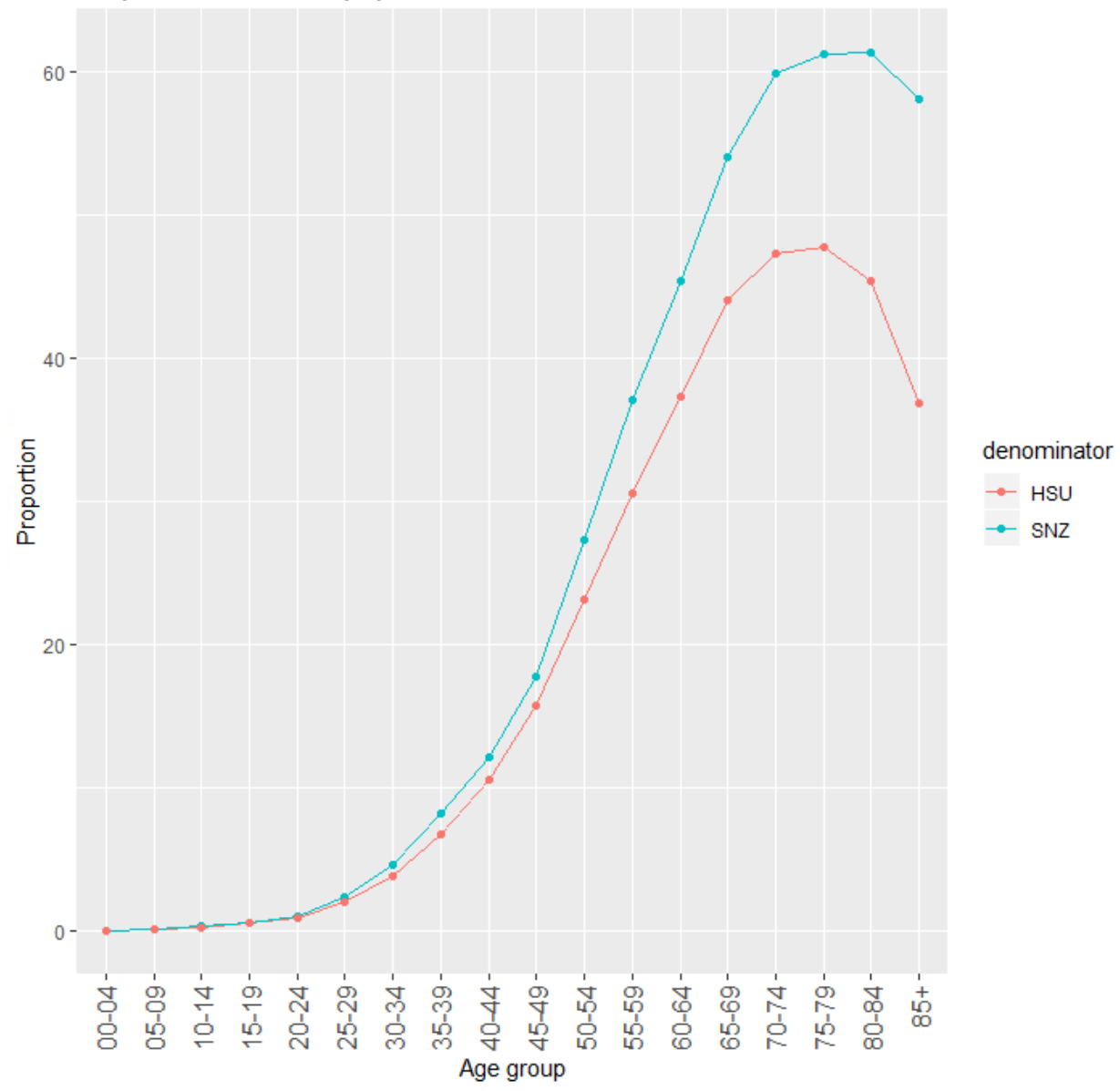


Differences in rates of diabetes by ethnicity using different denominators

Proportion of Maori population who have diabetes, 2017 VDR



Proportion of Pacific population who have diabetes, 2017 VDR



Next steps

Next steps from MoH

- Further validation and testing of HSU, including comparison with IDI
- Methods report
- Trial adding more datasets
- Thinking about ethnicity
- Avenues for sharing with other researchers, including the IDI
- Feedback from the wider sector



Future possible uses

- Could the HSU be included in a Government Service Use (GSU) population estimate using the IDI?
- Used as a health denominator population for health research

These uses need to be considered carefully

Acknowledgements

- The idea for deriving population estimates from health data has been in existence in the Ministry of Health for years. Key developers of the first estimates include Craig Wright and Wing Cheuk Chan
- A previous version, called the Health Tracker population, is in the ad hoc area of the IDI
- This presentation refers to the latest iteration, which we are calling the Health Service Utilisation (HSU) population.
- I have had a lot of help from others, including Chris Lewis, Wing Cheuk Chan, Craig Wright, and Jei Hui.



How to get in touch

If you have feedback, would like to discuss this with me, or have opportunities for collaboration please get in touch:

laura.cleary@health.govt.nz