THE UNIVERSITY of York

Estimating a Country's Social Distribution of Health
ISPOR Workshop
8 November 2022

Introduction and Estimates from England

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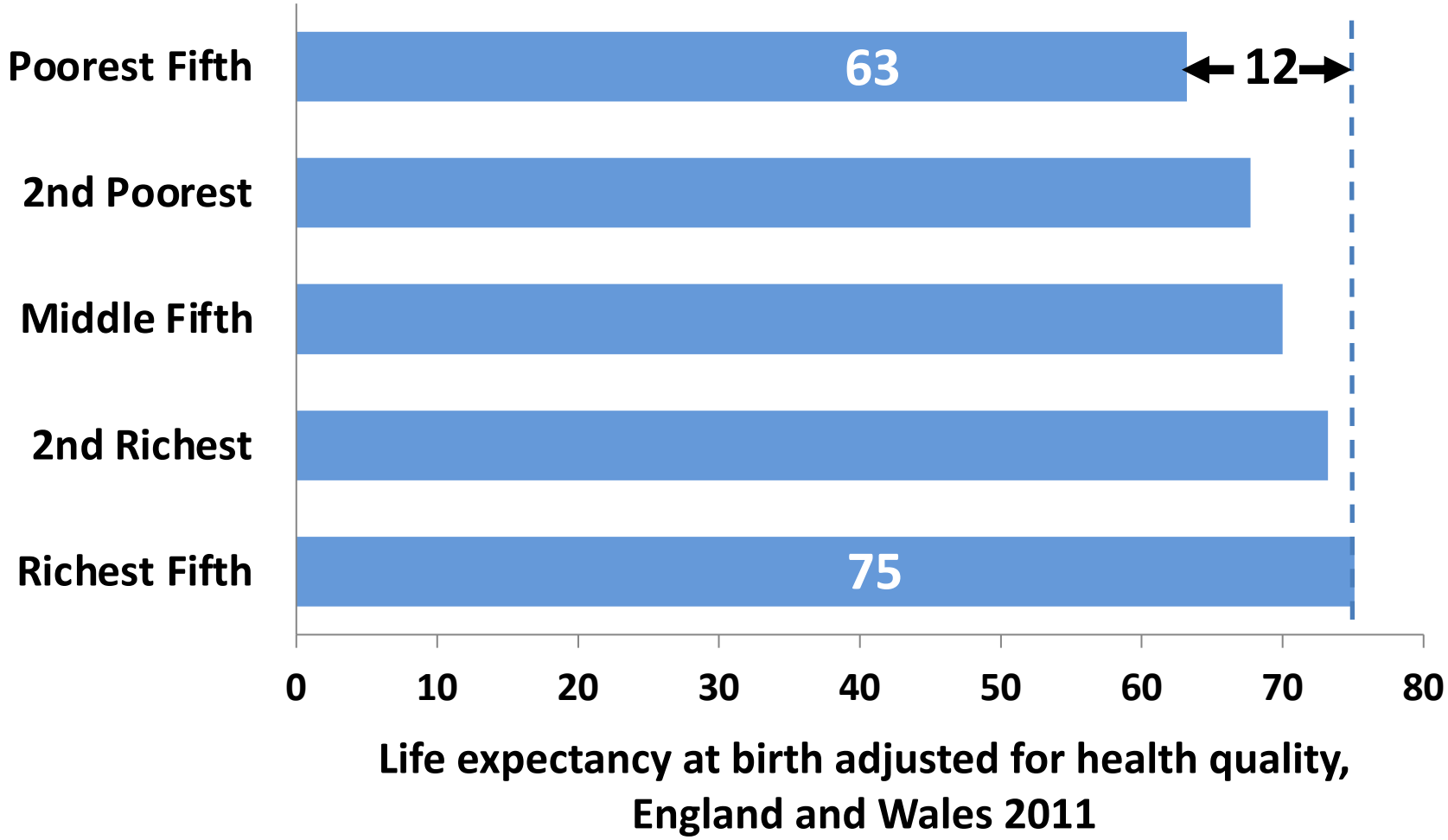
Healthy Years of Life

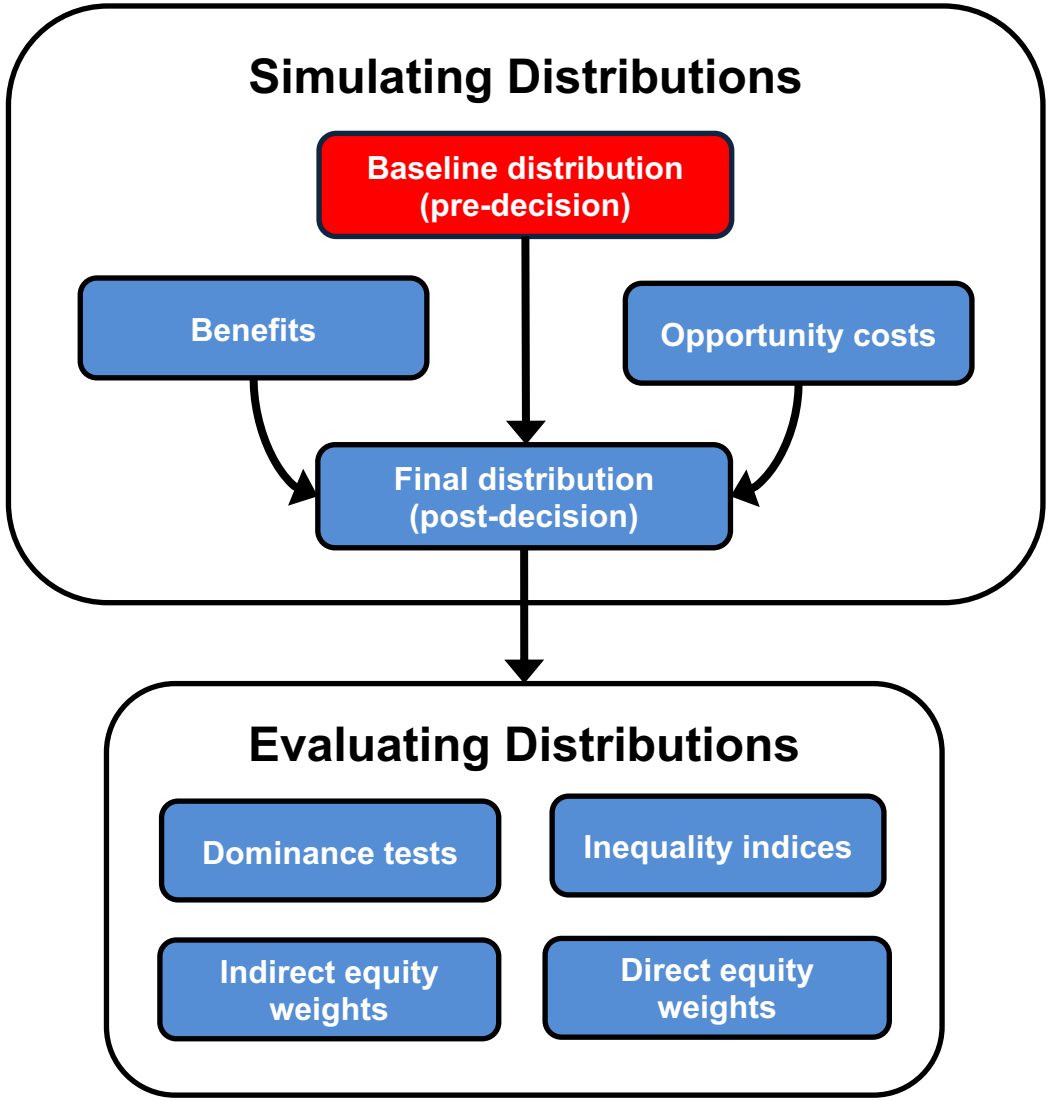


Source: Love-Koh, J., Asaria, M., Cookson, R., & Griffin, S. (2015). The Social Distribution of Health: Estimating Quality-Adjusted Life Expectancy in England. *Value in Health*, 18(5), 655-662.

Why bother doing this?

- Summary measure of health inequality are useful for…
  1. Monitoring progress over time in tackling health inequality
  2. Cross-national comparisons
  3. Evaluating interventions: “Distributional” Cost-Effectiveness Analysis (DCEA)

Where does this fit into DCEA?



Why use QALYs?

- Generic measures of health provide a complete summary
  - Disease-specific measures (e.g. cancer outcomes) are incomplete
  - When evaluating interventions, they also do not allow us to compare the size of health inequality impacts between different disease areas
  - Likewise, life expectancy and morbidity measures are incomplete
- "Disability-free" life expectancy (DFLE) exaggerates inequality
  - DFLE values life with "disability" at zero, as bad as death, and life without "disability" at one, as good as full health. This exaggerates differences and inflates health inequality gaps, as we shall see.

Sensitivity analysis around England estimates

(b) Adjusted Life expectancy at birth

	IMD 1 (Most Deprived)	IMD 2	IMD 3	IMD 4	IMD 5 (Least Deprived)	Inequality Gap
Crude Life Expectancy	78.33	80.91	82.52	83.54	84.62	6.29
Health adjustment						
ED5D-5L	66.37	70.07	73.74	75.32	77.63	11.25
Disability	53.36	58.87	62.47	65.66	69.36	16.00
In good health	51.43	59.94	63.96	67.57	69.96	18.53
Love-Koh (2015) estimates	63.2	67.7	70.0	73.2	75.1	11.9

(b) Adjustment for binary measures

	IMD 1 (Most Deprived)	IMD 2	IMD 3	IMD 4	IMD 5 (Least Deprived)	Inequality Gap
Flat Adjusted disability	64.91	70.46	73.28	75.59	77.32	12.41
Flat Adjusted In good health	65.85	69.90	72.50	74.61	77.00	11.15

Source: Unpublished work-in-progress, with thanks to Katja Grasic

Generic social status groups

- **Different countries have health inequality concerns about different social status groups**

- **Examples of Generic Social Status Groups:**
  - England: Five quintile groups of neighbourhoods, based on the index of multiple deprivation (IMD)
    - IMD includes income, employment, disability, education and skills, crime, housing and service barriers, living environment
  - USA: Twenty-five groups by race/ethnicity (White, Hispanic, Black, Asian & Pacific Islander, American Indian & Alaska Native) and deprivation (five quintile groups of counties based on the Social Vulnerability Index)
  - Australia: Indigenous status and five quintile groups based on one of the Socio-Economic Indices for Areas
  - A tractably small number of social groups can never cover ALL aspects of social disadvantage, but can be a useful starting point for considering more specific health inequalities

What equity-relevant characteristics (i.e., race and ethnicity, social deprivation, etc) are most important when measuring baseline levels of health inequality in your country/jurisdiction?

Open-ended/short answer responses (displayed as lists)

Further Reading

OXFORD

DISTRIBUTIONAL COST-EFFECTIVENESS ANALYSIS

Quantifying Health Equity Impacts and Trade-Offs

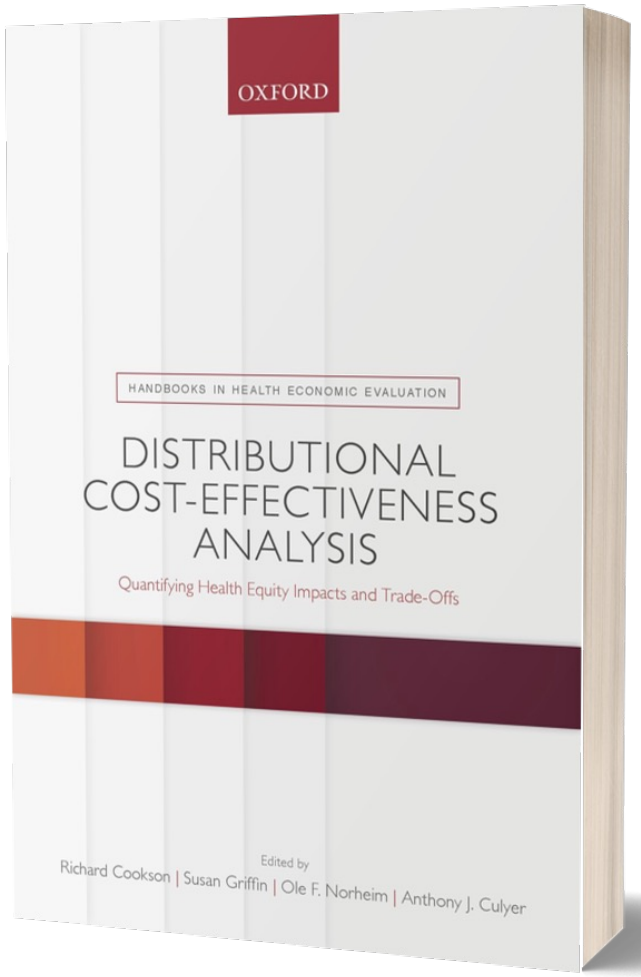
An Oxford University Press
Handbook in Health Economic Evaluation

Edited by Richard Cookson, Susan Griffin, Ole F. Norheim, and Anthony J. Culyer

- Flexible methods for any decision context
- Practical spreadsheet training exercises
- Clear overview for decision-makers

‘The definitive guide to equity methods in health economic evaluation - a landmark in the field.’

Michael Drummond, Professor of Health Economics, University of York, UK



https://www.york.ac.uk/che/publications/books/handbook-dcea/

Readings

Cookson, Richard Andrew , Griffin, Susan , Norheim, Ole F, Culyer, A J and Chalkidou, K. (2020). Distributional Cost-Effectiveness Analysis Comes of Age. Value in Health. https://doi.org/10.1016/j.jval.2020.10.001

Avanceña ALV, Prosser LA. Examining Equity Effects of Health Interventions in Cost-Effectiveness Analysis: A Systematic Review. Value Health. 2021 Jan;24(1):136-143 https://doi.org/10.1016/j.jval.2020.10.010

Cookson, R., A. J. Mirelman, S. Griffin, M. Asaria, B. Dawkins, O. F. Norheim, S. Verguet and A. J. Culyer (2017). "Using Cost-Effectiveness Analysis to Address Health Equity Concerns." Value in Health 20(2): 206-212. DOI: https://doi.org/10.1016/j.jval.2016.11.027

Asaria, M, Griffin, S and Cookson, R. (2016). "Distributional Cost-Effectiveness Analysis: A Tutorial." Medical Decision Making 36(1): 8-19. http://mdm.sagepub.com/content/36/1/8.abstract

Love-Koh, J., Cookson, R., Gutacker, N., Patton, T., Griffin, S., 2019. Aggregate Distributional Cost-Effectiveness Analysis of Health Technologies. Value in Health, 22(5), 518–526. [Link]

Robson M, Asaria M, Cookson R, Tsuchiya A, Ali S (2017) Eliciting the level of health inequality aversion in England *Health Economics 26(10): 1328–1334* http://onlinelibrary.wiley.com/doi/10.1002/hec.3430/full

Thank you

PONTIFICIA
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DE CHILE

Estimating the baseline health distribution across socioeconomic status: The case of Chile

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Chief – Unit of Health Technology Assessment (ETESA-UC)
Facultad de Medicina - Pontificia Universidad Católica de Chile

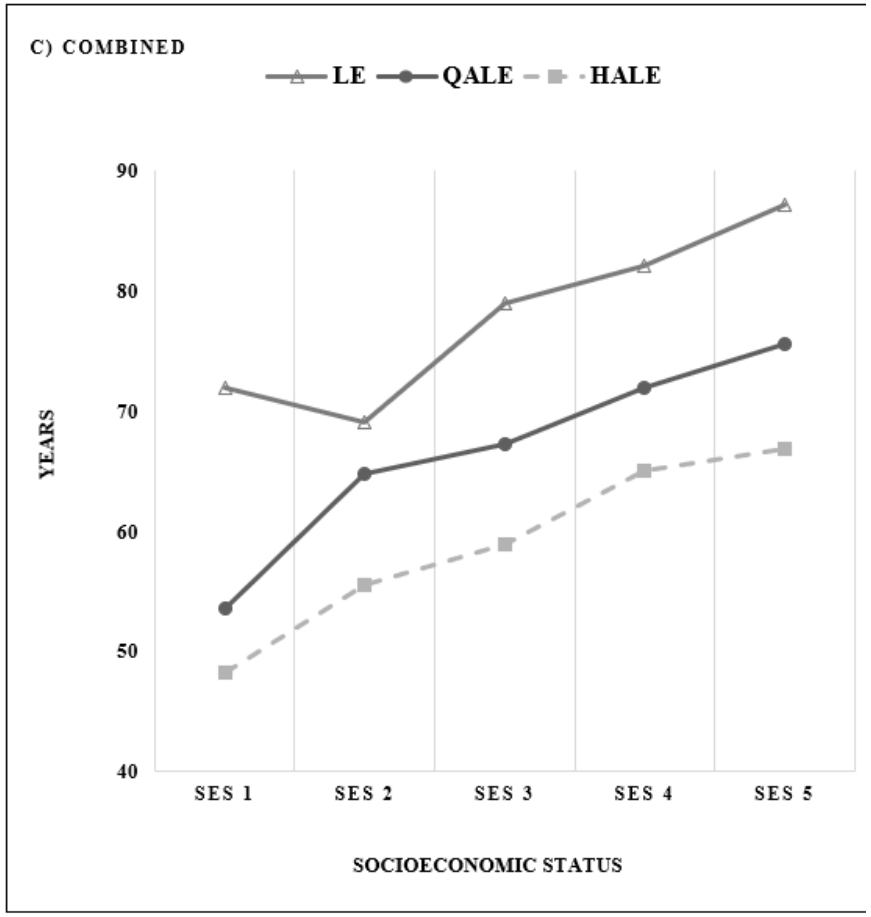
Context

- ✓ Chile is a high income country in South America
- ✓ Suffering pervasive socioeconomic and health inequalities
- ✓ Equity became a major principle of the healthcare reform in 2005, which failed in having a significant impact
- ✓ Social inequalities are the main reason of a historic social change in the country
- ✓ Alongside a process to elaborate a new constitution, health system reform becomes a priority, and equity is a fundamental goal to pursue.

Distribution of what?

	Life expectancy (LE)	*Quality Adjusted LE (QALE)*	*Health Adjusted LE (HALE)*
Available public information	National mortality rates by sex, age, level of education	National mortality rates by sex, age, level of education	National mortality rates by sex, age, level of education
		Utilities estimated from the 2018 National health Survey (EQ-5D + Chilean value set), by age, sex and educational level	Utilities estimated from the 2018 National health Survey (EQ-5D + Chilean value set), by age, sex and educational level
Information not available, or with restrictions	National mortality rates by income or other SES covariate, and *	National mortality rates by income or other SES covariate and *	National mortality rates by income or other SES covariate and *
	* years of education trunked at 13 years	Utilities by the subject´s income (not equivalized family income)	Utilities by the subject´s income (not equivalized family income)
Expectancy at birth	80.4 years old	69.8 QALYs	62.4 HALYs

Health distribution across soioeconomic status in the general population



	20:20 absolute gap	20:20 relative gap
Life expectancy	15.24 years	1.21
QALE	21.92 QALY	1.41
HALE	18.57 HALY	1.38

*socioeconomic status measured as years of education

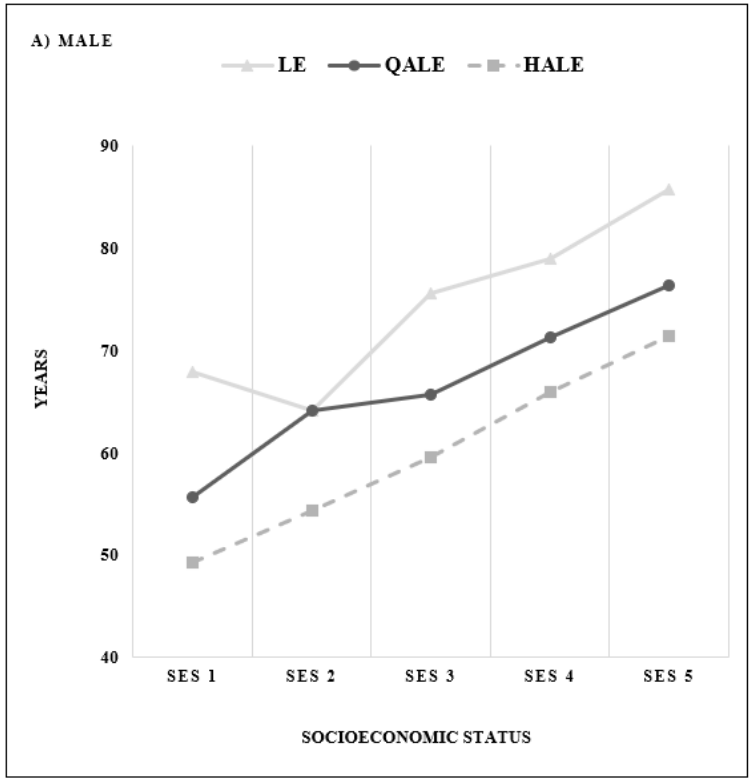
Q1 (0-3 years, pre-school), Q2 (3-6 years, early years to year 1); Q3 (6-9 years, primary level); Q4 (9-13 years, secondary level); and Q5 (>13, technical or university level)

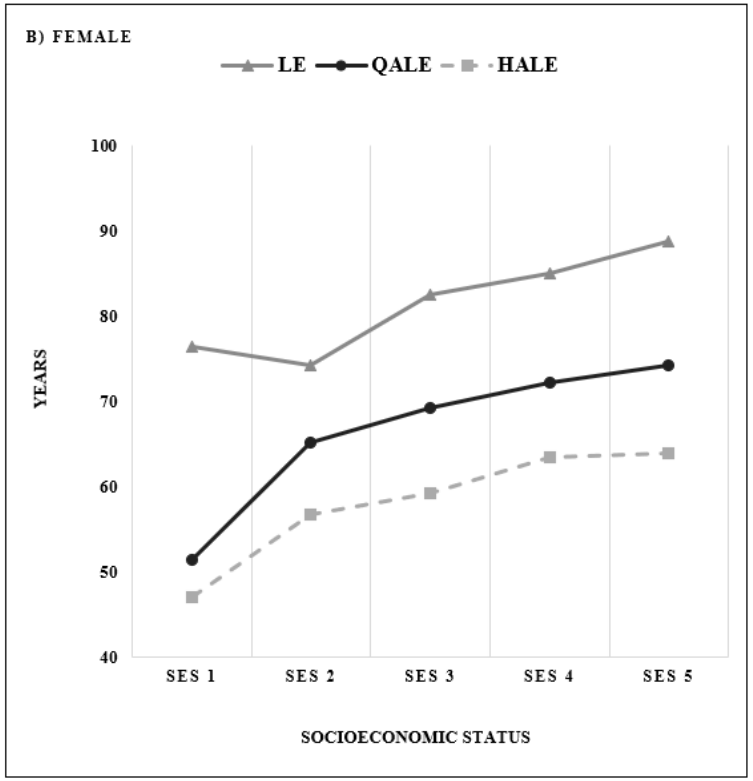
Clear gradient favoring the better-off population

Greater population health inequality than other high income countries

Espinoza MA, Severino, R., Balmaceda, Abbott T, Cabieses B. The socioeconomic distribution of life expectancy and health life expectancy in Chile, Int J Equity Health (under review).

Health distribution across soioeconomic status across sex (male, female)





LE	77.8 years
QALE	69.8 QALY
HALE	64 HALY

LE	82.9 years
QALE	69.4 QALY
HALE	60.8 HALY

	20:20 absolute gap	20:20 relative gap
LE Male	17.7 years	1.26
LE Female	12.4 years	1.16
QALE Male	20.7 QALYs	1.37
QALE Female	22.9 QALYs	1.45
HALE Male	22.1 HALYs	1.45
HALE Female	16.9 HALYs	1.36

Women more LE than men but
less absolute QALEs and HALEs than men

Espinoza MA, Severino, R., Balmaceda, Abbott T, Cabieses B. The socioeconomic distribution of life expectancy and health life expectancy in Chile, Int J Equity Health (under review).

Population healthcare distribution

NATIONAL DISTRIBUTION OF SUMMARY MEASURES OF POPULATION HEALTH (SMPHs)

	SES-1			SES-2			SES-3			SES-4			SES-5		
Age interval	LE	QALE	HALE	LE	QALE	HALE	LE	QALE	HALE	LE	QALE	HALE	LE	QALE	HALE
0-4	71,9	53,7	48,3	69,1	64,8	55,6	78,9	67,2	58,9	82,1	71,9	65,0	87,2	75,6	66,9
5-9	68,7	51,2	45,7	65,4	61,4	52,0	74,1	63,1	54,8	77,3	67,6	60,7	82,2	71,3	62,6
10-14	65,4	48,8	43,1	61,6	57,9	48,3	69,3	59,0	50,7	72,4	63,4	56,4	77,3	67,0	58,3
15-19	62,0	46,2	40,4	57,8	54,3	44,5	64,5	54,9	46,6	67,5	59,1	52,1	72,4	62,7	54,0
20-24	58,5	43,8	37,7	53,9	53,9	40,6	59,6	47,0	42,4	62,6	55,3	47,8	67,4	59,1	49,7
25-29	54,9	37,1	34,8	50,4	46,0	36,7	55,1	46,0	38,8	57,9	47,6	43,6	62,5	52,8	45,4
30-34	51,0	38,3	32,2	46,6	42,0	33,0	50,6	35,7	35,0	53,2	44,9	39,7	57,6	48,5	41,2
35-39	46,9	31,4	29,0	42,7	31,7	29,2	46,2	33,8	31,9	48,5	39,4	35,7	52,7	42,6	37,1
40-44	42,9	25,7	26,2	38,8	29,7	26,3	41,7	32,4	28,6	43,8	34,9	31,9	47,8	38,3	33,1
45-49	38,8	22,4	23,8	34,7	26,5	23,1	37,2	29,6	25,0	39,2	32,1	28,2	42,9	33,8	29,2
50-54	34,8	22,2	21,5	30,6	22,1	19,9	32,7	23,3	21,4	34,7	25,9	24,5	38,1	27,7	25,4
55-59	30,6	17,4	18,8	26,7	18,8	16,9	28,3	20,8	18,2	30,2	22,1	21,1	33,3	24,3	21,9
60-64	26,5	18,4	16,5	23,1	16,5	14,3	24,1	17,9	15,0	25,9	18,5	17,9	28,6	21,2	18,4
65-69	22,5	14,4	13,7	19,5	11,7	11,6	19,9	12,1	11,8	21,7	16,2	14,9	24,0	15,7	15,0
70-74	18,4	12,7	11,0	16,0	12,1	9,5	16,1	10,4	9,5	17,8	12,8	11,9	19,5	13,9	12,0
75-79	14,5	9,5	8,2	12,7	8,1	6,7	12,6	6,6	7,2	14,0	9,1	9,1	15,3	9,9	8,9
80-84	10,9	5,4	5,7	9,8	5,8	4,5	9,5	6,2	5,7	10,7	6,9	6,9	11,3	6,5	6,3
85+	7,5	4,1	4,1	7,5	2,7	2,7	7,5	4,2	4,2	7,5	4,9	4,9	7,5	4,0	4,0

Gaps decrease over the course of people´s lives

S1	S2	S3	S4	S5
16%	19%	20%	22%	23%

Espinoza MA, Severino, R., Balmaceda, Abbott T, Cabieses B. The socioeconomic distribution of life expectancy and health life expectancy in Chile, Int J Equity Health (under review).

Concluding Remarks

- ✓ Population health distribution showed a clear gradient favoring the better-off (educated) population
- ✓ Differences in LE favor women against men contrast with QALE and HALE estimates, which favor men instead. It suggests that policies to address morbidity affecting quality of life should include a gender-informed consideration.
- ✓ Higher inequalities observed in Chile than other high income countries can be explained by structural social inequalities as well as inequalities in access to the healthcare system.
- ✓ Advantages
  - National consolidated demographic data (mortality and educational level) publicly available
  - Nationally representative health survey providing EQ-5D data to estimate utilities across age, sex and educational level

Polling Question

Does your country/jurisdiction have publicly available information on baseline levels of health across equity-relevant subgroups in terms of health-adjusted life expectancy (e.g., QALE, HALE)?

- Yes
- No
- I don’t know

Inequities in the Social Distribution of Health Across Race, Ethnicity and Geography in the US

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ISPOR Europe 2022 - *Virtual Workshop:*

Acknowledgements: Dr. Robert Schuldt, Dr. Carmen Ng, Dr. Danny Sheinson, Dr. Kim Jinnett, Dr. Richard Cookson, Dr. Anirban Basu

Given the fragmented nature of the US healthcare system, key information needed to understand current inequities was not readily available

	Life Expectancy (LE)	*Disability-Free LE (DFLE)*	*Quality-Adjusted LE (QALE)*
Available public information	**National life expectancy** by sex, age and race & ethnicity	**Disability-free life expectancy** by sex, age and race and ethnicity	**Dated general population utility by sex and age OR race and ethnicity**
	Life tables for **White, Black and Hispanic populations**	**Disaggregated** disability data by **race and ethnicity or sex/age**	
Information not available or not nationally representative	Life tables for **Asian and Pacific Islander, American Indian or Alaska Native**	**National DFLE** by race and ethnicity, sex and age and SDOH	**National QALE** by race and ethnicity, sex and age and SDOH
	Representative mortality data **below national level** by race and ethnicity	**Sub-national DFLE** by race and ethnicity, sex and age and SDOH	**Sub-national QALE** by race and ethnicity, sex and age and SDOH
	Mortality data that considers **race and ethnicity and social determinants of health (SDOH)**		Contemporary QALY data by race and ethnicity, sex and age and SDOH

We developed a nationally-representative dataset of health drivers and health outcomes at the county level by linking several sources

Deprivation Measures

Many countries rely on composite deprivation measures to capture broader social determinants of health

Reviewed 9 indexes based on:[2]

- Included metrics
- Validation across geographic levels
- Comparability to ex-US indices

Selected measure validated at the county level:

- Social vulnerability index (SVI)

Disaggregated County-Level Data on Deprivation (age, sex, and/or race and ethnicity)

American Community Survey	**CDC WONDER Mortality Files**	**IHME Global Burden of Disease**	**County Health Rankings**
Area Health Resource Use File	**Dartmouth Atlas of Healthcare**	**Medicare Geographic Variation File**	**CMS Chronic Conditions File**
Disability Statistics Compendium	**SSI Disability Recipients File**	**COVID-19 Census Dashboard**	***Data linked on FIPS codes**

*Full inventory of data available across sex, race & ethnicity and/or age for SDOH based on County Health Rankings Outcomes model (data anchored to newest available national mortality data (**2016**)*

Health Behaviors	**Clinical Care & Access**	**Social & Environmental**	**Physical Environment**
(e.g., Tobacco use, alcohol use)	*(e.g., quality of care, available care)*	*(e.g., income, education, employment)*	*(e.g., transit, pollution)*

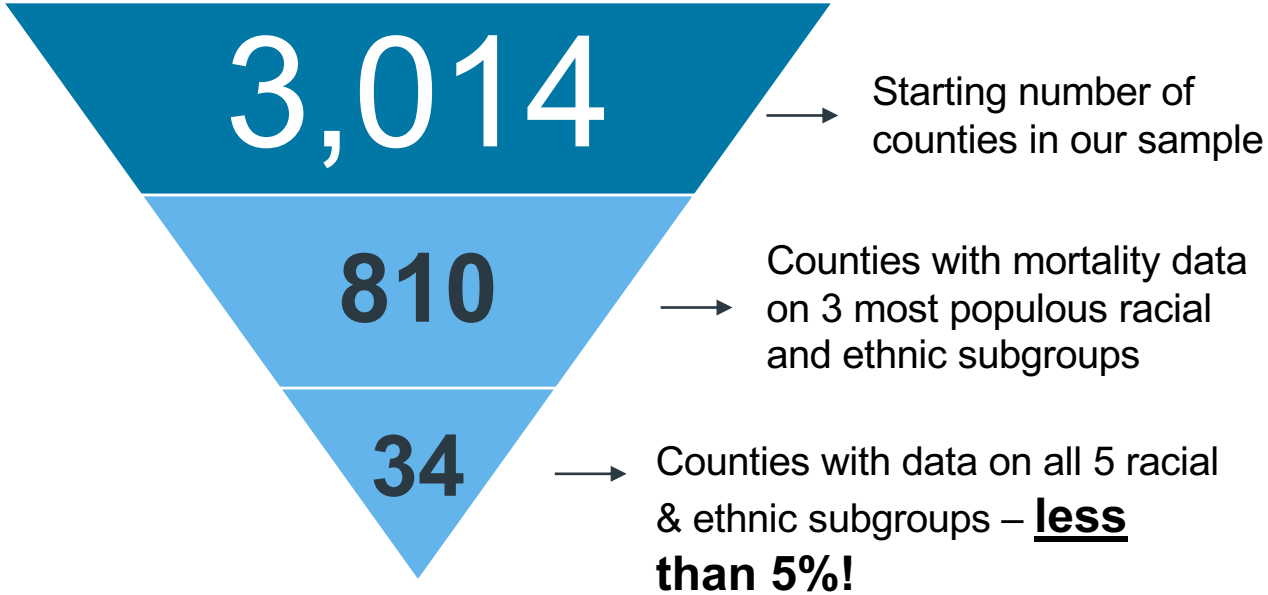
1. Phillips RL, Liaw W, Crampton P, Exeter DJ, Bazemore A, Vickery KD, Petterson S, Carrozza M. How other countries use deprivation indices—and why the United States desperately needs one. Health Affairs. 2016 Nov 1;35(11):1991-8. **2.** https://www.brookings.edu/research/how-we-define-need-for-place-based-policy-reveals-where-poverty-and-race-intersect/

Despite linking numerous datasets, high levels of data suppression hampered our ability to capture county-level information on LE, DFLE and QALE

Challenge

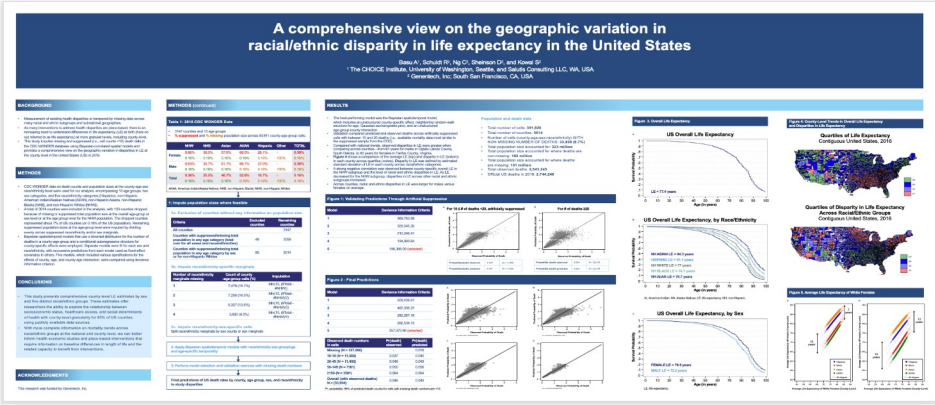
- US mortality data is suppressed for deaths less than 10
- High level of data suppression for small counties and smaller racial and ethnic subgroups
- Available data sources dropped counties in aggregate data given suppression

Example:
Availability of mortality data in County Health Rankings Data



Solution

- Imputation with Bayesian small area models



Given the large size of our minimum geographic unit of analysis, we created racial and ethnic subgroups within counties to better reveal current inequities

Geographic Unit of Analysis

	United States	United Kingdom
Deprivation measure	Social vulnerability index (SVI)	Index of multiple deprivation (IMD)
Geographic unit of analysis	County	Small areas
Number of units	3,014	32,844
Mean population size per unit	106,988	1,500

Challenge:

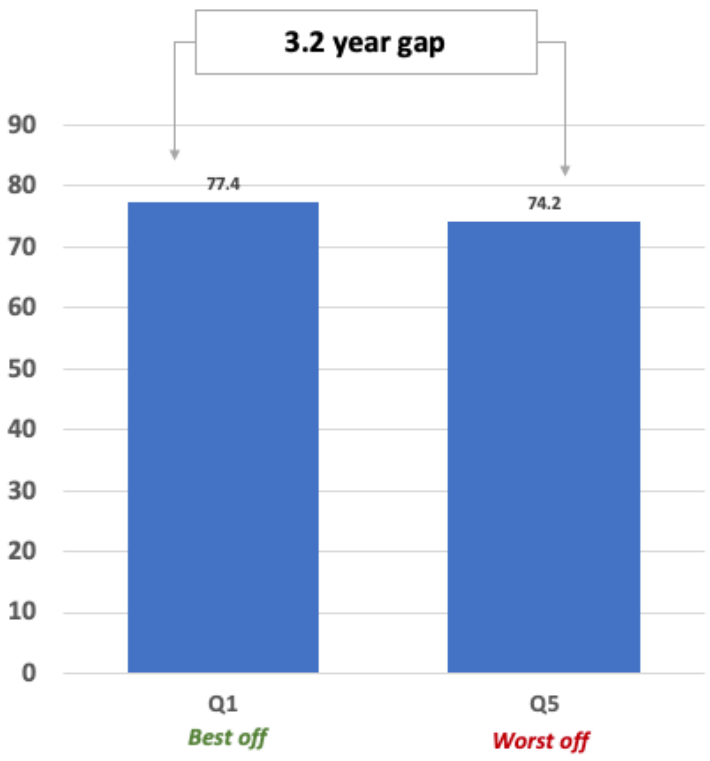
- US counties were the smallest unit of analysis that allowed is to link mortality data to needed demographic and risk factor data

Solution

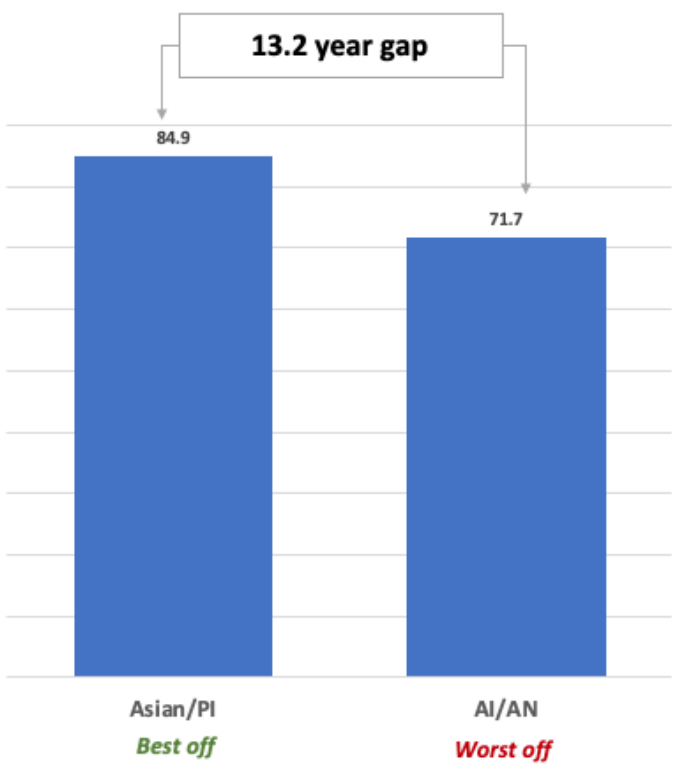
- United States health compared across **25 subgroups** instead of 5 quintiles (per the UK research)
- Increased number of equity-relevant subgroups better captures underlying heterogeneity
    - In addition to SVI quintiles, examined outcomes for 5 racial and ethnic groups within counties: non-Hispanic White, non-Hispanic Black, Hispanic, Asian and Pacific Islander (PI) & American Indian & Alaska Native (AI/AN)

Increasing our number of equity subgroups allowed us to capture more of the underlying inequities within counties

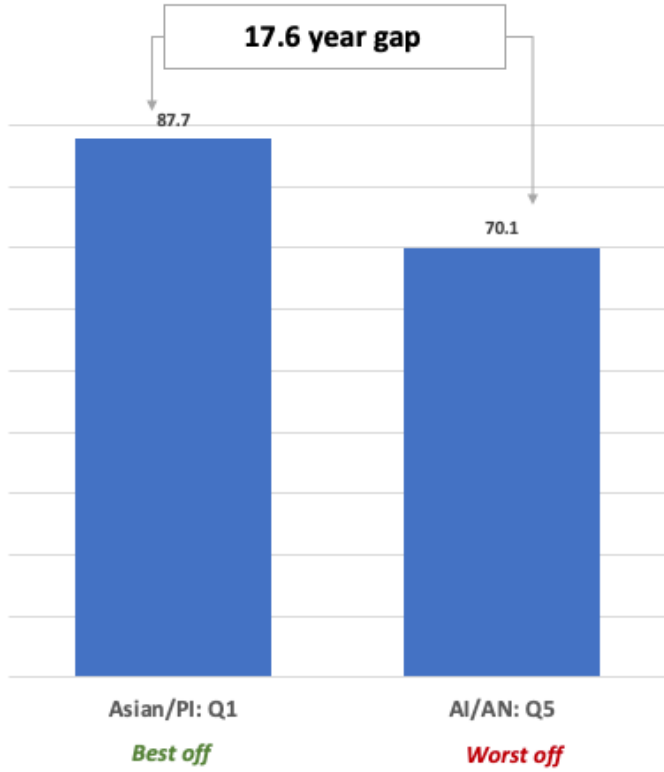
Observed gaps in life expectancy at birth between the 'best off' and 'worst off' subgroups across subgroup definition



5 subgroups based on county-level SVI



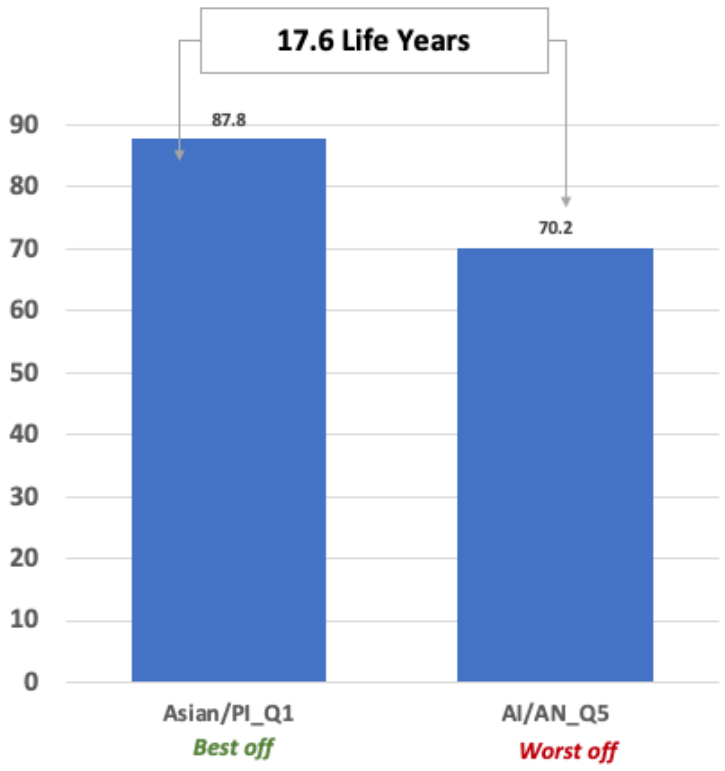
5 subgroups based on race/ethnicity



25 subgroups based on county level SVI & race/ethnicity

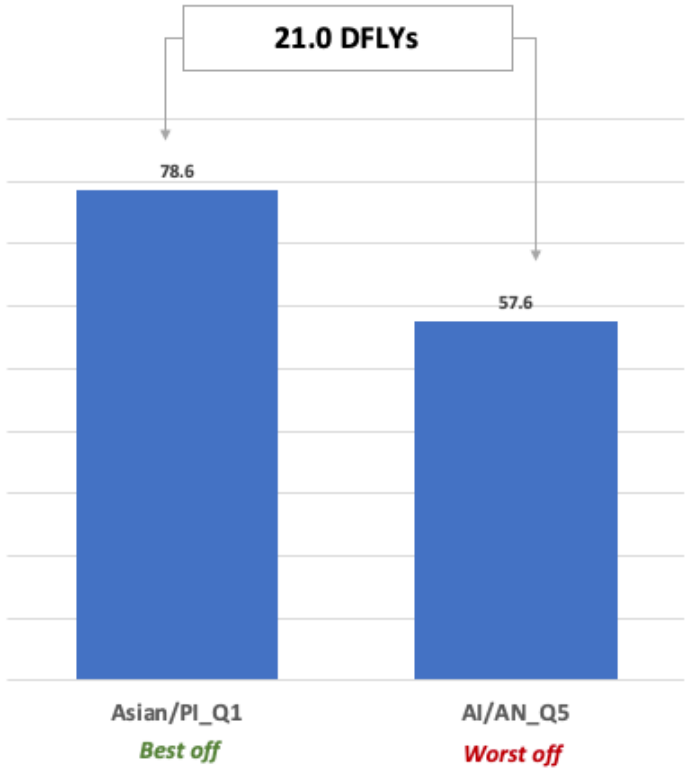
Overall health gaps for the US are larger than the UK, though limited and dated QALY information may underestimate current quality of life gaps

Gaps in Life Expectancy at Birth



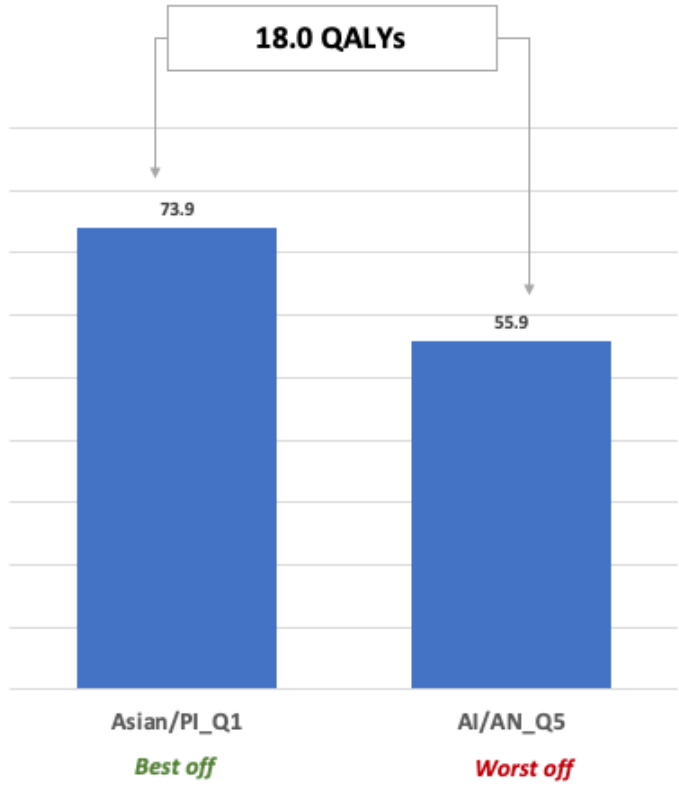
UK Gap: 7.4 years

Gaps in DFLE at Birth



UK Gap: 12.5 DFLYs

Gaps in QALE at Birth



UK Gap: 14.7 QALYs

In addition to supporting DCEA applications, our dataset can be used to generate a variety of useful measures on aggregate health

	Life Expectancy (LE)	*Disability-Free LE (DFLE)*	*Quality-Adjusted LE (QALE)*
What we had before the study	**National life expectancy** by sex, age and race & ethnicity	**Disability-free life expectancy** by sex, age and race & ethnicity	**General population utility by sex and age OR race & ethnicity**
	Life tables for **White, Black and Hispanic populations**	**Disaggregated** disability data by race and **ethnicity or sex/age**	
What we have now	Life tables for **Asian, American Indian or Alaska Native**	**National DFLE** by race & ethnicity, sex and age and SDOH	**National QALE** by race & ethnicity, sex and age and SDOH
	Representative mortality data **below national level**	**Sub-national DFLE** by race & ethnicity, sex and age and SDOH	**Sub-national QALE** by race & ethnicity, sex and age and SDOH
	Mortality data that considers **race and ethnicity and SDOH**	*What is still missing*	Contemporary QALY data by race & ethnicity, sex and age and SDOH

DCEA: distributional cost-effectiveness analysis

Polling Question

What data sources would you use in your country/jurisdiction to produce these types of estimates?

- Brainstorming poll – open field entry with the audience upvoting their favorite responses

Health equity research in Australia

Natalie Carvalho

Senior Research Fellow, Health Economics Unit,
School of Population and Global Health

On behalf of **Marie-Anne Boujaoude**, PhD student

What could be done in Australia?	Status	Examples
Describe pre-decision health inequalities	✓	• Targeted disease-specific or geography-specific studies • Routine Australian Institute for Health and Welfare (AIHW) data on health outcomes, risk factors, and access to care, by subgroup
Evaluate **intervention** impacts on inequalities in Health Benefits	✓	• CEAs largely applied to public health programs, by subgroup based on socio-economic index [1] and remoteness [2] • Ongoing work to disaggregate Australian GBD estimates by subgroup using AIHW risk factor data, to evaluate differences in intervention impacts by subgroup[3, 4]
Evaluate equity- efficiency trade-offs between reducing health inequalities and improving health	✓	• Ongoing study surveying Australian general public looking across indigeneity, SES, geographic area[5]
Evaluate equity-equity conflicts between prioritising the severely ill and reducing health inequalities	✗	• General discussion based on expert opinion

1. Lal A, Mantilla-Herrera AM, Veerman L, Backholer K, Sacks G, et al. (2017) Modelled health benefits of a sugar-sweetened beverage tax across different socioeconomic groups in Australia: A cost-effectiveness and equity analysis. PLOS Medicine 14(6):e1002326. https://doi.org/10.1371/journal.pmed.1002326
2. Marklund M, Zheng M, Veerman JL, Wu JHY (2020) Estimated health benefits, costs, and cost-effectiveness of eliminating industrial trans-fatty acids in Australia: A modelling study. PLoS Med 17(11): e1003407. https://doi.org/10.1371/journal.pmed.1003407
3. https://mspgh.unimelb.edu.au/shine
4. Andersen, P., Mizdrak, A., Wilson, N. *et al.* Disaggregating proportional multistate lifetables by population heterogeneity to estimate intervention impacts on inequalities. *Popul Health Metrics* **20**, 6 (2022). https://doi.org/10.1186/s12963-022-00282-7
5. Boujaoude M, Devlin N, Dalziel K, Carvalho N. Understanding the Australian general population level of health inequality aversion. Manuscript under development

Different subgroups of interest in Australia

Different health experiences of certain population groups in Australia affect their health status and health outcomes.

The subgroups often considered are[1]:

- Socioeconomic groups
- Rural and remote populations
- Culturally and linguistically diverse populations
- Aboriginal and Torres Strait Islander people
- People with disability

[1] Australian Institute of Health and Welfare 2018. Australia's health 2018. Australia's health series no. 16. AUS 221. Canberra: AIHW.

Different subgroups of interest in Australia

Studies suggest the establishment of a new, regularly collected, good quality data source on the distribution of health and social determinants of health that will enable monitoring of social determinants of health inequities in Australia in line with international best practice.

Data to be collected should include[1]

- Representative samples for each **state** and **territory**, nationally and **by remoteness**
- Health data that capture **distribution of health** of individuals
- Data on social determinants of health: **income**, **wealth**, **housing**, **education**, **employment**, **social inclusion/exclusion**
- Data on **disability**, **Indigenous** status, and **migrant** status
- Data on **ethnicity**, **culture** and **language**, and social support to complement measures of **socio-economic status/position**
- Neighbourhood characteristics: socio-economic status of area of residence
- Data on **gender**, including non-binary and transgender categories as well as female/male

[1] Flavel, J., McKee, M., Freeman, T., Musolino, C., van Eyk, H., Tesfay, F. H., & Baum, F. (2022). The need for improved Australian data on social determinants of health inequities. *Medical Journal of Australia*, *216*(8), 388-391.

Available data on distribution of health in Australia

Life tables, published by the Australian Bureau of Statistics , are available detailed by subgroups:

- Life tables, states, territories, and Australia
- Life tables by remoteness
- Life tables by index of relative socioeconomic disadvantage (IRSD)

They were used to derive many measures including:

- LE at birth
- HALE
- Mortality rates
- Infant mortality rate

Australian Institute of Health and Welfare 2018. Australia's health 2018. Australia's health series no. 16. AUS 221. Canberra: AIHW.
Australian Bureau of Statistics. (2018-2020). *Life tables*. ABS. https://www.abs.gov.au/statistics/people/population/life-tables/latest-release.

Available data in Australia

In the Australian Burden of Disease Study 2018[1], HALE was calculated for 2011, 2015, and 2018 at the national level and for sub-national populations:

- state and territory,
- remoteness areas by sex
- socioeconomic groups by sex

Year 2011	HALE		Life Expectancy at birth	
	Female	Male	Female	Male
Major cities	75	71.7	84.8	80.6
Remote & very remote	68.1	66.2	79.7	75.3

by

Year 2011	HALE		Life Expectancy at birth	
	Female	Male	Female	Male
Q1 (lowest)	72.2	67.8	82.7	77.3
Q5 (highest)	77	74.8	86	83

As previously mentioned, life table data were sourced from published and customised life tables published by the Australian Bureau of Statistics.

[1] Australian Institute of Health and Welfare 2022. Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018. Australian Burden of Disease Study series no. 26. Cat. no. BOD 32. Canberra: AIHW.

Indigenous estimates

HALE for indigenous and non-Indigenous Australians was also estimated at the national level, for 4 states and territories (New South Wales, Queensland, Western Australia and the Northern Territory) and by remoteness area[1].

Estimates for Indigenous Australians were not derived by socioeconomic group as life expectancy data were not available using the same socioeconomic index used for deriving YLD.

HALE for Indigenous and non-Indigenous Australians was estimated for 2018 only, as comparable life expectancy estimates for other reference years were not available.

Year 2018	HALE		Life Expectancy at birth	
	Female	Male	Female	Male
Indigenous	58.8	56	74.4	70
Non-Indigenous	73.5	71.5	83.5	80.2
GAP	**14.7**	**15.5**	**9.1**	**10.2**

[1] Australian Institute of Health and Welfare 2022. Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018. Australian Burden of Disease Study series no. 26. Cat. no. BOD 32. Canberra: AIHW.

Current state of use

Project: Eliciting health inequality aversion parameters (Atkinson and Kolm indices) and comparing the social judgments of the Australian general public through a benefit trade-off exercise using previously-established methods[1]

Trade-off between different subgroups:

- Richest fifth and poorest fifth of the society
- Indigenous and non-indigenous individuals
- People living in major cities and those living in remote areas

Measure chosen: LE at birth

Reasons:

Measure available to all subgroups

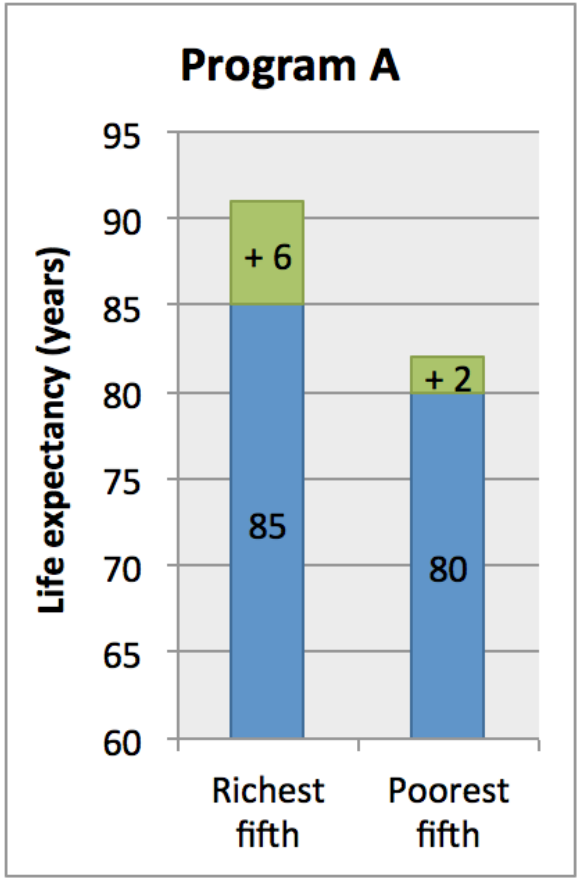
Easy for the public to understand

1. Robson, M., et al., *Eliciting the Level of Health Inequality Aversion in England.* Health Econ, 2017. **26**(10): p. 1328-1334.

Example of the benefit trade-off exercise

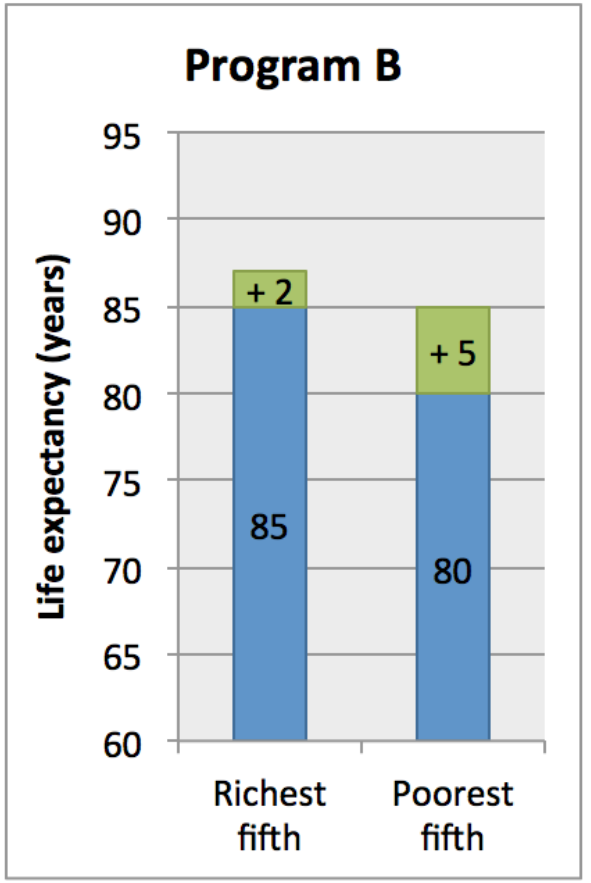
Which program would you choose?

- Program A
- Program A and Program B are equally good
- Program B



Richest fifth: 91 years
Poorest fifth: 82 years

Total gain: 8 years
Gap: 9 years



Richest fifth: 87 years
Poorest fifth: 85 years

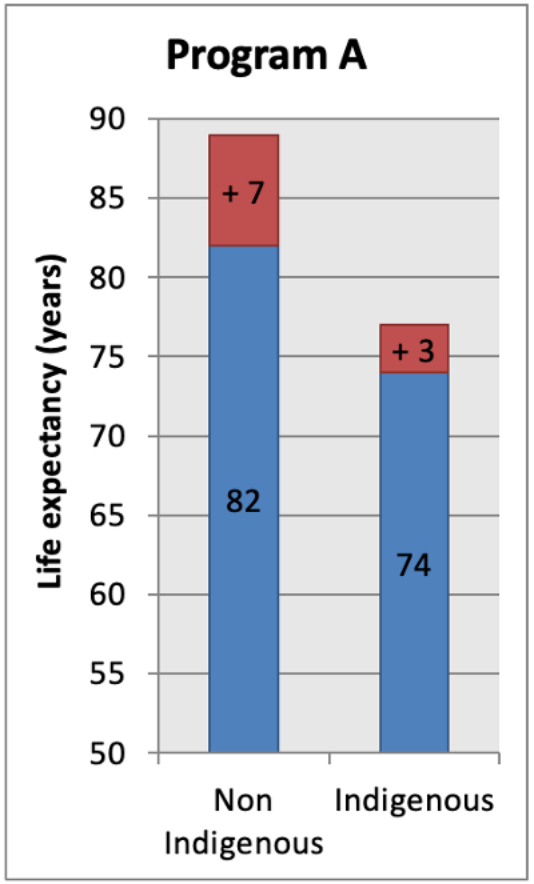
Total gain: 7 years
Gap: 2 years

Benefit trade-off exercise

By Indigenous status

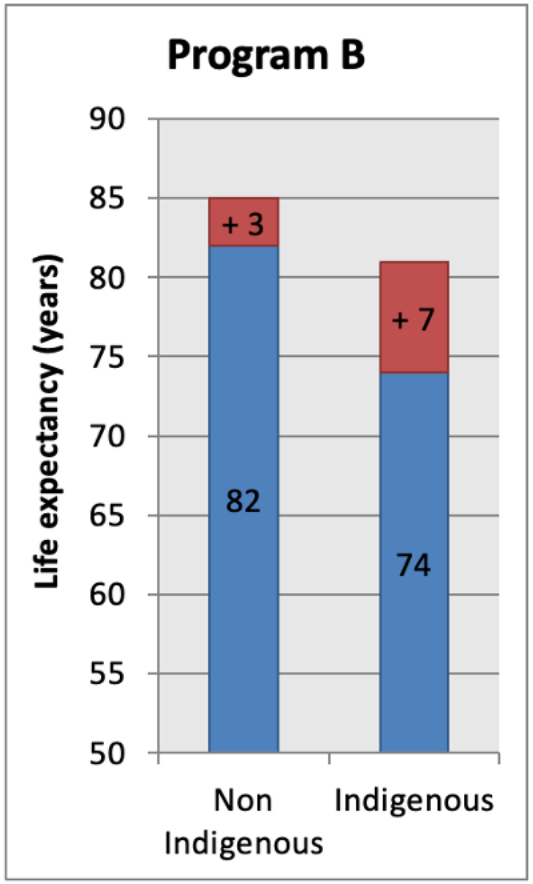
Which program would you choose?

- Program A
- Program A and Program B are equally good
- Program B



Non Indigenous: 89 years
Indigenous: 77 years

Total gain: 10 years
Gap: 12 years



Non Indigenous: 85 years
Indigenous: 81 years

Total gain: 10 years
Gap: 4 years

Audience Poll

Beyond equity-informative cost-effectiveness analysis, how would you/your organization use information on baseline health inequality?

- Brainstorming poll – open field entry with the audience upvoting their favorite responses

Final Poll

What topic would you most like to learn more about in the future: (choose one)

- Methods and application for small area estimation models
- How – and where - to use information on baseline health inequality in healthcare decision-making
- Summary information on how baseline health inequality varies across countries/jurisdictions
- More information on how to use different types of underlying data to generate your own estimates of inequality aversion
- Overall methods for equity-informative cost-effectiveness analysis (like distributional cost-effectiveness analysis)