Health Differences in Australia and the United States: The role of Social Expenditures

Ruben Krishnananthan

A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Public Health

University of Washington

2018

Committee:

Stephen Bezruchka

David Masuda

Program Authorized to Offer Degree:

Public Health, Health Services

University of Washington

Abstract

Health Differences in Australia and the United States: The role of Social Expenditures

Ruben Krishnananthan

Chair of the Supervisory Committee: Dr. Stephen Bezruchka, Senior Lecturer,

Global Health and Health Services

The U.S has poorer health despite spending more on healthcare than its peer nations in the Organization for Economic Cooperation and Development (OECD). It is often argued that the U.S. cannot be easily compared with other nations due to many factors including geographic size and racial diversity. Australia, an Anglophone immigrant nation of enormous geographic size had similar life expectancy after birth in the 1970's but has continued to improve, as U.S. health statistics have stagnated. Both Australia and the U.S. spend on social programs not including healthcare, but Australia's policies have been more effective at improving the social determinants of health. Some of the differences in both health and healthcare in the two nations stems from history; others reflect current socioeconomic reality. As the U.S. debates health and healthcare reform, a focus on the social determinants of health may prove more successful than increasing healthcare expenditure. Adopting and modifying Australian social policies could provide a cost-effective method to improve U.S. health outside of healthcare reform.

Table of Contents

Introduction

The U.S. is less healthy than many other wealthy nations in the OECD (Organization for Economic Cooperation and Development), which includes nations in Western Europe, Australia, Canada, Japan and New Zealand (Bradley, Elkins, Herrin, Elbel, 2011). Australia is one example of a nation that had similar health to the U.S. in the mid-1970's, and has continued to improve along with the rest of the OECD (Murray and Frenk, 2010). Improvements in U.S. health have not kept pace with its peers (Murray and Frenk, 2010).

Comparing health statistics in the U.S. with those in other nations has not been considered useful by some in policy circles as the U.S. has significant geographic, political and historical differences compared to many European nations (Murray and Frenk, 2010). Many OECD nations are smaller, highly urbanized and more racially homogeneous. As well, they are not primarily immigrant or settler nations like the U.S. These factors can affect health and healthcare delivery, making comparison difficult.

Australia and the U.S. have some similarities in both history and geography. Both nations rank in the ten geographically largest nations in the world (United Nations Division of Environment Statistics, [UNDS], n.d.). Both nations have common elements in systems of government, economic structure and wealth distribution (Tiffen, Gittens, 2004). They are racially heterogeneous with a population almost entirely composed of immigrants, or descendants of immigrants the majority of European descent, with small residual indigenous populations. Comparing health in the U.S. and Australia may be more relevant than for example, between the U.S. and Sweden.

Murray and Frenk (2010) noted that there are few articles that directly compare the U.S. and Australia on multiple levels, although there are summary articles that compare Australia or the U.S. against a series of other OECD nations on a specific health marker such as low birth weight (Martinson & Reichman, 2016). Tiffen and Gittens (2004) compared Australia to other OECD nations on multiple fronts, including economy, system of government and health. It provides a valuable resource for broad comparisons and trends.

This thesis aims to provide broad comparisons of the relative health of Australia and the U.S. and the role that healthcare spending and certain social spending programs may play in creating these differences. It will also examine the extent that the aim to establish if the two nations are geographically and demographically comparable.

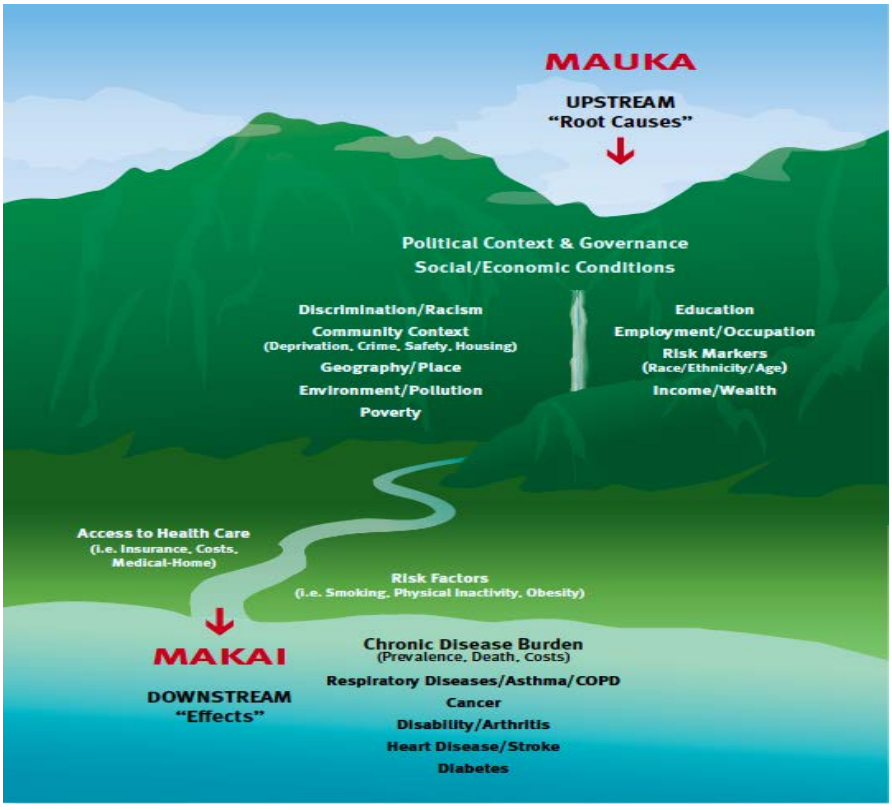
Social Expenditure

The OECD defines social expenditure as spending that occurs with the purpose of redistributing resources from one group to another, in order to benefit a disadvantaged population (McMaken, 2015). Governments may spend tax-payer funds on social programs that may or may not be directly related to healthcare (Bradley, Elkins, Herrin, Elbel, 2011). Examples of healthcare spending include both Australian and U.S. Medicare systems. Non-healthcare social expenditure is usually aimed at improving factors which are social determinants of health. Tax payer funded paid maternity leave and childcare are examples of non-healthcare social spending.

Social Determinants of Health

There is strong evidence that the social conditions surrounding an individual have a significant impact on health (Pobutsky, Bradbury, Wong Tomiyasu, (2011). The World Health Organization Commission on the Social Determinants of Health (CSDH) released a report calling for health equity through action on the social determinants of health (CSDH, 2008). Social determinants of health are the structural determinants and conditions in which people are born, grow, live, work and age (CSDH, 2008). These include a wide variety of factors including socioeconomic status, physical environment including housing, employment and social support networks.

Figure 1: Social Determinants of Health



Source: Reproduced from Pobutsky, A., Bradbury, E., Wong Tomiyasu, D (2011). Chronic Disease Disparities report: Social Determinants. Hawaii State Dept. of Health, Chronic Disease Management and Control Branch. http://health.hawaii.gov/chronic-disease/files/2013/12/CD_BurdenReport_FINAL.pdf Retrieved 1/27/18

Figure 1 illustrates the upstream-downstream concept of the social determinants of health. How we live is determined by governance, social and economic conditions. These determine the distribution of wealth, access to quality education and other resources, as well as the presence of environmental toxins through regulation of industry and other human activities. Risk factors such as smoking, obesity and access to healthcare in turn impact our health and disease burden.

A complete review of all the social determinants of health is beyond the scope of this thesis. Two social determinants, maternity leave and early childhood care and their importance in maternal and child health are described below.

Paid Maternity Leave

Paid Maternity Leave (PML) allows women to take fully or partially paid time off work to care for themselves and their newborn child. If PML is not available, many women cannot afford to stop working. Women may be significant contributors to household income. This forces them to choose between benefits of maintaining household earnings or long term benefits from caring for themselves and their newborn child.

There is a growing body of knowledge that links PML to improved infant and child health. Examining the literature on the public health effects of PML, Burtle and Bezruchka (2016) noted that not taking antenatal leave was associated with a three-fold increase in premature birth and significant increases in low birthweight. Ruhm (2000), examined data from 16 OECD nations in the 1969 – 1994 period and found PML associated with decreased infant mortality. A 10-week increase in maternity leave decreased infant mortality by 1 – 2 % (Ruhm,

2000). Using data from the Parental Leave Australia Study (PLAS) from 2005, Khanam, Nghiem, & Connelly, (2016) studied the effect of paid maternal leave on child health. The incidence of asthma or bronchiolitis was reduced by 0.5 and 1.1% respectively if the mother took longer maternity leave. The likelihood of immunization being up-to-date decreased by 22 – 24% in children of parents who took no parental leave. The probability that a child was breastfed at 1 and 6 months of age increased by 0.6 to 2.0% with paid maternity leave.

Early Childhood Development

Investment in early childhood development is considered essential to the future health and success of the population. The evidence for this includes "brain malleability" which suggests that a child learns most easily and best before the age of 3, after which the brain is more hard-wired for success or failure. A child's early neurological development is adversely affected by severe abuse and neglect (Katz & Redmond 2009).

There are many pathways by which poor health in early life may be linked to poor health in adulthood. Bezruchka (2015) explores these in detail including attachment theory and the benefits of good parenting. Studies with a Kaiser population in San Diego associated abuse in early life with later development of compensatory adult behaviors such as smoking, overeating and substance abuse (Bezruchka, 2015).

Katz and Redmond (2009) argued that greater expenditure on children under the age of three is economically sensible for three reasons. First significant public expenditure on older children and young adults is aimed at correcting early childhood deficits. For example imprisoning young criminals is more expensive than providing developmental childcare for toddlers. Second, child development is based on accumulating skills, and the lack of basic skills

removes the foundation for advanced skills. Third, public investment in early years produces more equitable outcomes because it disproportionately benefits the most disadvantaged children. Non-parental day time care for children in their first year of life may be detrimental as it is the ability of the care-giver to respond sensitively to the child through bonding and breast-feeding that optimizes brain development (Katz & Redmond, 2009).

The methods for comparing the health and demographic differences between the two nations, their healthcare and some of their social spending programs are discussed in the next section.

Methods

This thesis is an exploratory comparative review of selected WHO health indicators, healthcare spending and spending on social programs that benefit maternal and child health in Australia and the U.S. Through this staged comparison, we will attempt to ascertain if there are significant differences in U.S. and Australian health and if these differences are the result of expenditure on the social determinants of health, not just healthcare and its availability.

Australia and the U.S. were compared in stages, to establish their similarities and differences, and how this may have influenced health and healthcare. The scale of differences in health between the two nations was established using World Health Organization (WHO) health markers, including life expectancy at birth, and maternal and child health. The quantitative differences in WHO health markers between the two nations was established by reviewing existing WHO health reports and rankings available through the WHO website. Comparison with OECD nations was established using the OECD website and data available through the Institute for Health Metrics Evaluation (IHME). Both the WHO and OECD generate frequent reports on social, economic and health markers, which were utilized when possible. The maternal mortality ratio was reviewed using data from the CDC, WHO and the Lancet.

Demographic tables available from WHO reports on each nation were used to compare demographic characteristics. The brief overview of the geography of the two nations is derived from UNDS data, and the Central Intelligence Agency (CIA) website.

An examination of the history of the two nations was conducted to establish their sociopolitical composition. The Australian section was largely derived from Stuart MacIntyre's "Concise History of Australia", (2016) due to its brevity and clarity. Colin Woodward's "American Nations: A history of the eleven rival regional cultures of North America" (2011),

was used for the U.S. section to establish the reason behind regional differences with respect to health and social policy in the U.S., their origins and consequences.

A comparison of some of the forms of direct and indirect public healthcare spending in both countries was conducted as the U.S. spends far more on healthcare than Australia (OECD, 2016). Healthcare social expenditure can be direct or indirect, private or public (McMaken, 2015). Comparisons between healthcare spending were limited to public spending as a full discussion of private spending is beyond the scope of this thesis. Examples of direct public healthcare spending include Australian or U.S. Medicare, where tax-payer funds are used to pay for healthcare services. Indirect government healthcare expenditure in the U.S. includes employer sponsored health insurance (McMaken, 2015) and the partial tax deduction for private health insurance policies in Australia. The history, funding, accessibility and cost coverage of Australia's Medicare system was explored using the Australian Parliament website's background brief on Medicare (Biggs, 2004) and Stuart MacIntyre's book (2016). The same sources are used to provide a brief insight into Australia's co-existing private healthcare system. The U.S. Medicare website provides an explanation of what health costs are covered by U.S. Medicare. The history, economics and evolution of private healthcare insurance, Medicare, Medicaid and the Affordable Care Act, was largely established using the text of Bodenheimer and Grumbach, "Understanding Health Policy" (2012).

A complete assessment of differences in social determinants of health between the two countries is beyond the scope of this paper. Two social determinants of health, access to paid maternity leave and early childhood care were compared to illustrate how differences in government policy on social spending impact differences in social determinants of health. Peer-reviewed journals and web-based articles were the main source of information on maternity

leave and early childhood care along with their effects on health. The evolution and current state of both U.S. and Australian policy on paid maternity leave and early childhood care was examined.

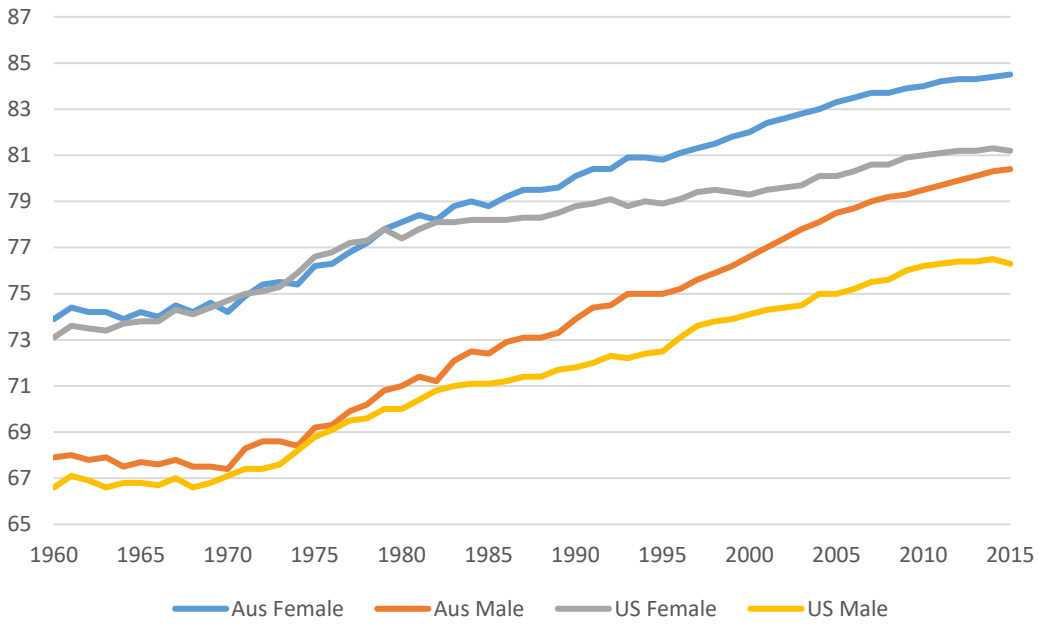
Results

Health: Australia and the U.S.

Life Expectancy

Life expectancy at birth is one of the most commonly used markers of health used by the WHO. It provides a crude estimate of the health of a population. The healthier a population, the longer one should expect a single, live born individual to live. Figure 2 shows the U.S. as never having a higher life expectancy at birth than Australia for both males and females. Both countries have substantial improvements from 1960 to the mid 80's. Also from Figure 2, in the mid 80's, the lines diverge with improvements in U.S. life expectancy slowing whilst Australia continues the upward trend. U.S. life expectancy has decreased for two years in a row, in 2015 and 2016. The phenomenon is attributed to a sharp increase in mid-life deaths from opioid and alcohol abuse (Case, Deaton, 2015). The phenomenon has not been seen since the 1962-1963 influenza epidemic.

Figure 2: Life Expectancy at Birth



Source: Produced from data available at oecd.stats.org Retrieved 3/10/2018

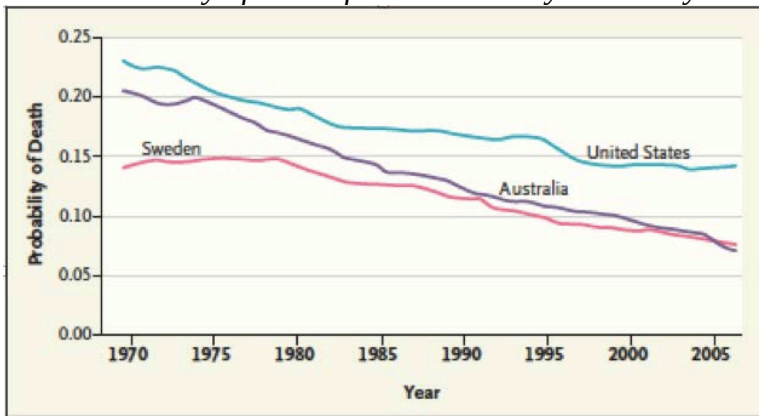
(Data set in appendix)

Australia ranks in the top one-third of the OECD for life expectancy at birth in 2015; 80.1 years for males and 84.3 years for females (OECD, 2017). U.S. life expectancy improves from 1960 on but remains in the lower third at 81 years for women and 76.3 for men (OECD, 2017).

Adult mortality

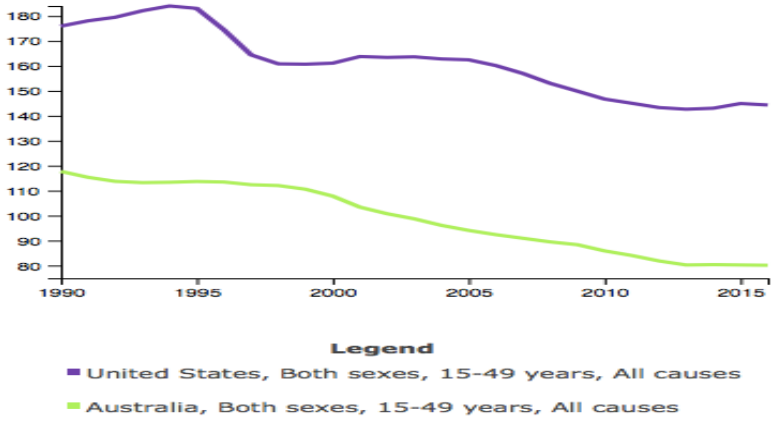
Figure 3 from Murray and Frenk (2010) below, compares the probability of dying for U.S. males aged 15 – 60 years, with that of Australia and Sweden. After 1975 the U.S. does not show the same rate of improvement as the other two nations.

Figure 3: Probability of Death for Men and Boys 15 – 60 year's age



Source: Reproduced from Murray and Frenk, (2010), Murray, C. J. L., & Frenk, J. (2010). Ranking 37th-Measuring the Performance the US Health Care System. New England Journal of Medicine, 362(2), 98-99.

Figure 4: Adult Mortality per 100000, Age 15 – 49 years

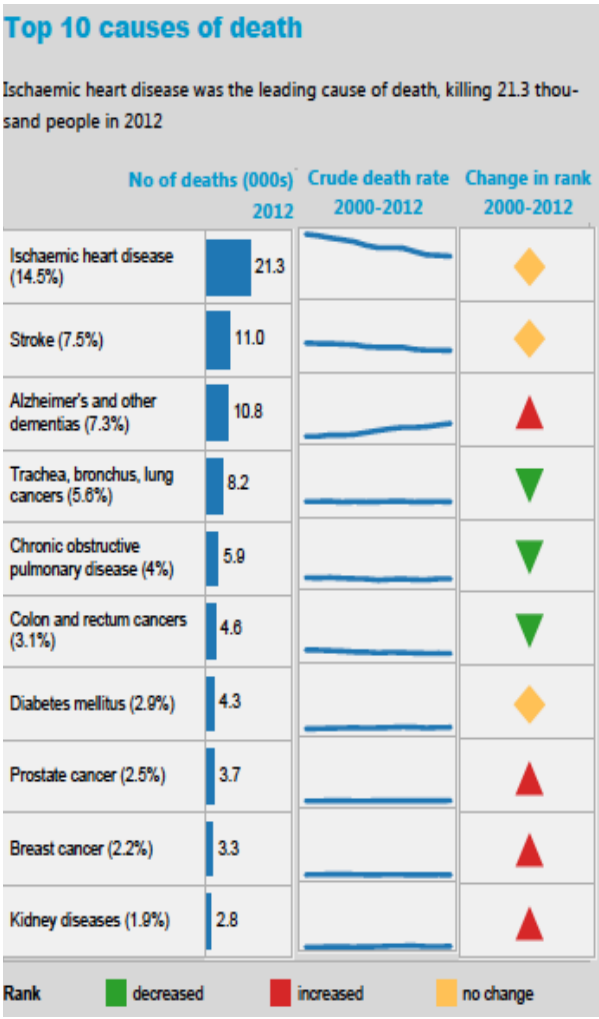


Source: IHME, 2017. Available from: http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2016-permalink/65f84967c2ce353290dbf775bbd30067 Accessed 2/7/2018

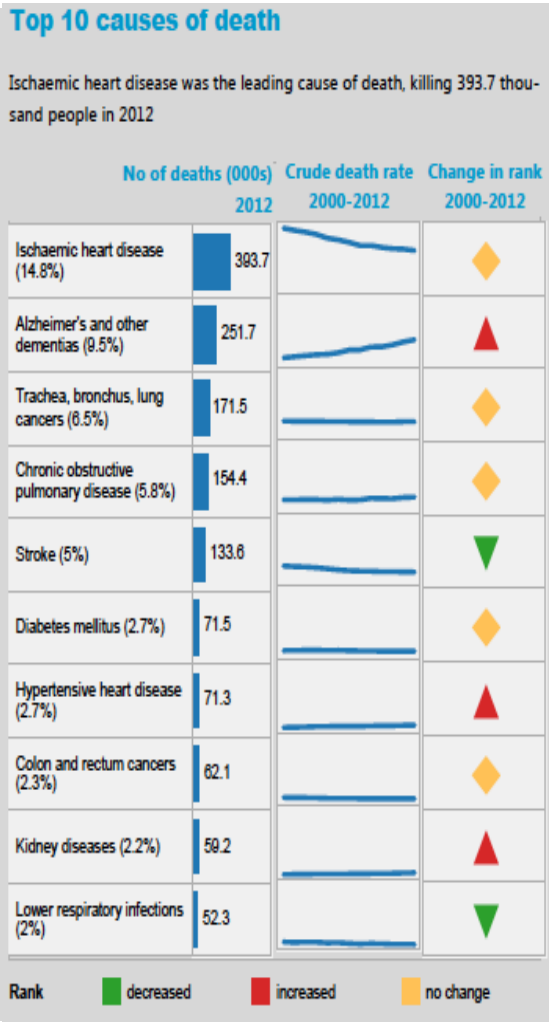
Figure 4 compares the mortality rate for all adults 15 – 49 years of age, and demonstrates a similar trend to Figure 3. Australia continues to improve as does the U.S., however the rate of improvement in the U.S. slows with an absolute death rate that remains higher.

Table 1: Adult Causes of Death, 2012

Australia



U.S.

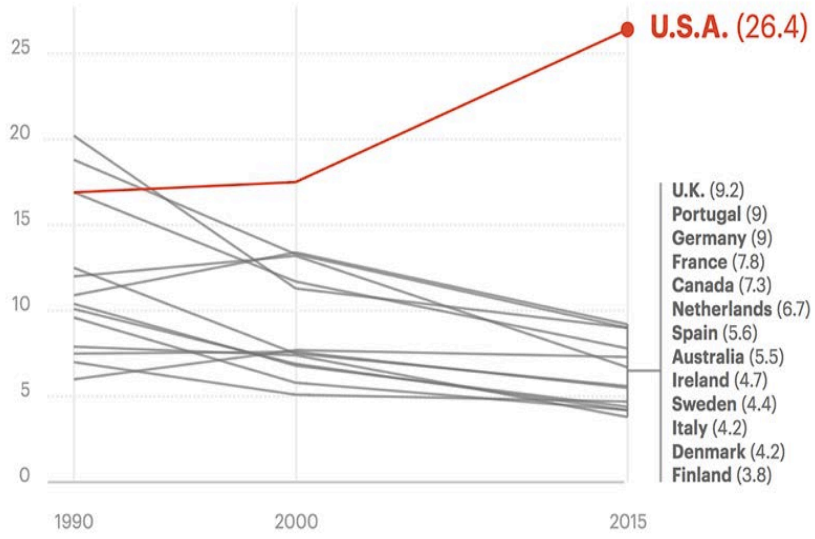


Source: Reproduced from WHO and UN partners, (2015) Australia: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available at http://www.who.int/countries/aus/en/ and United States of America: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available from http://www.who.int/countries/usa/en/ Retrieved on 10/5/17

Table 1 shows the major adult causes of death in the two nations as being similar, as they are in most OECD nations. Ischemic heart disease and stroke make up the majority of deaths, along with chronic obstructive pulmonary disease and cancer of the lung and colon. Alzheimer's disease is prominent as both nations have ageing populations. Combining the data in Table 1 and Figures 2 and 4, implies that the U.S. population dies of the same diseases as Australians but at a younger age.

Maternal Mortality Ratio

Figure 5: U.S. Maternal Mortality trend vs OECD, per 100,000



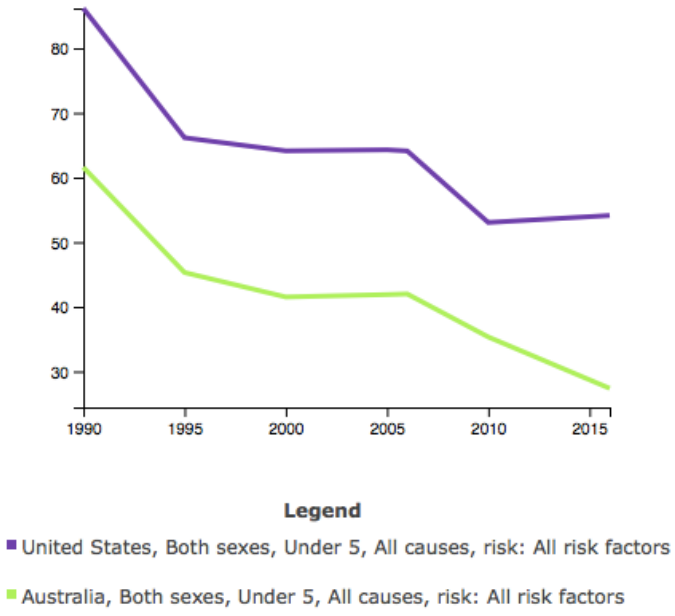
Source: Martin, Nina (2017), U.S. Has The Worst Rate of Maternal Deaths In The Developed World. NPR website. Retrieved on 3/7/18 from https://www.npr.org/2017/05/12/528098789/u-s-has-the-worst-rate-of-maternal-deaths-in-the-developed-world

Maternal deaths at birth are an indicator of women's health and the quality and availability of obstetric care (WHO, n.d.). The maternal mortality ratio of deaths per 100,000 live births in Australia has fallen from 8 to 6 between 1990 and 2015 as noted in Figure 5. The US has seen a significant rise from 18 to 26 maternal deaths per 100,000 live births in the same period. Figure 4 also shows the U.S. trend is in the opposite direction to many OECD countries,

Australia included. The quality of obstetric care available in the U.S. is comparable to other OECD nations. The difference in mortality rates raises questions about the availability of obstetric care, or the health of U.S. mothers before and during pregnancy.

Child Health

Figure 6: Child Mortality Rate < 5 years, per 100,000



Source: Available at http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2016-permalink/202645b28ea350c6acea94fc82625f6b Retrieved 3/9/18

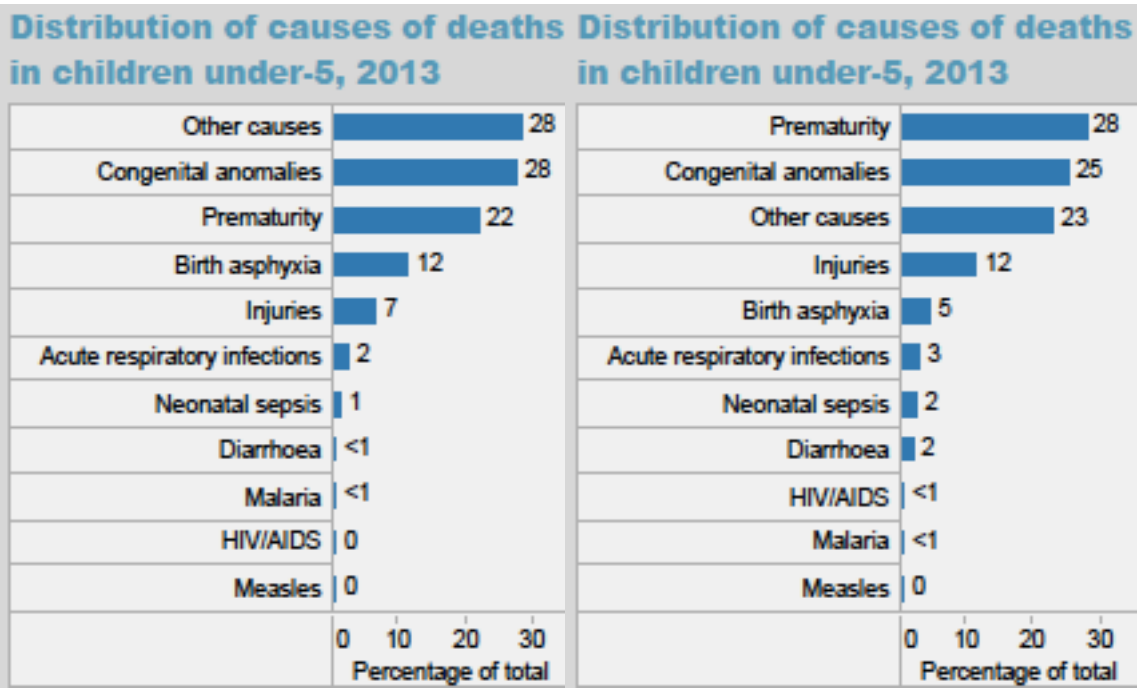
The mortality rates for children under 5 years of age is a commonly used WHO marker for infant and child health. Figure 6 shows the child mortality rate under 5 years' age has declined from 62 to 27 per 100,000 live births between 1990 to 2015. U.S. mortality rates over the same period declined from 86 to 64 per 100,000 live births. The U.S. death rate is not only significantly higher, but stops declining in 2010, and rises slightly.

Table 2 demonstrates that the five most common causes of death for children under 5 years of age are the same in both countries, although the relative ranking is different. Premature

birth in the U.S. may be related to the poor health of pregnant women as we will explore later. Fatal injuries are also more common among American children. This may be due to lack of childcare facilities or poor living conditions.

Table 2: Causes of Death, Children < 5 years, 2013

Australia *U.S.*



Source: Reproduced from WHO and UN partners, (2015) Australia: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available at http://www.who.int/countries/aus/en/ and United States of America: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available from http://www.who.int/countries/usa/en/ Retrieved on 10/5/17

Demographics

Australia

Having established that the Australian population is healthier than the U.S. with respect to the health markers examined thus far, we must now compare the broader picture of the composition of the two populations. As discussed briefly earlier, racial, social, economic and environmental factors all play a role in determining an individual's health. Similarities and differences between the two populations may affect the effectiveness or prioritization of different forms of social spending.

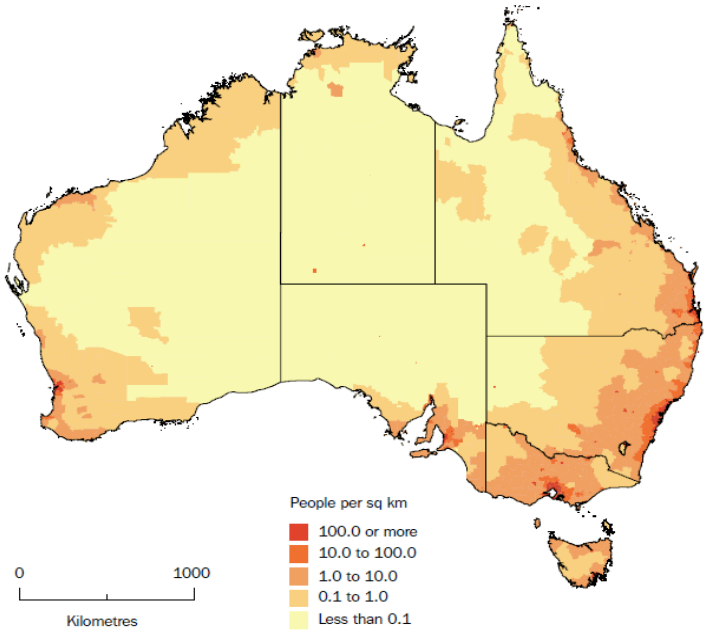
Table 3: Demographics Australia 2016, U.S. 2010

	Australia (2016)	**U.S. (2010)**
Total Population	24.4 million	325 million
Population <18 years age	25%	18%
Population > 65 years age	14%	15%
Overseas born	28%	13%
Major cities	71%	42%
Smaller cities and rural areas	29%	58%
Ancestry – Anglo Australian	67%	White 72%, African 13%
Irish/German/Italian	17	Asian 5%
Chinese and Indian	6%	Hispanic 18% (Black/White)
Others	7%	
Indigenous Population	3%	1%
Labor force participation 15 – 64 years of Age	72%	69.5%
Educated to High School level or higher	76%	87%

Note: U.S. population totals to greater than100% due to some Hispanics classified as White or Black and Mixed Ancestry group.
Produced from data available at: Australian Institute of Health and Welfare, 2016. Australia's Health, https://www.worldatlas.com/articles/ethnic-background-of-australians.html retrieved 3/19/18 and United States Census Bureau. 2010. 2010 Census Summary File 1

From Table 3 we observe that Australia's population is heavily urbanized, with 71% living in major cities and 29% in small cities or rural areas. Table 3 also indicates racial heterogeneity in both Australia and the United States. Australia has a large overseas born population, the result of an active immigration program.

Figure 7: Population density, Australia, 2010



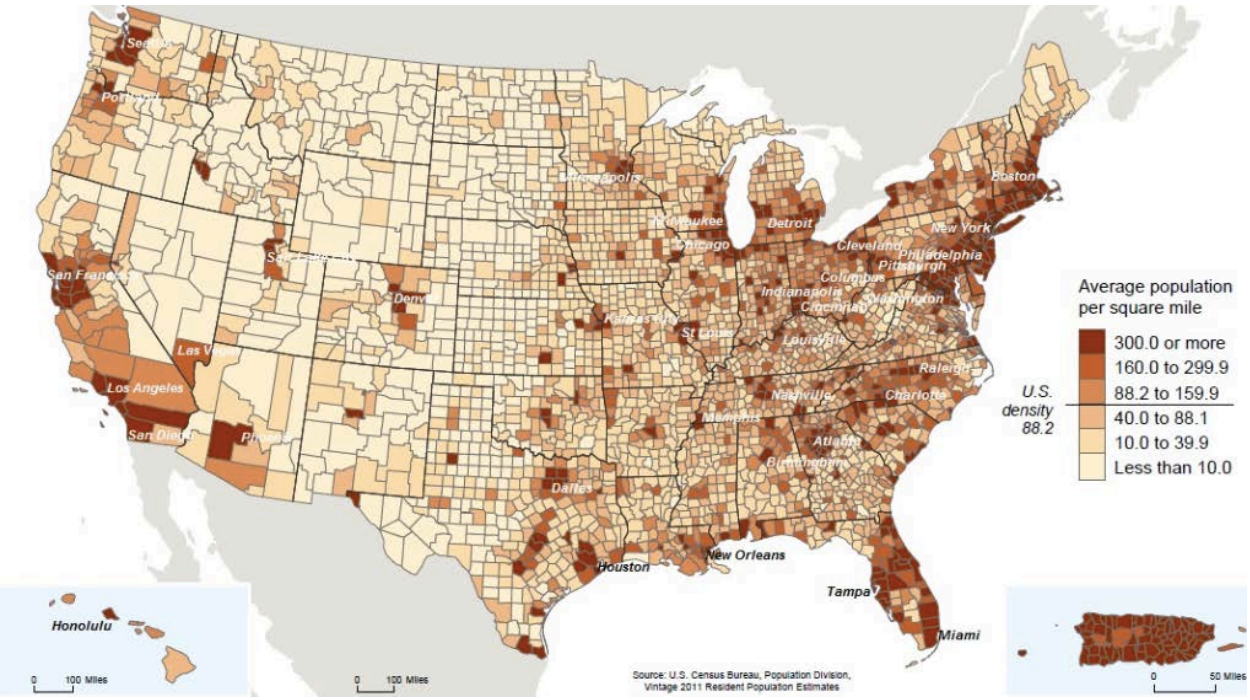
Source: Australian Bureau of Statistics, 2012
http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1301.0~2012~Main%20Features~Geographic%20distribution%20of%20the%20population~49 Retrieved 2/24/18

Figure 7 illustrates the clustering of Australia's population in and around the major coastal cities of Melbourne, Sydney and Brisbane in the East and South-East, and Perth and Fremantle in the South-West. The central part of the nation is sparsely populated desert. Social services may be difficult for remote and rural populations to access, as healthcare facilities or welfare centers may be located in distant towns.

U.S.

Table 3 shows the U.S. population is less urbanized than Australia and more racially diverse. Population density, as displayed in Figure 8, is highest around major coastal cities, but there are significant population centers in more rural Mid-west and Plains states.

Figure 8: U.S. Population distribution, 2010



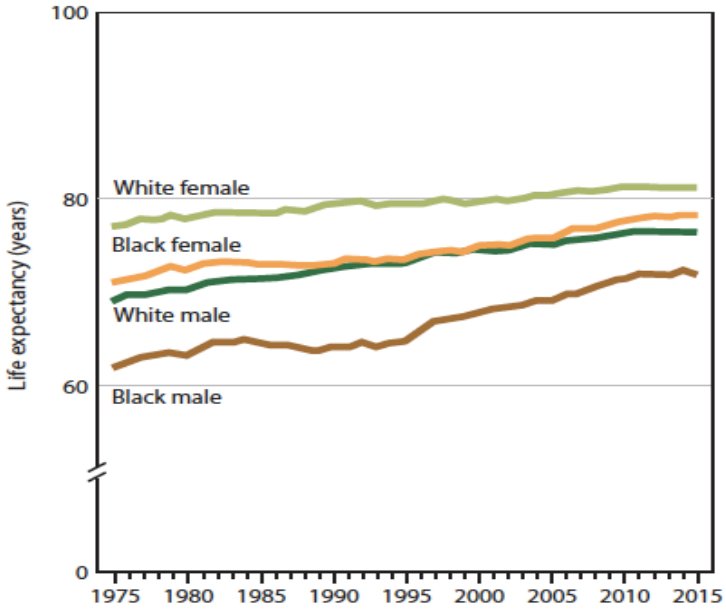
Source: U.S. Census Bureau, 2011. Available from https://www.census.gov/history/www/reference/maps/ Accessed 2/24/18

Race and Health

U.S.

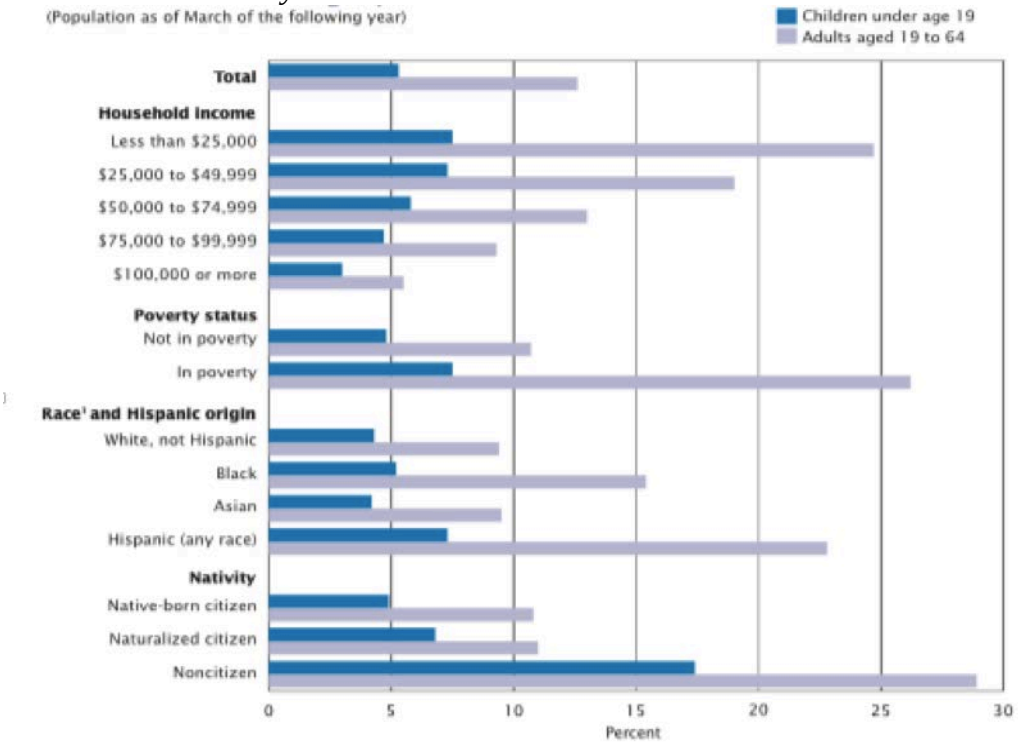
Mortality differences across racial and groups in the U.S. exist as noted in Figure 9. In 1995 African-Americans had a 1.6 times greater overall mortality risk than Whites, unchanged from the inequity observed in 1950 (Mode, Evans, & Zonderman, 2016). The health effects of poverty and race are interlinked, as African-Americans bear a disproportionate burden of U.S. poverty - 26% compared with 10% for non-Hispanic Whites (Mode et al., 2016). Healthcare insurance rates, and hence access to healthcare, are linked to socioeconomic status which is in turn linked to race, as shown in Figure 10.

Figure 9: Life expectancy by Race in the U.S.



Source: Reproduced from National Center for Health Statistics, (2016). Health, United States 2015: With Special Feature on Racial and Ethnic Health Disparities. https://www.cdc.gov/nchs/data/hus/hus15.pdf Retrieved 2/2/18

Figure 10: Children under age 19 and Adults Aged 19 – 64 without health insurance coverage by selected characteristics - 2015



Source: Reproduced from Barnett, J. C., Vornovitsky, M.S. (2016). Health Insurance Coverage in the United States: 2015, Current Population Reports, P 60–257(RV)

Native Americans live shorter lives, as do Australian Aboriginals. American Indians and Alaska Natives born today have a life expectancy that is 4.4 years less than the U.S. all races population (73.7 years to 78.1 years, respectively) (Indian Health Service, 2015).

Australia

Indigenous (Aboriginal) Australians, have poorer health than the white Australian population. For the Aboriginal and Torres Strait Islander population born in 2010–2012, life expectancy was estimated to be 10.6 years lower than that of the non-Indigenous population for males (69.1 years compared with 79.7) and 9.5 years for females (73.7 compared with 83.1) (Australian Institute of Health and Welfare [AIHW], 2012). Many Aboriginal Australians live in rural settings making the delivery of healthcare more difficult. Rural New South Wales, a smaller

more densely populated state had a Potentially Preventable Hospital (PPH) admission rate for Aboriginals of 76.5 per 1000 admissions compared with 110 per 1000 in the sparsely populated Northern Territory (Harrold, Randall, Falster, Lujic, & Jorm, 2014).

Geography

Figure 11: Comparative Geographic Size

Source: Central Intelligence Agency, (n.d.). Available from https://www.cia.gov/library/publications/the-world-factbook/geos/as.html Under Geography tab, see Area comparative map. Accessed 2/24/18

Australia is the sixth largest country in the world (United Nations Department of Environment and Statistics [UNSD] n.d.). It has a diverse environment including tropical, subtropical, desert and Mediterranean climates. Lack of fresh water in the nation's desert center limits the inland population. Figure 11 demonstrates its size relative to the continental U.S.

The U.S. is the world's third or fourth largest country depending on how land and water territory are calculated (UNSD). The U.S. is as geographically diverse as Australia and includes other environments such as arctic tundra and the temperate grasslands of the plains states.

The common factor for both nations is diversity of climate, and large geographic size. The similarity in geographic size makes Australia a more appropriate nation to compare with the U.S. with regards to the effects and nature of social spending.

Summary

There are systematic, measurable differences in health between the two countries. Both countries have similar geography, population distribution and racial mix to make a valid comparison, with the exception that Australia does not have a historically oppressed racial group analogous to African-Americans in the U.S. These similarities suggest that a valid comparison can be made between the health of the two countries, with the caveat that health comparisons may need to account for health disparities for the African-American population.

History

The character of a nation is often rooted in its history. Australia and the US are both nations colonized by Europeans, mainly of Anglo-Celtic descent. The original inhabitants of both countries were decimated and systematically excluded from power in both countries. The exploration of the historical differences is limited to those considered relevant to the factors that affect social spending policy and health and as such are limited to post-colonial history.

Governing philosophy

Australia

The British established a penal colony in Australia in 1788 (MacIntyre, 2016). Although there were successive groups of European immigrants in the 1800s and 1900s, ideological differences on government were affected by funding as discussed below (MacIntyre, 2016).

U.S.

There were significant ideological differences between early European settlers in the U.S. some of which are outlined below.

The Puritans of New England believed government was elected by the people and for the people (Woodard, 2011).

The Tidewater colonists were the descendants of the defeated Royalists in the English civil war. They came with the intention of recreating the life of the landed gentry and concentrated wealth and power within their ranks (Woodward, 2011). Poor European laborers and later African slaves were imported to work the land.

The Midlands had two distinct waves of early European settlement (Woodward, 2011). First came German farmers that believed government had a limited role and could not tax

without a vote from the people. Later, large numbers of impoverished, fiercely anti-government Scots and Irish fled their war-torn lands and settled in the Appalachians (Woodward, 2011).

These markedly different social and governing philosophies are not easily reconciled to produce widely accepted federal government policy.

Development funding and social spending

Australia

The colonial governments centered in what would become the major cities of Sydney, Melbourne and Perth controlled infrastructure development, disempowering state and local governments. This lead to largely uniform development of national infrastructure including courts, schools and railroads. The situation arose because only the colonial governments could raise capital on the London money markets needed for development (MacIntyre, 2016). Australia did not have sufficient private wealth to fund development of their harsh and remote land.

Direct social spending in Australia appears in the early 1900's when welfare payments for the unemployed, an old-aged pension and invalid pension were introduced. By 1983, a series of reforms including free tertiary education and Medicare, the universal health coverage system was developed (MacIntyre, 2016).

U.S.

The U.S. colonies generated far more wealth allowing them the freedom to develop along their divergent philosophical lines. The Puritans of New England built schools and services for all. The Tidewater gentry did not spread education and infrastructure beyond the limits of their individual, self-sufficient plantations. The Scots-Irish were not interested in education or

government, while the German farmers pursued education and infrastructure for all (Woodward, 2011).

The U.S. federal government developed publicly funded programs for the poor including Social Security in the 1930s and Medicare and Medicaid in the 1960s. The political divisions between the early settler groups are still visible today when social spending policies are debated. Even when federal legislation such as the Affordable Care Act is passed, state and local governments still have power to determine its effectiveness.

Race in society

The native populations of both countries were decimated by European settlement. The remnants of both native populations suffer from poor health.

Australia

Australia's predominantly European population developed a fear of Asian invasion in the early 20th century and adopted the "White Australia" policy that, restricted the immigration of non-Europeans. By the 1980s attitudes had changed and skills-based immigration, largely derived from South-East Asia was encouraged (Macintyre, 2016). The Federal government promoted citizenship and fair treatment for new immigrants. The result was a prosperous immigrant population, similar to that of East and South Asian migrants in the U.S.

U.S.

Despite emancipation in the Civil War, former African slaves continued to endure significant discrimination (Woodward, 2011). As a result of multiple social and economic factors stemming from discrimination, African-Americans still suffer from poorer health than Whites.

Key differences

1. The Australian federal government derived its ability to lay down uniform national laws and infrastructure from its historic position as the sole source of development funding.

2. The U.S. colonies were able to finance their own development along their divergent philosophical lines. State governments in the U.S. retain a degree of autonomy from the federal government.

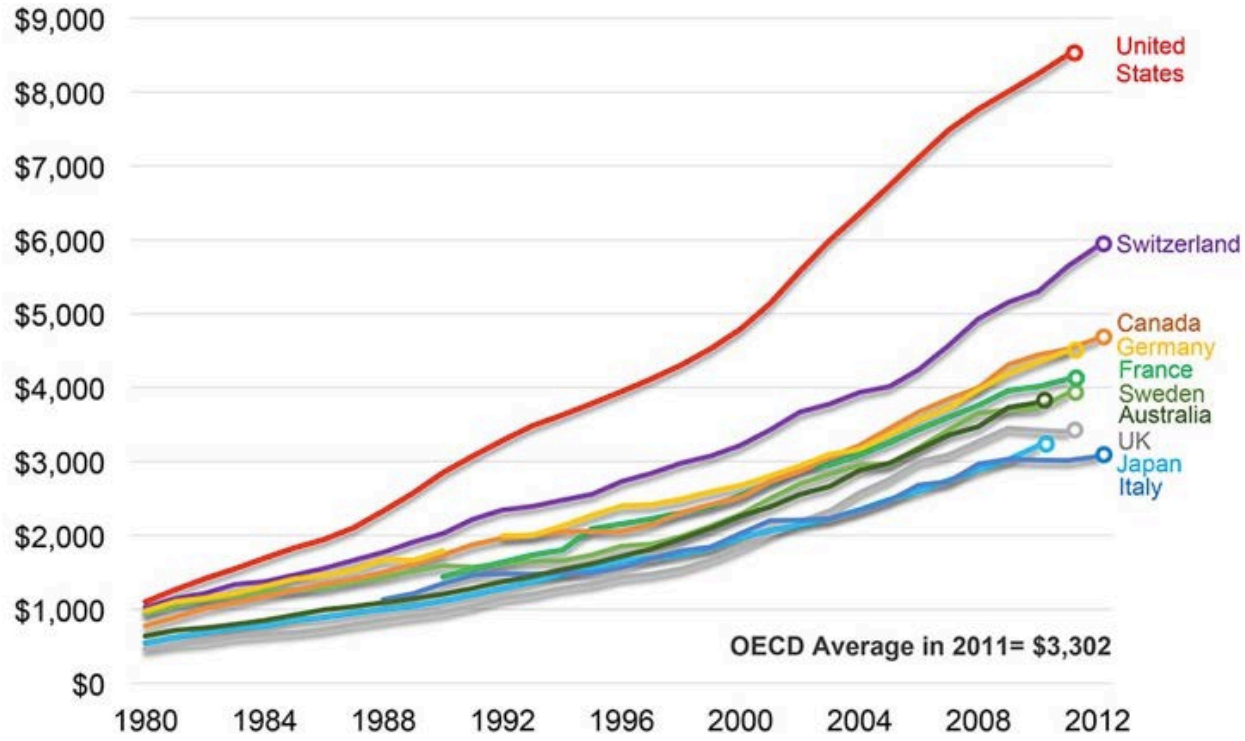
3. Australia does not have a large population of historically oppressed, impoverished people akin to African-Americans.

Healthcare costs and funding sources

The structure of a healthcare system can determine its efficiency, accessibility and effectiveness. It is debatable as to how much of a nation's health is determined by its healthcare system. This section is aimed at demonstrating the history and sources of healthcare funding in both countries, and the effect that has had on the cost and availability of healthcare. Access to basic, affordable healthcare is a significant factor in determining the health of a population.

Figure 12 below shows the trend of U.S. healthcare spending per capita against that in several other OECD nations, including Australia. As shown in Figure 12 the U.S. spent $8508 per capita in 2011, and Australia spent $3800.

Figure 12: Healthcare spending per capita ($U.S. purchasing power parity)



Source: OECD Health Data 2013. Produced by Veronique de Rugy, Mercatus Center at George Mason University. https://www.mercatus.org/publication/us-health-care-spending-more-twice-average-developed-countries Retrieved 12/7/17

Australia

Australian Medicare was aimed at creating a universal, affordable, easily accessible, administratively simple healthcare system (Biggs, 2004). All Australian citizens and Permanent Residents (equivalent to Green Card holders) are eligible to both pay for and receive Medicare benefits (Biggs, 2004).

Currently, Medicare's funding is partially provided by an additional 1.5% levy on federal income tax. This levy only funds a portion of federal expenditure on health. In 2002 -03 for example, health expenditure was $33 billion Australian Dollars (AUD), which was approximately equal to $28 billion USD at that time. The levy provided $5 billion AUD, a mere 15% of government expenditure (Biggs, 2004).

Medicare's popularity led to a sharp decrease in the privately insured population in the 1990s (Biggs, 2004). This put a huge strain on public hospitals and outpatient clinics. Several methods were used, the most important is a 30% personal tax rebate on private healthcare insurance. Approximately 65% of the Australian public now has private health insurance (Biggs, 2004). To give some idea of cost, the 2003 annual premium for private health insurance for a married couple aged 35 years was $1200 AUD ($900 USD).

Private health insurance covers the cost of private hospital admission. The federal and state governments provide free emergency treatment for all through public hospitals. Free outpatient care and elective procedures such as joint replacement surgery can be accessed through public hospital clinics, but there is a waiting period and no choice of physician (Biggs, 2004).

Physicians are free to charge what the market will bear. The public receive a partial rebate of fees from Medicare. Patients are responsible for any gap between physician fees and the rebate (Biggs, 2004).

United States

The U.S. does not have a uniform, publicly available comprehensive healthcare insurance coverage scheme. The bulk of healthcare insurance is provided by private insurance companies that collect premiums from individuals or their employers.

Healthcare insurance in the United States was initiated by health care providers seeking a source of income during the Great Depression when few could afford to pay for healthcare. This is quite different to the public drive for healthcare insurance in Australia. Insurance companies cover the cost of both hospital admission and physician fees (Bodenheimer & Grumach, 2012).

Hospital and physician control over the "Blues," made cost control a secondary consideration. Employer sponsored insurance (ESI) introduced a third party to pay the cost of insurance, further reducing the incentive for cost control (Bodenheimer & Grumach, 2012).

There are several types of private healthcare insurance available, including individual policies that cover only 5% of the population in 2009 (Bodenheimer & Grumach, 2012). ESI currently accounts for the majority of the privately insured population, approximately 56% in 2014 (Long, Rae, Claxton & Damico, 2016). The federal government treats employer premium payments as a tax-deductible business expense, which is essentially a government subsidy of approximately $260 billion per year in 2010 (Bodenheimer & Grumach, 2012).

Private healthcare insurance coverage rates have declined due to rising healthcare costs. Premiums rose by 114% between 2000 and 2010. High premiums lead to a decrease in ESI and

an increase in the uninsured population. Close to 90 million people went without healthcare insurance at some time during 2007 – 08 (Bodenheimer & Grumach, 2012).

The Federal Government created Medicare for the elderly and Medicaid for the poor in 1965. Medicare has different components, parts A, B and C, to cover hospital, physician and pharmaceutical costs using federal tax dollars. Medicaid, administered by states, pays for the care of some low-income groups using federal tax dollars (Bodenheimer & Grumach, 2012).

The Affordable Care Act (ACA), also known as Obamacare, attempted to eliminate gaps in Medicaid coverage (Bodenheimer & Grumach, 2012). Medicaid enrolments have increased from 38 million in 2000, to 58 million in 2010 (Bodenheimer & Grumach, 2012). The State Children's Health Insurance Program (SCHIP) provides additional insurance for children of low-income families.

Table 4: Medicare Part A Benefits

- *$1,340 deductible for each benefit period).*
- *Days 1–60: $0 coinsurance for each benefit period.*
- *Days 61–90: $335 coinsurance per day of each benefit period.*
- *Days 91 and beyond: $670 coinsurance per each "lifetime reserve day" after day 90 for each benefit period (up to 60 days over your lifetime).*
- *Beyond lifetime reserve days: all costs.*

Medicare website,(2018) https://www.medicare.gov/coverage/hospital-care-inpatient.html. Retrieved 1/15/2018.

Table 4 shows there are gaps and limits on Medicare part A coverage. Medicare part B and D have similar gaps and limits. The rising out of pocket costs have become increasingly unaffordable.

Summary

Private healthcare insurance in the U.S. developed to provide hospitals and healthcare providers with a steady source of income. There are no cost controls thus costs and premiums continue to rise. U.S. Medicare and Medicaid are not comprehensive nor universally accessible. The combination leads to high healthcare spending and decreasing access.

Australian Medicare is comprehensive and universally accessible. Those who wish to access private healthcare, 65% of the population, can do so through partially tax-deductible insurance policies. Cost-control methods include government regulated rebates and market forces that keep physician fees affordable.

Paid Maternity Leave

This section outlines the differences in paid maternity leave (PML) policies in Australia and the U.S., and how this affects access to maternity leave.

Women in the U.S. do not have uniform access to paid or unpaid maternity leave. In 2016, approximately 68% had access to paid sick leave and 38% could access temporary disability benefits which could be used as maternity leave. In 2006 – 2008, up to 51% of mothers used a combination of these forms of paid leave as maternity leave. Across the same period, up to 42% of mothers took unpaid leave, which may not be job protected (Isaacs, Healy, Peters, 2017). The Family and Medical Leave Act (FMLA) of 1993 allows 12 weeks of job-protected unpaid maternity leave annually. Only 59% of workers were eligible for unpaid maternity leave under the FMLA in 2012 (Gault et al, 2012).

Paid maternity leave is not common in the U.S. PML legislation has been enacted in several states including California in 2002, New Jersey in 2008, Rhode Island in 2013 and New York in 2016. Funded by payroll taxes, the laws allow up to 12 weeks of PML at 55 – 67% wage replacement. In 2016, only 14% of working women had access to PML (Isaacs, Healy, Peters, 2017). Workers with lower wages and less education are less likely to have access to PML. Only 19% of women without a college degree took maternity leave compared with 66% of those with a degree.

In 1979, Australia introduced twelve months of unpaid maternity leave as an entitlement for women that worked for the same private sector employer for 12 or more consecutive months prior to the birth of their child. PML was already an entitlement for many public sector employees since the mid-1970's. PML in the private sector was not common, leaving 60% of Australian women without access to PML until the introduction of the Paid Parental Leave

scheme in 2011 (Khanam, Nghiem, & Connelly, 2016). Prior to 2011 unpaid maternity leave was used by 53% of employed women, making it the most common form of utilized maternity leave. Most women who took unpaid maternity leave returned to work at 12 months, regardless of whether they had been full-time or part-time employees (Khanam, Nghiem, & Connelly, 2016).

Australia was one of the last countries in the OECD to introduce universal paid parental leave on January 1st, 2011, (Khanam, Nghiem, & Connelly, 2016). The Paid Parental Leave Scheme of 2011, provides 18 weeks of tax-payer funded paid maternity leave at the Australian federal minimum wage. By November of 2011, 80% of mothers working as employees had access to PML (Australian Bureau of Statistics [ABS], 2013). Women earning over $150,000 AUD ($120,000 USD), which is close to the maximum tax bracket of $180,000 AUD are not eligible (Australian Government Department of Human Services, (2018).

Early Childhood Development

Public spending policies that support early childhood development take many forms. The methods vary across the OECD (Bradley, Elkins, Herrin, Elbel, 2011). The investigation will be limited to policies in Australia and the U.S.

Beginning in 2008, the Australian government subsidizes the cost of preschool child care with a 50% tax rebate (Katz & Redmond, 2009). The Australian Family Tax Benefit is a means-tested cash allowance to low-income families that encourages a parent, usually the mother, to stay home with the child rather than seek paid work. The average expenditure of OECD nations on some form of child support (cash payments, tax deductions or some form of direct service such as free early childcare) is 2.3% of GDP. Australia spends 2.8% while the U.S. spends 1.5%. Between 1988-89 and 2003-04 Australia shifted more of its childcare expenditure from families

with children aged 15 – 17 to households with children aged 0 – 4 years. Direct cash transfers to families with younger children doubled over this period, mainly due to increases in the Single Parent Pension, which favors younger mothers less likely to be in full-time employment (Katz & Redmond, 2009). An increase in tax rebates and cash payments for early childhood care also contributed to the shift in expenditure from older to younger children.

In the U.S. the Child Care and Development Block Grant of 1990 allocates funds to individual states which then craft their own child care policies. The funds do not provide adequate access to childcare for low-income families. The Child Care and Development Fund provides assistance to low-income families who need child care due to work or work-related training and/or attending school or college (Michel, 2011). The programs available vary by state, but none are as comprehensive or generous as programs in other OECD nations.

Summary

Both PML and paid or subsidized childcare have proven health benefits for mothers and children. Australian women had access to up to 52 weeks of job protected maternity leave since 1979. Prior to 2011, 40% of Australian women had access to PML compared with 80% after 2011 legislation was passed. Even after the FMLA was passed in 1993, only 59% of U.S. women had access to 12 weeks of unpaid leave in 2016. Australian PML laws benefit those with lower income. In the U.S. PML is more easily available as an employment benefit to women with higher paying jobs.

Through a variety of forms of public spending, Australia spends almost 2.8% of GDP on early childhood care, compared with 1.5% in the U.S. Both maternal and child mortality rates in the U.S. are significantly higher than Australia's.

Discussion

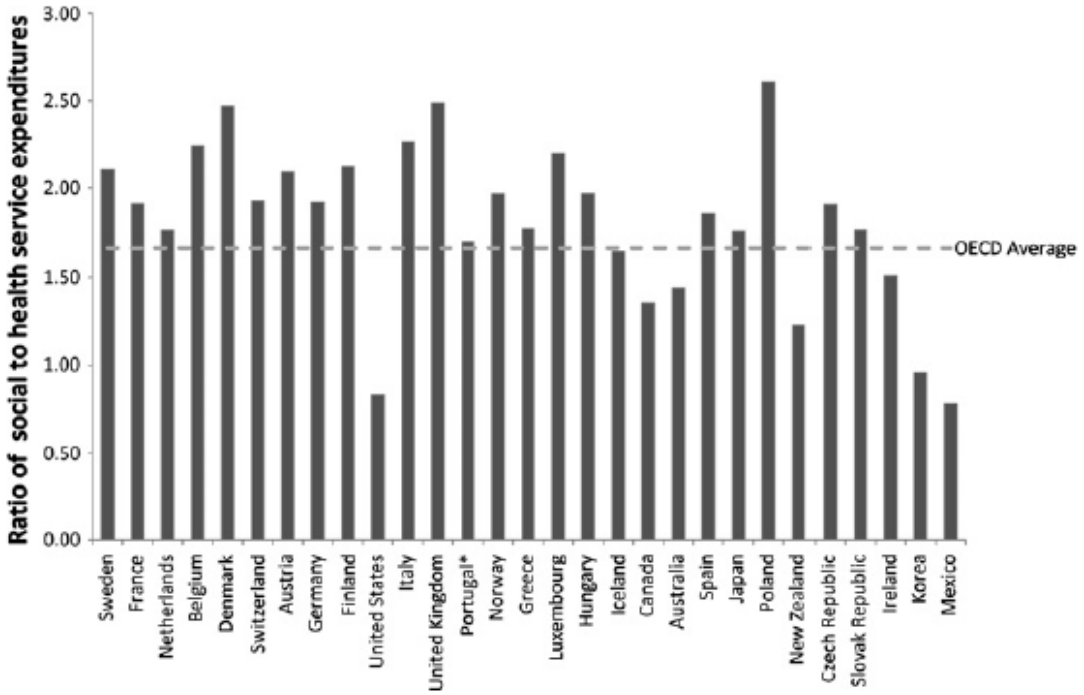
As seen in the comparison of selected health indicators, Australia is measurably healthier than the U.S. The indicators examined include life expectancy at birth, adult, maternal and child mortality. The indicators used are considered some of the most fundamental health markers. Lifespan at birth provides an estimate of how long an average individual may expect to live. Adult, maternal and child mortality rates provide an overview of the likelihood of death across the lifespan of an individual. An investigation of other health markers may produce a more nuanced picture of health in both nations, although this is not likely, as the selected indicators provide the likelihood of death across multiple age groups; other health indicators such as low birthweight are likely to follow a similar pattern. An exhaustive examination of all WHO health indicators is beyond the scope of this thesis.

The reasons for the differences in health between the two nations are many and complex. This investigation is focused on the role of social spending policies. This includes spending on healthcare and on programs that improve the social determinants of health. Spending on programs that improve the social determinants of health is known to improve population health measures. If demographic, geographic and historic differences (other than those associated with social spending policies) and spending on healthcare cannot account for differences in health between the countries, then this suggests that the differences are caused by the differences in social spending.

Healthcare spending does not correlate with health outcomes in this comparison. The U.S. spends far more on healthcare than on non-healthcare programs compared to other OECD nations including Australia. Most OECD nations spent 20-35% of GDP in 2005 on both healthcare and social services (Bradley, Elkins, Herrin, Elbel, 2011). In the same year, the U.S.

spent 29.3% and Australia 24.2% of GDP. In Figure 13 below, Bradley, Elkins, Herrin and Elbel (2011), separated healthcare social spending from spending on social programs. The average ratio of non-healthcare spending to healthcare spending amongst OECD nations from 1995 – 2005 was 2.0. The U.S. ratio was approximately 0.91, and Australia 1.4.

Figure 13: Ratio of social to health service expenditure for OECD nations 2005



Reproduced from Bradley, E.H., Elkins, B.R., Herrin, J., Elbel, B. (2011). British Medical Journal of Quality and Safety 2011; 20: 826-831.

In the same paper, Bradley, Elkins, Herrin and Elbel (2011) examined several health outcomes over the same period, including life expectancy, infant mortality, low birth weight, maternal mortality and potential life years lost. Higher health spending was significantly associated with better outcomes in life expectancy and maternal mortality. Higher social spending was associated with better outcomes in the other three markers.

Australia and the U.S. have significant similarities that suggest the differences in health between the two nations may be attributable to higher social spending in the former rather than

other differences between the two countries. Both are member nations of the OECD, a group of countries considered to represent the more industrialized and affluent nations. As such, both nations have high GDP per capita by global standards, and have the resources to spend on healthcare and social programs. Both countries have ageing multi-racial populations and are geographically large with regions of markedly different climate.

There are significant historically based differences between the two nations. One of them is a history of slavery. African-Americans make up 13% of the population and are a historically oppressed group suffering multiple generations of discrimination and poorer health indicators than Whites. There is no similar group in Australia, Aboriginal Australians were decimated after European settlement as were Native Americans. Poor health outcomes in the U.S. are not restricted to African Americans, but are correlated with poverty and socioeconomic inequality. For adults over 50 years of age those in the lowest quartile of socioeconomic status had 2.8 times the mortality risk of those in the highest quartile (Mode et al., 2016). The differences in racial health statistics and demographics between the two countries may account for some of the statistical health difference, but differences exist even between comparable racial groups.

The other major difference is the Civil War. The latter is linked to historic philosophical differences between European settler groups towards slavery and the role of government. Australia does not have a similar schism. The philosophical differences between political parties and regions within the U.S. affect the nation's ability to pass many forms of federal legislation including those that affect healthcare and social spending as evidenced by the bitter debate surrounding the Affordable Care Act.

Socioeconomic inequality is considered a significant underlying cause of ill-health throughout the OECD (Hill, Jorgensen, 2018) and particularly in the U.S. The Gini coefficient is

a marker for inequality in a nation. A coefficient of 1.0 suggests absolute inequality, and a coefficient of 0 is complete equality. In 2015, the U.S. Gini coefficient was 0.39, and Australia 0.34 (OECD, 2017). Other estimates show coefficients as high as 0.48 in the U.S. Hill and Jorgensen, (2018) present evidence that correlates lower life expectancy with higher Gini coefficient between U.S. states. Regardless of its importance as a health determinant, inequality and social spending are not mutually exclusive, and social spending may act to reduce inequality although this assertion would require further research for corroboration.

Although social expenditure is defined as expenditure that benefits disadvantaged populations, actual spending that is labeled as social spending may benefit advantaged populations. McMaken (2015) found a higher rate of public social spending in the U.S. compared to Australia, and a much higher rate of private social spending. Not all social spending may fit the definition of social expenditure however, as social spending may benefit advantaged populations. A more careful examination of social expenditures on factors that are social determinants of health would help with understanding the effects that the method of redistributing wealth within each country has on health.

Conclusion

Australia is measurably healthier than the U.S. and this likely to be due to higher spending on programs that improve the social determinants of health. The U.S. spends far more on healthcare programs than Australia but has poorer health. There are numerous caveats to such conclusions including the relative role of other social determinants of health or other demographic factors such as Australia's highly urbanized population. These are areas which would benefit from further research.

It is easy to make sweeping statements about increasing social spending in the U.S., but the historic differences in governance between the two countries must be acknowledged. The U.S. may have to use a state-by-state approach for increased PML and subsidized childcare legislation, in the same way as marijuana legalization has been passed in multiple states. Good ideas do spread.

Appendix

Bibliography

Australian Bureau of Statistics [ABS], (2013). Pregnancy and Work Transitions. http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4102.0Main+Features10Nov+2013 Accessed 3/10/18

Australian Council of Social Service [ACOSS], (2017). Poverty in Australia 2016. https://www.acoss.org.au/wp-content/uploads/2016/10/Poverty-in-Australia-2016.pdf Retrieved 3/2/18

Australian Government Department of Human Services, (2018). https://www.humanservices.gov.au/organisations/business/enablers/employee-eligibility-parental-leave-pay Accessed 3/1/18

Australian Government, Preventative Health Services Task Force, (2008). Australia, the healthiest country by 2020. http://www.health.gov.au/internet/preventativehealth/publishing.nsf/content/a06c2fcf439ecda1ca2574dd0081e40c/$file/discussion-28oct.pdf Retrieved 10/8/17

Australian Institute of Health and Welfare [AIHW], (2016). Australia's Health 2016. Australia's Health Series, no. 15, Cat. No. AUS 199

Australian Institute of Health and Welfare [AIHW] (2012), Accessed 2/2/2018, https://www.aihw.gov.au/reports/life-expectancy-death/deaths-in-australia/contents/life-expectancy

Barnett, J. C., Vornovitsky, M.S. (2016). Health Insurance Coverage in the United States: 2015, Current Population Reports, P 60–257(RV)

Bastos, J. L., Harnois, C. E., & Paradies, Y. C. (2017). Health care barriers, racism, and intersectionality in Australia. Social science & medicine (1982).

Bezruchka, S. (2015). Early Life or Early Death: Support for Child Health Lasts a Lifetime. International Journal of Child Youth & Family Studies, 6(2), 204-229.

Biggs, A. (2004). Medicare Background Brief https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/archive/medicare. Accessed 11/18/17

Bodenheimer, T., Grumbach, K. (2012). Understanding Health Policy, 6th Ed. Mcgraw-Hill Medical, ISBN: 0071770526.

Bradley, E.H., Elkins, B.R., Herrin, J., Elbel, B. (2011). Health and Social Services Expenditures: Associations with Health Outcomes. BMJ Qual Saf 2011; 20: 826-831.

Burtle, A., & Bezruchka, S. (2016). Population Health and Paid Parental Leave: What the United States Can Learn from Two Decades of Research. Healthcare (Basel, Switzerland), 4(2).

Case, A., Deaton, A., (2015). Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. Proceedings of the National Academy of Sciences 112 (49): 15078-15083.

Commission on the Social Determinants of Health [CSDH] (2008), Closing the gap in a generation; health equity through action on the social determinants of health. Final report of the Commission of Social Determinants of Health. Geneva, World Health Organization. http://www.who.int/social_determinants/thecommission/finalreport/en/ Retrieved 12/4/17

Durey, A., & Thompson, S. C. (2012). Reducing the health disparities of Indigenous Australians: time to change focus. Bmc Health Services Research, 12.

Feagin, J., & Bennefield, Z. (2014). Systemic racism and US health care. Social Science & Medicine, 103, 7-14.

Gault, B., Hartmann, H., Hegeswich, A., Milli, J., Reichlin, L. (2012). Paid Parental Leave in the United States. Report for Institute of Women's Policy Research.

Harrold, T. C., Randall, D. A., Falster, M. O., Lujic, S., & Jorm, L. R. (2014). The Contribution of Geography to Disparities in Preventable Hospitalisations between Indigenous and Non-Indigenous Australians. Plos One, 9(5).

Hill, T., Jorgensen, A.: Bring out your dead!: A study of income inequality and life expectancy in the United States, 2000 - 2010. Health and Place 49 (2018) 1 - 6

Indian Health Service, (2015). https://www.ihs.gov/newsroom/factsheets/disparities/ , Accessed 2/2/2018

Institute of Medicine, (2002). Care Without Coverage: Too Little, Too Late. Washington, DC: National Academies Press.

Isaacs, J., Healy, O., Peters, E., (2017). Paid Family Leave in the United States. https://www.urban.org/sites/default/files/publication/90201/paid_family_leave_0.pdf Retrieved 3/11/18.

Johnstone, M. J., & Kanitsaki, O. (2009). The spectrum of 'new racism' and discrimination in hospital contexts: A reappraisal. Collegian, 16(2), 63-69.

Katz, I., & Redmond, G. (2009). Investment in early childhood in Australia: International comparisons and recent trends. Health Sociology Review, 18(1), 94-107.

Khanam, R., Nghiem, S., & Connelly, L. (2016). The effects of parental leave on child health and postnatal care: Evidence from Australia. Economic Analysis and Policy, 49, 17-29.

The Lancet, (2015), Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31470-2/abstract

Long, M., Rae, M., Claxton, G., Damico, A., (2016). Trends in Employer-sponsored insurance offer and coverage rates. Kaiser Family Foundation website, https://www.kff.org/private-insurance/issue-brief/trends-in-employer-sponsored-insurance-offer-and-coverage-rates-1999-2014/ Accessed 2/26/18.

Macintyre, S. (2016); A Concise History of Australia, Kindle 2016. Cambridge University Press.

Martinson, M. L., & Reichman, N. E. (2016). Socioeconomic Inequalities in Low Birth Weight in the United States, the United Kingdom, Canada, and Australia. American Journal of Public Health, 106(4), 748-754.

McMaken, R. (2015). "Social Expenditures" in the US are Higher Than All Other OECD Countries, Except France. Retrieved on 3/7/18 from https://mises.org/wire/social-expenditures-us-are-higher-all-other-oecd-countries-except-france

Medicare website (2018), https://www.medicare.gov/coverage/hospital-care-inpatient.html. , Accessed 11/18/2017

Michel, S. (2011). The history of child care in the U.S.; Social Welfare History Project. http://socialwelfare.library.vcu.edu/programs/child-care-the-american-history/. Accessed 1/8/18

Mode, N. A., Evans, M. K., & Zonderman, A. B. (2016). Race, Neighborhood Economic Status, Income Inequality and Mortality. Plos One, 11(5).

Murray, C. J. L., & Frenk, J. (2010). Ranking 37th-Measuring the Performance the US Health Care System. New England Journal of Medicine, 362(2), 98-99.

National Center for Health Statistics, (2017). Health, United States 2016: With Chartbook on Long Term Trends in Health. https://www.cdc.gov/nchs/data/hus/hus16.pdf Retrieved 2/5/17

National Center for Health Statistics, (2016). Health, United States 2015: With Special Feature on Racial and Ethnic Health Disparities. *https://www.cdc.gov/nchs/data/hus/hus15.pdf* Retrieved 2/2/18

National Partnership for Action to End Health Disparities, (2010) Health Equity and Health Disparities, U.S. Department of Health and Human Services, Office of Minority Health, http://minorityhealth.hhs.gov/npa/templates/browse.aspx?lvl=1&lvlid=34. Accessed 2/22/18

National Preventative Health Taskforce (2008). Australia: The Healthiest Country by 2020. http://www.health.gov.au/internet/preventativehealth/publishing.nsf/content/a06c2fcf439ecda1ca2574dd0081e40c/$file/discussion-28oct.pdf Retrieved 10/4/17

OECD Country Health Profiles (2017). Stats and graphs available at https://stats.oecd.org Accessed 10 12/2017, and 4/1/ 2018.

Paradies, Y., Ben, J., Denson, N., Elias, A., Priest, N., Pieterse, A., et al. (2015). Racism as a Determinant of Health: A Systematic Review and Meta-Analysis. Plos One, 10(9).

Pobutsky, A., Bradbury, E., Wong Tomiyasu, D (2011). Chronic Disease Disparaties report: Social Determinants. Hawaii State Dept. of Health, Chronic Disease Management and Control Branch. http://health.hawaii.gov/chronic-disease/files/2013/12/CD_BurdenReport_FINAL.pdf Retrieved 1/27/18

Ruhm, C.J., 2000. Parental leave and child health. Journal of Health Economics, 19 (6) 931 - 960

Tiffen, R., Gittens, R. (2004). How Australia Compares, Cambridge University Press.

United Nations Division of Environment Statistics [UNSD], (n.d.) https://unstats.un.org/unsd/envstats/index.cshtml. Accessed 2/8/2018.

United States Census Bureau. (2010). 2010 Census Summary File 1, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk, Accessed 1/15/2018

WHO General Health Repository, (n.d.), http://apps.who.int/gho/data/node.main. Accessed 10/22/2017, and 4/1/2018.

WHO, (n.d.), Social determinants of Health, http://www.who.int/social_determinants/sdh_definition/en/, Accessed 2/17/18.

WHO and UN partners, (2015). Australia: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available at http://www.who.int/countries/aus/en/ Retrieved on 10/5/17

WHO and UN partners, (2015). United States of America: WHO Statistical Profile. Country Statistics and Global Health Estimates. Available from http://www.who.int/countries/usa/en/ Retrieved on 10/5/17

Woodard, C. (2011). American Nations: A History of the Eleven Rival Regional Cultures of North America. Kindle 2015. Penguin Publishing Group.

List of Figures

List of Tables

Table 4: Medicare Part A Benefits
Medicare website,(2018) https://www.medicare.gov/coverage/hospital-care-inpatient.html. Retrieved 1/15/2018.

Dataset for Figure 2

Life Expectancy at Birth, U.S. and Australia, 1960 - 2012

	Females at birth		Males at birth	
	Australia	United States	Australia	United States
1960	73.9	73.1	67.9	66.6
1961	74.4	73.6	68.0	67.1
1962	74.2	73.5	67.8	66.9
1963	74.2	73.4	67.9	66.6
1964	73.9	73.7	67.5	66.8
1965	74.2	73.8	67.7	66.8
1966	74.0	73.8	67.6	66.7
1967	74.5	74.3	67.8	67.0
1968	74.2	74.1	67.5	66.6
1969	74.6	74.4	67.5	66.8
1970	74.2	74.7	67.4	67.1
1971	74.9	75.0	68.3	67.4
1972	75.4	75.1	68.6	67.4
1973	75.5	75.3	68.6	67.6
1974	75.4	75.9	68.4	68.2
1975	76.2	76.6	69.2	68.8
1976	76.3	76.8	69.3	69.1
1977	76.8	77.2	69.9	69.5
1978	77.2	77.3	70.2	69.6
1979	77.8	77.8	70.8	70.0
1980	78.1	77.4	71.0	70.0
1981	78.4	77.8	71.4	70.4
1982	78.2	78.1	71.2	70.8
1983	78.8	78.1	72.1	71.0
1984	79.0	78.2	72.5	71.1
1985	78.8	78.2	72.4	71.1
1986	79.2	78.2	72.9	71.2
1987	79.5	78.3	73.1	71.4
1988	79.5	78.3	73.1	71.4
1989	79.6	78.5	73.3	71.7
1990	80.1	78.8	73.9	71.8
1991	80.4	78.9	74.4	72.0
1992	80.4	79.1	74.5	72.3
1993	80.9	78.8	75.0	72.2
1994	80.9	79.0	75.0	72.4
1995	80.8	78.9	75.0	72.5
1996	81.1	79.1	75.2	73.1
1997	81.3	79.4	75.6	73.6
1998	81.5	79.5	75.9	73.8
1999	81.8	79.4	76.2	73.9
2000	82.0	79.3	76.6	74.1
2001	82.4	79.5	77.0	74.3
2002	82.6	79.6	77.4	74.4
2003	82.8	79.7	77.8	74.5
2004	83.0	80.1	78.1	75.0
2005	83.3	80.1	78.5	75.0
2006	83.5	80.3	78.7	75.2
2007	83.7	80.6	79.0	75.5
2008	83.7	80.6	79.2	75.6
2009	83.9	80.9	79.3	76.0
2010	84.0	81.0	79.5	76.2
2011	84.2	81.1	79.7	76.3
2012	84.3	81.2	79.9	76.4
2013	84.3	81.2	80.1	76.4
2014	84.4	81.3	80.3	76.5
2015	84.5	81.2*	80.4	76.3*

Produced from data available at oecd.stats.org Retrieved 3/10/2018 . Dataset f17bc11e-1d52-415f-a697-c7e63de538ce.xls, given below.