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Maintaining Stability in a Changing Climate: A Comparative Analysis of Public Health Systems and Migration Policies in the U.S. and Canada

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Introduction

The most common images associated with anthropogenic climate change are of ice melting in the arctic leaving a polar bear starving, cars backed up on a highway emitting smog, smoke stacks, and sludge in rivers. The go-to image when someone mentions climate change is not usually a young child in the Midwestern United States hospitalized with malaria. This is especially true for many citizens of the United States who don't believe climate change will harm them directly (Popovich, Schwartz and Schlossberg, 2017). For most of the global population concerned about climate change, the fight no longer surrounds convincing non-believers of its existence, but forming policy to mitigate its effects. According to NASA's Gravity Recovery and Climate Experiment (GRACE), as well as the World Health Organization (WHO), the increasing number of people in the northern hemisphere falling ill from tropical and warm weather diseases will paint a stark and realistic picture of the effects of an increasingly warming planet (Patz et al., 2000). However, there is a poignant issue that must be addressed: population of the northern hemisphere is projected to be much greater in 50 years than it currently is. Climate change will leave an estimated 760 million people all over the world as refugees, forced out of their homes due to climatic events (Hartmann, 2010). Many of these individuals will seek refuge in the U.S., and the United States health care system is not equipped to address their needs (Shariati, 2010).

The United States has preserved a relative semblance of stability within its political and cultural structure by maintaining a strong global political influence (the U.S. gave $32.7 billion in foreign financial assistance in 2013, almost twice the aid given by the next highest assistor; Bremmer, 2015). This influence, along with the highest GDP per capita and unrivaled largest military in the world, makes the United States *the* global economic and cultural hegemon, and self-designated global police (2015). According to Charles Krauthammer, a realist theorist, "The U.S. is the only country with the military, diplomatic, political and economic assets to be a decisive player in any conflict in whatever part of the world it chooses to involve itself" (Brilmayer, 1994). While this may be true currently, U.S. foreign influence cannot be maintained if its domestic stability is not also maintained, a self-feeding cycle. Liberalist theorist Joseph Nye would establish that it is not just military or 'hard' power that makes a state a hegemon, but the 'soft' power of persuasion (Nye, 2015). The theories of Liberalism and Realism provide a lens through which to look at human nature and give insight into how different actors may behave

during times of international conflict. Realist theory rests on the belief that there is no higher power than the most powerful sovereign nations. Realist theory believes humans will act in the best interest of themselves, and the advancement of their own materialization and domination (2015). Liberalist theory takes into consideration international institutions, corporations, and non-governmental bodies as powerful actors on the world stage. Liberalist theory is optimistic in its view that humans are not doomed to repeat the past, and that it is in the self-interest of different actors to cooperate with one another (2015). These theories provide a framework that can be used to ascertain how the U.S. might act in the face of climate change, and how policies will be built to ensure that U.S. health care is equipped to face those changes successfully.

Health care systems play a significant role in domestic and foreign policies. Health care systems themselves can work as actors which influence the stability of a country (McInnes and Lee, 2012). Hospitals in the United States are run like corporations due to the influence pharmaceutical conglomerates have on health care policies being written (Brezis, 2008). Lack of governmental ability to regulate the pharmaceutical industry increases public health risks (2008). These health risks are derived from a conflict of interest between pharmaceutical company profits and a healthy population (MSNBC, 2017). An increase in public health risks leads to public unrest, “erodes leadership, and removes individuals' incentives to participate in civil society” (Fox and Kassalow, 2011). These factors all contribute to domestic instability. Domestic stability for the U.S. can be projected on a sharp decline, indicated by an influx of climate refugees who cannot receive adequate health care and aid, in a country with a corrupt and failing health care system, and a current sitting President who does not believe in climate change. Even if in 50 years the political climate in the United States is more stable than it is today, the reality remains the same: a country with a health care system that cannot adequately take care of its own population, faced with diseases never seen domestically on a large-scale, coinciding with the largest migration of non-nationals in history, will be thrown into anarchy (2011). With analysis from both liberalist and realist perspectives, this paper argues that to remain a stable and respected world power into the next century, the United States of America will need to adopt aspects of a universal health care system resembling that of Canada.

Exacerbation of Population Displacement and Disease

In 2007, the Center for Naval Analyses (CNA), a U.S.-based think tank, wrote a report entitled *National Security and the Threat of Climate Change* which stated, "global warming could help trigger widespread political instability in poor regions and large refugee movements to the United States and Europe" (Hartmann, 2010). Rising sea levels and storm surges are continuing to worsen in every ocean (fig. 1, appendix) and will continue to do so if immediate action to mitigate climate change effects are not taken. A group of Coastal Management scientists in 2010 explained:

> There is a growing scientific consensus that increases in greenhouse gases in the atmosphere drive warming temperatures of air and sea, and acidification of the world's oceans from carbon dioxide absorbed by the oceans. Warming of air and sea induces shifts in precipitation patterns, sea-level rise, and causes more frequent and severe extreme weather events (e.g., storms and sea surge). These effects are already being witnessed in the world's coastal regions and are projected to intensify in years to come, affecting approximately 2.7 billion people, representing over 40% of the world's population (Tobey et al., 2010).

In the decade since the CNA report was written, we have seen this transpire many times over. Most recently, in late September of 2017, Hurricane Maria struck landfall in Puerto Rico. The Category 5 hurricane devastated the region leaving over 500 dead both as a direct result from the storm, as well as due to the lack of resources and aid in the weeks following (Klinenberg, 2017). Puerto Rico, a U.S. territory reliant on aid from the U.S. government, has been denied basic necessities including clean drinking water. As a result, thousands of Puerto Ricans have fled to mainland U.S. to re-start their lives (Sutter, 2017).

While long-term solutions are still being sought, the short-term issue to be addressed is how to provide adequate care for those displaced by these mega storms. Citizens in Puerto Rico were met with insufficient aid from the United States, so humanitarian aid groups like Oxfam America, who typically provide aid to only the most impoverished countries, were forced to step in and help (Sanders, 2017). Puerto Ricans are not the first U.S. citizens to be displaced due to

unnatural climate events. Former residents of southern Louisiana as well as the islands of the Bering Strait in Alaska have been forced to leave their homes due to rising water levels as well (Cusick, 2017). The plans to relocate just 60 people from the Isle de Jean Charles off the Louisiana coast "failed after they became mired in logistical and political complications" (Davenport, Robertson and Campbell, 2016). Given these historical failures of the U.S. to provide aid for its own displaced citizens, it will be nearly impossible to provide for thousands if not millions of climate refugees from other countries as well. In 2014, the Global Climate Risk Index (CRI) listed the top 10 countries at risk from climate change events, four of which are South American (fig. 2, appendix). Many citizens from these South American countries will seek refuge in the United States.

It is not just climate refugees that will be trying to make a new home in North America. Diseases adapted to warmer weather will increase their ability to move north as well. In some cases, diseases will spread into non-endemic regions due to the migration of infected people into places where vectors are present, but there is no disease yet (de Souza, Owusu and Wilson, 2012). In other cases, diseases can acquire a larger range of geological distribution due to various environmental factors (fig. 3, appendix). Before the 20th century, *plasmodium falciparum*- the malaria virus- was believed to be limited to distribution between the latitudinal extremes of 64˚ north and 32˚ south (Lysenko, 1968). With substantiated temperature rises in the last century, however, vectors that were originally unable to exist in cooler temperatures are able to increase their geographical range as temperature and environmental conditions worsen (1968). Many scientists in the 1990s to early 2000s tried to model the future projections of malaria distribution with empirical and biological climate-malaria data to predict the ability and range for transmission of the disease (fig. 4, appendix). The website for the World Health Organization claims that, "Globally, temperature increases of 2-3˚C would increase the number of people who, in climatic terms, are at risk of malaria by around 3- 5%, i.e. several hundred million" (WHO, 2017).

Yet, a study published in 2010 by Peter W. Gething and a team found "claims that rising mean temperatures have already led to increases in worldwide malaria morbidity and mortality are largely at odds with observed decreasing global trends in both its endemicity and geographic extent" (Gething et al.). This is due to the consideration of non-climatic factors, primarily direct disease control and the indirect effects of a century of urbanization and economic development

(2010). There is certainty that with rise in temperatures, there will be higher chances of transmutability. It is also likely that the disease control systems in place to combat the disease will be too ill-equipped to handle increases in malaria cases and geography. This is due to other non-climatic, but still 'environmental change' factors as outlined in fig. 3 that will also still have a significant impact on the transmissibility of multiple diseases outside of the 64˚ north and 32˚ south parameters. Additionally, with thousands of new individuals fleeing from countries severely affected by climate change to the United States, and the U.S.'s inadequate health care system (discussed later) to take care of them all in addition to its own citizens, these non-climatic factors may not have an impact on decreasing the transmission of malaria in the United States very far into the future.

A realist would argue that neither migration of climate refugees nor disease will have an impact on the United States' ability to remain in control of the nation, or their ability to project 'smart power,' an effective combination of soft and hard power, across the globe. Further, a realist would argue it is not the job of the United States to provide refuge for the displaced citizens of other countries. It would be a threat to the national security of the United Sates to do so. A liberalist, however, would see the anarchy that is sure to ensue from mass migration due to individuals theoretically having power of influence in foreign policy (Nye, 2015). A liberalist would not ignore the complexity created by the host of new actors on policy making, and would look for ways in which this influx of people could be used to benefit U.S. society. Liberalists place a premium on stability and prosperity, and take the actions needed to achieve them.

United States' Inability to Provide Health Care for a Population Influx

Citizens of the United States pay more per capita for health care than any other country in the world (World Bank Group, 2011). In 2014, U.S. citizens paid, on average, $9,403 for health care annually, compared to the next highest: Monaco, at $7,302 annually (fig. 5, appendix). However, by 2016 this number had risen to an average of $10,345 per person per year and is expected to reach $14,944 in 2023 (Bloom, 2017). Additionally, the U.S. spends a higher percentage of its GDP on health care than any other country in the world (fig. 6, appendix; OECD 1, 2017). One would believe that with the highest costs in the world, citizens of the U.S. would also be receiving the best care in the world. Yet, there are an estimated 37,000 deaths

annually in the United States due to lack of medical insurance, 12,00 deaths due to unnecessary surgery, and over 200,000 deaths annually in American hospitals due to malpractice, infection and other medical errors (Shariati, 2010; Starfield, 2000). Also, the Organization for Economic Cooperation and Development (OECD) reports life expectancy at birth of U.S. citizens at 27th out of its 43 member countries (OECD 2, 2017). In 2008, the U.S. spent more than $76.6 billion dollars on curing diseases of environmental origin in children alone (Singh, 2014). With increases in the number of people infected by new large scale diseases such as malaria, which U.S. hospitals have not had to deal with yet, these statistics will become progressively worse, and the nation's hospital bills will become even more expensive.

In 1997, the United States spent more than $1 trillion on health care, yet 43 million citizens remained without coverage (Graig, 1999). Since 2000, hospitals and other health care facilities have provided more than $538 billion in "uncompensated care" (AHA, 1990-2015). Uncompensated care has been the U.S. semblance of a national health care program for over a decade, and is the "critical safety valve in a system without universal coverage" (1990-2015). However, starting in 2018, the funding for uncompensated care will begin to be cut (1990-2015). Simultaneously, the percent of private practitioners in the U.S., from overall M.D.s, declined from 59% to 36% between 2007 to 2012 as more and more private practices are being bought by hospitals (Sanger-Katz, 2015). A certain type of health service at a hospital can cost more than twice as much as the same service at a private practice (2015). For example, an ultrasound at a private practice may cost to $189, while at a hospital the same ultrasound can cost $453 (2015). The Affordable Care Act mandated that Medicaid disproportionate-share hospital funds (uncompensated care) be cut by $43 billion between fiscal years 2018 and 2025 (fig. 7, appendix; Dickson, 2017). Health care services are becoming more expensive, with limited variety in pricing, at the same time the funds for coverage are being cut. Uncompensated care funds go towards providing care for the most vulnerable populations in the country: "the poor, children, the disabled and the elderly" (2017). The probability of being uninsured among Hispanic Americans is 35%, compared with 17.5% for the general population (Smedley, Stith and Nelson, 2003). "South East-Asian (e.g., Vietnamese, Cambodian, Laotian) and South-Asian (e.g. Indian, Pakistani, Bangladeshi) populations are [also] disproportionately uninsured (27% and 22%, respectively; 2003)." Health insurance is less likely to cover those who are contracting illnesses and dying at higher rates, who are most often not white. For example, the mortality rate

for African Americans is approximately 1.6 times higher than that for whites (2003). Minorities are already at a disadvantage to afford insurance in the U.S. health care system, and climate refugees will likely be put into this category of people who are simply left without access to adequate medical care.

The lack of adequate primary care for all citizens, low world-ranking in national health care, and blatant economic inequality of the U.S. medical system is a red flag for liberalist foreign policy thinkers. Health care ranking has an impact on the U.S.' projected soft power, which is what influences how other state actors perceive the United States. Countries affected by climate change will not perceive the United States as able or willing to provide proper care of their citizens when they begin to leave their countries in the millions. Poor health in a country diminishes economic productivity, makes governance and peacekeeping less effective, and contributes to the erosion of social cohesion (Fox, 2011). These are some of many reasons why global health must become a higher priority for both U.S. domestic *and* foreign policy. When climate refugees are displaced, they will not be moving to the United States for only a couple years until infrastructure in their home country is re-built and they can move back. Climate change will bar refugees from returning to their home countries for generations; that is a conservative estimate assuming we mitigate emissions to keep from reaching the 2˚ C threshold (Titley, 2017). This means that climate refugees will need to participate in U.S. society permanently after their displacement. Refugees entering the United States today are signed up for health insurance by their resettlement agency for only eight months (Refugee Center Online, 2017). After that, the individual or family must procure their own health insurance, which would likely be monetarily impossible for most refugees (2017). Additionally, poor health in a country leads to higher crime rates, distrust of government, and therefore: dissolution of social cohesion (Fox, 2011). For these reasons, if there is no health care infrastructure to provide long-term care for these refugees U.S. national security will be at higher risk of collapsing (Bloom, Canning and Savilla, 2003).

Poor public health leading to dissolution of social cohesion will not only adversely affect U.S. national security, but the U.S. economy as well. As discussed in Mancur Olson's *Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities,* it is obviously in any nation's best interest to have and "want economic efficiency and growth" for their country, as well as general "good fortune for the society in which they operate" (Olson, 2008). Social

cohesion and organization of what is in the public's interest, in this case affordable and accessible healthcare, leads to a more productive society (2008). The U.S. already sees a large negative economic impact from the loss of productivity due to lack of social cohesion, as well as due to illness stemming from poor public health. As reported in The World Economic Forum's Global Risks 2015, "Social instability is closely connected to other risks that rank high in the Global Risks report, such as unemployment, failure of national governance and fiscal crises" (Radulovic, 2015). Moreover, according to a study done by the Integrated Benefits Institute in 2012, nearly $576 billion is lost annually from the U.S. economy due to absence from work as a result of illness, as well as "presenteeism:" being present at work but not performing one's best due to illness (Japsen, 2012). The United States already spends the most of any country on healthcare, yet still loses an additional half trillion dollars annually to low productivity due to poor public health initiatives. It is also speculated that the economic loss due to the impacts of illness on productivity are underestimated (Stromberg et al., 2017). This is because economic evaluations on this matter often only account for costs within the healthcare budget, and not external events or factors that may play a role in productivity costs (Bouwmans et al., 2015). By adopting more pro-active healthcare practices instead of continuing with "sick-care," the U.S. will be able to reduce the impact of productivity loss on the economy.

Along with social stability and productivity, longevity has also been found to have great economic impacts. The main result of a study done by Harvard School of Public Health researchers David Bloom, David Canning, and Jaypee Savilla found that on average, a one-year improvement of a population's life expectancy contributes to a 4% increase in economic output (2003). Increased coverage and healthier lifestyles results in longer lifespan. The United States has one of the lowest life expectancies of any developed country while simultaneously spending the most on health care (fig. 8, appendix; 2003). A decrease in public health due to the need to accommodate for more people will lead to even lower life expectancy, leading to lower economic outputs. Similarly, providing coverage to increased populations at today's high cost levels will negatively impact the economy. The amount of money U.S. citizens will be spending on health care (directly or through elevated taxes) will decrease their ability to spend money in other sectors, depressing the overall economy.

This may lead some to believe that accepting any refugees into the United States will have a negative economic impact. Yet, over the last two years, Europe has accepted over one

million refugees while still growing its economy (Domonske, 2016; Eurostat, 2017). Additionally, a market assessment of small and medium-sized Syrian enterprises in Turkey found that Syrian refugees have invested almost $334 million into the Turkish economy, with more than 10,000 Syrian-owned businesses employing an average of 9.4 workers (*Another Side to the Story*, 2017). With over 65 million refugees worldwide, other countries around the world have proven their ability to care for these displaced peoples while keeping their national stability and economy intact (2017). Examining the health care system of Canada can provide the United States with ideas of how to better their own system in order to provide affordable services for U.S. citizens, as well as the many refugees to come. By doing so, the U.S. would additionally be protecting its own national security and economic interests.

Canadian Health Care System and Refugee Health Policy

As of December 2015, there were 65.3 million displaced people around the globe (2017). According to a press release by the United Nations High Commissioner for Refugees, "That number represents immense human suffering" (2017). It means that one in every 113 people on our planet has been displaced from their home country for reasons including persecution, climate change, conflict and violence, and human right violations. A liberalist would argue that with globalization comes the responsibility to take care of those who do not have a nation to call home any longer. This paper has shown how the United States does not currently provide adequate health care for millions of its own citizens, let alone refugees seeking asylum. So how do other nations around the world maintain the ability to care for their own citizens as well as take in those from other devastated nations? Using the Canadian health care system as a case study can provide a clearer lens for how the U.S. system can be improved.

By 1960, every Canadian province had introduced universal hospital insurance programs. This included benefits that can be transferred across province lines. In 1971 this was revised to create "parallel benefits" across all provinces (Raffel, 1984). Total health care expenditures in Canada are half those in the United States (1984). Universal state-controlled reimbursement methods which "emphasize prevention and encourage adequate but not excessive surgical procedures" both improve the public's health and reduce costs (1984). When comparing the U.S. healthcare system to countries like Canada, the argument for why those systems would not work in the U.S. often have something to do with the drastically different population sizes. The

Canadian system covers all its 36 million citizens, compared to approximately 296 million citizens covered by health insurance in the United States, or 91.6% of the U.S. population (Graig, 1999). However, this may not be the real issue. Studies have shown that the higher the primary care physician–to–population ratio is in a state, the better most health outcomes are regardless of the health care system or population size (Starfield, 2000). The Canadian government uses market forces to:

> "Redistribute physicians from over doctored to under doctored areas. The zero-price feature of Canadian medical insurance, with universal coverage and virtually no out-of-pocket payment to a doctor, means that a poor farmer or a blue-collar worker in an industrial area is just as good a source of income as a wealthy suburbanite" (2000).

Canada has a refugee health care program called the Interim Federal Health Program (IFHP) "which provides limited, temporary coverage of health-care benefits to protected persons, including resettled refugees; refugee claimants; and certain other groups" (Canada, 2017). This basic coverage includes in-patient and out-patient hospital services, services from medical doctors, registered nurses and other health-care professionals licensed in Canada, including pre- and post-natal care, and laboratory, diagnostic and ambulance services (2017). The Canadian health care system is much more readily equipped to accept refugees, regardless of the refugees' circumstances, than the United States.

Canada's "single-payer" system also avoids the paradox of a free market health care system, the system which is used by the United States. Often known as "sick care" instead of health care, the health care system in the United States invests in pharmaceutical companies over other public health initiatives in the United States (Marvasti et al., 2012). The interests of Big Pharma do not necessarily align with public health needs, as more sick people means more business for medicinal companies (Brezis, 2008). A realist theorist would not see Big Pharma as a meaningful actor pertaining to foreign policy or international relations. A liberalist theorist would place Big Pharma as an extremely powerful actor. "For every $1 the [pharmaceutical] industry spent on contributions [to candidates] during the last election cycle, $7 were spent on

lobbying [for pharmaceutical companies] in 2014" (Ludwig, 2015). Lobbying by Big Pharma has radiating impacts beyond health care policy, once again affecting the United States' soft power. Ali Velshi, a Canadian Journalist and self-proclaimed capitalist, argues a free market health care system could never work. This is because, "No profit-making company would ever insure a sick person or an old person" (MSNBC, 2017). Refugees coming to the United States under the current system, with a higher likelihood of contracting malaria or other diseases due to rising temperatures, will have an extremely difficult time affording insurance after their eight months of provided coverage has expired. It is not currently in the interest of U.S. insurance companies to cover refugees, leading to a sicker and thus more unstable population. This leads to a depression in the overall economy, thus hurting those insurance companies. This feedback loop displays the necessity for insurance companies to promote health care instead of sick care.

Conclusion and Future Projections

It is in the interest of the United States to maintain its status as a global hegemon (Nye, 2015). This will be impossible to accomplish without the political and economic stability that comes with a healthy population. The U.S.' low world-ranking in health care, coupled with the impending epidemics that are very likely to accompany climate change and mass migrations by climate refugees leaves the United States vulnerable. The United States has already accepted many refugees, both non-natives moving to the U.S. as well as native U.S. citizens displaced within the country, and has proven it *does not* have the capability to provide care in these cases. By taking certain aspects from the Canadian health care system such as a focus towards adequate but not excessive surgical procedures, an emphasis on prevention and healthy lifestyles and an increased number of physicians and equitability and accessibility in all areas of the country, the United States can lower health care costs for the entire country. Adopting these principles would allow refugees to access health care without severely shifting resources in the system which could lead to major security issues when large populations of human beings are denied basic health care. This is in addition to the experienced economic benefits by various countries all over the world by accepting refugees. A change in the U.S. health care system to a "single-payer" or universal primary care system will not be the one factor that will save the nation from falling into anarchy. It will, though, allow for baseline stability. Global health is foundational; without such

the United States has no hope to hold on to their position of power and stability, which many nations depend on for their own stability.

Appendix

Figure 1: Change in the number and percentage of hurricanes in categories 4 and 5 for the 15-year periods 1975-1989 and 1990-2004 for the different ocean basins. Source: Science Magazine, 16 Sep 2005: Vol. 309, Issue 5742, pp. 1844-1846 DOI: 10.1126/science.1116448

	Period			
Basin	**1975–1989**		**1990–2004**	
	Number	**Percentage**	**Number**	**Percentage**
East Pacific Ocean	36	25	49	35
West Pacific Ocean	85	25	116	41
North Atlantic	16	20	25	25
Southwestern Pacific	10	12	22	28
North Indian	1	8	7	25
South Indian	23	18	50	34

Figure 2: The Long-Term Climate Risk Index (CRI): the 10 countries most affected from 1996 to 2015 (annual averages). Source: https://germanwatch.org/de/download/16411.pdf

CRI 1996–2015 (1995–2014)	**Country**	**CRI score**	Death toll	Deaths per 100 000 inhabitants	Total losses in million US$ PPP	Losses per unit GDP in %	Number of events (total 1996–2015)
1 (1)	Honduras	11.33	301.90	4.36	568.04	2.100	61
2 (2)	Myanmar	14.17	7 145.85	14.71	1 300.74	0.737	41
3 (3)	Haiti	18.17	253.25	2.71	221.92	1.486	63
4 (4)	Nicaragua	19.17	162.90	2.94	234.79	1.197	44
5 (4)	Philippines	21.33	861.55	1.00	2 761.53	0.628	283
6 (6)	Bangladesh	25.00	679.05	0.48	2 283.38	0.732	185
7 (8)	Pakistan	30.50	504.75	0.32	3 823.17	0.647	133
8 (7)	Vietnam	31.33	339.75	0.41	2 119.37	0.621	206
9 (10)	Guatemala	33.83	97.25	0.75	401.54	0.467	75
10 (9)	Thailand	34.83	140.00	0.22	7 574.62	1.004	136

Figure 3: Examples of how diverse environmental changes affect the occurrence of various infectious diseases in humans. Source: WorldHealthOrganization.org

Environmental changes	Example diseases	Pathway of effect
Dams, canals, irrigation	Schistosomiasis	▲ Snail host habitat, human contact
	Malaria	▲ Breeding sites for mosquitoes
	Helminthiasies	▲ Larval contact due to moist soil
	River blindness	▼ Blackfly breeding, ▼ disease
Agricultural intensification	Malaria	Crop insecticides and ▲ vector resistance
	Venezuelan haemorraghic fever	▲ rodent abundance, contact
Urbanization, urban crowding	Cholera	▼ sanitation, hygiene; ▲ water contamination
	Dengue	Water-collecting trash, ▲ *Aedes aegypti* mosquito breeding sites
	Cutaneous leishmaniasis	▲ proximity, sandfly vectors
Deforestation and new habitation	Malaria	▲ Breeding sites and vectors, immigration of susceptible people
	Oropouche	▲ contact, breeding of vectors
	Visceral leishmaniasis	▲ contact with sandfly vectors
Reforestation	Lyme disease	▲ tick hosts, outdoor exposure
Ocean warming	Red tide	▲ Toxic algal blooms
Elevated precipitation	Rift valley fever	▲ Pools for mosquito breeding
	Hantavirus pulmonary syndrome	▲ Rodent food, habitat, abundance

▲ increase ▼ reduction

Figure 4: Current and future distributions of the primary malaria agent. Source: Rogers and Randolph, works cited.

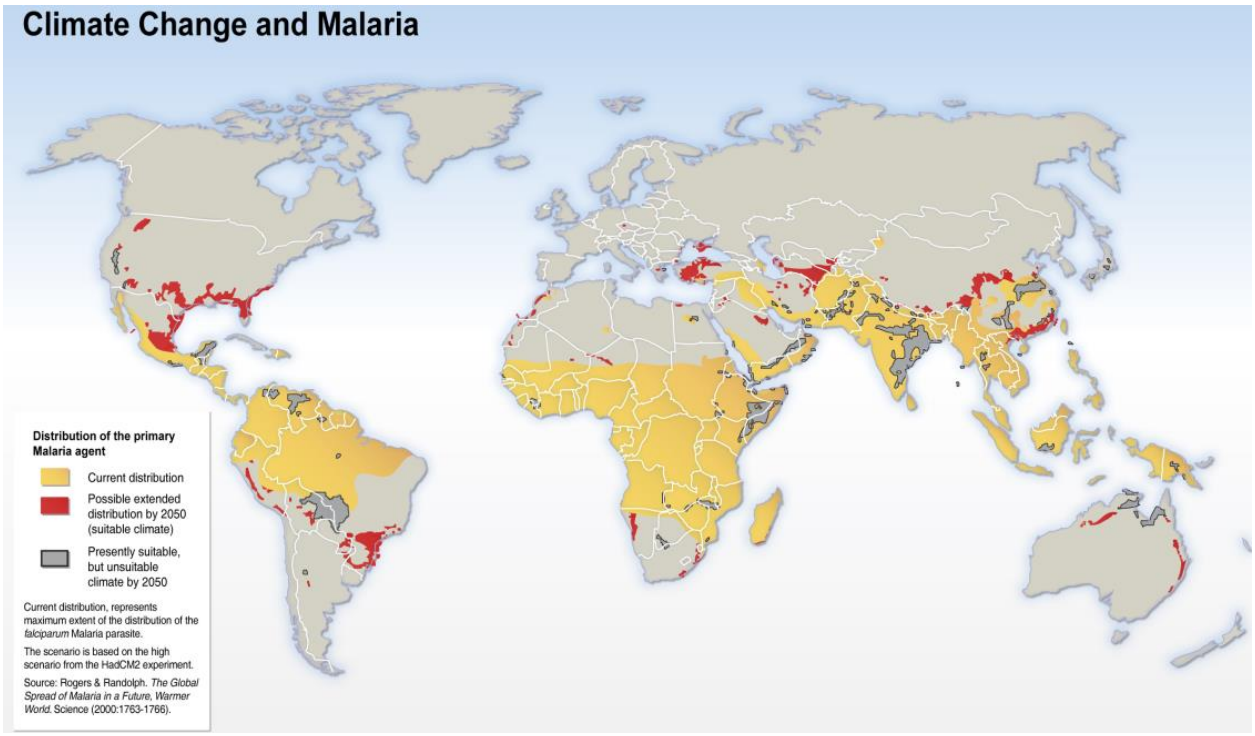


Figure 5: Average annual cost of health care in 2014: Health expenditure per capita for top nine spenders on health care, PPP (constant 2011 international $). Source: https://data.worldbank.org/indicator/SH.XPD.PCAP.PP.KD

Country	1995	2014
United States	3,788	9,403
Monaco	2,389	7,302
Luxembourg	2,189	6,812
Switzerland	2,573	6,468
Norway	1,865	6,347
Sweden	1,745	5,219
Netherlands	1,800	5,202
Germany	2,280	5,182
Austria	2,249	5,039

Figure 6: Percent GDP spent on health care from 1970 to 2016. Source: http://stats.oecd.org/Index.aspx?DataSetCode=SHA

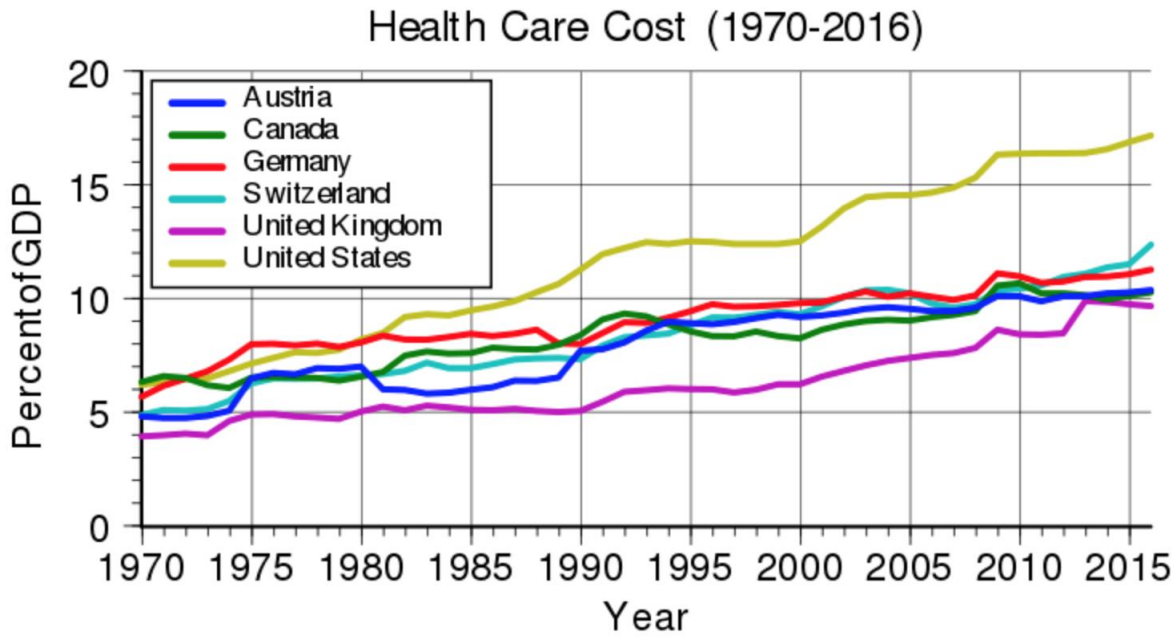


Figure 7: Annual proposed cuts on Medicaid uncompensated care in $billions. Source: CMS. http://www.modernhealthcare.com/article/20170727/NEWS/170729904

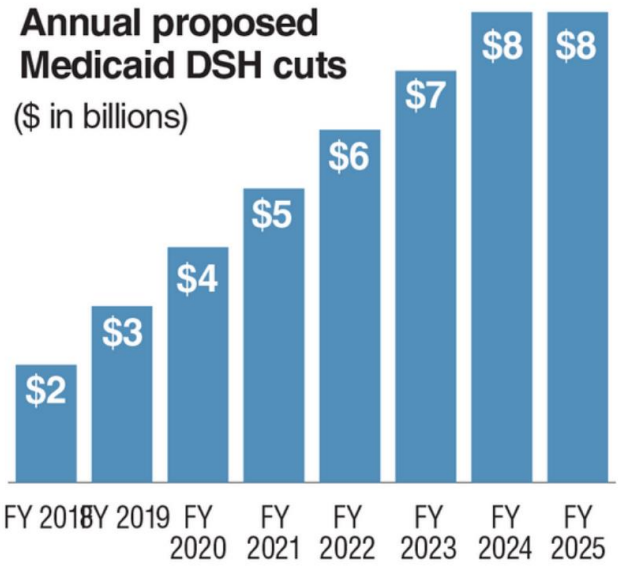
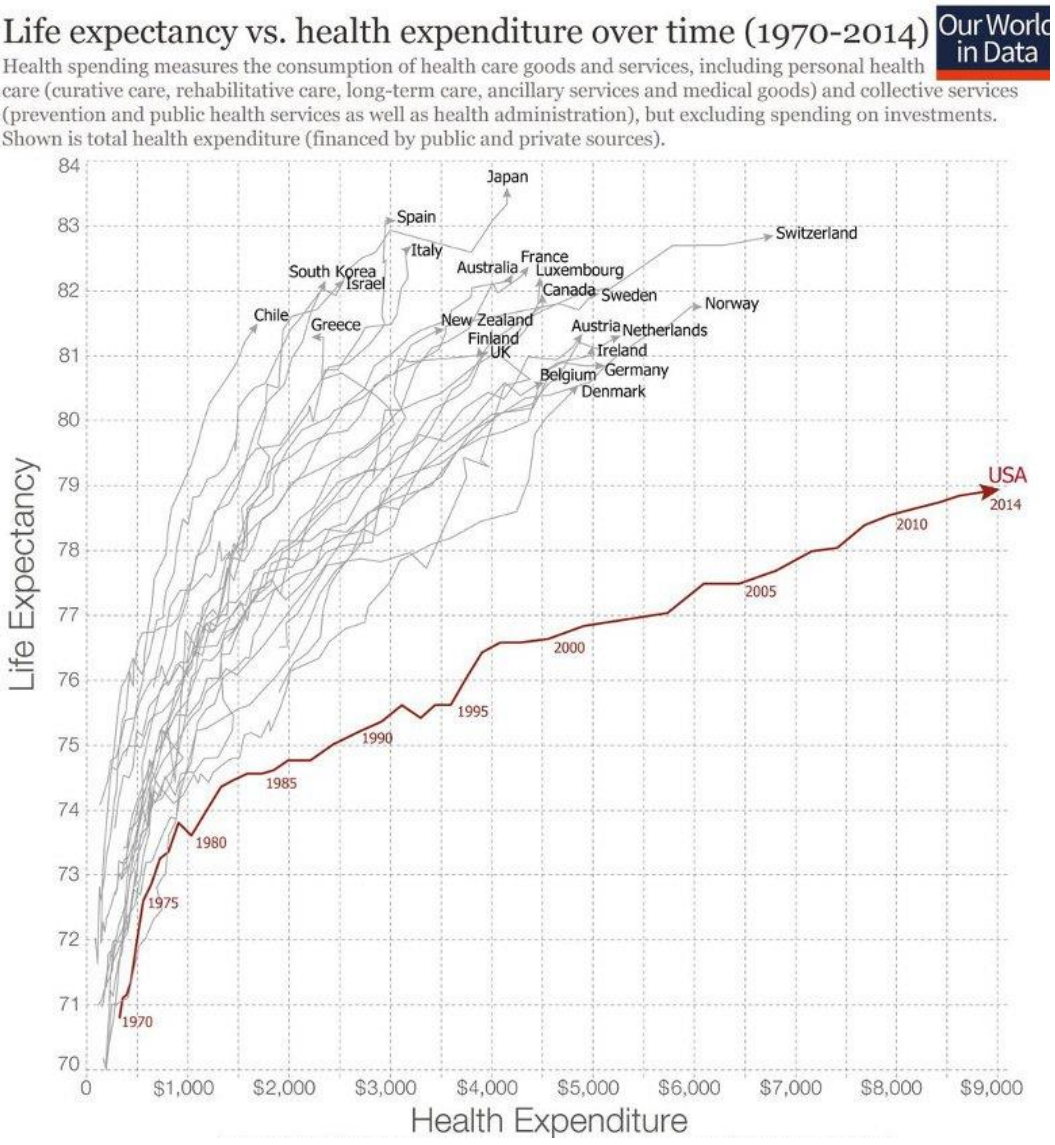


Figure 8: Life expectancy vs. health expenditure for nations from 1970 to 2014. Health expenditure was adjusted for inflation and PPP-adjusted for price differences between countries. Source: OECD, World Bank, OurWorldinData.org



Works Cited

Abe, Shinzo. “Japan’s Vision for a Peaceful and Healthier World.” *The Lancet.* Volume 386, No. 10011. December 12, 2015.

Bloom, David E., David Canning, Jaypee Savilla. “The Effect of Health on Economic Growth: A Production Function Approach.” *Harvard School of Public Health, Boston, MA, USA.* November 21, 2003. Web.

Bloom, Ester. “Here's How Much the Average American Spends on Health Care.” *CNBC.* June 23, 2017. Web.

Bremmer, Ian. “These Are the 5 Reasons Why the U.S. Remains the World's Only Superpower.” *Time Magazine*. May 28, 2015.

Brezis, Mayer. “Big Pharma and Health Care: Unsolvable Conflict of Interests Between Private Enterprise and Public Health.” *Isr Journal of Psychiatry*. Related Science Vol 45 No. 2. 2008. 83–94.

Brilmayer, Lea. “American Hegemony: Political Morality in a One-Superpower World.” *Yale University Press.* 1994. Print.

Cusick, Daniel. “Puerto Ricans Could Be Newest U.S. Climate Refugees.” *Scientific American.* September 28, 2017.

Davenport, Coral. Robertson, Campbell. “Resettling the First American ‘Climate Refugees.’” *The New York Times.* May 3, 2016. Web.

de Souza Dziedzom K., Priscilla N. Owusu and Michael D. Wilson. “Impact of Climate Change on the Geographic Scope of Diseases.” *Human and Social Dimensions of Climate Change*. November 14, 2012.

Dickson, Virgil. “Billions in Federal Uncompensated-Care Funds to be Cut Starting in October.” *Modern Healthcare.* July 28, 2017. Web.

Domonske, Camila. “Refugees, Displaced People Surpass 60 Million for First Time, UNHCR Says.” *NPR: The Two-Way.* June 20, 2016. Web.

Eurostat Economic Indicators. http://ec.europa.eu/eurostat/cache/infographs/economy/desktop/index.html

Gautney, Heather. Ph.D. “What Can We Learn From Denmark?” https://www.sanders.senate.gov/imo/media/doc/052213-Denmark2.pdf

Gething, Peter W., et al. “Climate Change and the Global Malaria Recession.” *Nature: International Journal of Science*. 465, 342–345. May 20, 2010.

Graig, Laurene A. “Health of Nations: An International Perspective on U.S. Health Care Reform.” *Congressionsal Quarterly Inc.* 1999. Print.

Hartmann, Betsy. “Rethinking Climate Refugees And Climate Conflict: Rhetoric, Reality And The Politics Of Policy Discourse.” *Journal of International Development*. 22, 233–246 (2010).

“Healthcare: Conditions for Asylum Seekers.” *New to Denmark, The Official Portal for Foreigners.* February 5, 2016.

"Interim Federal Health Program: Summary of coverage." *Government of Canada*. September 13, 2017. http://www.cic.gc.ca/english/refugees/outside/summary-ifhp.asp

Klinenberg, Eric. "Puerto Rico's Actual Death Toll." *New York Times*. November 13, 2017.

Leppold, Claire, et al. "Defining and Acting on Global Health: The Case of Japan and the Refugee Crisis." *International Journal of Health Policy Management.* May 31, 2016.

Ludwig, Mike. "How Much of Big Pharma's Massive Profits Are Used to Influence Politicians?" *Truthout.* September 30, 2015. Web.

Lysenko AJ, Semashko "Geography of Malaria: A Medico-Geographic Profile of an Ancient Disease." In: Lebedew AW, editor. Itogi Nauki: Medicinskaja Geografija. *Academy of Sciences*, USSR; Moscow. 1968.

Marvasti, Farshad Fani, M.D., M.P.H. "From Sick Care to Health Care — Reengineering Prevention into the U.S. System." *The New England Journal of Medicine. 367:889-891. September 6, 2012. Web.*

Matsuda, Ryozo. "The Japanese Health Care System." *International Health Care System Profiles.* The Commonwealth Fund. College of Social Sciences, Ritsumeikan University. 2016. Web.

McInnes, Colin, Kelley Lee. "Global Health and International Relations." *Polity Press.* 2012. Print.

MSNBC. March 9, 2017.

Nye, Joseph. "Public Diplomacy and Soft Power." *Rising Threats, Enduring Challenges: Readings in US Foreign Policy. Andrew Price-Smith.* Oxford University Press. 2015. Print.

OECD 1. http://stats.oecd.org/Index.aspx?DataSetCode=SHA

OCED 2. https://data.oecd.org/healthstat/life-expectancy-at-birth.htm

Patz, J.A., et al., "Effects of Environmental Change on Emerging Parasitic Diseases." *International Journal of Parasitology,* 30 (12-13): p. 1395-405 (2000).

Popovich, Nadja, John Schwartz and Tatiana Schlossberg. "How Americans Think About Climate Change, in Six Maps." *New York Times*. March 21, 2017.

Raffel, Marshall W. "Comparative Health Systems: Descriptive Analyses of Fourteen National Health Systems." *Pennsylvania State University Press, University Park and London.* 1984. Print.

Rogers and Randolph. "The Global Speed of Malaria in a Future, Warmer World." *Science Magazine.* 2000. 1763-1766

Sanders, Bernie. "What Can We Learn From Denmark?" *Huffington Post.* May 26, 2013. Web.

Sanders, Linley. "Trump's 'Slow' Response to Puerto Rico Disaster Is Like Third-World Nation, Oxfam Says." *Newsweek*. October 3, 2017.

Sanger-Katz, Margot. “When Hospitals Buy Doctors’ Offices, and Patient Fees Soar.” *The New York Times.* Feb 6, 2015. Web.

Shariati, Mehdi S. “Hegemony and the U.S. Health Care Crisis: Structural Determinants and Obstacles to a National Health Insurance Program.” *Payvand News*. March 31, 2010.

Smedley BD, Stith AY, Nelson AR. “Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.” *Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care*. Washington (DC): National Academies Press (US); 2003.

Starfield, Barbara. “Is US Health Really the Best in the World?” *Journal of the American Medical Association.* July 26, 2000. Web.

Sutter, John D. “Desperate Puerto Ricans are drinking water from a hazardous-waste site.” *CNN*. October 14, 2017.

Titley, David. “The world is on course to warm beyond a crucial threshold.” *Business Insider.* August 25, 2017. Web.

Tobey, James et al. “Practicing Coastal Adaptation to Climate Change: Lessons from Integrated Coastal Management.” *Taylor and Francis Group. Coastal Management*, 38:317–335, 2010.

Vrangbaek, Karsten. “The Danish Health Care System*.” Department of Political Science, University of Copenhagen*. February 2008. Web.

WHO. “Climate Change and Infectious Diseases.” *Climate Change and Human Health*. WHO.int

World Bank Group. “Health expenditure per capita, PPP (constant 2011 international $).” *World Health Organization Global Health Expenditure database.* https://data.worldbank.org/indicator/SH.XPD.PCAP.PP.KD