In Search of National Health Equity:
A Strategy to Improve Health Outcomes for
Low- and Moderate- Income Americans

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Introduction.

Health care in the United States is faced with a number of fundamental contradictions. We are the richest nation in the world. We spend more on health care than any nation in the world. We have made great advances in reducing incidence of heart and other diseases. We have a low rate of smoking. Longevity by all groups has improved. We have some of the best doctors and hospitals and the most innovative medicine. At the same time, our citizens are not the healthiest in the world. We lag other advanced nations on longevity, infant mortality, deaths from accidents and homicides, HIV/AIDS deaths, diabetes, and many other diseases. We also have great disparities in health and longevity between the rich and poor, black and white, more and less educated, and those in wealthy or poor neighborhoods and states.

An Asian-American woman can expect to live 13 years longer than low-income women in the South. White women in good neighborhoods can live 21 years longer than a black man living in a poor inner-city neighborhood or in Appalachia. A 15 year old urban black man is 3.8 times more likely to die before age 60 than an Asian American (Neerguard 2006). This gap on health and longevity is like comparing a woman living in healthy Japan with those living in poverty-stricken Ruanda or Nicaragua.

In a watershed health comparison of the US to other advanced nations, the National Research Council and US Institute of Medicine concluded:

"That the health of Americans does not meet the standards that now exist in other rich nations is a tragedy for all age groups, but especially for children... Overall, young Americans are entering adulthood in poorer health than their counterparts in other countries and, therefore, face a future with greater risk of disease and other life challenges than did their parents (Woolf and Aron p. 291)."

Critical questions addressed by this paper are what are the root causes of this problem and what can we do to improve our national health, particularly for Americans that who been bypassed by the American dream? Many argue that a key cause of our health deficiencies is that we are the only advanced nation in the world without universal health care. Lack of health care for many Americans is certainly a problem—partly addressed by the Affordable Care Act. Others argue that the heart of the problem lies not in the cost or deficiencies in health care, but in factors outside of the control of medicine. Several studies say that only ten percent of health outcomes are due to health care (Avedano and Kawachi 2014, National Prevention Council 2011). As much as 40% may come from behavior (such as over-eating and smoking), 30% due to genetics, and 15% to environmental conditions (Laderman, Botwinick and Whittington 2016).
The argument can be made that, in light of the great discrepancy in outcomes by race, income and education, failure to address social conditions in the US is the major barrier to improving health outcomes for major segments of the US population. We have the largest low-income population of advanced nations. The poor people face multiple barriers to good health, including chronic stress, unsafe housing, crime and violence, poor schools, inadequate transportation, limited availability of healthy food choices and lack of safe places to play and exercise (Kieta 2014).

Based on a comparison of social conditions in the US with other advanced nations, I have argued, that:

"US cities and the nation as whole have done a relatively poor job, compared to other advanced nations, in reducing relative poverty, providing for a fair and equitable division of wealth, combatting segregation by race and social class, combatting violent crime, providing non-segregated affordable housing, providing for equity and fairness in services to residents of different cities, and promoting use of energy-efficient transit." (Underhill 2017a p. 1).

These conditions are not an accident or a deficiency in economic growth and dynamism, but rather stem from a conscious national policy of low social spending compared to other advanced nations. Americans value freedom over equality and fairness. Some advanced countries have higher pre-tax and pre-transfer poverty than we. However, higher taxes and social spending have resulted in the fact that they have reduced post-tax and post-benefit poverty to a much lower levels than "market poverty"—before taxes and transfers. Yet we spend enormous amounts of money on health care. The argument has been made that we have the wrong balance of social and health spending if we are to improve our health and reduce infant mortality (Butler, Matthew, and Cabello 2017).

Accordingly, the focus on this paper is not on changes in health care, but improving social conditions for low- and moderate-income people to reduce the glaring gap in health by income, educational level, race, and geographical location. The goal here is to seek for greater health equity in America. A goal of the "Healthy People 2020" plan was to achieve health equity by race, income geography, gender, state of disability, and location. Another goal of the plan is to create social and physical environments that promote good health (US Department of Health and Human Services 2010). Interventions based only on improving medical risk factors are not likely to be successful in reducing health disparities (Olshansky, others 2012)

Any strategy to address underlying social justice problems in the US to improve health equity is a long-term proposition. Currently, under the Republican Administration, the focus is on cutting taxes, increasing defense spending, reducing immigration, abolishing or curtailing the Affordable Care Act (ACA), and cutting non-elderly social spending. Although the specific proposals have varied from month to month, various Republican budget and tax cuts could reduce programs serving the poor by an estimated two trillion dollars over a decade (Shapiro,
Kogan and Cho 2017). The tax cut bill signed by the President would increase national inequality by rewarding the highest income taxpayers and increasing the tax burden for middle income earners in the long run when temporary tax cuts run out (Porter 2017c). To make up for over a trillion dollars lost in revenue because of the tax cut, the Administration has permitted and encouraged harsh work requirements for Medicaid and cutting funding by over $500 billion over a 10 year period for Medicare, Medicaid, food and housing assistance, and disability insurance. This is the opposite of the war on poverty. It is a war on the poor. The result of welfare reform and its work requirements was a drop from serving 86% of the poor to 23%. The reform did not reduce the number or poor, but served fewer of them (Floyd 2017). This series of actions should undercut efforts to improve health of the poor. In the short run, however, the economy continues its eight year growth, unemployment is down, wages are rising, and those with less education are being hired (Casselman 2018). This should help the poor.

Since the focus of this study is to improve the conditions of the poor for improvement of health outcomes, I draw upon a number of my prior papers for recommendations related to education (Underhill 2011), reducing crime and instituting effective prison reform (Underhill 2013), reducing poverty and inequality (Underhill 2014), and strengthening the American family (Underhill 2012). I try to relate bodies of literature on these topics to the problem of improving health care for the poor. The structure of the paper is as follows:

- Part I. Progress and problems with American health and health care . (p. 4)
- Part II. National trends Influencing both progress and problems in US heath. (p. 11)
- Part III. Impact of health on employment, education and poverty. (p.23)
- Part IV. What works and doesn’t work in improving health outcomes, particularly for low-income Americans. (p. 24)
- Part V. Recommendations by experts to improve health outcomes. (p. 30)
- Part VI. Recommendations to improve health of low-income Americans. (p. 33)


There are abundant data sources showing the state of American health and comparing that health with other advanced nations. Among these are the Organization for Economic Cooperation and Development's (OECD) study, 2015 Health at a Glance, (using 2013 data) and the National Research Council and the US Institute of Medicine comparison of US health with 16 advanced countries in 2011 (Woolf and Aron 2013). In these studies, the US comes up short, compared to its wealthy peers. However, it is worth noting that we have many health successes. The section that follows shows some positive healthcare trends as well as behavior improvements which should lead to better health. Section (b) shows health problems.

a. Progress Made

1 Health outcomes. Putting US health in perspective, world-wide progress has been made in health and longevity. For most of history, 90% of the world lived in extreme poverty.
Absolute poverty dropped from 44% of the population as late as 1981 to 10% today. Smallpox has been eliminated. Leprosy has dropped in the world by 95%. Since 1990, 100 million children’s lives have been saved through vaccinations. Each day over 280,000 get access to clean drinking water. Birth rates have dropped dramatically (Kristof 2017).

- *Life expectancy increased* for American blacks from 60 in 1950 to 75.6 in 2014 (a gain of 15.6 years) and white expectancy from 69 to 79 (a gain of 10), reducing the black-white longevity gap from nine years to 4.6 years (Laderman, Botwinick and Whittington 2016). The US male-female longevity gap also decreased. In 1900, the expected life-span of white men was 48 and for white women 51 (Caplow, Hicks and Wattenberg 2001).

- Age-adjusted disease death rates for *heart disease* dropped by 68% from 1958 to 2010 (56 per 100,000 to 17 per 100,000), *stroke by 79%* (18 deaths per 100,000 to 4) (Johnson 2014). Hospitalization rates for these diseases also declined. In comparison with 34 other OECD countries, the US has the 6th lowest mortality after admission for heart attack and the third lowest 30 day mortality rate for stroke (OECD 2015).

- Americans are more likely to express satisfaction with and rank quality of care as excellent (O’Neil and O’Neil 2007). The US is home to an outsized share of global innovation within the healthcare sector. It has the most Nobel laureates in physiology of medicine. It has won more medical patents. At least one publication lists it as ranking number one in medical innovation (Caroll and Frakt 2017).

- The US outperforms comparable countries in the mortality rate for breast and colorectal cancers, five year relative survival rate for breast cancer (Claxton, others 2017).

- We have a higher rate of cancer screening and better control of cholesterol. We have the fourth highest rate of mammogram screening for women over age 50 and the highest breast cancer survival rate and better control of blood pressure among 17 countries (Woolf and Aron 2013). Childhood mortality rate for cancer was cut in half since 1975 (Johnson 2014). For men, the cancer mortality rate is better than the OECD average (OECD 2015). Deaths from cancer have dropped 26% since 1991, resulting in 2.3 million fewer deaths from that disease (Balakar 2018)

- Violent crime dropped from 747.1 per 100,000 residents in 1993 to 372 in 2015. The FBI data shows a 40% crime drop. Violent victimization for persons over age 12 has dropped form 79.8 per 1,000 people in 1993 to 18.6 in 2015 (Gramlich 2017).

- There has been a two-thirds reduction in new HIV/AIDS infections. Most people with AIDS are getting treatment and the death rate dropped by 30% (Centers for Disease Control and Prevention 2016).
Infant mortality has dropped from 6.9 deaths per 1000 births to 5.8 deaths from 2004 to 2014 (US Department of Health and Human Services 2016).

We have the third highest percent of persons over 65 who reported good or very good health (78%) (OECD 2015).

Due to the Affordable Care Act, the percent of Americans who have no health insurance dropped by 20 million to only 8.8% of the population. Only 5.4% of children are now uninsured (Barnett and Berchick 2017).

In 1945, there were 10 traffic fatalities for every 100 million miles driven. By 2015, there were only 1.2 per 100 million miles. Deaths from traffic accidents are still high, but would have been even higher in the absence of improvement.

Cases of gonorrhea dropped from a peak of 240 per 100,000 in 1980 to 121 in 2000; syphilis cases dropped from 140 per 100,000 population in 1940 to 18 in 2000 (Caplow, Hicks and Wattenberg 2001).

Increase in healthy behaviors. Not only have health outcomes improved in areas cited above, but there have been some positive changes in American habits which could lead to better health outcomes.

The most dramatic improvement in habits has been the drop in the number of Americans who smoke. Adult smoking dropped from 43% in 1965 to 16.8% in 2014 and 15.1% in 2015. Teen smoking dropped to 9.2%-- a 42% drop since 2011 (Nocera 2015). We have one of the lowest smoking rates among OECD countries (OECD 2015).

Although US alcohol consumption has gone up since 2000, it is now equal to the OECD average. Encouragingly, alcohol consumption has dropped from over 30% in 2004 for 16 to 17 year olds to 23.3% in 2014 (CDC 2016d). There are several rich countries with much higher alcohol consumption per capita (OECD 2015). In the 80's, drunk driving started to decline. The share of auto fatalities involving alcohol dropped (Cutler 2004).

There has been a shift in consumption from beef and eggs to lower fat alternatives. Persons with high cholesterol levels have dropped form 28% to 19% (Cutler 2004).

From 2007 to 2012, teen births have dropped 25% for whites, 29% for blacks and 33% for Hispanics (National Prevention, Health Promotion, and Public Health Council 2014).

From 2008 to 2012, the increase in auto seatbelt use has saved 63,000 lives.

Aerobic activity and muscle training for those 16 and older has increased from 14.1% in 2000 to 20.9% in 2014 (US Health and Human Services 2016a).
• Between 1990 and 2001 in the US, some 40 risk factors in behavior have declined and only 13 increased. Among the risk factors that have declined have been teens carrying weapons, having sex before age 13, and illicit drug use (Mushra and Laumier 2009).

b. Big Health Problems that Persist.

1. Infant mortality. In 2013, the US ranked 29th of 35 OECD countries in infant mortality (OECD 2015). We ranked 51st internationally, comparable to Croatia, despite a three-fold difference in GDP per capita. These rates stem from high infant mortality of low-income groups in the US. Infant mortality rates for US higher-income mothers are indistinguishable from the other countries (Chen, Oster and Williams 2016). A child born in the US has a lower chance of surviving to the age of five than children born in any other wealthy nation (Detsky 2014).

2. Longevity. In 2012, the US ranked 29th of 35 OECD counties and 32nd world-wide in longevity for men and women. Gains in longevity were made in the US, as cited in section (a) above, but these gains were only half as great as in best-performing countries (Avendano and Kawachi 2014). In 2013, there was a two year gap in life expectancy between the US and the average of OECD countries. By contrast, In 1970, the US life expectancy was one year above the OECD average (OECD 2015). However, it should be noted that Hungary, Romania and Bulgaria are not members of the OECD and they have considerable lower life expectancy than the US. Bulgaria has a life expectancy of 74.5, 80th in the world. But Italy, with a considerably lower GDP per capita than the US, had a higher life expectancy. (Avendano and Kawachi 2014). For the past two years US longevity has dropped because of the opioid deaths (Economist 2018)

3. Traffic deaths, homicides and suicides. A major contributor to the lower longevity of Americans is deaths from injuries. They contribute 48% of excess mortality of American males (Roy 2011). Without fatal injuries from violent crime and auto accidents, the US longevity would be closer to the OECD average. Injuries are a leading cause of death among US children (Woolf and Aron 2013). In 2015, Americans drove 3.1 billion miles and there were 35,092 deaths from motor vehicle accidents and 4.5 million injuries. Since 1889, there have been 3.6 million deaths from auto accidents. Accidents are the leading cause of death for those between 10 and 34 years old (Proquest 2016).

US murder rates involving guns are 20 times higher than the 22 other rich countries. In 2015, 28,000 Americans died from gun injuries (including homicides and suicides), compared to 2,734 on average in comparison countries (Holpuch 2016). Sixty-two percent of gun deaths are suicides. Since 1975, 1.3 million Americans have been killed by guns—more than all of the American casualties in wars in the 20th century (Kristof 2017a). We have 12,000 gun homicides each year in the US (Everytown Research 2017).
4. **Heart disease.** Over 600,000 Americans die each year from heart disease—one quarter of all deaths and the leading cause of US mortality. Every year 735,000 Americans have a heart attack. High blood pressure, high cholesterol, and smoking are key risk factors in heart disease. About half of Americans (47%) have at least one of those factors. (CDC 2017). In a 17 advanced country comparison, the US was ranked worse than the other 16 countries with regard to heart disease (Bechner-Posner 2013). This was in spite of the fact that cardio-vascular disease has dropped dramatically over the years. (See section a). US ranked 20th among 35 OECD countries in terms of mortality from cardiovascular disease in 2013 (OECD 2015).

5. **Cancer.** The second leading cause of death is cancer. In 2016, the number of projected deaths was 595,690 with 1.6 million new cancer cases. However, the death rates from cancer in the US have declined steadily over the past several decades. In 2013, the US was ranked 6th highest with regard to women’s breast cancer among 35 OECD countries and the fourth highest in the incidents of all cancers (OECD 2015). The fact that lung cancer deaths have not dropped faster in light of our low rate of smoking is due to the fact that there is a long time lag between smoking cessation and lower cancer rates.

6. **Alcohol Abuse.** The good news about alcohol consumption in the US was presented in section (a) that teen drinking has declined and the US ranks in the middle of OECD countries with regard to per capita alcohol consumption. Other news is not so good. Between 2006 and 2010, an average of 106,000 Americans died each year from alcohol-related causes, such as liver disease, alcohol poisoning, and drunk driving—twice the number of deaths from overdoses from all drugs. The percent of Americans who had alcohol use disorder jumped from 8.5% in 2001/2 to 13% in 2012/13, nearly 30 million people. Over 20 million Americans had an average of 10 drinks a day (Economist 2017a). Only 2.5 million of those who need help with drugs or alcohol are getting treatment (National Institute of Drug Abuse 2015).

7. **Drugs.** In 2013, over 24 million Americans used illicit drugs, 19.8 million of which used marijuana. There were 1.3 million cocaine users and nearly 600,000 methamphetamine users (Cariz 2016). Although there are some health and memory issues associated with marijuana use, no direct deaths have been reported directly from its use (National Institute on Drug Abuse 2017). By contrast, 65,000 people died from drug overdoses in 2016 (Seelye 2017). From 1999 to 2014, nearly 185,000 died from prescription opioids. Less than half of users get treatment. Americans lose more years of life to alcohol and drugs than people in 16 peer countries (Woolf and Aron 2013).

8. **Disabilities.** In 2015, there were 53 million adults with disabilities in the US, constituting 22% of the adult population. Alabama, Mississippi, and Tennessee each had more than 30% disabled. Adult blacks were more likely to be disabled (29.5%) than whites (20.6%) (CDC 2015). A large majority of disabled are elderly. In 2016, there were 15.4 million disabled persons of working age (18 to 64) of which 26.8% were poor. Only 10.3% of those with non-disabilities were poor, lower than the national average of
11.6% for working age adults (Semanga, others 2017). Some 28% of Americans have multiple chronic conditions, compared to 14% in Britain and Netherlands and 18% in France (Fox 2016). These chronically ill persons have a big impact on US health care costs: five percent of very sick persons spend 50% of health dollars (Khullar 2017). Disability status and Social Security Disability Insurance receipt are highly correlated with education. Those on Social Security Disability Insurance have triple the mortality rate of others in their age group (Matthews 2018).

9. Sexually transmitted diseases. Among industrialized nations, the US has a relatively high incidence of sexually transmitted diseases. Further, there is considerable variation in incidence by geographic location and race. The black-white ratio for gonorrhea has been 24.2/1. Rates of primary and secondary syphilis declined in the 90’s, but increased from 2001 to 2005. From 1998 to 2005, rates of reported chlamydia infection increased from 35.2 per 100,000 to 332.5 per 100,000 people. In 2005, the rate of chlamydia infection among blacks was eight times higher than in the white population. These diseases were highly concentrated in a few poor areas (Aral, Fenton and Holmes 2007). In spite of the great drop in HIV (reported in section (a)), some 1.2 million in the US are living with HIV. Some 675,000 Americans have died from HIV/AIDS, 13,000 a year. We have the highest rate of HIV/AIDS of 16 peer countries (Woolf and Aron 2013).

10. National and personal health costs. What is striking about all of the American health problems is that we pay more for health care than almost any other country in the world. Health spending topped three trillion dollars in 2016 (almost 18% of GDP) or over $9,000 per person (Fox 2016). In 2012, the average European health per capita cost was $2,193 with total health costs 8% of GDP, three quarters of which was publicly funded (OECD 2014). Health care spending in the US grew by 5.6% a year from 2000 to 2010, double the rate of inflation, although growth slowed down after the passage of the Affordable Care Act. Medicare and Medicaid spending are dominating other social welfare costs as percent of the national budget and are expected to double by the year 2025 (National Association of Health Underwriters 2015). In 2014, the Medicare program had 43.8 million enrollees and cost $613 billion dollars (US Department of Health and Human Services 2016). The consequence of these outlandish costs is that 43% of low-income Americans are without adequate care because of costs. In Europe only 3.6% report that they are unable to afford adequate medical care for cost reasons (Eurostat 2015). In spite of improvements in health care coverage, 23 million American adults still lacked health insurance in 2016. A major problem is that 19 states failed to expand Medicaid coverage under the Affordable Care Act (Fox 2016).

11. Disparity of health by race, income, and location. Another key characteristic of American health is the enormous gap among Americans by race, income, educational level, and geographic location. When these factors are combined, the longevity gap becomes enormous: the longevity is 84.9 years for Asian Americans and 71.1 for urban blacks living in low income areas—a chasm of 13.8 years
Differences by race. When comparing black/white health outcomes, variations in income and education are factors. Blacks, on average, have lower incomes and have lower educational levels than whites. Black men and women live 5.3 and 3.7 years fewer than their white counterparts, not holding income and education constant (SAMHA 2016). Blacks are more likely to have hypertension and high blood pressure, and are more likely to die from treatable conditions. They constitute 12% of the population but 44% of new HIV infections. As reported in section (a) above, the black/white gap in longevity has decreased over the years, but the disparity increased for breast cancer and stroke. The homicide rate for black men aged 18 to 35 is nine times higher than white men of comparable age. However, for blacks who have survived the most dangerous years, their longevity after 65 is higher than whites (Kolata 2017). Hispanics have greater longevity than non-Hispanic whites, although they tend to be more obese and are less likely to have health insurance. Blacks, Hispanics, and Native Americans have a higher burden of chronic diseases, disease complications and disabilities (Mayberry 2006). Yet they have fewer resources to treat those diseases. There are racial differences in heart disease at every income level (Darity 2003).

Differences by income. Some of the greatest gaps in longevity are by income. Raj Chetty’s massive study of income and life expectancy in the US, using millions of tax returns, found that the gap in life expectancy between the richest one percent of individuals and the poorest one percent was 14.6 years for men and 10.3 years for women. This gap in longevity has increased over time. From 2001 to 2004 life expectancy for men and women in the top five percent of incomes increased by over two years, but only .32 years for men and .04 for women in the bottom five percent (Chetty, others 2016). At the bottom end of the income spectrum, women outlive men by six years, but at the top end, only 1.5 years.

Differences by location. There is four years difference in longevity for low-income people in the mountain states and New England than in the Midwest and South. Low-income people living in affluent cities with well-educated populations live longer (Stepner 2017). For residents of Appalachia, the gap in longevity has increased from .5 years to 2.4 years from 1990s to 2013. The highest deaths from heart disease are in the South Central US, Appalachia and Nevada (Community Prevention Services Task Force). The overall death rate before age 75 was 480 per 100,000 in low-income counties and 345 for higher-income counties (Pittsburgh Post-Gazette). High-poverty neighborhoods are particularly devastating for health. The physical, service, and social environments of neighborhoods have been repeatedly and strongly linked to mortality, general health status, disability, birth outcomes, and chronic conditions, as well as health behaviors, mental health, injuries, and violence (Andersen, others 2001). In 7,000 rural areas, there is an acute shortage of primary care providers and a lack of easily accessible hospitals (Quinn 2017). Many of the hospitals that have closed were in lower-income areas and most of the new hospitals are in affluent suburban areas (Pittsburgh Post-Gazette). Infant mortality is much higher in rural areas than in urban areas.
12. **Mental illness.** Over 43 million Americans have mental health issues (18.5% of the adult population). Eight of ten received no treatment. There are over two million young Americans with a depressive episode and over a million with severe depression. The US has a higher rate of mental illness and lower treatment percent than other advanced countries (Harvard Medical School 2003). Overall, individuals in the South face the most difficulty in getting treatment for mental health problems. Mental health problems are associated with other negative outcomes such as higher crime and low high school graduation rates (King 2106). Prisons are now the institutions with the largest mental health population—a problem with which they are poorly equipped to deal. About 14% of state and federal prisoners and 26% of jail inmates reported experiences that met the threshold for serious psychological distress in the past 30 days. Further, the stressful prison experience is damaging to mental health. There is a robust relationship between incarceration and subsequent mood disorder (Prisonpolicy.org). The tragedy of mental illness is that it is often can be treated successfully, especially if it is diagnosed among children early enough (Harvard Medical School 2003).

13. **Asthma and lung disease.** From 1980 to 1994, the cases of asthma in children under age five more than doubled. It hits poor families the hardest and some 134,000 seek emergency room care each year. The US falls in the top third on asthma and Chronic Obstructive Pulmonary Disease (COPD) hospital admissions (OECD 2015).

14. **Diabetes.** The US has the highest rate of diabetes among 17 rich countries for adults over 20 (Institute of medicine 2013).

II National Trends Influencing Both Progress and Problems in US Health.

It is a real challenge to explain why the US, the richest country in the world and spending the most on health care, performs so poorly in comparison to other rich nations. The most significant study to seek such answers for the US shortfall in health was the National Research Council and the Institute of Medicine’s comprehensive study comparing health in the US with 16 other rich nations. That study places heavy blame on social conditions in the US, compared to other advanced nations: poverty, income inequality, child poverty, the growth of single parent households, divorce and incarceration (Woolf and Aron 2013). These factors were central to the findings of the Commission on Social Determinants of Health.

Other studies have shown that only a small portion of poor health outcomes stem from clinical care. Most important are social and economic factors such as education, employment, income, family and social support and community safety. Also critical are behavior factors, such as tobacco and drug use, diet, exercise, and sexual activity. And finally, the physical environment in which people live plays a big role: air and water quality, housing and transit use (Woolf and Aaron 2013). All of these factors are examined briefly below. It should be noted that these social factors are interrelated in a cycle, as shown in figure 1. Failure to graduate from high school can increase the chances of poverty and unemployment. At the same time, children born in poor families with uneducated parents do worse in school. Racism and
segregation feed into poor performance by minorities in segregated schools, which reduces the upward mobility of young minority children and adults. All of these factors affect health. Because of these interrelationships, an integrated strategy for attacking these problems is outlined in Part VI.

Figure 1. Downward cycle for bad health for the poor
1. Poverty and social class.

The contradiction between relative poor outcomes and the wealth of the nation may be partly explained by the fact that the US has very high poverty compared to other advanced nations. The relative poverty (50% of after-tax and after transfer median income) has been around 17% in the US, compared to an average or around 9% in OECD countries. For a number of decades, the US has had among the highest relative child poverty among advanced nations (Detsky 2014). On an absolute scale using the Supplemental Poverty Measure (SPM), 13.9% of our population was poor in 2016 (44 million people). Over 21% of blacks and Hispanics were poor by this definition, as were 15% of youth (Fox 2017). Although other measures of poverty are lower (such as consumption poverty and the official poverty measure), these numbers have credibility since there were 42 million people in families with food insecurity in 2015 (USDA 2015). Areas of the US, such as Appalachia and the South, have high poverty, high food insecurity, and lower longevity than New England. Food insecurity is correlated with chronic health problems: hypertension, coronary heart disease, diabetes, kidney disease, and mental health problems (Carlson and Keith-Jennings 2018).

The extreme condition of poverty is homelessness: 2.5% of children have experienced homelessness at some time in the year in 2014/15. This definition of homelessness includes those doubling up with friends and relatives (National Center for Educational Statistics 2017). Other definitions are more restrictive.

Children who are persistently poor suffer psychological damage and do poorly in school. Some nine million children in the US grow up in persistent poverty. Poverty and low incomes translate into poorer health. Income affects behavior. Lower-income people smoke more, drink more, get less exercise, and are more obese than higher income persons. Lower-income people were less likely to have health insurance and get regular care. (Andersen, others 2002). Infant mortality is higher in low-income groups in the US than in other advanced countries, but not for higher income persons (Chen, Oster and Williams 2016). Lower-income Americans have much higher rates of disease than their counterparts in Europe (Avedano and Kawachi 2014). Poverty is not the only explanation for the US shortfall in health. US advantaged groups have worse health outcomes than those in peer countries (Woolf and Aron 2013).

2. Inequality of income and wealth.

Among the explanations for the high poverty in the US is that we have among the highest degrees of inequality of wealth and income among advanced nations (Woolf and Aron 2013). Although inequality dropped from World War II to the early 1980's, it has been increasing ever since. Today, the top one percent of Americans take home 20% of the US income. The bottom 50% of the population went from capturing over 20% of national income for much of the 1970's to barely 12% today. Some 177 million Americans are in the bottom half. Thus, the top one percent earns collectively more than the bottom 50%. This inequality has eroded the middle class. The share of middle class Americans had dropped from 61% in 1970 to 50% in 2015 (Hilzik 2016).
While incomes are unequal, wealth distribution is even more unequal. The wealth of the top one percent went from over 50% of all wealth in the country in 1930 to about 25% in 1976 and now is about 40%. According to Forbes, holdings of the richest 10% of Americans went from $20 trillion in 1989 to $51 trillion in 2013 (Forbes 400).

One contributing factor to the growing inequality is that wages have not kept up with growing productivity. Every age cohort born in the recent years below the 75th income percentile makes less than their parents did at the same time in life (Cohen 2017). Upward mobility in the US is less than nine other advanced countries (Woolf and Aron 2013). There also is a great gap between earnings of non-Hispanic whites and blacks and Hispanics. Union membership dropped from 30 million in the 1950's to 10 million 2016.

A good part of the growing inequality comes from government policy. During the Reagan administration marginal tax rates were 70% and chief executive officers did not pursue large salaries and stock options because most of it would be taxed away. Now with much lower top tax rates, it becomes worthwhile to earn large sums of money. The higher marginal tax rate in Europe and government social welfare spending has kept inequality down. The implications of this growing inequality are profound for the health of the nation: the bottom 50% to 70% of the population has less to spend on health care and other needs than if income and wealth were more evenly distributed. In addition, residents of states with high inequality are more likely to die before age 75 than those states with a more even distribution of income. The South and Appalachia have the highest ratio of incomes of those in the 80th percentile of income compared to those in the 10th percentile. They also have low longevity (Sanger-Katz 2015).

3. Education

One of the most critical elements of health of a nation is the degree to which its citizens are educated. The quality of public education in the US is a subject of nation-wide "culture wars" between those who defend public education and those favoring charter or private school. I would argue that public education in the US has made great strides and, overall, is not an explanation for the US shortfall in health standards. In 2016, the percentage of adults 25 and over with a bachelor's degree rose to 33.4%, up from 30% in 2010 and only 4.6% in 1940. Some 37.3% off non-Hispanic whites, 23.3% of blacks and 16.4% of Hispanics over 25 had achieved this level of education. At the same time, 89.1% of the population 25 and older had completed high school (or equivalent)—an all-time high. A decade earlier it was 85.5%. For comparison purposes, the OECD average who had completed high school was 78% in 2015. The US had a higher percent with any post-secondary degree than the average for the OECD (45% v. 35%) Tests scores and proficiency ratings in math and reading increased significantly for all racial groups from 1990 to 2015—with blacks and Hispanics closing the gap with non-Hispanic white scores (National Center for Educational Statistics 2017).

In spite of achievements of education in the US, public schools face many problems: (a) fewer American three and four-year olds attend pre-school than in Europe (44% v. 79%), (b)
American schools are highly segregated by both race and income. From 2000 to 2004, black students attending schools with 75% minority increased from 52% of 72%. At the same time, 52% of white students were attending predominantly white schools. Forty-five percent of black students and 46% of Hispanic students were in high poverty schools, compared to 8% of whites and 15% of Asians. (c) There is a huge discrepancy in spending between high-poverty and low-poverty schools. The problem is that schools rely primarily on property taxes for funding which varies from jurisdiction to jurisdiction. State aid for schools exceeded 60% in only a few states. Few states practice compensatory spending—spending more on high need schools. Typically, low-income and minority students attend schools with less experienced teachers and less demanding curriculum. (d) Federal aid through "Title I" was only a fraction of state and local educational funding and has not proven to provide much increase in equality in spending. (e) The percent of non-Hispanic whites in public schools has continued to drop to less than 50%. This has implications for test scores, since Hispanic and black students perform a lower level than non-Hispanic white students. (f) There is a huge gap between test scores in public schools in the city and suburban schools and between affluent and poor states. (g) A higher percent of black and Hispanic students are from poor single-mother families and have parents without a high school education. Therefore, there is a large gap between minority and non-Hispanic white test scores and graduation rates. (h) There are over a 1000 large low-graduation-rate high schools (down from 2000 in 2002). (i) Fifteen percent of students have disabilities. (j) With the dramatic reduction in the number of dropouts from high school over the years, more low-performing students are now taking tests than before (National Center for Educational Statistics 2017).

Just as income affects health behaviors and health outcomes, so does educational attainment. People with lower levels of education are more likely to be smokers, get less physical exercise, and get less sleep. As a result of poor health behavior, lower percent of health insurance, and lower access to quality medical care, persons with lower levels of education are unhealthier and have lower longevity than persons with more education. In 2006, the life expectancy of a 25 year old American man without a high school diploma was 9.3 years shorter than those with a bachelor’s degree or higher. For women, the gap was 8.6 years (Woolf and Aron 2013). Poorly educated women are two to three times more likely to be overweight that their educated counter parts. The discrepancy between black and white longevity can, for the most part, be explained by the fact that, on average, blacks have lower educational attainment and income than whites. However, race is still a variable. Educated blacks have four years lower longevity than whites with the same level of education (Olshansky, others 2012). But educated blacks live longer than less educated whites.

A critical feature of educational attainment is that it is predictive of life-time income. There are 22 million adults who have no high school degree in the US; 28.1% are poor by the Supplemental Poverty Measure (SPM). There are fully 62 million with only a high school degree of which 16.2% are poor. Fifty seven million have some college and a full 75 million have a bachelor’s degree or higher (Fox 2017). In 2015, median national earnings were $39,900, but those with less than a high school education earned only $25,000, and those with a bachelor’s degree $53,800 (NCES 2017).
4. **Segregation by race and income.**

US cities are highly segregated by both race and income. Low-income Americans are more likely to be segregated than in other advanced countries (Woolf and Aron 2013). Minorities living in cities with high rates of residential segregation experience higher infant mortality rates, more coronary heart disease, and greater prevalence of infectious diseases such as TB, even after controlling for poverty. Segregation is associated with inferior access to health care providers, lower quality pharmacies and clinicians with inferior training and to hospitals with worse outcomes. A quarter of all Americans live in areas with 20% poverty and 14% live in neighborhoods with 40% poverty. Twenty-five percent of poor blacks live in these high poverty neighborhoods compared to 17% of poor Hispanics and 7% of poor whites. A higher percent of non-poor blacks live in high poverty neighborhoods than poor whites (National Low-Income Housing Coalition 2015). Although black/white segregation index dropped from 79 in 1970 to 59 in 2010, the schools with mostly minority students doubled from 1988 to 2013 (Economist 2017b). Low income areas also typically have worse air quality, more dangerous streets, and higher exposure to lead. The impact of living in low-income neighborhoods can be seen by what happens to those who move to low poverty areas: they experience reduced weight and incidence of diabetes (Ludwig, others 2012).

5. **Minorities in the US**

A key factor in lower US longevity and poor health in the US could be that we have 124 million minorities. Thus, our minority population is larger than all countries in Europe, except Russia. Here are some contributing factors to health problems of minorities in the US:

- Nationally, blacks receive only about 55% of recommended health care.
- Minorities have unequal access to mental health care and treatment, resulting in poorer mental health outcomes (SAMHSA 2016). Among all adults diagnosed with the need for mental health or substance abuse care, 37.6% get treatment, but only 22.4% of Latinos and 25% of blacks (McGuire and Miranda 2008).
- In spite of progress, racial and ethnic minorities are more likely to be uninsured.
- Typically, black unemployment is double that of white unemployment.
- Blacks and Hispanics are more likely to be food insecure (USDA 2015).
- One of nine black males aged 20 to 24 is in prison. 40% of the prison population is black and 20% Hispanic—a larger percent than their share of the population.
- There is evidence of racial and sex discrimination with regard to hiring, wages and retention (Darity 2003). There is a huge variation in pay between blacks and whites.

6. **Immigrants**

Just as the US has the highest number of racial and ethnic minorities, it also houses the largest immigrant population. The US has received some 59 million immigrants since 1965.
Many returned home, leaving about 45 million born abroad, plus about 30 million of their children. The number born abroad is equal to the population of Spain. Current immigrants constitute 14% of the population. Given the fact that the immigrants typically have lower incomes and less health insurance coverage, what is surprising is that they are typically healthier than native-born Americans. The death rate for immigrants is 10 to 20% lower than the native population. Male and female immigrants live 3.4 and 2.5 years longer than the US born (Singh and Miller 2004). Black female and female immigrants live 9.4 and 6.78 longer than US blacks. Black immigrants have at least a 35% lower cancer mortality and 69% lower lung cancer mortality than US born blacks (Singh and Miller 2004). Among the reasons for lower mortality is that they are less likely to smoke. Another reason is that the healthiest and most ambitious foreigners leave their own country. They are healthier than those who remain behind. Typically, they have a more healthy diet and a higher level of social and familial support. A higher percent of immigrants than native born are married and fewer are in one person households (Singh and Hiatt 2006). Although they are typically healthier, immigrants have higher poverty than natives: non-citizen immigrants (25.6% poverty), citizen immigrants (15%), and native born (12.8%) (Fox 2017).

7. The Disintegration of the American Family

One of the biggest social problems facing the US in the past 30 years is the disintegration of the American family. It has undercut efforts to reduce poverty and to improve performance of children in school. It also has a negative impact on the health of children and adults. Married couple-households have dropped from 72% of the population in 1960 to 50.5% in 2013. From 1967 to 2016, the number of people in female-headed households increased from 16.3 million to 48 million. In 1940, four percent of children were born to unwed mothers. Teen pregnancies have dropped but, in 2013, 40% of all births were to unwed mothers. Seventy-two percent of black children were born to unwed mothers (Proquest 2016). American children can expect to have more years with parents apart, with a single mother or a maternal step family than children in other advanced countries (Woolf and Aron 2013).

The South and Appalachia have the lowest percent of two-parent households: 32% in Mississippi, 35% in Louisiana, 37% in Arkansas and 39% in New Mexico. By contrast, the so-called "blue states" have higher educational levels, higher incomes and couples are more likely to be and stay married. In New Jersey, Massachusetts, Minnesota, and Connecticut 51% or more of the children are raised by two parents (Dionne and Gebeloff 2015).

The disintegration of the family falls heaviest on blacks and Hispanics: 57% of black children, 32% of Hispanic children, 18% of white, and only 11% of Asian students are in mother-only households. Fifty percent of black children with mother-only families are poor and only 13% in two-parent families. Forty nine percent of Hispanic children in mother only families were poor and 20% in husband-wife families (NCES 2017). Income and employment status affects marriage prospects. Working class and poor people are less likely to be living in stable marriages. Marriage stability is much higher for those with higher incomes and education. In
In 2016, the income of married couple families was double that of female-headed households ($87,157 v. $41,107) (Semanga, Fontenot and Kollar 2017).

Family instability is tied in with problems in education and employment. A critical reason why less educated persons are less likely to be married is the loss of blue collar jobs that do not require high levels of education.

For both adults and children, marriage improves health. Divorced and single people are less healthy and don’t live as long as married couples. They are more likely to suffer from alcoholism (Wilson 2002). Children of divorced and single mothers are more likely to have fragile health, depression and psychological problems, even controlling for other factors. They are more likely to have a range of cognitive, emotional and social problems. They are more likely to have behavior problems and twice as likely to drop out of school (Wilson 2002).

8. **Workforce Participation and Unemployment.**

One factor affecting health and longevity is individual employment status. Non-working persons (either through unemployment and non-workforce participation) have poorer health. Not being in the workforce for long periods of time increases alienation, depression and anxiety. It undermines motivation and will to perform. Also children of the unemployed do worse in school. Half of working age men who are not in the labor force take pain medications daily. Many employers complain that they are having trouble finding workers who are able to pass the drug test (Cassleman 2017).

The data on US comparisons of unemployment and workforce participation with other advanced nations show mixed results. Therefore, it is difficult to say whether this is a major factor explaining poorer health outcomes in the US. On the one hand, the US has had lower unemployment than in many European countries since the Great Recession. In October 2017, US unemployment had dropped to 4.1% (Cassleman 2107b). In the Euro area, it remained at 8.7%, with youth unemployment exceeding 20% in Greece and Spain (Economist 2017f). On the other hand, workforce participation is lower in the US than in many advanced countries. From 1969 to 2016, the percent of prime age men working dropped from 94.5% to 85% and for young black men from 76.3% to 53.2% (Underhill 2017). The health of poor Americans is bad. A leading explanation for poverty is not working: 61% of poor Americans, as defined by the official poverty definition, are not working at all. If only non-disabled poor persons are counted, the number not working is lower. Workforce participation relates to the prosperity of the area. It is over 93% in high growth areas and less than 50% in depressed slow growth metropolitan areas, like King County, California (Berube 2016).

A major factor influencing unemployment and non-workforce participation is educational attainment. Blue collar jobs that require little education are fewer than in prior years due to globalization and automation. Employment of those without a high school education was 48% in 2016, compared to 88% of those with a bachelor’s degree. Typically, unemployment for those with less than a high school education is more than double that with
college educations. One factor in unemployment for men with less education is our high rate of incarceration. There are 70 million in the US with criminal records. Many employers are reluctant to hire anyone with a criminal record.

Another factor in non-work is our large disability population. There are 15 million people ages 16 to 64 who are disabled. Of these, 4.4 million are poor and only 17% are working. There are 7 million receiving Supplementary Security Income (SSI), a means-tested program, and 8.9 on Social Security Disability Insurance (SSDI), a non-means tested entitlement. (Haskins 2017). Some 14 OECD countries have higher female workforce participation because they have more "family-friendly" policies with aid for child care and liberal leave policy (Cohen 2017).

A key to increased workforce participation is a vigorous growth in jobs compared to the growth in the workforce. Growth of the economy has been generally better in the US than in Europe since the Great Recession. Growth in Japan has been stagnant for a decade, although unemployment rate is only 2.8% because of stagnant population growth and low acceptance of immigrants. From 1960 to 2016, some 91 million jobs were added to the economy matched with a 138 million increase in population (St. Louis Federal Reserve 2017).


A decisive feature of the US is that it has low government expenditures on social welfare compared to other advanced nations. At the same time, it has the highest total and per capita expenditures on health care. Avendano and Kawachi (2014) argue that there is ample evidence that social policies affect health across the life course. The largest of the health outcomes disparity between the US and other advanced countries lies in the fact that the poor and least educated persons in the US have much higher rates of disease and death than their counterparts in Europe. As pointed out above, we have among the highest inequality and the highest relative poverty among advanced nations. The reason for this dismal fact is not to the lack of generosity of the private sector in the US and lower wages, but rather government transfer payments in other advanced nations (along with high taxes) have reduced poverty and inequality (Avendano and Kawachi 2014).

Net social expenditures among 21 European nations have been 24% of GDP. For the US it was 21% and France, 27%. (Porter 2015). The market income (pre-tax and pre-transfer) inequality is actually greater in Britain, France, Germany and Denmark. But the after-transfer and taxes net income inequality is much lower in all of these countries. The Gini Index of inequality drops after taxes and transfers in the US by about 10 points. In Sweden, it drops about 25 points. In addition, income inequality is associated with slower growth in income per person (Economist 2014b).

Higher safety net expenditures mean higher taxes in Europe. Europeans place greater value on equality than we do in the US. We place higher value on freedom and are deeply skeptical of large government. In 1970, US tax revenue as a percent of GDP was slightly less than the OECD average of 25%. In the intervening 45 years, the US revenues have had a net
Increase to around 26%. At the same time, the OECD average has increased to 34% of GDP. In France, the increase was to 45% (Porter 2017c). The higher revenues enable all European countries, except Poland and Greece, to have universal health care coverage. There are 55 countries with universal health care. European countries have more equality of income and wealth than we do in the US. Tax reform in these countries has sought to increase equity. Of the 15 OECD countries that have changed their top income tax rates for 2016 and later years, nine increased them and only six reduced them. By contrast, the proposed US tax reform changes would primarily benefit higher income persons. (Porter 2017c).

As a result of a lower inequality and more state subsidies for lower income persons, European countries typically have lower poverty rates, lower income inequality, longer life spans, and lower infant mortality rates. It should be noted, however, that the many Eastern European countries who are not members of the OECD have higher absolute poverty because they have lower per capita income. These countries also have lower longevity than the US. Because of family allowances (not means-tested), disposable income difference for children living in two-parent and single-mother households in Sweden and Denmark is practically nil; for the US, the difference is 32.5%. In 2016, the median income of female-headed households in the US was $41,027, compared to $87,057 for married-couple family (Semanga, Fontenot, and Kollar 2017). The current administrative budget proposals would make matters even worse by adding $70 billion on defense spending and cutting social programs by billions (Greenstein 2017). The social safety net in Europe reduces the disparity of incomes by education and family status, thereby reducing poverty and inequality (Brady, Finnigan, and Hubgen 2018).

This is not to say that social welfare spending is trivial in the US. Government expenditures reduce poverty from their pre-transfer and pre-tax level. Social Security takes 26 million persons out of poverty, refundable tax credits (8.2 million), food and nutrition assistance (3.6 million), housing subsidies and Temporary Assistance to Needy Families (TANF) (.6 million). These computations use the Supplementary Poverty Measure. It takes into account non-cash government assistance and taxes, unlike the official poverty measure (Fox 2017).

Some writers conclude that we have the wrong ratio of social spending on welfare to medical spending. If we spent more on social welfare that reduces poverty and equality, we would get better health outcomes for the country (Butler, Mathew, and Cabello 2017).

10. Impact of Behavior on Health Outcomes.

One of the most decisive impacts on health and longevity outcomes is consumer behavior. US health habits may either penalize or reward the US in the disparity in health outcomes for the nation.

Obesity. On the negative side, the US has one of the highest rates of obesity in the world. The US obesity rate is 34.5% for men and 38.1% for women, compared to 16.7% for adults in European countries (Pew 2015). Although longevity in the US has improved over the decades, our rate of obesity has increased. In 1998, "only" 20.2% of American men and 24.5%
of American women were obese (Pew 2015). There has been a four-fold increase in obesity among children aged 6 to 19 over a 20 year period (US San Diego health 2006). It is no mystery why Americans are so fat: they consume more calories than anyone else, and fat and sugar intake is higher (Nowakowski 2017). Calorie consumption in the US has increased by 800 since the 1960s. (McMillan 2018). The US has the fifth lowest fruit consumption and the 7th lowest vegetable consumption among OECD countries (OECD 2015). Obesity is not evenly distributed in the population. Black women are the most obese (56.5%), followed by Mexican-American women (49%) (Belle 2017).

There are at least 13 different negative health outcomes associated with obesity. Among these are high blood pressure, coronary heart disease, stroke, osteoarthritis, mental illness, type-two diabetes and high LDL (CDC 2015a). One estimate is that obesity is responsible for 25% of health care costs. Woolf and associates (Woolf and Aron 2013) cited a study which claims that 42% of the American shortfall in female life expectancy at age 50 and 67% of the shortfall among men was due to obesity (Woof and Aron 2013).

**Smoking.** While obesity is a negative factor in US health outcomes, the drop in smoking over the decades is a great US public health achievement: adults who smoke dropped from 43% in 1965 to 15% in 2015. The US now has among the lowest rates of smoking in the OECD. An average of 22.8% adult smoked in OECD in 2014 (OECD 2014). However, the drop in smoking from previous levels in the OECD has exceeded that of the US. Yet the decline in lung cancer and other effects of smoking has been slower in surfacing because of the 20 year lag in smoking's cancer impact. We are still suffering from prior higher rates of smoking. There are some 400,000 deaths a year from smoking. There is a multi-year time lag between smoking and onset of cancer (Rowan 2016). Those who stopped smoking make get cancer later in life.

**Exercise.** Woolf argues that there is insufficient evidence to conclude that lack of exercise in the US is an important cause of shortfalls in health outcomes (Woolf and Aron 2013). A survey of eight countries found that the US led the way exercising some 135 days a year, higher than the average among surveyed countries (Huffington Post 2013). Yet only 20% of Americans met the US Department of Agriculture guidelines on both aerobic and weight exercise (USDA 2015). One study reported that only six to eight percent of schools provided recommended daily exercise (UC San Diego health. 2006). Thirty percent of adults had no physical activity.

**Alcohol consumption.** The problems with alcoholism in the US were covered in Section I. The US has 10% lower total alcohol consumption than the OECD average. We rank 24th among OECD countries in consumption of alcohol per person. We are 48th in the world in terms alcohol consumption (Wikipedia 2017a). However, 73% of the alcohol in the US is consumed by 20% of heavy drinkers. Further, 32% of road deaths are attributable to alcohol, a higher portion than in other countries (Woolf and Aron 2013). Over 30% of US men binge drank in the past month, as did 23% of all people 65 and over (Glaser 2017).
Guns and violence. In Part I, data were presented on the high toll of deaths by guns in the US, compared to other countries. The reasons for this are complex. We have had a history of violent crime in the US. Part of this is the frontier tradition where each man had to be his own policeman. But the major cause is that we have the highest rate of gun ownership in the world. We have 89 guns per 100 people and 66% of the homicides involve use of firearms (Wolf and Aron 2013). Ninety-three Americans die each day from firearms, mostly from suicides. We have four percent of the world’s population and 42% of the civilian guns. Thirty-one percent of the gunmen in mass shootings world-wide are American (Fisher and Keller 2017). Licensing and regulations make it much more difficult in other countries for known criminals to obtain firearms (Woolf and Aron 2013).

Overall. Five key health habits are listed as critical to good health: maintaining a healthy body weight, getting at least seven hours of sleep, exercising 150 minutes of moderate exercise weekly, drinking alcohol in moderation or not at all, and not smoking. Only six percent of Americans follow all five health habits, and 24% in engage in four habits (Rowan 2016).

12. The Practice of Medicine.

So far in this paper, there has been little mention of medical practice as a factor in the shortfalls in American health outcomes. A comprehensive National Research Council and Institute of Medicine study comparing US health with that of other advanced nations concludes that the major causes of our health problems stem not from deficiencies in medical care, but from poor lifestyle decisions and social problems (Beckner-Posner 2013). Some medical problems listed are:

- Although the US leads the world in developing new approaches to prevent, diagnose, manage, and cure illnesses, our system is so fragmented that patients are forced to tell their health story anew to each health professional they encounter. Only primary physicians attempt to keep track of the health problems of "the whole person" (Agency for Health Care Research and Quality 2011). There is considerable duplication of procedures, driving up medical expenses. As a result of the fragmentation of health care, the Institute of Medicine indicates that patients get effective care only about half of the time (McClellan 2013).
- Reported medical errors in hospitals resulted in over 200,000 deaths a year according to some estimates (Berger 2017). Other estimates run as high as 400,000 from the practice of medicine (National Association of Health Underwriters 2015).
- Part I reported that the high cost of medicine in the US results in a higher number than in Europe of people who do not have access to medical care because of cost.
- The US has a shortage of doctors. We have 2.5 doctors per 1,000 population compared to three or four typically of Europe. (Fox 2013). Two thirds of the doctors are specialists. There is a particular shortage of primary care physicians.
- The shortage of doctors and medical facilities is particularly acute in rural areas. These sparsely settled areas have 20% of the national population, but only 10% of the physicians. In 2009, some 25% of the rural residents were uninsured and most were
low-income (less than 200% of official poverty rate) (Klein 2009). Since this report was
written, the number of rural uninsured has gone down in states which opted to take
Medicaid expansion under the Accordable Care Act, more than those in similar areas in
States that chose to reject the ACA. (An assessment of impact of the ACA is in part IV.)

- Low-income areas have poor access to quality physicians and health facilities. The
  number of hospitals in 52 major metropolitan areas has dropped from a peak of 781 in
  1970 to 416 in 2010—a drop of 46% (Pittsburgh Post-Gazette). Fifty-eight percent of
  the nation’s 5,800 federally designated primary care shortage areas are in census tracts
  of the highest poverty in 52 major metropolitan areas.
- There is a huge mismatch between the money spent on disease prevention and cure.
  Only three percent is spent on prevention (American Public Health Association 2017).
- Our whole system of reimbursing doctors and hospitals for each procedure provided
  rewards volume, not quality of medicine. The Affordable Care Act provides experiments
  in new ways to pay for medical procedures. (See Part IV.)

13. The Natural and Built Environment.

Any detailed discussion of the built environment and environmental quality is beyond
the scope of this paper. The topic was well covered in an unpublished paper on "The Human
Needs that Cities Meet and How Well US Cities Have Met those Needs" (Underhill 2017a). In
general, the environment places no greater burden on health outcomes in the US than in other
advanced nations. We have made great progress in reducing air pollution, water pollution, and
particulate matter in the air. We have eliminated lead from paint and gasoline and improved
solid waste disposal. We have reduced the amount of substandard housing. We have lagged
Europe on global warming emissions, but this is not an immediate health issue. Two areas
where the built environment has a negative health impact in the US are (a) residential
segregation by race and social class, covered in section 5 above, and (b) low-density cities which
are not friendly to walking, cycling or the use of rapid transit.

III Impact of Health on Employment, Education and Poverty.

In Part II an effort was made to understand conditions which contributed to health
problems in the US, particularly the poor. Unemployment and being out of the work force for
long periods of time, low levels of education, and poverty all have a big impact on the poorer
health and lower longevity of low-income Americans. By the same token, poor health affects
educational achievement, employment status, upward mobility, and level of income. It is an
inter-related downward or upward cycle as shown in figure 1 in Part II.

1 Unemployment and Underemployment

Long-term exposure to adverse childhood experiences can lead children into chronic
disease. This stifles success in later employment. The unemployment for respondents to a
survey was 13% who had four or more Adverse Childhood Experiences (ACEs). It was only 6.5%
for those with no history of ACEs (Center on Society and Health 2015).
Part I reported that there were 15.4 million persons of working age with disabilities, of which 26.8% were poor. Only 10.3% of those without disabilities were poor (Semanga, others 2017). A primary reason they were poor was that they faced health obstacles in finding and keeping regular jobs. In 2015, some 34% of those aged 21 to 65 with one or more disabilities were employed compared with 76% of those with no disabilities. Adults 21 to 64 with disabilities had median monthly earnings of $1,961, compared to $2,724 for those with no disability. This is a partial response to those who say that the poor are not working because they lack the work ethic or don't need to work because of government aid. Many poor face health issues that reduce work hours or keep the poor from working.

Illness of a person in the workforce can reduce employability, but so can sick children of a single mother who must stay home to take care of the child. Given the fact that there are so many single-mother families in the US and there are no liberal sick leave requirements in the US, this can be a real handicap for these mothers.

2. **Poverty**

Whereas poor health reduces workforce participation, it also increases poverty. A large majority of the poor do not work at all. One study showed that one quarter of women remaining on welfare reported health conditions that prevented them from working or working full-time. The General Accountability Office (GAO) estimates that the rate of disability among welfare recipients ages 16 to 64 was 44%—three times the rate of those who are not on welfare (Nadel, Wamhoff and Wiseman 2003). These women also have higher rates of depression and domestic violence, compared with non-welfare participants. Over 90% of women surveyed in San Antonio were mothers of children with chronic diseases. Women with health problems were 25% more likely to apply for welfare (Temporary Aid to Needy Families or TANF) than those without health problems (Romero, others 2002).

3. **Education**

Whereas low educational attainment is associated with poor health and poor health habits, poor health among children is a barrier to a good experience in school. Childhood asthma is associated with poor school performance and absenteeism. Childhood chronic diseases also affect school performance (UC San Diego Health 2006). The impact of health on education can be seen by the fact that 16% of the 25 to 64 year olds who had not completed high school were disabled, compared to 11% who did. Only 66% of students with disabilities receive a high school degree (National Center for Education Statistics 2017).

IV. **What Works and Doesn't Work in Improving Health Outcomes, Particularly for low-income Americans.**

In order to bring our longevity and health up to the standards of other advanced nations we must catalogue what has been done to improve health (both directly and indirectly) and which of these efforts have succeeded or failed. It was argued in Part II that a good part of our
lag in health outcomes stems from social problems in the US. We have, relative to other advanced nations, higher poverty and inequality, a high degree of segregation by both race and social class, inequality in school quality, high rate of violent crime, high obesity and poor health habits (particularly for low-income persons), high degree of difference in health outcomes between regions, social classes, ethnic groups and races. Therefore, what has been done to improve these social conditions is relevant to improving the nation's health.

Relevant actions taken through local or national public programs or the private and non-profit sectors, include actions to (1) improve health outcomes, (2) reduce poverty and unemployment, (3) reduce high school dropouts and improve education, (4) improve quality of housing and the condition of low-income neighborhoods, (5) improve coordination of health and other programs, (6) improve health behavior and habits, (7) improve health equity, (8) use taxes and subsidies to improve health habits, (9) improve children's health, (10) use other government programs to improve health.

1. **Direct Actions to Improve Health.**

The Affordable Care Act (ACA) created under the Obama administration represented one of the most important efforts to improve health of Americans since Medicaid was passed. It has been solidly opposed by its conservative opponents and 19 states chose not to accept Medicaid expansion, reducing its overall impact (Adepoju, Preston and Gonzalez 2015). The people of states rejecting it are among the poorest. Among the notable impacts of ACA are:

- The number of uninsured dropped from 16% before the act to 8.8% in 2016, in spite of the fact that 19 states did not participate. The percent of uninsured children is only 5.4% (Barnett and Berchik 2017). Some 20 million gained coverage who did not have it before (Kominsky, Nonzee and Sorensen 2017).
- Nine percent were left uninsured in expansion states and 15% in non-expansion states (Cross-Call, Straw, Sherman and Broaddus 2017).
- The law has been associated with increased health care access, greater affordability, and use of preventive outpatient services among low-income populations (Kominsky, Nonzee, and Sorensen 2017).
- Access to primary care is associated with improved quality of care, better health outcomes and lower health care costs (Becker-Posner 2013).
- There has been a six percent decrease in mortality after five years for states that expanded Medicaid coverage under the Act (Sommers, Gawande and Becker 2017).
- As a result of requirements in the Act, in 2015 some 600 Accountable Care Organizations (ACOs) were created which focus on team-based holistic care across the health care continuum. ACOs encourage doctors, hospitals and allied healthcare providers to form networks and coordinate patient care (Adepoju 2015).
- ACA includes new payment arrangements seeking to reward improvements in health, rather than services delivered. It strengthened the law's requirements for tax-exempt hospitals to demonstrate meaningful efforts to improve health in the communities they
serve (Stine, Chokshi and Gourevitch 2012). A community health needs assessment is required for these organizations.

- The ACA required the Department of Health and Human Services to establish a national strategy for improvement in health care. A focus was on promoting the most effective prevention and treatment practices for leading causes of mortality (Agency for Healthcare Research and Quality 2011).
- The Act has opened up coverage for those who had been denied insurance coverage because of pre-existing health conditions. The Kaiser Foundation projected that if the pre-existing conditions provision is repealed, 52 million Americans could be at risk of being denied coverage in the future (Jacobson 2017).
- A research team found that insured people in Arkansas and Kentucky (both expansion states in the South) were now more likely to have a personal physician, get a checkup and received regular care for chronic conditions. They were less likely to skip taking drugs or avoid visiting emergency room due to costs. Fewer people reported trouble paying their medical bills (Rutkin 2016).
- On the negative side, states have struggled to enroll the young and healthy persons who traditionally did not feel the need for health insurance. There have been problems with some insurers dropping out of the market place and high increases in the cost of insurance (Sanger-Katz and Bui 2016).

Patients with a medical "home" (primary care doctor) are more likely to receive recommended preventive services and have chronic conditions that are better managed, compared to those without such "homes." (Bereneson, Doty, Abrams, and Shih 2012). Stuart Butler and his colleagues conclude that data from international experience and in our own states show that a high ratio of social spending to health care spending can produce significantly better health outcomes. Outcomes include such conditions and adult obesity, asthma, mental health indicators, mortality rates from lung cancer, high blood pressure and heart attacks, and type-two diabetes. The discussion of the importance of the size of the government safety net for reducing poverty and improving health outcomes appears in Part II above (section 10). Another effective practice is home visits by nurses for new mothers in both the US and in Europe (Texas A&M University Health Science Center 2016). The use of nurse practitioners and physician's assistance (with master's degrees) can save money and a 2013 study indicated that, when compared to MDs, their practice can be of higher quality in primary care settings (Wolfe 2014).

2. Reducing Poverty and Unemployment.

Part II established clearly that the extent of poverty in a nation is a major determinant of national health outcomes. The poor have poorer health and worse health behavior than higher income persons. Therefore, programs that are effective in reducing poverty should have the effect of improving national health outcomes. Social Security, although not means-tested nor intended as an anti-poverty program, has been the nation's most successful program for reducing poverty in the past half century. Since World War II the greatest drop in poverty has been by the elderly, thanks to Social Security and Medicare (Jencks 2015). Government
programs for the poor (including tax credits) lifted 42% out of poverty who would have been poor, according to the supplementary Poverty Measure (Sherman and Broaddus 2017). A reduction in family poverty through government programs has led to improved health outcomes for children. Expansion of the Earned income Tax Credit (EITC) has led to improved birth weight of children of families assisted as well as reduced smoking by the mothers (Avendano and Kawachi 2014). Access to food assistance programs in the 60’s and 70’s led to better high school graduation rates and lowered heart disease among children whose families received assistance (Sherman and Mitchell 2017).

National unemployment rate is tied into poverty in countries where unemployment benefits are meager. Following the devastating Great Recession—with the greatest loss of jobs since the Great Depression—the American Recovery Reinvestment Act of 2009 provided millions of dollars of stimulus money to create jobs and reduce unemployment. Some $560 million was targeted to prevent or delay chronic disease and promote wellness. One estimate was that the ARRA kept seven million out of poverty and lessened it for millions more (Donovan, Duncan and Sebelius 2012).

It is important also to know what hasn’t worked in reducing poverty. Welfare reform in the 90’s required employment for able-bodied recipients of welfare. It also created a block grant for welfare and allowed the states greater flexibility in spending. Advocates of the reform argue that it increased work participation by single mothers. Others argue that improvement came from prosperity in the late 90s and the Earned Income Tax Credit. Most analysis reviewed for this study argued that welfare reform did not reduce poverty but reduced help to the poor. The welfare to poverty ratio was 68% before reform and only 23% in 2016. In many states only 10% of the poor are being helped by TANF, Temporary Aid to Needy Families (Floyd 2017). Welfare reform did not reduce the number of single-mother families. TANF did not respond with increased help for the increased poverty due to the Great Recession (Newkirk 2018).

3. Reducing High School Dropouts and Improving Education.

It was also shown in Part II that increased educational attainment improves health behavior and health outcomes. In the review of literature for this paper on health in America a number of effective programs were listed. Studies indicate that early education programs not only improve educational outcomes, but also lead to more immunizations, greater height, and reduced child mortality at ages five to nine (Avendano and Kawachi 2014). Evaluations of Head Start have been contradictory, some showing no long term effects. But the analysis by David Deming of siblings who did and did not attend Head Start, showed that those who attended were less likely to be held back in school, more likely to graduate from high school and had better health than non-attending siblings (Jencks 2015). The University of Wisconsin listed a whole range of policies and programs that improve educational outcomes: community schools that pay attention to physical and mental health as well as academics, career academies that train students for occupations early, and targeted programs to improve college success (University of Wisconsin 2015).
4. **Improving Quality of Housing and Low-income Neighborhoods.**

It was also shown in Part II that housing and community environment plays a big role in health status. Those who live in poor and violent neighborhoods and in substandard housing are likely to be exposed to many health hazards. Research shows that expenditures that improved access to safe, affordable housing also improved the health of residents. Also, strategies to improve neighborhood conditions can effectively improve health of vulnerable people (Butler, Matthew, and Cabello 2017). The activities of the Low Income Support Corporation (LISC) in building sustainable communities have resulted in more growth of jobs and incomes in areas assisted, than in comparable communities which did not receive such investments (American Public Health association 2016). By lowering housing cost burden on poor families, housing vouchers help families address problems that can impair children’s academic achievement and improve health. Tens of millions of Americans pay more than 30% of income on housing and have little left over for essential needs (Sherman and Mitchell 2017).

Improving housing and low-income communities can produce health benefits. So can efforts to help the poor move to better neighborhoods. Children who moved to lower poverty neighborhoods at an early age were 32% more likely to attend college and earned 31% more as young adults (Sherman and Michell 2017). Moving to lower poverty areas improved their mental and physical health and subjective well-being of those who moved, compared to those left behind in low-income areas (Ludwig, Duncan, others 2012).

5. **Improving Collaboration of Health Care and Community-based Organizations.**

A key problem with health care in America is the fragmentation of providers which makes it difficult to have an integrated approach to community health improvement. Ascension Health is a large non-profit health system with 70 general acute care hospitals in 20 states. It establishes networks of providers to offer free or discounted care and develops ways to coordinate care and reduce the use of high cost services. This collaboration reduced fragmentation of health care. In Austin, Texas, there was a 95% decline in hospitalizations among enrolled patients and a 40% reduction in emergency room visits (Felland, others. 2011). Collaboration between community organizations and local health departments has led to elimination of significant disparities in breast cancer and cervical cancer screening rates. Faith-based organizations can help medical providers improve health outcomes (Mayberry 2006).

6. **Improving Health Habits and Behavior**

One of the most important elements of efforts to improve national health is campaigns to eliminate or reduce bad health habits. One of the great success stories in American public health is campaigns to reduce smoking. The Surgeon General's report on the dangers of smoking was well-publicized. The anti-smoking campaign was supported with legal restrictions on smoking in public spaces and many businesses and higher taxes on cigarettes. Cigarette ads were banned from TV and radio in 1971 (Cummings and Proctor 2014). The campaign against the spread of HIV/AIDS was also a success (Institute for health Metrics and Evaluation).
The government campaign was supplemented by more effective medical treatment. Family planning efforts for teens have also been successful: the percent of pregnant teen births out-of-wedlock has dropped dramatically (Wakefield, Loken and Hornik 2010). A program offering more effective inter-uterine birth control devices reduced both unwanted birth rate and abortions. The large drop in gonorrhea and syphilis is also attributable to public campaigns against sexually transmitted diseases (Aral, Fenton, and Holmes 2007). By contrast, many analysts rate the multi-billion dollar anti-drug campaign to be largely a failure (Wakefield, Loken, and Hornik 2010). Prohibition polices based in eradication, interdiction and criminalization of consumption simply have not worked (Williams 2012). But the decriminalization of drugs in Portugal resulted in a huge drop in new HIV infections and drug induced deaths (Coyne and Hall 2017).

7. Improving Health Equity

The Racial and Ethnic Approaches to Community Health (REACH) program funded by the Center for Disease Control and Prevention has been implemented in many communities in the US. Its goal is to eliminate racial and ethnic health disparities (Trust for America's health). The Trust for America's Health study was one of the few papers reviewed for this paper that systematically listed programs that work and don't work in improving health care.

The California low-income health program provides more than 660,000 low-income residents with health insurance. The program, partly funded by the Blue Shield of California Foundation, helped California to lead the nation in efforts to enroll the uninsured into health care covered. It also reduced the use of emergency room services as a last resort and encouraged safety-net providers to integrate services (Thomason and Long 2014). The Henry Ford Health System Health Care Equity campaign touches more the 37,000 youth and adult lives. It has a focus on nutrition, physical activity promotion and youth leadership (Laderman, Botwinick and Whittington 2016). Government programs that reduce poverty such as the Earned Income Tax Credit have improved health equity. (See discussion Part II above.)

8. Using Taxes and Subsidies to Improve Health Habits.

The huge increase in the price of cigarettes had an impact on smoking, along with campaigns against smoking (Egan 2013). A tax on sugary beverages reduced consumption, particularly for low-income people who have higher incidence of untreated diseases, such as hypertension and diabetes. The World Health Organization found that a 20% increase in tax, reduces consumption by 20%. Forty-two percent of Americans believe that we should tax unhealthy behavior (Consumer Reports 2017). However, such taxes may be politically difficult and are evaded under some circumstances (Sassi 2013).

9. Improving Children's Health.

The best strategy to improve children’s health is to start early, reduce poverty for their families and keep families strong. All of these are difficult. The Atlantic Philanthropies seeks to
enhance children's learning and success by integrating a range of health and social services into middle school sites: providing extended learning opportunities, family and community engagement, support services, comprehensive school-based health programs, and a range of preventive health care of children (Cytron 2010). There is strong evidence that high-quality child care and early childhood development programs from infancy to age five can lead to higher educational attainment, income and employment rates as well as reduced rates of criminal behavior. With the growth in single-mother families, having affordable child care would increase female employment and improve the health of children (Woolf and Aron 2013).

10. **Using Other Government Programs to Improve Health.**

What government does or does not do has a big impact on the nation's health. Programs that reduce poverty should improve health. Studies have shown that in countries where there is a generous parental leave policy, there are tremendous effects on mortality rates of infants and young children. They are less likely to get sick enough to require hospitalization (Texas A&M 2016). A successful program in the US had been government support of Community Health Centers. In 2015, there were 1375 centers serving 27 million patients, more than half of which were in rural areas underserved with medical facilities. These centers apply an integrated approach to health care of patients who have limited ability to pay. They serve public housing tenants and Indians and have helped reduced infant mortality of low-income patients. Medicare spending in these facilities was lower with little compromise in quality care (Shin, Sharac, Barber, Rosenbaum, and Paradise 2015).

Changes to the built-environment can improve health. The introduction of traffic safety measures (such as traffic-slowing features and well-marked street crossings) are linked to decreased risk of injuries and fatalities. The introduction of light rail is associated with an increase in physical activity and is associated with reduced BMI among riders (Andersen, others 2002).

One policy that has enormous cost to society and disrupts tens of millions of lives is our incarceration rate—the highest in the world. Bruce Western, a leading criminologist, has estimated that only about 10% of the great drop in crime was attributable to incarceration. (Rakoff 2015). Incarceration falls most heavily on black and Hispanic males and having a criminal record makes legitimate employment very difficult. The argument can be made for decriminalization of marijuana and expanded use of alternatives to prison for young people. There have been successful community-based strategies to reduce crime, such as the Network for Safe Communities. The strategy of engaging persistent criminals and gangs has reduced violence in nine out of ten cities by from 34% to 64% (Abt 2017).

V. **Recommendations by Experts**

In the review of the literature for this study there is a treasure trove of recommendations by leading experts in the field to improve health outcomes in America. They have been organized by topics outlined in the previous section. These recommendations are
quite broad and relate to reducing poverty and improving social justice in the US. Monica Peek argues that we must broaden the dialogue from a focus solely on health insurance to include improvement of community infrastructure (safe housing and primary care facilities), community facilities (such as good grocery stores and fitness centers) and the built environment (bike paths and local parks) as a medical community and address community health and health disparities (Peek 2014). Failure to address social conditions in the US is the major barrier to improving health outcomes for major segments of the population (Kieta 2014).

1. **Direct action to improve medical care.** Robert Mayberry recommends that we take actions to improve health care: (a) improve safety to avoid injuries to patients, (b) improve medical effectiveness by increased reliance on procedures based on scientific knowledge, (c) provide care that does not vary in equality because of personal characteristics such as gender, ethnicity, geographic location, and social class, (d) avoid medical waste and improve efficiency to reduce our astronomical medical costs, (e) be more responsive to patient preferences, needs, and values, and ensure that patient values guide all clinical decisions (Mayberry 2006). Another major recommendation has been to concentrate medical improvement in areas of low longevity such as Detroit and Nevada and on social groups with the highest need (Chetty, others 2016). Many authors have condemned congressional attempts to undercut or repeal the Affordable Care Act which has added 20 million who have health insurance. (See Part IV for an assessment of the achievements of the Affordable Care Act.) We should provide incentives to increase focus on prevention of disease. (Laderman, Botwinick and Whittington 2016). Expand supply of physicians' assistants and nurse practitioners and allow them greater authority (Wolfe 2014). Medicare should be able to negotiate with drug companies to reduce drug prices (Ableson, Goodnough, and Thomas 2017).

2. **Poverty reduction.** Many experts have advocated involvement of many sectors of the community in a partnership to address the social determinants of health. Stuart Butler and others at the Brookings Institution have argued that we need to rebalance social spending and health spending, as they have done in Europe. We should spend more on reducing poverty and homelessness so that less could be spent later on health care for the poor (Butler, Matthew, and Cabello 2017).

3. **Education.** A number of recommendations relate to improving educational outcomes to improve health outcomes (Adler and Newman 2002). A number of authors have recommended more and better physical education in schools and early efforts to diagnose mental and physical health problems of children to avoid later problems. Since 40% of the 18 million undergraduates attend community colleges and only 62% can afford to go to college full time, a community college president recommends that we increase government aid to community colleges. Most aid now goes to four year colleges (Mellow 2017). We also need to improve collaboration between health and educational organizations (Nutbeam 2000).
4. **Housing and community development.** Encourage community design that supports physical activity and improved walkability of communities. Encourage access to safe, accessible places for physical activity. Promote affordable, accessible and safe housing (National Prevention Council 2011).

5. **Collaboration with community-based organizations.** Health care organizations should work with community-based organizations to promote wider use of best practices to enable healthy living. Promote effective communication and coordination of care among health providers and community groups (Agency for Health Care Research and Quality 2011). Health organizations need to partner with community and faith organizations (Mayberry, others 2006).

6. **Promote good health habits and behavior.** Improve people's access to health information and their capacity to use it effectively. Improved health literacy is critical to improved behavior (Nutbeam 2000). Use multiple interventions in campaigns to improve health habits. Public policy changes, such as bans on smoking in public places, should support health campaigns. We need multi-faceted approaches to improve health behavior: education, policy changes, taxes, government incentives, and industry incentives (Consumer Reports 2017). Support reproductive and sexual health series and practices for parenting and pregnant women (National Prevention Council 2011). Make Long-Lasting Convertible Contraception (LARCs) available to reduce abortions and unwanted pregnancies (Markell 2016).

7. **Improving health equity.** Make health equity a goal in all levels of the health care organization (Laderman, Botwinick, and Whittington 2016). Communities should reduce disparities in access to quality health care (National Prevention Council 2011). Seek cooperation of black churches to improve black eating habits (Belle 2017). Reduce racism in health care organizations (Laderman, Botwinick and Whittington 2016). We need to fight racism and exclusionary zoning to reduce concentration of low-income people and areas of concentrated poverty (Kahlenberg 2017).

8. **The use of taxes and subsidies to improve health habits.** The World Health Organization recommends subsidizing the price of fruits and vegetables and increasing the tax on high-fat food. Industry should expand the use of incentives to improve health behavior of employees (National Association of Health Underwriters 2015).

9. **Other policies and programs.** Increase the use of health savings accounts for moderate-income Americans (Jost and Pollack 2015). Significantly expand the number of Community Health Centers. They should be in walking distance of low-income clients (Wolfe 2014). For 60 years, the Judicial Conference has opposed mandatory minimum sentences which has contributed to our high incarceration rates. Having a prison sentence reduces the employability and increases poverty for millions of former inmates (Rakoff 2015). It is also critical that we continue to expand health coverage to the most vulnerable in our society. Having health insurance reduces the number of chronically
disabled persons who consume a large portion of all health care dollars and increase health care costs for healthier people.

VI. Conclusions and Recommendation to Improve Health of Low-Income Americans.

The dominant theme of this paper and much of critical literature reviewed on health of Americans is that, in light of the great discrepancy in health outcomes by race, income and education, failure to successfully address social conditions in the US is the major barrier to improving health outcomes for major segments of the US population. The poor and other low-income people in the US face multiple barriers to good health: chronic stress, unsafe housing, crime and violence, worse schools, lack of affordable transportation to growing centers of employment, limited availability of healthy food choices in low income areas, and inadequate places to play and exercise. The reason we have an enormous gap in health outcomes in the US by income, level of education, race, and location is that we have an enormous chasm between income, wealth, and environmental conditions among different groups and different locations. We have worse health outcomes than other advanced countries with lower national wealth and income and lower expenditures on health because they have done a better job in reducing poverty, inequality, segregation, violent crime and other social ills.

Therefore, the national strategy to achieve greater health equity is to improve social equity in the US. A focus on improving social conditions is consistent with the National Plan to Improve delivery of health services which seeks to improve health equity (US Health and Human Services 2016). Less emphasis is placed in this paper on health care practices. The search for greater equity and fairness in American society is not the direction the country is headed in this Republican administration. The recently passed tax law offers some short term tax reductions for the middle class, but in the long run, should increase the national debt and inequality. It also eliminates the requirement under the Affordable Care Act to sign up for health insurance or pay a fine, which could have the effect of driving up the cost of health insurance. Also affecting health care adversely are actions by the Administration to cut food assistance by $150 billion, Medicare and Medicaid by $763 billion, and SSI and SSDI by $75 billion over a 10 year period. Work requirements are now encouraged for Medicaid (Greenstein 2017, Baily and others 2018).

A dominant consideration in a national strategy to address long-standing social conditions is the interrelationship between these conditions as shown in figure 1 in part II. Failure to complete high school should have the effect of increasing criminal behavior of dropouts, reduce their employment opportunities, reduce income, and reduce the strength of the family. The cycle is continued with children of single-parent families performing worse in schools, etc. By the same proposition, an integrated strategy to reduce poverty and inequality requires action at each point of the cycle, as show in figure 2 below.
Figure 2. Integrated strategy to improve health equity: The upward cycle of health improvement

1. Stronger Families
   - More two parent households
   - Children do better in school

2. More graduate; Better grades
   - Do better in school
   - Better job opportunities

3. Lower crime; violence
   - Higher work effort
   - Less likely to be in prison

4. Higher workforce participation
   - Better chance of job

5. Higher incomes
   - More likely to marry

6. Less cohabitation; Fewer out of wedlock births
   - More two parent households
   - Children do better in school

A. Marriage, family education
B. Improve schools
C. Require approval for gun purchase
D. Increase workforce participation
E. More effective anti-poverty efforts
F. Increase equality
G. Education to reduce out of wedlock births
Accordingly, the goals of an integrated strategy to break the cycle of poverty is (1) reduce poverty, (2) improve health habits, (3) reduce the number of high-school and college dropouts, (4) increase incomes and workforce participation by low-income persons, (5) strengthen families and reduce out-of-wedlock births, (6) increase equality of wealth and income, (7) reduce accidents and violence, and (8) increase the equity and effectiveness of the health care system.

All of these efforts are difficult since they have eluded solution after many decades of efforts. The answers are complex and inter-related. Below are recommendations based on several decades of research on poverty and inequality. Eight of my papers on the subject from 2011 to 2017 are cited in the bibliography and constitute the basis for detailed recommendations for many topics covered (Underhill 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2017a). Detailed rationale and footnotes are in the original papers and will not be repeated here. The strategies that have worked in improving health outcomes (part IV) and recommendations by experts (Part V) also provided ideas for recommendations.

1. Reducing Poverty.

Central to any strategy to improve health equity in the US is a reduction in poverty. With over 44 million poor in the US (using the Supplemental Poverty Measure) and 42 million in families with food insecurity, we have higher poverty than many advanced nations, in spite of our great wealth. As reported in Part II (section 2), lower-income people smoke more, drink more, get less exercise and are more obese than higher income people. They have higher infant mortality, are less likely to have health insurance and get regular care.

The key to lower poverty in Western Europe is a more generous social safety net and higher taxes. This has lead a number of leading experts to go counter to current national trends and recommend that we spend more on social welfare and less on health care (Butler, Matthew and Cabello 2017, Porter 2016a). European governments with a stronger social safety net have less relative poverty, less inequality, lower infant mortality, and higher population longevity. This is unlikely to happen under the current Administration which just decreased taxes and increased the long-term deficit by over a trillion dollars. At minimum, we could at least do no harm and resist the pressure for vast cuts in the entitlement programs, as has been proposed by the current administration. Other critical elements in reducing poverty are covered below: reducing high school and college dropouts, strengthening families, and increasing income and workforce participation of low-income families. A positive current trend is the continued growth of the economy, low unemployment, increases wages and hiring of workers with less education (Casselman 2018).

2. Improving Health Habits

A fundamental element of any comprehensive strategy is to improve the health habits of the low-income population and everyone else on the income spectrum. Part II reported that we are among the fattest people in the world because we consume more calories than anyone
Obesity is a challenging problem since a substantial portion of the population is trying to lose weight, with low success rates. One strategy which has worked for reduction of smoking has been pricing policy. The World health Organization has recommended subsidizing fruits and vegetables and other healthy food and increasing the tax on unhealthy food. (Consumer Reports 2017). A special problem exists for blacks in America. Black women are the fattest in our society. Some experts have recommended harnessing the black church to encourage more healthy eating habits of its members (Belle 2017).

An approach which has potential is the use of incentives and disincentives in the workplace to lose weight, eat healthier and get more exercise. Nineteen percent of large employers offered wellness incentives in 2006 (T H. Chan School of Public Health 2009). More evaluation is needed to determine effectiveness of these programs (Redmond, Solomon, and Lin 2007). Another promising approach is to start early in poor families with the visiting nurse program so that children learn healthy habits. We could also do a more careful job in learning from successes and failures in the past. We have had big successes in reducing smoking, the spread of AIDS and teen pregnancy. What made these campaigns successful was a combination of publicity plus policy, such as prohibiting smoking is businesses, offices and public places.

3. Reducing the Number of High School and College Dropouts.

Part II (Section 4) reported that people with lower levels of education are more likely to be smokers, are heavier, and get less physical exercise and sleep. People with lower levels of education are unhealthier and have lower longevity than persons with more education. High school dropouts are more involved in violent crime, have lower incomes, and are less likely to be married. There is a 42% gap in workforce participation between blacks who are high school dropouts and those with college degrees. Good education improves health.

A number of my prior papers have listed measures that have a positive record in improving education (Underhill 2011, 2013, 2016). I recommend the following: (a) Offer lower-performing students longer school days to enable them to catch up with high performing students, accompanied by tutoring when needed. (b) Expand school choice to give lower performing students a free choice of schools throughout the jurisdiction with public or charter schools to reduce impact of segregation by race and class. (c) At the same time, fight exclusionary zoning and racial discrimination in housing to ensure that minority and low-income schools are not stuck with inferior schools. (d) Provide more state and/or federal funding (with accountability) for schools with a higher number of lower-income and minority students to correct for current imbalance of funding between rich and poor schools. (e) Provide more effective teacher training, evaluation, rewards for success, and punishment for poor performance. (f) Expand "wrap-around services" for students and families in an intergenerational approach. (g) Use vouchers to expand residential mobility on a regional basis to reduce concentration or the poor. (h) Examine the effectiveness of resources spent by schools to ensure that schools can focus on classroom activities that have the highest impact. (I) Encourage better school leadership and management and allow more autonomy of high quality principals to avoid district "micro-management". (m) Expand pre-school experience for three
4. Increase Incomes and Workforce Participation of the Poor

A leading contributor to poverty has been a failure for work part time or full time. Part II (section 9) points out that, using the official poverty definition, 61% of the poor were not working at all in 2016 and in some prior years. Reducing the number of high school and college dropouts would significantly improve workforce participation. A number of other things can be done to increase employment. One would be to offer family-friendly policies, such as state-supported child care and liberal leave for mothers. These policies are typical in European countries. As a result, they have higher female workforce participation. Also we should increase the amount of affordable housing in high job growth cities. Many lower income persons are "priced out" of Silicone Valley and San Francisco. Currently, only a quarter of the millions of eligible poor are receiving housing vouchers. Also, we need to fight restrictions on the higher density affordable housing which drives up the price of housing that remains.

Improving manpower training and life-long learning would help those with low- or obsolete skills compete for the millions of unfilled high tech jobs. One proposal to improve manpower training for displaced workers was made by Harry Holzer, a leading authority on the subject. The proposal would create a two billion dollar grant program for manpower training to help partnerships among secondary and post-secondary educational institutions, companies, workforce agencies and intermediaries (Holzer 2011). There are many advocates for following the example of Germany in increasing the apprenticeships with firms for students right out of high schools who are not college bound. Not every child fits into college, but they can obtain a useful skill. We should also ensure that funds are adequate for training residents of public and assisted housing, as well as recipients of Temporary Aid to Needy Families (TANF).

Increasing national growth is another critical strategy for increasing workforce participation. A central premise of the recently passed tax cut for businesses is that increased profits would encourage more investment, create jobs and accelerate growth of the GNP. The materials reviewed for this study are mostly pessimistic about this Act having a big impact on rejuvenating national growth. They argue that some modest growth may ensue, but a more likely effect will be passing on profits from reduced tax rate to the stockholders in terms of higher stock prices. That fact that most of the long-term benefits of the Act to higher income persons does not bode well for sustained increases in national growth (Economist 2017g, Concord Coalition 2017, Porter 2017c). A national infrastructure building program would probably have an immediate and sustained impact on job creation. It was proposed by the Trump Administration, but there has been little follow-up as of the date of this writing. The most recent proposal would only provide modest federal funding, but rely on a large majority of funding from the private sector and State and local governments. State and local governments are facing big fiscal problems and are unlikely sources for needed funds. There is a two trillion dollar gap between the current condition of the infrastructure and standards of
good repair (Blair 2017a). Robert Puentes proposed an infrastructure bank financed by repatriation of overseas company profits held off-shore to avoid taxes (Puentes, Kane, and Sobol 2013).

To increase minority workforce participation, we must continue to fight discrimination in housing, hiring and firing. Discrimination and exclusionary zoning have impeded minority employment. Transportation problems are a big barrier to employment.

5. **Reduce Out-of-Wedlock Births and Strengthen Families.**

It was pointed out in part II (section 9) that divorced and single people are less healthy and don't live as long as married couples. Children of divorced and single mothers are more likely to have fragile health, depression, and psychological problems, holding other factors constant. Among many factors contributing to family breakdown is the wide-spread practice of cohabitation. Fifty percent of births are unplanned and the separation rate for unmarried cohabiters is higher than that of married couples. Break up leads to many single-mother families. Seventy-two percent of black children are born to unwed mothers. In a typical year, fewer than 21% of poor single mother families have at least one full time worker.

In my review of the literature on strengthening low-income and minority families (Underhill 2012), I found only a few success stories on restoring the strength of these families. One of the successes was reducing teenage births. I recommend a few modest steps to strengthen families: (a) continue efforts to strengthen the families through counseling and other assistance, (b) improve low-income and minority education to improve graduation rates, improve personal habits, and reduce unwed pregnancies, (c) reform sentencing and the prison system by reducing number of incarcerated young people for minor crimes such as marijuana possession, (d) increase the number of jobs and strengthen manpower training and education for adults, (e) continue to expand campaigns to reduce unwanted pregnancies and expand use of long-lasting contraceptive devices which are more effective than traditional birth control.

Perhaps the biggest thing that can be done to strengthen marriage is to improve workforce participation for minorities. Seventy percent of black men ages 23 to 30 earning over $80,000 a year were married in 2004, but less than 20% earning less than $20,000. Men with low-income or without work are not sought-after marriage partners.

6. **Reduce Inequality of Wealth and Income**

The great inequality in America in both wealth and income is not healthy for American society. The top one percent has twenty percent of all income and the bottom 50% only 12%. This inequality has been increasing since the 80’s. The top one percent owns 40% of the wealth. Wages have not kept up with productivity growth, and every age cohort below the 75th income percentile makes less than their parents did at the same age (Cohen 2017). The mal-distribution of wealth and income has several negative consequences: (a) With most of the increases in wealth and income going to a privileged few, there is less left over for ordinary
workers. The middle class has shrunk. With less disposable income, it is hard for even the middle class to afford high quality health care. (b) The high concentration of wealth slows down national growth because the rich spend less of their income than lower- and middle-income persons. (c) The high concentration of wealth gives high income person the opportunity to dominate election donations, helping to shape legislation to their liking.

Among the suggestions for improving equality are: (a) increasing the marginal tax rates on the highest income persons, (b) increasing the minimum wage to $10.00 an hour and make changes to the Earned income Tax Credit as proposed by Isabel Sawhill (Sawhill 2014), (c) Reverse the trend to suppress the unions, (d) improve high school and college graduation rates of lower-income persons. Actions taken by the current Administration will contribute to greater inequality. Moody's estimates that three quarters of the individual tax cut will go to those earning more than $200,000 a year, five percent of taxpayers (Linnane 2018)

7. **Reduce Accidents and Violence.**

A substantial portion of the difference in longevity between the US and other advanced countries comes from the fact that we have the highest violent crime among these nations and we have not improved as much as others in reducing the death toll from automobile accidents. Accidents and deaths from guns have taken millions of American lives, with highest impact on young people. Given 40 years of efforts at the federal, state and local level to reduce the toll from auto accidents, I can add little to what is being done: mandatory seat belt and airbags, safer interstate highways, more driver training, periodic retesting for license renewal, laws against substance abuse, minimum age for driver's permit, and stronger and safer vehicles

I have personal experience with two programs which have potential to reduce the death toll on the highway. The first is the AARP elderly driving course. Elderly drivers are often given a reduced rate by insurance companies when they take the AARP safe driving course. It has the potential for increasing safe driving for elderly over 75 who have the highest accident death rates. The second program is the effort in Washington DC to create higher density development along transit corridors. The reason for US dependence on the automobile and low transit use is low density sprawl of American cities. Higher density more compact cities would not only provide more affordable housing, but make transit use easier.

I have done several papers on prison reform and preventing crime by youth (Underhill 2013, 2015). Although we have made great progress in reducing crime, we lose 93 people a day by death from guns, including accidents, homicides and suicides. A major contributor to this death toll is that we have a gun for every man, woman, and child in the country. We have the most lax gun regulation. Nicholas Kristof has recommended sweeping gun control legislation, including universal background checks before buying a gun. Now 22% of guns are bought without background checks (Kristof 2017b). Also, community approaches to control of violence should be expanded. A contribution to reducing crime would be to reduce the number of high school dropouts and increasing workforce participation of youth, both discussed above.
8. Increase Equity and Effectiveness of Health Care System.

Most of the strategy to increase health equity discussed here relates to improving social conditions in the US. That is the focus of the paper. But there are a few recommendations to improve the health care system itself as part of this strategy: (a) Efforts to reduce high US medical expenditures are beyond the scope of this paper. However, giving the government ability to negotiate the price of drugs for all federal health programs would help reduce the cost of drugs. Also helpful in reducing medical costs would be to assign more functions and authority to physicians' assistants and nurse practitioners, particularly in rural areas where there are few doctors. (b) A central priority in health care should be to continue to struggle to maintain the gains we have already made in reaching low- and moderate-income people with insurance under the Affordable Care Act. (c) We need to expand the number of community health centers that serve low-income neighbors and rural areas. (d) We need a change in emphasis in medical care from curing disease to prevention of diseases in the first place. Currently, only three percent of medical expenses go to prevention. (e) Concentrate expanded medical facilities and programs in areas of low longevity (such as Detroit and Nevada) and underserved groups. (f) Continue efforts underway to coordinate medical care through networks to reduce fragmentation of care. (g) Work with community groups and churches to improve low-income and minority health habits. (h) Do a better job in documenting what works and doesn't work in improving health for lower income persons. (i) Ensure that health care organizations pay attention to health equity to ensure that low-income and minority populations are served well.


A persistent theme of the materials reviewed for this paper is the toxic impact of poor areas and neighborhoods. Residents of distressed areas and poor neighborhoods have more chronic health problems and disability insurance dependence. These effects last a lifetime. They also have much lower longevity than residents of better neighborhoods and areas. One strategy to deal with the problem, already suggested, is to increase mobility and freedom of choice of the poor, by fighting segregation and exclusionary zoning and offering more affordable housing in high growth and higher cost areas. Another strategy is to improve poor areas and neighborhoods. The Appalachian Regional Commission has followed this strategy for decades, but has been eliminated by the Administration. So has the Community Development Block Grant, which has provided federal funding to improve housing, services, and community facilities in poor neighborhoods. This program, locally managed and controlled according to local priorities, had been very popular for decades with state governors and mayors of large cities and counties. That too has been defunded by the Administration.

If we believe in improving health equity and giving everyone the same opportunity for advancement, we must find a way to revitalized urban and rural areas left behind by American prosperity.
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