

Executive Summary: Health Impact Review of HB 1291

Concerning Health Care for Pacific Islanders Residing in Washington Under a Compact of Free Association (2017-2018 Legislative Session)

Evidence indicates that HB 1291 has the potential to increase the number of COFA residents enrolled in a qualified health plan which in turn has the potential to increase access and utilization of health care services, to improve health outcomes, and to decrease health disparities.

BILL INFORMATION

Sponsors: Representatives Santos, Jinkins, Fey, Robinson, Fitzgibbon, Stanford, Ormsby, Riccelli

Summary of Bill:

- Creates a premium assistance program for low-income COFA islanders to purchase health insurance through the health benefit exchange. COFA islanders are citizens of Compact of Free Association (COFA) islands, which are the Republic of Palau, the Republic of the Marshall Islands, and the Federated States of Micronesia.
- Specifies that individuals are eligible for premium assistance with no out of pocket costs if they are a resident of Washington State, COFA citizens, enroll in a silver qualified health plan, have income less than 133% of the federal poverty level, and are ineligible for Medicaid.
- Requires the creation of a comprehensive community education and outreach campaign.
- Creates an advisory committee to guide in the development, implementation, and operation of the COFA premium assistance program that includes, but is not limited to, insurers and representatives of communities of COFA citizens.

HEALTH IMPACT REVIEW

Summary of Findings:

This review assumes that if the Legislature creates a premium assistance program for COFA residents then eligible individuals will enroll in a qualified health plan. This assumption is based on experiences from individuals who are currently working in states where similar assistance programs have been created and their familiarity with their states' education and outreach efforts.

This Health Impact Review found the following evidence regarding the provisions in HB 1291:

- Strong evidence that enrollment in health insurance would improve health outcomes for COFA residents.
- Very strong evidence that enrollment in health insurance would increase access and utilization of health services.
- Very strong evidence that increased access to and utilization of health care services would improve health outcomes for COFA residents.
- Strong evidence that improved health outcomes would decrease health disparities by race/ethnicity and income.

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Health Impact Review of HB 1291

Concerning Health Care for Pacific Islanders Residing in Washington under a Compact of Free Association (2017-2018 Legislative Session)

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Introduction and Methods

A Health Impact Review is an analysis of how a proposed legislative or budgetary change will likely impact health and health disparities in Washington state ([RCW 43.20.285](#)). For the purpose of this review ‘health disparities’ have been defined as the differences in disease, death, and other adverse health conditions that exist between populations ([RCW 43.20.270](#)). This document provides summaries of the evidence analyzed by State Board of Health staff during the Health Impact Review of House Bill 1291 ([HB 1291](#)) from the 2017-2018 legislative session.

Staff analyzed the content of HB 1291 and created a logic model depicting possible pathways leading from the provisions of the bill to health outcomes. We conducted objective reviews of the literature for each pathway using databases including PubMed and Google Scholar.

The following pages provide a detailed analysis of the bill including the logic model, summaries of evidence, and annotated references. The logic model is presented both in text and through a flowchart (Figure 1). The logic model includes information on the strength of the evidence for each relationship. The strength-of-evidence has been defined using the following criteria:

- **Not well researched:** the literature review yielded few if any studies or only yielded studies that were poorly designed or executed or had high risk of bias.
- **A fair amount of evidence:** the literature review yielded several studies supporting the association, but a large body of evidence was not established; or the review yielded a large body of evidence but findings were inconsistent with only a slightly larger percent of the studies supporting the association; or the research did not incorporate the most robust study designs or execution or had a higher than average risk of bias.
- **Strong evidence:** the literature review yielded a large body of evidence on the relationship (a vast majority of which supported the association) but the body of evidence did contain some contradictory findings or studies that did not incorporate the most robust study designs or execution or had a higher than average risk of bias; or there were too few studies to reach the rigor of ‘very strong evidence’; or some combination of these.
- **Very strong evidence:** the literature review yielded a very large body of robust evidence supporting the association with few if any contradictory findings. The evidence indicates that the scientific community largely accepts the existence of the association.

This review was subject to time constraints, which influenced the scope of work for this review. The annotated references are only a representation of the evidence and provide examples of current research. In some cases only a few review articles or meta-analyses are referenced. One article may cite or provide analysis of dozens of other articles. Therefore the number of references included in the bibliography does not necessarily reflect the strength-of-evidence. In addition, some articles provide evidence for more than one research question so they are referenced multiple times.

Analysis of HB 1291 and the Scientific Evidence

Summary of Relevant Background Information

- The Compact of Free Association (COFA) is a set of treaties between the United States and three sovereign nations, which are the Republic of Palau, the Republic of the Marshall Islands, and the Federated States of Micronesia.¹
- The political relationship created by this agreement allows citizens from the COFA islands to live and work lawfully in the United States without a visa in exchange for U.S. military presence on the islands.¹
- As a result of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), also referred to as welfare reform, COFA migrants living the United States are excluded from federal safety net programs such as Medicaid, Temporary Assistance for Needy Families (TANF), and the Supplemental Nutrition Assistance Program (SNAP).²

Summary of HB 1291

- Creates a premium assistance program for low-income COFA islanders to purchase health insurance through the health benefit exchange.
- Specifies that individuals are eligible for premium assistance with no out of pocket costs if they are a resident of Washington State, COFA citizens, enroll in a silver qualified health plan, have income less than 133% of the federal poverty level, and are ineligible for Medicaid.
- Requires the creation of a comprehensive community education and outreach campaign.
- Creates an advisory committee to guide in the development, implementation, and operation of the COFA premium assistance program that includes, but is not limited to, insurers and representatives of communities of COFA citizens.

Health impact of HB 1291

Evidence indicates that HB 1291 has the potential to increase the number of COFA residents enrolled in a qualified health plan which in turn has the potential to increase access and utilization of health care services, to improve health outcomes, and to decrease health disparities.

Pathways to health impacts

The potential pathways leading from the provisions of HB 1291 to decreased health disparities are depicted in Figure 1. We have assumed that if the Legislature creates a premium assistance program for COFA residents then eligible individuals will enroll in a qualified health plan. This assumption is based on experiences from individuals who are currently working in states where similar assistance programs have been created and their familiarity with their states' education and outreach efforts. There is strong evidence that enrollment in health insurance would improve health outcomes for chronic conditions and reduce the risk of mortality from all causes as well as numerous types of cancer.³⁻¹⁵ There is very strong evidence that enrollment in health insurance would increase access and utilization of health services such as preventative screenings for diabetes, high cholesterol, cancer, and hypertension.^{9,10,14-23} There is very strong evidence that increasing access to and utilization of health services such as screenings for HIV, counseling for tobacco cessation and mental health services would improve health outcomes.²⁴⁻²⁶ There is strong evidence that COFA migrants, more often categorized broadly as Pacific Islanders, and low-income individuals experience higher rates of adverse health outcomes than their counterparts,

therefore improving health outcomes for these populations would help decrease health disparities by race/ethnicity and income.^{1,27-33}

Due to time limitations we only researched the most direct connections between the provisions of the bill and decreased health disparities and did not explore the evidence for all possible pathways. For example, potential pathways that were not researched include:

- Evidence for how other factors besides insurance, such as access to transportation and availability of appointments, would likely influence utilization of health care services and health outcomes.
- Evidence for how customs and culture would likely impact health seeking behaviors and the need for culturally appropriate care.
- Evidence for how insurance coverage affects overall financial stability.

Magnitude of impact

It is unclear from available data exactly how many people will be impacted by this bill due in part to limited disaggregated data about COFA residents in Washington. Data from the 2014 American Community Survey (ACS), which was compiled upon request by the Washington State Office of Financial Management (OFM) Forecasting and Research Division, estimate that there are 6,910 Marshallese and Micronesian residents living in Washington. However, due to the small sample size and the large margin of error, the upper and lower bounds of the estimate range from 4,455 to 9,365 persons. Eligibility for the proposed COFA premium assistance program stipulates that in order to qualify for participation, an individual must have income less than 133% of the federal poverty level, which based on ACS data is close to 3,806 individuals. It is important to recognize that this program would only have an impact on the adult COFA population as children and pregnant women in the state are covered by the Children's Health Insurance Program (CHIP) and other state-based health insurance programs. Therefore, the estimate of 3,806 individuals who would be impacted by this bill is an overestimate, as it includes both adults and children.

Logic Model

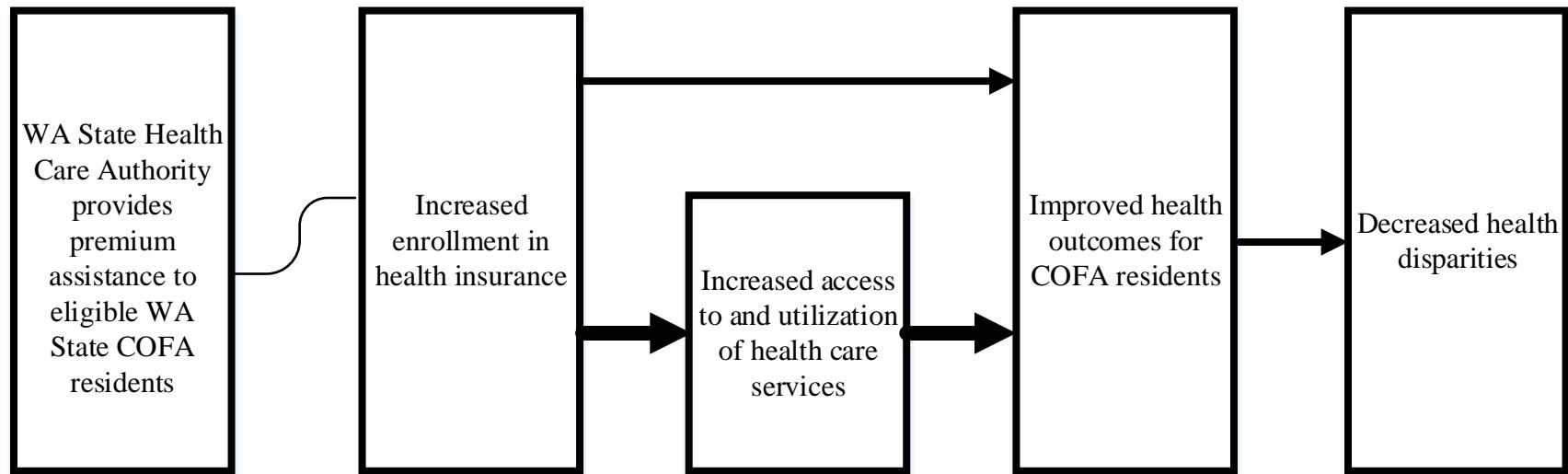
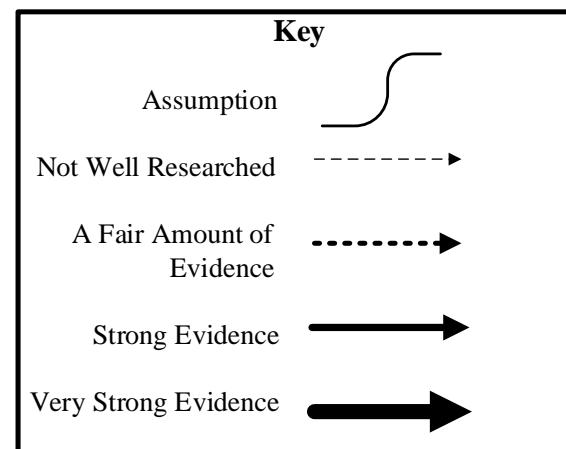


Figure 1
Concerning Health Care for Pacific Islanders Residing in Washington Under a Compact of Free Association
HB 1291



Summaries of Findings

Will a premium assistance program for COFA residents lead to increased enrollment in health insurance?

We have made the assumption that if the Washington Legislature creates a premium assistance program for COFA residents then eligible individuals will enroll in a qualified health plan. Very few states have created programs of this nature, therefore literature and data are currently not available. The assumption made here is primarily based off experiences shared by individuals in a November 2015 webinar who are working in states where assistance programs have either been established or have been proposed. Thus far, Hawaii has a state-funded benefits program for COFA and other adult noncitizens that began in March 2015 and Oregon will begin enrolling for their new assistance program in November 2016. Although data about current enrollment in these programs is not available, individuals involved in the implementation have indicated that success is highly dependent upon an organization's ability to listen to and support community leaders, provide linguistically and culturally appropriate communications, and share information between stakeholders. This feedback aligns closely with the requirement in HB1291 for the creation of a comprehensive community education and outreach campaign. Similar to findings from other states, discussions with community members in Washington who represent, and identify as, Pacific Islanders and Marshallese have indicated that utilizing existing leadership, identifying common gathering spaces, such as churches, as areas for outreach, and recruiting team members who speak diverse languages are all positive ways to engage with the community that this program is aiming to serve. Further, community members have indicated that many adults are aware of the health services provided for COFA children and pregnant women in Washington and in this way, are already engaging with the health care system. Therefore, based on evidence from other states who have implemented these programs, and feedback from community members in Washington, we believe that the assumption that COFA residents will participate in the premium assistance program is an informed assumption.

Will increased enrollment in health insurance lead to improved health outcomes for COFA residents?

There is strong evidence that enrollment in health insurance would improve health outcomes for COFA residents. Evidence indicates that health insurance coverage was associated with better general,⁵ physical, and mental health, and that this increase in health status was greatest for participants in the lowest income group (< 300% FPL).¹⁴ In a study of individuals who experienced a health shock caused by an unintentional injury or a new chronic condition, uninsured individuals reported significantly worse short-term health and were more likely to not be fully recovered and no longer in treatment at follow-up compared to those with health insurance.⁸ Having health insurance has also been associated with improved health outcomes for a number of conditions including stroke, heart failure, diabetes, melanoma, heart attack, serious injury or trauma, and serious acute conditions with hospital admission.^{3,4,10,12} Further, having health insurance was associated with improved management and control of diabetes, hypercholesterolemia, and hypertension.⁹ Among patients aged 18–64 years old, patients with insurance have been shown to have a significantly lower risk of death than uninsured patients for cervical,⁷ head and neck,¹¹ breast, colorectal, lung, prostate, and bladder cancers and non-Hodgkin lymphoma.^{6,13}

Will increased enrollment in health insurance lead to increased access to and utilization of health care services?

Access

There is very strong evidence that enrollment in health insurance would increase access to and utilization of health services. For example, when first looking at access, evidence indicates that being uninsured is associated with a higher likelihood of not having a usual place for medical care, and that having insurance coverage at any given time in the past year increased the likelihood that adults had a usual place for care.^{18,22,23} One study estimated that adults aged 18 to 64 who did not have health insurance for more than a year at the time of the survey were nearly six times as likely to not have a usual source of care compared to those who were continuously insured.²¹ Further, evidence indicates that uninsured individuals more frequently reported delaying medical care (50.87%), and being unable to get medical care (38.87%), dental care (48.18%), mental health care (16.87%), and prescription drugs (40.23%) than insured individuals.²³ In addition, even after evaluating different combinations of vulnerability characteristics, such as health status, education, and region of residence, lacking health insurance had the strongest association with unmet health care needs, followed by family income and having a regular source of care.¹⁸

Utilization

Evidence indicates that health insurance is associated with increased utilization of health care services, such as visiting a doctor or health care professional.²² For example, health insurance has been associated with higher rates of diagnosis of diabetes, hypercholesterolemia, and hypertension among nonelderly adults.⁹ One study found that compared to those with continuous health insurance coverage and the same chronic conditions, persons without health insurance in the previous year were five to six times as likely to forgo needed care if they had hypertension (42.7% versus 6.7%), diabetes (47.5% versus 7.7%) and asthma (40.8% versus 8.0%).²¹ Further, having health insurance has been positively associated with receiving recommended preventive care.¹⁰ In a 2012 study, researchers found that having health insurance was significantly associated with a greater likelihood of receiving the influenza vaccine, tetanus and diphtheria toxoid (Td) or tetanus, diphtheria, and acellular pertussis (Tdap) vaccine, and the pneumococcal vaccine (PPSV).¹⁹ Further, vaccine coverage for influenza, PPSV, shingles, and HPV were two to three times higher among those with health insurance.¹⁹

A number of studies have been able to utilize a quasi-experimental approach after statewide changes occurred following events such as the Massachusetts Health Care Reform in 2006, the Oregon Health Insurance Experiment in 2008, and Medicaid expansion. Evidence following the Oregon Health Insurance Experiment indicates that enrollment in insurance (Medicaid) was associated with increased hospital, outpatient, and drug utilization; increased compliance with recommended preventive care; an increase in the perceived access to and quality of care; and declines in exposure to substantial out-of-pocket medical expenses and medical debts.^{16,17} Further, insured participants were more likely to receive preventive screening services for body mass index (BMI), blood pressure, smoking, Pap test, mammography, chlamydia, and diabetes.²⁰ Finally, evidence from Medicaid expansion and the health care reform in Massachusetts indicates that an increased rate of insurance coverage is associated with increased utilization of health care services, and higher rates of diagnosis of chronic health conditions, particularly among low-income adults.^{14,15}

Will increased access to and utilization of health care services improve health outcomes for COFA residents?

There is very strong evidence that increased access to and utilization of health care services would improve health outcomes for COFA residents. There is a large body of evidence supporting the positive association between utilization of health services for the early detection and treatment of physical and mental health disorders²⁴ and improved health outcomes. There is strong consensus in the scientific literature supporting this association, therefore we are providing only a few examples here. A large systematic review that informed the U.S. Preventive Services Task Force (USPSTF) recommendation indicated that when done in combination, behavioral therapy and pharmacotherapy demonstrate an 82% increase in tobacco cessation when compared to minimal intervention or usual standard of care.²⁵ Another study by the expert panel from USPSTF found evidence to support that screening tests for HIV are accurate and that antiretroviral therapy (ART) reduces the risk death and sexual transmission of HIV.²⁶ Note that this does not indicate that all treatments are effective, but rather than there is a very large body of evidence supporting that evidence-based treatments are available.

Will improved health outcomes lead to decreased health disparities?

There is strong evidence that improved health outcomes for COFA residents would decrease health disparities by race/ethnicity and income. As previously discussed, race/ethnicity data are often not disaggregated to the level where specific disparities among COFA residents can be assessed. Instead, Native Hawaiian/Pacific Islander (NHPI), Native Hawaiian and Other Pacific Islander (NHOPI) and Asian/Pacific Islander (API) are most commonly used to refer to groups that include persons who are from the Marshall Islands, the Republic of Palau, and the Federated States of Micronesia. Further, because HB 1291 specifies that eligibility for the premium assistance program requires an individual to have income less than 133% of the federal poverty level, health disparities among low income populations are also discussed.

Nationally, CDC data show that between 2005-2010 suicide deaths among NHPI increased 170%, and NHPI adults are 46% more likely to be diagnosed with cancer than any other racial group.¹ Further, 35% of NHPI were considered obese, 15% had been told they have diabetes, and 14% smoke every day, all of which are rates that are significantly higher than the national average.¹ In a study using a nationally representative survey, data indicate that Pacific Islanders in the cohort were more likely to currently smoke, be overweight, and have heavy alcohol intake.²⁸ Further research has shown that compared to White mothers, Micronesians and Other Pacific Islanders were more likely to have cesarean deliveries,²⁹ and that Marshallese mothers had the highest odds of preterm birth and the lowest rates of early entry into prenatal care.³⁰ Looking specifically in Washington, the death rate due to heart disease for NHPI was 163 deaths per 100,000 people between 2009 and 2011, a rate higher than any other racial group in the state.¹ Between 2009 and 2013, 16% of singleton births to NHOPI mothers in Washington were premature and 8% were low birth weight, compared to 10% and 6% of all births in Washington state respectively.²⁷ Further, compared to state estimates, NHOPI adults over the age of 18 had higher age-standardized percentages of heavy drinking, cigarette use, high blood pressure, obesity, no flu vaccine, no dental insurance, forgoing medical care due to cost, no dental visit in the past year, and no checkup in the last year.²⁷ In 2015, NHOPI individuals living in

Washington also had the highest age-adjusted death rate and shortest life expectancy at birth behind American Indian/Alaska Natives.³² Therefore, improving health for COFA residents would help decrease health disparities by race/ethnicity.

Significant correlations also exist between lower income and a number of health indicators including worse overall self-reported health, depression, asthma, arthritis, stroke, oral health, tobacco use, women's health indicators, health screening rates, physical activity, and diabetes.³¹ Further, 2015 data indicate that age-adjusted death rates were higher in Washington census tracks with higher poverty rates.³² Household income was the strongest predictor of self-reported health status in Washington in 2016, even after accounting for age, education, and race/ethnicity.³³ There is strong consensus in the scientific literature that improving health outcomes for low income populations would help decrease health disparities by income.

Annotated References

1. **Empowering Pacific Islander Communities and Asian Americans Advancing Justice. A Community of Contrasts: Native Hawaiians and Pacific Islanders in the United States, 2014.** 2014.

This report presents, to the extent possible, disaggregated data about Native Hawaiians and Pacific Islanders (NHPI) in the United States. Data come from a wide range of national sources including the 2010 Census, American Community Survey, Current Population Survey, Centers for Disease Control and Prevention, U.S. State Department, etc. Data is presented for the United States overall and then more specifically for chosen cities with large NHPI populations.

Nationally, CDC data show that between 2005-2010 suicide deaths among NHPI increased 170%, and NHPI adults are 46% more likely to be diagnosed with cancer than any other racial group. Further, 35% of NHPI were considered obese, 15% had been told they have diabetes, and 14% smoke every day, all of which are rates that are higher than the national average. In Seattle, WA, between 2009 and 2011, the death rate due to heart disease for NHPI was 163 deaths per 100,000 people, a rate higher than any other racial group in the state. Cancer is the leading cause of death for NHPI across the state, and about 14% of NHPI are uninsured, compared to 10% of Whites. Finally, using data from the 2010 Census, the authors find that, "NHPI have a higher poverty rate than average (15% compared to 10%), higher proportion of people who are low-income (36% compared to 24%), and lower per capita income (\$18,225 compared to \$33,139)."

2. **McElfish P., Hallgren E., Yamada S. Effect of US health policies on health care access for Marshallese migrants. *American Journal of Public Health*. April 2015;105(14):637-643.**

McElfish et al. provide a brief history of the Compact of Free Association and the current issues faced by the Marshallese migrant population in the United States. The authors discuss the potential health impacts of the nuclear testing conducted on the COFA islands and the lack of access to services in the U.S. following the Personal Responsibilityand Work Opportunity Reconciliation Act of 1996 (PRWORA). Finally, the authors provide recommendations for future policy work in the U.S. that could begin to reduce health disparities and improve health equity for the COFA population.

3. **Amini Arya, Rusthoven Chad G., Waxweiler Timothy V., et al. Association of health insurance with outcomes in adults ages 18 to 64 years with melanoma in the United States. *Journal of the American Academy of Dermatology*. 2016;74(2):309-316.**

Amini et al. analyzed data from the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute (NCI) in order to investigate whether health insurance correlates with more advanced disease, receipt of treatment, and survival among persons diagnosed with melanoma. The authors included all people age 18 to 65 who were diagnosed with cutaneous malignant melanoma between January 1, 2007 and December 31, 2012 (n=61,650). Using logistic regression, the authors found that after adjusting for patient characteristics, uninsured patients compared with non-Medicaid insured patients more often presented with advanced disease, such as increasing tumor thickness and presence of ulceration, and less often received surgery and/or radiation. In the univariate analysis, the authors found

that one important factor associated with worse overall and cause-specific survival was, among others, race, including Asian or Pacific Islander ($p=.002$ and $p=.004$ respectively), and insurance status (medicaid insurance $p=.001$ and uninsured $p=.001$). The authors conclude that socioeconomic and insurance status may contribute to the disparities in treatment and survival and that policies to address issues of access and quality of care may help improve outcomes.

4. Baker David W., Shapiro Martin F., Schur Claudia L. Health insurance and access to care for symptomatic conditions. *Archives of Internal Medicine*. 2000;160:1269-1274.

Baker et al. developed a list of 15 symptoms that, "...a national sample of physicians had rated as being highly serious or having a large negative effect on quality of life" to include in the 1994 Robert Wood Johnson Foundation National Access to Care Survey. The survey was administered in the spring and summer of 1994 as a follow-up to the 1993 National Health Interview Survey ($n=3480$). Symptoms included in the survey included, for example, shortness of breath with light work or exercise, back or neck pain that makes it difficult to walk, sit, or perform other daily activities, and loss of consciousness or fainting. Respondents were asked if they had experienced any of the 15 symptoms in the last 3 months. If respondents answered yes to any of the symptoms, they were asked whether they received medical care and if not, did they think that care would have been necessary. 16.4% of respondents ($n=574$) indicated experience with a new serious or morbid symptom and of these, 13.1% ($n=75$) were uninsured. Compared to insured participants, uninsured participants were less likely to have received medical care for their symptoms and were more likely to say that they thought medical care was needed even though they did not receive it ($p=.001$). The most commonly cited reason for not receiving care even though they thought it was necessary among the uninsured was inability to pay for care (95.2%, $p<.001$). Further, uninsured participants said that not receiving the necessary care impacted their health (63.2%) and that because they could not receive care, they had personal, household, or work problems (57.1%). The authors conclude that even for serious and morbid symptoms, lack of health insurance is a major barrier to obtaining needed care.

5. Baker David W., Sudano Joseph J., Albert Jeffrey M., et al. Lack of health insurance and decline in overall health in late middle age. *The New England Journal of Medicine*. 2001;345(15):1106-1112.

Baker et al. conducted a prospective cohort study using data from the Health and Retirement Study, a national survey of adults age 51 to 61 in the United States ($n=7577$). The aim of the study was to examine the relationship between health insurance, or a lack thereof, and changes in overall health from 1992-1996. The authors found that compared to continuously insured participants, continuously and intermittently uninsured participants were more likely to report a major decline in overall health between 1992-1996 ($p<0.001$), with the continuously uninsured being at the highest risk (adjusted relative risk, 1.63). This increased risk remained even after adjusting for sex, race and ethnicity, and income. Further, continuously uninsured participants were 23% more likely to have a new physical difficulty that affected walking or climbing stairs than privately insured participants. The authors conclude that a lack of health insurance, even intermittently, is associated with increased risk of a decline in overall health and that further efforts are needed to reform the U.S. health insurance system, particularly for older adults.

6. Cheung Min Rex. Lack of health insurance increases all cause and all cancer mortality in adults: an analysis of National Health and Nutrition Examination Survey (NHANES III) data. *Asian Pacific Journal of Cancer Prevention.* 2013;14(4):2259-2263.

Cheung et al. utilized National Health and Nutritional Examination Survey (NHANES) III data in order to investigate the relationship between insurance status, all cause, and all cancer mortality. NHANES III was conducted between 1988-1994 and all participants were followed passively until December 31, 2006. In this time period, there were 5,291 all cause and 1,117 all cancer deaths out of a total sample of 33,994 persons. In the univariate logistic regression analysis for all cause mortality, the significant variables were age, poverty income ratio, and alcohol consumption. In the multivariate logistic regression, after controlling for additional socioeconomic, behavioral, and health status variables, the variables that remained significant predictors of all cause mortality included age, having no health insurance, black race, Mexican Americans, poverty income ration, and drinking hard liquor. When considered all together, these variables account for a 70% increase in the risk of all cause mortality associated with having no health insurance. For all cancer mortality, the significant variables in the univariate analysis were age, drinking hard liquor, and smoking. Age, having no health insurance, black race, Mexican Americans, and smoking were the significant and independent predictors of all cancer mortality in the multivariate analysis after controlling for other potential confounders. In total, this equates to an almost 300% increased risk of all cancer death for people without any health insurance. The authors conclude that health insurance significantly impacts all cause and all cancer death and therefore universal health insurance coverage may be a way to remove this disparity in the United States.

7. Churilla T., Egleston B., Dong Y., et al. Disparities in the management and outcome of cervical cancer in the United States according to health insurance status. *Gynecologic oncology.* June 2016;141(3):516-523.

Churilla et al. aimed to characterize the presentation, management, and outcomes of patients with cervical cancer with regard to insurance status. The authors analyzed data from the National Cancer Institute Survival, Epidemiology, and End Results (SEER) database for women aged 18-64 who were diagnosed with invasive cervical cancer between 2007-2011 (n=11,714). Among patients with early stage disease, uninsured patients were less likely to receive surgical management, however, after adjusting for clinical and demographic variables, this association was no longer significant. Among patients that presented with later stage disease, patients that were uninsured were significantly less likely to receive optimal radiation treatment and this association remained significant after adjusting for clinical and demographic variables. Further, patients with Medicaid or who were uninsured were more likely to present with advanced stage cervical cancer. Finally, overall survival at a median follow-up of 21 months was significantly higher among insured patients (86.6%) versus Medicaid (75.8%) or uninsured patients (73.0%). The authors conclude that health insurance remains an important barrier for receipt of treatment and outcomes for cervical cancer. The authors also suggest that further studies may be necessary in order to understand the impact that the Affordable Care Act may have on insurance coverage and cervical cancer care.

8. **Hadley Jack. Insurance coverage, medical care use, and short-term health changes following an unintentional injury or the onset of a chronic condition. *Journal of the American Medical Association*. 2007;297(10):1073-1085.**

Hadley used longitudinal data from the Medical Expenditure Panel Surveys from 1997-2004 to compare medical care use and short-term health changes among both insured and uninsured adults following a health shock caused by either a new chronic condition or unintentional injury. The sample included 10,485 cases of new chronic conditions and 20,783 cases of unintentional injury. In looking at the demographic characteristics of the two populations, uninsured individuals were more likely to report being in fair or poor health, have family income below 100% of the federal poverty level, and be a racial/ethnic minority. Uninsured individuals in both the injury and chronic condition groups were significantly less likely to receive care for their new condition and less likely to receive follow-up care if it were recommended. Uninsured individuals also had fewer office-based visits and prescription medicines. At the first follow-up interview, 3.5 months after the health shock, uninsured individuals with chronic conditions reported significantly worse short-term health, and uninsured individuals in the unintentional injury group were more likely to not be fully recovered and no longer in treatment. At 7 months, the difference in health change for insured versus uninsured individuals with new chronic conditions remained significant. Hadley concludes that adverse health outcomes following a health shock may continue to persist and cause deteriorating health unless the problem of uninsurance in the United States is addressed.

9. **Hogan D. R., Danaei G., Ezzati M., et al. Estimating the potential impact of insurance expansion on undiagnosed and uncontrolled chronic conditions. *Health affairs*. Sep 2015;34(9):1554-1562.**

Hogan et al. aimed to estimate the relationship between health insurance status and the diagnosis and management of diabetes, hypercholesterolemia, and hypertension using a nationally representative sample of U.S. adults. The authors analyzed data from the National Health and Nutrition Examination Survey (NHANES) from 1999-2012 for adults aged 20-64. In order to account for potential confounders, the authors used a matching approach where for each uninsured participant in the sample they, "...selected as a match from the insured population an individual who was similar in terms of the following observed characteristics: sex, age, race/ethnicity, household income, marital status, current smoking status, body mass index, and survey round." The total sample included 28,157 respondents and of this, 11,548 had complete data on diabetes, 25,327 had complete data for cholesterol, and 25,576 had complete data for blood pressure. Compared to those without insurance, participants with insurance had a probability of diagnosis that was 13.5% high for diabetes and hypercholesterolemia, and 8.8% higher for hypertension. Among those with a diagnosis, having insurance was further associated with improved management and control of these conditions. The authors conclude that this study provides data to support the relationship between health insurance and diagnosis and control of a number of chronic conditions among nonelderly adults. They further conclude that because nonelderly adults are the primary target of the Affordable Care Act (ACA), these findings suggest that the ACA could have a significant impact on the recognition and management of chronic diseases.

10. Institute of Medicine. *America's Uninsured Crisis: Consequences for Health and Health Care*. Washington, DC: The National Academics Press;2009.

In this report published by the Institute of Medicine, the authors present data from two systematic reviews that were commissioned by the Institute to look at the consequences of uninsurance on health outcomes. The primary review of interest, McWilliams 2008 (unpublished), focused on evidence from the adult U.S. population between 2002 and 2008 and resulted in a number of conclusions. First, the authors found that without health insurance, adults are less likely to receive effective preventive services and chronically ill adults are more likely to delay or forgo necessary care and medications. Next, without health insurance, adults are more likely to be diagnosed with cancer (including breast, colorectal, and others) at a later stage and are therefore more likely to die or have poorer outcomes as a result. Without insurance, adults with cardiovascular disease or cardiac risk factors are less likely to be aware of their conditions and experience worse health outcomes, including higher mortality. Further, uninsurance is associated with poorer outcomes for stroke, heart failure, diabetes, heart attack, serious injury or trauma, and serious acute conditions with hospital admission. The report concludes this section by recognizing that even with the availability of safety net health services, there is a need to close the gap in health insurance coverage in the United States.

11. Inverso G., Mahal B. A., Aizer A. A., et al. Health insurance affects head and neck cancer treatment patterns and outcomes. *Journal of Oral and Maxillofacial Surgery*. Jun 2016;74(6):1241-1247.

Inverso et al. conducted a retrospective study using Surveillance, Epidemiology, and End Results (SEER) data to examine the effect of insurance status on the stage of presentation, treatment, and survival among individuals with head and neck cancer. The cohort included 34,437 individuals diagnosed with head and neck cancer between 2007-2010 who were under the age of 65. Uninsured individuals were more likely to present with metastatic cancer than insured individuals, which remained significant even after adjustment for patient demographic data and socioeconomic factors (adjusted odds ratio, 1.60; CI, 1.30 to 1.96). Uninsured patients without metastatic cancer were more likely to not receive definitive treatment after adjusting for patient demographics, socioeconomic factors, and tumor characteristics (AOR, 1.64; 95% CI, 1.37 to 1.96). Head and neck cancer specific mortality was significantly lower among insured patients and remained significant after adjustment. The authors conclude that this gap in treatment and outcomes for uninsured individuals should serve as a target for future health policy reform.

12. McManus M., Ovbiagele B., Markovic D., et al. Association of insurance status with stroke-related mortality and long-term survival after stroke. *Journal of Stroke & Cerebrovascular Diseases*. Aug 2015;24(8):1924-1930.

McManus et al. used data from the National Health and Nutrition Examination Survey(NHANES) to examine the association between health insurance status and long-term mortality after a stroke. The authors used data from NHANES 1999-2004 for adults aged less than 65 years with a follow-up assessment through 2006 for mortality (n=10,786 participants). The risk of mortality from stroke was not significantly different for insured versus uninsured individuals without self-reported history of stroke at the baseline interview. After adjusting for age, sex, race, BMI, poverty-to-income ratio, number of major medical conditions, history of hypertension, and NHANES cycle, uninsured individuals without stroke at baseline were 3 times

more likely to die of stroke than insured individuals, although this figure did not reach statistical significance. There was also no difference in all-cause mortality according to insurance status among stroke survivors. While the authors conclude that insurance status influences the risk of mortality from stroke as well as the all-cause mortality among stroke survivors, these findings were not considered significant and further research is needed in this area.

13. Niu X., Roche L. M., Pawlish K. S., et al. Cancer survival disparities by health insurance status. *Cancer medicine*. Jun 2013;2(3):403-411.

Niu et al. utilized the New Jersey State Cancer Registry (NJSCR) to examine the association between health insurance status and survival of patients diagnosed with seven common cancers. The cohort included persons aged 18-64 with a primary diagnosis of invasive breast, cervical, colorectal, lung, prostate, and bladder cancers and non-Hodgkin lymphoma (NHL) for a total sample size of 54,002 cases. The authors found that patients without insurance had a significantly higher risk of death within 5 years of diagnosis than privately insured patients for all the examined cancer types except for cervical cancer (hazard ratios 1.41-1.97). This higher risk of death for uninsured patients remained significant after controlling for prognostic factors such as gender, age, race/ethnicity, marital status, SES, and stage of diagnosis. Similarly, patients with Medicaid also had a 21% to 198% higher risk of dying within 5 years of diagnosis than patients with private insurance for breast, colorectal, prostate, lung cancer, and NHL, even after adjusting for prognostic factors. Finally, the authors examined the 5-year cause-specific survival rates by health insurance status and cancer type for two periods of diagnosis, 1999-2001 and 2002-2004. They found that 5-year survival significantly improved or remained the same across all cancer types, except for cervical cancer, for those with private insurance while survival did not improve for those who were uninsured or Medicaid insured. The authors list a number of possible explanations for the results including, "poorer health with more comorbidity and unhealthy behaviors; no or inadequate preventive health care and management of chronic conditions prior to cancer diagnosis; barriers to receiving treatment and adhering to a treatment regimen such as high cost, inability to navigate the health care system, misinformation about and mistrust of the health care system, lack of a usual source of health care, lack of transportation, lack of time off from work; no treatment or delay in receiving treatment; not all providers accept uninsured or Medicaid insured patients; and lower quality treatment by providers primarily serving the uninsured and Medicaid insured." The authors conclude that the first step to addressing cancer survival disparities is ensuring that everyone has access to adequate health insurance, but they also acknowledge that additional measures will be needed in order to make significant strides.

14. Van Der Wees Philip J., Zaslavsky Alan M., Ayanian John Z. Improvements in health status after Massachusetts health care reform. *The Milbank Quarterly*. 2013;91(4):663-689.

Van Der Wees et al. aimed to compare trends in the use of ambulatory health services and overall health status before and after health reform in Massachusetts. In 2006, Massachusetts underwent a health care reform that, among other provisions, established, "...an individual mandate to obtain health insurance if affordable, expanded Medicaid coverage for children and long-term unemployed adults, subsidized health insurance for low and middle-income residents, and a health insurance exchange to help higher-income residents obtain unsubsidized insurance."

This study utilized data from the Behavioral Risk Factor Surveillance System (BRFSS) from 2001-2011 for Massachusetts as well as surrounding states that did not undergo reform (Connecticut, Maine, New Hampshire, Rhode Island, and Vermont). The total number of survey participants aged 18-64 that were included in this study was 345,211. The authors found that compared to residents in neighboring states, Massachusetts residents reported better general, physical and mental health, increased use of screening tests for cervical and colorectal cancer, and cholesterol, and a higher likelihood of being covered by insurance and having a personal doctor. These differences remained significant after adjusting for individual sex, age, race/ethnicity, income, employment, marital status, and education, and the annual unemployment rates in each state. In a subgroup analysis, the authors found that Massachusetts residents with an income less than 300% of the federal poverty level had the greatest increase in health status outcomes. The authors conclude that although health care reform in Massachusetts was associated with some meaningful gains, health disparities still exist for low-income residents and that further innovations, as well as federal health care reform, may be necessary.

15. Wherry L. R., Miller S. Early coverage, access, utilization, and health effects associated with the Affordable Care Act Medicaid expansions: a quasi-experimental study. *Annals of internal medicine*. Jun 21 2016;164(12):795-803.

Wherry et al. used data from the National Health Interview Survey (NHIS) from 2010 to 2014 to evaluate whether state Medicaid expansion was associated with changes in insurance coverage, access to and utilization of care, and self-reported health. The authors used data for adults aged 19-64 with incomes below 138% of the federal poverty level in states that did and did not expand Medicaid. Compared with nonexpansion states, respondents in expansion states reported significant increases in diagnoses of diabetes and high cholesterol but no differences in diagnoses of hypertension, access to care, health status, or mental health. Medicaid expansions were also associated with significant increases in visits to a general physician. The authors conclude that these data provide evidence that the Affordable Care Act Medicaid expansions are associated with an increase in insurance coverage and health care utilization and that fully understanding the impacts of the expansion are crucial to future policy debates.

16. Baicker Katherine, Taubman Sarah L., Allen Heidi L., et al. The Oregon Experiment — effects of Medicaid on clinical outcomes. *New England Journal of Medicine*. 2013;368(18):1713-1722.

Baicker et al. examined the effects of health insurance coverage on health care use and health outcomes approximately 2 years after the Oregon Medicaid lottery. The Oregon Health Plan Standard is a Medicaid program for adults aged 19-64 who have an income below 100% of the federal poverty level. The program closed to new enrollment in 2004 but began a waiting list in 2008 to fill a limited number of new openings. Between March and September of 2008, approximately 30,000 people were selected through a lottery drawing from the waiting list of nearly 90,000 names. This lottery process allowed for a quasi-experimental approach to studying the effects of insurance on health with the use of a random assignment. The authors of this study interviewed a sample population of 12,229 people in Portland, Oregon, half of which were selected in the lottery and half of which were not, between September 2009 and December 2010. The findings indicated that Medicaid coverage did not have a significant effect on the prevalence or diagnosis of hypertension or high cholesterol levels but did increase the probability of a

diagnosis for diabetes and the use of medications to control diabetes. Further, Medicaid coverage was associated with a substantial reduction in the risk of a positive screening for depression. Compared to those without coverage, Medicaid coverage was associated with a 7.84% increase in the proportion of people who indicated that their health was the same or better than 1 year previously. Finally, Medicaid coverage led to a reduction in financial strain from medical costs, and an increase in the number of prescription drugs received, office visits made in the previous year, perceived access to care, and use of preventative services such as cholesterol screening, mammograms, and pap smears in women. The authors conclude that while Medicaid coverage led to no significant improvements in measured physical health, it did increase access to and utilization of health care and can serve as evidence of the effects of expanding Medicaid to low-income adults in the United States.

17. Finkelstein Amy N., Taubman Sarah L., Wright Bill J., et al. The Oregon Health Insurance Experiment: evidence from the first year. *Quarterly Journal of Economics*. 2012;127(3):1057-1106.

Finkelstein et al. utilize data from the Oregon Health Insurance Experiment to examine the effects of expanding access to public health insurance on health care utilization, financial strain, and health outcomes of low-income adults. The Oregon Health Plan Standard is a Medicaid program for adults aged 19-64 who have an income below 100% of the federal poverty level. The program closed to new enrollment in 2004 but began a waiting list in 2008 to fill a limited number of new openings. Between March and September of 2008, approximately 30,000 people were selected through a lottery drawing from the waiting list of nearly 90,000 names. This lottery process allowed for a quasi-experimental approach to studying the effects of insurance on health with the use of a random assignment. In this study, the authors obtained individual-level hospital discharge data for the entire state of Oregon from January 2008-September 2009. The authors matched this data to the lottery list based on information such as full name, zip code, and date of birth. In addition, the authors obtained credit records, mortality data from the Oregon Center of Health Statistics, and mailed out a supplemental survey to nearly all individuals selected through the lottery. In total, the authors were able to survey 29,834 individuals who were selected by the lottery and 45,088 who were not selected and acted as controls. The data indicate that enrollment in Medicaid is associated with an increase in hospital, outpatient and drug utilization, and increase in compliance with recommended preventative care, improvement in self-reported mental and physical health measures, perceived access to and quality of care, and overall well-being. Further, the authors found a decline in substantial out-of-pocket medical costs and total medical debts. The authors conclude that these results provide meaningful insights into the benefits of Medicaid but also call for a careful cost-benefit analysis of Medicaid expansion taking into account the inputs provided in this study.

18. Hoffman C., Paradise J. Health insurance and access to health care in the United States. *Annals of the New York Academy of Sciences*. 2008;1136:149-160.

Hoffman and Paradise present a synthesis of the literature from the late 1980's to 2006 regarding the evidence that health insurance is associated with access to health care in the United States. Articles are summarized in subgroups relating to access to primary care, acute and trauma care, managing chronic conditions, health outcomes, and premature mortality. The most relevant finding was that a number of studies indicated that uninsured adults reported greater unmet

health needs and a large proportion of adults stated that the cost of insurance is the main reason for being uninsured. Further, uninsured adults were twice as likely to report that they, or a family member, skipped treatment, cut pills or did not fill a prescription medication some time in the last year because of cost. The authors indicate that there are great personal benefits to having health coverage although health insurance alone is not enough to eliminate disparities or equalize access to care across subgroups of Americans.

19. Lu P. J., O'Halloran A., Williams W. W. Impact of health insurance status on vaccination coverage among adult populations. *American journal of preventive medicine*. Jun 2015;48(6):647-661.

Lu et al. analyzed data from the 2012 National Health Interview Survey (NHIS), which had a response rate of 61.2%. The authors used the data to estimate vaccination coverage among adults over the age of 18 by health insurance status for seven routinely recommended vaccines: influenza, pneumococcal (PPSV), tetanus and diphtheria toxoid (Td) or tetanus, diphtheria, and acellular pertussis (Tdap), hepatitis A (Hep A), hepatitis B (Hep B), herpes zoster (shingles), and human papillomavirus (HPV). Having health insurance was significantly associated with a greater likelihood of receiving the influenza vaccine, Td, Tdap, and PPSV, even after adjusting for age, gender, race/ethnicity, marital status, education, employment status, poverty level, number of physician contacts in the past year, usual source of care, self-reported health status, U.S.-born status, and region of residence. Further, vaccine coverage for influenza, PPSV, shingles, and HPV were two to three times higher among those with health insurance. Overall, individuals who reported having a regular physician were more likely to have received the recommended vaccines, regardless of their insurance status. The authors conclude that comprehensive strategies need to be tailored to improve vaccination coverage among adults, especially those without health insurance.

20. Marino M., Bailey S. R., Gold R., et al. Receipt of preventive services after Oregon's randomized Medicaid experiment. *American journal of preventive medicine*. Feb 2016;50(2):161-170.

Marino et al. assessed the long-term impact of the Oregon Health Insurance Experiment on the receipt of 12 preventative care services. The Oregon Health Plan Standard is a Medicaid program for adults aged 19-64 who have an income below 100% of the federal poverty level. The program closed to new enrollment in 2004 but began a waiting list in 2008 to fill a limited number of new openings. Between March and September of 2008, approximately 30,000 people were selected through a lottery drawing from the waiting list of nearly 90,000 names. This lottery process allowed for a quasi-experimental approach to studying the effects of insurance on health with the use of a random assignment. In this study, the authors probabilistically matched individuals aged 19-64 who were selected from the lottery reservation list to an individual in the Oregon Community Health Information Network (OCHIN), which is a network of health systems that supports over 300 community health centers. The total sample included in this study was 4,049 patients selected by the lottery and 6,594 patients from OCHIN who were not selected. The primary outcomes of interest were whether or not the individual had received the following services in the post-lottery period: "...screenings for cervical, breast, and colorectal cancer (fecal occult blood testing and colonoscopy); screenings for diabetes (glucose and hemoglobin A1c [HbA1c]), hypertension, obesity, and smoking; lipid screening; chlamydia

testing; and receipt of influenza vaccination." The results indicate that patients who were selected by the lottery were significantly more likely to receive preventives screening services for BMI, blood pressure, smoking, Pap test, mammography, chlamydia and HbA1c. After adjusting for age and the number of chronic conditions diagnosed prior to the selection date, where appropriate, all of the previously mentioned services remained significant with the addition of fecal occult blood testing. The authors indicate that while community health centers provide quality health services for millions of uninsured and underinsured persons, continued efforts are needed to expand access to health insurance for vulnerable populations.

21. Centers for Disease Control and Prevention. *Vital Signs: Health Insurance Coverage and Health Care Utilization- United States, 2006-2009 and January-March 2010.* 2010.

In this Morbidity and Mortality Weekly Report (MMWR), published by the Centers for Disease Control and Prevention, the authors use data from the National Health Interview Survey (NHIS) to look at the association between lack of health insurance and delaying or forgoing health care. Data from NHIS was analyzed from 2006 through the first quarter of 2010 with an average participation rate of 82.2% in 2009. Data indicated that adults aged 18 to 64 who did not have health insurance for more than a year at the time of the survey were nearly six times as likely to not have a usual source of care compared to those who were continuously insured (55.2% versus 9.3%). Further, compared to those with continuous coverage and the same chronic conditions, persons without health insurance in the previous year were five to six times as likely to forgo needed care if they had hypertension (42.7% versus 6.7%), diabetes (47.5% versus 7.7%) and asthma (40.8% versus 8.0%). Even short periods of being uninsured showed meaningful differences. Currently insured persons who had a 1 to 3 month gap in coverage were twice as likely to not have a usual source of care (16.4% versus 9.3%) and three times as likely to delay seeking care due to the cost compared to those with continuous coverage (26.5% versus 7.1%). These differences in care seeking behavior persisted irrespective of family income level. The authors conclude that the requirements of the Affordable Care Act may help reduce the proportion of uninsured persons in the United States but that outreach will be necessary to increase enrollment and retention in programs such as Medicaid. They further conclude that continuous health care coverage will allow for increased access to preventative services and will reduce long-term health care costs down the line.

22. Villarroel Maria A., Cohen Robin A. *Health Insurance Continuity and Health Care Access and Utilization, 2014.* Hyattsville, MD: National Center for Health Statistics;2016.

Villarroel et al. present a data brief from the National Center for Health Statistics using data from the 2014 National Health Interview Survey. Adults aged 18-64 who were insured for more than a year were more likely than those who were insured at the time of the interview but had a period of uninsurance in the past year to have a usual place for medical care (90.8% versus 73.6%). This difference was even greater when they compared those currently insured versus those currently uninsured but had a period of insurance in the past year and those uninsured for more than a year (57.8% and 44.3% respectively). Next, the authors found that having insurance for more than a year was associated with being more likely to have visited a doctor during the past year compared to those with any period of being uninsured. One in five adults in the sample reported an unmet medical need due to cost in the past year, and this was more likely to be reported by those with any period without health insurance than those with coverage for more than a year.

Finally, persistent coverage was associated with a higher likelihood of having been vaccinated against the flu. The authors conclude that the presented data reflect the experiences of those without health insurance and the barriers they may face to receiving health services.

23. Wang Tze-Fang, Shi Leiyu, Zhu Jinsheng. Race/ethnicity, insurance, income and access to care: the influence of health status. *International Journal for Equity in Health*. 2013;12(29).

Wang et al. examined health care access disparities in relation to health status and the presence of functional limitations using data from the 2009 Family Core component of the National Health Interview Survey (NHIS). The authors limited the sample to adults who had visited a doctor or health care professional in the previous two weeks in order to attenuate the differences between those with and without health care experience. The main indicators analyzed with regards to access to care were defined as: (1) no usual place of care, (2) unable to get medical care, (3) delayed medical care, (4) unable to get dental care, (5) unable to get mental health care, and (6) unable to get prescription drugs. The main finding was that participants who were uninsured more frequently reported being unable to get medical care, dental care, mental health care, prescription drugs, and were more likely to have no usual place of care and delaying medical care than insured participants. Further, participants in the lowest income bracket (<\$20,000) had the largest proportion of participants reporting an inability to get medical care, dental care, mental health care, and prescription drugs as well as delaying medical care. In conclusion, the authors noted that insurance and health status were the two most important factors that were associated with access to care and that the Affordable Care Act is expected to contribute even further to reducing these disparities.

24. American Psychological Association. Evidence-Based Practice in Psychology: APA Presidential Task Force on Evidence-Based Practice. May-Jun 2006;61(4):271-285.

The American Psychological Association (APA) created a policy indicating that the evidence-base for a psychological intervention should be evaluated using both efficacy and clinical utility as criteria. The Association President appointed the APA Presidential Task Force on Evidence-Based Practice and the task force published this document with the primary intent of describing psychology's commitment to evidence-based psychological practices. This document, though, also references many research articles providing evidence for the efficacy of a number of psychological treatments and interventions. The reference list for this document highlights the growing body of evidence of treatment efficacy from the 1970s through 2006. Note that this does not indicate that all treatments are effective, but rather than there is a very large body of evidence supporting that evidence-based treatments are available.

25. CP Patnode, JT Henderson, JH Thompson, et al. Behavioral counseling and pharmacotherapy interventions for tobacco cessation in adults, including pregnant women: a review of reviews for the U.S. Preventive Services Task Force. Evidence synthesis No. 134. Agency for Healthcare Research and Quality. 2015.

The U.S. Preventive Services Task Force (USPSTF) is an independent panel of experts who systematically reviews the evidence and provides recommendations that are intended to help clinicians, employers, policymakers, and others make informed decisions about health care services. This summary focused on the effectiveness and safety of pharmacotherapy and

behavioral interventions for tobacco cessation and included a total of 54 systematic reviews. The findings indicate that behavioral interventions had a significant impact on increasing smoking cessation at 6 months (risk ratio= 1.76 [95% CI, 1.58 to 1.96]), and that various pharmacotherapy interventions also demonstrated effectiveness. In combination, behavioral therapy and pharmacotherapy demonstrated an 82% increase in tobacco cessation when compared to minimal intervention or usual standard of care. The authors conclude that behavioral and pharmacotherapy interventions are effective interventions to improve rates of smoking cessation both individually and in combination.

26. R Chou, S Selph, T Dana, et al. Screening for HIV: systematic review to update the U.S. Preventive Services Task Force recommendation. Evidence synthesis No. 95. Agency for Healthcare Research and Quality. 2012.

The U.S. Preventive Services Task Force (USPSTF) is an independent panel of experts who systematically reviews the evidence and provides recommendations that are intended to help clinicians, employers, policymakers, and others make informed decisions about health care services. This review, which focused benefits and harms of screening for Human Immunodeficiency Virus (HIV) in adolescents and adults, included randomized clinical trials and observational studies. Findings indicate that screening for HIV is accurate, screening only targeted groups misses a large number of cases, and that antiretroviral therapy (ART) reduces the risk death and sexual transmission of HIV.

27. Washington State Department of Health. *Chronic Disease Profile- Native Hawaiians/Other Pacific Islanders (NHOPI). 2015.*

This report summarizes chronic disease health indicators for Washington state using a number data sources such as the Washington Behavioral Risk Factor Surveillance System, Healthy Youth Survey, American Community Survey, and the Pregnancy Risk Assessment Monitoring System. The data show that between 2009-2013, around 25% of Native Hawaiian/Other Pacific Islander (NHOPI) had no health insurance, 15% had income below the poverty level, 88% had no college degree, and 17% were unemployed. During this same time period, 16% of singleton births to NHOPI mothers were premature and 8% were low birth weight, compared to 10% and 6% of all births in Washington state respectively. Further, compared to WA state estimates, NHOPI adults over the age of 18 had higher age-standardized percentages of heavy drinking, cigarette use, high blood pressure, obesity, no flu vaccine, dental insurance, medical care due to cost, dental visit in the past year, or checkup in the last year. NHOPI also had higher rates of arthritis, diabetes, and premature death.

28. Bitton Asaf, Zaslavsky Alan M., Ayanian John Z. Health risks, chronic diseases, and access to care among US Pacific Islanders. *Journal of General Internal Medicine. 2010;25(5):435-440.*

Bitton et al. conducted a retrospective analysis of data from the Behavioral Risk Factor Surveillance System (BRFSS) from 2005, 2006, and 2007. The authors evaluated the data to determine the frequency and predictors of chronic disease outcomes and health status in Pacific Islander Americans (n=2,609) as compared to Asian Americans (17,892) and whites (n=894,289). Compared to Asian Americans, Pacific Islanders in the cohort were more often current smokers, overweight, heavy alcohol drinkers, lacked health insurance, but more likely to

have met recommendations for adequate physical activity. After adjusting for demographic and socioeconomic covariates, Pacific Islanders reported higher adjusted rates of hypertension (OR=1.50; 1.06, 2.13), diabetes (OR=1.82; 1.25, 2.63), asthma (OR=2.32; 1.65, 3.25), and arthritis (OR=1.68; 1.20, 2.35). The authors further adjusted the models for smoking, which did not significantly change the results, but adjusting for BMI category made the odds ratios for hypertension, diabetes, arthritis, and health status non -significant. From this, the authors suggest that BMI partially mediates the differences in chronic disease outcomes for Pacific Islanders compared to Asian Americans. When comparing outcomes for Pacific Islanders to whites, there were no striking differences in health risk factors, chronic diseases, and access to care. The authors call for future health surveys and policies to distinguish between Pacific Islanders and Asian Americans given significant differences in their health profiles. Finally, they suggest that more work needs to be done to understand the magnitude and determinants of these health disparities in order to create more targeted health interventions.

29. Chang Ann Lee, Hurwitz Eric, Miyamura Jill, et al. Maternal risk factors and perinatal outcomes among Pacific Islander Groups in Hawaii: a retrospective cohort study using statewide hospital data. *BMC Pregnancy and Childbirth*. 2015;15(1).

Chang et al. aimed to quantify obstetric outcomes among Pacific Islander subgroups living in Hawaii in order to better understand disparities among this diverse population. The authors used the Hawaii Health Information Corporation (HHIC) inpatient database, which includes all maternal delivery and live newborn hospital admissions in the state of Hawaii. The study population was all Pacific Islander and White women who gave birth to a singleton liveborn in any hospital in Hawaii from January 2010 to December 2011 (n=15,156). Data indicated that only about one-third of Whites had either public or no insurance (31.7%) while 88.3% of Micronesians and 66.2% of Samoans had this insurance type. Diabetes was most prevalent among Other Pacific Islanders and Samoans, and Samoans and Native Hawaiians had the highest rates of hypertension. After adjusting for age, delivery at a rural versus urban hospital, and insurance type, all Pacific Islander subgroups had a significantly higher odds ratio for diabetes compared to Whites. Native Hawaiians had the highest adjusted odds for low birthweight babies and Samoans were more likely than Whites to have macrosomic infants (birthweight greater than 4000g). Finally, Micronesians and Other Pacific Islanders were more likely to have cesarean deliveries compared to Whites (adjusted OR 1.35; 95 % CI 1.19–1.454 and adjusted OR 1.31; 95 % CI 1.08–1.59, respectively). The authors conclude that important differences exist in perinatal outcomes among Pacific Islanders and that these differences are pronounced among subgroups. It is therefore important to disaggregate these subgroups for future research, policy, and public health interventions.

30. Schempf Ashley H., Mendola Pauline, Hamilton Brady E., et al. Perinatal outcomes for Asian, Native Hawaiian, and other Pacific Islander mothers of single and multiple race/ethnicity: California and Hawaii, 2003–2005. *American Journal of Public Health*. 2010;100(5):877-887.

Schempf et al. aimed to determine whether differences existed in birth outcomes for Asian/Pacific Islander (API) mothers of single versus multiple race/ethnicity. The authors used birth certificate data from California and Hawaii for 2003 to 2005 and linked these data to birth and infant death data sets of the National Center for Health Statistics for API mothers. The

following 17 subgroups were included in the analysis as they each had at least 300 births: Asian Indian, Cambodian, Chinese, Filipino, Hmong, Indonesian, Japanese, Korean, Laotian, Pakistani, Thai, Vietnamese, Native Hawaiian, Guamanian, Marshallese, Samoan, and Tongan. In addition to these subgroups, 22 combinations of race/ethnicity had sufficient numbers to be examined. In addition to comparing between API groups, all API subgroups, both single and multiple race combination, were compared to a reference group of single-race White mothers. The main finding of interest from this study is that Marshallese mothers had the highest odds of preterm birth ($OR=2.85$ (2.39, 3.38)) of all the API subgroups and the third highest rate for low birthweight babies (8.4%). The odds of preterm birth was reduced but remained significant after adjusting for nativity, maternal age, education, marital status, parity, prenatal care, tobacco use, and state of residence ($OR=2.10$ (1.74, 2.55)). Further, Marshallese women had the highest proportion of births to mothers with less than a high school education or to mothers who were unmarried. Finally, compared to other subgroups, Marshallese women had the lowest rate of early entry into prenatal care (48%). Considering these findings, the authors conclude that particular consideration should be given for public health interventions that could reduce disparities in parinatal outcomes for the most at risk API subgroups, including Marshallese.

31. **Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Prevalence And Trends Data: Washington-2014. 2014;**
<http://apps.cdc.gov/brfss/page.asp?cat=XX&yr=2014&state=WA#XX>. Accessed August 16, 2016.

Behavioral Risk Factor Surveillance System (BRFSS) 2014 data from Washington state show significant correlations between lower income and a number of health indicators including: worse overall self-reported health, depression, asthma, arthritis, stroke, oral health, tobacco use, women's health indicators, health screening rates, physical activity, and diabetes.

32. **Poel A. Health of Washington State Report: Mortality and Life Expectancy. Data Update 2015. Washington State Department of Health;2015.**

Poel presents Washington state data on mortality and life expectancy. The data show that age-adjusted death rates were higher in Washington census tracks with higher poverty rates. The state data also show that Native Hawaiian/Other Pacific Islanders had the highest age-adjusted death rate and shortest life expectancy at birth behind American Indian/Alaska Natives.

33. **Serafin M. Health of Washington State Report: Self-reported Health Status. Data Update 2016. Washington State Department of Health;2016.**

Serafin presents data from Washington state on self-reported health status. The data show that after accounting for age, education, race and ethnicity, household income was a strong predictor of self-reported health status. Health status varied by race and ethnicity, with close to 20% of Native Hawaiian/Other Pacific Islander reporting fair or poor health.