A War on the Home Front:
Would a National Health Plan Benefit Americans' Health?

Honors Project

In fulfillment of the Requirements for

The Esther G. Maynor Honors College

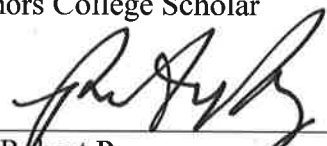**University of North Carolina at Pembroke**

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April 19, 2007

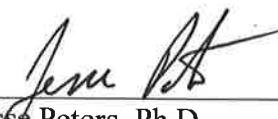_____   Date: _May 2 2007_
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Acknowledgements

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ABSTRACT

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WOULD A NATIONAL HEALTH PLAN BENEFIT AMERICANS' HEALTH?

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May 5, 2007

The United States of America remains one of the last industrialized countries to implement a national health plan. The reasons for this are many, but the political debate has been present for decades. Before this type of plan can be considered, though, the relative benefit must be assessed: "would it be beneficial to Americans' health?"
It is the purpose of this paper to assess and compare the health status of the United States with a country that has a national health plan to determine if, on the basis of health, a universal plan would be beneficial to our population. The research for this paper included a literature review for the most effective method of measuring the health of a population, and then obtaining and comparing statistical data between the US and Denmark using the health indicators deemed most reliable by current research. The statistics show that Denmark has a higher level of health for the measures I employed. Thus, it appears likely that the health of Americans could benefit from a national health plan.

Introduction

Over two hundred years ago our ancestors joined together for a common cause: equal rights. Colonists loudly proclaimed their virtues in the Declaration of Independence as "all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness". For eight years settlers fought a bloody battle against British countrymen to establish these rights. At the war's end in 1883 colonists had formed the United States of America. Americans were a united people – united in freedom and in defense. But are we still united today in protecting each other's quality of life as mentioned in the famous words of the Declaration of Independence? How does a country so united in ideals develop a health care system that is so divided? Like two sides of a war, we are divided as big businesses and average Americans are fighting each other daily on the healthcare front. Is this the most effective system to protect the most important factor of our lives? It is not a career or education or money that sustains you, but it is your health that determines your survivorship. Without it, you have nothing. Are we putting our own health at risk?

Is it really to our advantage to have our health care services based on privatization? For example, it is obvious that over the past year the struggle to afford prescription medications among the disadvantaged and elderly has increased significantly. Various factors can be identified for this decline in affordability, but the effects of the market,

increased profit margins and loose pricing regulations among top pharmaceutical companies is undeniable. The healthcare system is influenced by the market, private insurance companies, pharmaceutical companies, manufacturers, etc. Because these key players are independently owned, a major focus is to increase profit. Thus, the goal of obtaining the best value for our money becomes obsolete. So, is this to our advantage? What kind of effect, if any, does this have on our health? The alternative is to have a universal health plan in which the government provides health coverage for all citizens. National health plans are currently implemented in approximately 30 countries around the world, including Australia, Canada, Denmark, Germany, Japan, and the United Kingdom. Thailand, South Africa, and Mexico are in the process of joining these other successful countries in applying national health care.

The debate over implementing a universal health plan for the United States has flooded journals, magazines, and even political campaigns for years. Each author presents his or her view using projections on economy and other potential side effects of a new system, but few report on the effect of health. Would this new healthcare system positively affect our health as a nation? The health of a population is theoretically the end-product of its respective health care system; therefore, we must first evaluate the health of the US population in order to evaluate the productivity of our current system and make appropriate policy decisions. Within this paper, I attempt to assess and compare the health status of the United States with a country that has a national health plan to determine if, on the basis of health, a universal plan would be beneficial to our population. The country chosen for comparison was Denmark. Based on the most

relevant health indicators, I expect that the United States population has a lower health status than Denmark, thus supporting the implementation of a national health plan. The research for this project included a literature review for the most effective method of measuring the health of a population, and then obtaining and comparing statistical data using the health indicators deemed most reliable by current research.

Measuring the Health of a Population

Measuring health is a difficult task. First of all, the mere definition of health varies between organizations, researchers, and individuals. Good health can be defined as the absence of disease and disability, or it can be a more complex meaning that includes emotional well being. The World Health Organization (WHO) attempts the latter by defining health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". Inevitably, this clouds how to classify if someone is in overall good health and the method by which to determine their level of health. Not to mention the undetectable precursors to which more serious health problems arise, such as the relationship between hypertension and cardiovascular disease (Cutler 5). Furthermore, trying to account for mental and social well-being across a large population group complicates this process even more. Even to this day there is not a consensus on how to evaluate the health of a community (Balinsky 284).

Despite these discrepancies, researchers have individually developed a health index, which is a "quantifiable set of variables" (Balinsky 284) for measuring specific community health. Warren Balinsky and Renee Berger provide a historical review of different attempts researchers have used as health indicators. They cite specific indexes developed, the disadvantages of each, and the major obstacles associated with trying to create a tool to measure health. Two of these obstacles have already been discussed: the

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definition of health and specific measurement thereof. Other problems cited by Balinsky and Berger include "statistical reliability and validity and sensitivity/applicability". Constructing a feasible index that can accurately depict all aspects of health and then be applied to multiple communities, which means it must also account for differences in culture, geography, environment, and economic dissimilarities, has proven to be an almost impossible endeavor that has yet to be solved.

Mortality

Even though the perfect system for comparing the health status of different populations hasn't been successfully designed, the most widely accepted and traditional measurement tool is mortality (Balinsky 285). Mortality data remains one of the most reliable methods of evaluating health for many reasons. Since mortality is based on life expectancy, the variables (birth and death) are very well defined. This makes the acquisition of data a relatively easy task, and the results are high in variability and reliability. The major downfall to the use of mortality data is the fact that it is insensitive in relating the condition of illness or wellness for the time in between birth and death (Balinsky 285).

In a recent study, Marsha Cohen and Leonard MacWilliam proposed 102 health indicators for measuring the health of the population in Manitoba, Canada. The sources of the indicators were derived from "mortality data, from hospital use data, and from physician visit data" (Cohen DS22). From this study, Cohen and MacWilliam identified the need to have a fewer number of indicators due to the fact that the more indicators that are available, the more difficult it is to compare and describe patterns of health. In

subsequent studies, the single indicator that proved most useful was premature mortality, also known as adult mortality measured in the number of deaths between the ages of 0 to 74. Cohen and MacWilliam were also part of larger study whose aim was to create a Population-Based Health Information System using the residents of Manitoba as well. This model included geographic factors, population census, and socioeconomic risk in addition to the health status indicators. This study also concluded that mortality is the best measure of population health status (Roos DS19). It is also supported by the work of David Cutler, who equated health to a monetary value denoted as health capital as a way to measure the health of the U.S. population, that mortality is the most fundamental measurement tool (Cutler 12). Thus, it seems that the oldest form of measuring the health status of a population remains the most useful and reliable statistic to evaluate and compare health.

Morbidity

A more recent approach to measure health status is morbidity. Morbidity focuses more on the prevalence and incidence of illness and/or extent of wellness or quality of life (Balinsky 286). The problem with morbidity indicators, though, is that the input variables are not as well defined as mortality data, and that a large majority of the data are subjective. Common collection tools are the use of surveys to obtain such subjective information (Balinsky 286), and are more complex to design than a mortality index. Even attempts to design such morbidity based surveys, such as the Mayo Clinic Questionnaire and the Cornell Medical Index, do not "offer a composite describing how the respondent rates his/her condition of healthiness" (Balinsky 288). Obviously, this

data is biased among different cultures and geographic locations, making it more difficult to compare between different nations. However, Jordi Alonso, et. al. devised a questionnaire focusing on the effect of chronic conditions on health-related quality of life for international population comparisons (283). Their study consisted of eight different countries, including Denmark and the United States and some of their results are described here on page 18.

Another problem with morbidity is that the cause for changes in status over time is not as clearly identifiable, and reduced mortality results in "keeping sicker people alive, reducing health among the living" (Cutler 18). So, are people living longer healthier lives, or are the extended life years encountered with suffering, misery and stress? The theory of morbidity attempts to investigate these types of issues through the use of surveys and linear regression analysis. However, if more reliable data, such as mortality, can also reflect the quality of life, then it seems as though mortality is the best indicator of health. The Manitoba case study by Cohen and William provides sufficient evidence that this very proposition is true. The relationship between mortality and socioeconomic status corresponds to the same gradient observed of the relationship between socioeconomic status and morbidity. Results show that the "lower the socioeconomic status (whether measured by income, education, or other indices), the poorer the quality of life reported" and that "mortality indicators alone appear to be sensitive to differences in health status across populations" (Cohen and MacWilliam DS39).

A case study carried out by Shari Bassuk, Lisa Berkman and Benjamin Amick III, supports the common trend linking health and socioeconomic status (SES) and provides a more direct link to mortality. Linear regression models and traditional measures of SES, such as the ones mentioned above, were examined and analyzed among the elderly in four communities in the United States: East Boston, New Haven, East-central Iowa and Piedmont region of North Carolina. Results indicate that an increased SES results in decreased mortality despite which measure of SES is used (Bassuk 531). Therefore, any irregularities between the SES of populations in Denmark and the United States, will be compensated and representative of mortality data.

There are also variables or indicators that are used in evaluating the effectiveness and performance of a health care system. These variables include hospital use, physician access, number of services/hospitals available, hospitalizations etc. Cohen predicted that these measures would be sensitive to the performance of the system and act differently than other indicators of health, as would be expected because they are measuring two different factors. Also, the traditional measures of health such as low birth rate and mortality are "more likely to be influenced by social determinants and therefore less sensitive to good or bad health care delivery" (Cohen DS37). Nevertheless, the performance indicators yielded similar results as the mortality data. So, again, mortality data continues to provide the best measure of health without neglecting other important variables involved with healthcare.

Based on the previous research, mortality is the most significant and the most reliable method to measure health. The variables classified as mortality are well-defined and easily accessible, which creates a high level of validity among different nations. The best measurement tool, though, would be a combination of mortality and morbidity. But adjusting for the morbidity factors has proven to be in vain because such an effective tool has yet to be successfully implemented (Balinsky 290). Previous attempts to create a unified index inadequately define the level of health or unhealthiness, ignore disease disabilities, or merely expand on mortality data and risk factors.

Therefore, for the purposes of this research, I primarily use mortality data to compare the relative health of Denmark and the United States. General risk factors that are associated with chronic conditions that are precursors to the leading causes of death, such as heart disease or cancer, are also presented in order to compensate and provide insight for cultural differences.

Results

The data presented within this paper was obtained solely through the World Health Organization (WHO). The WHO electronic databases used are WHO Statistical Information System (WHOSIS), Global Infobase, Global Alcohol Database, and the Pan American Tobacco Information Online System (PATIOS). One of the primary functions of WHO is to research and compile statistical data for all of the WHO Member countries, which includes Denmark and The United States of America. WHO is internationally recognized for conducting high quality research methods across, so the validity of the data presented here is upheld with confidence. Also, using WHO as the only source eliminates discrepancies among data acquisition, evaluation, and presentation (units of measurement used in reporting the data).

At first, it may seem that these two countries, Denmark and The United States, are two starkly different populations of people among culture and lifestyle. After all, the United States has a population of 298 million, while Denmark consists of a mere 5 million. By this statistic alone it is apparent that the United States has a greater amount of diversity than Denmark, thereby influencing many of our lifestyle dynamics and risk factors. However, there are also many similarities between the two countries in regards to health. Both countries suffer from the same top cause of death – ischemic heart disease. This

disease accounts for relatively similar percentages for each country: 17% of Denmark's

population and 21% of US population. Not only is the number one cause of death the

same among these countries, but 9 of the top 10 causes of death are also the same. This

supports that while differences do exist, they tend to affect our health in similar ways.

What does differ, though, is the incidence and prevalence of these diseases.

Several different mortality indicators were chosen, based on availability, relevance, and

previous research. Mortality rates for each age group are shown in Figure 1. This data is

not cause-specific; it is representative of all deaths within each age group for males and

females.

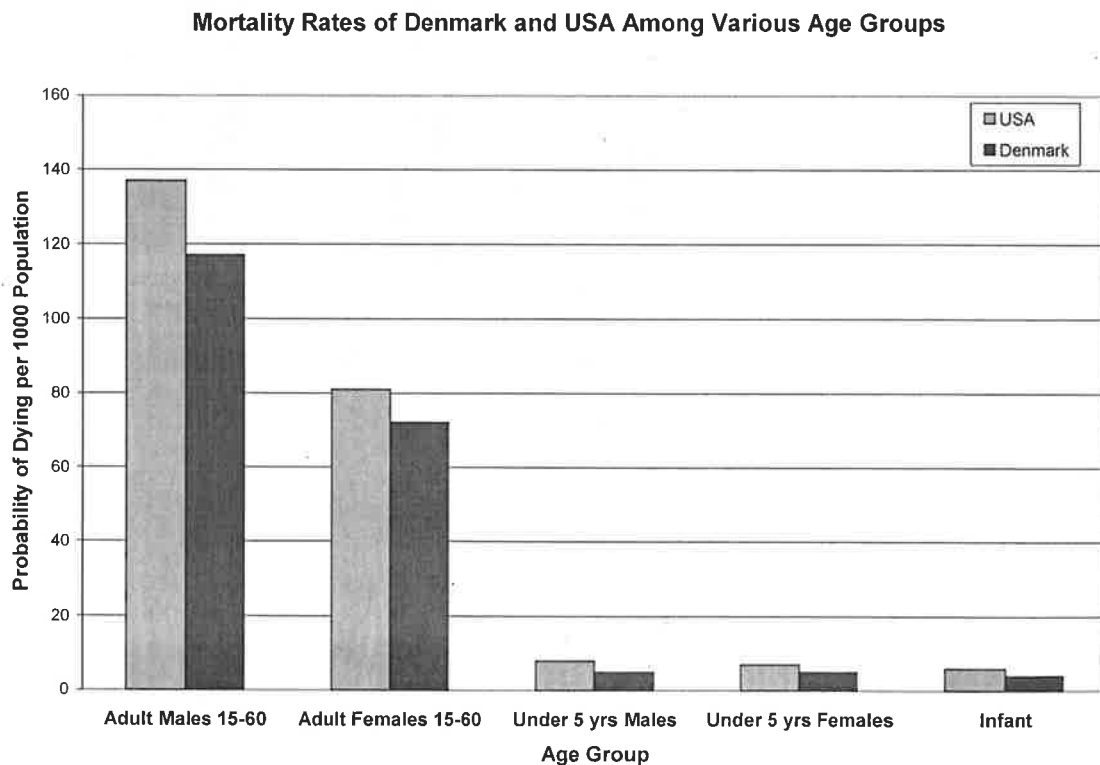**Mortality Rates of Denmark and USA Among Various Age Groups**

Figure 1. Comparison of mortality data between Denmark and US for adult, child, and
infant age groups.

The graph clearly shows that the United States has a higher mortality rate among all of the age groups. So regardless of the reason for death, out of 1000 people, more Americans will die than Danes per year. Age standardized mortality rates for various causes are presented in Figure 2.

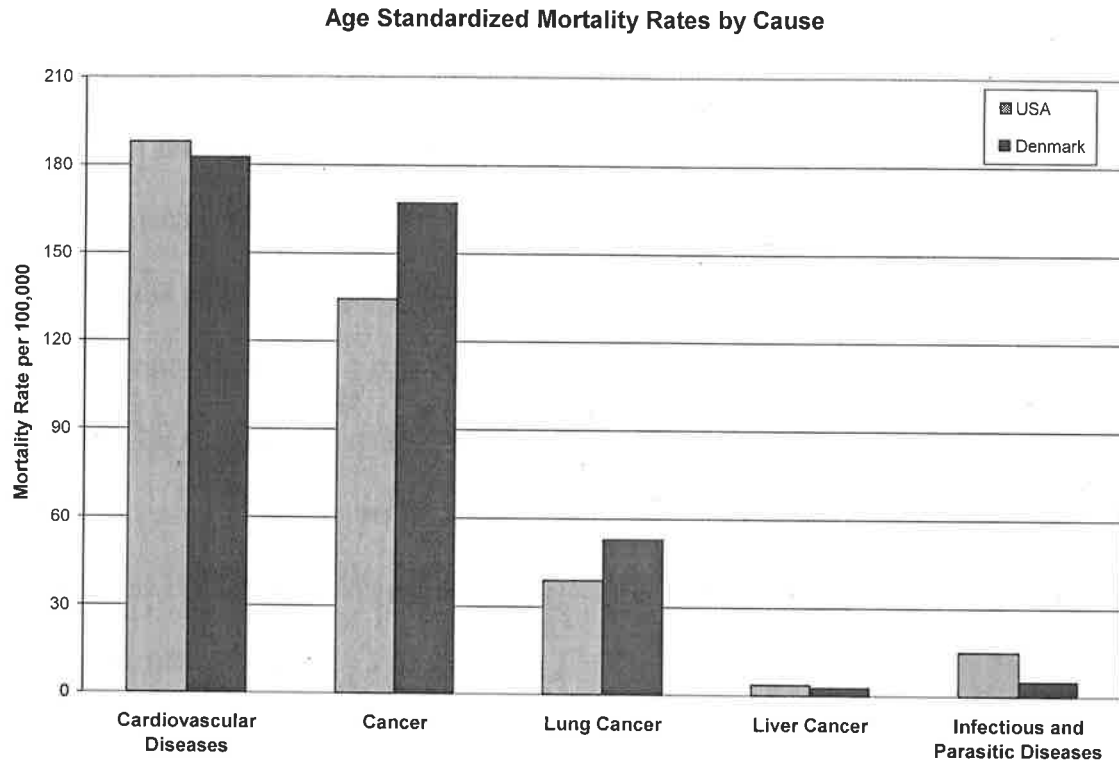**Age Standardized Mortality Rates by Cause**

Figure 2. Comparison of mortality data between Denmark and US categorized by cause of death.

In 2002, the United States mortality rates for cardiovascular diseases and infectious and parasitic diseases visibly exceed Denmark's mortality rate (WHOSIS). However, Denmark's population has a higher probability of death from lung cancer as well as all cancer-related deaths. The higher incidence of lung cancer is not surprising considering that Denmark has a higher adult smoking prevalence (25%) than the United States (17.6%) (PATIO). Also, the mortality rate due to HIV/AIDS is much higher in the U.S.

than in Denmark. This was not included in Figure 2 because the rate for the U.S. is so

high that it makes the other categories indistinguishable from each other. Deaths due to

HIV/AIDS per 100,000 populations per year in Denmark are less than 100, whereas for

the United States it is an overwhelming 14,000 (WHOSIS).

Comparing the mortality due to liver cancer is more surprising when the risk factors for

alcohol use are examined. First, there is a much higher percent of Americans abstaining

from alcohol for their entire lifetime. Secondly, both countries received the same score

of pattern drinking. WHO has developed a way to measure consumption patterns where

"the higher the pattern score, the greater the alcohol-attributable burden of disease"

(Global Alcohol Database). So, more Danes consume alcohol within a lifetime and both

populations have an equal pattern of consumption relative to diseases caused by alcohol,

yet the incidence of liver cancer is slightly higher for the United States. Needless to say

alcohol use is not the only cause of liver cancer, but the correlation between the two is

well documented.

Other risk factors commonly associated with fatality-linked chronic conditions include

body mass index, blood pressure, cholesterol, and low birth weight in newborns. Male

and female Americans have a higher mean body mass index, putting them more at risk

for cardiovascular diseases. Americans also have a higher percentage of newborns with

low birth weight than the Danes. Mean blood pressure and cholesterol are similar

between countries (Global Infobase).

Although morbidity and the effect of chronic conditions are difficult to measure, as discussed earlier, the first multinational survey provides insight into this effort. Jordi Alonso and colleagues attempted to assess the impact of chronic conditions on health-related quality of life among eight different countries. Two of these countries were Denmark and the USA. The research methods utilized were cross-sectional mail and interview surveys. The SF-36 survey used contains items ranging from physical functioning and bodily pain to social matters and mental health. Other data used for multivariate linear regression analyses was self-reported prevalence of chronic conditions and sociodemographic data such as age, gender and education. In summary, the impact of these conditions was roughly the same across the eight countries studied. But it is worth mentioning that the prevalence of self-reported chronic conditions was the highest in the US and the lowest in Denmark (Alonso 287).

Conclusion

A clear definable method to measure population health has not achieved general consensus among researchers. Yet, the indicators used in current research suggest that health can reasonably be estimated from the use of mortality data. The most recent data provided for Denmark and the United States supports the hypothesis that the US exhibits a lower level of health than Denmark. The US ranks higher in eight of the ten mortality indicators used as well as the risk factors (mean body mass index and newborns with low birth weight). So, it is without question that Americans are at a higher risk for dying at any age and from common lifestyle-linked diseases like cardiovascular disease and HIV.

One tactic to increase the health status of the US has traditionally been to increase capital allocated to health care services. However, Noralou Roos cites that the "quality of medical care may not be as important to health as commonly assumed" through a comparative study of life expectancy between Japan and the United States (DS14). Over a 40-year time period, Japanese men gained 16.8 years in life expectancy, whereas the U.S. only gained 6.2 years and spent twice as much per capita on health care than Japan (Roos DS14). Even so, the case study of measuring population health in Manitoba, Canada shows that individuals categorized as in poor health had equal access to physicians and other health care services as those who exhibited good health (Cohen DS38). So, the health of a population cannot be inferred based solely on the number and

quality of services, and it cannot be assumed that increasing the funds for health care will increase the health of the population. Coupled with the health statistics of Denmark and the US, it may be more beneficial for the US to focus on national health coverage for all citizens. After all, this system is working for Denmark as well as 30 other countries with better health outcomes than the US.

Despite these benefits, a national health plan has its own disadvantages as well. Among these are an increased waiting time for patients, lower incentives and accountability for health care providers inadvertently leading to lower quality of service, and higher out-of-pocket costs for all citizens. But these setbacks do not seem to make a significant difference in the health of Denmark's population. Further research of cross-cultural comparisons needed to further justify this preliminary study; however, according to the most reliable data available today, Danes are still living longer healthier lives than Americans and thus, the benefits outweigh the costs.

But are Americans ready for such a drastically different health plan? According to a recent poll by the New York Times and CBS a majority of Americans feel as though providing health insurance to all citizens is more important than reducing current health care costs. The majority of Americans also believe that this is the most crucial issue regarding domestic policy at the present time and about half of those surveyed are willing to pay higher taxes or higher insurance premiums in order to accommodate a universal coverage plan (Toner). The widespread support ranges from the general public, physicians, and even our presidential candidates. For example, several organizations

have already been formed to rally for equal health care for all, such as the Ithaca Health Alliance and Physicians for a National Health Program. The Ithaca Health Alliance successfully manages a free health clinic located in Ithaca, NY, offers financial assistance for emergency and preventative care, as well as discounts from participating health practitioners located throughout the area.

Americans are ready to be united again in defending each others quality of life, not by fighting our government or private insurance companies, but by working together to ensure better health care for all. As we have learned from Denmark, we have reason to believe that this new healthcare system will positively affect our health as a nation. The privatization of health care has failed to increase our nation's health long enough. We are considered the superpower always willing to assist others, but are we neglecting to take care of ourselves? A universal health plan is one way we can provide a better quality of life for each other and to uphold our constitutional rights.

REFERENCES CITED

References Cited

Alonso, Jordi, et. al. "Health-related Quality of Life Associated with Chronic Conditions in Eight Countries: Results from the International Quality of Life Assessment (IQOLA) Project." Quality of Life Research. 13 (2004): 283-298.

Balinsky, Warren, and Renee Berger. "A Review of the Research on General Health Status Indexes." Medical Care. Apr. 1975: 283-293. Jstor. UNC-Pembroke, Pembroke, NC. 16 March 2007 http://www.jstor.org.

Bassuk, Shari S., Lisa F. Berkman, and Benjamin C. Amick III. "Socioeconomic Status and Mortality Among the Elderly: Findings from Four US Communities." American Journal of Epidemiology. 155 (2002): 520-533.

Cohen, Marsha M., and Leonard MacWilliam. "Measuring the Health of the Population." Medical Care. Dec. 1995: DS21-DS42. Jstor. UNC-Pembroke, Pembroke, NC. 16 March 2007 http://www.jstor.org.

Cutler, David M., and Elizabeth Richardson. "Measuring the Health of the US Population." Brookings Papers on Economic Activity. 1997: 217-71. Wilson Web. UNC-Pembroke, Pembroke, NC. 16 March 2007 http://0-vnweb.hwwilsonweb.com.

Roos, Noralou P., et. al. "A Population-Based Health Information System." Medical Care. Dec. 1995: DS13-DS20. Jstor. UNC-Pembroke, Pembroke, NC. 16 March 2007 http://www.jstor.org.

Toner, Robin and Janet Elder. "Most Support US Guarantee of Health Care." <u>The New York Times Online</u> 2 March 2007 <u>http://nytimes.com/ref/us/polls_index.html</u>.

World Health Organization. Global Alcohol Database. 18 March 2007 <u>http://www.who.int/globalatlas/DataQuery/default.asp</u>.

World Health Organization. Global Infobase. 18 March 2007 <u>http://www.who.int/ncd_surveillance/infobase/en/</u>.

World Health Organization. Pan American Tobacco Information Online System. 18 March 2007 <u>www.paho.org/tobacco</u>.

World Health Organization. Statistical Information System (WHOSIS). 17 March 2007 <u>http://www.who.int/whosis/en/</u>.