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Chairman Sanders, Senator Burr and members of the Committee, thank you for the invitation to testify.

I will discuss two issues today. First, I will describe trends in U.S. life expectancy and the unequal distribution of mortality risk by socioeconomic status in the United States. Secondly, I will elaborate on options for improving the nation's health, especially related to labor policies for low wage workers. I will frame our options for improving health in terms of what we can do to create a healthy population and prevent disease.

First, U.S. overall life expectancy—that is the expected number of years someone born today can expect to live—has lost ground compared to that of other nations in the last decades, especially for women. I was a member of a recent National Academy of Science Panel on diverging trends in longevity. It found that the U.S. ranked at the bottom of 21 developed, industrialized nations¹ and poor rankings were particularly striking for women. In 1980's our rankings were in the middle of OECD countries in this study. While it is true that LE improved during this time from by 5.6 years for men and 3.6 years for women, other countries gained substantially more in terms of life expectancy, leaving us behind. Furthermore, almost all those gains were concentrated among the most socioeconomically advantaged segments of the U.S. population. And they were more substantial for men than for women. The poorest Americans experienced the greatest health disadvantage compared to those in other countries²,³. At a recent NIH conference, the discussion was focused on the steps required for the US to reach just the OECD average in the next 20 years—not even the top. It seems we have given up on achieving better than average health.

More concerning is the widening gap in mortality—or risk of death—between those at the bottom and at the top in the US. These gaps have widened over the last 25 vears. These patterns are evident whether we look at education, income or wealth differentials, but because the evidence is clearest that education itself is causally linked to health and functioning^{4,5}, I will focus on these associations. For instance, the mortality for men with less than a high school education in 2007, was about 7 per 100. For those with 16 years or more of education, the rate was less than 2 per 100. This corresponds to a three and half fold risk of dying in 2007, compared to 2.5 times the risk in 1993. For less educated women, their mortality risk actually increased absolutely during this time giving rise to an increased risk from 1.9 to 3 in 2007⁶ and this pattern holds even if we confine our analyses to white women⁷. While it is true that fewer adults are in the less educated pool in later years, giving rise to questions about selection issues, it is also true that adults in the highest educated categories have grown over this same time suggesting increased compositional heterogeneity in these groups. Overall while selection into education level occurs, it accounts for only a small part of this widening gap.

While mortality gaps in socioeconomic status have existed for centuries, the magnitude of these differences has grown substantially over time in the United States. These widening disparities suggest that either disparities in the underlying determinants of illness and mortality have also been growing over time or that support to buffer these stressful conditions has changed. In either case, while we may not be able to eliminate health disparities, the fact that the size of the risks varies so much suggests that such large inequalities are not inevitable or innate and,

gives hope that there are ways to reduce the burden of illness for our most vulnerable citizens.

Now, using a public health framework, I discuss the identification of health risks. While health insurance and access to medical care help reduce risks of financial catastrophe and can improve the health of those suffering from illness, health care alone cannot ensure good health and prevent the onset of disease. To illustrate this point, we can think of the aspirin/headache analogy. "While Aspirin cures a headache, lack of aspirin is not the cause of headaches." Headaches are not caused by aspirin deficiency— to reduce headaches we need to focus on what causes headaches. This is what prevention and public health approaches offer. Obviously it would be better to maintain health than have to treat illness once it occurs. Treatments are financially very costly, but more importantly, waiting to treat disease is costly to the quality of lives of all Americans.

What would be required to produce better health among Americans and reduce socioeconomic disparities in health? What do poor socioeconomic conditions influence that could cause such increased risk across such a huge number of diseases across all age groups from the infancy to old age? You are all probably thinking about the usual suspects— smoking, poor diet, and lack of exercise. I'm not going to focus on these usual suspects today, not because I don't believe they pose substantial risks to health, but because we know that it is very hard to change these behaviors without considering the social and economic conditions that shape them. These social and economic conditions are fundamental determinants of health because they influence so many behaviors and access to so many opportunities and resources. Change here will influence a number of channels leading to increased mortality risk. In my testimony I will focus on one of these conditions relating to participation in the labor market

Several years ago, I embarked on a study to assess the relationships between employment, family dynamics and health. We found that employment was almost always associated with better health. These associations lasted well into old age. Women who had the lowest mortality risk in later adulthood had spent some time out of the labor market (a few years over the career path) but maintain steady labor force participation for most of their lives until retirement. Drawing on data from the Health and Retirement Study, we find that the among married mothers, those who never worked had an age-standardized mortality rate of 52.6 whereas mothers who took some time off when their children were young but who later joined the work force and mortality rates of around 40. Single mothers who never worked had the highest mortality of 98 compared to 68 for single mothers who worked.

Selection into the labor force may account for some of this association, but more experimental evidence confirms the positive health benefits of working especially for low-income women and men.

For example, the EITC is associated with improvements in infant health and decreases in smoking among mothers⁸. In an analysis of state variation in the Earned Income tax Credits (EITCs) between 1980 and 2002, Strully finds that EITC's increase birth weights by, on average, 16 grams. To put that in context, it is equal to about a third of the association between birth weight and having a mother with a high school degree. Living in state with EITC reduces the odds of maternal smoking by 5%, and increases mother's odds of working and increases her wages and salary.

Recent evidence from a several studies of maternity leave policies in the United States and Europe suggests that, by protecting employment among mothers in the period around birth, maternity leave leads to better long-term labor market outcomes after maternity including wage level and growth, career prospects, labor market attachment and employability^{9,10,11,12}. Thus not only may maternity leave benefit children and mothers around the period of birth, they may have on term benefits for mothers that extend for decades in later adulthood.

In an observational study of employees in long term care facilities, we found that workers whose managers were attentive to work-family issues had half the cardiovascular risks as assessed by objective biomarkers from blood or clinical exam and healthier patterns of sleep compared to those who worked for less familyfriendly managers¹³. Specifically, employees whose managers maintained family friendly practices were less likely to be overweight, had lower risk of diabetes and lower blood pressure. Based on objective measures of sleep using actigraphy monitors, these same employees slept almost 30 minutes more per night than their counterparts. For nurses and certified nursing assistants in low and middle wage jobs, these are important risks to which they were exposed.

Such research suggests that labor policies and practices that support men and women in the labor force and especially help those with caregiving obligations are health promoting. These policies and practices have health effects that are not often "counted" as we think about their costs and benefits. Men and women will need opportunities and flexibility and schedule control to enter and remain in the labor force given the inevitability of having to care for children, parents, or partners at some point in time. Our goal for women should be to enable them to be successful in their productive as well as reproductive lives. Right now, we make this very difficult. Our labor policies challenge working class families to remain committed to work and to their families. For example, over half (54%) of low wage earners lack sick leave or vacation to take care of families and around 30% of middle income families lack such leave¹⁴. Even fewer have parental leave.

We have shown that we can identify the socioeconomic disparities in health with some precision. Solutions that help to maintain low and working class men and women in the paid labor force have clear health benefits. The EITC, pro-family work policies and practices and parental leave are examples of polices that impact health of low income working families. Targets enabling adults to participate in the paid labor force while not risking the health and wellbeing of their family members show particular value. Metrics for evaluating social and economic policies do not currently include health metrics. The health spillovers of such policies would increase the benefits of such policies in any cost-benefit equations. We want to ensure that Americans, particularly those living in poverty and working class families aren't robbed of healthy years of life.

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