

The Health of Urban African American Men:  
Excess Mortality and Causes of Death.

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## Summary of Major Findings and Conclusions

### Overall Health and Mortality

- \* Young adult and middle-aged African American men living in impoverished urban areas experience about 3 to 4 times the white national death rate or as many as 1,296 more deaths per 100,000 population each year than white men nationwide.
- \* African American men in some poor urban areas face lower probabilities of survival to age 45 than white men nationwide face to age 65. In these urban areas two-thirds of 15 year old males cannot expect to survive to age 65. This represents less than half the probability of survival to age 65 of white males nationwide.
- \* African American men in poor urban locales who do survive into middle age are as much as three times more likely to suffer a health-induced disability than white men nationwide. Residents of poor urban populations experience about the same prevalence of disability at age 20 as do 50 year old whites nationwide. Combining their probabilities of early death and disability, at least half of 15 year old boys in some poor urban locales can expect to die or become disabled by age 50.
- \* Black baby boys born in major metropolitan areas face 2.1 to 3.5 times the risk of dying in infancy of white baby boys. In poor African American communities, the health of young women deteriorates sufficiently rapidly that postponing childbearing beyond the teen ages increases their infants' risk of having a low birth weight or dying.

### Causes of Excess Mortality

- \* Deaths to circulatory diseases alone constitute more than one-third of all deaths to young adult through middle-aged African American men in poor urban areas and about one fourth of the excess deaths they experience each year relative to white men of these ages nationwide.
- \* For 15 -19 year old African American males in major metropolitan areas homicide is the leading cause of death. Among males of these ages, the number of excess deaths due to homicide doubled in New York City and tripled in the Detroit and Chicago metropolitan areas between 1980 and 1990.
- \* For older young adult and middle-aged urban African American men homicide contributes between 10-20% of all deaths, but homicide accounts for virtually none of the growth in their excess death rates between 1980 and 1990. Growth in excess death rates for men in this age group was accounted for by increases in deaths due to circulatory disease, cancer, and, in some locales, AIDS. For example, in Harlem, between 1980 and 1990, deaths due to circulatory diseases or to cancer each doubled for men, while AIDS deaths added an additional 300 excess deaths per 100,000 men per year.

### Conclusions and Implications

- \* African American men in poor urban locales are uniquely disadvantaged. No identified group of young through middle-aged adults suffers as staggering or growing mortality disadvantages -- not black men in impoverished rural areas, nor black women in poor urban areas, nor white men in poor urban areas, nor black men in higher-income urban areas. Even if all deaths to homicide or AIDS were eliminated, African American men in poor urban areas would suffer significantly higher death rates than members of any of these comparison groups. Chronic disease deaths in young adulthood and middle age are critical contributors to these disparities.

\* The extent of excess mortality during the prime of life -- the reproductive and working-ages -- should be added to the "report card" for judging the success of governing bodies in fulfilling equitably the mission of public health to assure citizens the conditions in which they can be healthy.

\* Eliminating the staggering disparities in the probability of survival to or through middle-age should be recognized as a high priority policy goal. As a nation, we may need to turn our attentions to reducing documented disparities in morbidity and mortality, before we can expect to see significant progress toward other important social policy goals for poor urban communities such as reducing the teen birth rate, enhancing family security or assuring stable employment patterns.

\* Multilevel, comprehensive initiatives are called for that work not only at the individual level, but also at the levels of families, social networks, communities, public institutions, and structural systems. Breaking down negative stereotyping is also important to develop effective interventions and achieve public support for them.

Nationwide, African American men consistently experience elevated levels of mortality (NCHS 1997; Sortie et al. 1995; USDHHS 1985), as well as disproportionate morbidity rates including a relatively high prevalence of severe functional limitation secondary to chronic illness (LaPlante and Carlson 1996; McNeil 1993). These disparities are widely recognized as a public health problem (USDHHS 1985; Michigan Department of Public Health 1995; Voss 1997), and the reduction of racial differentials in health status has been identified as a high priority objective of the U.S. Public Health Service (USDHHS 1991). Despite the considerable attention focused on African American men as a group, however, the particularly stark health disadvantages facing those living in impoverished urban areas remain underemphasized and misunderstood.

African American residents of persistently impoverished urban areas appear to suffer the worst health (McCord and Freeman 1990; Geronimus et al. 1996; Geronimus et al. in press; Guest et al. 1998). Between 1980 and 1990 this already severe disadvantage grew larger (Geronimus et al. in press). Popular images portray urban health disadvantages as applying mainly to inner-city youth, often the result of increasing rates of homicide or HIV infection. Yet, recent scientific analyses discussed below reveal that important social disparities in morbidity and mortality apply not only to youth but also extend throughout the young adult and middle ages. Moreover, analyses of causes of premature death show that popularized images emphasizing the role of homicide and HIV/AIDS are overly simplified.

#### Analyses of Excess Mortality among African American men, ages 15-64

These points are starkly illustrated in analyses of excess mortality among all African American males, ages 15-64, residing in four persistently impoverished urban areas in 1990: Harlem, Central City Detroit, South Side Chicago, and the Wafts area of Los Angeles. Data for white and black men of these ages nationwide in 1990 provide a comparison. As Table 1 shows, there is substantial income inequality between families in the study populations and those in the nation. Mean family income for blacks nationwide is about \$18,000 lower (or 38% less) than for whites nationwide, and the percentage of black families with incomes below the poverty level is almost 4 times the rate for whites. Mean incomes are lower still for residents of the local urban study populations. Their percent of families in poverty are higher, ranging from 33% to 58%, compared to only 7% for whites nationwide.

**Table 1. Summary Data on the Study Areas, 1990\***

Mean Families

Family Below the

Number of Income Poverty Level"

Area Inhabitants (1990\$1

#### **U.S. POPULATION**

Total 248,709,873 43,803 10.0

Whites 199,827,064 46,330 7.0

Blacks 29,930,524 28,659 26.3

#### **URBAN, AFRICAN AMERICAN LOCALES**

Harlem 101,697 24,174 33.1

Central City Detroit 98,833 19,841 44.3

Southside Chicago 101,895 16,651 58.2

Watts 98,488 23,743 35.4

\*Author's calculations based on the 1990 U.S. Census of the Population "The poverty levels were those defined by the Bureau of the Census

For blacks, nationwide, and for each local urban population, several measures of mortality are computed (see the appendix for a more detailed account of the estimation procedures):

Excess Mortality Rate (EDR): This measure shows how many more deaths per year occurred to men, ages 15-64, per 100,000 population in the black or local population than would have occurred if they experienced the same number of deaths per 100,000 population as white men of these ages experienced nationwide.

Age Adjusted Rate Ratio (RR): This measure shows how many times higher the death rate is in the black or local population for men ages 15-64 than it is for white men of these ages in the nation.

P (45) and P (65): These measures show the probability a typical 15 year old boy in a national or local population faces of surviving to age 45 or age 65; and

Average Number of Years of Life Lost between ages 15 and 65 (YOLL): This measure averages across every man in a specific locale who dies between his 15th and 65th birthday. Each man who dies contributes to the average the

number of years remaining between his age at death and his 65th birthday. (For example, a man who dies at age 20 contributes 45 years to the overall average; a man who dies at age 60 contributes only 5 years to the average.)

**Table 2. Measures of Mortality Among Black and White Men 15 to 64 Years Old in Selected Populations, According to Sex, 1990**

Annual Age Adjusted

Annual Total Excess Rate Ratio

Death Number of Death (95% Confidence

Rate Deaths Bate Interval) P 45\* P 65\* YOLL\*

**TOTAL U.S. MALE POPULATION**

Blacks 791 69,439 374 1.90 (1.88,1.91) 0.88 0.62 5.78

Whites 417 282,076 0 1.00 (1.00,1.00) 0.94 0.77 3.10

**URBAN AFRICAN AMERICAN LOCALES**

Harlem 1,713 1,600 1,296 4.11 (3.91,4.31) 0.71 0.37 11.33

CC Detroit 1,163 1,881 746 2.79 (2.66,2.92) 0.81 0.50 8.63

SS Chicago 1,713 1,222 1,296 4.11 (3.88,4.34) 0.73 0.37 11.71

Wafts 1,216 1,449 799 2.92 (2.77,3.07) 0.77 0.50 9.69

\*P45 = Probability of survival to age 45; P65 = Probability of survival to age 65; YOLL = Average Years of Life Lost between ages 15 and 65.

Source: Author's calculations using vital statistics and census data. See appendix and Geronimus et al. (1996; in press) for details.

Table 2 shows great inequalities in levels of excess death for men in the prime of life. Nationwide, African American men experience an annualized rate of excess deaths relative to whites of almost 400 deaths per year and have a standardized mortality ratio approaching 2. These are typical of the size of the racial disparity in mortality more generally reported. It is clear, however, that this level of social disparity, disturbing as it is, vastly understates the level of excess mortality experienced by young adult through middle-aged African American male residents of central cities.

In the study areas, annualized excess death rates range from 746 (in Detroit) to 1,296 (in Harlem and Chicago). Age adjusted rate ratios range from almost 3 to more than 4 times the white death rate.

The final 3 columns of Table 2 show estimated probabilities of survival to ages 45 or 65 (conditional on survival to age 15) and the average number of years of life lost between ages 15 and 65 in each population. Social inequalities in these outcomes are evident. Almost every white youth can expect to survive to age 45 and more than three-quarters can expect to survive to age 65. For black men, nationwide, the probabilities are reduced. 88% can expect to survive to age 45, but only 62% can expect to survive to age 65. Residents of poor African American urban populations fare substantially worse than this. **African American men in the poor urban study areas face lower probabilities of survival to age 45 than white men nationwide face of survival to age 65.** Men in the poor African American urban populations face an even chance or less of surviving to age 65. In Harlem and Chicago, a full two-thirds of 15 year old males cannot expect to survive to age 65. **This represents less than half the probability of survival to age 65 of white males nationwide.**

Considering mortality rates in terms of years of young and middle adult life lost to the community, the findings are equally sobering. All four local populations studied experienced substantially larger numbers of years of life lost among men of these ages than among blacks or whites nationwide. In two of the local populations, African American men experienced an average of over 11 years of life lost between the ages of 15 and 65, almost twice the number lost for blacks nationwide and almost 4 times the number for whites.

#### *Causes of Excess Mortality*

Decompositions of excess death rates show that circulatory diseases are important contributors to excess mortality in every poor population (see Table 3). Circulatory diseases alone constitute about one-fourth of all excess deaths in most locations (range = 16-30%.) Circulatory diseases are the leading cause of excess deaths for black men nationwide and in Detroit and Chicago, and the second leading cause of excess deaths in Harlem and Watts. This is particularly notable because, of all of the causes of death studied, the base rate for white men nationwide -- against which any excess to black men is measured -- is the highest for circulatory disease deaths. For example, in the Chicago population, there are 310 excess deaths to circulatory disease and 241 to homicide. If these numbers are added to their respective base rates, there are 433 circulatory disease deaths per year to young adult through middle-aged men in Chicago compared to 253 homicide deaths, or 71 % more circulatory than homicide deaths.

**Table 3. Causes of Excess Mortality among African-American Men 15 to 64 Years Old  
Residing in Urban Poverty, 1990**

Circulatory Infect/Pneu/

Disease Cance Acciden Homicide HIV Influenz Other Total

**NATIONAL DEATH RATE PER 100,000 IN WHITE MEN**

123 103 54 12 23 11 92 418

**NUMBER OF EXCESS DEATHS PER 100.000**

Harlem 205 118 20 175 296 150 332 1,296

CC Detroit 192 76 -2 187 38 37 217 746

310 168 109 241 79 82 308 1,296

76 36 259 61 12 116 799

'4~...AUMors ceT77576\_n\_~\_u-sing vital statistics and census data. See appendix and Geronimus et al.

(1996,; in press) for details.

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Much has been made in the popular media about AIDS and homicide in inner-cities. And, indeed, in Harlem, HIV/AIDS is the leading cause of excess death. It alone accounts for almost 300 excess deaths per year. Elsewhere, however, AIDS deaths are not particularly important contributors to excess mortality and are usually outpaced by most other causes of death. As for homicide, it contributes a sizeable proportion of excess deaths in each urban population, from about 14% in Harlem to almost 32% in Watts. In terms of the total death rates, it contributes about 10-20%. Although the number of excess deaths overall to men in Harlem, Detroit and Chicago (data are unavailable for Watts) have grown since 1980, the number of deaths attributable to homicide remained stable between 1980 and 1990 (Geronimus et al. in press). That is, homicide, while an important cause of death among urban, African American men, accounts for virtually none of the growth in excess death rates in these populations. Growth in excess death rates over the decade are accounted for instead by increases in deaths due to circulatory disease, cancer, AIDS (in Harlem) and accidents (in Chicago). Some of these increases were dramatic. For example, in Harlem, deaths due to circulatory diseases or to cancer each **doubled** for men in this time period.

AIDS or homicide deaths disproportionately kill people earlier in their adult lives than other important causes such as circulatory diseases or cancers. Thus, although AIDS is a relatively unimportant contributor to total excess deaths (outside of Harlem) and excess homicide deaths, while important, may be less so than popularized images suggest, it might still be true that these causes of death take a large toll on the younger members of the 15-65 year old age group. As discussed below in the section on children, this appears to be the case for homicide in the 15-19 year old age group. But to gauge this for the broader age group of young through middle-aged adult men, the bar graphs in Figures 1 subdivide the average years of life lost according to the fraction due to AIDS, homicide, and all other causes. Note that in comparison to other summary measures, using the average years of life lost as the denominator highlights the contribution of AIDS or homicide to mortality in the younger part of the age distribution under study. This is because those who die at younger ages (i.e. those who are more likely to die from AIDS or homicide) will contribute more to the average years of life lost than those who die at older ages (i.e. those who are more likely to die from circulatory disease or cancer). For example, a 19 year old homicide victim will contribute 46 years towards the average years of life lost; while a 49 year old dying from heart disease contributes only 16.

Even with this "magnification" of the importance of deaths due to AIDS or homicide, these causes alone explain only a share of the observed mortality differences between African American men in poor, urban areas and white or black men nationwide. Such differences would remain substantial in the absence of AIDS or homicide deaths and continue to reveal important social disparities. In the absence of deaths to AIDS or homicide, the average years of life lost by men between ages 15-65 in each urban population would be: Harlem: 7.25; Detroit: 5.83; Chicago: 8.26; and Watts: 5.65. These are 2 to 3 times the number for U.S. whites (2.71) and 1.4- 2 times the number for U.S. blacks (4.16).

#### Comparison Groups

Before discussing the implications of these findings, let us take a brief look at how excess mortality among African American men in urban poor locales contrasts with several natural comparison groups. How do they compare relative to rural poor African American men? to urban poor African American women? to middle class black men in metropolitan areas? to urban poor white men? How unique is the mortality experience of African American men in poor urban areas?

#### *Rural poor African American men*

Where they have been estimated, rates of excess mortality and standard mortality ratios

Figure 1. Years of Life Lost by Cause Among Males, 1990

14.00  
 12.00  
 10.00  
 8.00  
 6.00  
 4.00  
 2.00  
 0.00

P  
 ~I  
 I  
 II  
 I  
 I

US Whites US Blacks Harlem Central City South Side Watts

Detroit Chicago

MAIDS/HIV

\* Homicide

\* All but Homicide/ AIDS

for young adult and middle-aged African American men living in poor rural areas relative to white men nationwide are considerably lower than in the urban locales (Geronimus et al. 1996; Geronimus et al. in press). Despite higher than average poverty rates in the rural areas studied, men's excess mortality experience is generally comparable to that of black men nationwide. So, too, are their probabilities of survival to ages 45 or 65 and their average years of life lost.

Homicide plays a smaller role in excess deaths to black men in poor rural areas, and AIDS plays virtually none at all. Circulatory disease and cancer deaths are the largest contributors to excess deaths in rural areas, but even

these deaths are fewer than in urban areas. (Only excess deaths due to accidents tend to be higher in rural than in urban areas). However, even in the absence of AIDS or homicide deaths, deaths in rural areas would be substantially less than in urban areas. For example, in 1990 the average YOLL for men **excluding homicide or AIDS deaths** in highly impoverished rural areas in the Louisiana Delta and the Black Belt region of Alabama -- areas where almost half of all families have incomes below the poverty level -- are 4.76 and 4.72, respectively. These are lower than in any of the urban areas studied. In the worst cases, Harlem and Chicago, the average YOLL excluding deaths to homicide or AIDS are 55 and 78 per cent higher than in these impoverished rural areas.

#### *African American women in poor urban areas*

African American women, ages 15-64, living in the same poor areas of Harlem, Detroit, Chicago, and Watts experience excess mortality relative to white or black women nationwide, but their excess mortality rates are substantially lower than those of men living in these areas (Geronimus et al. 1996; Geronimus et al. in press). Their annualized excess death rate ranges from 355 (in Detroit) to 569 (in Chicago) compared to 746 and 1,296 for men in these locales, respectively. Their probability of survival to ages 45 or 65 is substantially lower than national averages for women. About one out of three 15 year old girls in these locales will not live to their 65th birthday, compared to one out of five for white girls nationwide. Still, these are substantially better odds than faced by 15 year old boys in these locales.

Circulatory disease is the leading cause of death and excess death to women in these areas. Cancer deaths is usually the second or third leading cause. AIDS is the second leading cause of excess death among Harlem women, but, as with men, is relatively unimportant in other locales. Homicide is the second or third leading cause of excess death among women in Detroit, Chicago and Watts, but in absolute numbers trails circulatory disease deaths (among women) or homicide deaths among men by a wide margin. While homicide is certainly an important part of why men in these locales fare worse than women, it does not explain the full disparity. For example, average YOLL for women between ages 15 and 65 excluding deaths to AIDS or homicide are 4.25, 3.18, 4.66, and 3.47 for Harlem, Detroit, Chicago and Watts, respectively. These are about two-thirds the numbers of YOLL excluding these causes for men in the same locales.

#### *Black men in middle-class metropolitan areas*

The more advantageous mortality experience of young through middle-aged black men nationwide compared to that of men in the poor local areas alone suggests that middle-class black men fare better than those in poverty, while faring

worse than whites, nationwide. In addition, the mortality experience of young through middle-aged black men residing in communities with higher mean incomes and lower poverty rates, but within the same major metropolitan areas as some of the poor local populations, has been studied (Geronimus et al. 1996). These higher income populations are drawn from the Queens and Bronx boroughs of New York City; from Northwest Detroit; and from the Crenshaw-Baldwin Hills area of greater Los Angeles. The mortality experience of black men in these areas is similar to or better than that for black men nationwide, and, therefore, notably better than that of their counterparts in poor, urban neighborhoods. In 1990, African American men in the higher-income area in New York City faced a mortality profile that approximated that of white men nationwide. This finding suggests that when a black population enjoys the same degree of economic advantage as a white population, it also has a favorable mortality rate. The higher-income area in New York City included a large number of West Indian immigrants (30%), but even when looking only at the mortality experience of native-born African American residents, their mortality rates were comparable to those for white men nationwide. Comparing mortality rates directly between the urban poor population in a specific metropolitan area and the better-off suburban population showed that male residents of the poor area had SIVIR's ranging from 1.5 to 3.5 the mortality rate of male residents of the higher-income locality.

#### *Poor urban white men*

White male residents of poor, urban areas in the Lower East Side of New York City, Cleveland, and Detroit have been studied (Geronimus et al. 1996; Geronimus et al. in press). It should be noted that while these populations all had median incomes well below -- and poverty rates well above -- the white national average, they tended to be economically better-off than the poor, urban black populations. This reflects the national distribution of income, where, outside of specific, rural areas in Appalachia, poverty among whites tends to be less concentrated or deep than for some African Americans. Differences in total wealth between blacks and whites may exceed their income differences (Williams and Collins 1995).

White men living in these poor urban areas experience excess mortality relative to white men nationwide, with SIVIR's ranging from about 1.5-2.0 times the white rates. Their levels of excess mortality are comparable to those of poor, rural blacks or blacks nationwide, but are well below those of African American men living in poor urban areas. Furthermore, their rates of excess mortality show less evidence of having grown than those for poor, urban black populations (Geronimus et al. in press). In terms of causes of death, AIDS accounts entirely for excess deaths among

poor whites in the Lower East Side, but accounts for less than 10% in Cleveland and none in Detroit. Homicide contributes less than 10% of excess deaths in any of these locales.

While HIV in Harlem and homicide in each of the urban, poor black locales account for some of the discrepancy in levels of mortality between urban poor black and white men, they fall far short of explaining it in its entirety. Excess deaths due to diseases of the circulatory system and cancer are also very important. For example, in Harlem there were 205 and 118 excess deaths to circulatory diseases and cancer respectively, compared to 15 and 0 in the Lower East Side. In Chicago there were 310 and 168 excess deaths to circulatory diseases and cancer respectively, compared to 138 and 52 in Cleveland. For blacks in central city Detroit there were 192 and 76 excess deaths to circulatory diseases and cancer respectively, compared to 138 and 56 for Detroit whites.

In sum, while other residents of poor or black areas (black women or white men residing in poor urban areas; black men residing in suburban or poor rural areas) experience some degree of excess mortality in their young adult through middle ages relative to whites nationwide, there appears to be no identified group who suffers as stark and growing mortality disadvantages as young through middle-aged African American men living in poor, urban locales. In isolated instances, AIDS deaths explain an important share of the added mortality burden, as do homicide deaths in all areas studied. However, even in their absence, African American men in poor urban locales would be uniquely disadvantaged. Chronic disease deaths in young through middle age, such as those due to diseases of the circulatory system or cancers, are critical contributors to these disparities.

### Children in Urban Areas

#### *Infants*

African American infants are more likely than white to be born pre-term or low birthweight and, on average face twice the risk of death (US DHHS 1991). These differentials have persisted for decades, in the face of spectacular declines in infant mortality rates (Wise and Pursley 1992). In 1990, black male children under the age of 1 were more than twice as likely to die than white male children of the same age. Due to small numbers, there are no studies of small local areas that stratify infant mortality rates by sex. However, 1990 infant mortality rates in the local study areas in Harlem, Detroit, Chicago and Wafts for both sexes combined were two and one-half to four times the white national average (Geronimus 1997; and additional tabulations by author). In Michigan in 1989, the odds of being low birth

weight for black infants living in local areas with mean incomes in the bottom 20% of black communities was approximately 4 times the rate for white infants and 1.5 times that for other blacks (Geronimus 1996).

Contrary to conventional wisdom about high rates of low birth weight or infant mortality in poor communities, the problem here is not due to high rates of teenage childbearing. In the poorest African American communities in Michigan, infants with 15-year-old mothers were one half as likely to have a low birthweight as those whose mothers were 25, and one-third as likely as those whose mothers were 35. Very low birthweight rates increased 4-fold over these maternal ages (Geronimus 1996). So, too, in Harlem, 1990 infant mortality rates for teens were half those for mothers in their 20's (Geronimus 1997). One reason for such surprising and distressing findings relates directly to the health crisis faced by African American residents of poor urban areas: In poor African American communities, the health of women deteriorates sufficiently rapidly over the young adult ages that postponing childbearing **increases** their infants' risk of pre-term birth, low birth weight, or death (Geronimus 1992, 1994; Geronimus and Korenman 1993; McCarthy and Hardy 1993).

Sex-specific infant death rates have been calculated for larger geographic aggregations including the entire major metropolitan areas of New York City, Chicago, and Detroit (Hillemeier 1998). The disparities are very high. In 1990, black male infants in these metropolitan areas faced 2.1 to 3.5 times the risk of dying of white male infants nationwide. Black male infants in the Chicago metropolitan area had infant mortality rates of 29/1000 births compared to 9/1000 for white males nationwide. The black/white infant mortality disparities among boys grew between 1980 and 1990. Deaths secondary to perinatal conditions, heart disease, HIV infection (in New York City), and pneumonia were important contributors to this increase. High as these disparities are, it is important to note that, given the variation in mortality rates seen for black male adults within metropolitan areas (e.g. between Harlem and the Queens/Bronx locales in New York City or between central city and Northwest Detroit), these metropolitan averages might understate the mortality disadvantages experienced by children in urban areas of concentrated poverty.

#### *Childhood and the Late Teens*

Nationally, in 1990 the overall death rate among black males ages 1-14 was about 1.5 times the white rate. While these mortality rate ratios indicate health disadvantages for U.S. black male children overall, in urban areas the differentials often prove to be greater. Specifically, in the Detroit and Chicago metropolitan areas, black/white mortality rate ratios were 1.7 and 2.2, respectively. Generally, the magnitude of excess deaths in these age groups are much smaller than in infancy or at older ages. However, there is some evidence of growth in the number of excess

deaths at these ages between 1980 and 1990. Fire-related deaths, deaths due to asthma, and homicides are the major causes of excess death among African American males at these ages (Hillemeier 1998).

It is in the late teens that the uniquely severe mortality disadvantage experienced by urban African American males appears to emerge. In infancy and early childhood, African American males are more likely to die than females, but they are not more disadvantaged relative to white males than African American females are relative to white females. By the late teens, excess death rates among males are an order of magnitude higher than they were for 1-14 year olds. For this age group, unlike for older men, homicide accounts for most excess deaths. The number of excess deaths due to homicide doubled in New York City and tripled in the Detroit and Chicago metropolitan areas between 1980 and 1990 among males aged 15-19 (Hillemeier 1998).

#### Poor Health and Disability Among Urban African American Men

Mortality rates don't tell the whole story. Although there is not yet detailed data for children, it is important to point out that for adult men, mortality rates due to chronic conditions such as circulatory disease understate the larger number of men who suffer morbidity-induced functional impairment or reduced quality of life. Chronic diseases do not always result in early death or do so after a prolonged period of illness. Table 4 illustrates this point. Using 1990 Census data, disability rates by race, age and sex are calculated using the responses to questions about limitations in work', mobility' and personal care activities' resulting from health conditions of at least 6 months duration. Table 4 shows that those men who survive into middle age in the local populations report disability rates that are as much as three times the white rate nationwide for a given age. African American youth aged 20 residing in the poor urban populations experience about the same prevalence of disability as 50 year old white men

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1 'Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which limits the kind or amount of work this person can do at a job?'

2 "Because of a health condition that has lasted for 6 or more months, does this person have any difficulty going outside the home alone, for example, to shop or visit a doctor's office?"

3 "Because of a health condition that has lasted for 6 or more months, does this person have any difficulty taking care of his or her personal needs, such as bathing, dressing, or getting around inside the home?"

nationwide. Half of the men who survive to age 65 in Harlem, Detroit, Chicago or Wafts are estimated to be dis abled -- almost double the rate for white men nationwide. When the probabilities of early death and disability are combined, at

least half of the men in each of these local populations can expect to die or become disabled by age 50 (Geronimus et al. 1997). Those community members (other men, women or children) who depend on these men or who are called on to house or care for them during prolonged periods of chronic disability are also profoundly affected. These effects are material, practical, and emotional. Such chronic hardships and uncertainties, themselves, may exacerbate the risk of disease in the affected group.

**Table 4. Estimated Percent Disabled, Young and Middle-aged Men in Selected Populations, 1990\***

Central City Southside

Age US Whites US Blacks Harlem Detroit Chicago Watts

20 4% 8% 12% 13% 13% 16%

25 5 9 13 15 14 18

30 6 11 17 19 18 23

35 7 14 21 22 22 27

40 8 15 20 22 22 27

45 10 20 26 28 27 33

50 12 22 27 29 29 35

55 16 27 33 36 35 42

60 22 34 41 44 43 50

65 28 39 46 48 48 55

\*Authors' calculations using 1990 census data. See appendix for estimation procedures.

Summary and Implications

African American men residing in poor, urban areas face the most disadvantageous mortality profiles of any group studied (Geronimus et al. 1996; in press). In some locales, only two out of every three boys who survive to age 15, will survive to age 45 and only one will survive to age 65. This is less than half the chance enjoyed by white 15 year old boys nationwide of surviving through middle age. Men in the local populations face approximately the same probability of dying by age 35 as white men nationwide face by age 60. One study concluded that the chances of survival through middle-age faced by some urban, African American boys and men are lower than those faced in Bangladesh (McCord and Freeman 1990).

Urban, African American girls and women also suffer high levels of excess morbidity and mortality relative to their peers nationwide or in rural or suburban areas (Geronimus 1996; Geronimus et al. 1996; in press). However, the disadvantages faced by urban, African American men outstrip those of women beginning in the mid-teens. Initially, homicide is the greatest risk to their survival. But early in adulthood, circulatory disease and cancer add to and often outpace homicide as important contributors to early death.

What do we understand about the reasons behind these dismal statistics and the possible solutions?

### *Violence*

Homicide contributes an important share of excess deaths to African American men in poor, urban locales and accounts for the majority of excess deaths to 15-19 year olds. Living with fear of violence or coping with the loss to homicide of a peer or family member might also exacerbate the risk of stress-related disease, including cardiovascular disease. For all of these reasons, interventions to reduce homicide would improve the health and life expectancy of this target population. However, to be most effective, these interventions must extend beyond individual-oriented approaches, such as programs to deal constructively with anger, to also include broader interventions. Gun control measures, improved access to city and hospital services in poor communities, and improved public housing are examples of policies extending beyond individual control that may reduce levels of violence. A number of studies support this conclusion.

For example, based on the study of violent crime (including homicide) across 343 Chicago neighborhoods, Sampson and colleagues (1997) concluded that neighborhood crime rates cannot be fully attributed to the aggregated demographic characteristics of individual residents, but that characteristics of the neighborhoods, themselves, explain much of the variation in crime. Wilson and Daly (1997) found that male life expectancy at birth (with the effects of homicide on life expectancy removed) varied across Chicago neighborhoods from 54 to 77 years and was a determinant of the variation in homicide rates across these neighborhoods. Neighborhoods with low male life expectancies and high rates of deaths due to internal causes also had high rates of homicide, even controlling for median household income in the neighborhoods. This suggests the possibility that life expectancy is a psychologically salient determinant of risk taking, and that threats to life expectancy from internal causes (such as cardiovascular disease) may, through this route, affect homicide rates. Interestingly, if this is the case, reducing cardiovascular disease mortality might also reap reductions in homicide deaths.

Centerwall's (1984) analysis of domestic homicide in Atlanta is suggestive that household crowding contributes to variation in homicide rates, independent of socioeconomic status. This would support a role for public housing policy in reducing violent crime. Overcrowded, "doubled up," housing holds several adverse health implications including increasing the potential for interpersonal conflict or domestic violence.

More generally, extremely high levels of mortality in central cities may be secondary to deterioration of urban infrastructure and city services. For example, in the case of New York City, Wallace and Wallace (1990) describe fire-related housing abandonment in impoverished minority neighborhoods during the late 1970's subsequent to implementation of the city's planned reduction of local fire stations. The abandonment of burnt-out buildings resulted in pervasive population dislocation, household overcrowding, emotional distress, disruption of personal and community support networks, and the movement of drug users into the abandoned buildings and drug trafficking into the neighborhoods, with concomitant increases in the incidence of crime, injection and other drug use, and disease. These findings add improved investment in municipal services to the list of policy measures that would be expected to make significant contributions to reducing health inequalities.

#### *HIV/AIDS*

As of the early 1990's, AIDS appears to have played little role in excess mortality in poor populations outside of specific locales. Whether the epidemic remains contained in those areas or whether their experience is a harbinger of things to come in other poor locales cannot be known without continued surveillance. But Harlem's experience suggests how devastating HIV disease can be for a local community. In one decade, it accounted for an additional 300 excess deaths per year among men and increased their average number of years of life lost in young and middle adulthood by more than 2 years.

In heterosexual populations, HIV is generally related directly or indirectly to the use of injection drugs. Interventions to reduce their use or break the connection between drug use and HIV would reduce infection rates. Such interventions include drug treatment and needle exchange programs as well as health education about the means of HIV transmission between drug users or sexual partners. In urban poor African American communities, such programs should be designed with attention to the long history of mistrust some African Americans have for government initiatives (Thompson 1998). For example, Dalton (1989) argues that past abuses of members of the African American community made in the name of public health -- the Tuskegee Experiment being the most well-known example -- may have resulted in a distancing of the black community from acknowledging the seriousness of the AIDS epidemic in its

midst. In addition, programs that reduce the likelihood of infected mothers passing the virus on to their fetuses would be beneficial, such as making available prenatal drug therapies that have been shown to be efficacious in reducing fetal infection. Furthermore, consideration should be given to the work cited above by Wallace and Wallace (1990), who attribute the AIDS epidemic in low-income New York City minority neighborhoods to the chain of events emanating from the closing of fire stations in these neighborhoods and the subsequent movement of drug users into burnt-out buildings and drug trafficking into the neighborhood. This depiction offers the suggestion that maintaining and improving city services and revitalizing urban areas, more generally, may be important strategies for stemming the spread of HIV in other urban locations that have not yet been hit hard by it.

### *Homelessness*

People who are homeless suffer starkly elevated rates of many mental and physical disorders. These include: upper respiratory infections, scabies and lice, disorders from exposure, trauma (such as lacerations, wounds, sprains bruises and fractures), nutritional disorders, hypertension, peripheral vascular disease, and tuberculosis. (Tuberculosis prevalence is estimated at 9/100,000 nationwide, 19/100,000 in urban areas, and 968/100,000 among the homeless.) Mental health problems and high rates of alcohol abuse can compound these problems. Meanwhile the homeless experience particular difficulties in accessing medical care (Kreider and Nicholson 1997; Gelberg et al. 1997; Redlener and Karich 1994). Disturbingly, there has been a dramatic upsurge in family homelessness in the last two decades -- it has mushroomed in some cities including New York (Bassuk et al 1996; Thompson 1997). The reasons for this include increasing housing prices over the past two decades that coincided with increasing poverty rates and a decreasing supply of low-cost housing due both to gentrification and the deterioration of existing housing stock.

The urban homeless are the tip of an iceberg comprised of a larger group who are marginally housed. Most of the extremely poor avoid literal homelessness by being given housing and subsistence at little or no charge by kin (Bassuk et al. 1996; Thompson 1997). But the results have negative health implications for all residents of the "doubled up" household. There are increased space pressures and household crowding, lowered privacy, lower food quality and quantity, increasingly unsanitary or unsafe housing conditions, more concentrated cooking, smoking, and use of electricity (often on overage wiring systems), increased wear and tear on household facilities, and increased potential for interpersonal conflict and the spread of infectious disease (Sontag 1996; Bruni 1996; Thompson 1997).

### *Medical care*

Given the high rates of disease and premature death, strategies to improve access to quality medical care are also important. There is ample evidence of deficiencies in medical care provided to African Americans at every stage of life (Geiger 1996). This is true even where insurance is not an issue (for example at Veterans Administration Hospitals where care is free or among Medicare recipients) or when disease type, severity or co-morbid conditions are taken into account (Whittle et al. 1993; Peterson et al. 1994; Lee et al 1997). Black men receive lower rates of some forms of life-saving treatment, including organ transplantation and specific high-tech treatments for ischemic heart disease (Whittle et al. 1993; Peterson et al. 1994; Gomick et al. 1995; Ford and Cooper 1995). Such findings suggest the possibility that stereotyping or subtle forms of discrimination result in rationing of health care to the detriment of black men. Given the significant contribution of cardiovascular disease to excess mortality among urban, African American men, these findings are especially disturbing.

Unfortunately, a variety of secular trends combine to suggest that access to quality care may have been reduced among the urban poor in recent years. Among these are the closing of many inner-city out-patient departments; staff reductions in public hospitals; reduced incentives for hospitals to provide uncompensated care in a managed care environment; and, given links between health insurance and employment, macroeconomic restructuring intensifying black male joblessness in inner cities (Wilson 1996). Concern has been raised about the possibility for new forms of discrimination as options for Medicaid recipients increasingly favor managed care over fee-for-service arrangements (Rosenbaum et al. 1997; Smith 1998). These should be monitored.

In addition, many health care providers locate their practices outside of central cities. In fact, Fossett et al. (1990) suggest that access to care in urban areas is constrained more by the lack of accessible physicians than by the lack of insurance. To improve the situation, concerted efforts are needed to increase physician supply in depressed urban areas. Possible approaches include: increased support for community health centers, public and nonprofit clinics, and hospital outpatient departments; and increased funding of the National Health Service Corps scholarship program or the development of other federal or state loan-repayment programs to attract young clinicians into health care shortage areas (Schlesinger 1987; Fossett et al. 1990; Foster and Perloff 1995).

The findings on causes of excess death reported here provide evidence that medical care should be responsive to local conditions and mortality risk profiles. Medical care addressing diseases of the circulatory system or cancer should be enhanced in every low-income urban area. The improvement of emergency medicine to best care for gun-shot victims and reduce their chances of dying are also called for. Care for AIDS patients appears at present to be more critical in

New York metropolitan area than in other locales. Unfortunately, improved, targeted, locally responsive, and indiscriminatory medical care practice, while essential, will play a role only in secondary and tertiary prevention. To affect important progress in primary prevention other strategies are required.

*Evolving concepts of risk and intervention*

Social epidemiologists are developing new conceptual models and bodies of evidence that suggest new ways to understand, and, thus, to intervene to prevent the excess morbidity and mortality burden assumed by African Americans. More traditionally, epidemiologists have focused on individual risk factors or behaviors, set apart from other aspects of the same individuals or their social or geographic context. Recently, compelling evidence has emerged calling for greater complexity in understanding the epidemiology of social differentials in disease, for considering interactions between behavior and environment, and for seeing diseases as evidence of the physiologic effects of the psychosocial stresses of daily living experienced by the disadvantaged in the context of the specific locales they inhabit. This evidence, in turn, argues for greater emphasis on public policy as the means to reduce excess morbidity and mortality, rather than relying primarily on health promotion campaigns that seek to change individual behavior.

For example, in the case of hypertensive disease, James (1994) originated and empirically validated the construct of "John Henryism," a strong behavioral predisposition to engage in persistent high-effort coping with social and economic adversity. His ongoing empirical research suggests that high levels of John Henryism interact with low socioeconomic status to increase the risk of hypertensive disease among African American men.' That is, contrary to the

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4. John Henryism is measured by a 12 item scale. The items reflect the following themes: 1) efficacious mental and physical vigor, 2) a strong commitment to hard work; and 3) a single-minded determination to succeed. For each item, the respondent answers on a scale from 1 to 5, where 1 is "completely false" and 5 is "completely true." Examples of the items are: "I've always felt that I could make of my life pretty much what I wanted to make of it;" "Once I make up my mind to do something, I stay with it until the job is completely done;" "When things don't go the way I want them to, that just makes me work even harder."

stereotype that young urban, poor African American men are fatalistic and this fatalism predisposes them to engage in unhealthy behaviors that place them at risk of disease or death, it may be, instead, that their **persistent active effortful**

**cop**ing with material deprivation, social barriers to upward mobility, and other widespread forms of social injustice exacts the physical price of a high risk of early cardiovascular mortality. For example, in one study, James and colleagues (1987) found that differences by socioeconomic status in hypertension prevalence among young adult and middle aged blacks were small for those scoring low on John Henryism, but for those with high scores, hypertension prevalence was three times greater for those of low socioeconomic status compared to those with higher socioeconomic status (31.4 vs. 11.5 per cent).

Negative stereotypical characterization of black men, itself, is associated with increased mortality. For example, Kennedy et al. (1997) demonstrated that state-wide measures of collective disrespect for blacks are associated with mortality levels. A 1 per cent increase in the prevalence of state residents who reported in a national survey that they believed blacks lacked innate ability was associated with an increase in age-adjusted black mortality rates of 360 deaths per 100,000 population. Collective disrespect for African Americans might lead to increased mortality through several mechanisms, including housing or job discrimination, inadequate medical treatment, or the lack of public support for programs and policies to improve the health and well-being of African Americans.

Complementing James' conceptual model, Geronimus (1992) forwarded the concept of "weathering" to suggest that one consequence of cumulative exposure to social inequality may be a more rapid decline in health among low-income African Americans compared to the typical American -- a decline that, as we have seen, is detectable as early as young to middle adulthood. For African Americans in poverty, there are multiple routes by which the health of young through middle-aged adults might progressively worsen. They include cumulative exposure to hazards in residential and work environments; increased psychosocial stress as obligations to dependents, kin, and work activities multiply; continued temptation to engage in unhealthy behaviors to cope with increasing stress and uncertainty; the progression of undiagnosed or unmanaged chronic conditions and diseases; and the increasingly deleterious impact of medical underservice in light of escalating health needs.

Recent empirical evidence suggests that relative deprivation adds to absolute material deprivation to intensify the health disadvantages African Americans experience (Lynch et al 1998). That is, poor residents of metropolitan areas characterized by high levels of income inequality suffer worse health disadvantages than equally low-income individuals residing in metropolitan areas with lower degrees of income equality. These findings suggest that if metropolitan areas with high income inequality and low per capita income had the same age-adjusted mortality as areas with low income inequality and high per capita income, mortality in the United States would be reduced at a greater

rate than if all deaths in the nation to lung cancer, diabetes, motor vehicle accidents, HIV infection, suicide, and homicide combined were eliminated.

Inequities by race in the distribution of environmental hazards in or near communities (Mohai and Bryant 1992) may contribute to increasingly excessive rates of cancer, asthma, and reproductive disorders in urban areas. The disproportionate citing of hazardous wastes in or near low-income minority communities may have indirect adverse effects on health to the extent that it depreciates the value of housing or undermines private investments in poor communities. Similarly, blood lead concentrations among the inhabitants of inner cities have been found to be higher than those in outer cities, as a result of exposure to dust from lead paint, lead pipes, and soil dust lead (Hasselblad V, Nelson D. 1975; NCHS 1984). Large percentages of reproductive age African American women have circulating blood lead levels sufficiently high to place a fetus at risk, suggesting that the differentially increased lead exposure among urban black children may begin in utero (Geronimus and Hillemeier 1992). Selective targeting of urban, minority groups for tobacco and alcohol advertising campaigns (Englander 1986; Davis 1987; Warner et al. 1992) may also contribute to poor health among urban, African Americans, especially to their increasingly excessive cancer rates as well as asthma (in children) and cardiovascular disease (in adults).

### Conclusion

This paper documents a poignant dimension of social disparities in health -- that young people in some U.S. communities cannot expect to survive through middle-adulthood. While highly publicized causes of premature death such as AIDS and homicide do contribute to this tragedy, they do so by adding to social disparities in mortality experience that are already substantial and result primarily from chronic disease in young and middle adulthood. This evidence that poor, urban African American men cannot expect to enjoy a "prime of life" is a major social indictment.

Traditionally, a community's infant mortality rate has been used to measure the general social and economic conditions of that community. By this metric alone, poor, urban African American communities are in extremis. Excess mortality during the prime of life -- the reproductive and working-ages -- should be added to the "report card" for monitoring the success of governing bodies in fulfilling equitably the mission of public health to assure citizens the conditions in which they can be healthy. To the extent that we have seen that infant mortality is, itself, an expression of the health of reproductive-age women, it, too can be interpreted as an indicator of the health and well-being of young adults.

Eliminating the staggering disparities in the probability of survival to or through middle-age should be recognized as a high priority policy goal. Indeed, it may be prior to progress toward other important social policy goals. For example, in the context of pervasive health uncertainty and high probabilities of early death, high rates of early or nonmarital childbearing in poor, urban communities may be a reflection of the lack of confidence youth can reasonably have in their prospects for postponing cherished goals, such as childbearing (Geronimus 1997). Similarly, high levels of health-induced disability among working-age African American men contribute to their relatively low rates of labor force participation (Bound et al 1995; 1996). Ironically, poor economic conditions can cause or exacerbate health problems that, in turn, will reduce the chances a person can remain gainfully employed and economically self-sufficient through middle-age. Such disabilities also pose practical challenges for the members of family or larger informal social networks who care for the disabled. These challenges may undermine the caretakers' efforts to fulfill competing obligations to family and work. As a nation, we may need to turn our attentions to reducing racial disparities in morbidity and mortality, before we can expect to see significant change in family organization, the timing of childbearing, or stable employment patterns in poor communities.

To achieve improvements in the health of African American men in poor, urban areas, reorientation and restructuring of conventional wisdom is required. First, the critical role of public policy in this endeavor, above and beyond efforts to promote individual behavior change must be acknowledged. Public policy can be applied as a tool to regulate the distribution of guns, toxic exposures, and advertising of harmful products; to insure equitable delivery of health services; to improve the supply and quality of housing; to revitalize urban areas in ways that support rather than disrupt existing communities; and generally to bolster municipal services, urban infrastructures and investments in human capital in these locales.

While not diminishing the importance of violence or, in some cases, AIDS, the evidence reviewed reinforces the centrality of cardiovascular disease as the leading threat to the health and well-being of poor, urban African Americans and their communities. As noted above, many of the causes of excess mortality are beyond the control of individuals and require public intervention. The reviewed evidence also raises the possibilities that to the extent that individuals behave in ways that increase their risk of cardiovascular disease, it may be that 1) these behaviors are conditioned by or even inescapable in their environments; and 2) that they can reflect the best in people (e.g. persistent high-effort coping), not always the worst. This proposed undermining of stereotypes is scientifically supported, humane, and strategic. It may enhance the chances for breaking through the historically developed mistrust some

African Americans feel towards public health initiatives, given the abuses of specific ones (Dalton 1989). It may also be key to initiating a cascade of changes in public policy and clinical practice that now emanate, in part, from misunderstanding the motivations of urban youth and the nature of the health risks they face. Re-educating policy-makers, clinical practitioners, and the broader public will alter the premises on which relevant professional judgements are made, leading to more effective policies and services, and increasing public support for them.

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## Methodological Appendix

### *Study Populations*

The level of analysis encompasses all African American or non-Hispanic whites in entire aggregates of census tracts, zipcodes, counties (for mortality measures) or PUMAs (for disability calculations) and all blacks or whites nationwide.

The impoverished urban African American populations discussed are the residents of:

Harlem: Central Harlem Health Center District. South Side Chicago: Near South Side, Douglas, Oakland, Fuller Park, Grand Boulevard and Washington Park community areas. Central City Detroit: Central, University, Central Business District, Foch, Jefferson-Mack, Airport, St. Jean, Chene, and Jeffries subcommunities. Watts: the Watts area of South Central Los Angeles and adjacent areas to the south and west.

The impoverished rural African American populations discussed are the residents of: Delta Louisiana: Caldwell, East Carroll, Franklin, Jackson, Madison, Morehouse, Richland, Tensas, Union, West Carroll, Avoyelles, Catahoula, Concordia, Grant, La Salle, Vernon, and Winn parishes, Black Belt Alabama: Dallas, Fayette, Greene, Bibb, Sumter, Hale, Lamar, Marengo, Marion, Perry, and Pickens counties; East North Carolina: Pitt, Northampton, Halifax and Edgecombe counties.

The economically better-off African American metropolitan populations are the residents of:

Queens-Bronx: sections of the Jamaica East and Flushing Health Center Districts (eastern Queens) and the Pelham Bay Health Center District (north Bronx, including Woodlawn, Wakefield, Williamsbridge, Baychester, Edenwald, Eastchester, Glen Oaks, New Hyde Park, Floral Park, Bellerose, Bellaire, and Queens Village. Northwest Detroit: Palmer Park, Pembroke, Bagley, Redford, Rosedale Park, Evergreen, and Greenfield subcommunities. Crenshaw-Baldwin Hills: areas of suburban Los Angeles, including Crenshaw, Ladera Heights, Leimbert Park, Baldwin Hills, and Windsor Hills.

The impoverished non-Hispanic white urban populations are the residents of:

Lower East Side: areas in the southern part of the Lower East Side Health Center District of Manhattan and directly across the East River in the Williamsburg-Greenpoint Health Center District in Brooklyn. Cleveland: the west-central area of Cleveland. Detroit: subcommunities on the northeastern and southern periphery of Detroit, including Delray, Clark Park, Chadsey, Condon, Springwells, Jeff des, State Fair, Burbank, Denby, Finney, Mt. Olivet, Grant, Davison, Pershing, and Nolan.

### *Estimation Procedures*

Population-specific death certificate information for 1989-1991 is combined with age-stratified counts of men and women in each population taken from the 1990 Census, respectively, to calculate age and sex specific death rates, overall and due to specific causes of interest. To mitigate biases due to Census undercounting, population counts are adjusted using national undercount adjustments.

Several measures of mortality are computed. Summary measures are computed including age adjusted rate ratios (RRs) and annualized excess death rates (EDRs) (Kitagawa 1964; Chiang 1984). To ensure that the reported measures are comparable across populations, the calculations constitute direct standardization on the age distribution of the U.S. white population by sex (Shryock and Siegel 1975). For each local population, the number of deaths that would be expected in the U.S. white population if it faced the age- and cause-specific death rates of the local population are calculated. For the RRs, expected deaths are divided by observed deaths in the U.S. white population. The EDRs are calculated as  $100,000 \times (\text{expected deaths} - \text{observed deaths}) / \text{U.S. white Population}$ .

Greville's method is employed to derive probabilities of survival to age 45 or 65 for 15 year olds living in the study populations (Chiang 1984; Shryock and Siegel 1975). Average years of life lost between ages 15 and 65 in each population are calculated using standard life table methods (Smith 1992). Using standard multidecrement life table

techniques (Smith 1992; Chiang 1961), how many of the years of life lost between ages 15 and 65 can be attributed to a particular cause of death are calculated, taking into account competing mortality risks.

Deaths are analyzed by underlying cause using diagnostic categories of the ninth revision of the International Classification of Diseases. A broad array of causes was initially examined but only the following ones that were found to be the most important in explaining death rate disparities are reported: circulatory disease (390-459), cancer (140-208), accidents (E800-E949), HIV/AIDS (042-044), homicide (E960-E969), infectious disease and pneumonia and influenza (001-041, 045-139, 480-487), and a separate category combining all remaining causes.

Using data from the 5% Public Use Micro data Sample of the 1990 US Census, disability rates by race, age and sex are calculated using the responses to questions about limitations in work, mobility and personal care activities resulting from health conditions of at least 6 months duration. A person was classified as disabled if she or he responded affirmatively to any of these questions:

- 1) "Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which limits the kind or amount of work this person can do at a job?"
- 2) "Because of a health condition that has lasted for 6 or more months, does this person have any difficulty going outside the home alone, for example, to shop or visit a doctor's office?"
- 3) "Because of a health condition that has lasted for 6 or more months, does this person have any difficulty taking care of his or her personal needs, such as bathing, dressing, or getting around inside the home?"

Because of the small sample sizes available to study disability in specific local populations (5% sample sizes vary from 735 to 1073 for men), there is a large amount of variability in the disability estimates by single year of age. To minimize this variability in the local estimates of disability rates, the predicted prevalence of disability at various ages is calculated under the assumption that the local area age specific disability trajectories follow the same pattern as the age specific disability trajectories for African American women and men in the country as a whole, but that their level may vary. In particular, the following model is estimated:

$$\ln[d_{ij}/(1-d_{ij})] = a_i + P_j \quad (1)$$

where  $d_{ij}$  represents the fraction of the population in the  $i$ th single year of age and  $j$ , location that is disabled, and  $a_i$  and  $P_j$  are age and location specific parameters. Since the entire 5% sample of African American men is used to estimate (1), the  $a_i$ 's represent age specific national averages, while the  $P_j$ 's represent local area deviations around these averages. Predicted disability rates are then calculated as:

$$d_{ij} = \frac{e^{a_i + P_j}}{1 + e^{a_i + P_j}} \quad (2)$$

The  $d_{ij}$ 's are reported.

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