

Methods for Measuring Cancer Disparities: Using Data Relevant to *Healthy People 2010* Cancer-Related Objectives

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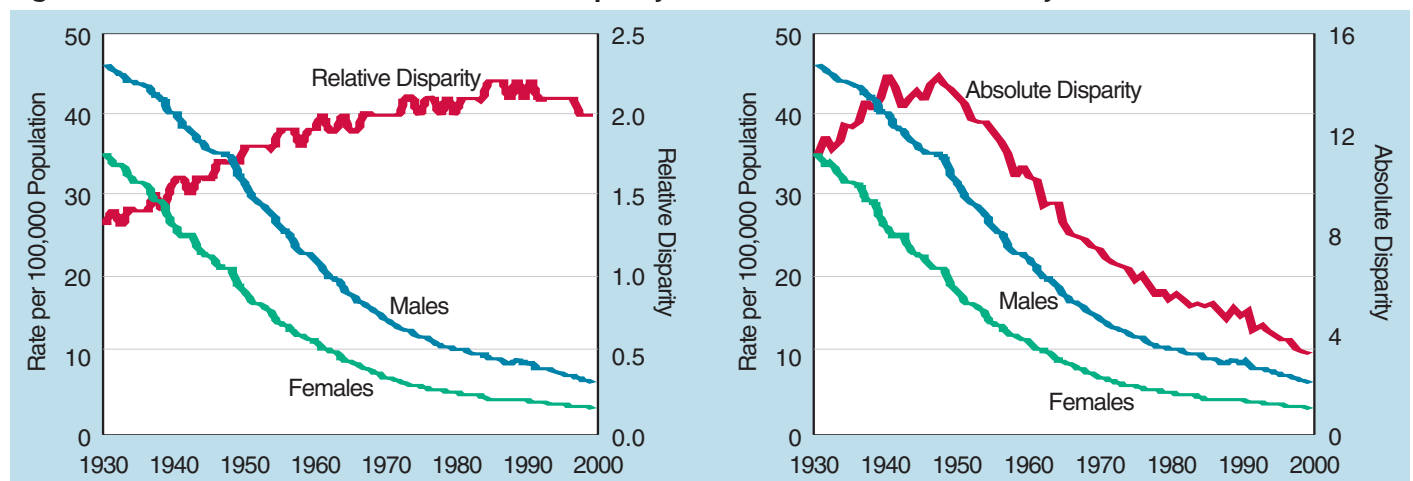
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Executive Summary

Healthy People 2010 has two overarching goals: to increase the span of healthy life and to eliminate health disparities across the categories of gender, race or ethnicity, education or income, disability, geographic location, and sexual orientation (1). This report raises some conceptual issues and reviews different methodological approaches germane to measuring progress toward the goal of eliminating cancer-related health disparities (2). Despite the increased attention to social disparities in health, no clear framework exists to define and measure health disparities. This may create confusion in communicating the extent of cancer-related health disparities and hinder the ability of public health organizations to monitor progress toward the *Healthy People 2010* cancer objectives. The recommendations in this report are based on the following considerations:

- Choosing a particular measure of health disparity reflects, implicitly or explicitly, different perspectives about what quantities or characteristics of health disparity are thought to be important to capture. For instance, most research in health disparities is based on relative comparisons (e.g., a ratio of rates), but it is equally appropriate to make absolute comparisons (e.g., the arithmetic difference between rates). Figure S1 shows male/female disparities in stomach cancer mortality during the 20th century. If we use an absolute comparison (arithmetic difference in rates), disparities have declined since about 1950; if we use a relative comparison (ratio of rates), they have increased almost continuously. This is an example of how the same underlying data potentially could generate two divergent interpretations of trends in cancer-related health

Figure S1. Absolute and Relative Gender Disparity in Stomach Cancer Mortality, 1930–2000



outcomes—dependent on which measure of disparity is used.

- In this report, we adopt a “population health” perspective on health disparities. A population health perspective reflects a primary concern for the total population health burden of disparities by considering the number of cases of the cancer-related health outcome (e.g., mortality, incidence, screening, etc.) that would be reduced or eliminated by an intervention. This perspective emphasizes absolute differences between groups and the size of the population subgroups involved. We believe that such an approach offers a justifiable basis on which to assess the total population burden of disparity and thus provides useful epidemiological input into decision making about policy to reduce cancer-related health disparities. This in no way precludes that there may be other valid inputs into the policy-making process that are based on different perspectives, such as a purely relative assessment of cancer-related health disparities.

- To better monitor the population health burden of disparities over time, disparity indicators should be sensitive to two sources of change: change in the size of the population subgroups involved and change in the level of health within each subgroup. For instance, social policy can change both the number of people who are poor and the behavior and health status of the poor.

Recommendations

We recommend using a sequence of steps, described below, to assess health disparity. The

first step is to inform any assessment of health disparity with a simple tabular and graphical examination of the underlying “raw” data (rate, proportion, etc., and subgroup population size). This may provide valuable insights into the basic question of whether the particular disparity has increased or decreased over time. The graphical presentation of the underlying data is depicted in Figure S2 (page 3), which shows educational disparity trends in the proportion of women not having had a mammogram for the past 2 years.

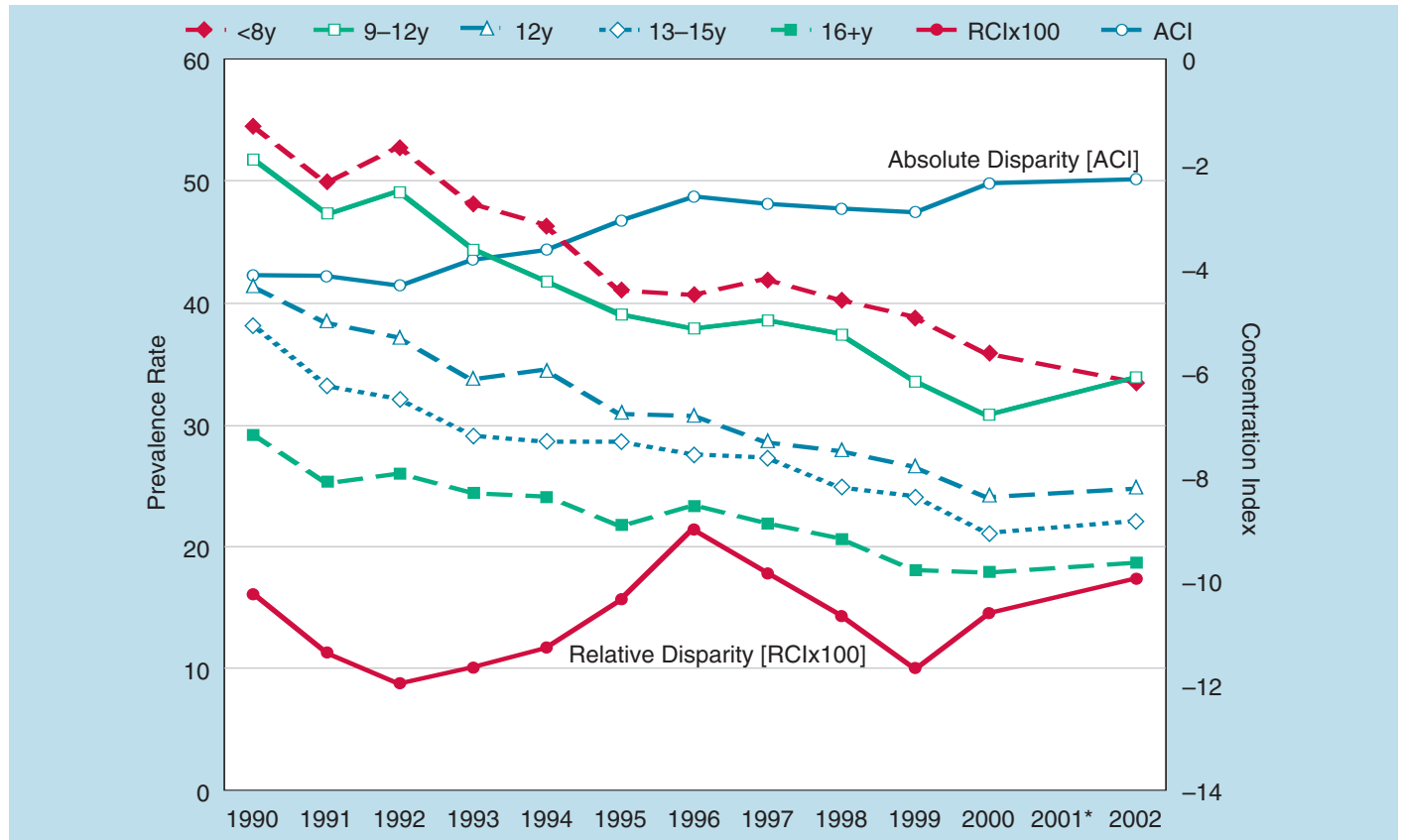
If, as for *Healthy People 2010*, the goal is to quantitatively monitor progress toward the elimination of health disparities across all social groups, then summary measures of health disparity are warranted. Figure S2 also contains two summary measures of health disparity—an absolute measure, the Absolute Concentration Index (*ACI*), and a relative measure, the Relative Concentration Index (*RCI*). The choice of specific summary measures also will be guided by whether the groups have an inherent ranking (such as education) or are unordered (such as gender).

Choosing measures of health disparity involves consideration of conceptual, ethical, and methodological issues. This report discusses some of these issues and provides recommendations for a suite of measures that can be used to monitor health disparities in cancer-related health outcomes.

Our recommendations for measuring disparity are:

1. To visually inspect tables and graphs of the underlying “raw” data.

Figure S2. Proportion of Women Age 40 and Over Who Did Not Receive a Mammogram in the Past 2 Years by Level of Educational Achievement, 1990–2002, Trends in Absolute and Relative Disparity



Source: CDC, Behavioral Risk Factor Surveillance Surveys 1990–2002.
*Note: Question not asked in 2001.

2. When the question involves only comparisons of specific groups, then pairwise absolute and relative comparisons may be sufficient. When the objective is to provide a summary across all groups, then the use of summary measures of health disparity is warranted.

3. If the social group has a natural ordering, as with education and income, then we recommend using either the Slope Index of Inequality (*SII*) or the Absolute Concentration Index (*ACI*) as a measure of absolute health disparity, and either

the Relative Index of Inequality (*RII*) or the Relative Concentration Index (*RCI*) as a measure of relative disparity.

4. When comparisons across multiple groups that have no natural ordering (e.g., race/ethnicity) are needed, we recommend the Between-Group Variance (*BGV*) as a summary of absolute disparity, and the general entropy class of measures, more specifically the Theil index and the Mean Log Deviation, as measures of relative disparity.