# Health Disparities Calculator
## http://seer.cancer.gov/hdcalc/

## Overview

The Health Disparities Calculator (HD*Calc) is designed to generate multiple summary measures to evaluate and monitor health disparities. The HD*Calc statistical software can be used either as an extension of SEER*Stat—allowing users to import Surveillance, Epidemiology, and End Results (SEER) data—or with population-based health survey data, including data from the National Health Interview Survey (NHIS), California Health Interview Survey (CHIS), Tobacco Use Supplement to the Current Population Survey (TUS-CPS), and National Health and Nutrition Examination Survey (NHANES). HD*Calc can be used to produce 11 summary measures of disparity and two pair comparison measures. Cancer statistics and other health statistics categorized by disparity groups such as race/ethnicity, socioeconomic status (SES), and geographic area can be used with HD*Calc to generate output in both tabular and graphic formats. Survey data used with HD*Calc can be continuous or binary. Health status (individual survey responses), disparity grouping, and variables describing sampling design (e.g., sampling weight, stratum, clustering) are required for sampling design features to be considered in the estimation process.

HD*Calc users can specify a range of conditions and formats. HD*Calc can be used to apply the health disparity measures described in a 2005 NCI monograph (Harper et al., 2005; *https:// seer.cancer.gov/archive/publications/disparities/*) to 1) cancer surveillance data or 2) complex health survey sample data (see Li et al., 2018; *https:// seer.cancer.gov/hdcalc/publications.html*).

The 2005 monograph evaluates major issues that may affect the choice of summary measures of disparity, and it is recommended for those who are unfamiliar with the measures available in HD*Calc. For those interested in a comparative look at health disparity measures, a 2007 NCI monograph (Harper et al., 2007; *https://seer.cancer.gov/ publications/disparities2/*) uses case studies to analyze the performance and appropriateness of various measures. These monographs are recommended to anyone involved in health disparities research.

Statistical properties and statistical inference methods of summary measures of disparity are discussed in Ahn et al. (2018, 2019) (cancer surveillance data) and Li et al. (2018) (complex survey samples).

## Use HD*Calc to

- Quickly and accurately compare disparity measures by race/ethnicity, SES, and geographic area;

- Evaluate multiple summary measures for monitoring and presenting health disparities;

- Graphically explore underlying trends in data; and

- Easily export tables and graphs.

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## HD*Calc Tutorials

Exercises on the following topics are available at *http://seer.cancer.gov/hdcalc/tutorials:*

- Preparing SEER cancer incidence data using SEER*Stat *https://seer.cancer.gov/help/hdcalc/tutorials*);
- Importing SEER data into HD*Calc for analysis;
- Using data that did not come from SEER*Stat to calculate health disparities in HD*Calc.

The tutorials demonstrate how to measure health disparities

- By race using SEER incidence data;
- By SES group using SEER incidence data;
- By race using SEER incidence data showing a 3-year moving average;
- By poverty level using NHANES obesity data.

## Selected References

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Harper S, Lynch J. Selected comparisons of measures of health disparities: a review using databases relevant to Healthy People 2010 cancer-related objectives. NCI Cancer Surveillance Monograph Series, Number 7. National Cancer Institute. NIH Pub. No. 07-6281, Bethesda, MD, 2007. *https://seer.cancer.gov/publications/disparities2/*

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Yu M, Li Y, Qiu M. Statistical inference of the relative concentration index for complex surveys. Stat Med. 2019 Sep 20;38(21):4083-4095.

For more information, contact *hdcalculator@imsweb.com*

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