Development of the Health Equity Indicators for Cardiovascular Disease Toolkit

# Applying an Equity Approach to Cardiovascular Health

## Background

Cardiovascular disease (CVD), the leading cause of death in the United States, is influenced by socioeconomic status, environmental conditions, institutional factors, structural racism, various forms of discrimination, and other factors pertaining to health equity.

Although research has long documented inequities in heart disease risk factors and outcomes, there remains a lack of tools or resources on health equity measurement for CVD.

In 2017, the Centers for Disease Control and Prevention (CDC) Division for Heart Disease and Stroke Prevention (DHDSP) began the development of a set of Health Equity Indicators (HEIs) to measure inequities in CVD, with the goal of making the HEIs publicly available through an online toolkit. The toolkit is intended to provide equity-relevant metrics and resources to health care and public health professionals to support measurement of HEIs relevant to their CVD work. It presents indicators that cover multiple health equity focus areas affecting social determinants of health (SDOH) that influence inequities in CVD prevention, care, and management (see **Table 1**).

### Table 1: HEIs by Health Equity Focus Area

| | | |
|---|---|---|
| **Genderism, Sexism, and Heterosexism** | • Gender discrimination<br>• Gender income gap<br>• LGBTQIA+ discrimination | |
| **Health Care Access** | • Health care affordability<br>• Health care availability<br>• Health care effectiveness and quality | • Health literacy<br>• Medically underserved areas |
| **Neighborhood Characteristics** | • Air and water quality<br>• Civic participation<br>• Community food environment<br>• Community safety<br>• Green space<br>• Housing<br>• Incarceration | • Liquor store density<br>• Physical activity environment<br>• Poverty<br>• Public assistance<br>• Social cohesion<br>• Social environment<br>• Transit and transportation<br>• Rurality |
| **Policy** | • Living wage policies<br>• Spending per capita (health care, education, parks, greenspace)<br>• Sick leave policies | • Smoke-free policies<br>• Social determinants of health measures in electronic health records |
| **Psychosocial Pathways** | • Access to mental health care<br>• Adverse childhood experiences<br>• Mental health disorders | • Sleep health<br>• Social support<br>• Stigma<br>• Stress |
| **Racism** | • Immigration status<br>• Race-consciousness<br>• Racial income gap | • Racial residential segregation<br>• Racial/ethnic discrimination and trauma<br>• Redlining |
| **Socioeconomic Factors** | • Education<br>• Employment status<br>• Food insecurity | • Housing insecurity<br>• Income |

## Methodology

Developing the HEI for CVD Toolkit was a collaborative effort among DHDSP, Prevention Institute, and Deloitte Consulting LLP, which occurred between 2017 and 2022. The team used a comprehensive and rigorous process to create the toolkit, which included performing literature scans, conducting pilot studies, and consulting with subject matter experts (SMEs). Figure 1 summarizes the timeline for the main activities conducted during the development process.

## Literature Scan

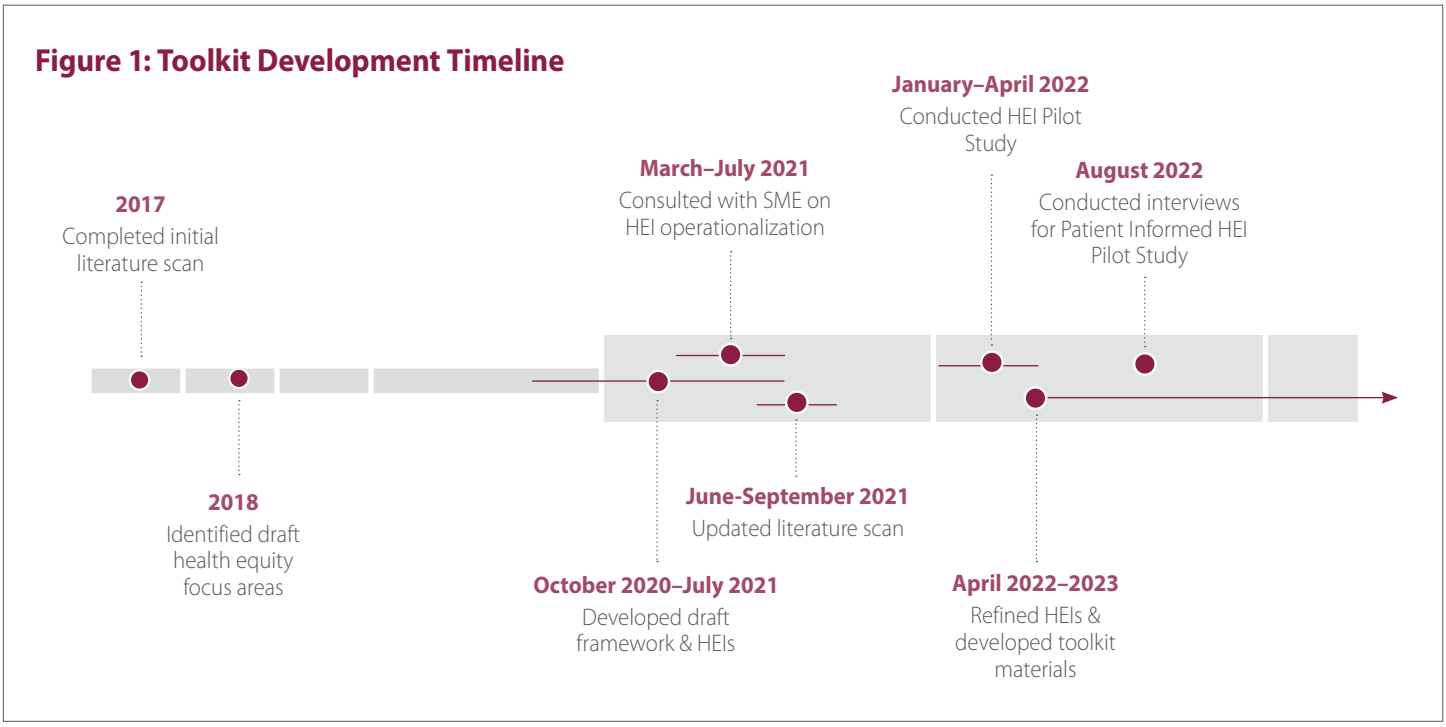
An initial literature review was conducted in 2017 to identify the primary topics and themes most relevant for addressing equity within the context of prevention and management of CVD. The literature review scanned peer-reviewed and gray literature from 2011 to 2016, using Ovid MEDLINE and other CDC databases. Table 2 details the inclusion criteria for the literature scan. The scan focused on three areas: prevention and treatment of heart disease, strategies related to heart disease and stroke prevention that DHDSP-funded programs are more likely to implement, and cardiovascular health risk factors. Using the literature, the project team identified six health equity themes, or focus areas that influence inequities that contribute to CVD outcomes: gender discrimination, health care access, neighborhood characteristics, racism, socioeconomic status, and stress.

A second literature review was conducted in 2021, repeating the process from the initial scan and updating the study window to 2015–2020. The review process, inclusion criteria, and final articles were also informed and verified by SMEs. Results from this scan were compared with the results from the previous literature scan, allowing the team to understand any shifts in health equity during the four years. The second literature scan confirmed the previous list of health equity focus areas and indicators and identified additional health equity focus areas and potential indicators. The updated scan defined eight health equity focus areas: genderism, sexism, and heterosexism; health care access; neighborhood characteristics; policy; psychosocial pathways; racism; socioeconomic factors; and classism.[1] The project team used the updated literature review to refine the conceptual framework and HEIs, provide evidence of the relevance of the HEIs in addressing inequities related to preventing and managing CVD, and create indicator profiles that provide guidance for measuring HEIs.

### Table 2: Literature Scan Inclusion Criteria

| Category | Criterion |
|---|---|
| Study location | United States |
| Article type | Peer-reviewed nonclinical study |
| Main health outcome variable or risk factor | Related to CVD |
| Finding | Identifies a disparity/difference in CVD outcomes among disadvantaged groups |

### Figure 1: Toolkit Development Timeline

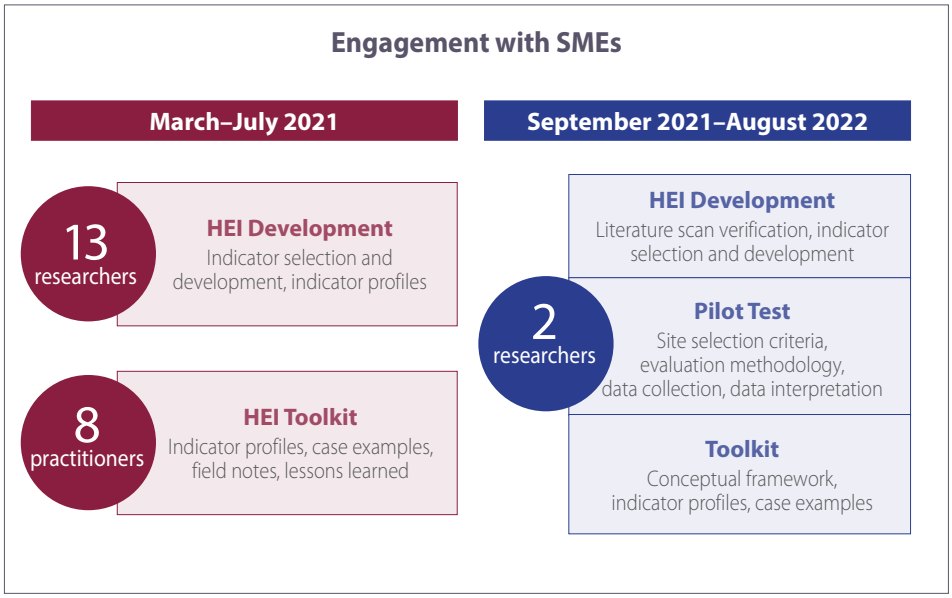


## SME Engagement

Through a series of workshops from March to July 2021, CDC and Prevention Institute engaged a panel of SMEs with expertise in health equity and CVD.[2] To ensure a diversity of experiences were considered, CDC and Prevention Institute identified researchers and practitioners from universities, research institutions, health care organizations, and state, local, and tribal health departments. Researcher SMEs provided input on the draft framework and HEIs, identified measures and data sources for operationalizing the HEIs, and outlined measurement considerations for HEIs. Practitioner SMEs provided practical considerations for measurement guidance in the indicator profiles and shared lessons learned through case examples and field notes.

From September 2021 to August 2022, CDC and Deloitte re-engaged two researcher SMEs, who provided technical insight and methodological considerations in their efforts to verify the second literature scan, refine the HEI framework, and develop toolkit materials. The two SMEs also actively informed the development, implementation, and analysis of the pilot study, which tested a subset of HEIs at health care organizations. **Figure 2** summarizes the phases of SME engagement and contribution to the toolkit.

### Figure 2: SME Engagement Process




## Pilot Studies

CDC conducted a pilot study of a subset of HEIs to assess the feasibility of gathering and analyzing data on these indicators within health care settings. Seven health care organizations participated in the HEI Pilot Study from January to April 2022.[3] **Figure 3** details the criteria used to select HEIs and health care sites for pilot testing. Participating sites received site-specific data collection guides that provided definitions, data sources, and measurement instructions. The pilot study used an exploratory convergent mixed-methods design to evaluate factors that support or hinder health care organizations' data collection, measurement, and analysis of HEIs. Qualitative and quantitative data were analyzed via thematic analysis, content analysis, and descriptive statistics. Findings from the pilot were used to update and clarify the guidance provided within the indicator profiles and develop case examples illustrating the real-world application for using HEIs to inform health equity efforts.

CDC also conducted a yearlong pilot at the Grady Camp Creek Comprehensive Care Center to capture the patient perspective. This care center is located 14 miles southwest of Grady Health System's main facility, Grady Hospital, a public safety net hospital in downtown Atlanta, Georgia. The Patient-Informed HEI Pilot

### Figure 3: Indicator and Site Selection for the HEI Pilot Study

**Indicator Selection**

**15 HEIs** were selected with a systematic indicator ranking process, which based rankings on:

- Degree to which the indicator can be captured through multiple measures
- Extent of the literature supporting the relevance of the indicator for addressing equity for CVD efforts
- Pilot sites' interest in the indicator

**Site Selection**

**7 health care organizations** were selected as pilot sites based on the following criteria:

- Capacity to collect and use data for HEIs
- Experience collecting data for similar indicators related to equity
- Commitment or interest in health equity programming
- Populations and geographic areas served
- The setting of the health care organization

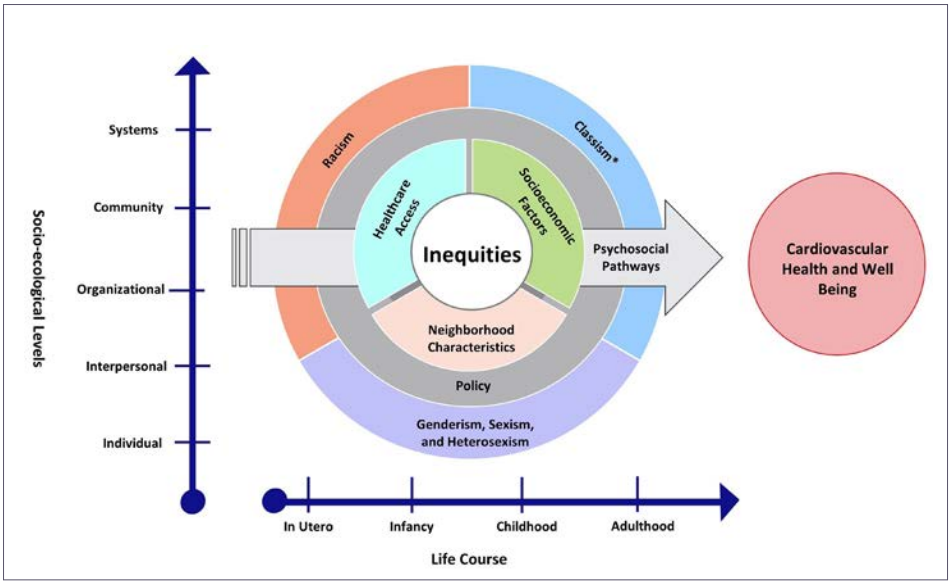
Study was intended to explore patients' lived experiences through the collection of HEIs. CDC collaborated with Grady staff to interview patients and collect data on the focus areas of psychosocial pathways, racism, neighborhood characteristics, socioeconomic factors, and health care access.[4] Results were analyzed by using a mixed-methods approach combining quantitative and qualitative data. A descriptive analysis of patient characteristics was collected from Healthy Planet data for 50 Grady Hospital patients and 10 Camp Creek Comprehensive Care Center patients. Healthy Planet is a module of Grady Health's electronic medical record (EMR) system called EPIC. The module is a database that contains 150 questions related to self-reported health and social needs.[5] Descriptive frequencies and means were analyzed for patient demographics and cardiovascular risk (i.e., diabetes, hypertension, and drinking and smoking behavior). To collect information about patient experiences, 10 semi-structured interviews were conducted via Zoom. Interviews were then coded, and thematic analysis was used to identify themes. This pilot helped identify common causes and key drivers of inequities, gain a deep understanding of patients living with CVD or CVD risk factors in an outpatient setting, and inform and strengthen ongoing quality improvement at outpatient centers.

## Toolkit Components

The multistage development process permitted the 2023 launch of the HEI for CVD Toolkit. The toolkit includes the following components:

- **The Conceptual Framework:** a visual representation of factors that influence cardiovascular health and how factors occur through structural and socioenvironmental drivers, across socio-ecological levels, and throughout the lifespan (see Figure 4).
- **Health Equity Indicators**: metrics of inequities that influence CVD prevention, care, and management.
- **Indicator Profiles:** documents that describe the relevance of the indicators and provide the definitions, measures, and data sources for each HEI.
- **Case Examples and Field Notes:** short summaries that describe health care organizations' experiences and lessons learned with data collection and measurements of HEIs.
- **Resources:** other CDC and external resources that support health equity measurement and evaluation, and advance health equity work.
- **The Glossary of Terms:** definitions of frequently used terms and concepts in the HEI for CVD Toolkit.

### Figure 4: HEI Conceptual Framework for CVD




## Implications for Implementation

The HEI for CVD Toolkit was developed using a comprehensive approach and is meant to serve as a resource for health care and public health professionals who are interested in monitoring and evaluating their CVD work from an equity perspective. The HEIs included in the toolkit provide a starting point for gathering data to measure inequities in CVD and are not a comprehensive set of all measures that matter for cardiovascular equity. Toolkit users can learn how to advance health equity by collecting SDOH data and using equity-relevant metrics. The indicators profiled in –the toolkit can help users understand drivers of inequities in their own communities or patient populations, assess progress, evaluate outcomes of interventions, and work toward addressing CVD disparities.

[1] Although classism is an important determinant of CVD inequities, indicators of classism are similar to those specified for other focus areas (e.g., racism, socioeconomic factors, neighborhood characteristics, policy). Therefore, there is not a separate indicator profile for classism.
[2] SMEs who participated in the panel are described on the HEI for **CVD Toolkit website**.
[3] Health care organizations that participated in the HEI pilot are described on the HEI for **CVD Toolkit website**.
[4] Grady staff who supported the Patient-Informed HEI Pilot Study are described on the HEI for **CVD Toolkit website**.
[5] Grimes J. **What is Epic Healthy Planet?** Healthcare IT Leaders website. Updated 2016.