

Connecticut Health Care Affordability Index

2024 Update: Technical Appendix

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This brief provides the methodology, assumptions, and sources used to calculate:

- I. the Connecticut Healthcare Affordability Index (CHAI),
- II. the estimate of the CHAI income inadequacy rates,
- III. and the estimate of affordable healthcare rates for 2022.

Additionally, we provide further details on the assumptions made for each health policy model.

I. CHAI Assumptions and Data Sources

CHAI starts with the Self-Sufficiency Standard for Connecticut but differentiates the healthcare costs to account for factors that impact affordability, including differences in insurance coverage, age premiums, and increased out-of-pocket costs based on health risk scores.¹

As with the original Self-Sufficiency Standard, the healthcare costs in CHAI are a combination of premium and out-of-pocket costs (medical and prescription deductibles and copayments). In addition, CHAI incorporates additional factors impacting healthcare costs for individuals and families. Specifically, premiums are calculated for three types of health insurance coverage (employer sponsored, individual marketplace, Medicaid) and the out-of-pocket costs are calculated for three health risk scores (low, medium, high).² For employer-sponsored and individual marketplace coverage, each of these is varied by three age groups (18-34, 35-49, 50-64) and three health risk scores (low, medium, high). The Medicaid CHAI does not vary by age or health risk score, as there is no premium and we assume there are no out-of-pocket expenditures.

Employer-sponsored Premiums

The premiums for employer-sponsored health insurance are calculated based on data from the 2022 Medical Expenditure Panel Survey (MEPS)³ and adjusted with Anthem's territory factors.⁴ Anthem Health Plans is the largest provider of commercial health insurance in the state of Connecticut.⁵ Anthem sets three rating areas for the state of Connecticut based on county groups, with the exception of the town of Waterbury which is assigned to a separate area than the county. The statewide average employee contribution is adjusted geographically based on these three territory factors set by Anthem.

The employee share of the premium is applied to the households as follows:

- Households with one member are assigned the single employee premium value
- Households with two members are assigned the employee +1 premium value

¹ For details on the methodology of the Self-Sufficiency Standard and the non-healthcare cost components of CHAI, see Technical Brief: Self-Sufficiency Standard for Connecticut 2022.

² A separate CHAI for uninsured households is not calculated as by definition there is no premium for uninsured households, and without coverage, there is no claims data to determine out-of-pocket costs.

³ Agency for Healthcare Research and Quality, MEPS-IC State Tables, "Connecticut2022.xlsx", https://meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/excel/2022/Connecticut2022.xlsx (accessed 10/16/2023).

⁴ SERFF Filing Access, Connecticut, "Anthem 2021 Large Group Supporting Exhibits - All REVISED.pdf," submitted 10/16/20; SERFF Filing Access, Connecticut, "Anthem 2023 Large Group Supporting Exhibit -Page 1 thru 10 Rev.pdf," submitted 10/28/22, <https://filingaccess.serff.com/sfa/home/CT> (accessed October 19, 2023).

⁵ State of Connecticut, Office of Health Strategy, <https://portal.ct.gov/healthscorect/apcd-snapshot>

- Households with three or more members are assigned the family premium value

Individual Marketplace

In 2010, the Affordable Care Act (ACA) established federal and state-based individual health insurance marketplaces. The ACA introduced the premium tax credit, aimed at reducing premiums for households with incomes between 100% and 400% of the federal poverty guidelines. Subsequently, the American Rescue Plan Act of 2021 expanded this credit to all marketplace consumers, making households with incomes above 400% of the federal poverty guidelines now eligible. Originally set to expire in 2023, this expansion was extended through 2025 by the Inflation Reduction Act.

The CHAI health insurance premium for the individual marketplace category varies by type of plan, member age, and rating area. The total health insurance premium is also offset by the premium tax credit.

Plan Type

The individual marketplace (Access Health CT) in Connecticut is made up of several different plan options with ConnectiCare Benefits, Inc. (CBI) and Anthem as the primary carriers of plans. The marketplace organizes plan types into metal level: Catastrophic, Bronze, Silver, and Gold. Typically, Bronze plans have lower monthly premiums and higher out-of-pocket costs while Gold plans have the highest premiums and lowest out-of-pocket costs. CHAI uses the CBI's Choice Silver Standard Point of Service (POS) as the representative plan from the individual marketplace as it was the most commonly selected plan in 2022 (38,700 subscribers).⁶ This is consistent with enrollment patterns in 2019.

Member Age

In the individual marketplace, the premium for a household is composed of the cost for each member which varies by age based on a curve starting with a premium ratio of .765 for children 14 and younger up to 3.00 for 64 and older.⁷ CHAI uses the premium rate for a 30-year-old for the 18-34 age bracket (premium ratio = 1.135), a 40-year-old for the 35-49 age bracket (premium ratio = 1.278), and a 55-year-old for the 50-64 age bracket (premium ratio = 2.230).

As the age curve does not vary for children 14 and under (premium ratio = .765), there is a single CHAI premium cost for infants, preschoolers, and school-age children, while teenagers are assigned the premium for 17-year-olds (premium ratio = .885). Additionally, when the total individual marketplace family premium is calculated, there is a premium cap of a maximum of three covered children under the age of 21, meaning that families with four or more children only pay a premium for the three oldest children.⁸

Rating Area

The ACA requires that each state has a set number of geographic rating areas that all providers must use to set their rates. In Connecticut, there are eight rating areas that correspond to each county.⁹ Thus, premiums do not vary by town within a given county.

⁶ Access Health CT, "2022 Open Enrollment Summary," <https://agency.accesshealthct.com/wp-content/uploads/2022/02/OE-2022-Summary-Report.pdf> (accessed November 2, 2023).

⁷ <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/state-rating#age>

⁸ <https://www.google.com/url?q=https://www.cms.gov/CCIIO/Resources/Files/Downloads/market-rules-technical-summary-2-27-2013.pdf&sa=D&source=docs&ust=1701992740673545&usg=AOvVaw2TdZxy9Bkm-zE3cyLrt4T6>

⁹ See <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/ct-gra>

Premium Tax Credit

The premium tax credit functions by capping the amount households must pay towards the premium for the “benchmark plan.” The benchmark plan is the second-lowest cost silver plan in the household’s rating area (by county in Connecticut). In 2022, households with income below 150% of the previous year federal poverty guidelines have a required contribution of zero. Households with income at or above 400% of the federal poverty guidelines contribute 8.5% of the household income.¹⁰

Bottom	Top	Initial	Final
0%	150%	0.00%	0.00%
150%	200%	0.00%	2.00%
200%	250%	2.00%	4.00%
250%	300%	4.00%	6.00%
300%	400%	6.00%	8.50%
400%		8.50%	8.50%

Medicaid/Zero Cost

In Connecticut, Medicaid is administered by the HUSKY Health program and is known as HUSKY A and HUSKY D. As Medicaid charges no costs to participants, the healthcare costs are shown as zero in the Medicaid CHAI. Parents and caregivers are eligible for Medicaid if income is under 160% of the federal poverty guidelines while adults without minor children are eligible if income is under 138% of the federal poverty guidelines.¹¹

Additionally, for households with incomes above the Medicaid threshold, the CoveredCT program offers zero-cost health insurance through Access Health CT for households with income up to 175% of the federal poverty guidelines.

¹⁰ See <https://www.irs.gov/pub/irs-drop/rp-18-34.pdf> and <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/ct-gra>

¹¹ See <https://portal.ct.gov/-/media/HH/PDF/CT-HUSKY-Health-Annual-income-guidelines.pdf>

Out-of-Pocket Costs

Out-of-pocket (OOP) costs, consisting of medical and prescription drugs costs, were calculated by the Office of Health Strategy using the 2022 Connecticut All-Payer Claims Database (APCD).¹² The out-of-pocket costs vary by county, age group (0-17, 18-34, 35-49, 50-64), and health risk score (low, medium, high).

The OOP costs are aggregated for each household member. CHAI assumes the same risk score per adult and does not vary the risk score for children.

II. CHAI Income Inadequacy Methodology and Assumptions

Data and Sample

This study uses data from the 2022 1-Year American Community Survey (ACS) by the U.S. Census Bureau. The ACS publishes social, housing, and economic characteristics for demographic groups covering a broad spectrum of geographic areas with populations of 65,000 or more in the United States and Puerto Rico. The 2022 Public Use Microdata Sample (PUMS) is a set of data files that contains records of a one-percent sample of all housing units surveyed.

The most detailed geographic level in the ACS available to the public with records at the household and individual level is the Public Use Microdata Sample Areas (PUMAs), which are special, non-overlapping areas that partition a state. Each PUMA, drawn using the 2010 Census population count, contains a population of about 100,000.

Connecticut has 169 towns partitioned into 25 PUMAs, with 2022 ACS estimates reported for each. If there are multiple PUMAs in a single town, each PUMA in the town is assigned the town's Self-Sufficiency Standard and CHAI. When a single PUMA contains more than one town, a new weighted average by town population is calculated to determine a Self-Sufficiency Standard and CHAI.

Exclusions

Since the Self-Sufficiency Standard assumes that all adult household members work, the population sample in this analysis includes only households with at least one adult between the ages of 18-64 without a work-limiting disability.

Adults are identified as having a work-limiting disability if they are disabled and receive Supplemental Security Income or Social Security Income, or if they are disabled and are not in the labor force. Thus, although the ACS sample includes households that have disabled or elderly members, this report excludes elderly adults and adults with work-limiting disabilities and their income when determining household composition and income. Households defined as "group quarters" are also excluded from the analysis.¹³ In total, 1,096,498 non-disabled, non-elderly households are included in this demographic study of Connecticut.

¹² Personal Communication Olga Armah, Office of Health Strategy, February 21, 2024.

¹³ Group quarters include institutional quarters such as correctional facilities, nursing homes, or mental hospitals as well as non-institutional quarters such as college dormitories, military barracks, shelters, etc.

Income

Income is determined by calculating the total income of each person in the household, excluding seniors and adults having a work-limiting disability. It is assumed that all income in a household is equally available to pay all expenses. Income includes money received during the preceding 12 months by non-disabled/nonelderly adult household members (or children such as working teenagers) from: wages or salary; farm and non-farm self-employment; Social Security or railroad payments; interest on savings or bonds, dividends, income from estates or trusts, and net rental income; veterans' payments or unemployment and worker's compensation; public assistance or welfare payments; private pensions or government employee pensions; alimony and child support; regular contributions from people not living in the household; and other periodic income. Not included in income are: capital gains; money received from the sale of property; the value of in-kind income such as food stamps or public housing subsidies; tax refunds; money borrowed; or gifts or lump-sum inheritances.

The Connecticut Healthcare Affordability Index

Each household was coded with a CHAI based on type of insurance, age of householder, and random assignment into a health risk score, as well as household composition and place (town).

Each household was assigned into one of three variables representing the different CHAI insurance costs: individual, employer, or zero-cost. If a household is without any health insurance coverage, they are benchmarked to individual insurance unless the household income is eligible for Medicaid or CoveredCT and then assigned to zero-cost. Parents and caregivers are eligible for Medicaid with incomes under 160% of the federal poverty guidelines and adults without minor children are eligible with incomes under 138% of the federal poverty guidelines. CoveredCT covers adults with household incomes up to 175% of the federal poverty guidelines. If Indian Health Service (IHS) is the only insurance, the person is coded as having no health insurance as the Census considers coverage provided by IHS to not be comprehensive.¹⁴

The ACS includes seven variables on health insurance type. The ACS health insurance categories and were categorized into CHAI model as follows:

- Employer:
 - Insurance through a current or former employer or union
 - TRICARE or other military healthcare
- Individual Marketplace
 - Insurance purchased directly from an insurance company
 - Indian Health Service AND not eligible for Medicaid
 - Uninsured AND not eligible for Medicaid
- Zero-cost:
 - Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability
 - VA (including those who have ever used or enrolled for VA healthcare)

¹⁴ This is consistent with assumptions in the American Community Survey and the Current Population Survey. See <https://www.census.gov/programs-surveys/cps/technical-documentation/user-notes/health-insurance-user-notes/health-ins-cov-meas-asec-ac.html>.

- Indian Health Service AND income eligible for Medicaid
- Uninsured AND income eligible for Medicaid
- Medicare under 65

Some householders in the ACS had more than one type of health insurance. Householders were assigned to a single health insurance category based on the following priority order: 1) employer, 2) individual, 3) zero-cost.

The out-of-pocket expenditures in CHAI vary based on health risk score (low, medium, high). As the American Community Survey does not collect information that will allow an educated assignment of health risk score, each householder was randomly assigned a health risk score based on sex and age of householder per Connecticut All-Payer Claims Database.

An extended dataset of CHAI tables was generated to code household types not included in the initial CHAI. For large families with more than six children, an average cost measure was calculated with the assumption children are 0-12 years of age for purposes of the individual market (lowest cost estimate).

III. Spending Target

In 2021 we developed a spending target, or limit to the proportion of household spending on healthcare costs, in Connecticut in partnership with the Connecticut Office of Health Strategy and the Connecticut Office of the State Comptroller. Healthcare expenses above this proportion indicate that the household is unable to afford adequate healthcare and other basic needs. The 2022 analysis holds the Connecticut Healthcare Spending Target constant to see progress over time. Below we summarize the methods for calculating the Connecticut Healthcare Spending Target. For detailed methods and assumptions on the Spending Target methodology please see [Connecticut Healthcare Spending Target: How Many Households have Affordable Healthcare?](#)

In order to calculate the optimal proportion of household income that should be spent on healthcare, the first step was to determine the expected expenditures for a family’s basic needs through the calculation of an average statewide Connecticut Healthcare Affordability Index. Next the Spending Target was set by comparing the net healthcare expenditures (premium, out-of-pocket expenditures, and premium tax credit) to the total income needed to meet basic needs.

$$\frac{\text{(Healthcare Premium + Out-of-Pocket Cost – Premium Tax Credit)}}{\text{Monthly Total Income Needed to Meet Basic Needs}} = \text{Healthcare Spending Target}$$

For households expected¹⁵ to have healthcare expenditures, costs are considered unaffordable when expenditures exceed 6.8% to 9.5% for households headed by one adult. Similarly, when there are two adults in the household, healthcare costs exceeding 7.1% to 10.8% of a household’s income are deemed unaffordable.

¹⁵ Note that households eligible for HUSKY do not have adequate income and are not expected to have any healthcare expenditures.

Each household in the American Community Survey was coded with the appropriate spending target based on the number of adults and children. Total household income was multiplied by the spending target to calculate the maximum total healthcare expenditures the household can afford.

Spending Target * Household income = Maximum Healthcare Expenditures

Households were then coded as having affordable or unaffordable healthcare expenditures. As the ACS does not include health expenditure data, each household is assigned their 2021 CHAI healthcare costs based on their family code, town, householder age category, type of insurance, and health risk score.

**CHAI Healthcare Costs <= Maximum Healthcare Expenditures =
Healthcare Costs are *Affordable***

**CHAI Healthcare Costs > Maximum Healthcare Expenditures =
Healthcare Costs are *Unaffordable***

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