



Institute for Health Metrics and Evaluation

Data Release Information Sheet

Data Summary

Dataset name: United States Health Care Spending Effectiveness 1996-2016

Date of release: July 5, 2022

Summary:

Health care spending effectiveness is the ratio of an increase in spending per case of illness or injury to an increase in disability-adjusted life-years (DALYs) averted per case. This dataset contains health care spending effectiveness ratios in the United States from 1996 to 2016. The ratios were created using comprehensive estimates of health care spending from the Disease Expenditure Study (DEX) and DALYs from the 2017 Global Burden of Disease study (GBD). Changes were decomposed over time to estimate spending per case and DALYs averted per case, while controlling for changes in population size, age-sex structure, and incidence or prevalence of cases.

Relevant publications and visualizations:

Weaver MR, Joffe J, Ciarametaro M, Dubois R, Dunn A, Singh A, et al. Health Care Spending Effectiveness: Estimates Suggest That Spending Improved US Health From 1996 To 2016. *Health Affairs*. 5 July 2022.

Acknowledgements

Contributing organizations:

- Institute for Health Metrics and Evaluation (IHME)

Funders:

- National Pharmaceutical Council (NPC)

Suggested Citation:

Institute for Health Metrics and Evaluation (IHME). United States Health Care Spending Effectiveness 1996-2016. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2021.

Data Files Information

File Inventory

File Name	Description	Version Date
US_HEALTH_CARE_SPENDING_EFFECTIVENESS_1996_2016_DATA_Y2022M07D05.CSV	US age-specific spending and DALYS in 1996 and 2016 for 139 causes, and decomposition results by cause for four factors: population, age-sex structure, cases per population, and spending per case or DALYS per case, and quality-adjusted health-care price index by cause	July 5, 2022
US_HEALTH_CARE_SPENDING_EFFECTIVENESS_1996_2016_CODEBOOK_Y2022M07D05.CSV	Codebook	July 5, 2022
US_HEALTH_CARE_SPENDING_EFFECTIVENESS_1996_2016_DATA_RELEASE_INFORMATION_SHEET_Y2022M07D05.DOCX	Data Release Information Sheet	July 5, 2022

Variable Information

Variable Label	Variable	Variable Definition
cause_id	Cause ID	Unique integer label for each cause.
cause_name	Cause Name	Name of each cause.
top_cause	Top Cause	TRUE If the cause is one of the n causes with the highest expenditures or DALYS, FALSE otherwise.
expenditure_1996	Expenditure 1996	Total expenditure in the US in 1996 on this cause in trillions of 2017 United States Dollars (USD).
expenditure_1996_lower	Expenditure 1996 lower	2.5 th percentile of "Expenditure 1996"
expenditure_1996_upper	Expenditure 1996 upper	97.5 th percentile of "Expenditure 1996"
delta_expenditure	Delta Expenditure	Change in total expenditure in the US between 1996 and 2016 (2017 United States Dollars (USD)). Mean estimate.
delta_expenditure_lower	Delta Expenditure lower	2.5 th percentile of "Delta Expenditure".

Variable Label	Variable	Variable Definition
delta_expenditure_upper	Delta Expenditure upper	97.5 th percentile of "Delta Expenditure".
DALY_1996	DALYs 1996	Total DALYs for the given cause in the US 1996. GBD mean estimate.
DALY_1996_lower	DALYs 1996 lower	2.5 th percentile of "DALYs 1996".
DALY_1996_upper	DALYs 1996 upper	97.5 th percentile of "DALYs 1996".
delta_DALY	Delta DALYs	Total change in DALYs between 1996 and 2016 in the US. GBD mean estimate.
delta_DALY_lower	Delta DALYs lower	2.5 th percentile of "Delta DALYs".
delta_DALY_upper	Delta DALYs upper	97.5 th percentile of "Delta DALYs".
expenditure_population_effect	Expenditure Population effect	Effect of changes in population on the change in expenditures, as estimated by the decomposition (2017 United States Dollars (USD)), mean estimate.
expenditure_population_effect_lower	Expenditure Population effect lower	2.5 th percentile of "Expenditure Population effect".
expenditure_population_effect_upper	Expenditure Population effect upper	97.5 th percentile of "Expenditure Population effect".
expenditure_age_structure_effect	Expenditure Age Structure effect	Effect of changes in proportions of the population in each age and sex category on the change in expenditures, as estimated by the decomposition (2017 United States Dollars (USD)), mean estimate.
expenditure_age_structure_effect_lower	Expenditure Age Structure effect lower	2.5 th percentile of "Expenditure Age Structure effect".
expenditure_age_structure_effect_upper	Expenditure Age Structure effect upper	97.5 th percentile of "Expenditure Age Structure effect".
expenditure_case_rate_effect	Expenditure Case Rate effect	Effect of changes in case rates on the change in expenditures, as estimated by the decomposition (2017 United States Dollars (USD)), mean estimate.
expenditure_case_rate_effect_lower	Expenditure Case Rate effect lower	2.5 th percentile of "Expenditure Case Rate effect".
expenditure_case_rate_effect_upper	Expenditure Case Rate effect upper	97.5 th percentile of "Expenditure Case Rate effect".

Variable Label	Variable	Variable Definition
expenditure_per_case_effect	Expenditure Per Case effect	Effect on changes in spending per case on the change in expenditures, as estimated by the decomposition (2017 United States Dollars (USD)), mean estimate.
expenditure_per_case_effect_lower	Expenditure Per Case effect lower	2.5 th percentile of "Expenditure Per Case effect".
expenditure_per_case_effect_upper	Expenditure Per Case effect upper	97.5 th percentile of "Expenditure Per Case effect".
DALY_population_effect	DALYs Population effect	Effect of changes in population on the change in DALYs, as estimated by the decomposition, mean estimate.
DALY_population_effect_lower	DALYs Population effect lower	2.5 th percentile of "DALYs Population effect".
DALY_population_effect_upper	DALYs Population effect upper	97.5 th percentile of "DALYs Population effect".
DALY_age_structure_effect	DALYs Age Structure effect	Effect of changes in proportions of the population in each age and sex category on the change in DALYs, as estimated by the decomposition, mean estimate.
DALY_age_structure_effect_lower	DALYs Age Structure effect lower	2.5 th percentile of "DALYs Age Structure effect".
DALY_age Structure effect upper	DALYs Age Structure effect upper	97.5 th percentile of "DALYs Age Structure effect".
DALY_case_rate_effect	DALYs Case Rate effect	Effect of changes in case rates on the change in expenditures, as estimated by the decomposition, mean estimate.
DALY_case_rate_effect_lower	DALYs Case Rate effect lower	2.5 th percentile of "DALYs Case Rate effect".
DALY_case_rate_effect_upper	DALYs Case Rate effect upper	97.5 th percentile of "DALYs Case Rate effect".
DALY_per_case_effect	DALYs Per Case effect	Effect of changes in DALYs per case on the change in expenditures, as estimated by the decomposition, mean estimate.
DALY_per_case effect lower	DALYs Per Case effect lower	2.5 th percentile of "DALYs Per Case effect".

Variable Label	Variable	Variable Definition
DALY_per_case_effect_upper	DALYs Per Case effect upper	97.5 th percentile of “DALYs Per Case effect”.
delta_expenditure_percent	Delta Expenditure Percent	Change in total expenditure in the US between 1996 and 2016 as a percentage (2017 United States Dollars (USD)), mean estimate.
delta_expenditure_percent_lower	Delta Expenditure Percent lower	2.5 th percentile of “Delta Expenditure” as a percentage.
delta_expenditure_percent_upper	Delta Expenditure Percent upper	97.5 th percentile of “Delta Expenditure” as a percentage.
expenditure_population_percent	Expenditure Population percent	“Expenditure Population effect” as a percentage of expenditures in 1996, mean estimate.
expenditure_population_percent_lower	Expenditure Population percent lower	2.5 th percentile of “Expenditure Population percent”.
expenditure_population_percent_upper	Expenditure Population percent upper	97.5 th percentile of “Expenditure Population percent”.
expenditure_age_structure_percent	Expenditure Age Structure percent	“Expenditure Age Structure effect” as a percentage of expenditures in 1996, mean estimate.
expenditure_age_structure_percent_lower	Expenditure Age Structure percent lower	2.5 th percentile of “Expenditure Age Structure percent”.
expenditure_age_structure_percent_upper	Expenditure Age Structure percent upper	97.5 th percentile of “Expenditure Age Structure percent”.
expenditure_case_rate_percent	Expenditure Case Rate percent	“Expenditure Case Rate effect” as a percentage of expenditures in 1996, mean estimate.
expenditure_case_rate_percent_lower	Expenditure Case Rate percent lower	2.5 th percentile of “Expenditure Case Rate percent”.
expenditure_case_rate_percent_upper	Expenditure Case Rate percent upper	97.5 th percentile of “Expenditure Case Rate percent”.
expenditure_per_case_percent	Expenditure Per Case percent	“Expenditure Per Case effect” as a percentage of expenditures in 1996, mean estimate.
expenditure_per_case_percent_lower	Expenditure Per Case percent lower	2.5 th percentile of “Expenditure Per Case percent”.

Variable Label	Variable	Variable Definition
expenditure_per_case_percent_upper	Expenditure Per Case percent upper	97.5 th percentile of "Expenditure Per Case percent".
delta_DALY_percent	Delta DALYs percent	Total change in DALYs between 1996 and 2016 in the US as a percentage, GBD mean estimate.
delta_DALY_percent_lower	Delta DALYs percent lower	2.5 th percentile of "Delta DALYs Percent".
delta_DALY_percent_upper	Delta DALYs percent upper	97.5 th percentile of "Delta DALYs Percent".
DALY_population_percent	DALYs Population percent	"DALYs Population effect" as a percentage of expenditures in 1996, mean estimate.
DALY_population_percent_lower	DALYs Population percent lower	2.5 th percentile of "DALYs Population percent".
DALY_population_percent_upper	DALYs Population percent upper	97.5 th percentile of "DALYs Population percent".
DALY_age_structure_percent	DALYs Age Structure percent	"DALYs Age Structure effect" as a percentage of expenditures in 1996, mean estimate.
DALY_age_structure_percent_lower	DALYs Age Structure percent lower	2.5 th percentile of "DALYs Age Structure percent".
DALY_age_structure_percent_upper	DALYs Age Structure percent upper	97.5 th percentile of "DALYs Age Structure percent".
DALY_case_rate_percent	DALYs Case Rate percent	"DALYs Case Rate effect" as a percentage of expenditures in 1996, mean estimate.
DALY_case_rate_percent_lower	DALYs Case Rate percent lower	2.5 th percentile of "DALYs Case Rate percent".
DALY_case_rate_percent_upper	DALYs Case Rate percent upper	97.5 th percentile of "DALYs Case Rate percent".
DALY_per_case_percent	DALYs Per Case percent	"DALYs Per Case effect" as a percentage of expenditures in 1996, mean estimate.
DALY_per_case_percent_lower	DALYs Per Case percent lower	2.5 th percentile of "DALYs Per Case percent".

Variable Label	Variable	Variable Definition
DALY_per_case_percent_upper	DALYs Per Case percent upper	97.5th percentile of "DALYs Per Case percent".
expenditure_rate_effect_over_DALY_rate_effect	Expenditure Rate effect over DALYs rate effect	Ratio of effects of expenditures per case and DALYs per case (2017USD / DALY). Median estimate of this ratio rather than the ratio of the means. Excludes SW-quadrant draws.
expenditure_rate_effect_over_DALY_rate_effect_lower	Expenditure Rate effect over DALYs rate effect lower	25 th percentile of "Expenditure Rate effect over DALYs rate effect".
expenditure_rate_effect_over_DALY_rate_effect_upper	Expenditure Rate effect over DALYs rate effect upper	75 th percentile of "Expenditure Rate effect over DALYs rate effect".
expenditure_rate_effect_median	Expenditure Rate effect at median	Expenditure per case effect that results in the median of "Expenditure Rate effect over DALYs rate effect" (2017 United States Dollars (USD)).
expenditure_rate_effect_lower	Expenditure Rate effect at lower	Expenditure per case effect that results in the 2.5 th percentil of "Expenditure Rate effect over DALYs rate effect" (2017 United States Dollars (USD)).
expenditure_rate_effect_upper	Expenditure Rate effect at upper	Expenditure per case effect that results in the 97.5 th percentile of "Expenditure Rate effect over DALYs rate effect" (2017 United States Dollars (USD)).
DALY_rate_effect_at_median	DALYs rate effect at median	Expenditure per case effect for the median value of "Expenditure Rate effect over DALYs rate effect".
DALY_rate_effect_lower	DALYs rate effect at lower	Expenditure per case effect for the lower value of "Expenditure Rate effect over DALYs rate effect".
DALY_rate_effect_upper	DALYs rate effect at upper	Expenditure per case effect for the upper value of "Expenditure Rate effect over DALYs rate effect".
expenditure_1996_plus_case_rate_and_expenditure_per_case_effects	Expenditure 1996 plus case rate and Expenditure per case effects	Expenditure in 1996 plus the effects of expenditures per case and case rates, as estimated by the decompositions in 2017 United States Dollars (USD).
expenditure_1996_plus_case_rate_and_expenditure_per_case_effects_lower	Expenditure 1996 plus case rate and Expenditure per case effects lower	Expenditure in 1996 plus the effects of expenditures per case and case rates, as estimated by the decompositions in 2017 United States Dollars (USD), 2.5 th percentile.

Variable Label	Variable	Variable Definition
expenditure_1996_plus_case_rate_and_expenditure_per_case_effects_upper	Expenditure 1996 plus case rate and Expenditure per case effects upper	Expenditure in 1996 plus the effects of expenditures per case and case rates, as estimated by the decompositions in 2017 United States Dollars (USD), 97.5 th percentile.
reservation_price_100k_median	Reservation Price 100k median	Reservation price index using \$100,000, median estimate.
reservation_price_100k_lower	Reservation Price 100k lower	Reservation price index using \$100,000, 25 th percentile
reservation_price_100k_upper	Reservation Price 100k upper	Reservation price index using \$100,000, 75 th percentile.
reservation_price_150k_median	Reservation Price 150k median	Reservation price index using \$150,000, median estimate.
reservation_price_150k_lower	Reservation Price 150k lower	Reservation price index using \$150,000, 25 th percentile.
reservation_price_150k_upper	Reservation Price 150k upper	Reservation price index using \$150,000, 75 th percentile.
COL_DALY_adjusted_100k_median	COL DALYs Adjusted 100k median	COL median estimate using \$100,000.
COL_DALY_adjusted_100k_iqr_lower	COL DALYs Adjusted 100k iqr lower	COL 25 th percentile estimate using \$100,000.
COL_DALY_adjusted_100k_iqr_upper	COL DALYs Adjusted 100k iqr upper	COL 75 th percentile estimate using \$100,000.
COL_DALY_adjusted_150k_median	COL DALYs Adjusted 150k median	COL median estimate using \$150,000.
COL_DALY_adjusted_150k_iqr_lower	COL DALYs Adjusted 150k iqr lower	COL 25 th percentile estimate using \$150,000.
COL_DALY_adjusted_150k_iqr_upper	COL DALYs Adjusted 150k iqr upper	COL 75 th percentile estimate using \$150,000.
COL_median	COL median	Cost of Living, median.
COL_lower	COL lower	Cost of Living, 25 th percentile
COL_upper	COL upper	Cost of Living, 75 th percentile

Variable Label	Variable	Variable Definition
ICER_proportion	ICER Proportion	Proportion of GBD draw-DEX draw pairs where Expenditures per case increased and DALYs per case decreased.
SW_proportion	SW Proportion	Proportion of GBD draw-DEX draw pairs where Expenditures per case decreased and DALYs per case increased.
dominated_proportion	Dominated Proportion	Proportion of GBD draw-DEX draw pairs where Expenditures per case increased and DALYs per case increased.
cost_saving_proportion	Cost saving proportion	Proportion of GBD draw-DEX draw pairs where Expenditures per case decreased and DALYs per case increased.

Additional Information

Terms and Conditions

<http://www.healthdata.org/about/terms-and-conditions>

Contact information

To request further information about this dataset, please contact IHME:

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These files may be updated periodically, so we appreciate hearing feedback or additional information about how these data are being used.