



Institute for Health Metrics and Evaluation

Data Release Information Sheet

Data Summary

Dataset name: HPV Vaccination Cost-Effectiveness Estimates

Date of release: December 20, 2021 Date of update: April 10, 2023

Summary:

The dataset contains predictions of the incremental cost-effectiveness ratios (ICERs) for the HPV vaccine in 195 countries. Predictions are based on meta-regression estimates of ICERs on three sets of independent variables (true variation measured by country characteristics, intervention characteristics, and bias variables). Data used in the meta-regression analysis are 613 ICERs from 75 studies in the Tufts University's cost-effectiveness analysis registries, and additional extractions of ICERs for sensitivity analyses.

Relevant publications and visualizations:

- Rosettie KL, Joffe JN, Sparks GW, Aravkin A, Chen S, Compton K, et al. Cost-effectiveness of HPV vaccination in 195 countries: A meta-regression analysis. *PLOS One*. 20 December 2021.

Acknowledgements

Contributing organizations:

- Institute for Health Metrics and Evaluation

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- Bill and Melinda Gates Foundation

Suggested Citation:

Institute for Health Metrics and Evaluation (IHME). HPV Vaccination Cost Effectiveness Estimates. Seattle, United States of America: Institute for Health Metrics and Evaluation (IHME), 2021.

Data Files Information

Update Information

Summary was revised on April 10, 2023.

File Inventory

File Name	Description	Version Date
IHME_HPVCOSTEFFECTIVENESS_2021_DATA_Y2021M12D20.CSV	ICERs for 195 countries and territories	December 20, 2021
IHME_HPVCOSTEFFECTIVENESS_2021_CODEBOOK_Y2021M12D20.CSV	Codebook	December 20, 2021
IHME_HPVCOSTEFFECTIVENESS_2021_INFO_SHEET_Y2023M04D10.PDF	Data Release Information Sheet	April 10, 2023

Variable Information

Variable	Variable Label	Variable Definition
country	Country	The country of which the research is performed.
location_id	Location ID	Distinct ID assigned to each location
ihme_loc_id	IHME Location ID	ID assigned by IHME based off geographic location.
region_id	Region ID	Distinct ID assigned to each region
region_name	Region Name	Standardized name assigned to each region
super_region_id	Super Region ID	Distinct ID assigned to each Super Region
super_region_name	Super Region Name	Collapses all SuperRegion* variables into a single, mutually exclusive variable. If only one super region is selected for the article, the variable displays that country. If multiple countries are selected, then the variable displays "Multiple Super Regions"
gavi_eligible	GAVI Eligible	1 if the country was GAVI-eligible in 2017, 0 otherwise
log_GDP_2017usd_per_cap	Log GDP per Capita	Log GDP per capita in 2017 US Dollars
log_burden_variable	Log Burden Variable	The natural log of burden_variable.
log_vaccine_cost_2017_usd	Log of Vaccine Costs	Log-transformed cost of a 3-dose course of the HPV vaccine. Costs obtained from Linksbridge and converted to 2017 US Dollars

Variable	Variable Label	Variable Definition
payer	Payer	Indicator covariate for payer perspective. We predict for payer perspective for all countries, so equal to 1 for all rows.
intercept	Intercept	Column consisting exclusively of 1s. Needed for some of the modeling architecture.
burden_disc_rate	Burden Discount Rate	Discount rate for health outcomes on a percent scale.
cost_disc_rate	Cost Discount Rate	Discount rate for costs on a percent scale.
coverage	Coverage	Percent (expressed as a whole number) coverage of the population
not_lifetime	Not Lifetime	This is a dummy-variable version of the column LifetimeHorizon. This column = 0 whenever the ratio calculates the ICER using all costs and D/QALYs for the individual's entire lifetime. It = 1 whenever the ratio has a finite time horizon - e.g. if they only count costs and Q/DALYs prevented up to 30 years into the future. In the Tufts' data this is 0 wherever TimeHorizonMagnitude = 100.
screen_comparator	Screen Comparator	Indicator covariate equal to 1 if the comparator includes screening, 0 otherwise.
access_to_care	Access to Care	Indicator covariate equal to 1 if the article assumes 100% access to care, 0 otherwise.
quadrivalent	Quadrivalent	Indicator covariate equal to 1 if the vaccine is quadrivalent, 0 if bivalent.
qalys	QALYs	Indicator covariate equal to 1 if the ICER is cost per QALY gained, 0 if it is cost per DALY averted
both_sex	Both Sex	Equal to 1 when the ratio assumes the vaccine is given to both males and females and 0 whenever the ratio assumes it is given only to females.
new_spline_cov	New Spline Coverage	Transformed version of GDP per capita. Referred to as "signal" in text of publication.

Variable	Variable Label	Variable Definition
predicted_icer_usd	Predicted ICER	Mean predicted ICER in 2017 USD. Calculated by predicting on log-scale, exponentiating, and averaging on the ICER scale.
predicted_icer_usd_median	Predicted ICER Median	Median predicted ICER in 2017 USD. Equal to $\exp(\text{predicted_log_icer_usd})$
predicted_icer_usd_lower	Predicted ICER Lower	2.5th percentile of the predicted distribution of the ICER in 2017 USD.
predicted_icer_usd_upper	Predicted ICER Upper	97.5th percentile of the predicted distribution of the ICER in 2017 USD.
predicted_log_icer_usd	Predicted Log ICER	Mean predicted log-ICER in 2017 USD.
predicted_log_icer_usd_lower	Predicted Log ICER Lower	2.5th percentile of the predicted distribution of the log-ICER in 2017 USD.
predicted_log_icer_usd_upper	Predicted Log ICER Upper	97.5th percentile of the predicted distribution of the log-ICER in 2017 USD.
ratio_of_upper_to_lower_prediction	Ratio of Upper to Lower Prediction	Ratio of 97.5th percentile to 2.5th percentile of the predicted distribution of the ICER.
predicted_icer_usd_over_gdp_pc	Predicted ICER Over GDP per Capita	Ratio of predicted_icer_usd to GDP per capita in 2017 USD.
predicted_icer_usd_median_over_gdp_pc	Predicted ICER Median Over GDP per Capita	Ratio of predicted_icer_usd_median to GDP per capita in 2017 USD.
pred_prob_usd	Predicted Probability	Predicted probability that an ICER will be cost-saving (predicted from logistic regression) in 2017 USD.
pred_val_usd	Predicted Value	True if pred_prob_usd is greater than 0.5, False otherwise in 2017 USD.
adj_ICER_usd	Adjusted ICER	Mean predicted ICER in 2017 USD adjusted for the probability of being cost-saving. Equal to $(1 - \text{pred_prob_usd}) * \text{predicted_icer_usd}$
adj_ICER_usd_lower	Adjusted ICER Lower	2.5th percentile of the predicted distribution of the ICER in 2017 USD adjusted for the probability of being cost-saving. Equal to $(1 - \text{pred_prob_usd}) * \text{predicted_icer_usd_lower}$

Variable	Variable Label	Variable Definition
adj_ICER_usd_upper	Adjusted ICER Upper	97.5th percentile of the predicted distribution of the ICER in 2017 USD adjusted for the probability of being cost-saving. Equal to $(1 - \text{pred_prob_usd}) * \text{predicted_icer_usd_upper}$
GDP_usd_per_cap	GDP per Capita	GDP per capita in 2017 US dollars
GDP_usd_category	GDP per Capita Category	Ratio of adjusted predicted ICER to GDP per capita, binned into the categories <0.5, 0.5-1, 1-3, and >3.

Additional Information

Terms and Conditions

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

Contact information

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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.