

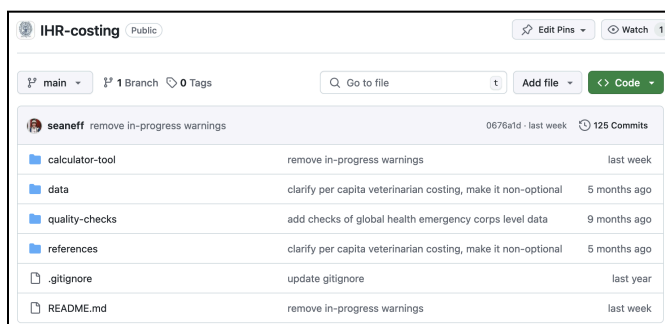
Background

The IHR Costing Tool is a free online resource designed to help countries estimate the costs of capacity building for health security under the International Health Regulations (2005). The tool uses an action-based costing approach to assist users in estimating the five-year costs of capacity building across each core capacity of the Joint External Evaluation (JEE). The tool was initially developed [1] and validated [2] using the first edition of the Joint External Evaluation, but has since been updated to align to the third and most recent edition of the JEE [3]. These costing resources have been used by a number of national governments, international organizations, and other research groups to estimate the costs of capacity building at both the country level and globally [4,5].

How to use the Georgetown IHR Costing Data

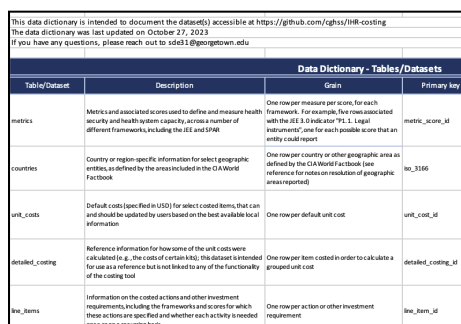
Accessing the list of action-based costs

You can access the most up-to-date action-based costing data online at <https://github.com/cqhss/IHR-costing>. The underlying data are stored in the data/ repository, and can be downloaded as a .tsv file. The primary file that contains the full list of action-based costs is “line_items.tsv”. Before using these data, please consult the data dictionary also included in the data/ repository, which contains detailed definitions for each relevant file and field.



File/Folder	Description	Last Commit
calculator-tool	remove in-progress warnings	last week
data	clarify per capita veterinarian costing, make it non-optional	5 months ago
quality-checks	add checks of global health emergency corps level data	9 months ago
references	clarify per capita veterinarian costing, make it non-optional	5 months ago
.gitignore	update .gitignore	last year
README.md	remove in-progress warnings	last week

IHR costing GitHub Repository



Table/Dataset	Description	Grain	Primary key
metrics	Metrics and associated scores used to define and measure health security and health system capacity, across a number of different frameworks, including the ISE and SHIP	One row per measure per score, for each framework. For example, for row associated with the ISE 3.0 indicator "1.1. Legal instrument", one for each possible score that an entity could report	metric_score_id
countries	Country or region-specific information for select geographic entities, as defined by the areas included in the CIA World Factbook	One row per country or other geographic area as defined by the CIA World Factbook (see reference for notes on resolution of geographic areas reported)	iso_3166
unit_costs	Default costs (specified in USD) for select costed items, that can and should be updated by users based on the best available local information	One row per default unit cost	unit_cost_id
detailed_costing	Reference information for how some of the unit costs were calculated (e.g., the cost of certain items; the discount intended for use as a reference but is not linked to any of the functionality of the costing tool)	One row per item costed in order to calculate a grouped unit cost	detailed_costing_id
line_items	Information on the costed actions and other investment requirements, including the frameworks and scores for which these actions are specified and whether each activity is needed once or on a recurring basis	One row per action or other investment requirement	line_item_id

Data dictionary

Estimating country-level costs

In order to estimate country-level costs, a number of user-specified inputs are required, including the country's current JEE scores, country-specific multipliers (total population, number of intermediate and local areas, number of health facilities and points of entry participating in IHR-related activities, and the number of additional doctors, nurses, and midwives to be costed beyond the current existing workforce). These data can be entered in the Excel file *jee_costing_worksheet.xls* within the calculator tool directory. Please see instructions on the first tab.

The R script *calculator.R* includes some basic R code to estimate yearly and total costs over a five year period, both overall and by indicator. You can modify the script as needed for your specific purpose. It relies on the file *jee_costing_worksheet.xls* (described above) as an input – **please make sure to modify all values in that sheet before running this code. It will run by default using the data in the sheet as example/placeholder values, but unless you modify those values based on your own data, the results will not reflect the specific scenario you are trying to cost.**

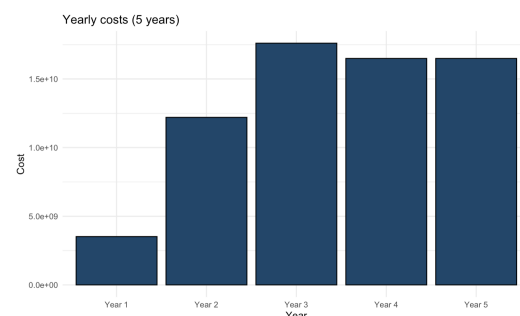
Results are output as a file titled *jee3_costing_results.xlsx*. You can see an example of what this file looks like in the GitHub repository as *example_jee3_costing_results.xlsx*. The file includes three tabs: costs per indicator per year, costs per indicator per score per year, and costs per cost category per year.

Generate data visualizations

The script *calculator.R* also includes some code to generate basic data visualizations, including a treemap (below, left) that summarizes cost per cost category, and a barchart showing total cost per year. You can also modify the code as needed to generate visualizations of your own within R, or use the exported data within other plotting or charting software.



Example Treemap of costs per cost category



Example barchart of costs per year over 5 years

References

- [1] Katz R, Graeden E, Eaneff S, Kerr J. Strengthening health security: an intuitive and user-friendly tool to estimate country-level costs. *BMJ Global Health*. 2018 Aug 1;3(4):e000864.
- [2] Lee CT, Katz R, Eaneff S, Mahar M, Ojo O. Action-based costing for national action plans for health security: accelerating progress toward the International Health Regulations (2005). *Health security*. 2020 Jan 1;18(S1):S-53.
- [3] Georgetown Center for Health Science and Security GitHub. IHR Costing. <https://github.com/cghss/IHR-costing>
- [4] Eaneff S, Graeden E, McClelland A, Katz R. Investing in global health security: estimating cost requirements for country-level capacity building. *PLOS Global Public Health*. 2022 Dec 5;2(12):e0000880.
- [5] Eaneff S, Boyce MR, Graeden E, Lowrance D, Moore M, Katz R. Financing global health security: estimating the costs of pandemic preparedness in Global Fund eligible countries. *BMJ Global Health*. 2023 Jan 1;8(1):e008960.