ACROSS THE US: METHODOLOGY

GHTC's analysis assesses the economic impact and funding flows of US government (USG) funding for global health research and development (R&D) across each state in the United States, as well as the burden of neglected and emerging diseases in each state. More information about the methodology used in each portion of the analysis is detailed below.

TOTAL FUNDING TO STATE/TOP FUNDED INSTITUTIONS/TOP HEALTH AREAS OF FUNDING

The analysis reflects US public funding of R&D for technologies that address priority global health challenges distributed to recipient organizations based in the United States from the years 2007 to 2022. The underlying data set is from the G-FINDER survey conducted by Policy Cures Research. The G-FINDER annually tracks funding of R&D of new drugs, vaccines, diagnostics, and other tools for global health priorities that disproportionately affect people in low- and middle-income countries (LMICs), including neglected diseases (NDs), emerging infectious diseases (EIDs), and sexual and reproductive health (SRH) issues. It also includes appropriately targeted platform technologies (such as adjuvants, diagnostic platforms, and delivery devices) and multi-disease vector control products. Due to changes in the scope of the G-FINDER since its inception, the analysis reflects R&D funding for NDs from 2007 to 2022, for EIDs from 2014 to 2022, and for SRH issues from 2018 to 2022. Additional information on the G-FINDER methodology can be found here, alongside detailed information on what is included in its scopes for NDs, EIDs, and SRH issues.

Using the G-FINDER data set outlined above, GHTC researchers conducted independent research to identify the location of each recipient of USG funding included in the data set. Using this information, researchers then calculated the total amount of funding received by *each* institution in each US state and the District of Columbia (DC), the overall total received by *all* institutions in each state and DC, and how funding to each state and DC was distributed across various diseases and health areas.

Disclaimer: Limitations of this analysis and changes from original data set

Location classification:

Due to the collaborative nature of R&D, the further dispersal of funding by recipients through subcontracts and the multinational or multistate presence of many companies and research institutes, it is difficult to assess how funding flows are distributed across geographic locations. For purposes of this analysis, GHTC researchers determined the country and state to which to assign funding based on the office location(s) of each recipient of USG funding included in the data set.

In cases where an organization's location was not immediately clear from an online search or it had more than one office location, GHTC conducted additional research on the organization, including cross-referencing recipient names and details in the US National Institutes of Health's (NIH's) RePORTER system, USASpending.gov, and/or SBIR.gov, to determine the most likely location of the organization or the most likely office to which funding flowed. In the absence of additional information to clearly inform this assignment of funding to a specific office, GHTC chose to assign funding to the headquarter office of the organization. If GHTC researchers could not confidently determine to which organization an entry in the G-FINDER referred or could not clearly identify an office location, the recipient was not assigned to a state and thus excluded from the funding analysis. In cases where a recipient organization had closed or was acquired by another organization, GHTC assigned the entry to the state where the original entity was located and added a * to the end of organization name to indicate the closure.

Any listing of funding for USG agencies reflects funding the agency received as a *recipient*, through either self-funding or transfers from other government agencies, rather than funding appropriated to the agency that it then granted or dispersed to other recipients. For specific questions related to the state classification of organizations, contact GHTC at info@ghtcoalition.org.

Anonymized pharmaceutical industry funding and aggregated funding:

In certain instances, information on industry recipients has been anonymized and aggregated into "undisclosed STATE-based industry recipient(s)" entries. This is due to Policy Cures Research's confidentiality policy with pharmaceutical companies who participate in the G-FINDER, which prohibits the disclosure of certain detailed information provided. Additionally, there are instances where USG agencies reported data to G-FINDER as funding distributed to aggregated "unspecified/multiple recipients" or "unspecified/multiple SMES [small pharmaceutical and biotechnology firms]." In these cases, GHTC was not able to assign this funding to a specific location, so it is excluded from the overall analysis.

Organization classification:

In select cases, GHTC researchers chose to combine two recipients listed separately in the G-FINDER data set into a single recipient entry. This was the case when the two entities were part of the same organization at the same general location (e.g., funding to a university/school and funding to a program or institute within the aforementioned university/school) or entities were listed separately under both a former and current organization name despite being the same legal entity.

GHTC also made corrections to any typos/stylistic inconsistencies identified, as well as updated entries to reflect any organizations that underwent a name change. GHTC has provided details regarding the latter changes in parentheses. (Note: Some parenthetical information is original to the G-FINDER data set as well).

Disease classification:

For the analysis of how a state's funding is distributed across diseases/health areas, GHTC largely relied on the original classification and grouping of level one diseases/conditions included in the G-FINDER survey. However, GHTC researchers made a few changes described below:

- All neglected tropical diseases are grouped into a single "neglected tropical diseases" category. This category includes R&D funding for Buruli ulcer, helminth infections (worms & flukes), kinetoplastid diseases, leprosy, mycetoma, scabies, snakebite envenoming, and trachoma.
- All SRH issues are grouped into a single "reproductive health" category. This category includes R&D funding for contraception, HPV and HPV-related cervical cancer, multipurpose prevention technologies, postpartum hemorrhage, preeclampsia and eclampsia, sexually transmitted infections, and R&D for more than one SRH issue.
- Funding for "coronaviral diseases (including MERS, SARS, and COVID-19)," which is combined in the G-FINDER, was split out into funding for "COVID-19" and a separate category of funding for "Other coronaviruses (including MERS, SARS)." GHTC made this choice due to the dominance of funding for COVID-19.
- Funding for "R&D for both NDs and EIDS," "R&D for both EIDS and SRH," "R&D for both NDs and SRH," "R&D for all global health areas," "R&D for more than one ND," and "R&D for more than one EID" were combined into a singular "Multi-disease/health area R&D" category, which was then in most states combined into a part of the "Other" category in pie charts, added together alongside others diseases/health areas that received small or fractional percentages of funding in a given state.

Definition of global health R&D:

There is no universal definition of what constitutes "global health" or even "R&D." The interpretation of these terms can vary depending on the context in which they are used. G-FINDER employs a specific scope that covers basic research and product development-focused research for a specific set of diseases/health issues that it considers to be NDs, EIDs, and SRH issues that disproportionately impact LMICs. GHTC's USG funding analysis is reflective of that scope and does not include other areas of R&D that fall outside that scope.

JOBS DATA

GHTC's analysis of jobs created by USG funding for global health R&D is based on a previous analysis of the economic impact of NIH R&D funding conducted by United for Medical Research. GHTC researchers used that analysis of jobs created per one million dollars in NIH awards per state multiplied by GHTC's analysis described above of the total USG funding received by institutions in each US state to calculate jobs created from this funding. In terms of rounding conventions, for totals over 1000, GHTC chose to round down to 100s, and for totals under 1000, GHTC rounded down to 5 or 0 in the 10s position. (e.g., 1,575 would become 1,500+, 767 would become 750+, 732 would become 700+). Totals under 100 are not reported.

NEGLECTED AND EMERGING DISEASE BURDEN DATA

Neglected and emerging disease burden data by state was obtained from the US Centers for Disease Control and Prevention. Any reported case-count data includes both locally acquired cases and travel-acquired cases. The source of data for each disease and the range of years included in GHTC's analysis are listed below. Please view the original data source for more detailed information.

- *Chikungunya cases, 2014–2022:* Nationally Notifiable Conditions Annual Tables (2016–2019 data); Weekly Table, Week 12, 2023 (2022 data); Weekly Table, Week 52, 2022 (2021 data); Weekly Table, Week 52, 2021 (2020 data); Morbidity and Mortality Weekly Report Summaries of Notifiable Infectious Diseases (2015 data); Laboratory-confirmed chikungunya virus disease cases reported to ArboNet by State – United States, 2014 (2014 data) [Accessed 4/5/23]
- *Dengue cases, 2010–2022:* Dengue: Statistics and Maps (2010-2022 data) [Accessed 4/7/23]
- *HIV diagnoses, 2008–2022*: AtlasPlus [Accessed 4/5/23]
- *Malaria cases, 2007–2022:* Nationally Notifiable Conditions Annual Tables (2016-2019 data); Weekly Table, Week 12, 2023 (2022 data); Weekly Table, Week 52, 2022 (2021 data); Weekly Table, Week 52, 2021 (2020 data); Morbidity and Mortality Weekly Report Summaries of Notifiable Infectious Diseases (2007-2015 data) [Accessed 4/11/23]
- *Mpox cases, 2022–March 29, 2023:* Mpox 2022 U.S. Map & Case Count [Accessed 4/22/23]
- *Tuberculosis cases, 2007–2021:* AtlasPlus [Accessed 4/5/23]
- *Viral hemmorhagic fever cases, 2007–2022:* Nationally Notifiable Conditions Annual Tables (2016–2019 data); Weekly Table, Week 12, 2023 (2022 data); Weekly Table, Week 52, 2022 (2021 data); Weekly Table, Week 52, 2021 (2020 data); Morbidity and Mortality Weekly Report Summaries of Notifiable Infectious Diseases (2010-2015 data; 2010 report refers to a 2007 case of Marburg which was included in analysis) [Accessed 4/5/2023]
- *Zika cases, 2015–2022:* ArboNET (combined imported and locally-acquired cases) [Accessed 4/7/23]