



# GLOBAL HEALTH SECURITY TRACKING

## Technical Appendix

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## Overview

Addressing global health security requires understanding the intersection between biological outbreaks, policy, politics, and emergency preparedness and response. Ensuring adequate financing for nations, regions, and international systems to prevent, detect, and respond to biological threats is critical for the advancement of global health security, and requires awareness of the current status of funding. To identify funding requirements, develop a compelling investment case, assess the effectiveness of aid, and prioritize future funding decisions, it is necessary to understand who is funding what, and where, in the broader context of global health security.

The Georgetown Global Health Security (GHS) Tracking site was developed to provide a shared resource to map the flow of disbursed funds for global health security. GHS Tracking allows both funders and recipients to identify gaps and prioritize future investments, and helps to highlight the ways in which funds can be allocated most effectively to have the greatest impact. This platform serves as a basis for mutual accountability within the global health security community by promoting public accounting and providing an opportunity for countries, organizations, and other funders to identify their successes and evaluate priorities for future investments.

GHS Tracking was created by the Georgetown University Center for Global Health Science and Security in partnership with Talus Analytics, and the site launched in 2017. Grants from the Open Philanthropy Project and the Skoll Foundation provided the funding for the project. Data are available from 2014-2022; the last data update for GHS Tracking was in December 2022. The data are no longer being updated but will continue to be available on the site.

Details on the data inclusion requirements for GHS Tracking, methods used for data tagging and de-duplication across sources, as well as documentation of the data incorporated into GHS Tracking, are provided below.

## Data definitions

The research team developed a standardized taxonomy to describe and capture global health security funding. Definitions, descriptions, and possible values for each data element are provided below.

### Data source

**Data source:** The source of the data reported in GHS Tracking (e.g., IATI, Article X database). Data was incorporated based on a review of data sources identified by the research team, or based on data submitted directly to GHS Tracking.

### Project basics

**Project:** One or more disbursed financial transactions directed toward activities to achieve a common purpose outlined in a statement of work, grant, or announcement.

**Project name:** The name of the project, or a brief title describing the project's purpose.

**Project description:** A brief description of the project that is usually only included if available directly from the data source being incorporated. Otherwise, the description is captured as null.

For some data sources, the research team may auto-generate a descriptive project title based on the funders and recipients involved (e.g., "European Investment Bank funds WHO for COVID-19 Response"). For example,

this is done for projects sourced from the COVID-19 Health Funding Tracker published by the Economist Intelligence Unit (EIU).

**Response or capacity building:** Whether the specified funds were provided as response funding or capacity building funding.

- Response funding or support: Funds that directly support operational response efforts for WHO-designated public health emergencies of international concern
- Capacity building funding or support: Funds to build capacity under the International Health Regulations (2005).

Additional details on how projects are tagged as response funding are available in the “Tagging response funding” section.

## Response funding

**PHEIC name:** A standardized event name reflecting the target effort of the response funding and specified only for transactions tagged as response funding. The following public health emergencies of international concern (PHEICs) declared by the WHO are actively tagged within GHS Tracking<sup>1</sup>:

- *2022 Monkeypox*
- *2019-2022 COVID-19 Pandemic*
- *2018-2020 Ebola in DRC*
- *2015-2016 Zika Virus*
- *2014-present Poliovirus*
- *2014-2016 Ebola in West Africa*
- *2009-2010 H1N1 Swine flu*

Additional details on how projects are tagged by target efforts are available in the “Tagging response funding” section.

## Capacity-building funding

**Core capacities:** The core capacity of the Joint External Evaluation (JEE)<sup>2</sup> that the project supports, if any. Additional details on how projects are tagged by core capacity are available in the “Tagging core capacities” section of this technical appendix.

## Funder information

**Funder name:** The name of the country or stakeholder who gave the funds. One or more funders may be listed, though funders are identified as a group only when the specific amount committed/disbursed by each funder is not known. In cases where the specific allocation between funders is known, then separate transactions are captured for each.

**Funder type:** The type of funder, specified as government, international organization, NGO, academia, private sector, foundation, or other.

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<sup>1</sup> Based on WHO declarations as of December 2022

<sup>2</sup>GHS Tracking uses the core capacities identified in the first edition of the Joint External Evaluation, available at: <https://www.who.int/publications/i/item/9789241510172>

- Government: Any governmental organization or government (including regional and national government), or a group/coalition of States or regions
- International Organization: An entity established by a formal political agreement between members that have the status of international treaties (definition from OECD)
- NGO: Any non-profit entity without significant government participation or representation (definition from OECD)
- Academia: Any academic institution or academically-affiliated research group
- Private sector: Private corporations and households (definition from OECD)
- Foundation: A nonprofit corporation or a charitable trust with the principal purpose of making grants to unrelated organizations, institutions, or individuals (definition from Foundation Center)
- Other: Any other type of funder or recipient not well-categorized based on the funder types defined above

Funder types are specified based on how each funder describes themselves in public documentation. If multiple funders are defined for a given project, then all applicable types are listed.

## Recipient information

**Recipient name:** The name of the recipient of the funds. One or more recipients may be identified, though recipients should be identified as a group only when the specific amount committed/dispensed to each recipient is not known.

**Recipient type:** The type of recipient. See the definition and categories described under “Funder type” above.

## Transaction information

**Transaction:** A discrete financial disbursement for a given project involving the transfer of funds directly from the funder to the recipient. Each transaction is tracked individually, whereas projects aggregate numerous transactions over the project timeline

**Transaction year range:** The year(s) during which the support was disbursed or is intended to be disbursed for a project. Dates are captured at the level of resolution at which they are reported (e.g., specific dates vs. years), though data are typically tracked by year within the sources integrated within GHS Tracking and are reported by year on the GHS Tracking website.

**Transaction amount:** The amount of funds disbursed

**Transaction currency:** The currency corresponding to the reported amount of funds committed or disbursed, specified as a three-digit ISO 4217 Currency Code. The GHS Tracking site displays funds in units of nominal USD; that is, funds are not adjusted for inflation. For funds reported in currencies other than USD, the exchange rate corresponding to the transaction date is applied to convert into a value in USD.

## Auxiliary global health security data

**SPAR scores:** For country stakeholders, capacity-level scores are included based on the second edition of the International Health Regulations (IHR) State Party Annual Reporting (SPAR) tool. Country scores are displayed as “No capacity” (score of 1), “Limited capacity” (score of 2 or 3), or “Demonstrated capacity” (score of 4 or 5), based on the average of all indicators for each of the 15 IHR SPAR core capacities. Data from 2022

were collected from the e-SPAR platform: <https://extranet.who.int/e-spar>. If a state did not complete or publicly publish a SPAR report for 2022, no SPAR scores are displayed.

**JEE scores:** For country stakeholders, capacity-level scores are included based on the first and second editions of the Joint External Evaluation (JEE). Country scores are displayed as “No capacity” (score of 1), “Limited capacity” (score of 2 or 3), or “Demonstrated capacity” (score of 4 or 5), based on the average of all indicators for each of JEE core capacities. Please note that JEE 2.0 included changes in and additions to some indicators compared to JEE 1.0, however, the core capacity level remains largely the same. Thus, scores from both versions are presented in the same way on the site. If a country completed both JEEs, only JEE 2.0 is displayed on the site. If a country has not completed JEE 1.0 or 2.0 or has not published a public mission report or executive summary, no JEE scores are included in GHS Tracking. Additional information on the JEE process is available online at:

<https://www.who.int/emergencies/operations/international-health-regulations-monitoring-evaluation-framework/joint-external-evaluations>.

**GHS Index:** For country stakeholders, index scores are displayed based on data from the 2021 GHS Index, available here: [https://ghsindex.org/wp-content/uploads/2021/12/2021\\_GHSIndexFullReport\\_Final.pdf](https://ghsindex.org/wp-content/uploads/2021/12/2021_GHSIndexFullReport_Final.pdf). Individual GHSI scores for each country are shown on GHS Tracking. A lower score means that the country is more vulnerable concerning its ability to prepare and respond to epidemics and pandemics. The country’s rank relative to the rest of the world is also displayed (where 1/195 is the least vulnerable and 195/195 is the most vulnerable). If a country was not included in this index, no scores are displayed.

**Infectious Disease Vulnerability Index:** For country stakeholders, index scores are displayed based on data from the 2016 Infectious Disease Vulnerability Index (IDVI), available here: [https://www.rand.org/pubs/research\\_reports/RR1605.html](https://www.rand.org/pubs/research_reports/RR1605.html). A lower score means that the country is more vulnerable to infectious disease outbreaks. The country’s rank relative to the rest of the world is also displayed (where 1/195 is the least vulnerable and 195/195 is the most vulnerable). If a country was not included in this index, no scores are displayed.

**INFORM Risk Index:** For country stakeholders, index scores are displayed based on data from the 2022 INFORM Risk Index data, available here: <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Results-and-data>. Only the overall INFORM risk score is displayed. A lower score means that the country is less vulnerable to humanitarian crises and disasters. The country’s rank relative to the rest of the world is also displayed (where 1/192 is the least vulnerable and 192/192 is the most vulnerable). If a country was not included in this index, no scores are displayed.

**World Risk Index:** For country stakeholders, index scores are displayed based on data from the 2022 World Risk Index data, available here: [https://weltrisikobericht.de/wp-content/uploads/2022/09/WorldRiskReport-2022\\_Online.pdf](https://weltrisikobericht.de/wp-content/uploads/2022/09/WorldRiskReport-2022_Online.pdf). Only the overall World Risk Index is displayed. A lower score means that the country is less vulnerable of falling victim to a humanitarian disaster caused by extreme natural events and the negative impacts of climate change. The country’s rank relative to the rest of the world is also displayed (where 1/192 is the most vulnerable and 192/192 is the most vulnerable). If a country was not included in this index, no scores are displayed.

**National Action Plan for Health Security (NAPHS):** For country stakeholders, NAPHS completion statuses as of March 2024 are displayed. Data were collected from <https://extranet.who.int/sph/naphs>. Only

NAPHS that were completed and published are made available as PDF documents on the site. Additional information about the NAPHS framework can be found here: <https://www.who.int/emergencies/operations/international-health-regulations-monitoring-evaluation-framework/national-action-plan-for-health-security>.

**WOAH Performance of Veterinary Services (PVS) Pathway:** For country stakeholders, PVS Pathway reports as of March 2024 are displayed. Data were collected from <https://www.woah.org/en/what-we-offer/improving-veterinary-services/pvs-pathway>. Only evaluation reports that were released to be shared publicly are made available as PDF documents on the site.

## Data processing and aggregation

GHS Tracking aggregates data from a number of data sources described in additional detail below. Data from each of these sources were reviewed and processed in order to:

1. tag each project, where applicable, by core capacity and/or response target effort;
2. ensure data were in the necessary format; and
3. deduplicate data across different data sources.

### Deduplication

GHS Tracking incorporates funding data from data sources tracking different types of information with different focus areas, so overlap between these data sources is limited. However, in some instances, duplicate information is stored within a single data source (e.g., duplicate data within IATI) or is replicated in two different data sources (e.g., data within both IATI and Article X data sources).

Data were deduplicated to the extent possible based on a review by the research team, and any identified duplicates were excluded from the GHS Tracking database. For large transactions (>\$100 million), data were manually reviewed by the research team to identify any known duplicates. A record of all data excluded due to duplication is kept for reference by the research team.

### Minimum data requirements for incorporation of data into GHS Tracking

As a minimum, each data source incorporated into GHS Tracking must include:

- Funder OR recipient information
  - Funder name (this can be a specific funder or a group of funders)
  - Recipient name (this can be a specific recipient or a group of recipients)
- Whether the project described corresponds to a *disbursement*
  - Excludes funding commitments
- Whether the project described provided *financial support*
  - For financial support: the amount and currency
  - Excludes in-kind support
- The timeframe of the transaction(s), at least at a resolution of year(s)
- Transaction(s) which occurred between January 2014 and December 2022

- Unique identifying information to determine that the source is relevant to global health security, aid tagging, and deduplicate with other data sources (e.g., project name, description, or other distinguishing information)
  - For tagging: Must be able to tag either a core capacity OR an event (see more information about tagging methods below)

### Tagging core capacities

When funding or support was provided to directly support one or more core capacities identified by the Joint External Evaluation (JEE), data were tagged by those core capacities as defined in the first edition of the JEE. For most data sources incorporated into GHS Tracking, efforts were tagged by core capacities based on a manual review of the project name and description.

Due to their high volume, data from IATI were tagged with core capacities based on a supervised, automated text search algorithm. The search terms used, and additional information, are provided in the “IATI” section below. Tags for projects with disbursements larger than \$100 million were reviewed for accuracy and, if necessary, corrected by a member of the research team.

### Tagging response funding

GHS Tracking contains response funding data for public health emergencies of international concern (PHEICs) declared by the World Health Organization.

Response data sources were identified through literature and internet searches and on recommendation by subject matter experts during and after the outbreak.

### Response tagging process

In addition to all data attributes described above in “Data definitions”, response projects and transactions are tagged by the target effort (event), e.g., “2019-2022 COVID-19 Pandemic”. Projects and transactions related to an event in some way but not for direct response to the event are not currently incorporated into GHS Tracking as response data (e.g., long-term recovery or pre-event preparedness projects).

Due to the high volume of data from IATI, a mostly automated, supervised tagging process is used to tag IATI projects and transactions by response effort, supplemented by a review of results by the research team. More information about the process used is available in the section “International Aid Transparency Initiative (IATI) data” below.

### Deduplicating response data

Similar to other funding data in GHS Tracking, response data from different sources are checked for duplication, and the more comprehensive and/or recent data source for the event is used, including prioritizing consideration of direct reporting by funders. Media reports of response funding commitments made early during an event were only included if followed by official disbursements released later.



## Funding data incorporated into GHS Tracking

All data sources tracking funding that are currently incorporated into GHS Tracking are discussed in the following sections. Descriptions of each data source and a statement of how its data were included or excluded from the GHS Tracking application are provided.

### International Aid Transparency Initiative (IATI) data

The International Aid Transparency Initiative (IATI) is a public, voluntary registry of international aid funding initiatives that aggregates data shared by over 600 organizations. As IATI includes information on funding initiatives across many sectors, only funding data from meeting the following criteria were considered for inclusion:

1. activities published by the World Health Organization,
2. activities supporting a sector related to global health security, and
3. activities determined to be response funding.

Additionally, the research team accessed IATI project data with at least one transaction (disbursement or expenditure) having a non-zero value. Project data flagged by IATI as duplicates of other IATI data were excluded to avoid double-counting.

### Sectors of IATI data incorporated into GHS Tracking

The IATI database contains ~1 million projects covering a broad range of themes, from “fishery research” to “basic health care.” Table 1 below identifies the specific sectors from IATI for which data are incorporated.

**Table 1. Names and codes of sectors tagged on International Aid Transparency Initiative (IATI) projects mark those projects for inclusion in GHS Tracking.** Sector codes are from the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC).

Sector name	DAC-5 code
Health policy and administrative management	12110
Medical education/training	12181
Medical research	12182
Medical services	12191
Basic health care	12230
Basic health infrastructure	12240
Basic nutrition	12240

Infectious disease control	12250
Health education	12261
Malaria control	12262
Tuberculosis control	12263
Health personnel development	12281
Population policy and administrative management	13010
Reproductive health care	13020
Family planning	13030
STD control including HIV/AIDS	13040
Personnel development for population and reproductive health	13081
Livestock/veterinary services	31195
Social mitigation of HIV/AIDS	16064
Pharmaceutical production	32168

#### Tagging core capacities for IATI data

IATI data were tagged with core capacities by text search with terms defined by the research team and informed by the language used by the Joint External Evaluation framework<sup>3</sup>. The zoonotic diseases identified to tag the core capacity *P.4 Zoonotic Disease* were informed by a review of OIE Listed Diseases.<sup>4</sup> The English search terms used are listed in Table 2 below. Spanish, French, German, and Dutch translations of these search terms were also used because these languages are common in IATI data.

**Table 2. Search terms for core capacity tagging within International Aid Transparency Initiative (IATI) data.** Text-matching terms are specified as a semicolon-separated list.

<sup>3</sup> The string searches used to tag data from IATI were updated in April 2019

<sup>4</sup> "OIE-Listed Diseases: World Organisation for Animal Health." Animal Health in the World, [www.oie.int/en/animal-health-in-the-world/oie-listed-diseases-2018/](http://www.oie.int/en/animal-health-in-the-world/oie-listed-diseases-2018/)

Core capacity	Text search terms (case insensitive)
P.1 National Legislation, Policy, and Financing	legislation; legislative; financing; fiscal; regulatory; regulation; legal framework; policy; policies
P.2 IHR Coordination, Communication and Advocacy	implementation of the international health regulations; IHR coordination; IHR advocacy; IHR focal point; NFP; IHR regional contact point
P.3 Antimicrobial Resistance (AMR)	antibiotic; antimicrobial; amr; artemisinin; dr-tb; drug resist; resistance to drugs; resistant bacteria; resistant malaria; resistant tb; healthcare associated infection; HCAI
P.4 Zoonotic Disease	zoono; animal disease; animal health; animal virus; anthrax; aujeszky; avian; bluetongue; bovine; bovine; brucella; brucellosis; camelpox; caprine; chagas; chlamydomyia abortus; chrysomya bezziana; cochlomyia hominivorax; contagious agalactia; coronavirus; crimean congo hemorrhagic fever; wildlife; duck virus hepatitis; echinococcus granulosus; echinococcus multilocularis; enzootic bovine leukosis; epizootic haemorrhagic disease; EAEVE; FMD; foot and mouth disease; foot-and-mouth disease; fowl typhoid; gumboro disease; haemorrhagic septicaemia; heartwater; infectious bursal disease; infectious pustular vulvovaginitis; influenza a; japanese encephalitis; leishmania; leishmaniasis; lumpy skin disease; marburg; MERS; middle east respiratory syndrome; mycoplasma gallisepticum; mycoplasma synoviae; new world screwworm; newcastle disease virus; nipah; OIE; PVS; old world screwworm; One Health; paratuberculosis, q fever; pullorum disease; rabies; rift valley fever; rinderpest; SARS; sheep and goat pox; sudden acute respiratory syndrome; SARS; surra; swine fever; theileriosis; transmissible gastroenteritis; trichinella spp; trichomonosis; trypanosoma evansi; trypanosomosis; tularemia; turkey rhinotracheitis; veterin; west nile fever; west nile virus; yellow fever; vector control; livestock
P.5 Food Safety	food safety; food security; food contamination; foodborne; food borne; food poisoning; International Food Safety Authority Network; INFOSAN; Salmonella; total diet study; harmonized total diet study; food recall
P.6 Biosafety and Biosecurity	bio-safety; bio-security; bio-risk; bio risk; biorisk; biological risk protocols; biological safety; biological security; biosaf; biosec; BSL; inventory of pathogen; pathogen inventory; pathogen control measures; access pathogen; laboratory licens; audit lab; laboratory

	audit; lab audit; ISO accred; specimen transport; sample transport; transport of specimen; transport of infectious; transport of sample; shipment of specimens; shipment of sample; infectious substance transport; shipping infectious; shipping sample; shipping specimen; biosafety cabinet; BSC; International Federation of Biosafety Associations; IFBA; waste management; biological waste; safety equip
P.7 Immunization	cold chain; cold stores; immun; vacc; measles eradication; GAVI; injection safety
D.1 National Laboratory System	diagnostic; RDT; lab; rapid detection; rapid test; BSL; microbiological test; bacteriology; virology; serology; parasitology; polymerase chain reaction; PCR; virus culture; microscopy; bacterial culture; case detection
D.2 Real Time Surveillance	data management system; electronic reporting; data exchange systems; detect; health information system; information management system; screen; surveil; EBS; IBS; early warning; monitoring system
D.3 Reporting	report; notifiable; EIS; event information system; global public health intelligence network; GPHIN; MedISys; WAHIS; IHR focal point; OIE delegate; OIE contact point; public health emergency of international concern; PHEIC; Early Warning and Response System
D.4 Workforce Development	capacity building; development of capacity; operational capacity; personnel; staff; train; vocational; workforce; continuing education; curriculum; Massive Open Online Course; MOOC; teach; workshop; seminar; training; conference; trainer; symposium; fellowship; field epidemiology training program; FETP
R.1 Preparedness	prepared; plan; surge capacity; risk map; resource map; resources map; risk assess; assess risk; risk profile; profile on risk
R.2 Emergency Response Operations	emergency; rapid respon; response operations; RRT; EOC; operational response; operation center; operation centre; coordinated response; IMS; incident manage; activation
R.3 Linking Public Health and Security Authorities	biological weapon; CBRN; security; criminal; crime; deliberate; interdict; intentional release; law enforcement; police; terrorism; terrorist; INTERPOL; forensic

R.4 Medical Countermeasures and Personnel Deployment	deploy; MCM; countermeasure; stockpile; SNS; supply management; warehousing and distributing drugs; sending health personnel; receiving health personnel; receipt of health personnel; request personnel; GOARN
R.5 Risk Communication	community engage; engage population; public awareness; public trust; mass awareness; awareness campaign; public communic; risk communic; emergency communication; public messag; exchange of info; engagement strateg; media; social mobilization; behavior change; newspaper; radio; tv; television; social media; misinformation; rumour management; rumor management; dynamic listening; information education communication; EIC; hotline; communications system; coordinate communication; messaging
O.1 Points of Entry	border cross; border point; border security; cross-border; cross border; entry/exit sites; port; airport; ground crossing; shipping; shipment; PoE; points of entry; point of entry; quarantine; customs; border control; ill travelers; inspection of conveyances; exit screening; entry screening; international travel; baggage; cargo; postal; smuggl; trafficking; import; export
O.2 Chemical Events	CBRN; chemical; chemistry; poison; INTOX; INCHEM; Poisindex; persistent organic pollutant; SAICM; UNECE; hazardous site; OPWC; CWC
O.3 Radiation Emergencies	CBRN; nuclear; radiological; radiation; radioactive; nuclear; IAEA; GICNT

#### Tagging response data in IATI data

Response data is automatically identified among the ~1 million projects in the IATI dataset using a combination of text searching and year filtering (the data are not limited to sectors previously identified in the method used to narrow in on funding for global health capacity building). Currently, the response efforts covered are the seven WHO PHEICs that have been declared as of December 2022.

IATI project titles are searched for PHEIC-related keywords to determine whether the project may be related to a PHEIC. If there is a match, then any transactions in the project falling within the year range of the PHEIC are added to the GHS Tracking dataset as response funding for that PHEIC. The keyword matching method was iteratively refined to capture data not expected to require extensive manual review, except in select cases where specific limitations were identified and manual review is routinely performed, namely;

- Ebola PHEIC funding data are manually reviewed to ensure that the correct Ebola PHEIC was tagged in each case, primarily using the description, timeframe, and recipient specified for each project. This is

because two Ebola PHEICs were declared relatively close in time and space to each other (2018-2020 in DRC and 2014-2016 in West Africa).

- Any project or transaction with more than one PHEIC tagged is also manually reviewed because this occurs only rarely.
- Finally, the research team also manually reviews any response funding data identified from other sources that may conflict with response funding data automatically identified from IATI. If conflicts are found, the more recently updated or comprehensive data source is used.

Table 3 below summarizes the PHEIC-related keywords and year ranges used to determine what IATI activities and transactions constitute response funding in the GHS Tracking dataset.

**Table 3. The keywords and year ranges are used to tag IATI projects and transactions as response funding for particular WHO-declared PHEICs.** If at least one keyword for the PHEIC was present in the IATI project’s title (case sensitive and whole word matches only), then all transactions in that project falling within the years allowed for the PHEIC were tagged as response funding for that PHEIC.

if both:		then:
Keyword(s) in project title <i>(one or more, case sensitive, whole words only)</i>	Years allowed for transactions	PHEIC tagged on transactions
monkeypox; monkeypoxvirus; monkeypox virus; mpv; mpx; mpo; mpvx	2022	2022 Monkeypox
2019 novel coronavirus; 2019-nCoV; corona virus; coronavirus; covid; COVID-19; covid19; nCoV; SARS-Cov-2; sarscov	2020 - 2022	2019-2022 COVID-19 Pandemic
ebola; ebola virus; ebolavirus; ebov; EVD	2018 - 2020	2018-2020 Ebola in DRC
ipv; MOPV; nopv2; opv; opv2; polio; Polio-endemic; poliomyelitis; PolioPlus; poliovirus; polioviruses; VAPP; WPV1	2014 - present	2014-present Poliovirus
zika; zika virus; zikavirus; zikv	2015 - 2016	2015-2016 Zika virus
<i>Same as for 2018-2020 Ebola in DRC above</i>	2014 - 2016	2014-2016 Ebola in West Africa
h1n1; H1N1pdm09; swine flu	2009 - 2010	2009-2010 H1N1

## US White House GHSA Progress and Impact Reports

In February 2018, the United States published its second annual report on the progress and impact of U.S. investment in the GHSA. In August 2019, the third annual report was published, followed by the fourth annual

report in 2020. Where specific funders, recipients, and funding transactions were referenced in these reports, data were incorporated into the GHSA tracking dashboard. The 2018 US White House GHSA Progress and Impact Report is available online [here](#), the 2019 US White House GHSA Progress and Impact report is available online [here](#), and the 2020 US White House GHSA Progress and Impact report is available [here](#).

Data were extracted from these written reports by the research team. Projects were tagged with relevant core capacities based on project names and descriptions included in the written document. Excluded were any funding or support that was duplicative of information already identified within the Article X Compendiums (see below).

### Article X Compendiums

A compendium of projects related to Article X of the Biological and Toxin Weapons Convention was submitted by Canada, Denmark, the European Union, Finland, Germany, Italy, Japan, Netherlands, Spain, Sweden, the United Kingdom, and the United States of America. These member countries of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction are mutually committed to implementing global projects to combat WMD-related terrorism and proliferation. The compendium includes detailed information on Article X-relevant projects implemented and/or funded by GP members. Four compendiums (2017, 2018, 2020, 2021) were included in the GHS Tracking database.

Data were manually extracted from these written reports by the research team and were tagged by relevant core capacities based on project names and descriptions.

### Ebola Recovery Tracking Initiative

The Ebola Recovery Tracking Initiative (now the Science of Implementation Initiative) tracks official development assistance towards Ebola recovery efforts in Guinea, Liberia, Sierra Leone, and the Mano River Union. The initiative is a partnership between the governments of Guinea, Liberia, and Sierra Leone, the United Nations Office of the Secretary-General's Special Adviser on Community-Based Medicine and Lessons from Haiti, and the United Nations Development Programme (UNDP). The Ebola Recovery Tracking Initiative is available online at: <https://ebolarecovery.org/>.

Data were manually extracted from this website by the research team and were tagged by relevant core capacities based on project names and descriptions. Duplication with other data sources (IATI and Multi-Partner Trust Fund Office Gateway) was resolved by keeping the more detailed or current entry in each case.

### WHO Contingency Fund for Emergencies (CFE)

The WHO Contingency Fund for Emergencies (CFE) was established by the World Health Assembly in 2015 as a means to respond quickly and effectively to disease outbreaks and humanitarian crises. Information about contributions made to the CFE in 2018 is available online [here](#). Additional data on contributions to and allocations from the fund are found [here](#), with the last data incorporated in December 2022.

Data were manually extracted from these websites by the research team and were tagged as supporting the Emergency Response Operations core capacity. Both the allocations and contributions data (listed separately) were incorporated into GHS Tracking. Excluded were duplicates found with data sourced from IATI – the more detailed IATI data were incorporated instead of the conflicting CFE data.

## 1540 Assistance Database

The 1540 Assistance Database was developed by the 1540 Committee pursuant to UNSC Resolution 1540 (2004) to provide additional information on the national implementation of regulations and measures related to the resolution. The 1540 Assistance Database and information about it are available online [here](#).

As the 1540 database does not typically provide years or currencies of funding, there is limited financial assistance data from the database that is incorporated into GHS Tracking. All projects marked as "completed" were assumed to correspond to disbursed efforts, and all projects marked as "active" were excluded because they were assumed to correspond to commitments. Moreover, projects were only included if they were specifically identified as "funding" within the 1540 database's 'Description of activities' and funding amounts were provided. All projects for which the CBRN Risk Addressed Code was specified as "Nuclear" were tagged by the core capacity "Radiation Emergencies," while those with the code "Chemical" were tagged as "Chemical Events."

## Global Chinese Finance Dataset

AidData's Global Chinese Official Finance Dataset tracks known projects financed by China in Africa, the Middle East, Asia and the Pacific, Latin America and the Caribbean, and Central and Eastern Europe from 2000-2014. The data are publicly available online [here](#).

Data were manually extracted from this written report by the research team and were tagged by relevant core capacities based on project names and descriptions. Only projects with statuses of "completion" or "implementation" disbursements were included; all others were assumed to be commitments. Flow types of debt forgiveness, export credits, and loans were all designated as "direct financial assistance," and all others were excluded as "in-kind support." Transactions were incorporated if years of occurrence were provided.

## Global Health Centre Working Paper No. 18

The Global Health Centre Working Paper No. 18, "Investing for a Rainy Day: Challenges in Financing National Preparedness for Outbreaks," authored by Suerie Moon and Rai Vaidya, identifies international investments related to national outbreak preparedness from a range of funders. The paper is publicly available online [here](#).

Data were manually extracted from this written report by the research team and were tagged by relevant core capacities based on project names and descriptions.

## Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP) Annual Project Report (2019) and Programming Updates

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction is a G7-led, international partnership created in 2002 that aims to prevent the spread of weapons of mass destruction (WMD). Their 2019 Annual Project Report was shared directly with the research team and details the contributions of countries to aid these efforts in other partner countries and regions. Additionally, the research team received Canada's Weapons Threat Reduction Program Programming Update.

Data were manually extracted from this written report by the research team and were tagged by relevant core capacities based on project names and descriptions. The funder was designated as the listed "implementing country" and recipients were designated as the "partner country/region." Financial assistance was assumed to be evenly distributed across the range of years listed in "duration."



## International Federation of the Red Cross (IFRC) Emergency Plan of Action Final Report, Global: Zika Outbreak

The IFRC Emergency Plan of Action Final Report provides details on the IFRC's spending to support Zika emergency response efforts. The report is available for public download [here](#).

Data were manually extracted from this written report by the research team. Only cash contributions were included; in-kind contributions were excluded. The funding years were marked with the budget timeframe from 01 February 2016 to 31 December 2017. In all cases, the recipient was marked as the IFRC.

## World Bank Ebola Financing Research Brief

The World Bank Ebola Financing Research Brief provides information about the World Bank's contributions to Ebola outbreaks and overall pandemic preparedness.

Data were shared with the research team by stakeholders from the World Bank. Data were manually extracted from this written report by the research team and were tagged by relevant core capacities based on project names and descriptions. Where additional information was necessary to supplement information from the World Bank Ebola Financing Research Brief (e.g., information on the REDISSE project), additional information for those projects only was obtained via the World Bank Projects and Operations site at <https://projects.worldbank.org/en/projects-operations/projects-home>.

## BWC Working Papers

Occasionally, Member States of the BWC submit national papers describing capacity-building efforts for health security. Data relevant to GHS Tracking are included.

Data from previously published papers (e.g., [here](#)) were manually extracted by the research team and were tagged by relevant core capacities based on project names and descriptions.

## EIU COVID-19 Health Funding Tracker

The EIU's COVID-19 Health Funding Tracker provides data on the flow of money toward the development, production, and equitable access to new COVID-19 diagnostics, therapeutics, and vaccines. The data are publicly available online at <https://covidfunding.eiu.com/explore>.

Data were automatically extracted from the downloadable data spreadsheet by the research team. Funding whose "Funding purpose" attribute was tagged as an [ACT-Accelerator](#) Pillar was not ingested because those data are obtained directly from WHO. Project titles were automatically generated based on funder and recipient names. Amounts with a "date pledged" but no "distribution confirmed" date were excluded from GHS Tracking. Only if they had a "distribution confirmed" date was the project included. Table 4 shows how core capacities were automatically tagged on funding based on the "funding purpose" defined in the data.

**Table 4. Core capacities auto-tagged on EIU COVID-19 funding data based on funding purpose**

EIU funding purpose	Tagged core capacity	Additional tagged core capacity
WHO Strategic preparedness and response plan	R.1 - Preparedness	R.2 - Emergency Response Operations
Surveillance and control	D.2 - Real Time Surveillance	NA
Emergency response	R.2 - Emergency Response Operations	NA
ACT-A to be confirmed, ACT-Accelerator, R&D, Unallocated	NA	NA

### Coalition for Epidemic Preparedness Innovations (CEPI) Progress Reports

The Coalition for Epidemic Preparedness Innovations (CEPI) is a partnership created in 2017 to bring together global stakeholders to develop vaccines to stop future pandemics. During the COVID-19 pandemic that began in 2019, it operated as a facilitator in the COVAX Marketplace. CEPI announces funding calls for vaccine candidate development and coordinates partnerships to develop specific vaccines as needed. CEPI releases annual progress reports that include received contributions and planned donor funding amounts by year. More information about CEPI is available [here](#).

The research team manually extracted data from the 2018 and 2019 CEPI progress reports, including actual annual contributions from donors as disbursements, and excluding planned annual contributions. Each transaction was designated with the core capacity “P.7 - Immunization”.

Additionally, an extract from the CEPI funding database providing higher detail than available in public reports was provided to the research team in May 2020. Disbursements for each year from 2017 to 2022 (inclusive) were listed in the spreadsheet. Disbursements were directly incorporated into the GHS Tracking database designated with the core capacity “P.7 - Immunization” and with the corresponding event, if a targeted spend was provided (i.e. “COVID-19”).

Finally, the research team manually extracted data from the 2020 CEPI progress report for 2020 disbursements only. The amount disbursed for a given donor in the CEPI May 2020 database extract was subtracted from the amount disbursed in the CEPI 2020 annual report for that same donor to yield an incremental disbursement representing the second half of the year 2020. This disbursement was added to the GHS Tracking database.

### Multi-Partner Trust Fund Office Gateway

The Multi-Partner Trust Fund (MPTF) Office Gateway provides access to project summaries, budgets, and expenditure information for a range of efforts that are funded by UN entities, including specific event responses

such as the 2014-2016 Ebola outbreak in West Africa, the Democratic Republic of the Congo (DRC) Humanitarian Fund, and others. More information about the MPTF can be found at <https://ebolaresponse.un.org/donate>, and the Gateway data can be accessed at <http://mptf.undp.org/>.

The research team manually extracted data from the 2014-2016 Ebola Response MPTF Certified Financial Statements that described contributions in response to the 2014-2016 Ebola outbreak in West Africa. Each donor contribution was incorporated into GHS Tracking as a disbursement made during the year covered by the financial statement in which it appeared.

## WHO COVID-19 Donors Progress

The WHO launched a Strategic Preparedness and Response Plan (SPRP) for COVID-19. To operationalize the SPRP, the WHO appealed for funding to ensure its role in responding to the pandemic. More information about the SPRP funding effort can be found here:

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/donors-and-partners/funding#>.

Project-level data from donors in the international community to the World Health Organization (WHO) for COVID-19 were captured and incorporated on these dates from [here](#):

- May 8, 2020
- March 13, 2020
- March 12, 2020
- February 16, 2020

Only donations that were “In Cash” with a non-zero amount “Distributed” were incorporated into GHS Tracking.

Following these dates, the research team switched to relying on data from IATI, the WHO CFE, and the EIU COVID-19 Health Funding Tracker for COVID-19 response data as these sources were more detailed and up to date.

## Philanthropic databases and press releases

Data from the following philanthropic databases and press releases are incorporated into GHS Tracking:

- Philanthropy News Digest Press Release: CEPI awards \$42 million for coronavirus vaccine development
- Philanthropy News Digest Press Release: Gates, EU commit \$114 million for African medicines regulators
- Philanthropy News Digest Press Release: CDC Foundation receives \$1 million for monkeypox response
- Philanthropy News Digest Press Release: GAVI launches \$100 million effort to reach youths without vaccines
- Bill & Melinda Gates Foundation Press Release, 18 January 2022
- Philanthropy News Digest Press Release: Gates Foundation 18 January 2022
- Bill & Melinda Gates Foundation Press Release, 26 January 2020
- Open Philanthropy Grant Database
- Cordaid Media Release, 09 August 2018

- Médecins Sans Frontières (MSF) Media Release, 08 August 2018
- CARE International Media Release, 07 August 2018
- International Federation of Red Cross and Red Crescent Societies Media Release, 02 August 2018
- OXFAM International Media Release, 02 August 2018
- Candid Grants Funding Database
- IDRC Monkeypox Rapid Research Response

### Private sector websites and press releases

Data from the following private sector websites and press releases are incorporated into GHS Tracking:

- Merck Press Release 22 March 2020
- Reuters Media Release 22 March 2020
- Novartis Press Release 20 March 2020
- Bipartisan Commission on Biodefense Press Release 16 March 2020
- Salesforce Press Release, 11 March 2020, updated 12 March 2020
- PR Newswire Press Release, 09 March 2020
- International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) Developing World Health Partnerships Directory, 2016
- Cision PR Newswire Press Release, 2019
- Johnson & Johnson Press Release, 20 November 2018
- UPS Press Release, 27 September 2018
- Merck Press Release 12 April 2018
- Johnson & Johnson Press Release, 2014
- ViiV Healthcare Press Release, 2022
- Gilead Sciences Press Release, 2022
- Pfizer Press Release, Addressing the Zika Crisis
- SC Johnson Press Release, 2017

### Additional media statements, including social media

Data from the following press releases and media statements are incorporated into GHS Tracking.

- Twitter account of Michael Cappetta, 28 March 2020
- City of Cambridge Press Release 25 March 2020
- Twitter account of Brian Chesky, 25 March 2020
- Twitter account of Michelle Boorstein, 25 March 2020
- Twitter account of José Andrés, 24 March 2020
- Twitter account of SickKids Foundation, 24 March 2020
- Twitter account of World Health Organization, 23 March 2020
- Twitter account of World Health Organization, 23 March 2020
- Twitter account of Marc Benioff, 22 March 2020
- Twitter account of Jack Ma, 21 March 2020
- Twitter account of Andrew Cuomo, 25 March 2020
- UCSF Media Release 19 March 2020
- Twitter account of Michael Cappetta, 16 March 2020

- Myah Ward. "Chinese businessman to donate 500,000 test kits and 1 million masks to the U.S." Politico. 13 March 2020.
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 12 March 2020
- Japan Government Media Release 11 March 2020
- Prime Minister Outlines Canada's COVID-19 Response Press Release 11 March 2020
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 09 March 2020
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 08 March 2020
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 07 March 2020
- United Kingdom Government Press Release 06 March 2020
- Twitter account of Vaqif Sadiqov, 06 March 2020
- HHS Press Release, 04 March 2020
- Australia Government Media Release 03 March 2020
- World Bank Media Release, 03 March 2020
- USAID Press Release 2 March 2020
- Twitter account of Marc Benioff, 22 March 2020
- WHO News Release 01 March 2020
- Luxembourg Government Press Release 28 February 2020
- Twitter account of BMG Bund, 27 February 2020
- Twitter account of Czech Mission Geneva, 27 February 2020
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 27 February 2020
- European Union Question and Answers 24 February 2020
- Twitter account of Sweden Social Department, 24 February 2020
- Denmark Government Press Release 22 February 2020
- Twitter account of Canada in Geneva, 19 February 2020
- Slovakia Government Press Release 18 February 2020
- CEPI Press Release, 17 February 2020
- Norway Government Press Release 14 February 2020
- Canada Government Press Release 11 February 2020
- CEPI Press Release, 10 February 2020
- United Kingdom Government Press Release 08 February 2020
- Twitter account of Mike Pompeo, 07 February 2020
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, 06 February 2020
- Ireland Department of Foreign Affairs and Trade Press Release 05 February 2020
- CEPI Press Release, 03 February 2020
- Twitter account of @BWCISU (BWC Implementation Support Unit), January 21, 2020
- USAID Media Release, 11 December 2019
- World Bank Media Release, 09 December 2019
- WHO Media Release, 16 October 2019, Updated 4 November 2019
- WHO Media Release, 16 October 2019
- Twitter account of Dr. Mike Ryan, BMG\_Bund 04 Oct 2019
- Twitter account of Anders Nordström
- USAID Media Release, 4 September 2019
- USAID Media Release, 24 July 2019
- World Bank Media Release, 24 July 2019
- Twitter account of Dr. Tedros Adhanom Ghebreyesus, July 18, 2019

- WHO News Release, 19 June 2019
- CEPI Press Release, 22 January 2019
- CEPI Press Release, 17 January 2019
- CDC Foundation Surveillance Press Release
- WHO and Korea International Cooperation Agency joint press release, July 2019
- International Organization for Migration Media Release, 10 August 2018
- UNICEF Media Release, 10 August 2018
- CDC Media Statement, 09 August 2018
- UNICEF Media Release, 03 August 2018
- WHO News Release, 24 July 2018
- World Bank Media Release, 21 June 2018
- WFP Media Release, 07 June 2018
- USAID Media Release, 18 May 2018
- Africa CDC Media Release, 20 October 2017
- CEPI Press Release, 08 July 2017
- World Bank Media Release, 11 May 2017
- CEPI Press Release, 18 January 2017
- Where Are the Private Donations for Zika?
- CARICOM Press Release, 19 February 2016
- CARICOM Press Release, 12 February 2016
- US Embassy in Mali Press Release 14 May 2015
- US Embassy in Mali Press Release December 18 2014
- US Embassy in Burkina Faso Press Release 3 December 2014
- Larson, Christina. China ramps up efforts to combat Ebola. 3 November, 2014. AAAS Science.
- US Embassy in Nigeria Press Release 22 August 2014
- CCP Awarded Funding for Monkeypox Prevention Work in Four African Countries, 12 September 2022
- The United States Continues Partnership With FAO To Strengthen Global Health Security, 25 October 2022
- CEPI Press Release, 28 July 2022

For each database, website, press release, or media statement, data were manually extracted by the research team.

### Additional peer-reviewed publications

In addition to the above data sources, we also receive and review peer-reviewed publications describing financial support from countries and organizations. The data from previously received publications were extracted by the research team and were tagged by relevant core capacities based on project names and descriptions. These peer-reviewed publications include the following:

- Fu Gao, George & N Nkengasong, John. (2019). Public health priorities for China–Africa cooperation. *The Lancet Public Health*. 4. e177-e178. 10.1016/S2468-2667(19)30037-4.
- Abe, K., Ishibashi, N., Matsumura, H., & Suzuki, Y. (2019). Securing Resources for Health Emergency Management. *Health Systems & Reform*, 5(2), 104-112. 10.1080/23288604.2019.1594546.