DISTRIBUTION OF DEVELOPMENT ASSISTANCE FOR HEALTH

Building a foundation of knowledge that accurately accounts for the volume of global health funding is crucial, both for those who give aid and those who receive it. In this chapter, we build on that foundation by exploring whether the distribution of global health resources across different disease areas and geographical areas reflect current global health priorities. In light of the strong global interest in combating HIV/AIDS, tuberculosis, and malaria, we first analyze development assistance for health (DAH) for these three diseases. Next, we turn to the relationship of DAH to disease burden and the distribution of DAH across countries.

Both analyses require disaggregation of total global health flows, first by disease and then by country. This is not possible for all the channels of assistance tracked in the study, since detailed information on how and where health funds were used is not available in all cases. For example, the data on US-based NGOs compiled by United States Agency for International Development (USAID) do not provide a breakdown of how much each NGO spent on different diseases or in individual countries. Similarly, not all UN agencies subdivide their total expenditure by disease focus and recipient country in a way that can be tracked over time. Hence, the analysis presented in this chapter reflects the portion of health flows for which we have additional information about where and to what end the funds were used.

More specifically, for channels where we had grant and loan information – namely, the bilateral agencies, European Commission (EC), the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the Global Alliance for Vaccines and Immunization (GAVI), the World Bank, the Asian Development Bank (ADB), the Inter-American Development Bank (IDB), and the Bill & Melinda Gates Foundation (BMGF) – we combined their health contributions in an integrated project database. We used the database to calculate DAH received annually by developing countries. Using the same integrated project-level database, we analyzed global health dollars for HIV/AIDS, tuberculosis and malaria. We found information on WHO's expenditure for each of the three diseases, which we used in this analysis. Additionally, we assumed that all UNAIDS expenditure was for HIV/AIDS.

Development assistance for HIV/AIDS, tuberculosis and malaria by channel

Disaggregating the total flow of global health dollars by particular diseases, health interventions, and the health system components they target, is a central goal of *Financing Global Health.* In this first report, we provide a closer look at development assistance for HIV/AIDS, tuberculosis, and malaria. In future years,

we plan to undertake similar analyses for other priority diseases and public health interventions.

Promoting the use of new and cost-effective health technologies to prevent and treat HIV/AIDS, tuberculosis, and malaria has emerged as a leading global health priority in recent years. In 1999, WHO warned that six diseases, including HIV/AIDS, tuberculosis, and malaria, were the primary causes of death worldwide and disproportionately affected developing countries.[44] Prioritization of these diseases can be traced to the 2000 G8 Summit in Okinawa[45] and the Abuja Declaration on HIV/AIDS, Tuberculosis, and Other Related Infectious Diseases in 2001.[46] The creation of GFATM with the express mandate to use innovative mechanisms to mobilize public and private funds and ensure that they are used effectively, was another manifestation of this commitment. Comprehensive data on the total flows of global health dollars for these priority diseases and the relative contributions of different channels are likely to be of interest to the donor community, advocacy groups monitoring the flow of aid, and policymakers in recipient countries.

Figure 29 shows the total volume of aid for HIV/AIDS and a breakdown by the channel via which it flowed to low- and middle-income countries. As was noted in Chapter 2, we were able to estimate disease-specific health aid allocations for only those channels that provided project-level information. In 2007, for example, we could ascertain the target diseases for $14.5 billion out of $21.8 billion of total DAH in that year. HIV/AIDS-related development assistance grew from $0.2 billion in 1990 to $4.9 billion in 2007. The figure also shows that the rate of growth increased sharply starting in 2002. Given the extensive amount of attention given to HIV/AIDS by donors, recipient country governments, public-private partnerships, and multilateral institutions, it is surprising that DAH for HIV/AIDS only represented a third of disease-allocable DAH and a quarter of total DAH in 2007.[46, 47-51] In the recent five years, the US government and GFATM have dominated
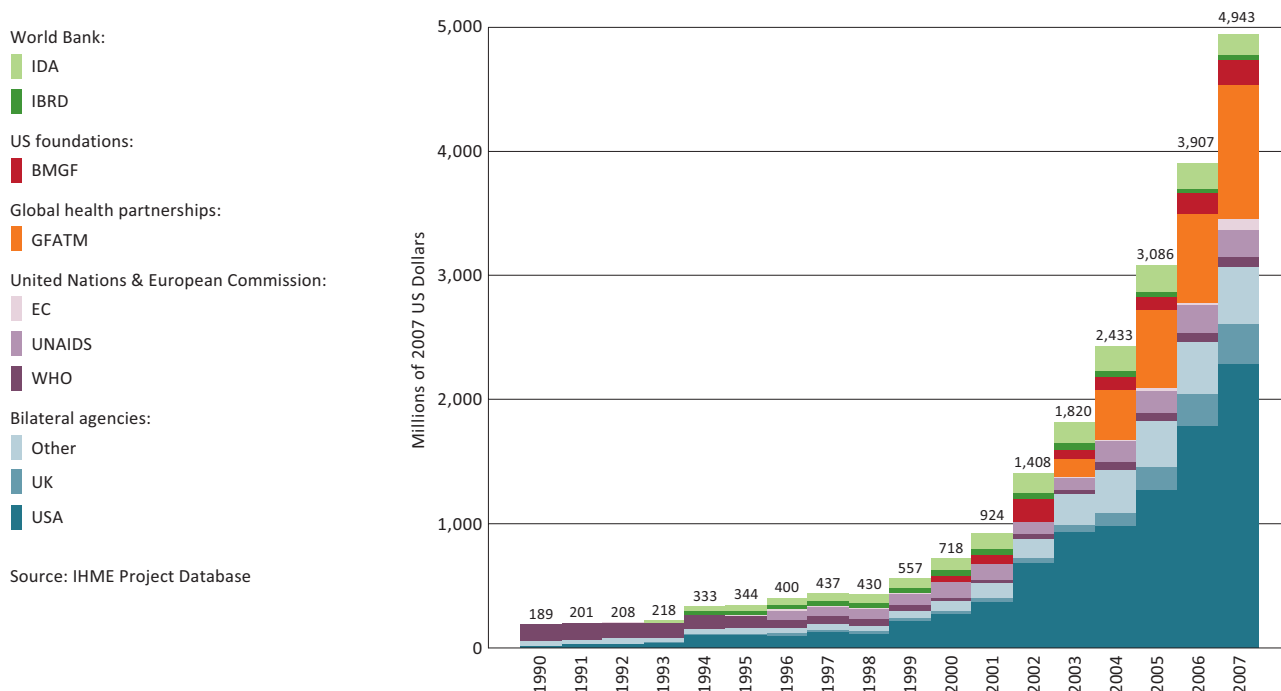
Development assistance for HIV/AIDS

World Bank:
- IDA
- IBRD

US foundations:
- BMGF

Global health partnerships:
- GFATM

United Nations & European Commission:
- EC
- UNAIDS
- WHO

Bilateral agencies:
- Other
- UK
- USA

Source: IHME Project Database

FIGURE 30

Development assistance for tuberculosis

World Bank:
IDA

IBRD

US foundations:
BMGF

Global health partnerships:
GFATM

United Nations & European Commission:
EC

UNAIDS

WHO

Bilateral agencies:
Other

UK

USA

Source: IHME Project Database
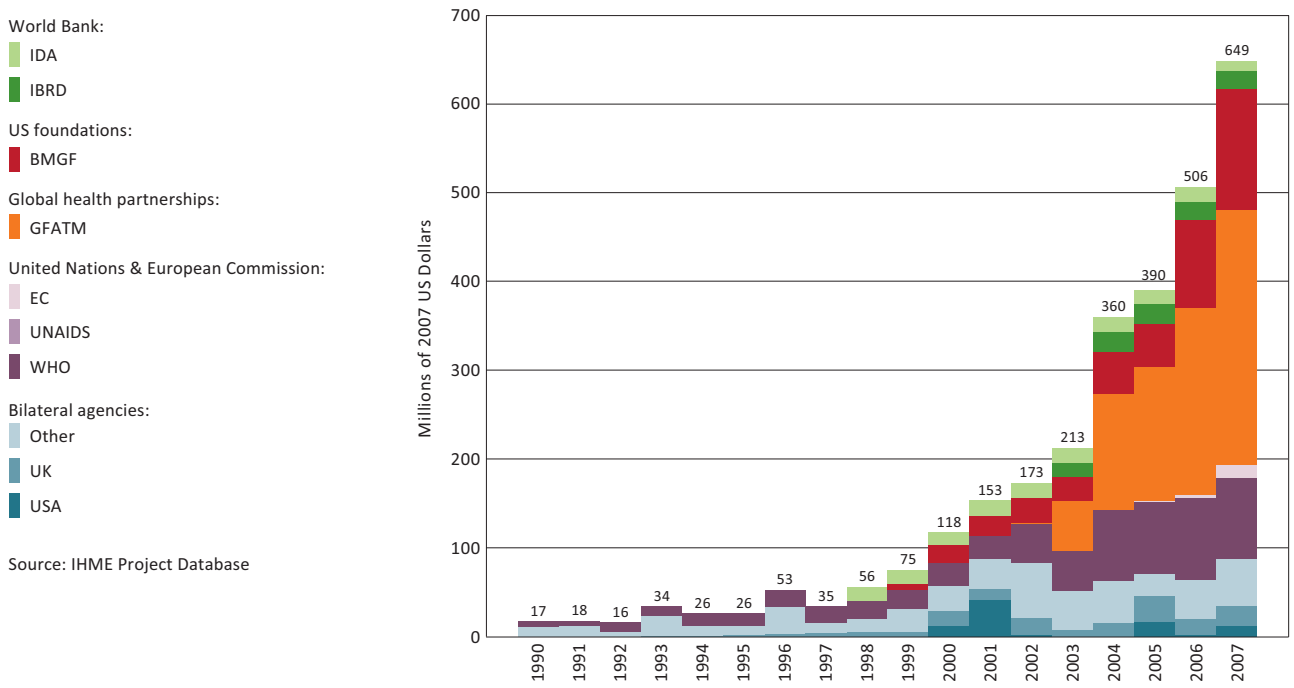
FIGURE 31

Development assistance for malaria

World Bank:
IDA

IBRD

US foundations:
BMGF

Global health partnerships:
GFATM

United Nations & European Commission:
EC

UNAIDS

WHO

Bilateral agencies:
Other

UK

USA

Source: IHME Project Database
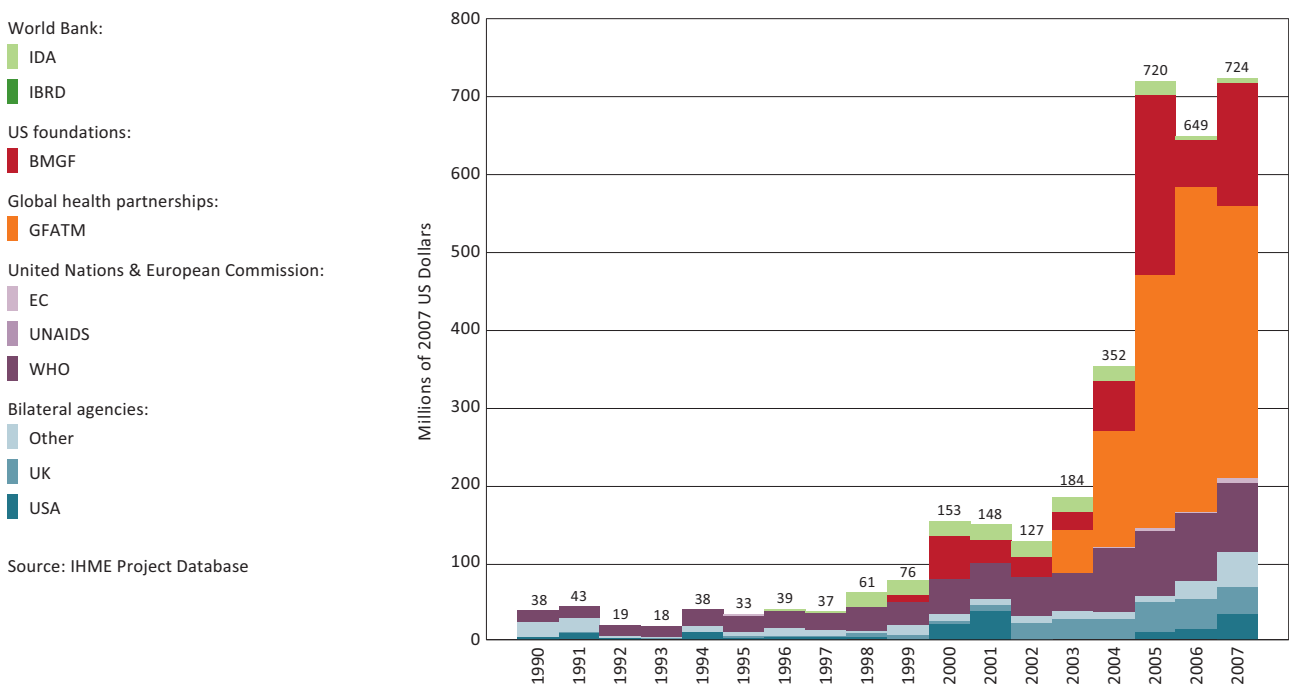
HIV/AIDS funding. The scale-up of US assistance for HIV/AIDS predates the US President's Emergency Plan for AIDS Relief (PEPFAR), which began disbursing funds in 2004. However, PEPFAR has retained that momentum and expanded aid for HIV/AIDS every year since it began granting funds. GFATM disbursements for HIV/AIDS programs, which started in 2003 at $147.5 million, increased more than sevenfold to $1.08 billion in 2007.

BMGF's contribution to aid for HIV/AIDS appears small in this graph. This is largely a result of how we count DAH and attribute the dollars to different channels. Specifically, the contribution of each global health actor is shown net of any funds it transferred to other actors tracked in the study. Hence, for BMGF, this graph shows its grants net of any funds it transferred to GFATM and other channels of assistance tracked in this study. BMGF as a source would account for a much larger share of HIV/AIDS dollars than BMGF as a channel.

Development assistance for tuberculosis and malaria, shown in Figures 30 and 31 respectively, is small in comparison to global health dollars for HIV/AIDS. The primary goal of this research was to quantify the amount of DAH funding, not to determine the reasons for the discrepancies in funding for specific diseases. It is important to note, however, the relative health impact attributable to these three diseases. Disease burden, or the impact of ill health in terms of premature death, is measured here in terms of total disability-adjusted life years (DALYs). This measurement takes into account both years of life lost due to death and years lived with disability.[52] While current burden estimates show that malaria and tuberculosis account for 4.9% of total burden of disease in low- and middle-income countries, compared to 4.1% for HIV/AIDS, funding for malaria and tuberculosis was only 6.3% of total DAH compared to 22.7% for HIV/AIDS in 2007.[53] Annual tuberculosis-related funding grew gradually from $17 million in 1990 to $118 million in 2000. Malaria funding increased from $38 million to $153 million in that same time span. As with HIV/AIDS, most of the growth has occurred post 2002. Monies for tuberculosis came largely from BMGF grants, GFATM,
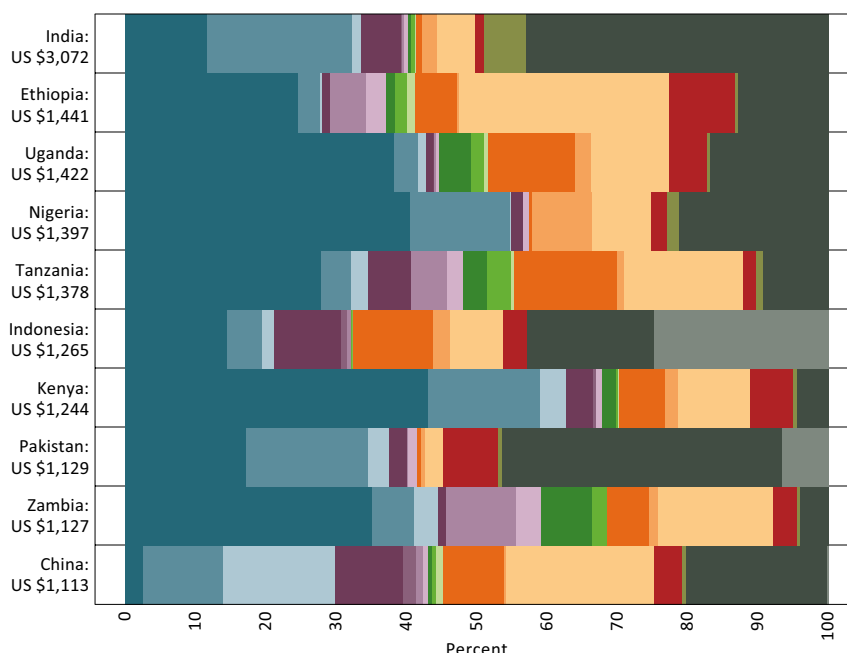

Top 10 recipients of development assistance for health from 2002 to 2007, disaggregated by channel of assistance

The amount of DAH received by each country is shown in millions of real 2007 US$. Only DAH allocable by country is reflected in the figure.

United States
Great Britain
Japan
Germany
France
Netherlands
Canada
Sweden
Norway
Italy
Other governments
EC
GFATM
GAVI
BMGF
World Bank
Regional development banks

Source: IHME Project Database

India: US $3,072
Ethiopia: US $1,441
Uganda: US $1,422
Nigeria: US $1,397
Tanzania: US $1,378
Indonesia: US $1,265
Kenya: US $1,244
Pakistan: US $1,129
Zambia: US $1,127
China: US $1,113

Percent

and WHO, with the US government playing a minimal role. Despite the US President's Malaria Initiative and the G8's commitments in 2005 to contribute an additional $1.5 billion per year to malaria, the pattern for malaria, at least through 2007, appeared to be similar. Overall, these results show that while the amount of development assistance flowing for tuberculosis and malaria remained low as of 2007, GFATM and BMGF have emerged as the two biggest channels of assistance for these diseases.

The distribution of health aid across countries

While Figure 9 in Chapter 2 breaks down health assistance flowing to different geographical regions, here we explore the distribution of global health dollars from the recipient country's perspective in greater detail. The volume of aid received by low- and middle-income countries varies considerably, both in the aggregate and in ratio to the country's population. Figures 32 and 33 show the top 10 recipient countries in terms of total global health dollars and per capita global health dollars received between 2002 and 2007.

The first list of top health aid recipients consists of the most populous developing countries (India, China, Indonesia, and Pakistan), African countries that have attracted large amounts of health assistance through PEPFAR and GFATM (Uganda, Ethiopia, Tanzania, Zambia, Kenya), and one that fits both descriptions (Nigeria). The second list of countries receiving the highest amount of health dollars per person is comprised of small island nations (Micronesia, Tonga, Sao Tome and Principe, the Solomon Islands, Samoa, and Cape Verde) and countries with small populations (Zambia, Namibia, Suriname and Guyana).

The two figures also show the channels through which these countries received external aid for health. The World Bank, GFATM, and the US government are the primary channels of health aid in the first list. The composition is more varied in the second list and reflects the continuing strength of ties between donor countries and their ex-colonies and protectorates, as well as modern geo-political and economic considerations. For example, Australia and the Netherlands
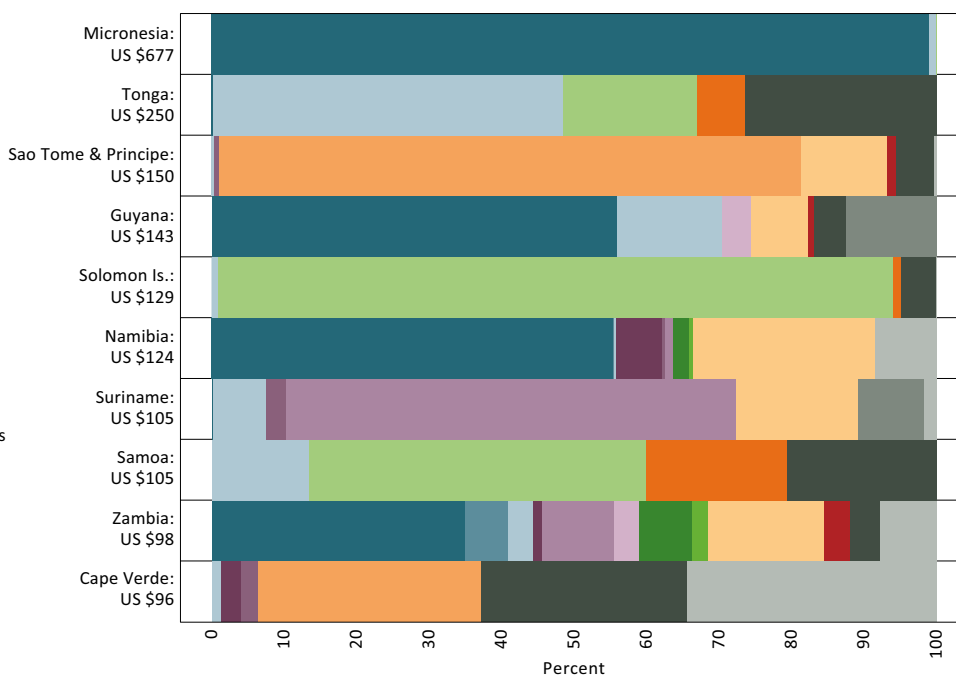
Top 10 countries in terms of per capita development assistance for health received from 2002 to 2007, disaggregated by channel of assistance

The amount of DAH received by each country in real 2007 US$ is shown alongside the name of the country. Only DAH allocable by country is reflected in the figure.

United States
Great Britain
Japan
Germany
France
Netherlands
Canada
Sweden
Norway

Australia
New Zealand
Portugal
GFATM
GAVI
World Bank
Regional development banks
Other

Source: IHME Project Database and UN World Population Database

are the biggest donors of health aid to their erstwhile colonies, the Solomon Islands and Suriname, respectively. Micronesia, which entered a compact of free association with the US in 1986, receives almost all its health aid from the US, and, as a result, ranks higher than all other countries in per capita DAH funding. Japan, Tonga's largest donor, is the primary consumer of Tongan exports.[54]

Notwithstanding historical, economic and political links, it is worth asking if the current distribution of health dollars reflects health needs across countries. To answer this question rigorously, one would have to develop measures of need for external health aid that take into account health outcomes in each country. In addition, one would need to assess the ability of national governments and health systems in those countries to finance and deliver health care from domestic resources, the costs of delivering health care given the geographical and demographic characteristics of the country, and the epidemiological profile of the population, to name just a few factors. While such a detailed analysis is beyond the scope of this paper, we examine the correlation between DAH and the burden of disease as a first approximation.

Figure 34 plots all health aid received by each low- and middle-income country from 2002-2007 against the country's respective disease burden. We make the comparison on a log-log scale because of the large range in amounts of health assistance and DALYs across small to large countries. The correlation coefficient is positive, indicating that countries with higher disease burden receive greater external aid. However, at the same level of burden, there can be vast variation in donor assistance. Consider Turkmenistan and Nicaragua, which received $10.7 million and $362.3 million respectively. This constitutes a 33-fold difference, despite the fact that the countries have the same level of burden. At the low end of total burden, a number of small island states such as Micronesia, Tonga, and the Marshall Islands receive very high levels of health aid per DALY. Computation of the correlation coefficient between health assistance and disease burden by year showed that the correlation had risen from 0.6 to 0.8 between 1997 and 2007. The drive to fund HIV/AIDS, tuberculosis, and malaria programs appears to

be channeling global health dollars to areas of higher burden than ever before.

Figure 34 depicts countries color-coded by income level and shows that there is little difference in the pattern for low-, lower middle-, and upper middle-income countries. The positive relationship between disease burden and DAH holds in all three groups. We also calculated the correlation between per capita health aid and per capita GDP; it was near zero until the mid-1990s, but it has decreased steadily from -0.1 in 1999 to -0.3 in 2007. This suggests that poorer countries are receiving increasing amounts of health aid. Figure 35 shows a series of maps of health aid per unit of disease burden both for total health assistance as well as aid for HIV/AIDS, tuberculosis, and malaria. The maps show tremendous variation in health aid per DALY across regions and within regions.

Figure 36 presents another perspective on the same question of how DAH compares with burden of disease. The top 30 recipients of health aid are ordered by rank in the left column, while countries are ranked in decreasing order of burden on the right. Their income group is indicated by the colored dot before the name; red, blue and green corresponds to low-, lower-middle-, and upper-middle-income respectively. India topped both lists. Some high-burden countries like China, Brazil, and Bangladesh had a much higher rank on the burden list than on the health aid list. In other words, they received much less assistance than would be expected purely on account of disease burden. The situation was the reverse in Ethiopia, Uganda, Tanzania, Kenya, and Mozambique, all of which received more funds than would be expected based on their disease burden. All of these five countries received health aid from PEPFAR from 2004 to 2007.

Countries that appeared in one list and not the other are underlined. On the left are countries that are in the top 30 in terms of aid received but are not among the top 30 in terms of disease burden. Zambia, Iraq, Colombia, Ghana, Argentina, Malawi, Rwanda, Cambodia, Zimbabwe, Senegal, Haiti and Peru fall in that category. All of them with the exception of Argentina are either low- or lower-middle-income countries. On the right side are countries that have high burdens

by global standards but are not the top recipients of aid. This describes the situation in Russia, Myanmar, Egypt, Thailand, Iran, Sudan, Turkey, Ukraine, Angola, Niger, Burkina Faso and Mali, all of which, with the exception of Russia and Turkey, are either low- or lower-middle-income countries. Colombia is an important ally of the US in the war against drugs, while the

US military's efforts in Iraq may contribute to its high ranking on the DAH list.

In sum, these results indicate that country allocation of DAH appears to be driven by many considerations beyond the burden of disease, including historical, political and economic relationships between certain donors and recipient countries.

FIGURE 34

Development assistance for health from 2002 to 2007 versus all-cause DALYs in 2002

Low-, lower-middle-, and upper-middle-income countries are shown in orange, blue and green respectively. Aid is expressed in real 2007 US$. All quantities are logged.
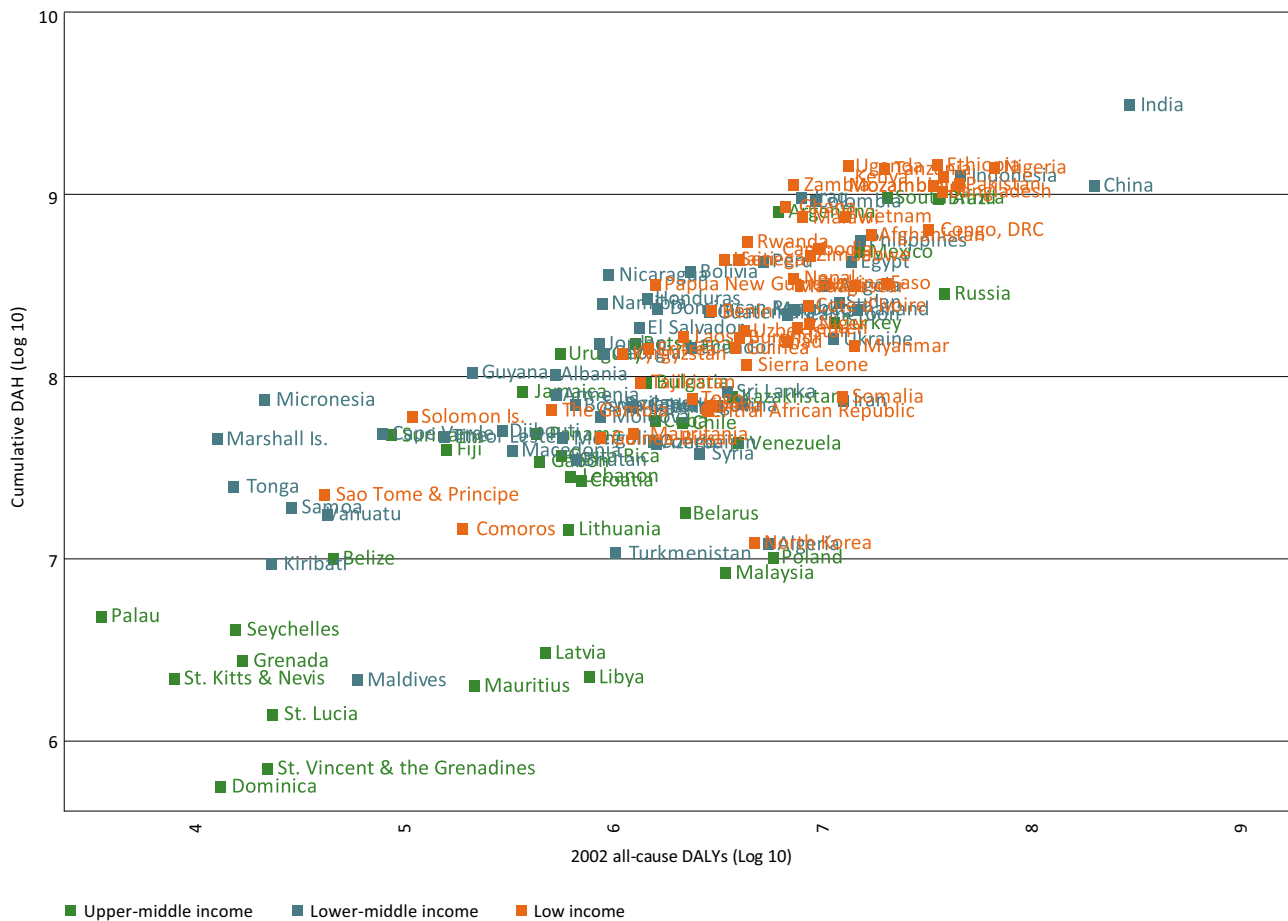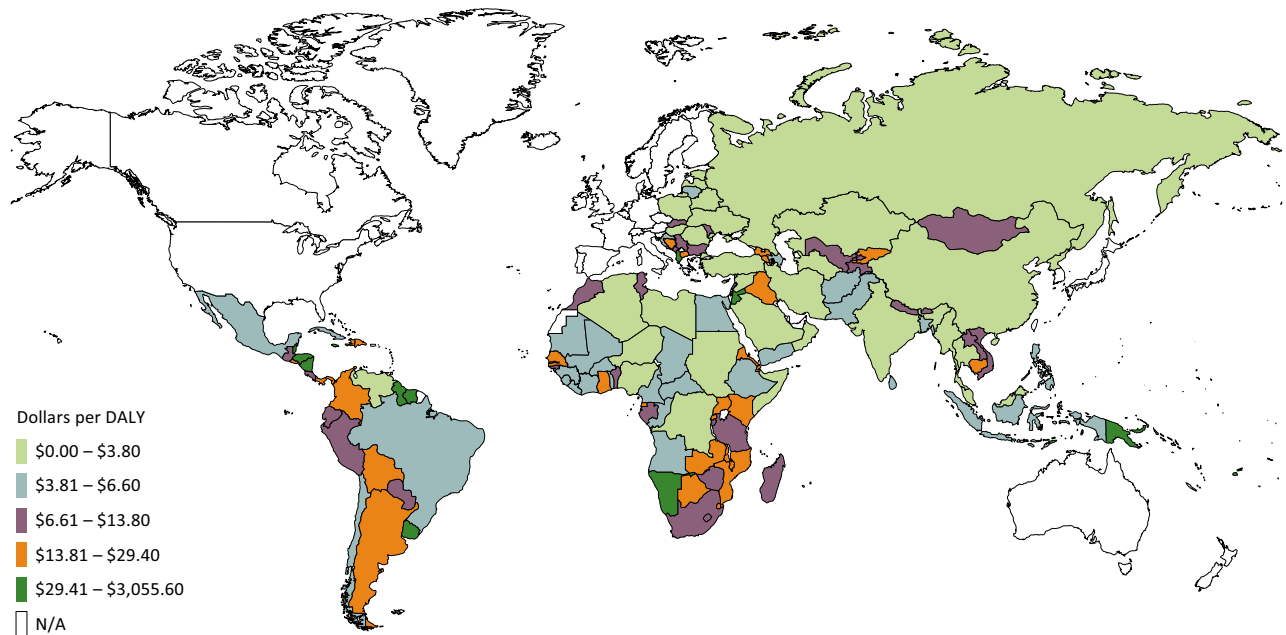

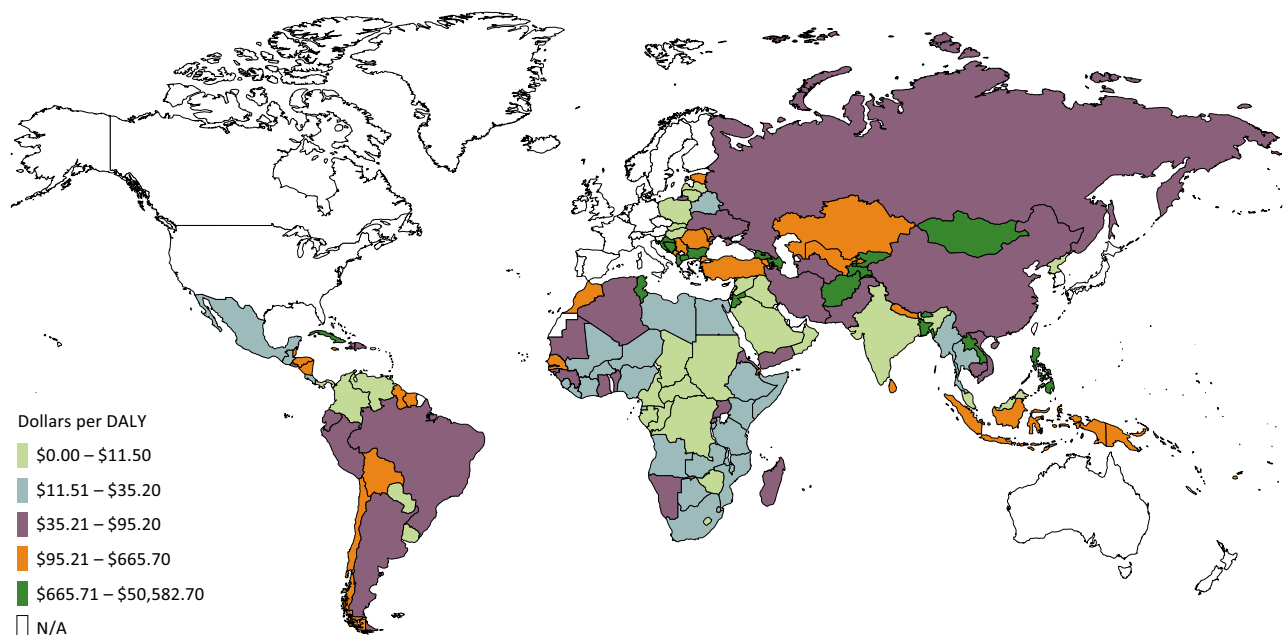Source: IHME Project Database and WHO Burden of Disease Database

FIGURE 35

World maps of development assistance for health

(A) DAH from 2002 to 2007 per all-cause DALY (B) development assistance for HIV/AIDS from 2002 to 2007 per HIV/AIDS DALY (C) development assistance for tuberculosis from 2002 to 2007 per tuberculosis DALY, and (D) development assistance for malaria from 2002 to 2007 per malaria DALY. The maps reflect international boundaries in 2006. Since DALY data were only available for 2002, we used this as a proxy for burden in all subsequent years. Countries that received zero DAH over the study period and countries with zero or missing burden data are not shown. DAH received is shown in millions of real 2007 US$.

(A) DAH per All-Cause DALY, 2002–2007

Dollars per DALY
$0.00 – $3.80
$3.81 – $6.60
$6.61 – $13.80
$13.81 – $29.40
$29.41 – $3,055.60
N/A

(B) DAH for HIV/AIDS per HIV/AIDS DALY, 2002–2007

Dollars per DALY
$0.00 – $11.50
$11.51 – $35.20
$35.21 – $95.20
$95.21 – $665.70
$665.71 – $50,582.70
N/A

(C) DAH for Tuberculosis per Tuberculosis DALY, 2002-2007

Dollars per DALY
- $0.00
- $0.01 – $5.00
- $5.01 – $14.70
- $14.71 – $33.30
- $33.31 – $2,509.10
- N/A
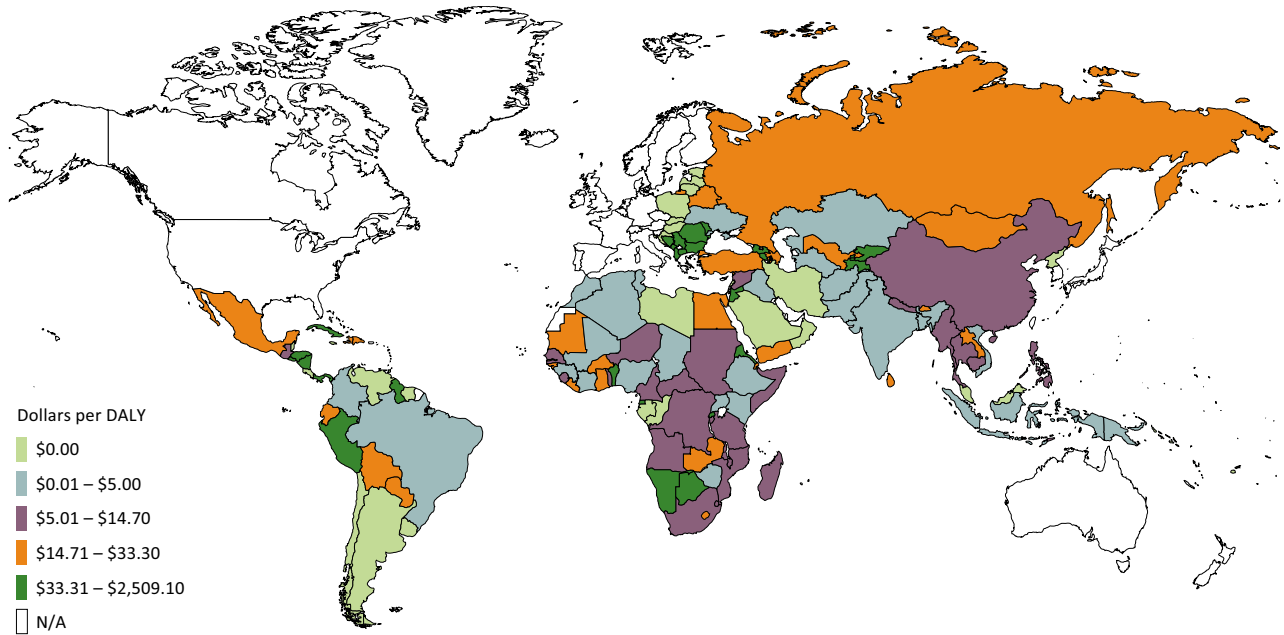
(D) DAH for Malaria per Malaria DALY, 2002-2007

Dollars per DALY
- $0.00
- $0.01 – $6.40
- $6.41 – $17.70
- $17.71 – $68.50
- $68.51 – $2,708.40
- N/A

FIGURE 36

Top 30 country recipients of development assistance for health from 2002 to 2007, compared with top 30 countries in terms of all-cause burden of disease in 2002

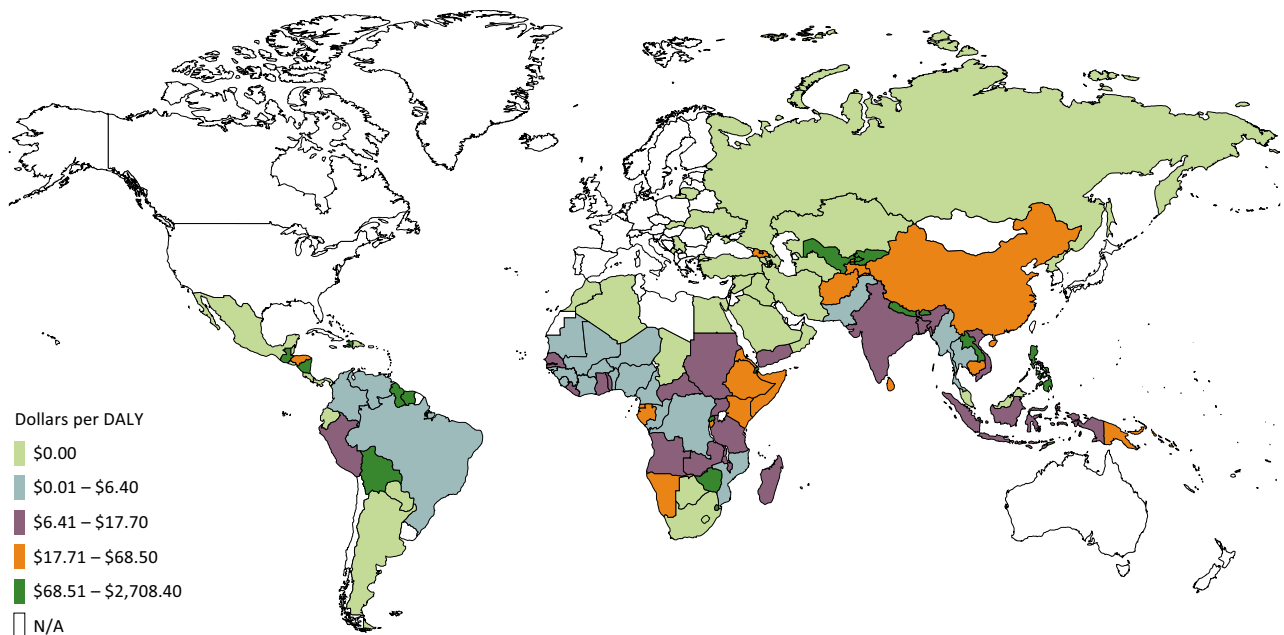Low-, lower-middle-, and upper-middle-income countries are shown with red, blue and green markers and arrows, respectively. Countries in either column that received a rank lower than 30 in the other column and are, therefore, unmatched in the figure, are underlined. Only DAH allocable by country is reflected in the figure.

■ Low income
■ Lower-middle income
■ Upper-middle income

Source: IHME Project Database and WHO Burden of Disease Database

Cumulative DAH
(2002-2007)

Total DALYS
(2002)

India - 1

Ethiopia - 2

Uganda - 3

Nigeria - 4

Tanzania - 5

Indonesia - 6

Kenya - 7

Pakistan - 8

Zambia - 9

China - 10

Mozambique - 11

Bangladesh - 12

Iraq - 13

South Africa - 14

Brazil - 15

Colombia - 16

Ghana - 17

Argentina - 18

Vietnam - 19

Malawi - 20

Congo, DRC - 21

Afghanistan - 22

Philippines - 23

Rwanda - 24

Cambodia - 25

Mexico - 26

Zimbabwe - 27

Senegal - 28

Haiti - 29

Peru - 30

1 - India

2 - China

3 - Nigeria

4 - Indonesia

5 - Pakistan

6 - Russia

7 - Bangladesh

8 - Brazil

9 - Ethiopia

10 - Congo, DRC

11 - South Africa

12 - Tanzania

13 - Afghanistan

14 - Mexico

15 - Philippines

16 - Myanmar

17 - Egypt

18 - Vietnam

19 - Uganda

20 - Kenya

21 - Thailand

22 - Iran

23 - Mozambique

24 - Sudan

25 - Turkey

26 - Ukraine

27 - Angola

28 - Niger

29 - Burkina Faso

30 - Mali