Sources and Focus of Health Development Assistance, 1990–2014

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IMPORTANCE The governments of high-income countries and private organizations provide billions of dollars to developing countries for health. This type of development assistance can have a critical role in ensuring that life-saving health interventions reach populations in need.

OBJECTIVES To identify the amount of development assistance that countries and organizations provided for health and to determine the health areas that received these funds.

EVIDENCE REVIEW Budget, revenue, and expenditure data on the primary agencies and organizations (n = 38) that provided resources to developing countries (n = 146-183, depending on the year) for health from 1990 through 2014 were collected. For each channel (the international agency or organization that directed the resources toward the implementing institution or government), the source and recipient of the development assistance were determined and redundant accounting of the same dollar, which occurs when channels transfer funds among each other, was removed. This research derived the flow of resources from source to intermediary channel to recipient. Development assistance for health (DAH) was divided into 11 mutually exclusive health focus areas, such that every dollar of development assistance was assigned only 1 health focus area.

FINDINGS Since 1990, $458.0 billion of development assistance has been provided to maintain or improve health in developing countries. The largest source of funding was the US government, which provided $143.1 billion between 1990 and 2014, including $12.4 billion in 2014. Of resources that originated with the US government, 70.6% were provided through US government agencies, and 41.0% were allocated for human immunodeficiency virus (HIV)/AIDS. The second largest source of development assistance for health was private philanthropic donors, including the Bill and Melinda Gates Foundation and other private foundations, which provided $69.9 billion between 1990 and 2014, including $6.2 billion in 2014. These resources were provided primarily through private foundations and nongovernmental organizations and were allocated for a diverse set of health focus areas. Since 1990, 28.0% of all DAH was allocated for maternal health and newborn and child health; 23.2% for HIV/AIDS, 4.3% for malaria, 2.8% for tuberculosis, and 1.5% for noncommunicable diseases. Between 2000 and 2010, DAH increased 11.3% annually. However, since 2010, total DAH has not increased as substantially.

CONCLUSIONS AND RELEVANCE Funding for health in developing countries has increased substantially since 1990, with a focus on HIV/AIDS, maternal health, and newborn and child health. Funding from the US government has played a substantial role in this expansion. Funding for noncommunicable diseases has been limited. Understanding how funding patterns have changed across time and the priorities of sources of international funding across distinct channels, recipients, and health focus areas may help identify where funding gaps persist and where cost-effective interventions could save lives.
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For every 1000 children born in low-income countries in 2013, 78.8 died before the age of 5 years. For every 100 000 childbirths in 2013, 385.8 women died due to complications. These estimates are 11.9 times and 20.8 times higher than the comparable rates in the United States. The majority of these deaths were preventable, but the health systems in resource-scarce settings are, in many cases, unable to provide services that could prevent these adverse outcomes. High-income countries have provided financial resources to the health sectors of developing countries to improve these systems and support interventions that can prevent premature death and disability.

These contributions, known as development assistance for health (DAH), have increased over the last 25 years. The funding from recently established programs exceeds those previously implemented. International nongovernmental organizations (NGOs) have increased in number and prominence. Since 2000, public-private partnerships have emerged as new approaches for addressing health challenges.

DAH is just 1 source of health financing in developing countries and its contribution varies from country to country. In some middle-income countries, DAH represents a relatively small fraction of total expenditure on health. In these settings, private spending and government spending account for most health spending. However, in low-income countries in sub-Saharan Africa, DAH accounted for 40.2% of total health expenditure in 2012. The increase in DAH is important in these contexts, contributing to increased capacity for prevention and treatment for certain diseases and health conditions.

The objective of this study was to identify the amount of development assistance that countries and organizations provided for health and to determine the health areas that received these funds.

Methods

Conceptual Framework

Development assistance for health is the in-kind and financial resources transferred from primary development channels to developing countries for the purpose of maintaining or improving health. For this study, the developing countries were defined as countries that were low- and middle-income countries as determined by the World Bank. Because countries can “graduate” from being classified as middle-income to being classified as high-income, the number of developing countries changes over time. From 1990 to 2012, between 146 and 183 countries were eligible to receive DAH based upon this classification. The countries and years in which they were eligible are listed in eTable 1 in the Supplement.

DAH was estimated by assessing the funding of the 38 primary channels (agencies and organizations) through which DAH was disbursed. These primary channels are listed in eTable 4 in the Supplement. All the members of the Organisation for Economic Cooperation and Development’s (OECD’s) Development Assistance Committee (DAC) were considered. The OECD DAC is the primary coordinating body for development assistance from high-income countries. DAH was tracked from 24 of the 29 DAC members. The Czech Republic, Poland, Iceland, Slovak Republic, and Slovenia were not included because they joined the DAC recently and data on their disbursements are not available for the entire study period. These disbursements capture direct transfers from high-income countries to developing countries. They also include the activities of bilateral aid agencies, which are governmental organizations of high-income countries that provide DAH to recipient nations. The US Agency for International Development (USAID), for example, is the bilateral aid agency in the United States. In addition to the bilateral contributions of these countries, all multilateral agencies active in the health sector were included. In our analysis, multilateral agencies are international organizations that receive financial and political support from multiple high-income governments and other donors to improve health in low- and middle-income countries. These entities include the World Bank, World Health Organization (WHO), and the United Nations Children’s Fund (UNICEF). Finally, because of their sizable contributions of DAH, this study also tracked DAH from the Global Fund to Fight AIDS, Tuberculosis, and Malaria (the Global Fund); Gavi, the Vaccine Alliance (Gavi); and the Bill and Melinda Gates Foundation (the Gates Foundation); private foundations in the United States; and NGOs receiving funding from the US government. Non-US foundations and NGOs that have not received support from the US government were not included because of data limitations. The set of primary channels tracked for this study was comparable or more expansive than previous research tracking DAH.

DAH flows from source to channel to implementing institution. The source of funds is the government or private philanthropic entity that provided the resources, whereas the channel is the international agency or organization that directed the resources toward the implementing institution. Because collaboration among aid agencies occurs frequently, it is common for channels to transfer resources among themselves. For example, USAID provides resources for many NGOs, whereas the Global Fund provides resources to WHO and UNICEF. To avoid overestimating the resources available to developing countries, the funds transferred between channels were only counted once and resources were assigned to the final channel that directed the funds. The final channel, like the source of funds, has a unique and important discretionary role in determining where and how the resources are disbursed.

Data Sources

Detailed budget, revenue, and expenditure data for each channel were collected for 1990 through 2014. Resources were traced backward from the channel to determine the source of funds and forward to determine which countries and health focus areas were targeted. More than 60 data sources were utilized (eMethods in the Supplement). Data were collected from the OECD’s Creditor Reporting System (CRS); the OECD’s DAC; project-level data from the Gates Foundation, the Global Fund, Gavi, and the World Bank; grant-level data from the Foundation Center; NGO data from USAID’s annual Report of Voluntary Agencies; and a diverse set of audited financial records and annual budgets.

Estimates begin in 1990 for 2 reasons. First, DAH was disbursed in a different context during the Cold War era that concluded in 1989. Second, the OECD has recommended detailed analysis on the CRS data not be conducted prior to the 1990s because data before 1990 were incomplete.

Primary data distinguished the commitments of channels from their disbursements. Because disbursements reflect the actual amount of resources delivered, these were tracked. When project-level disbursement data were not available, commitment data and
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Development Assistance and Health Focus Areas

All available data were used to determine the health focus areas targeted by each channel. Resources were divided into 11 health focus areas based upon observed patterns in the data: human immunodeficiency virus (HIV)/AIDS, tuberculosis, malaria, newborn and child health, maternal health, other infectious diseases, noncommunicable diseases, and sector-wide approaches and health system strengthening (SWAp and HSS). These health focus areas are the major foci of the channels and the major areas of interest in global health and were selected prior to data collection. For example, the Global Fund has 3 principal foci—HIV/AIDS, tuberculosis, and malaria—whereas Gavi focuses on vaccines and WHO divided its programmatic expenses into 7 categories, all of which were captured. To assess if any major health focus areas were missed, the frequency of all words used in project descriptions across all project-level data was calculated. Informative terms with high frequency, such as “diarrhea” and “health system strengthening,” suggested categories that were added or further subdivided. In addition to these, DAH targeting the prevention and treatment of Ebola was split from other infectious diseases for 2014 to account for the substantial amount of resources targeting the crisis in West Africa. Two residual health focus areas were also generated. Funds designated as “other” did not fit into one of the primary health focus areas. DAH disbursements with insufficient information to identify the health focus area were designated as “unallocable.” Thus, 11 health focus areas in all were evaluated.

Health focus areas are mutually exclusive, such that each dollar of DAH is assigned to only 1 health focus area. When a project was deemed to have 2 health foci, for example, HIV/AIDS and tuberculosis, the project’s annual disbursements were divided proportionally across the appropriate health focus areas, using weights based on keyword searches in the project titles and descriptions. To generate health focus area estimates for years when reporting lags prevented the utilization of project-level data, a nonlinear, regression-based smooth was used to extend logit-transformed health focus area, channel-specific shares until 2014. This method was applied because it performed best, relative to a large set of alternative methods, in out-of-sample validation predicting 2011 and 2012 channel-specific health area shares. Disability-adjusted life year (DALY) data from the Global Burden of Disease 2013 study were used to compare DAH with disease burden. DALYs are a summary measure of population health expressed as the number of years lost due to disability or premature death. The Institute for Health Metrics and Evaluation and a consortium of more than 1000 researchers in more than 100 countries produced DALY estimates for more than 300 diseases for 188 countries for the Global Burden of Disease 2013 study.

Development Assistance and Sources

Many channels, such as bilateral aid agencies and the Gates Foundation, received funds from a single source, such as national treasuries or the Bill and Melinda Gates Foundation Asset Trust, respectively. Other channels, such as the European Commission, UN agencies, the World Bank, Gavi, and the Global Fund, received funds from multiple sources. Revenue statements were used to trace the funds from these channels to the appropriate source. None of the channels tracked allow donors to provide funds for specific types of projects, so channel-level disbursements for each health focus area were proportionally allocated to each source.

Results

Growth Estimates

Between 1990 and 2014, $458.0 billion was disbursed from the major channels in high-income countries (n = 38) to developing countries (n = 146-183) to maintain or improve health. Annual disbursements increased substantially over time. In 1990, donors disbursed $6.9 billion for health. In 2014, they disbursed $35.9 billion. This increase can be divided into approximately 3 periods, as illustrated in Figure 1. From 1990 to 2000, total DAH increased 5.4% annually. From 2000 through 2014, DAH accelerated and disbursements increased by 11.3% annually. Since 2010, funding has increased 1.4% annually.

Global Estimates by Source and Channel

Figure 2 depicts DAH disbursement from 1990 to 2014, including the amount of DAH that originated at each source, was distributed through each channel, and targeted each health focus area during this 25-year period. During this time, the US government was the largest source of DAH, providing $143.1 billion or 31.2% of the total. The US government disbursed $12.4 billion. The UK government was the second largest public source and provided $32.6 billion or 7.1% of the total. A substantial portion of DAH was provided by private sources as well. Private foundations (excluding the Gates Foundation), NGOs, and other philanthropic donors provided $48.2 billion or 10.5% of DAH. The Gates Foundation has provided $21.6 billion, or 5.7% of the total DAH since 1999, the year the foundation started disbursing DAH. Since 2010, the Gates Foundation has provided 41.5% of DAH funding from private foundations.

The largest channel of development assistance was the US aid agencies, which disbursed $101.1 billion or 22.1% of the total DAH over the last 25 years. UN agencies, which include WHO, UNICEF, the Joint United Nations Programme on HIV/AIDS (UNAIDS), the United Nations Population Fund (UNFPA), and the Pan American Health Organization (PAHO), disbursed $77.3 billion of DAH, or 16.9% of the total from 1990 to 2014. NGOs and private foundations (excluding the Gates Foundation) disbursed $72.3 billion or 15.8% of total DAH. The 2 public-private partnerships tracked, the Global Fund and Gavi, disbursed $30.9 billion or 8.9% of total DAH, and $10.3 billion or 2.8% of total DAH since their inceptions in 2002 and 2000, respectively.
Global Estimates by Health Focus Area

In addition to showing the growth of DAH from 1990 through 2014, Figure 1 also divides DAH into health focus areas. In 1990, $2.5 billion or 36.5% of these resources was provided for maternal health and newborn and child health, with $1.4 billion of DAH provided for newborn and child health. Over time, DAH provided for specific communicable diseases, such as HIV/AIDS, malaria, and tuberculosis, has increased considerably. In 2004, HIV/AIDS became the largest health focus area. Between 2000 and 2010, resources for the prevention and treatment of HIV/AIDS increased, at 22.5% annually. Since 2009, however, resources for newborn and child health increased faster than any other health focus area. Newborn and child health received $6.6 billion or 18.5% of total DAH in 2014. Much of these additional resources were channeled through Gavi to support childhood vaccines.

Comparing Sources of DAH, 2012-2014

Figure 3 highlights the 3 largest sources of DAH: the US government, the UK government, and private sources. These sources prioritized different channels and health focus areas. Estimates from 2012 through 2014 are aggregated to portray prevailing disbursement trends in the most recent years. As a source, the US government prioritized US government agencies, with $25.7 billion or 71.6% of its DAH over the last 3 years provided to US global health channels. The Global Fund and private NGOs also benefitted from a substantial amount of resources, receiving $4.5 billion or 12.6% and $3.2 billion or 8.9%, respectively. During this period, $20.1 billion or 56.1% of all US public resources for health targeted HIV/AIDS. Newborn and child health and malaria received $3.3 billion or 9.2% and $3.1 billion or 8.6% of US resources, respectively.

The UK government, which also preferred to fund its own public agencies, prioritized a broader array of health focus areas. Between 2012 and 2014, the UK government directed $5.2 billion or 48.5% of its resources to UK public agencies, but also channeled substantial shares of resources through Gavi, the UN agencies, and the Global Fund. Newborn and child health and malaria received $3.3 billion or 9.2% and $3.1 billion or 8.6% of US resources, respectively.

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the last 3 years. The Gates Foundation disbursed $4.7 billion or 56.9% of its DAH through the foundation, but also transferred a substantial amount of DAH to UN agencies, NGOs, the Global Fund, and Gavi. The largest share of Gates Foundation funding was provided for newborn and child health, which received $3.3 billion or 40.2% of funds originating from the Gates Foundation over the 2012-2014 period.

### Comparing DAH Health Focus Areas, 2012-2014

Figure 4 highlights the 2 largest health focus areas over the last 3 years, HIV/AIDS and newborn and child health, which received their resources from distinctly different sources and channels. Between 2012 and 2014, the US government provided $20.1 billion or 62.7% of all HIV/AIDS DAH, with $16.7 billion or 83.0% channeled through US agencies and $2.4 billion or 11.8% channeled through the Global Fund. Only $3.0 billion or 9.2% of DAH for HIV/AIDS originated with private sources.

In contrast, DAH for newborn and child health came from a wide range of sources and channels. The United States, the United Kingdom, and private philanthropies each provided more than 10% of the DAH for newborn and child health over the last 3 years. The primary channels providing DAH for newborn and child health were the UN agencies, Gavi, the World Bank, NGOs, US bilateral agencies, and the Gates Foundation.

### Development Assistance for Health, 2012-2014, Relative to Disease Burden, 2013

Figure 5 illustrates the 3-year average of DAH provided for each health focus area between 2012 and 2014, relative to the associated disease burden in 2013. Relative to their associated burdens, maternal health and HIV/AIDS received substantially more DAH than other health focus areas. For every disability-adjusted life year (DALY) associated with maternal health and HIV/AIDS, $33.14 and $30.84 DAH were disbursed for every disability-adjusted life year (DALY) associated with malaria and tuberculosis received around double the DAH per DALY than newborn and child health ($7.20 for malaria and $5.47 for tuberculosis).

### Discussion

This research highlights the substantial increases in DAH disbursed between 1990 and 2014. In 1990, $6.9 billion was disbursed; in 2014, $35.9 billion was disbursed. Although all health focus areas increased over time, there has been a substantial focus on HIV/AIDS, maternal health, and newborn and child health. Funding for
Figure 3. Comparing Flows of Development Assistance for Health From the 3 Largest Sources in 2014 US Dollars, Aggregated From 2012-2014

A United States

United States, $35.9 billion

Source

Channel

Health Focus Area

HIV/AIDS, $20.1 billion

Malaria, $3.1 billion

Tuberculosis, $1.5 billion

Ebola and other infectious diseases, $763.4 million

Newborn and child health, $3.3 billion

Maternal health, $2.6 billion

Noncommunicable disease, $200.5 million

SWAPs and HSS, $1.3 billion

Other health focus areas, $2.7 billion

Unallocable, $414.6 million

United States, $25.7 billion

UN agencies, $1.6 billion

Development banks, $360.0 million

NGOs and foundations, $3.2 billion

Global Fund, $4.5 billion

Gavi, $488.7 million

B United Kingdom

United Kingdom, $10.8 billion

Source

Channel

Health Focus Area

HIV/AIDS, $1.8 billion

Malaria, $856.7 million

Tuberculosis, $327.0 million

Ebola and other infectious diseases, $389.3 million

Newborn and child health, $3.2 billion

Maternal health, $1.0 billion

Noncommunicable disease, $111.2 million

SWAPs and HSS, $911.4 million

Other health focus areas, $2.2 billion

Unallocable, $293,000

United Kingdom, $5.2 billion

European Commission, $239.7 million

UN agencies, $1.26 billion

Development banks, $321.6 million

NGOs and foundations, $1.1 billion

Global Fund, $1.3 billion

Gavi, $1.6 billion

C Private philanthropic organizations

Private philanthropy, $9.7 billion

Source

Channel

Health Focus Area

HIV/AIDS, $3.0 billion

Malaria, $784.9 million

Tuberculosis, $710.5 million

Ebola and other infectious diseases, $471.0 million

Newborn and child health, $4.8 billion

Maternal health, $1.2 billion

Noncommunicable disease, $577.7 million

SWAPs and HSS, $928.3 million

Other health focus areas, $5.5 billion

Private philanthropy includes corporate donations and other private philanthropy.

Abbreviations are defined in the legend for Figure 2.

a UN agencies include the UN Children's Fund, the UN Population Fund, the Joint UN Programme on HIV/AIDS, the Pan American Health Organization, and the World Health Organization.

b Development Banks include the World Bank—International Development Association, the World Bank—International Bank for Reconstruction and Development, the Inter-American Development Bank, the African Development Bank, and the Asian Development Bank.

c NGOs and foundations include NGOs and US foundations.

d Funding for Ebola has been included with other infectious diseases.

* Other health focus areas corresponds to DAH for which project-level information are available but which is not identified as funding any of the health focus areas tracked.

Funding for Ebola has been included with other infectious diseases.

Unallocable corresponds to DAH for which project-level information is not available and cannot otherwise be parsed across health focus areas. Data for 2013 and 2014 are preliminary estimates.

Private philanthropy includes corporate donations and other private philanthropy.
Although infectious diseases have always been a major target of DAH, funding for these areas increased prominently during this period. DAH for HIV/AIDS increased most from 2000 through 2010, partially because the US government prioritized it during this time. The United States President’s Emergency Plan for AIDS Relief (PEPFAR) was established during this period, and was the leading factor in the increase in DAH for HIV/AIDS. Countries with PEPFAR programs had significantly greater reductions in all-cause adult mortality between 2004 and 2008 than countries that did not receive PEPFAR funding.32,33 Additionally, the United States, along with the Gates Foundation, extensively supported the creation of the Global Fund, which had a major role in the increases in funding for tuber-
substantially in low-income countries.\textsuperscript{37,43} health system infrastructure, and cost-effective interventions have
ture and primary care will be necessary.\textsuperscript{41,42} Prevention, primary care,
cable diseases, it is likely that greater support for system infrastruc-
ted since 2000, with the US government playing a major role in
scale-up in funding.
More recently, there has been a shift in focus to maternal
health and newborn and child health. The launches of the Part-
nership for Maternal, Newborn, and Child Health and the Countdown
to 2015 Initiative, both in 2005, and the UN Secretary-General’s
Global Strategy for Women's and Children’s Health, established in
2010, are examples of the heightened global attention to this area
of health.\textsuperscript{34-36} During this period, DAH for newborn and child
health has particularly benefited from Gavi’s support for vaccina-
tions and ongoing support from UN agencies. Furthermore, the UK
government and the Gates Foundation have focused on maternal
health, as evidenced by the 2012 London Summit on Family Plan-
ning and their growing contributions to this area of global health.\textsuperscript{34}
Increased funding for maternal health and newborn and child
health since 2010 has been greater than growth in infectious dis-
ease areas in this same period.
Figures 1 and Figure 5 highlight that noncommunicable dis-
eases received very little development assistance relative to other
health focus areas and relative to the large noncommunicable dis-
eases health burden.\textsuperscript{35,37-40} Despite currently lagging behind the DAH
disbursed for other health focus areas, DAH targeting noncommu-
nicable diseases increased in the most recent period. The annual-
ized growth rate of the most recent 5 years of data showed that DAH
for noncommunicable diseases increased at 5.2% per year, second
only to that of newborn and child health. However, if countries are
to be successful in reducing the health burdens of noncommunic-
able diseases, it is likely that greater support for system infrastruc-
ture and primary care will be necessary.\textsuperscript{41,42} Prevention, primary care,
health system infrastructure, and cost-effective interventions have
the potential to reduce the burden of noncommunicable diseases
substantially in low-income countries.\textsuperscript{37,43}
DAH for health sector support and sector-wide approaches was
relatively small, compared with other health focus areas. This health
focus area tracks resources allocated to governments for discretion-
ary spending on health and often contributes to health system in-
frastructure and system-wide strengthening. These resources can
theoretically result in the prevention and treatment of a wide vari-
ety of problems, and have the potential to improve health systems’
ability to conduct surveillance and respond to crises.\textsuperscript{44,45} The Ebola
epidemic in West Africa, for example, was a crisis exacerbated by
weak health systems.\textsuperscript{46} Although resources for health system
strengthening and sector-wide approaches have increased since
1990, DAH for this health focus area amounted to only 6.1% of total
DAH in 2014.

Global health financing flows are multifaceted, involving a wide
range of institutions. The panels presented in Figures 2-4 capture
that complexity, illustrating how different sources have preferred to
allocate resources in distinct manners. Some governments, such as
the US government, channeled a majority of funds through their own
bilateral aid agencies. In contrast, private sources of global health
financing disbursed a much higher share of funding through a wide
range of private organizations, namely NGOs and foundations, in ad-
dition to UN agencies and other international organizations. These
figures emphasize the distinct funding environments underpin-
ning different areas of global health. Although the United States was
the largest source and channel of HIV/AIDS financing, many other
nations and organizations supported efforts to bolster funding for
newborn and child health.
Comparing disability-adjusted life years with DAH provides an
important perspective regarding the allocation of funding deci-
sions. Maternal health and HIV/AIDS received the highest absolute
DAH per DALY, despite different trends in growth and absolute dis-
bursements. These health focus areas also contrasted in terms of
trends in population need. The incidence of HIV/AIDS has begun to
decline, but maternal mortality has not declined as quickly or
substantially.\textsuperscript{2,47} This highlights the various considerations that are
involved in decisions about DAH disbursements. Although some ex-
erts argue that cost-effective interventions should be prioritized,
others emphasize that DAH should focus on the health focus areas
with the greatest burden, and others still argue that donors should
align their aid with the priorities of recipient governments.\textsuperscript{48-51} None-
thless, bringing together disease burden and DAH by health focus
area provides an approach for understanding the potential misallo-
cation between resources and need.\textsuperscript{35,52}
In addition to determining how to allocate DAH investments
across health focus areas, donors also balance investment oppor-
tunities across time. DAH primarily represents resources allocated
to programs intended to maintain and improve health in the pre-
ent or near-term by investing in prevention and treatment for the
current generation. DAH does not capture the vast majority of re-
sources invested in research and development, which are in-
tended to prevent and treat the ailments of future generations. Like
DAH, crucial investments in research and development have been
dominated historically by US public and private sources, and, in re-
cent years, have been increasing at a notably slower pace.\textsuperscript{53}
In addition to the complex financing environment, this re-
search also underlines the possible toll of the global financial crisis
on DAH.\textsuperscript{17} Disbursements of DAH slowed in 2010. If DAH had con-
tinued to increase after 2010 at the pace observed in the previous
decade, it is possible that an additional $38.4 billion of develop-
ment assistance would have been available for health in low- and
middle-income countries over the 2010-2014 period, assuming that
channels had maintained the same increase in contributions to DAH
prior to the global financial crisis.
The limitations of this research involve data availability and quality. Over time, the availability and timeliness of financial data provided by channels of development assistance have improved, as the International Aid Transparency Initiative and others have focused on improved reporting.54 Although enhancing data quality is very good for policy makers and the global health community at large, the evolution of data quality may affect estimates of DAH trends. The primary concern about the estimates from the early years included in this study is that many resources were assigned to the “other” health focus area, as project descriptions were less comprehensive during this period. However, there is no evidence that these estimates are systematically distorted such that the trends being reported upon are caused by inadequate reporting. The amount of resources in the residual health focus areas (“other” and “unallocable”) is not large enough to negate the estimated trends.

Despite collecting data from a diversity of sources, timely and detailed project-level data still need to be improved. In some cases, the estimates are affected by assumptions about how projects were divided across health focus areas, how commitments translated into disbursements, and how trends persisted in the most recent years. More exact resource accounting would be possible with improvements in the transparency of financial flows. Although improvements have been made in the availability and timeliness of data during the last several years, development agencies could strengthen their commitment to transparency by providing more detailed and timely records of their financial accounts and transfers.

Despite these limitations, the granular estimates provided by this research provide insight into the diverse funding environment underpinning global health. Many sources prioritized specific agencies and organizations. These intermediary channels prioritized specific health focus areas and recipient regions in a diverse manner as well. The flow of financial resources for health involves complex transfers among development assistance partners. Although some health focus areas received the majority of their support from a single channel or source, other health focus areas benefited from support from a broad donor base.

Conclusions

Funding for health in developing countries has increased substantially since 1990, with a focus on HIV/AIDS, maternal health, and newborn and child health. Funding from the US government has played a substantial role in this expansion. Funding for noncommunicable diseases has been limited. Understanding how funding patterns have changed across time and the priorities of sources of international funding across distinct channels, recipients, and health focus areas may help identify where funding gaps persist and where cost-effective interventions could save lives.

ARTICLE INFORMATION

Author Contributions: Dr Dieleman had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Dieleman, Murray.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Dieleman, Haakenstad.

Critical revision of the manuscript for important intellectual content: All authors.

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