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Donor funding priorities for communicable disease control in the developing world

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Prior research has considered donor funding for developing world health by recipient and donor country but not by disease. Examining funding by disease is critical since diseases may be in competition with one another for priority and donors may be making allocation decisions in ways that do not correspond to developing world need. In this study I calculate donor funding for 20 historically high-burden communicable diseases for the years 1996 to 2003 and examine factors that may explain variance in priority levels among diseases. I consider funding for developing world health from 42 major donors, classifying grants according to the communicable disease targeted. Data show that funding does not correspond closely with burden. Acute respiratory infections comprise more than a quarter of the burden among these diseases but receive less than 3% of direct aid. Malaria also stands out as a high-burden neglected disease.

The evidence indicates that neither developing world need nor industrialized world interests explain all funding patterns, and that donors may be imitating one another in ways that do not take into account problems in the developing world. There is an urgent need for a major increase in funding for communicable disease control in the developing world, and for more balanced allocation of the resources already provided.

Key words: foreign aid for health, communicable disease control, HIV/AIDS, public health policy, priority setting

Introduction

Which developing world communicable diseases do donors prioritize with funding and which do they neglect? What explains differential treatment? Are new funding patterns emerging that diverge from past donor practices?

The adoption by United Nations member states of the Millennium Declaration and Millennium Development Goals (MDGs) reflects a new commitment to address the burden of poverty in the developing world. This consensus includes a particular concern for improving the health conditions of the poor, and may have spurred increased donor funding for health. MDG goals four, five and six concern health explicitly, and lay out specific objectives for the control of a number of diseases, including HIV/AIDS, malaria, tuberculosis and measles. A new commitment to the health of the poor is also reflected in the proliferation of initiatives and public-private partnerships over the past decade dedicated to addressing health problems in the developing world, including the Global Fund to Fight AIDS, Tuberculosis and Malaria and the Global Alliance for Vaccines and Immunizations (GAVI).

Despite increasing industrialized world attention to the health of the developing world's poor in recent years, these questions of donor allocations for communicable disease control deserve consideration for a number of reasons. First and foremost, the shortfall between needed and committed resources for health remains very large, and it is by no means certain that the MDG consensus will bridge the gap any time soon. As MacKellar (2005) has noted, the final report of the Commission on Macroeconomics and Health (2001) argues for a donor commitment of US$27 billion per year by 2007 to address the health needs of developing countries. By 2003, at US$8 billion, actual donor commitments for health were less than a third of that amount.[1] A consequence of this persistent shortfall is that health initiatives, including efforts to control particular communicable diseases, find themselves in ongoing competition for scarce resources, a dynamic noted in several studies of donor health priorities (Reich 1995; Segall 2003; Waddington 2004; MacKellar 2005). Researchers developed the disability-adjusted life-year (DALY) measure explicitly in recognition of resource scarcity to aid policy-makers in making difficult allocation decisions (Michaud et al. 2001).

A second reason these questions deserve attention is that factors other than developing world need may influence donor behaviour, including the interests of industrialized states. This dynamic has received confirmation from several decades of scholarship on aid provision generally and in particular policy sectors such as the environment (Maizels and Nissanke 1984; Hook 1995; Lancaster 1999; Lewis 2003; Feeny and McGillivray 2004; Jones et al. 2005). However, it has attracted little explicit attention in analyses of aid for health. An exception is

MacKellar (2005) whose work has highlighted the prominence of HIV/AIDS on the donor agenda to the neglect of nutrition and other basic health care issues; a phenomenon, he notes, which may be a function of domestic politics in industrialized states.

Thirdly, in the developing world, communicable diseases continue to pose the greatest burden among all disease categories and the priority donors give to many may be insufficient. The burden of other conditions, including non-communicable diseases and injuries, is increasing in the developing world, particularly among lower-middle-income states. However, in the poorest countries, where aid is most needed and where the majority of donor funds are directed, communicable diseases continue to represent by far the greatest burden among all categories (Murray and Lopez 1997; Global Forum for Health Research 2004). In sub-Saharan Africa, these diseases alone are responsible for more than half of all deaths (Global Forum for Health Research 2004).

There are several other reasons why analysis of communicable disease control funding allocations is critical. Such funding may constitute a significant portion of donor spending on health and reflect their overall priorities. Also, new initiatives directed toward particular diseases may be altering funding allocations in favour of these diseases and to the neglect of others, including the Global Fund to Fight AIDS, Tuberculosis and Malaria, President Bush's Emergency Plan for AIDS Relief, and the Millennium Development Goals, which mention HIV/AIDS, tuberculosis, malaria and measles directly. Finally, vertical disease control initiatives may be in tension with horizontal reform initiatives intended to enhance the effectiveness of national health sectors, a subject of ongoing analysis among scholars and observers investigating the most effective means of enhancing health systems capacities in developing countries (Reich 2000; Widdus 2003; Caines and Lush 2004; Waddington 2004).

Several studies have considered patterns of funding for developing world health by recipient and donor country (Drager et al. 1992; Howard 1991). With the exception of a decade-old inquiry that touched on the issue in passing (Michaud and Murray 1994) and a more recent study that examines allocations for research alone and only for a limited number of conditions (Global Forum for Health Research 2004), none has done so comprehensively by disease. In this paper I calculate and examine recent donor funding and initiatives for 20 historically high-burden communicable diseases of the developing world. I consider explanations for variance in priority, and explore whether funding patterns for the communicable disease sector as a whole have shifted in recent years. By examining only donors I do not mean to de-emphasize the critical role in health of other actors such as non-governmental development organizations and developing world governments; my aim, rather, is to narrow the focus so as to better understand this particular, highly influential group of actors.

Analysts of foreign aid have developed a number of frameworks to explain donor behaviour, and these may be applied to disease control (Maizels and Nissanke 1984; Hook 1995; Lancaster 1999; Feeny and McGillivray 2004). A *recipient need* framework presumes that donors respond to the seriousness of problems in a considered way, taking into account humanitarian concerns and the most pressing problems of people in developing nations. With respect to disease control, this framework would posit that factors such as a disease's burden and speed of spread should influence funding levels, as donors target and seek solutions for those diseases that pose the greatest threat to the health of the poor in the developing world.

A *provider interest* framework presumes that the interests of constituencies in industrialized states are paramount. Donors may prioritize a disease because political elites perceive a disease to be a national threat. For instance, in 2000 the Clinton administration labelled the global spread of HIV/AIDS a national security threat, arguing that it had the potential to cause political instability in the developing world. In consequence, for the first time the United States Security Council became involved in the fight against an infectious disease. Also, in the late 1980s and early 1990s the US and Western European governments detected a rise in domestic tuberculosis incidence after decades of decline. It was only thereafter that the United States Congress authorized significant funding for the control of tuberculosis both domestically and overseas, and that the disease received major attention from international organizations such as the World Health Organization (Raviglione et al. 1992). A disease also may be prioritized because it offers profit potential for pharmaceutical companies in drug and vaccine sales (Webber and Kremer 2001; Widdus 2001), another dynamic consistent with a provider interest framework.

Recent scholarship in political science suggests yet another logic that may underpin the provision of aid. Scholars working from a constructivist international relations paradigm have argued that the interests of individual nation-states cannot be understood by considering domestically oriented concerns alone (Finnemore 1996; Deacon 1997; Keck and Sikkink 1998). Rather, states, like individuals, exist in an international society, where they are subject to socialization processes. They may not initially know what they want but come to hold particular preferences as a result of socialization by other state and non-state actors into commonly held norms. For instance, a state originally may not prioritize a health cause such as polio eradication, but come to adopt the cause because domestic health officials learn at international gatherings that other countries are pursuing this goal and they are likely to be left behind. Thus, we may identify a *global policy* framework that presumes a cross-national diffusion of ideas and preferences as state and non-state actors learn from and influence one another. In line with this dynamic, the agendas of particular individuals and organizations may be crucial. For instance, if influential donors such as the World Bank or the Gates Foundation agree that a particular disease should be targeted for

global control, dozens of other donors may follow. While recipient need or provider interest may shape initial donor choices, subsequent behaviour may be based less on deliberation than on precedent, resulting in simultaneous global shifts in priorities not always in accordance with developing world need (Périn and Attaran 2003).

In the sections that follow I examine evidence for these explanatory frameworks by comparing recent funding data across diseases and by considering emerging donor practices.

Methods

I calculated funding for 20 communicable diseases (Table 1) from 42 donor organizations (Table 2) for the years 1996 to 2003 (in deflated dollars using 2002 as a base year). I included diseases that historically have afflicted large numbers of people in the developing world, and whose burden has been calculated by the Global Burden of Disease (GBD) project. I analysed the years 1996 to 2003 since my primary concern was recent rather than historical priorities, and since records for these but not earlier or later years were relatively comprehensive for each of the donors considered, facilitating reliable comparisons across diseases.

I considered donors of four types: bilateral development agencies of industrialized states, international financial institutions, philanthropic foundations and multinational pharmaceutical companies. I included each bilateral donor of the Organization for Economic Cooperation and Development (OECD), an institution that groups the world's industrialized powers. I also considered five international financial institutions offering concessionary loans and grants to developing countries, including the World Bank (loans from these institutions that were not concessionary – including IBRD loans – were excluded). Among the hundreds of philanthropic foundations that fund communicable disease control in the developing world, I focused on a handful that dominate funding. Many pharmaceutical companies have been involved in drug or vaccine donations: I considered a number with major roles.

Several agencies of the United Nations system also are involved in communicable disease control. I examined their records but ultimately did not include their funding since most United Nations agencies do not have budgeting or grants collection systems that enable comprehensive classification of grants by diseases targeted for all the years considered in this study. It is possible to estimate disbursements from some of the UN agencies for a small group of diseases. However, to include certain diseases for which data are available and exclude others for which data are not would bias results. The exclusion does not likely influence results significantly as aggregate UN funding for communicable disease control is small compared with that coming from other categories of donors. The World Health Organization's own estimate of planned resources in 2000–01 for HIV/AIDS, for instance, was US$55 million, only 0.40% of the total funding for AIDS control from direct grants calculated in this study. Also, UN priorities do not likely diverge so significantly from the rest of the donor community as to require a modification in conclusions.

I reviewed approximately 15 000 health-oriented grant records from the 42 donors. I identified 6104 as direct

Table 1. Communicable diseases considered

Disease	DALYs in developing world*
Acute respiratory infections	71 302 314
Chagas disease	91 473
Dengue fever	378 650
Hepatitis	1 749 484
HIV/AIDS	85 428 359
Intestinal nematode infections	2 068 962
Japanese encephalitis	67 304
Leishmaniasis	1 732 239
Leprosy	111 229
Lymphatic filariasis	4 896 775
Malaria	39 253 040
Measles	24 863 534
Meningitis	3 788 112
Onchocerciasis	950 541
Polio	101 803
Schistosomiasis	1 536 102
Tetanus	8 983 423
Trachoma	601 985
Trypanosomiasis	1 584 036
Tuberculosis	24 973 890

*Countries classified by the World Health Organization as having very high or high child and adult mortality. Data from World Health Report 2001 (WHO 2001).

Table 2. Donor organizations considered

Bilateral donors	**International financial institutions**
Australia	African Development Bank
Austria	Asian Development Bank
Belgium	European Bank for Reconstruction and Development
Canada	Inter-American Development Bank
Denmark	World Bank
European Community (grouping of states)	
Finland	**Multinational pharmaceutical companies**
France	Aventis
Germany	BristolMyersSquibb
Greece	Glaxo SmithKline
Ireland	Merck
Italy	Novartis
Japan	Pfizer
Luxembourg	
Netherlands	**Philanthropic foundations**
New Zealand	Burroughs Wellcome
Norway	Edna McDonnell Clark Foundation
Portugal	Ford Foundation
Spain	Gates Foundation
Sweden	MacArthur Foundation
Switzerland	Nippon Foundation
United Kingdom	Rockefeller Foundation
United States	Wellcome Trust

grants targeted toward the control of a clearly specified communicable disease or set of communicable diseases for the years 1996–2003. I excluded a number of other direct grants for communicable disease control since records did not provide sufficient information to determine the diseases targeted. For this and other reasons, the figures I calculate should not be used as global totals of funding spent on specific diseases.

I created a grants database and derived funding totals for each disease year by year. For multi-disease grants, I divided funding equally across diseases. There was one exception: the Global Fund pools resources for HIV/AIDS, tuberculosis and malaria control. Its records indicate that 56% of funds have gone toward AIDS programmes, 31% toward malaria and 13% toward tuberculosis. I divided funding accordingly for those grants made to the Global Fund by donors considered in this study. The Global Fund, the GAVI and other public-private partnerships were treated as intermediate rather than original sources of funding: I included in the database only grants coming directly from the 42 donors considered, not disbursements from these intermediate entities to recipients.

For the bilateral development agencies, I utilized a database of grants to developing countries compiled by the OECD (OECD 2005). A study has noted limitations of this database, including the classification of grants with multiple purposes into single categories, and missing data (Attaran and Sachs 2001). However, it is sufficiently complete to facilitate comparative inferences across diseases. For international financial institutions, philanthropic foundations and pharmaceutical companies, I consulted annual reports and grants databases of individual organizations. Also, I cross-checked philanthropic foundation records with those from an organization that independently tracks US grants (Foundation Center 2003). In addition, for all four donor categories, I consulted reports from global health initiatives. Some of the data come from grant agreements while others come from final grant reports. Disease incidence data are from the GBD project (Murray and Lopez 1996; WHO 2001). Project researchers have developed the disability-adjusted life-year (DALY), an indicator that integrates mortality and morbidity information and allows for comparison across diseases of the number of healthy life-years lost due to individual conditions.

Some diseases neglected by direct grants may be prioritized by integrated, non-disease-specific indirect grants oriented toward health sector strengthening, and vice-versa. In order to examine this possibility, I considered a sample of 100 such grants, randomly selected from nine donors: the Asian Development Bank, Australia, the Gates Foundation, the Inter-American Development Bank, the Rockefeller Foundation, Sweden, the United Kingdom, the United States and the World Bank. My initial aim was to analyse spending by individual disease. This proved impossible, as the very nature of these horizontal grants, predominantly for comprehensive health sector development, meant that few (less than 5%) included separate budget line items for the control of particular diseases. I therefore decided on an alternative means of approaching the issue. While few grants delineated disease-specific funds, each grant included sufficient information to determine whether the control of one or more of the 20 diseases considered in this study was a major objective. I used this information to calculate for each disease the percentage of grants in the sample that included their control as an objective. I then placed the percentages in rank order by disease, and compared this ranking with rankings of direct spending, using Spearman's correlation.

Results

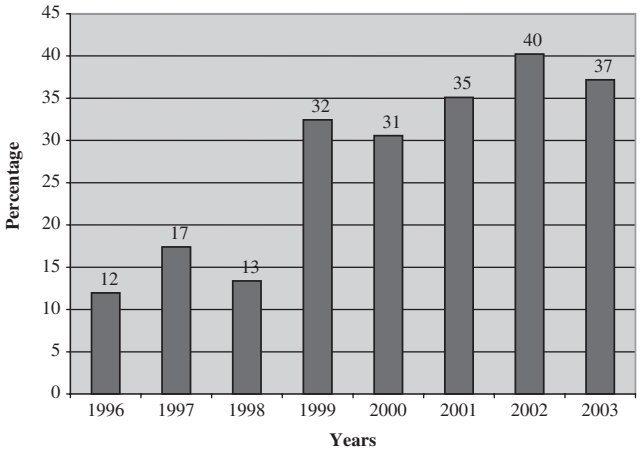
Aggregate spending

Spending on communicable disease control constitutes a considerable and rising proportion of total donor funding for health and population (Figure 1), making analysis of how this money is distributed crucial. Such funding comprised 12% of total spending on health and population for 1996, rising to 37% of total spending on health and population by the year 2003.

Recipient need

Concern for recipient need does not imply a linear relationship between disease burden and donor funding since factors such as projected change in disease incidence, health systems capacities, the costs of interventions and expenses associated with final stages of eradication should also influence funding levels. However, a recipient need framework would predict a measure of correspondence, on the presumption that donors are responding to the scale of the problem in the developing world.

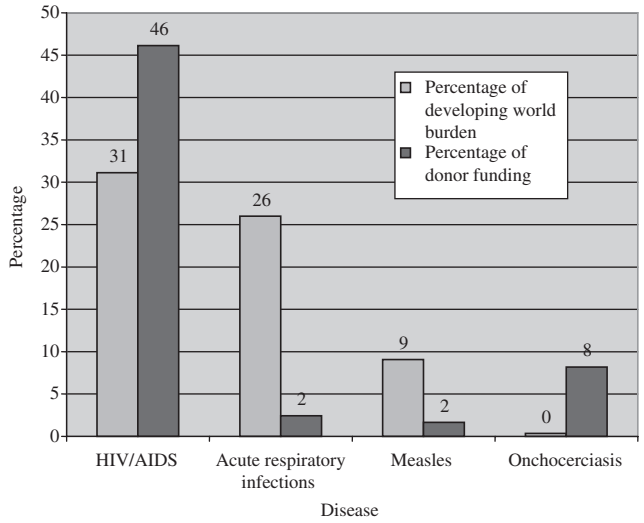
Figure 2 compares burden and funding shares for direct grants for a selected group of diseases, and Table 3



* Calculations are aggregates of the OECD states and agencies as reported in the OECD's credit reporting system, combined with Gates Foundation figures as calculated from the Foundation's grant records.

Figure 1. Funding for communicable disease control as a percentage of total donor spending on health and population*

lists figures for all 20. Direct grant levels correspond little to burden. An indicator is that the annual donor dollars per healthy life-year lost (Table 3, column 2) vary widely across diseases. Acute respiratory infections represent more than a quarter of the total developing world burden among this group of diseases – second among the 20 diseases and nearly as high as AIDS – yet receive less than 2.5% of direct funding. AIDS is favoured relative to burden, comprising just over 30% of the burden but receiving nearly half of all direct donor funds. Measles and onchocerciasis also present an interesting contrast: measles comprises more than 9% of the burden but receives only 1.7% of direct funding, while onchocerciasis shows the reverse pattern. Trachoma, leprosy, polio and Chagas disease also are favoured relative to burden, a reflection of the fact that, like onchocerciasis, donors have targeted each disease for elimination.



*For the period 1996-2003, direct grants only. Sources as for Table 3.

Figure 2. Percentage of developing world burden and percentage of donor funding for selected communicable diseases*

On the other hand, GBD data indicate that the increase in burden of AIDS in the developing world from 1990 to 2000 – nearly 57 million DALYs – far exceeded that of the other 19 diseases. The next highest increase was for lymphatic filariasis at 4.05 million. Donors therefore have prioritized a very high burden disease rapidly growing out of control, a funding pattern in accordance with recipient need.

Provider interest

A strong correspondence between industrialized world disease burden and donor funding for control of developing world diseases may indicate the influence of provider interests, as donors may be targeting diseases that industrialized world political elites believe to be threats to their own citizens or that pharmaceutical companies perceive to be sources of potential drug sales profit.

Table 4 presents an indicator of donor direct funding for three high-burden developing world diseases alongside their burden in the industrialized world. A correspondence exists between the two. The communicable disease with a very high industrialized-world burden, HIV/AIDS, is also the one that receives by far the greatest donor attention. HIV/AIDS is unique among developing world communicable diseases in that it is the only one that is a major threat in both developing and industrialized

Table 3. Disease burden in the developing world versus share of donor funding, direct grants only*

Disease	Annual donor dollars per DALY, direct funding	Percentage of burden among 20 diseases	Percentage of direct funding among 20 diseases	Total direct funding 1996–2003 (thousands of dollars)
Polio	2 453.79	0.04	14.61	1 998 425
Onchocerciasis	146.96	0.35	8.17	1 117 553
Leprosy	138.07	0.04	0.90	122 858
Trachoma	54.79	0.22	1.93	263 851
Chagas disease	54.49	0.03	0.29	39 877
Japanese encephalitis	51.51	0.02	0.20	27 736
Hepatitis	21.27	0.64	2.18	297 667
Dengue fever	20.37	0.14	0.45	61 704
HIV/AIDS	9.25	31.13	46.21	6 320 599
Trypanosomiasis	7.94	0.58	0.74	100 594
Lymphatic filariasis	5.11	1.78	1.46	200 059
Tuberculosis	4.69	9.10	6.85	936 423
Meningitis	4.58	1.38	1.01	138 751
Malaria	3.92	14.30	9.00	1 230 574
Schistosomiasis	3.90	0.56	0.35	47 935
Leishmaniasis	3.33	0.63	0.34	46 148
Intestinal nematode infections	3.30	0.75	0.40	54 539
Tetanus	1.65	3.27	0.87	118 415
Measles	1.14	9.06	1.66	227 338
Acute respiratory infections	0.58	25.98	2.40	328 357

*Donor funding is considered for the years 1996–2003 in deflated dollars, with 2002 as the base year. Burdens are measured in DALYs for the year 2000 for developing countries. Percentages are of the total for the 20 diseases considered, not of all developing world diseases.

Table 4. Industrialized and developing world burden for selected diseases, and funding for their control*

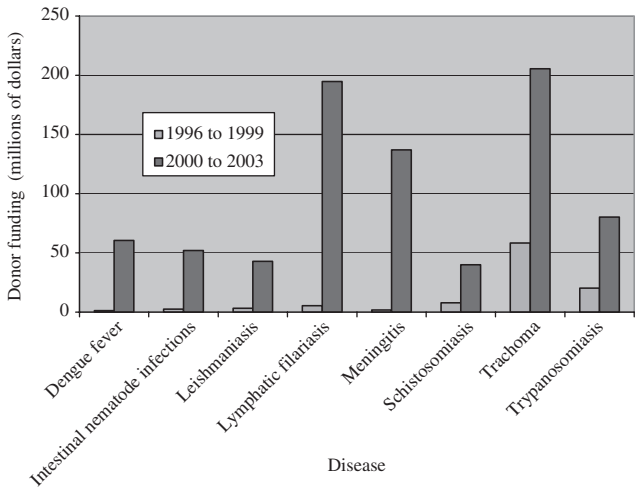
Disease	Industrialized world burden (thousands of DALYs)	Annual donor dollars per DALY	Developing world burden (thousands of DALYs)
HIV/AIDS	822	9.25	85 428
Tuberculosis	136	4.69	24 974
Malaria	5	3.92	39 253

*Burden for year 2000; annual donor dollars per DALY is annual average for the years 1996 to 2003, and considers direct grants only.

countries, and one of the few diseases for which drug and vaccine discovery and sales offer potentially large pharmaceutical company profits. Thus provider interest offers an alternative explanation to recipient need for donor prioritization of HIV/AIDS.

Funding priority for tuberculosis compared with malaria control may also indicate provider interest (Table 4). In developing countries the burden of tuberculosis is 57% lower than that of malaria. In industrialized states, however, tuberculosis has a burden more than 25 times greater, emerging as a threat in the 1980s when multi-drug resistant strains appeared.

On the other hand, provider interests do not explain funding patterns for trachoma, onchocerciasis, leprosy, polio and Chagas disease, each of which, relative to burden, receives considerable donor funding (see Table 3). These diseases do not threaten industrialized states; nor do they offer pharmaceutical companies significant profit potential.



*Figures from author's calculations based on compiled donor grants database.

Figure 3. Donor funding in direct grants across two time periods for selected diseases*

Global policy

Parallel shifts in priority in concentrated time periods may indicate the influence of global policy diffusion. Such shifts may occur because actors are imitating one another or because particular organizations are encouraging them to adopt certain practices.

Several trends indicate the presence of such effects. In the late 1990s, direct aid for communicable disease control as a percentage of total funding for health rose markedly (Figure 1). Also, donors suddenly and dramatically increased funding for a number of long-neglected diseases (Figure 3). Other communicable diseases also experienced significant increases across two time periods (1996–99 and 2000–03): HIV/AIDS funding rising 464%, malaria funding 197% and tuberculosis funding 163%.

Collected grant records indicate that a proliferation of new communicable disease control alliances stood behind these increases, bringing together donors in public-private partnerships, disease control campaigns and global funds focused on specific sets of diseases (Table 5). Many of these well-known initiatives had an investment imperative: donors used a venture capital approach to develop products and strategies – vaccines, drugs and other tools – that might address pressing health concerns (Widdus 2001). The Medicines for Malaria Venture (MMV), for instance, was formed to discover and deliver affordable anti-malarial drugs. The International AIDS Vaccine Initiative (IAVI) was created to develop effective HIV vaccines for use throughout the world. The Global Alliance to Eliminate Lymphatic Filariasis formed in 2000, bringing together GlaxoSmithKline, Merck, the World Health Organization, the Gates Foundation, ministries of health and many other organizations in a public-private partnership.

The Gates Foundation was centrally involved in developing and supporting many of these initiatives, in this period giving individual grants of US$10 million or more for 18 of the 20 diseases (only leprosy and onchocerciasis were not given grants of this size). Many of these grants were oriented toward investment in research. Among its most significant awards were US$750 million to the GAVI, US$100 million to the Global Fund, US$50 million to support polio eradication in India and Sub-Saharan Africa, US$18 million to the Albert B Sabine Vaccine Institute for hookworm vaccine development and US$20 million for programme development for the Global Alliance for the Elimination of Lymphatic Filariasis. It also gave US$20 million to the International Trachoma Initiative to improve tools for fighting this disease, US$40 million to the Medicines for Malaria

Table 5. Partial list of new communicable disease control initiatives and public-private partnerships since late 1990s

Year	Disease	Purpose	Major donors
1997	Meningitis	Coordinating group for epidemic response	Denmark, Netherlands, Norway, US, UK, World Bank, Gates, Glaxo, Aventis
1998	Malaria	Roll Back Malaria alliance to halve world's malaria burden by 2010	Multiple OECD states, World Bank, Gates, Rockefeller, Wellcome Trust, Burroughs Wellcome, WHO, UNICEF, UNDP
1998	Tuberculosis	Stop TB partnership to control disease	Multiple OECD states, World Bank, Aventis, Glaxo, Gates, Rockefeller, Wellcome Trust
1998	Trachoma	International Trachoma Initiative to eliminate disease	Clark, Pfizer, Gates, WHO
1999	Hepatitis, acute respiratory infections and others	Global Alliance for Vaccines and Immunizations (GAVI) – fund for new vaccines and infrastructure strengthening	Gates primary donor. Donations from multiple OECD states.
1999	Tetanus	Campaign to eliminate disease by 2005	Gates, Japan, WHO, UNICEF, UNFPA
1999	Leprosy	Global Alliance to Eliminate Leprosy (GAEL)	WHO, Novartis, Nippon, Denmark, World Bank
2000	Lymphatic filariasis	Alliance to eliminate disease	Glaxo, Merck, Gates, UK, Japan
2001	Measles	Campaign to halve measles deaths worldwide by 2005	US, Gates, WHO, UNICEF
2001	Trypanosomiasis	Public-private partnership and funding for drug/vaccine development	Aventis, WHO, Gates, Wellcome Trust, Belgium, France
2002	HIV/AIDS, Tuberculosis, Malaria	Global Fund to Fight AIDS, Tuberculosis and Malaria	Contributions from most OECD states and many other donors

Venture, US$27 million to PATH to support the development of a Japanese Encephalitis vaccine, US$70 million also to PATH to support the elimination of epidemic meningitis in sub-Saharan Africa, US$55 million to the International Vaccine Initiative to fund dengue fever vaccines for children, US$27.8 million to support schistosomiasis control in Africa and US$17.8 million to the University of North Carolina for the development of drugs for leishmaniasis and trypanosomiasis.

There were precedents to these initiatives and partnerships from the 1970s to the mid-1990s, including: smallpox eradication; Chagas disease control initiatives; onchocerciasis control programmes; dracunculiasis, leprosy and polio campaigns that continue to the present; and multiple public-private partnerships that appeared in the 1990s (Reich 2000; Widdus 2003). What is distinct about recent developments is the number of initiatives that emerged in a concentrated period of time. This proliferation cannot be traced to any new needs from developing countries: most of the targeted diseases had long been endemic in them. Nor are there any obvious new provider interests that appeared. What seems to have occurred is a process of policy diffusion, driven by interactions among donors.

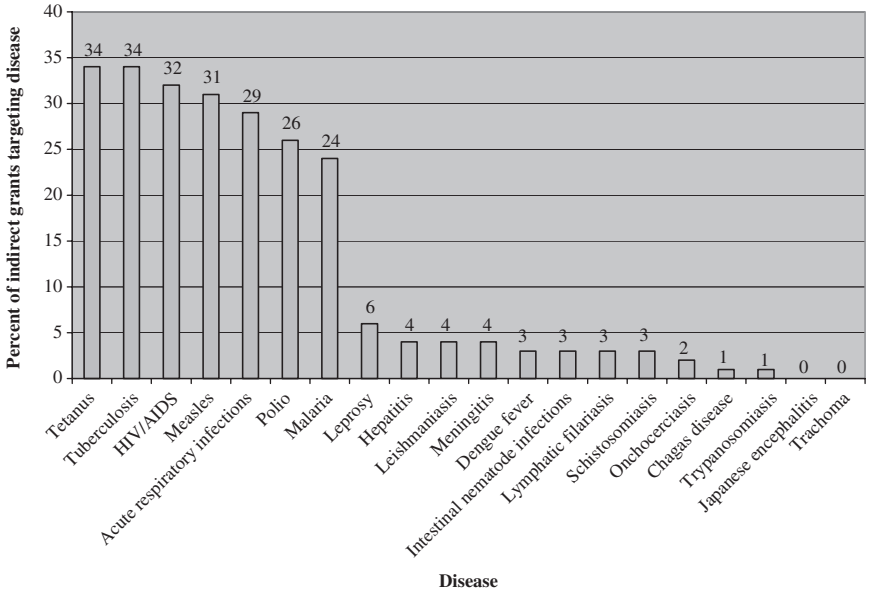
Indirect grants

Indirect grant data (Figure 4) present a mixed picture on the degree to which these resources compensate for disproportionate allocation of direct grants across diseases. On the one hand, some diseases de-prioritized by direct funding are prioritized in indirect grants, and vice-versa. Acute respiratory infections, highly neglected in direct funding, fare somewhat better in indirect grants as 29% of the sample target them for control, fifth highest among the 20 diseases. Measles and tetanus, also neglected in direct funding, rank fourth and tied for first, respectively, in indirect grants. Onchocerciasis, prioritized in direct grants with 8.17% of direct funding but only 0.35% of the burden, is de-prioritized in indirect grants, targeted by only 2%. Trachoma and Chagas disease also are prioritized in direct funding and de-prioritized in indirect grants.

On the other hand, the priority that several diseases receive among direct grants is reinforced in indirect grants. HIV/AIDS, which ranks first in total direct grant funding, ranks third in indirect grant prioritization. Poliomyelitis, which at US$2454 receives more donor dollars per DALY from direct grants than any other disease, a function of the present global eradication campaign nearing its final stages, is also prioritized in indirect grants, ranking sixth among the 20 diseases. In addition, several diseases relatively neglected by direct funding also are neglected in indirect grants. These include intestinal nematode infections, lymphatic filariasis, schistosomiasis, meningitis and trypanosomiasis, none of which are targeted by more than 4% of indirect grants. Beyond this, Spearman's rank correlation for the 20 diseases for total direct funding and the percentage of indirect grants that target a disease is 0.52 and significant at the 0.05 level (significance level = 0.020), suggesting that indirect grants may reinforce rather than compensate for donor direct grant imbalances.

Discussion

Donor funding in direct grants varies significantly across diseases, ranging from US$2454 annually per DALY for polio to only US$0.58 for acute respiratory infections.



* Data from sample of 100 indirect grants randomly selected from nine donors.

Figure 4. Percentage of indirect grants targeting diseases*

Many factors may stand behind this variance, including the targeting of particular diseases for global elimination, the high costs associated with the final stages of disease elimination, efforts to control diseases that are spreading rapidly, a focus on diseases for which cost-effective interventions exist, a new 'returns on investment' dynamic among certain donors, the emergence of public-private partnerships focused on specific diseases, the fear by political elites in industrialized states that particular diseases will threaten national security, and interest group mobilization within these richer countries to address certain diseases. In other words, a combination of recipient need, provider interest and global policy effects appear to interact to shape disease funding priorities, rather than factors from any individual framework alone.

High levels of funding for polio, onchocerciasis and leprosy, for instance, are likely connected to the fact that each is the target of a global elimination campaign nearing its final stage, raising costs per person. Prioritization of trachoma and Chagas disease may also be connected to global elimination efforts. Large increases in funding in recent years for Japanese encephalitis, dengue fever, trypanosomiasis and several other diseases may be connected with a new investment dynamic spurred on by the Gates Foundation and a number of public-private partnerships. The high share of funding for HIV/AIDS compared with burden may be due both to its rapid spread and to dynamics inside industrialized countries, including perceptions by political elites that the disease poses a national security threat, and interest group mobilization in rich countries. The neglect of diseases such as malaria, schistosomiasis, leishmaniasis and intestinal nematode infections may be connected to the fact that these diseases do not pose any major threat to rich countries and therefore no powerful interest groups have mobilized surrounding them. Similarly, most acute respiratory infections, while prevalent in industrialized states, are readily treatable, and political elites therefore may not consider them to be significant public health threats emanating from abroad (the recent attention to SARS and avian flu is an exception that provides evidence for the broader point: when a disease is perceived to be a threat to the peoples of rich countries, donors are more likely to pay attention).

Donor priorities for developing world health have moved in waves (Périn and Attaran 2003), including vertical disease control in the 1950s and 1960s, primary health care in the 1970s and health sector reform and sector-wide approaches (SWAps) in the 1980s and 1990s. Observers have commented on tensions between approaches, as concentrated campaigns may effectively address one disease but divert scarce resources away from other needs (MacFarlane et al. 2000; Waitzkin 2003) and may place pressure on over-burdened health systems that lack the capacity to address multiple causes effectively (Task Force on Health Systems Research 2004). The creators of a number of disease-specific initiatives are cognizant of this tension and have designed their initiatives in order to be consistent with health sector strengthening efforts. For instance, the Global Fund to Fight AIDS, Tuberculosis and Malaria has created country coordinating mechanisms composed of local stakeholders to ensure projects initiated are consistent with national priorities. Also, the High Level Forum on the Health Millennium Development Goals has brought together donors and government officials from developing countries to focus on aid harmonization, among other issues (High Level Forum 2006). This being said, vertical-horizontal tensions persist, even in these more carefully designed efforts (Brugha et al. 2004), and these initiatives give the issue ongoing relevance.

It would be inaccurate to conclude from the data calculated in this study that certain communicable diseases of the developing world are over-funded. Even diseases that appear to be prioritized receive amounts that are far from adequate. From 1996 to 2003 total direct grants considered in this study amounted to merely US$9.25 annually for each year of healthy life lost in the developing world due to HIV/AIDS, and only US$1.71 billion annually for control of all 20 diseases. By comparison, a recent study estimated that in 1999 health administrative costs in the United States amounted to US$1059 per capita and at least US$294.3 billion in total – nearly 175 times this funding figure for developing world communicable disease control (Woolhandler et al. 2004). Also, the same study estimated savings of US$209 billion annually were the United States to reduce health administrative costs to per capita levels in Canada. As the Commission on Macroeconomics and Health has noted, there is an urgent need for a significant increase in public and private sector industrialized world funding for the control of communicable diseases in the developing world, an investment that the governments and citizens of wealthy countries can easily afford (Commission on Macroeconomics and Health 2001).

A major increase in spending may be a long time in coming, however, and with wealthy countries unwilling to provide adequate resources, donors will undoubtedly continue to make many funding decisions based on the disease targeted, influenced by industrialized world interests and priorities of the moment. The result will be ongoing competition among diseases for attention. This dynamic makes continued research and monitoring of funding patterns essential, since recipient needs may be crowded out in the process.

Endnote

[1] This figure is the total amount of spending on health and population for 2003 as reported in the OECD's Credit Reporting System, combined with total spending by the Gates Foundation for global health.

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