



Global Funding of Innovation for Neglected Diseases: G-FINDER

The sixth G-FINDER survey reports on 2012 global investment into research and development (R&D) of new products for neglected diseases, and identifies trends and patterns across the six years of global G-FINDER data. It covers:

- ▶ 31 neglected diseases
- ▶ 134 product areas for these diseases, including drugs, vaccines, diagnostics, microbicides and vector control products
- ▶ Platform technologies (e.g. adjuvants, delivery technologies, diagnostic platforms)
- ▶ All types of product-related R&D, including basic research, discovery and preclinical, clinical development, Phase IV and pharmacovigilance studies, and baseline epidemiological studies.

G-FINDER is funded by the Bill & Melinda Gates Foundation.

SOME YEAR SIX HIGHLIGHTS	
\$3.2 BILLION	Investment into R&D for new neglected disease products in 2012
3.2%	The increase in year-on-year funding for neglected disease R&D
3	The number of neglected diseases that received less than \$10m each of R&D funding: trachoma, Buruli ulcer and rheumatic fever
\$527.2 MILLION	The contribution of the pharmaceutical industry towards neglected disease R&D
-20%	The cut in funding by rich governments other than the US since the financial crisis
9.4%	The percentage increase in neglected disease R&D funding from the philanthropic sector
-20%	The largest drop yet in funding for product development partnerships



Global Funding of Innovation
for Neglected Diseases

Policy Cures is an independent not-for-profit group providing research, information, decision-making tools and strategic analysis for those involved in the creation of new pharmaceuticals for neglected diseases such as malaria, TB, sleeping sickness and helminth infections. Our focus is on providing governments, funders and civil society organisations with the information they need to make optimal research and development (R&D) policy and funding decisions for diseases of the developing world. More information available at www.policycures.org

Executive summary of the G-FINDER report

FINDINGS

In 2012, reported funding for neglected disease R&D was \$3,165m (\$3,475m in unadjusted 2012 US\$). Funding increased slightly compared to 2011, with repeat survey participants – year-on-year (YOY) funders – increasing their investment by \$92.1m (up 3.2%). An additional \$183.9m was reported by organisations that have participated in some, but not all, years of the survey (irregular participants).

DISEASE FINDINGS AND TRENDS

As in previous years, the three ‘top tier’ diseases – HIV/AIDS, malaria and tuberculosis (TB) – received the vast majority of global neglected disease R&D funding. However, investment in the top tier diseases overall continued to drop, while funding for the second and third tier diseases increased, resulting in further rebalancing between the three groups.

Indeed, YOY funding for TB continued to drop at a similar rate as last year (down \$32.5m, -6.5%) while malaria joined this downward trend after seeing a modest increase in 2011 (down \$22.3m, -4.2%). HIV/AIDS was the only top tier disease that saw an increase in YOY funding (up \$37.8m, 3.8%), which was also the first time the disease saw a rise in investment since 2008. Increased investment in ‘second tier’ diseases – dengue, diarrhoeal diseases, kinetoplastids, bacterial pneumonia & meningitis, helminth infections and salmonella infections – mainly came from a YOY rise in dengue funding (up \$17.7m, 7.9%).

This is a positive change compared to recent years, as global investment in neglected disease R&D had been declining since 2009. All key funding sectors contributed to this YOY increase, with philanthropic funding rising by \$51.9m (up 9.4%), public funding by \$27.8m (up 1.5%) and industry investment by \$12.4m (up 2.5%).

Investments in the remaining second tier diseases were mixed, with small increases seen for salmonella infections (up \$6.7m, 16.5%) and helminth infections (up \$5.1m, 7.4%), and a cut for bacterial pneumonia & meningitis (down \$2.2m, -2.4%). Funding for diarrhoeal diseases (up \$1.0m, 0.7%) and kinetoplastids (down \$1.0m, -0.9%) was essentially steady. As in previous years, the ‘third tier’ diseases – leprosy, trachoma, Buruli ulcer and rheumatic fever – each received less than 0.5% of global R&D funding.

Funding for platform technologies – adjuvants and immunomodulators, general diagnostic platforms, and delivery technologies and devices – increased notably in 2012, in particular for adjuvants and immunomodulators (up \$19.1m, 371%). Core funding – investments that are not earmarked and are given to organisations working on multiple neglected diseases – also rose (up \$20.6m, 26.5%), predominantly due to an increase in funding to the University of Oxford for its overseas research partnerships.

Total R&D funding by disease 2007-2012[#]

Disease or R&D area	US\$ (millions) [*]							Percentage of total (%)					
	2007	2008	2009	2010	2011	2012	2012 nominal [*]	2007	2008	2009	2010	2011	2012
HIV/AIDS	1,083	1,165	1,139	1,073	1,029	1,064	1,169	42.3	39.4	35.9	35.0	33.8	33.6
Malaria	468.4	541.7	593.9	547.0	558.8	542.5	587.1	18.3	18.3	18.7	17.9	18.4	17.1
Tuberculosis	410.4	445.9	550.9	575.4	525.8	502.1	564.2	16.0	15.1	17.4	18.8	17.3	15.9
Dengue	82.0	126.8	165.8	177.6	229.0	248.9	275.1	3.2	4.3	5.2	5.8	7.5	7.9
Diarrhoeal diseases	113.9	132.2	180.4	158.9	152.2	152.2	166.9	4.4	4.5	5.7	5.2	5.0	4.8
Kinetoplastids	125.1	139.2	162.3	147.9	131.7	136.3	148.1	4.9	4.7	5.1	4.8	4.3	4.3
Bacterial pneumonia & meningitis	32.5	90.8	69.0	92.9	96.6	99.2	108.9	1.3	3.1	2.2	3.0	3.2	3.1
Helminths (worms & flukes)	51.6	66.8	79.4	73.7	81.1	84.4	92.4	2.0	2.3	2.5	2.4	2.7	2.7
Salmonella infections	9.1	39.5	39.4	44.0	44.4	52.6	57.1	0.4	1.3	1.2	1.4	1.5	1.7
Leprosy	5.6	9.8	11.0	8.8	7.4	13.1	14.9	0.2	0.3	0.3	0.3	0.2	0.4
Trachoma	1.7	2.1	1.8	4.5	9.6	8.7	9.5	0.1	0.1	0.1	0.1	0.3	0.3
Buruli ulcer	2.4	2.0	1.8	5.5	5.8	6.1	6.6	0.1	0.1	0.1	0.2	0.2	0.2
Rheumatic fever	1.7	2.2	3.0	1.7	0.8	0.9	1.0	0.1	0.1	0.1	0.1	0.0	0.0
Platform technologies	10.0	16.3	22.1	27.4	17.2	43.8	48.9	0.4	0.6	0.7	0.9	0.6	1.4
Adjuvants and immunomodulators	2.7	2.2	5.6	9.2	5.1	24.4	27.0	0.1	0.1	0.2	0.3	0.2	0.8
General diagnostic platforms	4.8	5.3	8.6	9.4	10.3	15.4	17.1	0.2	0.2	0.3	0.3	0.3	0.5
Delivery technologies and devices	2.5	8.8	7.9	8.8	1.7	4.0	4.8	0.1	0.3	0.2	0.3	0.1	0.1
Core funding of a multi-disease R&D organisation	110.9	101.1	74.1	76.9	91.3	109.6	113.6	4.3	3.4	2.3	2.5	3.0	3.5
Unspecified disease	51.6	74.7	75.7	47.5	64.7	100.3	111.6	2.0	2.5	2.4	1.6	2.1	3.2
Disease total	2,560	2,956	3,169	3,063	3,045	3,165	3,475	100.0	100.0	100.0	100.0	100.0	100.0

[^] Figures are adjusted for inflation and reported in 2007 US dollars

^{*} Figures are in current (2012) US dollars

[#] Please note that some of the diseases listed above are actually groups of diseases, such as the diarrhoeal illnesses and helminth infections. This reflects common practice and also the shared nature of research in some areas. For example, *Streptococcus pneumoniae* R&D is often targeted at both pneumonia and meningitis

FUNDERS

The public sector continued to play a key role in neglected disease R&D, providing almost two-thirds of global funding (\$2.0bn, 63.2%), predominantly from high-income country (HIC) governments (\$1.9bn, or 95.9% of public sector funding). The philanthropic sector contributed \$631.0m (19.9%) while industry invested \$527.2m (16.7%).

In line with previous years, the top 3 public funders were the US, the UK and the European Commission (EC). Of these, the US was the only public funder to increase investment in neglected disease R&D (up \$86.3m, 6.4%), reversing the 2010 and 2011 trend of funding cuts. UK public funding continued to drop (down \$36.3m, -28.1%), largely due to uneven disbursement of UK Department for International Development (DFID) funding. The EC also dropped its funding by \$12.1m (-11.5%). There were also decreases from a

number of other European governments including the Netherlands (down \$11.1m, -47.9%) and France (down \$6.1m, -10.3%). On the other hand, several countries increased their funding, such as Germany (albeit from a very low base) and Canada (partially due to better reporting).

Philanthropic funding increased again, mostly due to a \$53.0m rise (up 56.0%) in funding from the Wellcome Trust. Investment from the Bill & Melinda Gates Foundation, which was by far the largest philanthropic funder in 2012, remained stable (down \$3.8m, -0.8%). Multinational pharmaceutical companies (MNCs) were solely responsible for the small rise in industry investment, increasing funding by \$17.4m (up 3.7%), whereas investment from small pharmaceutical and biotechnology firms (SMEs) continued to drop (down \$5.0m, -23.1%).

Top neglected disease funders 2012

Funder	US\$ (millions) [^]						Percentage of total (%)					
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
US NIH	1,065	1,079	1,256	1,212	1,184	1,278	41.6	36.5	39.6	39.6	38.9	40.4
Aggregate industry	231.9	365.3	411.3	503.5	525.1	527.2	9.1	12.4	13.0	16.4	17.2	16.7
Gates Foundation	452.1	617.0	557.5	455.8	447.9	444.1	17.7	20.9	17.6	14.9	14.7	14.0
Wellcome Trust	60.0	60.9	65.1	80.5	94.8	147.8	2.3	2.1	2.1	2.6	3.1	4.7
European Commission	121.4	129.9	118.3	92.5	105.2	93.1	4.7	4.4	3.7	3.0	3.5	2.9
USAID	80.6	83.8	84.5	86.0	81.4	82.2	3.1	2.8	2.7	2.8	2.7	2.6
US DOD	86.9	72.5	98.2	69.9	75.4	74.8	3.4	2.5	3.1	2.3	2.5	2.4
UK MRC	51.7	52.8	51.7	60.9	53.7	47.7	2.0	1.8	1.6	2.0	1.8	1.5
UK DFID	47.6	43.3	84.4	97.2	75.7	45.4	1.9	1.5	2.7	3.2	2.5	1.4
Inserm	1.8	3.1	27.2	20.2	37.4	39.9	0.1	0.1	0.9	0.7	1.2	1.3
Australian NHMRC	15.5	18.7	20.2	19.5	26.8	29.4	0.6	0.6	0.6	0.6	0.9	0.9
Institut Pasteur	31.6	26.5	26.5	45.2	31.2	22.3	1.2	0.9	0.8	1.5	1.0	0.7
Subtotal top 12 funders*	2,287	2,577	2,808	2,743	2,739	2,832	89.3	87.2	88.6	89.6	89.9	89.5
Total R&D funding	2,560	2,956	3,169	3,063	3,045	3,165	100.0	100.0	100.0	100.0	100.0	100.0

[^] Figures are adjusted for inflation and reported in 2007 US dollars

* Subtotals for 2007–2011 top 12 reflect the top funders for those respective years, not the top 12 for 2012

FUNDING FLOWS

Just under three-quarters of 2012 R&D funding was in the form of external grants (72.2% or \$2,285m), while intramural funding (self-funding) by public research institutions and private companies accounted for the rest (\$879.8m, 27.8%). The slight increase in overall neglected disease R&D investment was reflected in a rise in both external funding (up \$70.2m, 3.4%) and self-funding (up \$21.8m, 2.7%).

YOY funding to product development partnerships (PDPs) has been declining since 2009, but this year saw its largest cut so far (down \$87.4m, -20.0%). This means that only \$376.1m (16.5%) of

the grant pie went to PDPs, down from a fifth in 2011. The funding cuts partially reflect uneven disbursement of multi-year grants and the fact that the World Health Organization Special Programme for Research and Training in Tropical Diseases (WHO/TDR) ceased its neglected disease R&D activities (and had received \$30.6m in 2011). However, it also reveals more entrenched underlying trends, with over half of top YOY PDP funders either freezing or further decreasing their PDP investments in 2012.



DISCUSSION

Funding between disease tiers continued to rebalance

- While investment in the top tier diseases overall continued to drop, funding for the second and third tier diseases increased. Top tier funding accounted for 66.6% of global R&D funding for neglected diseases in 2012, down from 69.4% in 2011. Second tier diseases accounted for 24.4% (up from 24.1% in 2011) and third tier diseases for 0.9% (up from 0.8% in 2011)
- The drop in top tier investment was driven by funding cuts for both TB and malaria, while investment in HIV/AIDS increased for the first time since 2008. The funding increase

in second tier diseases was mainly due to additional industry investment, particularly in dengue

- Investment in non-disease specific fields also increased in 2012. The rise in platform technology investments (up \$25.6m, 153%) came from new funding from the US National Institutes of Health (NIH) for adjuvants and immunomodulators and increased interest from the Gates Foundation. Core-funding of multi-disease organisations was also up (by \$20.6m, 26.5%), mainly driven by additional funding going to the University of Oxford.

Increased US public funding masked a large drop in funding from other HICs

- A large increase in YOY US public funding (up \$86.3m, 6.4%), largely via the US NIH, masked a significant drop in neglected disease R&D investment from the remaining HIC governments. Non-US HIC public funding fell \$52.6m (-12.4%) in 2012, with 11 governments cutting or freezing funding. Since the global financial crisis, total annual investment from this group has fallen by 20% (\$90.6m, -19.6%) from its 2009 peak
- Funding from low- and middle-income countries (LMICs) increased by \$9.3m (up 30.8%), but LMICs still only accounted for 4.0% of public funding in 2012. LMIC funding

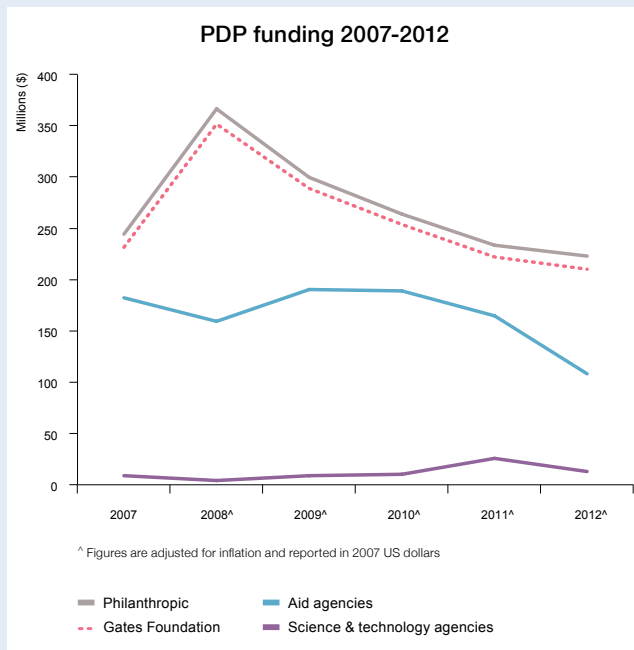
is usually directed towards domestic institutions, reflecting the dual LMIC objectives of balancing the advancement of science and development of new products, with generating and strengthening their domestic research capabilities

- As reported last year, the 2007-2011 period saw a large increase in basic research investment, while public funding for product development was flat. Unfortunately, public funding of product development has not picked up between 2011 and 2012, which could result in poor outcomes for some diseases that rely on investment from this sector.

Historically largest drop in PDP investment

- PDP funding saw its largest cut so far (down \$60.5m, -14.8% when excluding WHO/TDR), partially due to uneven

disbursement of multi-year grants, but also showing actual investment cuts from PDP funders



- Over the years, PDPs have diversified their funding sources from philanthropic organisations and aid agencies to recently include some science and technology agencies. However, investment from all three funding streams was down in 2012
- Other funding vehicles, such as the Global Health Investment Fund (GHIF) and investment in other intermediaries such as the European and Developing Countries Clinical Trials Partnership (EDCTP), may be seen as an alternative way to channel funding to PDPs or target industry directly.

Industry funding of least-commercial diseases may wane in absence of PDP involvement

- Industry funding was mainly targeted at semi-commercial diseases and those that have PDP involvement, such as dengue, malaria and TB. However, as funding to PDPs decreases, industry may direct its attention solely to semi-commercial diseases. Additional mechanisms to encourage industry funding of second and third tier diseases are therefore needed.

Download the full report at: <http://policycures.org/g-finder2013.html>



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