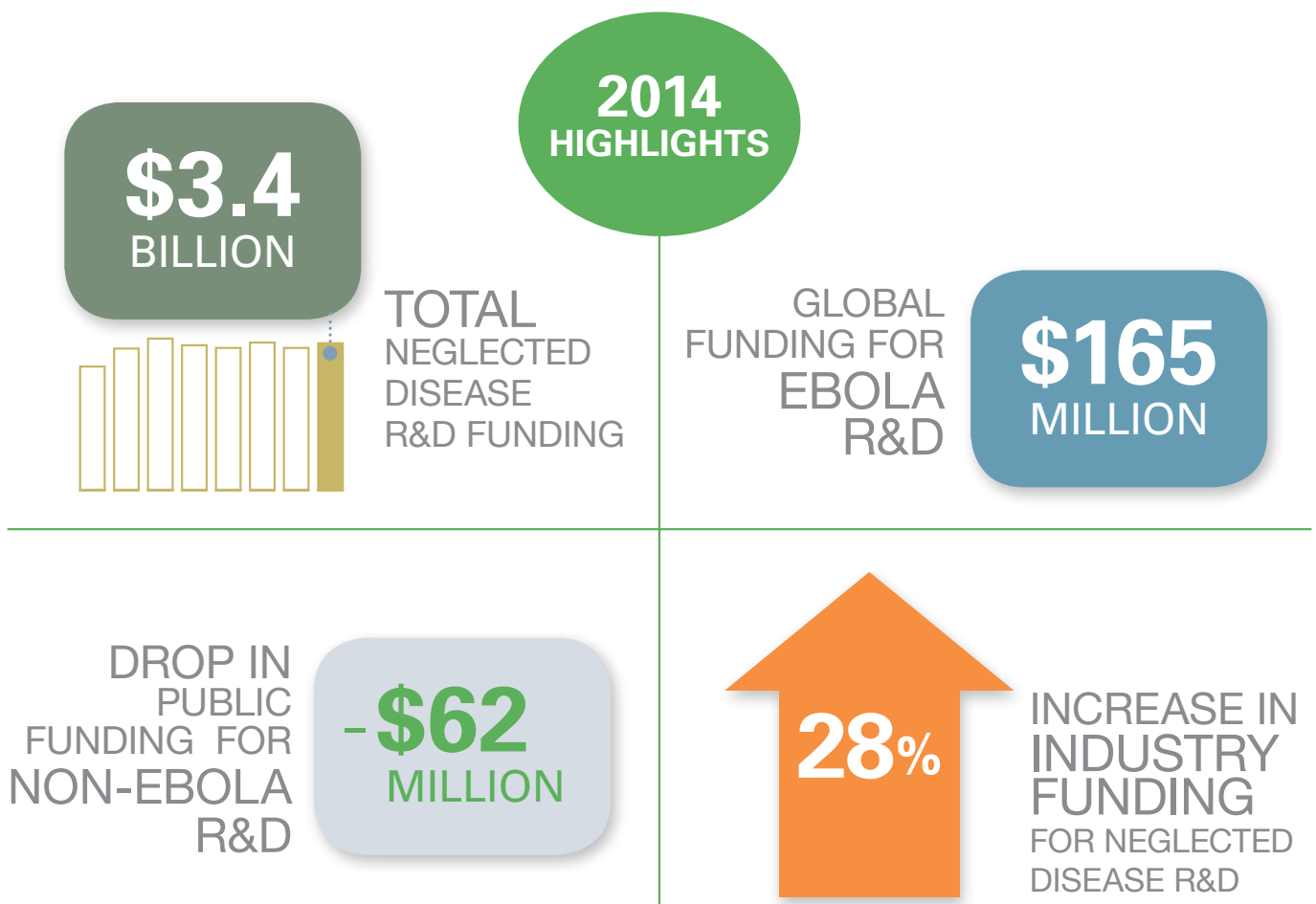




Global Funding of Innovation for Neglected Diseases: G-FINDER

The eighth G-FINDER survey reports on 2014 global investment into research and development (R&D) of new products for neglected diseases, and identifies trends and patterns across the eight years of global G-FINDER data. The survey covered:

- ▶ 35 neglected diseases (including 1 new disease: Ebola and additional hepatitis C genotypes 5 and 6)
- ▶ 142 product areas for these diseases, including drugs, vaccines, diagnostics, microbicides and vector control products
- ▶ Platform technologies (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.



Executive summary of the G-FINDER report

FINDINGS

In 2014, a reported \$3,377m was invested in neglected disease R&D, consisting of \$3,197m from repeat survey participants (called year-on-year – YOY – funders) and \$179m from irregular survey participants.

Total YOY funding for neglected disease R&D increased by \$150m (up 4.9%), but this was entirely the result of significant new investment in Ebola R&D in response to the 2014 West African Ebola epidemic. Without Ebola, YOY funding for neglected disease R&D would have been essentially unchanged from 2013 (down \$14m, -0.4%).

FUNDING BY DISEASE

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 (\$2,278m, 68%). Overall funding to the top tier rose in 2014, largely due to increased investment in malaria R&D (up \$56m, 11%). TB funding was also slightly higher (up \$13m, 2.3%), with funding for HIV/AIDS essentially flat (down \$5.6m, -0.5%).

The 'second tier' diseases include diarrhoeal diseases, kinetoplastids, helminth infections, dengue, bacterial pneumonia & meningitis, salmonella infections, hepatitis C (genotypes 4, 5 and 6), and Ebola, which was included in the survey for the first time. Funding for this tier increased by \$146m (up 23%) on the back of \$165m in new Ebola R&D investment, as well as increased funding for kinetoplastids (up \$16m, 14%) and dengue (up \$12m, 16%). This was enough to offset reduced funding for the remaining second tier diseases, with the most significant drops for diarrhoeal diseases (down \$18m, -9.4%) and bacterial pneumonia & meningitis (down \$15m, -20%), followed by salmonella infections (down \$6.1m, -11%), hepatitis C (down \$3.6m, -8.5%) and helminth infections (down \$3.3m, -3.8%). As in previous years, the 'third tier' diseases – leprosy, trachoma, cryptococcal meningitis, Buruli ulcer, leptospirosis and rheumatic fever – each received less than 0.5% of global R&D funding.

Funding for platform technologies halved in 2014 (down \$22m, -50%), and core funding – non-earmarked funds given to organisations working on multiple neglected diseases – also fell (down \$14m, -13%).

R&D funding by disease 2007-2014[^]

Disease or R&D area	US\$ (millions)								2014 % of total
	2007	2008	2009	2010	2011	2012	2013	2014	
HIV/AIDS	1,228	1,323	1,292	1,218	1,171	1,209	1,109	1,080	32.0
Malaria	521	611	670	606	624	609	562	610	18.1
Tuberculosis	463	504	622	645	593	569	586	589	17.4
Diarrhoeal diseases	130	151	205	181	173	173	204	180	5.3
Ebola								165	4.9
Kinetoplastids	139	157	183	165	147	152	126	149	4.4
Helminths (worms & flukes)	58.6	76.2	90.3	83.9	91.8	95.7	96.1	97.3	2.9
Dengue	52.4	54.2	82.9	70.7	81.3	82.6	77.3	87.4	2.6
Bacterial pneumonia & meningitis	36.1	103	77.6	106	110	113	107	80.8	2.4
Salmonella infections	10.3	44.8	44.7	49.7	49.9	59.2	66.8	67.5	2.0
Hepatitis C (genotypes 4, 5 & 6)							47.0	39.6	1.2
Leprosy	6.5	11.4	12.4	10.5	8.8	15.2	13.1	10.5	0.3
Trachoma	1.7	2.4	2.0	5.2	11.0	9.9	6.1	6.8	0.2
Cryptococcal meningitis							3.4	5.8	0.2
Buruli ulcer	2.7	2.2	2.0	6.2	6.5	6.9	7.3	4.1	0.1
Leptospirosis							0.4	1.4	<0.1
Rheumatic fever	2.0	2.6	3.5	2.1	1.0	1.0	0.9	1.4	<0.1
Platform technologies	11.2	18.1	25.2	31.2	19.4	50.5	44.6	23.0	0.7
<i>General diagnostic platforms</i>	5.7	5.9	9.9	10.8	11.6	17.6	17.2	10.2	0.3
<i>Adjuvants and immunomodulators</i>	3.3	2.6	6.4	10.4	5.9	27.9	21.3	8.4	0.2
<i>Delivery technologies and devices</i>	2.2	9.6	9.0	10.0	2.0	5.0	6.1	4.4	0.1
Core funding of a multi-disease R&D organisation	123	112	81.4	84.2	101	120	124	104	3.1
Unspecified disease	59.2	85.3	85.8	54.7	74.3	115	94.0	74.4	2.2
Disease total	2,844	3,258	3,480	3,320	3,265	3,383	3,273	3,377	100

[^] Please note that some of the diseases listed 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

■ New disease added to G-FINDER in 2013 or 2014

FUNDERS

The public sector continued to play a key role in neglected disease R&D, providing close to two-thirds of funding (\$2,165m, 64%), almost all of which came from high-income country (HIC) governments and multilaterals (\$2,101m, 97%). The philanthropic sector provided 20% (\$678m), and industry the remaining 16% (\$534m) – the largest-ever industry contribution in the history of the G-FINDER survey.

Although public funding for neglected disease R&D increased by \$55m in 2014 (up 2.7%), this was entirely the result of new Ebola R&D investment, with public funding for all other neglected diseases actually falling by \$62m overall (-3.1%). As in previous years, the top three public funders in 2014 were the US, the UK and the European Commission (EC), and once again the US contributed over two-thirds of global public R&D investment (\$1,529m, 71%). Ebola was the driver behind the increase in US public funding (up \$71m, 4.9%), while Australia was the only other country to significantly increase funding (up \$13m, 47%), reflecting the first disbursements under the country's new three-year funding commitment for product development partnerships (PDPs). Notable drops in public funding came from France (down \$15m, -17%) and India (down \$13m, -24%).

The biggest sectoral funding change came from industry (up \$98m, 28%) – essentially all from multinational pharmaceutical companies (MNCs). Unlike HIC public funders, this was not entirely due to Ebola – industry investment in non-Ebola neglected disease R&D also increased sharply (up \$64m, 18%), driven by MNC investments in malaria and HIV/AIDS. Philanthropic funding remained essentially unchanged (down \$3.2m, -0.5%), reflecting a cyclical funding drop from the Wellcome Trust (down \$8.8m, -6.4%) and slightly increased investment from the Bill & Melinda Gates Foundation (the Gates Foundation, up \$5.8m, 1.1%).

Top neglected disease R&D funders 2014

Funder	US\$ (millions)								2014 % of total	2007-2014 trend
	2007	2008	2009	2010	2011	2012	2013	2014		
US NIH	1,209	1,229	1,422	1,376	1,344	1,452	1,272	1,298	38	
Aggregate industry	239	363	396	453	424	407	406	534	16	
Gates Foundation	518	690	627	516	512	508	526	531	16	
Wellcome Trust	60	63	69	81	96	149	137	128	3.8	
European Commission	133	144	131	101	118	104	123	126	3.7	
US DOD	84	77	105	74	83	81	95	96	2.8	
UK DFID	48	45	90	98	76	46	74	81	2.4	
USAID	92	96	97	99	93	94	81	77	2.3	
Inserm	1.9	3.5	30	22	42	45	62	54	1.6	
UK MRC	52	55	55	62	54	48	51	50	1.5	
Indian ICMR		24	18	23	22	23	35	33	1.0	
Australian NHMRC	20	24	26	25	35	38	26	30	0.9	
Subtotal of top 12^	2,534	2,846	3,081	2,957	2,911	2,997	2,888	3,038	90	
Total R&D funding	2,844	3,258	3,480	3,320	3,265	3,383	3,273	3,377	100	

^ Subtotals for 2007–2013 top 12 reflect the top funders for those respective years, not the top 12 for 2014
 ■ Funding organisation did not participate in the survey for this year

FUNDING FLOWS

Close to three-quarters of all neglected disease R&D funding in 2014 was external investment in the form of grants (\$2,444m, 72%). Three-quarters of this funding went directly to researchers and developers (\$1,849, 76% of external investment), \$526m (22%) went to PDPs, and the remaining \$69m (2.8%) was channelled through other intermediary organisations. This meant that direct funding to researchers and developers was essentially unchanged (down \$23m, -1.3%), despite the addition of \$108m in new grant funding for Ebola R&D.

Funding to PDPs increased for the second year in a row (up \$42m, 9.1%), this time reflecting increased investment from the Gates Foundation. Funding to other intermediary organisations also rose (up \$6.7m, 12%).

Internal investment increased substantially in 2014 (up \$124m, 17%), primarily reflecting increased industry investment in malaria, Ebola and HIV/AIDS, as well as increased intramural R&D investment by the US National Institutes of Health (NIH).

DISCUSSION

The 2014 West African Ebola outbreak resulted in rapid mobilisation of significant R&D funding, led by the US Government

- A total of \$165m was invested in Ebola R&D in 2014, enough to make Ebola the fifth-highest funded of all the neglected diseases, behind only HIV/AIDS, malaria, TB and diarrhoeal diseases.
- Nearly three-quarters of all funding for Ebola R&D in 2014 came from the public sector (\$118m, 71%), and all of this from HIC governments. The US Government was by far the most significant funder, providing \$101m (86% of total public funding).
- The pharmaceutical industry investment of \$35m represented 21% of global Ebola funding, most of which was vaccine R&D investment by MNCs (\$33m, 93% of industry Ebola funding). The philanthropic sector provided a relatively modest contribution of \$12m (7.3% of global Ebola R&D funding).

Public funding of R&D for all other neglected diseases approached a historical low

- Public funding for non-Ebola neglected disease R&D fell by \$62m in 2014 (-3.1%), following a significant drop in 2013, primarily due to sequester-related funding cuts from the US Government.
- This meant that public funding for non-Ebola neglected disease R&D in 2014 was the lowest recorded since 2007, the first year of the G-FINDER survey.
- The US Government is the single largest funder of neglected disease R&D, and has also been the driver behind the decline in public funding. Compared to its peak in 2009, annual US Government funding for neglected disease R&D (excluding Ebola) was nearly a quarter of a billion dollars lower in 2014 (down \$221m, 13%).

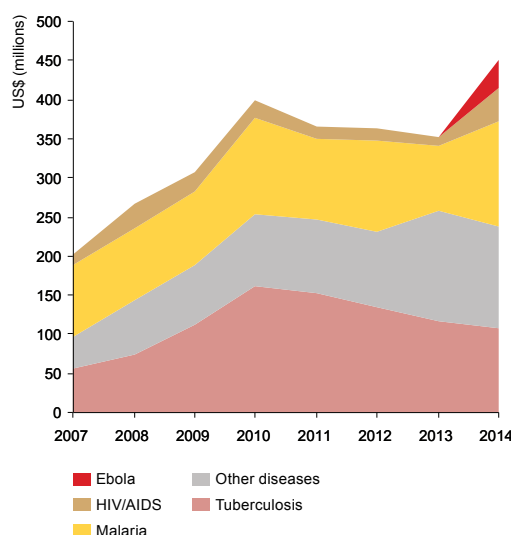
Industry funding increased for the first time in three years... and not only due to Ebola

- In 2014, industry reported its largest investment in neglected disease R&D in the history of the G-FINDER survey, with YOY industry funding increasing by more than a quarter (up \$98m, 28%).
- The increase was not only due to Ebola – even with Ebola excluded, industry investment still rose by \$64m (18%), largely due to increased investment in malaria – particularly for late-stage clinical trials of tafenoquine – and HIV/AIDS.
- However, industry investment in TB R&D continued to fall. TB accounted for less than a quarter (22%) of industry neglected disease R&D investment in 2014, compared to around 40% in 2010 and 2011, with YOY industry TB investment nearly a third lower than its 2010 peak (down \$55m, -34%).

Funding to PDPs increased for the second year in a row

- Funding to PDPs had been in consistent decline since 2008, before an increase in funding from European aid agencies in 2013, particularly the UK Department for International Development (DFID).
- In 2014, funding to PDPs increased again (up \$42m, 9.1%), but this time it was the Gates Foundation (up \$55m, 23%) behind the change. This was the first increase in Gates Foundation funding to PDPs since 2008, but still left its total PDP commitment a quarter lower than its 2008 peak (down \$96m, -25%).
- Overall public funding to PDPs in 2014 fell by \$13m (-5.9%), despite a \$17m increase in funding from aid agencies in Australia, the UK and Switzerland.

Industry investment in neglected disease R&D 2007-2014



Download the full report at: <http://policycures.org/g-finder2015.html>

