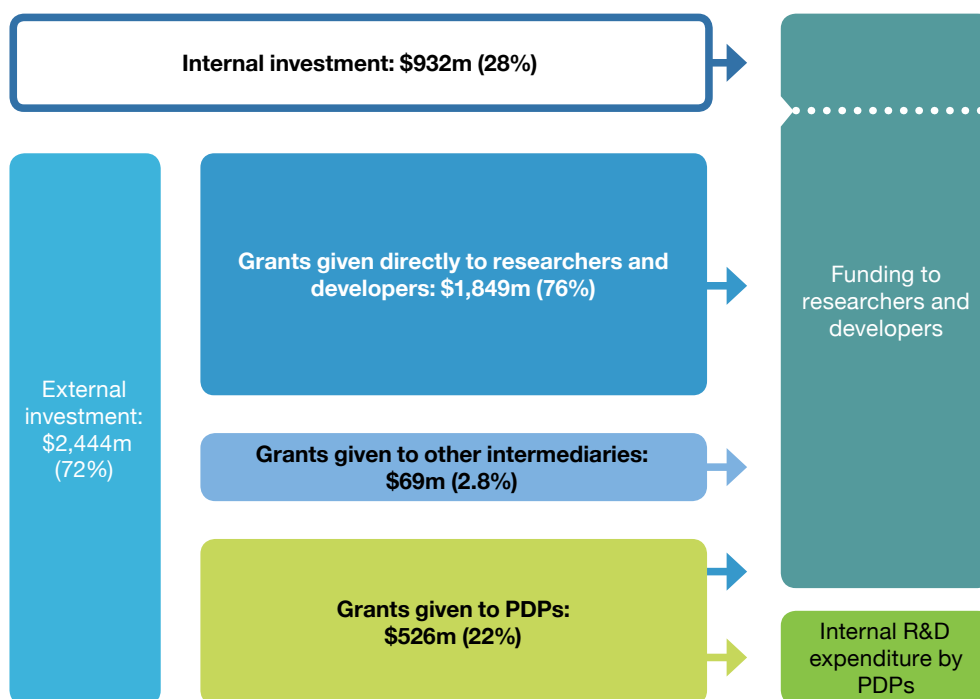


## FUNDING FLOWS

Organisations can invest in neglected disease R&D in two main ways: by funding their own in-house research (internal investment, also referred to as intramural or self-funding); or by giving grants to others (external investment). This external investment can either be given directly to researchers and developers, or it can be provided via PDPs<sup>v</sup> and other intermediaries. Some organisations invest only internally (for example, most pharmaceutical companies); others, such as the Wellcome Trust, only invest externally (i.e. they do not conduct R&D themselves). Other organisations, such as the US NIH and the Indian ICMR use a mixed model, providing external grants to others in addition to funding their own internal research programmes.

**Figure 22. R&D funding flows 2014**



A key point to note when analysing funding flows is that different types of funders generally invest in different types of recipients. Thus, science and technology (S&T) agencies are the main funders of researchers and developers (usually providing around three-quarters of their funding); while philanthropic and aid agency funders are the source of the vast majority of PDP funding (usually over 90%). In contrast, non-PDP intermediary organisations generally have a broad funding base, supported by S&T agencies and development agencies, as well as by philanthropic funders.

As a result, changes in S&T funding are more likely to affect researchers and developers; changes in philanthropic or aid agency funding are more likely to affect PDPs; and non-PDP intermediary organisations are least vulnerable to changes from one donor funding stream.

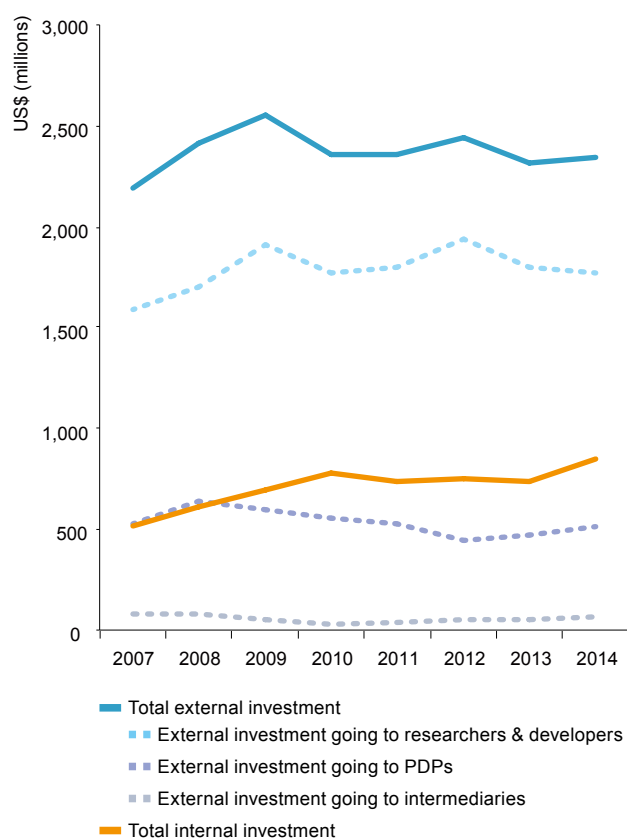
<sup>v</sup> PDPs are defined as public health driven, not-for-profit organisations that typically use private sector management practices to drive product development in conjunction with external partners. PDPs tend to focus on one or more neglected diseases and aim to develop products suitable for DC use. While their primary goal is the advancement of public health rather than commercial gain, they generally use industry practices in their R&D activities, for instance portfolio management and industrial project management. Additionally, many PDPs conduct global advocacy to raise awareness of their target neglected diseases

## FUNDING FLOW TRENDS

Grant funding accounts for the majority of all neglected disease R&D investments. Total external investment in 2014 was \$2,444m (72% of total funding). Of this, \$1,849m (76%) went directly to researchers and developers, \$526m (22%) went to PDPs, and the remaining \$69m (2.8%) was channelled through other intermediary organisations.

After a sizable drop the previous year, and despite the influx of new funds for Ebola R&D, YOY external investment in 2014 was essentially flat (up \$26m, 1.1%). YOY external investment in non-Ebola neglected disease R&D fell by \$81m (down 3.5%).

**Figure 23. R&D funding trends 2007-2014**



As usual, three-quarters of the \$1,849m in external investment given directly to researchers and developers came from S&T agencies (\$1,361m, 74%), with most of the remainder provided by philanthropic funders (\$362m, 20%). The total value of grants given to researchers and developers in 2014 remained relatively stable (down \$23m, -1.3%). This was despite \$108m in new Ebola grants to researchers and developers, primarily because of significantly reduced public funding to researchers and developers for HIV/AIDS (down \$60m, -8.8%), as well as overall philanthropic funding to researchers and developers (down \$59m, -14%), which largely reflected a return to normal funding levels from the Gates Foundation after several large disbursements in 2013.

More than 90% of the \$526m in external funding for PDPs in 2014 came from philanthropic funders (\$308m, 59%) and aid agencies (\$182m, 35%). The Gates Foundation's PDP funding increased for the first time since 2008 (up \$55m, 23%), and was the reason that overall PDP funding increased (up \$42m, 9.1%) even in the face of cuts from S&T agencies (down \$5.3m, -22%) and aid agencies (down \$4.4m, -2.4%). The slight drop in funding from aid agencies was in contrast to the \$34m increase (up 24%) seen the previous year.

Intermediary funding was more diverse: public funders contributed \$53m (77%), industry \$8.5m (12%), and the philanthropic sector \$7.4m (11%). More than half of public funding came from S&T agencies (\$30m, 57%), although a doubling of aid agency investment (to \$12m, 18% of public funding) was the driver behind the overall increase in YOY intermediary funding (up \$6.7m, 12%). The Japanese Government provided \$11m (15% of public funding) to the Global Health Innovative Technology Fund (GHIT Fund).

Internal investment (self-funding) in neglected disease R&D was \$932m in 2014, accounting for 28% of all funding. Just over half of this came from the pharmaceutical industry (\$516m, 55%), which almost invariably funds only its own internal R&D programmes – 97% of industry funding in 2014 was internal investment. Governments invested the remaining \$416m (45%) in their own institutes.

YOY internal investment increased substantially (up \$124m, 17%), primarily driven by increased industry investment (up \$98m, 28%) in malaria, Ebola and HIV/AIDS. The increase in internal investment by the public sector (up \$25m, 6.7%) was entirely from the US NIH, around half of which was for Ebola.

## PRODUCT DEVELOPMENT PARTNERSHIPS

PDPs received \$526m for neglected disease R&D in 2014. This represented 16% of total funding and over a fifth (22%) of all external investment.

The central role of PDPs is somewhat obscured by the “NIH factor”. The US NIH is by far the largest funder of neglected disease R&D, but allocated only a small portion (\$9.3m, 0.7%) of its funding to PDPs in 2014. If the US NIH is excluded, the role of PDPs in product development for neglected diseases becomes clearer, with PDPs collectively managing 38% of all remaining external investment for neglected disease R&D in 2014.

Three PDPs – PATH, Medicines for Malaria Venture (MMV) and Drugs for Neglected Diseases initiative (DNDi) – collectively received almost half of all funding given to PDPs (\$256m, 49%).

All of the major changes in funding for individual PDPs were related to the Gates Foundation. An increase in funding to PATH (up \$43m, 56%) was mainly due to increased investment from the Gates Foundation in PATH's next-generation malaria *P. falciparum* vaccines. Funding to DNDi grew by \$20m (up 57%), putting it in the top three for the first time, largely due to new Gates Foundation funding for sleeping sickness and lymphatic filariasis. The Gates Foundation was also behind the increase in funding to Aeras (up \$14m, 34%).

The Gates Foundation was also the main driver behind the reduced funding received by several other PDPs. This included the International AIDS Vaccine Initiative (IAVI), whose drop of \$19m (-32%) meant that it fell out of the top three PDPs for the first time, as well as the Innovative Vector Control Consortium (IVCC), down \$11m (-53%) after a substantial increase last year. Funding for CONRAD fell again (down \$8.6m, -33%), partially reflecting the end of the Phase III tenofovir gel FACTS 001 trial.

**Table 41. Funds received by PDPs 2007-2014**

PDPs	US\$ (millions)								2014 % of total
	2007	2008	2009	2010	2011	2012	2013	2014	
PATH	44	127	142	76	100	85	83	121	23
MMV	86	52	47	77	79	53	71	77	15
DNDi	31	25	36	37	40	35	38	58	11
TB Alliance	45	39	41	54	39	46	53	58	11
Aeras	45	73	60	44	44	40	41	55	11
IAVI	90	97	80	72	67	65	61	41	7.8
IPM	51	68	39	34	16	25	31	29	5.4
FIND	26	35	23	28	24	24	25	26	4.9
CONRAD	18	16	24	19	25	31	26	17	3.3
IDRI	9.3	16	19	13	23	11	5.9	14	2.7
IVCC	-	11	15	17	<0.1	10	23	10	2.0
IVI	15	2.4	13	10	5.7	8.2	9.5	6.4	1.2
Sabin Vaccine Institute	8.7	17	10	4.3	9.0	6.4	6.8	5.7	1.1
EVI	8.5	4.8	4.2	5.7	8.5	2.4	7.2	3.4	0.6
TBVI	-	-	0.1	4.6	4.2	5.5	6.1	1.5	0.3
FHI 360	14	19	19	19	12	5.9	4.5	0.2	<0.1
OWH <sup>A</sup>	31	33	17	23	11	7.2	-	-	-
WHO/TDR <sup>B</sup>	36	41	38	32	34	-	-	2.4	0.5
<b>Total funding to PDPs</b>	<b>559</b>	<b>675</b>	<b>627</b>	<b>569</b>	<b>541</b>	<b>461</b>	<b>493</b>	<b>526</b>	<b>100</b>

<sup>A</sup> As of 2013, OWH funding is included under PATH

<sup>B</sup> TDR's mission extends beyond product development, but it operated as a de facto PDP from the mid-1970s until 2012, when it decided to focus on implementation research and research capacity strengthening. Funds received in 2014 are related to the pooled fund demonstration projects

- No reported funding

## FUNDERS OF PDPs

Almost all PDP funding in 2014 came from philanthropic organisations (\$308m, 59%) and HIC governments (\$206m, 39%). Most HIC government funding was provided by aid agencies (\$182m, 88%) which accounted for 35% of total PDP funding. The three biggest funders of PDPs – the Gates Foundation (\$294m, 56%), UK DFID (\$79m, 15%) and USAID (\$57m, 11%) – collectively provided 82% of all PDP funding in 2014.

The biggest change came from the Gates Foundation, which increased its PDP funding by nearly a quarter (up \$55m, 23%) after several years of declining disbursements, reflecting the Foundation's new \$500m commitment to reduce the burden of NDs announced in late 2014.

The Australian Government gave \$9.0m to PDPs in 2014 (\$3.0m each to the TB Alliance, MMV and FIND), having provided no PDP funding at all in 2013. These funds were the first disbursements under the Australian Government's new PDP funding commitment, which will provide AU\$30m over three years for TB and malaria R&D. UK DFID (up \$5.6m, 7.6%), the Swiss Agency for Development and Cooperation (SDC) (up \$2.4m, 49%) and the German BMBF (up \$2.2m, 38%) also increased their PDP funding in 2014.

Despite these increases, YOY public funding for PDPs actually fell by \$10m (-4.8%) in 2014, with the biggest drops coming from Irish Aid (down \$6.7m, -72%) related to grant disbursement patterns, USAID (down \$5.4m, -8.6%), the EC (down \$5.3m, -84%) and the Dutch DGIS (down \$5.2m, -20%).

**Table 42. Top funders of PDPs 2014**

Funder	US\$ (millions)								2014 % of org's funds given to PDPs	
	2007	2008	2009	2010	2011	2012	2013	2014	% of 2014 total PDP funding	
Gates Foundation	266	390	326	290	260	246	239	294	55	56
UK DFID	34	29	82	98	76	46	74	79	98	15
USAID	77	77	79	78	76	75	62	57	74	11
Dutch DGIS	35	22	22	17	23	14	25	20	100	3.8
UNITAID			7			0.4	8.5	10	100	1.9
US NIH	4.7	3.8	8.6	2.9	21	8.0	11	9.3	0.7	1.8
Australian DFAT						9.5	-	9.0	100	1.7
German BMBF			-	-	1.4	6.9	5.7	7.9	40	1.5
Swiss SDC	2.5	2.5	2.7	5.0	3.9	3.6	4.8	7.2	95	1.4
MSF	7.9	8.0	5.1	5.2	5.5	6.4	6.6	5.3	100	1.0
Wellcome Trust	4.0	3.9	3.8	2.7	3.3	4.5	3.9	4.6	3.6	0.9
Norwegian NORAD	15	13	12	9.7	7.2	2.5	4.9	3.3	100	0.6
Subtotal top 12 funders of PDPs <sup>^</sup>	511	617	577	535	501	432	459	507		
Total PDP funding	559	675	627	569	541	461	493	526		
% of total PDP funding (top 12)	91	91	92	94	92	94	93	96		

<sup>^</sup> Subtotals for 2007–2013 top 12 reflect the top funders for those respective years, not the top 12 for 2014

- No reported funding

■ Funding organisation did not participate in the survey for this year. Any contributions listed are based on data reported by funding recipients so may be incomplete

## INTERMEDIARIES

An intermediary is an organisation that aims to accelerate neglected disease product development without having its own product portfolio. Intermediaries generally act as coordinating agencies, providing funding to researchers and developers either directly or via PDPs, although they may perform their own research (for example operational research, or research into existing treatment regimens) or be involved in clinical trials of novel products in development by others.

Intermediaries received \$69m in 2014, representing 2.0% of total neglected disease R&D funding and 2.8% of external investment. The largest intermediaries captured in G-FINDER in 2014 were the EDCTP (received \$26m), the GHIT Fund (received \$25m), the International Union Against Tuberculosis and Lung Disease (The Union, received \$9.2m) and the Barcelona Institute for Global Health (ISGlobal, received \$5.9m).

Five organisations provided 90% of all funding to intermediaries in 2014. By far the largest funder was the EC (\$26m, 38%) followed by the other four organisations at some distance (accounting for 11-15% of total intermediary funding each). As far as intermediaries go, USAID only funded The Union, to which it increased investment by \$4.2m (up 84%). Similarly, the Spanish Ministry of Foreign Affairs and Cooperation for Development (MAEC) only invested in ISGlobal, to which it increased funding by \$3.2m, after not having reported any funding to this organisation since 2012. The increase in industry funding (up \$4.6m, 118%) reflected industry contributions to the GHIT Fund. All Japanese government funding for intermediaries also went to the GHIT Fund.

The only funders to slightly reduce intermediary investment were the EC (down \$2.4m, -8.5%) and the Netherlands-African Partnership for Capacity Development and Clinical Interventions against Poverty related Diseases (NACCAP, down \$1.4m, -98%).

**Table 43. Top funders of intermediaries 2014**

Funder	US\$ (millions)								2014 % of org's funds given to intermediaries	
	2007	2008	2009	2010	2011	2012	2013	2014	% of 2014 total intermediary funding	% of 2014 total intermediary funding
European Commission	46	43	22	2	28	29	29	26	21	38
Japanese Government							11	11	100	15
USAID	<0.1	4.2	5.3	5.8	5.7	5.5	5.0	9.2	12	13
Aggregate industry	-	1.3	3.2	-	-	-	3.9	8.5	1.6	12
Gates Foundation	10.5	8.3	13.4	5.9	5.2	4.1	6.8	7.4	1.4	11
US NIH	-	1.0	3.4	3.1	1.3	2.1	1.8	3.5	0.3	5.0
Spanish MAEC	-	-	-	-	-	0.3	-	3.2	83	4.7
Carlos III Health Institute	4.5	4.5	-	1.5	1.3	-	-	0.2	6.6	0.3
German BMBF			-	1.3	0.2	0.0	0.2	0.2	0.8	0.2
NACCAP		4.9			0.1	1.0	1.4	<0.1	100	<0.1
Subtotal top 10 funders of intermediaries <sup>^</sup>	82	87	59	31	46	58	61	69		
Total funding to intermediaries	82	88	60	34	46	60	63	69		
% of total intermediary funding (top 10)	100	99	98	92	99	98	97	100		

<sup>^</sup> Subtotals for 2007–2013 top 10 reflect the top funders for those respective years, not the top 10 for 2014

- No reported funding

■ Funding organisation did not participate in the survey for this year. Any contributions listed are based on data reported by funding recipients so may be incomplete

More than three-quarters (77%) of funding given to intermediaries was not earmarked for specific diseases: \$28m was provided as core funding, and a further \$25m was allocated to multiple or unspecified diseases. This means that a large proportion of intermediary funding cannot be further allocated, and that some of the individual disease totals in this report slightly underrepresent the true amount of R&D funding these diseases receive. Of the intermediary funding that was disease-specific, \$9.2m was for TB, \$4.2m for malaria and \$2.4m for HIV/AIDS.

**Global Health Innovative Technology Fund (GHIT Fund)**

The GHIT Fund, established in Japan in 2013, is an innovative, non-profit, public-private fund designed to advance the development of new drugs, vaccines and diagnostics for HIV/AIDS, malaria, tuberculosis and neglected tropical diseases (although HIV/AIDS is not within the scope of current funding calls). The GHIT Fund was established as a joint initiative of the Japanese Government, a group of leading Japanese pharmaceutical companies, and the Gates Foundation.<sup>97</sup> In mid-2015, the Wellcome Trust joined as a funder, alongside several new commercial sponsors.<sup>98</sup>

The GHIT Fund invests in the development of new health technologies from the discovery stages through to clinical development, with the requirement that all projects beyond proof-of-concept stage have a co-funding strategy and the support of a commercial partner. All products must be affordable in LMICs on the basis of a no gain/no loss policy, and any patents deriving from GHIT-funded research must be made available to users operating in Least Developed Countries (LDCs) and LICs via royalty-free licenses.<sup>99</sup>

One of the major features of the fund, along with its public-private governance structure, is its focus on facilitating international R&D partnerships between Japanese and non-Japanese organisations, particularly through engaging PDPs. Because G-FINDER reports funding given to the GHIT Fund, onward funding to PDPs and other developers is not reflected in the G-FINDER analysis in order to prevent ‘double counting’ this investment. However, this obscures the significant contribution of the GHIT Fund (and the Japanese Government) as funders of PDPs; if onward funding were analysed instead, the GHIT Fund would have been the sixth largest funder of PDPs in 2014.

**Figure 24. GHIT Fund investments up to March 2015**

