

# EXECUTIVE SUMMARY

## The survey

The ninth G-FINDER survey reports on 2015 global investment into research and development (R&D) of new products for neglected diseases, and identifies trends and patterns across the nine years of global G-FINDER data. In all, 185 organisations completed the survey for FY2015, which covered:

- 39 neglected diseases
- 160 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.

In 2015, following a review by our Advisory Committee, the survey introduced the new grouped disease category of African viral haemorrhagic fevers (VHFs). In addition to Ebola, which was already part of the survey, this new category allowed respondents to report R&D funding for Marburg and Other and/or multiple African VHFs. The scope for *Streptococcus pneumoniae* vaccines was also revised to better reflect current approaches to developing pneumococcal vaccines for low-resource settings.

## Findings

In 2015, a reported \$3,041m was invested in neglected disease R&D, consisting of \$2,906m from repeat survey participants (called year-on-year – YOY – funders) and \$135m from irregular survey participants. Total YOY funding for neglected disease R&D decreased by \$68m (-2.3%). This marked the third consecutive year of declining funding, which has also fallen in every year but one since 2009.

### FUNDING BY DISEASE

As in previous years, the ‘top tier’ diseases – HIV/AIDS, tuberculosis (TB) and malaria – collectively received the vast majority of global neglected disease R&D funding (\$2,144m, 71%). Overall funding to the top tier fell by \$71m (-3.3%). This was driven by decreased investment in both HIV/AIDS (down \$56m, -5.4%) and malaria (down \$17m, -3.0%), although this followed a sharp increase in malaria funding in 2014. TB funding remained essentially flat (up \$2.4m, 0.5%).

‘Second tier’ diseases include diarrhoeal diseases, kinetoplastids, dengue, bacterial pneumonia & meningitis, helminths, salmonella infections and hepatitis C (genotypes 4, 5 & 6). Funding for this tier fell by \$38m (-5.9%), with lower funding for kinetoplastids (down \$21m, -18%), diarrhoeal diseases (down \$18m, -11%), hepatitis C (down \$11m, -25%) and helminths (down \$10m, -13%) partially offset by smaller increases for dengue (up \$12m, 14%), bacterial pneumonia & meningitis (up \$8.7m, 12%) and salmonella infections (up \$2.0m, 3.2%). As in previous years, the ‘third tier’ diseases – leprosy, cryptococcal meningitis, trachoma, rheumatic fever, Buruli ulcer and leptospirosis – each received less than 0.5% of global R&D funding.

Global funding  
for neglected  
disease R&D  
continued to fall  
in 2015

## Industry investment in neglected disease R&D in 2015 was the highest ever recorded in the G-FINDER survey

Non-disease-specific investment increased to \$228m in 2015, with YOY funding increasing by \$43m (up 25%), following a sharp drop in 2014. Most of this increase was due to a jump in core funding – non-earmarked funds given to organisations working on multiple neglected diseases – which grew by \$32m (up 38%) to \$118m, the highest level recorded since the start of the survey. Funding for platform technologies increased by \$11m (up 51%), which was essentially a return towards normal levels after a large drop in 2014.

### FUNDERS

Public sector funding for neglected disease R&D fell once again in 2015 – extending the decline seen since 2012 – while industry investment edged slightly higher, following a significant increase in 2014. Coupled with a small drop in philanthropic funding, these changes resulted in both the lowest public sector funding share and the highest industry funding share ever recorded in the history of the G-FINDER survey.

Nevertheless, the public sector continued to play a key role in neglected disease R&D, providing close to two-thirds of funding (\$1,925m, 63%), almost all of which came from high-income country (HIC) governments and multilaterals (\$1,866m, 97%). The philanthropic sector provided 21% of global funding (\$645m), and industry contributed the remaining 15% (\$471m).

In line with previous years, the top three public funders in 2015 were the US, the European Union (EU) and the UK, with the US contributing over two-thirds of total public R&D investment (\$1,378m, 72%). Of the top three funders, only the EU (up \$21m, 20%) significantly increased funding in 2015, reflecting its expanded contributions under the second phase of the European and Developing Countries Clinical Trials Partnership (EDCTP). Funding was lower from both the US (down \$44m, -3.0%) and the UK (down \$22m, -18%). Other notable drops in public funding came from Australia (down \$16m, -47%) and the Netherlands (down \$13m, -76%), the latter due to the Dutch Ministry of Foreign Affairs' (DGIS) transition between product development partnership (PDP) funding rounds.

Private sector investment in neglected disease R&D in 2015 – in both absolute terms, and as a proportion of global funding – was the highest ever recorded in the history of the G-FINDER survey. YOY industry funding increased marginally (up \$7.1m, 1.7%), driven by a \$4.7m increase in investment by small pharmaceutical and biotechnology firms (SMEs, up 9.9%), which was mostly for bacterial pneumonia & meningitis and diarrhoeal diseases. Philanthropic funding decreased slightly (down \$22m, -3.5%) mainly due to reduced funding from the Wellcome Trust (down \$27m, -22%). Funding from the Bill & Melinda Gates Foundation (the Gates Foundation) was steady (down \$2.3m, -0.4%).

### FUNDING FLOWS

Almost three-quarters of all neglected disease R&D funding in 2015 was external investment in the form of grants (\$2,202m, 72%). Three-quarters of this funding went directly to researchers and developers (\$1,656, 75% of external investment), \$450m (20%) went to PDPs, and the remaining \$96m (4.3%) was channelled through other intermediary organisations.

This meant that direct YOY funding to researchers and developers decreased slightly (down \$38m, -2.3%). Funding to PDPs also fell (down \$65m, -13%) after two years of increased investment, reflecting the highly cyclical nature of grant funding to PDPs, especially from the Gates Foundation. Funding to other intermediary organisations increased substantially (up \$31m, 50%), primarily driven by increased funding from S&T agencies (up \$22m, 83%) to EDCTP2.

Internal investment continued its slow and steady growth (up \$3.8m, 0.5%), largely reflecting the ongoing increase in industry investment in neglected disease R&D.

### Ebola and other African VHFs

In light of the unprecedented nature of the global response to the Ebola threat – and its distorting effect on investments in ‘traditional’ neglected disease R&D – funding for Ebola and other African VHFs (for both 2014 and 2015) has been analysed separately in this year’s G-FINDER report. Because only Ebola was included in both the FY2014 and FY2015 surveys, analysis of YOY funding changes has been restricted to Ebola-specific investment.

A total of \$631m was invested in R&D for Ebola and other African VHFs in 2015, of which the vast majority was Ebola-specific (\$574m, 91%). YOY funding for Ebola R&D more than tripled (up \$411m, 258%) – an unprecedented increase compared to any of the neglected diseases traditionally tracked by G-FINDER. Ebola vaccines received the majority of this funding (\$370m, 65%) and also saw the highest YOY increase (up \$301m, 436%), driven by industry investment.

Although nearly two-thirds (\$383m, 61%) of total reported funding for Ebola and other African VHFs came from the public sector, a remarkable 36% (\$226m) was contributed by industry, essentially all of which was MNC investment in Ebola vaccine development. This was a major increase in industry funding share compared to 2014, as a near-tripling of YOY Ebola investment by the public sector (up \$210m, 182%) was matched by a seven-fold increase by industry (up \$194m, 614%).

US Government agencies were responsible for more than three-quarters (\$298m, 78%) of all public funding for Ebola and other African VHFs in 2015, and were the primary driver behind the overall increase in public investment in Ebola, with the largest increases coming from the US Biomedical Advanced Research and Development Authority (BARDA, up \$78m, 297%) and the US Department of Defense (DOD, up \$46m, 423%), followed by the US National Institutes of Health (NIH, up \$20m, 32%). However, there was also a more than five-fold increase in European public funding for Ebola (up \$63m, 452%), primarily driven by increases from the European Union (EU, up \$40m, 900%) and the UK Medical Research Council (MRC, up \$18m from zero in 2014). Philanthropic funding for Ebola and other African VHFs was relatively low (\$22m, 3.4%).

Due to the high level of industry involvement, internal R&D investments represented a much larger share of total funding for Ebola and other African VHFs (54%) than was the case for other neglected diseases (28%). Almost all external (grant or contract) funding was given directly to researchers and developers (including industry), rather than being channelled through intermediary organisations; PDPs received a single grant, and there was no funding to other intermediaries specifically earmarked for Ebola and other African VHFs.

## DISCUSSION

### The scale and nature of the global R&D funding response to the West African Ebola outbreak is now truly apparent

- In 2015, a total of \$631m was invested in R&D for Ebola and other African VHFs – more than in any neglected disease except for HIV/AIDS.
- The US Government provided 78% of all public funding Ebola and other African VHFs, despite a more than five-fold increase in Ebola R&D investment by European public funders.
- Industry invested \$226m in R&D for Ebola and other African VHFs in 2015, far more than they did in any single neglected disease, and more than their combined investment in all neglected diseases other than malaria and TB.

### Global funding for neglected disease R&D reached historic lows in 2015, driven by declining public sector investment

- In contrast to Ebola and other African VHFs, funding for neglected disease R&D in 2015 fell to its lowest level since 2007, with YOY global funding now \$180m below its 2012 peak.
- Public sector funding for neglected disease R&D also fell to its lowest level since 2007, driven by another drop in US Government funding (down \$44m, -3.0%), which fell to the lowest level ever recorded in the history of the G-FINDER survey.
- Increased funding from the EU (up \$21m, 20%) made it the second-largest public funder of neglected disease R&D globally in 2015, moving ahead of the UK (down \$22m, -18%).

### In sharp contrast to the public sector, industry investment in neglected disease R&D reached historical highs

- 2015 was the fourth year in a row that industry has increased its investment in neglected disease R&D – the only sector to have recorded year-on-year growth for such a stretch.
- Industry's share of global funding is now comparable to that of the Gates Foundation, although this level of investment in neglected disease R&D by industry may be put at risk if public funding continues to fall.
- Industry funding was focused on a subset of neglected diseases, with malaria and TB alone accounting for more than half of all industry investment in neglected disease R&D in 2015.

### The highly concentrated nature of neglected disease R&D funding remains an area of concern

- Researchers and developers continue to rely upon a small number of large funders, particularly the US Government (the US NIH especially) and the Gates Foundation.
- 40% of all neglected disease R&D funding goes to organisations that receive more than 80% of their funding from the US Government, which has reduced its funding for neglected disease R&D by a quarter of a billion dollars since 2012.
- PDPs remain highly reliant on the Gates Foundation; in 2015, nearly half of all PDPs received more than half their funding from the Gates Foundation.

## Conclusion

- The findings of this year's report show that there are significant additional financial resources available – including from the pharmaceutical industry – for R&D into infectious diseases that largely exist only in the developing world.
- When funding for Ebola and other African VHFs is added to that for neglected diseases, global investment in R&D increased by \$396m (up 13%) in 2015 – the largest single year increase ever recorded by G-FINDER – with public funding growing by \$210m (up 10%) and investment by industry nearly doubling (up \$201m, 44%).
- There is an opportunity to capitalise on the lessons learned from the global response to the Ebola epidemic – not only to ensure that we are better prepared for the next emerging infectious disease outbreak, but also to secure adequate and sustainable R&D funding to address the existing and much larger challenge posed by neglected diseases.