

The Access to Medicine Index 2014





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Our clearest ever picture of the industry

In recent years, significant milestones for improving access to medicine have been achieved: including important new drugs for TB and hepatitis C, and a global drive to tackle neglected tropical diseases. For me, these developments show us how much we need the entrepreneurial power of pharmaceutical companies to address access to medicine. But while it is clear that companies have a role to play, there is still no sustainable model for ensuring the poorest patients have access to the medicine they need.

With this Index, we aim to provide companies with clear guidance, by reporting on what they and their peers are already doing well, and by showing where solutions are still needed. The methodology was refined with support from academics, NGOs, investors and governments, and the companies have been more transparent with their data and more open about their challenges than ever before. The result is our clearest ever picture of the industry's strengths, weaknesses, progress and struggles.

The industry continues to do more to address access to medicine. Leaders innovate constantly, while companies at the bottom of the Index continue to close the gap. It's clear that all companies address access issues in different ways – and that all companies can do more. There is still much to do. Yet, I see that companies are willing to learn from each other and to share their experiences. And that gives me confidence that we will continue to see progress in the years to come.

Sincerely,



Wim Leereveld

Founder and CEO
Access to Medicine Foundation



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At a glance

The Access to Medicine Index 2014

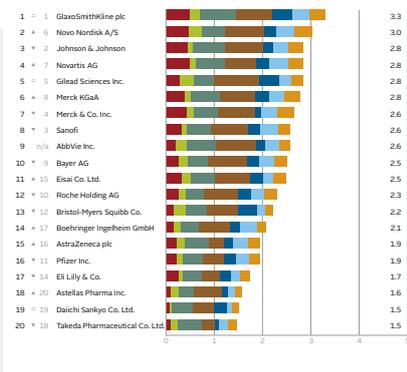


About this report

The fourth Access to Medicine Index report provides a finely detailed picture of how the world's 20 largest research-based pharmaceutical companies address access to medicine. The Index reports on these companies' access-related policies and practices based on an analysis of 95 indicators, in relation to 106 countries and 47 diseases. These two pages provide an overview of the report's main sections, findings and analysis highlights, as well as signposts to where you can read more.

2014 Index ranking

The 2014 Index is led by pack of six companies with a clear No.1 and a newcomer in the top three. Overall scores are very close in this leading group, but their access approaches differ. Across all positions in the Index, no company excels at everything and several stand out in certain specific areas. >> p. 26



Key Findings

Companies do more to improve access, but progress is uneven
The industry is progressing on several fronts. Yet in two important areas, the industry remains static.

Five companies are developing more than half of pipeline products for developing countries

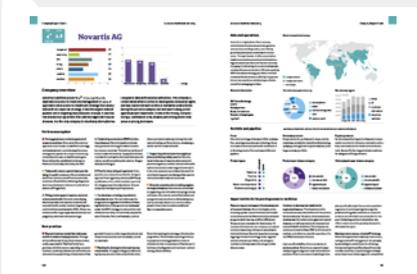
The top 20 pharmaceutical companies are developing 327 relevant products, with more than half targeting the same five diseases.

More than half of companies are developing medicines for children
7% of the overall pipeline is devoted to "child-size" medicines, such as liquids, chewable tablets or new formulations.

Pricing strategies are increasingly tailored
More companies are using commercial pricing strategies that also take socioeconomic factors into account. >> p. 21

20 company report cards

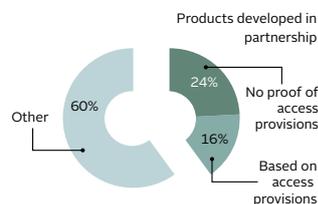
Each one summarises a company's performance in the 2014 Index, including strengths, weaknesses, best and innovative practices, and drivers behind ranking changes, as well as tailored opportunities for increasing access to medicine. >> p. 141



Innovation in all areas

In each of the seven areas of activity examined, the Index has found evidence of innovative practices, including new pilots and models, new platforms for R&D collaboration and new approaches to equitable pricing. >> p. 77

Almost half of all product development is collaborative



Pipeline and portfolio analysis

Companies are mainly developing and marketing products for a small group of diseases in scope. The same five diseases appear in both the top ten targeted by R&D pipelines and the top ten by marketed products. Several companies stand out but in different

ways, either for the size of their marketed portfolios or the size of their pipelines, while others have large ratios of clinical-stage products to products on the market. >> p. 32



Clickable Sections

The leaders

Companies have different access-related policies, practices and focuses, yet there are clear similarities in the approaches leaders take to improve access to medicine. The 2014 Index provides insights into what it takes to become and remain a leader in access to medicine. >> p. 29



Top insights per area

General Access to Medicine Management

Innovative business models

Six companies have innovative business models that aim to improve access to medicine for underserved populations. The Index has found 10 common factors that link them. >> p. 52



Public Policy & Market Influence

Behaviour vs. company size

The Index has mapped the relationship between company size (by revenue) and geographic reach, against the number of settlements or decisions relating to unethical behaviour. >> p. 62



Research & Development

R&D for high-burden diseases

There is evidence of sustained commitment to R&D for infectious diseases, with companies taking patients' needs into account. >> p. 72

Pricing, Manufacturing & Distribution

Analysing equitable pricing

For the first time, the 2014 Index has only captured pricing strategies that explicitly take societal needs and affordability into account, revealing greater diversity and greater involvement in equitable pricing. >> p. 87

Patents & Licensing

Licensing behaviour profiles

The Index has looked at companies with on-patent products, and addressed a series of questions aimed at revealing where they take a pro-access approach to IP management. >> p. 105

Capability Advancement

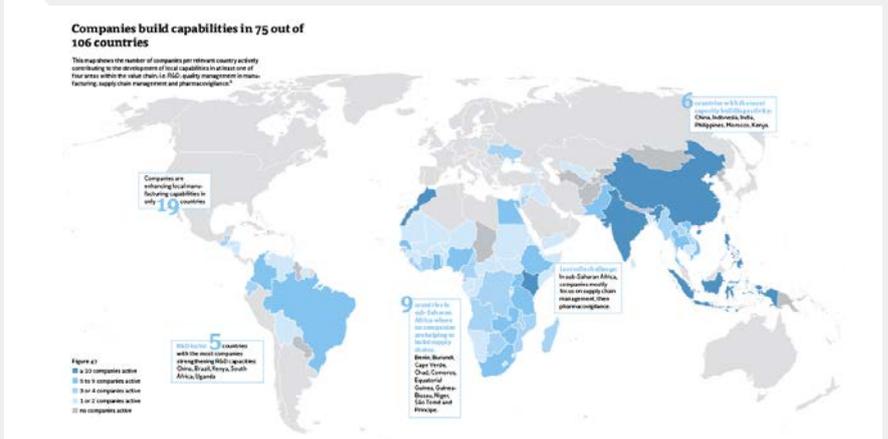
Building capabilities in 75 countries

More than two-thirds of companies are actively building local capabilities in at least one low income country. >> p. 116

Donations & Philanthropy

Timeline of donation programmes

15 companies are engaged in 28 donation programmes, several of which have been expanded or scaled-up during the past two years. >> p. 132



Executive Summary

Introduction

An estimated two billion people still do not have access to the health-related products they need. This access-to-medicine challenge is multifaceted and dependent on many stakeholders for solutions, including the largest pharmaceutical companies. As developers and manufacturers of life-saving products, they have a crucial role to play. They control unique products that can greatly alleviate the disease burden in developing countries; they have the expertise to meet the need for new and adapted innovative products; and they have the ability to strengthen supply chains and support healthcare infrastructures.

Every two years, the Access to Medicine Index analyses the top 20 research-based pharmaceutical companies and ranks them according to their efforts to improve access to medicine in developing countries. A total of 95 indicators make up a framework within which company performances relating to 47 high-burden diseases in 106 developing countries can be compared. The Index analysis brings out best practices and examples, highlights areas where progress has been made and areas where critical action is required. The Index also acts as a benchmark where companies can compare their own contributions to improving access to medicine with their peers. While companies are held to a single standard, they are different in the way they operate and in their portfolio of investigational and marketed products. The Index is a relative ranking: scores cannot be directly compared between Indices.

Refinements to the methodology have brought additional Latin American countries, including Brazil, into the Index's scope in 2014, as well as additional diseases, including mental health disorders and hepatitis C. The focus of the pricing analysis has shifted: it now only captures pricing strategies that explicitly take affordability into account. The 2014 Index also expanded its analysis of company breaches of codes of conduct or laws on ethical marketing, lobbying, corruption, bribery or anti-competitive behaviour to measure breaches worldwide.

This report outlines the key findings and overall ranking analysis of the 2014 Access to Medicine Index before presenting a detailed analysis of company performances and rankings in each of the seven areas of corporate activity the Index focuses on. The report concludes with detailed, tailored company report cards. These explain each company's rank in the Index by providing a contextualised analysis of company access-to-medicine performance, relevant product portfolio and pipeline, and by highlighting industry-leading practices and company-specific opportunities to improve access to medicine.

2014 Key Findings

- Companies are doing increasingly more to improve access to medicine in developing countries, with a raft of new initiatives, scale-ups and innovations over the last two years. Yet progress remains static in two important areas: Public Policy & Market Influence and Patents & Licensing.
- The top 20 pharmaceutical companies are developing 327 relevant products, with only five companies accounting for more than half the pipeline and more than half the products targeting only five diseases.
- More than half of the 20 Index companies are developing medicines tailored for children, with 7% of the overall research pipeline being devoted to "child-size" medicines.
- More companies are paying attention to socioeconomic factors such as people's ability to pay. Importantly, more are tailoring their prices to different segments of the population within countries.

The 2014 Index overall ranking

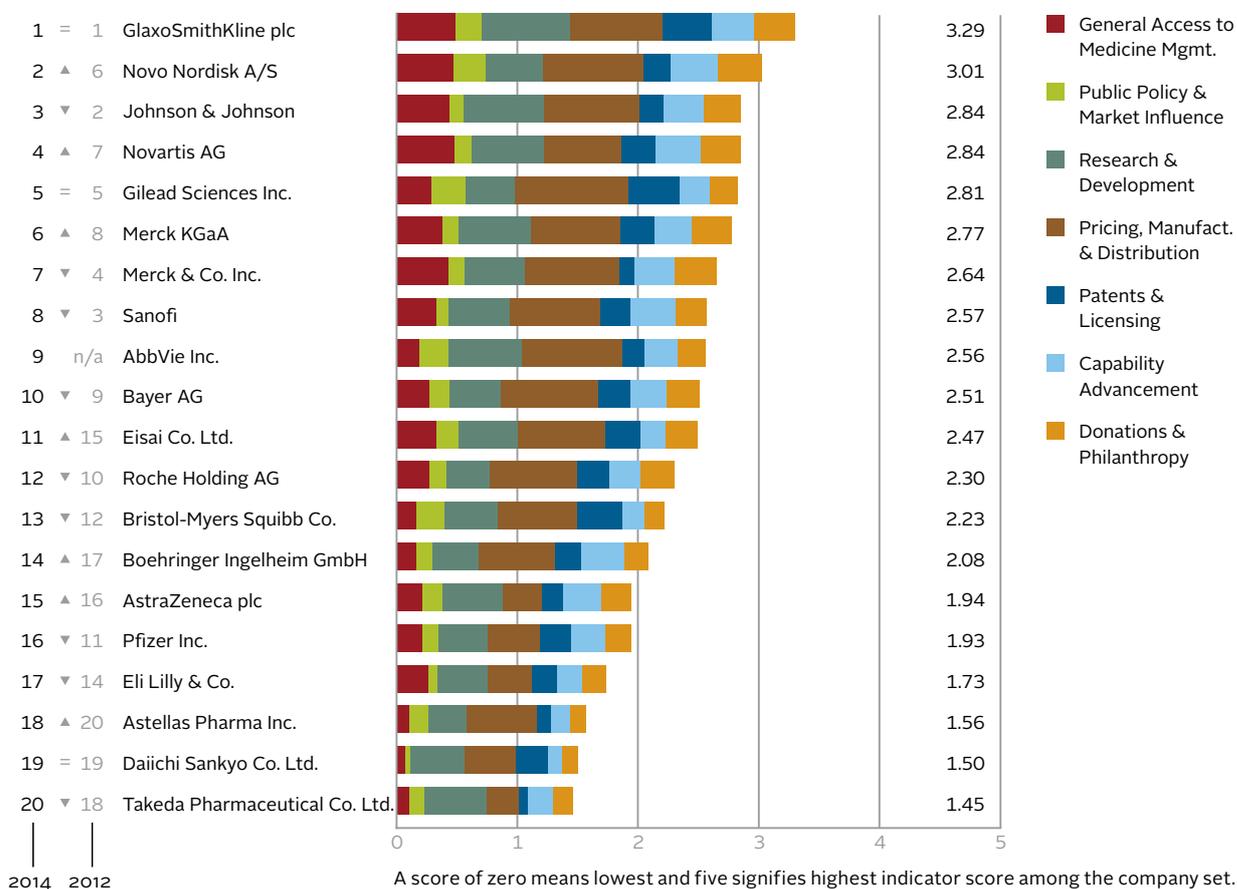
GSK leads the Index for the fourth time. It is followed closely by Novo Nordisk, which has made a remarkable leap from 6th place in the last Index. These are followed by a cluster of four companies – Johnson & Johnson, Novartis, Gilead and Merck KGaA – that have different access profiles but close overall scores. Other than Novo Nordisk, the biggest riser was Eisai. Sanofi and Pfizer fell down the rankings most significantly, while Astellas, Daiichi Sankyo and Takeda remain at the bottom of the league (albeit in a different order than in the 2012 Index).

Refinements to the Index methodology have made it possible to draw a much clearer picture of the industry’s strengths, weaknesses, progress and struggles. Evidence shows the industry is continuing to step up its efforts to improve access to medicine in developing countries. However, progress is not equal across all areas and companies, and there are some areas where the industry as a whole remains static. The leading companies continue to perform well across most of the seven Technical Areas covered by the Index. Most notably, companies at the bottom of the Index are narrowing the gap, with higher overall scores than in 2012.

No company excels at everything and several stand out in certain specific areas: for instance, Novartis has the largest pipeline of products for developing countries, Sanofi has the most products on the market and Johnson & Johnson dominates when it comes to developing child-friendly medicines.

Figure 1

The Access to Medicine Index 2014 – Overall Ranking



Marketed products & pipeline analysis

Companies are mainly developing and marketing products for a small group of diseases within the scope of the Index. More than 50% of the industry's relevant pipeline targets five diseases: lower respiratory infections, diabetes, cirrhosis of the liver (mostly for hepatitis), HIV/AIDS and malaria. The same five also appear in the top 10 diseases with the most products on the market. Just four companies (Sanofi, Novartis, GSK and Pfizer) account for 53% of all products on the market, while R&D pipelines differ hugely between companies, both in size and focus.

Non-communicable diseases and communicable diseases account for the largest shares of both marketed product portfolios and the clinical-stage pipeline. While there are many pipeline products for non-communicable diseases, companies are making limited efforts to ensure they are suitable for use by people living in developing countries. Least attention is being paid to maternal and neonatal health conditions, and most products for neglected tropical diseases are still in early stages of discovery.

During the period of analysis, 30 relevant products were approved by the EMA or US FDA. They target just 11 of the 47 conditions in scope, mostly diabetes and HIV/AIDS, and are almost evenly split between being new products and adapted versions of existing products.

Top findings per Technical Area

The Index measures company performance in seven main areas of corporate activity.

■ General Access to Medicine Management

- Access to medicine is more embedded in governance structures, with all companies now having established board-level representation for their access activities. This compares with 17 companies in 2010 and 19 in 2012.
- Companies use local stakeholder engagement to tailor access approaches to local needs and conditions.
- The number of business models addressing the needs of the poor is growing.

■ Public Policy & Market Influence

- Commitment to ethical behaviour does not correlate with performance. All have codes of conduct governing bribery and corruption, but 18 were the subject of settlements or fines for corrupt behaviour, unethical marketing or breaches of competition law.
- There is no simple correlation between a company's incidence of breaches and its size, which indicates that companies of all sizes can take measures to actively minimise the risk of breaches occurring.
- Four companies waive rights to data exclusivity, taking steps towards facilitating the entry of generic versions of their products.

■ Research & Development

- There is evidence of sustained commitment to R&D for relevant diseases, with most companies having an R&D strategy in place that explicitly takes patients in developing countries into account.
- R&D is mainly focused on five diseases, with 54% of products under development targeting lower respiratory infections, diabetes, hepatitis, HIV/AIDS and malaria.
- Consideration of access to compounds for non-communicable diseases is limited, with most companies struggling to demonstrate how new compounds targeting non-communicable diseases will be accessible to patients in countries covered by the Index. No company makes commitments to register such products in relevant countries.

- More companies provided strong evidence of having enforcement measures in place to ensure ethical clinical trial conduct for in-house and outsourced trails. This has increased from four in 2012 to 10.

■ Pricing, Manufacturing & Distribution

- Companies consider affordability in their pricing strategies for one-third of all relevant marketed products.
- More companies commit to or newly engage in equitable pricing, tailoring their prices to different population segments. Two companies have introduced equitable pricing between countries, but improvement in tailoring prices within countries is greater, with four companies newly implementing such schemes and three more committing to do so.
- On average, products are registered in only a few relevant countries, representing 17% of the Index's geographic scope and just 8% of low-income countries covered by the Index.

■ Patents & Licensing

- Companies remain conservative in their disclosure of where patents are active and when they will expire – information that is very useful to medicine procurers and generic medicine manufacturers. No company independently and publicly disclosed patent statuses for products relevant to the Index.
- Pro-access licensing agreements increase in number, with two more companies entering licensing agreements for products targeting relevant diseases, bringing the total to eight.
- The overwhelming majority of licenses are still for HIV/AIDS products, but there are early signs that some companies are taking steps to expand voluntary licensing to other diseases.
- Company support for pro-access intellectual property law is limited, but even the cautious company public stance is undermined by private lobbying against flexibilities in the TRIPS agreement.

■ Capability Advancement

- Most companies are building a range of local capacities, but their activities are often part of short-term collaborations.
- Smaller companies gain on larger peers in building local manufacturing capabilities. Since 2012, nine companies have increased efforts to build such capabilities locally. Of these, eight have annual revenues below USD25 billion.
- More companies are supporting local pharmacovigilance systems, with the number of companies involved more than doubling from eight in 2012 to 17.

■ Product Donations & Philanthropic Activity

- Neglected tropical diseases are the main focus of donations activities, with more than half of companies addressing one or more of these diseases via structured donation programmes.
- Philanthropic activities are becoming more needs-based.

Conclusion

The pharmaceutical industry is continuing to step up its efforts to improve access to medicine in developing countries. The number of relevant products in the pipeline has grown, companies are increasingly tailoring prices between countries and within countries, and more companies are experimenting with innovative access-oriented business models. Yet progress is uneven: companies remain conservative in their approach to patents, and all but two have been the subject of settlements or decisions relating to ethical marketing, bribery or corruption standards or competition laws in the last two years. Leaders innovate constantly and in multiple areas to maintain their top positions. Companies at the bottom continue to narrow the gap.

The access to medicine landscape

Access to medicine for people living in developing countries depends on a variety of complex factors, with many stakeholders playing different roles in the issue. While progress has been made in improving access to medicine, vaccines, diagnostic tests and other health technologies, an estimated two billion people who mostly live in developing countries, still do not have access to the health-related products they need.¹

Pharmaceutical industry plays a significant role

While the access to medicine challenge is multi-faceted and dependent on many stakeholders to address it jointly, the largest pharmaceutical companies have a crucial role to play. They have the expertise to develop and adapt innovative products, and to scale up their production. They also have several unique products on the market that can greatly help alleviate the burden of disease in developing countries, the ability to improve supply-and-demand challenges, and the collective power to make a difference with their assets.

Companies bear a significant responsibility in treading the fine balance between ensuring their products reach (and treat) as many people as possible, and ensuring profits to shareholders. Last century, this balance was more clearly cut: the multinationals served high income countries, where the profits were to be made. However, a geographical shift in emphasis on pharmaceutical spending is taking place: spending on drugs in North America, Europe and Japan will grow by no more than 1-4% annually until 2017. Spending in emerging markets, however, is due to jump by 10-13% a year over the same period.² Companies that know this are expanding their businesses and operations in emerging markets, and organising business units to suit the changing climate. In adapting to the newer role of serving emerging low-income and middle-income markets, companies come face-to-face with the challenge of adapting their businesses to suit these new environments. This inevitably means taking a more considered approach to affordability and to scale, and thus to developing more considered pricing strategies and more effective use of the capacity of generic medicine manufacturers though licensing.

Figure 2

Access to medicine depends on a number of factors:

Availability Ensuring that new products are developed or existing products are adapted for local use	Accessibility Ensuring that people can receive the product and understand how to use it
Affordability Ensuring that the patients, health-care providers and governments can afford the product	Quality/Acceptability Ensuring that the product works as intended, is efficacious and safe

Industry consolidation continues

The industry still shows signs of more consolidation, with some diversifying, specialising and strengthening their competitive advantage in key areas. Recent examples are as follows: AbbVie became an independent company in January 2013 after it was spun off from Abbott.³ It now holds Abbott's former research-based pharmaceutical business. In Feb 2014, Bristol-Myers Squibb completed the divestment of its share in the global diabetes business that was part of its collaboration with AstraZeneca.⁴ In April 2014, Daiichi Sankyo sold its majority stake in Ranbaxy to Sun Pharmaceuticals.⁵ Novartis and GSK announced in April 2014 that they will swap assets, with Novartis acquiring GSK's oncology business and selling its vaccine division (excluding influenza vaccines).⁶ GSK and Novartis will also in this arrangement combine their consumer

health divisions. In May 2014, Merck & Co. sold its consumer care business to Bayer.⁷ Pfizer made an unsuccessful bid to acquire AstraZeneca in May 2014,⁸ and in July 2014 announced the acquisition of Baxter's portfolio of marketed vaccines.⁹

Since the last Index, the landscape of access to medicine and international health priorities is evolving. There has been some significant response to calls and collaborative action seen since 2012. For the past decade, increased financing of collaborative product development has catalysed the testing of needed products for neglected tropical diseases (NTDs), and allowed for important partnerships to develop, where pharmaceutical companies, NGOs and other global health stakeholders work together to address gaps in product development. A recent initiative, the Global Health Innovative Technology Fund (GHIT),¹⁰ has embarked on a series of partnerships aimed at developing products for NTDs. In the same disease area, several companies responded to a 2012 call for action called the London Declaration on Neglected Tropical Diseases,¹¹ promising donations of critical medicines for the control, elimination and eradication of several NTDs. Progress made under this declaration is tracked in this Index.

Lessons still being learned from HIV/AIDS efforts

The international community rallied to ensure that access to HIV/AIDS medicines was drastically improved after the 1990s. Lessons from that effort can be applied to several other disease areas. In the rally against HIV/AIDS, organisations such as PEPFAR, the Global Fund to fight AIDS, Tuberculosis and Malaria, WHO and USAID ensure that investments in the global HIV/AIDS response continue to accelerate progress. Twenty-five countries have seen a 50% drop in new HIV infections since 2001.¹² With significant investments from many, there have been new partnerships, increased knowledge and innovations in the last 10 years.

Today, other diseases are threatening the access landscape. Non-communicable diseases (NCDs), mainly cardiovascular diseases, cancers, chronic respiratory disease and diabetes, cause about 36 million deaths annually (63% of all deaths), and 17 million premature deaths (below age of 70). About 86% of these deaths occur in low income and

middle income countries, with forecasted cumulative economic losses of USD7 trillion over the next 15 years and millions of people trapped in poverty. Better public policies and lifestyle management, better clinical management and better access to medicine could prevent many of these diseases. The burden of NCDs is expected to rise dramatically over the next 20 years in low income and middle income countries, and there are growing calls for greater action against NCDs. The World Health Assembly endorsed the recent Global Action Plan for the Prevention and Control of NCDs for 2013-2020,¹³ which aims to achieve nine global NCD targets by 2025. The plan identifies a need for more affordable medicines and for new medicines, vaccines, diagnostics and technologies.

The rising burden of hepatitis poses another challenge. Hepatitis C, a chronic infection that causes liver failure in many of the approximately 170 million people infected, can be cured with new treatments. Chronic hepatitis deaths will soon exceed HIV/AIDS-related deaths.¹⁴ There are currently many products in the pipeline for hepatitis C, and these will be entering the market in the next few years. However, just as the cost of antiretrovirals (ARVs) hampered access in the mid-1990s, the prohibitive cost of treatment in this disease is a looming challenge. New mechanisms to ensure affordable medicines, incentives for innovation and new mechanisms for ensuring competition (such as those developed by the Medicines Patent Pool for HIV/AIDS) need to start.

Over the past 15 years, the Millennium Development Goals (MDGs) have provided a framework for multilateral co-operation to address these and other challenges. Next year, the time allowed for achieving the MDGs will have elapsed, and they will be replaced by the Sustainable Development Goals (SDGs). Both frameworks emphasise the central importance of providing access to affordable drugs in developing countries. Importantly, current proposals for the new SDGs spell out the need for R&D to develop vaccines and medicines for both communicable and non-communicable diseases that affect developing countries. Clearly, the role of the pharmaceutical industry will continue to be a key component of the international framework for cooperation.

Ebola outbreak emphasises importance of access

An event that has underlined how important access to needed medicine is, and which continues to be a daily tragedy in West Africa, and a significant threat further afield, is the current outbreak of Ebola virus disease. This outbreak which started in March 2014,¹⁵ has made it clear that in order to innovate, rapidly scale up and treat scores of people effectively, regulators, global health experts and pharmaceutical companies must come together, and to do it quickly, and efficiently. The Index does not cover industry activity around this disease because Ebola does not fall within the scope of diseases included in the Index. It is one of several emerging infectious diseases that occur so sporadically, and in a limited number of hotspots, that there is no clear ownership of control efforts and little incentive to produce products for it, especially given the focus on pushing harder to meet the needs for diseases on WHO's list of neglected tropical diseases.

Intellectual property reform battles continue

2013 and 2014 have been significant years in the debate around intellectual property and access to medicine. Emerging markets, including Brazil and South Africa have made moves to reform intellectual property (IP) legislation in favour of greater competition. Least Developed Countries were granted exemption until at least 2021 from adhering to the minimum standards for intellectual property legislative frameworks, as set out in the Trade Related Aspects of Intellectual Property (TRIPS) agreement.¹⁶ In addition, the United States requested stronger IP protection during negotiations between countries in the Asia-Pacific region (Trans-Pacific Partnership).

More than a decade ago, the South African government fought multinational drug companies over access to HIV/AIDS medicines in what was dubbed "Big Pharma vs Nelson Mandela".¹⁷ This was a low point for the reputation of the pharmaceutical industry, and also marked a turning point in more constructive engagement in the treatment of intellectual property. The Innovative Pharmaceutical Association South Africa (IPASA) case earlier this year was a reminder that these battles continue. Leaked documents from a public

affairs consultancy indicated that a strategy had been commissioned by IPASA, with the advice of Pharmaceutical Research and Manufacturers of America (PhRMA), in response to the government of South Africa proposing reforms to its intellectual property laws to make it harder to get patents and easier for generic medicine manufacturers to enter the market.¹⁸ Since the publication of these allegations, Novo Nordisk and Roche have resigned from IPASA and Novartis has distanced itself through a news release.¹⁹

Bribery and corruption allegations highlight need for ethics enforcement

The recent allegations (and convictions) of bribery and corruption in China,²⁰ affecting several pharmaceutical companies, highlight the importance of good business ethics, and company-wide enforcement while delivering quality medicine. Perhaps the most-high-profile example concerned allegations of systemic corruption made against GSK by Chinese regulators, involving inappropriate payments made to healthcare professionals. After the period of analysis, GSK was found guilty by the Chinese courts, and fined USD500 million.²¹ In addition, private investigators contracted by GSK were convicted. These cases highlight the pharmaceutical industry's responsibility to maintain the highest standards in all countries it operates in.

The Access to Medicine Index evaluates company performance in the context of this evolving landscape, addressing issues highlighted in the above discussion.

The role the Index plays

Every two years, the Access to Medicine Index analyses the top 20 research-based pharmaceutical companies that are most active in producing products for the highest-burden diseases in developing countries and ranks them according to their efforts to improve access to medicine in these countries. It uses an elaborate methodology where almost 100 indicators make up a framework within which company performances can be compared. The Index analysis brings out best practices and examples, and highlights areas where progress has been made and areas where critical action is required. It also acts as a benchmark where companies can see the access-to-medicine profile of their peers and reflect on their

own contribution to improving access to medicine. While companies are held to a single standard, they are all different in the way they operate, and in their portfolio of investigational and marketed products. They each have an individual footprint on access to medicine and all have a unique opportunity to improve access to medicine. When taking this into account, an Index is a significant challenge, and thus we present here findings based on the standardised methodology while appreciating the individuality of companies.

Refinements to the 2014 Index methodology

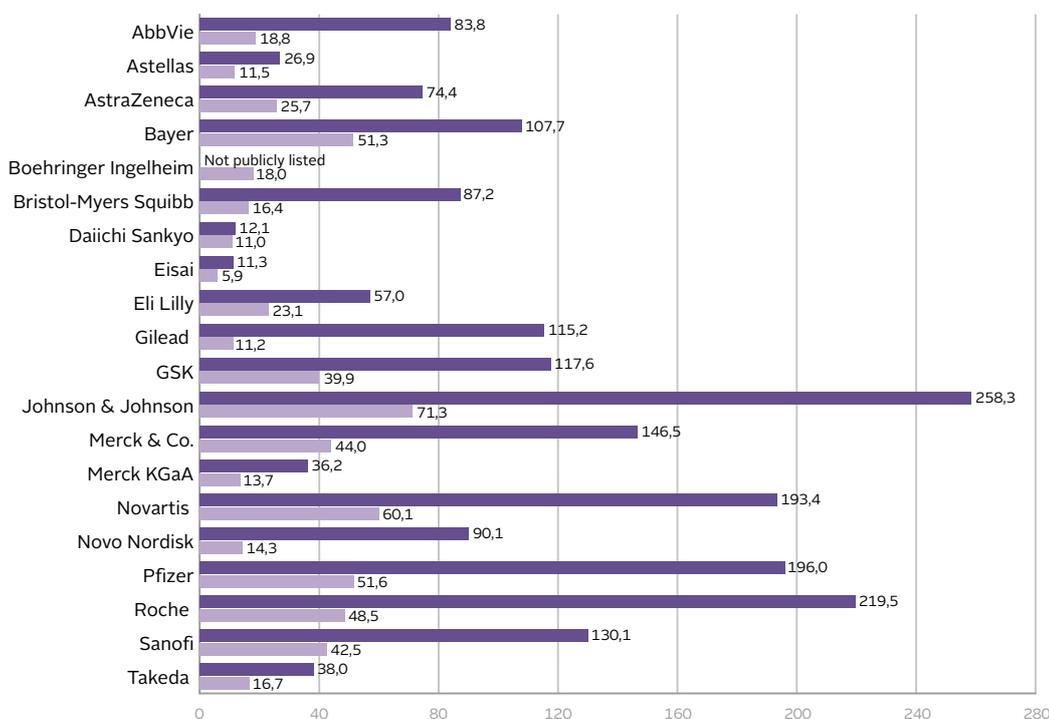
The methodology for the 2014 index was refined in several ways to make it more relevant, remove redundancies and to allow for a deeper analysis of certain areas. Notable were refinements to the way the Index measures the extent to which companies truly addressed access-to-medicine needs. For example, strict inclusion criteria were placed on products to ensure that products truly addressed needs, and long-term, sustainable

ideas were rewarded differently from ad-hoc initiatives. The way the Index measures how companies address affordability was overhauled. Previous indices measured tiered pricing and price differentials as indicators of affordability. However, after consultation with experts and reviewing the methodology, a shift was made to measure equitable pricing and ways that companies target the lowest paying tier of markets, with volume and price point disclosure as evidence of targeted strategies. Engagement in voluntary licensing was previously measured, but in this Index, the quality of licenses was also measured, by evaluating provisions in more than 200 licenses the companies have issued.

How we work

The Access to Medicine Index, published by the Access to Medicine Foundation, is a product of a two-year process. During year one, the Foundation focuses on reviewing and revising the Index methodology based on expert stakeholder feed-

Figure 3
2014 Index company scope



The companies covered by the Index account for more than 50% of the global pharmaceutical market.

■ Market cap as at 31 Dec 2013, Japanese companies as at 31 Mar 2014 (From Thomson Reuters 2014).
■ Total 2013 revenue

back. Year two is spent collecting and analysing pharmaceutical company data according to the latest Index methodology, with the help of an independent research partner. The results are then published in a new Access to Medicine Index, and the cycle begins again. In 2013, the Foundation conducted a thorough review and extensive consultations to ensure that the 2014 Index reflects evolving access-to-medicine priorities while maintaining consistency with previous Index iterations for the purposes of comparison and trend analysis. Internal analyses include both qualitative and statistical analyses of past indices and data. In addition to the internal analysis, external feedback was collected from experts, stakeholders and the public through various channels, including a public online survey, calls with companies ranked in the 2012 Index and various stakeholder meetings (See Appendix 1 for more detail). This external feedback was incorporated into both the qualitative and quantitative aspects of the review process as well as subsequent consultations with the Technical Subcommittees (TSCs) and the Expert Review Committee (ERC). Data collection and scoring in 2014 was performed by the research firm Sustainalytics, while the Index

research team undertook the final comparative analysis and writing of the Index. Experts (from the TSCs and ERC) were consulted as reviewers, and important discussions on corruption, innovation, licensing and pricing were among the topics discussed with the experts. All Technical Area chapters were reviewed by at least two independent reviewers and all sections were subjected to a further round of external review.

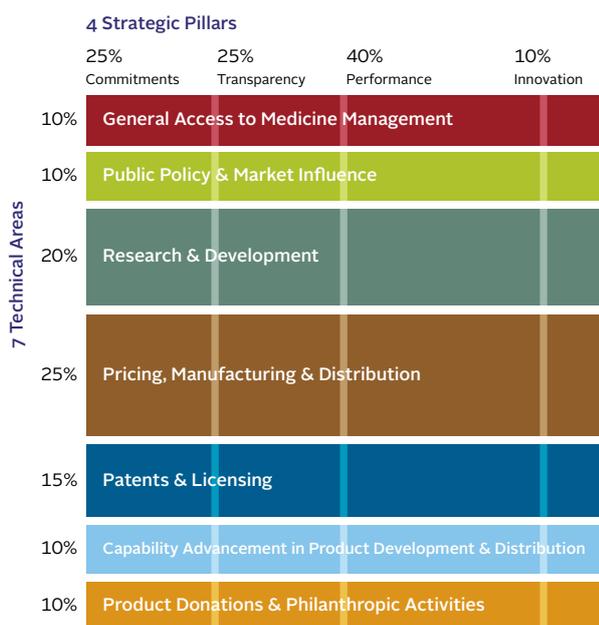
How we measure

The Index uses a framework that evaluates company activities in seven areas of activity, or Technical Areas, considered to be key to enhancing access to medicine in developing countries, and across four important aspects of action, or Strategic Pillars. The Technical Areas and Strategic Pillars are weighted according to their relative importance for improving access to medicine. We analysed 95 indicators across the Technical Areas, and within each, indicators are distributed among the Strategic Pillars, which measure the level of commitment the company demonstrates, how transparent it is about what it is doing, what specific activities it is engaged in and how innovative its approach is.

What we measure

The Index focuses on the top 20 research-based pharmaceutical companies which comprise about 50% of the global pharmaceutical market. The Index measures what these companies are doing to bring not only medicine, but also vaccines, diagnostic tests, vector control products and health technologies to people in what the World Bank considers to be low income and lower-middle income countries. In addition, widespread inequality of human development within countries often inhibits access to medicine for the poorest populations segments; the Index has this year added four high-human-development countries that do not fall under the World Bank LIC or LMIC classification. This brings the total number of countries covered by the Index to 106. The 47 diseases covered in the Index include the top 10 communicable diseases based on disease burden (disability-adjusted life years); the top 12 non-communicable diseases; 17 of the ‘neglected tropical diseases’ and 8 maternal conditions and neonatal infections. The Index also captures activity on contraceptives.

Figure 4
Methodology Framework



Limitations of methodology

As does any study, the Access to Medicine Index has limitations, some of which are outlined below. A more detailed overview of limitations is in the Appendix. Further improvements are actively invited and will be made across all Technical Areas for the 2016 Index, to add more stringency and improvements to the measures used.

Measuring Outcomes and Impact

The study as currently designed is not intended to measure the direct impact of companies' access initiatives on patients and other groups. For example, within Capability Advancement, the impact of a company's training activities is not measured. Alternative measures are used as proxies for patient access or considerations of impact.

Disease Scope:

Some companies may not have received credit for access-oriented activities targeting diseases that were not covered by the Index. The disease scope will again be reviewed for the 2016 Index, and

new information will be balanced with the need to maintain comparability between Indices.

Capturing breaches of codes of conduct

In the 2014 Index, breaches in relevant countries and across the globe were counted quantitatively. As some of these countries may have weaker regulatory and enforcement resources, or out-of-court settlements may be more common, these breaches are sometimes difficult to capture, as is the level of transparency around them.

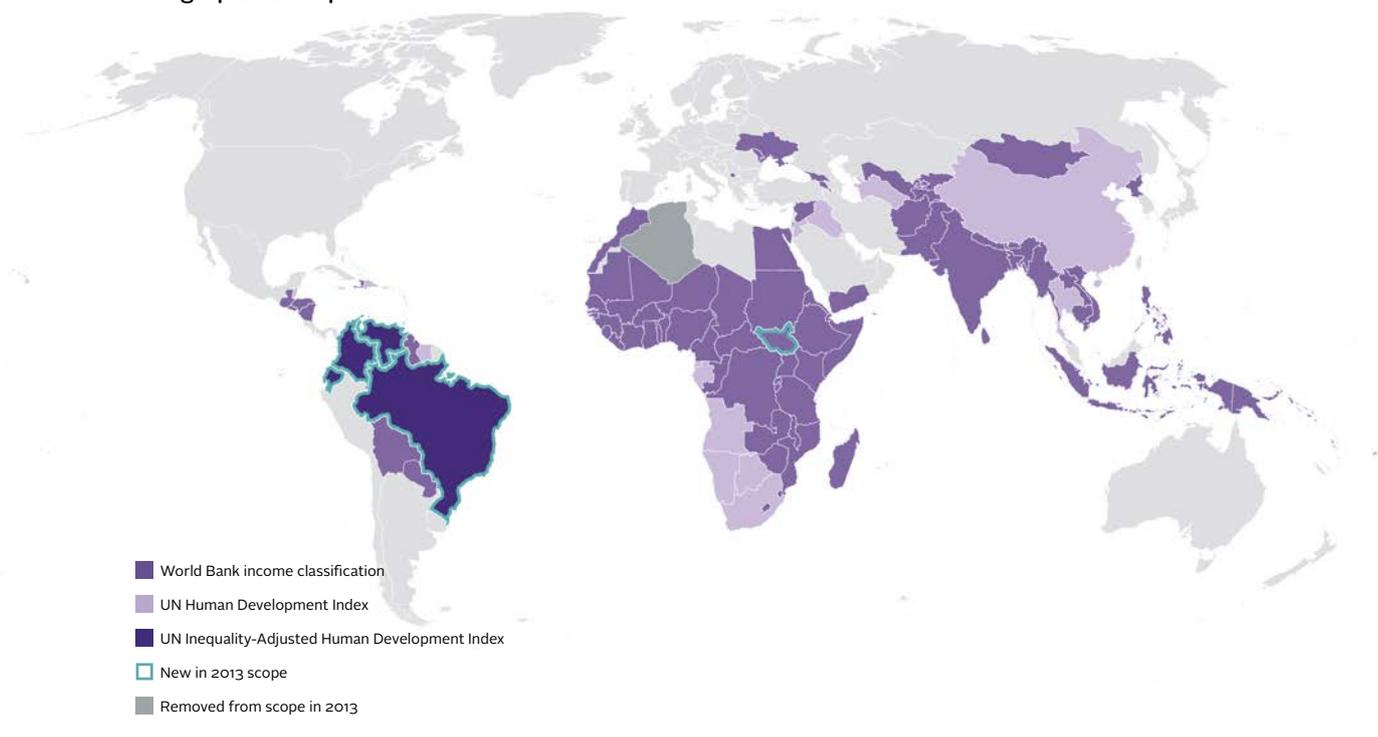
Data availability

Another limitation was the presence of sensitive data, which were provided to the Index under confidentiality agreements. All data were analysed, but due to legal constraints not all data were published. This has been a significant obstacle in finding and reporting trends in certain areas.

More details on the process of preparation and quality control of the 2014 Access to Medicine Index can be found on the website.

For numbered references, see the Appendix.

Figure 5
Geographical Scope



Key Findings

The world's leading pharmaceutical companies are doing increasingly more to improve access to medicine in developing countries. More companies are experimenting with innovative access-oriented business models, companies are granting more licenses for making and distributing generic versions of their products, and companies continue to improve their oversight of access policies and activities. Yet progress is uneven. The industry struggles to perform well in two important areas: companies remain conservative in their approach to patents, and all but two have been the subject of settlements or decisions relating to ethical marketing, bribery or corruption standards or competition laws in the last two years.

Regarding R&D, efforts are remarkably concentrated. More than half of all products relevant to the Index target the same five diseases. Furthermore, more than half of the overall pipeline is being developed by the same five companies. Half of Index companies are developing or adapting medicines for use by children – totalling 7% of the overall pipeline – with Johnson & Johnson developing the largest share.

Compared to 2012, pricing strategies are increasingly tailored, as more companies take account of socioeconomic factors, such as ability to pay. Importantly, more companies are setting different prices for different segments of national populations.

Companies do more to improve access, but progress is uneven

Companies are doing increasingly more to improve access to medicine in developing countries, with a raft of new initiatives, scale-ups and innovations over the last two years. Yet in two important areas, progress remains static.

Refinements to the Index have enabled a clearer picture of industry progress and struggles to emerge. The leaders tended to perform well across the majority of areas the Index tracks, and companies at the bottom of the Index have narrowed the gap with their peers. However, while overall scores are converging, companies differ in the areas where they perform better. The industry is progressing on several fronts, partly in response to calls for action shaping the global health agenda.

Progress

More companies are experimenting with innovative access-oriented business models. Three have introduced new models and three have expanded pilots. Examples include Merck & Co. offering patients in 11 cities in India zero-interest loans for the purchase of one of its hepatitis medicines; and Novo Nordisk making insulin products more accessible in India, Nigeria, Ghana and Kenya by identifying ways to integrate diagnosis, treatment and control in local communities. However, the impact of such models remains to be seen.

Companies are granting more licences to developing country companies to make and distribute generic versions of their medicines. Of the 16 companies that have patents on their products, eight engage in voluntary licensing. This compares with six companies in 2012. Some licences include groundbreaking new arrangements, such as tiered royalties.

Policies and activities to improve access to medicine continue to get better organised. All 20 companies now have established some form of board-level representation for access-to-medicine issues (up from 19 in 2012 and 17 in 2010). In 2014, seven companies link performance incentives for senior managers to enhancing access to medicine, compared with three in 2012.

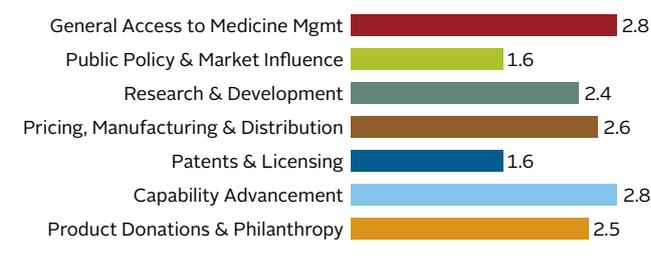
Struggles

However, companies struggle to perform well around some aspects of access to medicine, such as ethics breaches and disclosure of patent status.

All 20 companies commit to follow at least a minimum code of practice for ethical marketing. All have codes of conduct governing bribery and corruption and three-quarters report auditing their codes. However, 18 companies have been the subject of settlements or decisions relating to breaches in ethical marketing, bribery or corruption standards or competition laws. Breaches can range from paying or otherwise inappropriately incentivizing doctors to prescribe their products, to collusions delaying market entry of generic medicines and misrepresenting the efficacy and safety of their products or those of their competitors. This evidence raises questions over the commitment and effectiveness of company governance of this area.

Companies remain conservative in their disclosure of where patents are active and when they will expire – information that is very useful to medicine procurers and generic medicine manufacturers. Within the reporting period, no company independently and publicly disclosed its patent's statuses for any product relevant to the Index.

Figure 6
2014 Index average scores per Technical Area



Five companies are developing more than half of the products in the pipeline for developing countries

The top 20 pharmaceutical companies are developing 327 relevant products, with only five companies accounting for more than half the pipeline and more than half the products targeting only five diseases.

The 2014 Index offers a unique picture of the pipeline relevant to developing countries. In several cases, more than 35% of pipelines targets the conditions covered by the Index. However, research is concentrated, with Novartis, Johnson & Johnson, GSK, AbbVie and Sanofi developing 54% of the products in the relevant pipeline.

Disease focus

In addition, more than half of these products target diabetes, lower respiratory infections, hepatitis, HIV/AIDS and malaria. Hepatitis and diabetes have the most products in the clinical stage of development. Together with diarrhoeal diseases, tuberculosis, chronic obstructive pulmonary disorder, meningitis and Chagas disease, these diseases account for 71% of the total pipeline covered by the Index.

All disease classes are being targeted to varying extents. For instance, 47% of the products target communicable diseases. However, almost all of those address just six conditions: HIV/AIDS, malaria, lower respiratory infections, diarrhoeal diseases, tuberculosis and meningitis.

Another 36% of the pipeline targets non-communicable diseases, with 83% of such products in clinical development. About half are innovative products, while the other half are adaptations for developing country markets such as heat stable insulin, a sublingual tablet for bipolar disorder, fixed dose combinations for cerebrovascular disease and diabetes, long-acting formulations for mental disorders, and several paediatric formulations. However, plans to make these products available are limited; pricing strategies for them are also limited, and lag behind those for many communicable diseases.

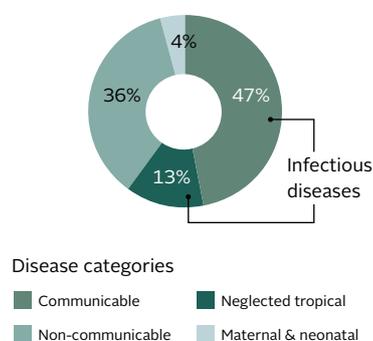
Least attention

Areas with least attention from companies, both in R&D and marketed products, are the neglected tropical diseases and maternal and neonatal health. About 13% of the relevant pipeline is devoted to neglected tropical diseases, with most of those products being in early stages of development. Investigational products in the clinical development stage are for Chagas disease, rabies, trypanosomiasis, and dengue. Meanwhile, maternal and neonatal health conditions, where the need for product development is small but well defined, are being targeted by 4% of the pipeline.

Moved through the pipeline

Since the 2012 Index, at least 30 relevant products from the pipeline, covering 11 diseases, have gained regulatory approval.

Figure 7
Most products are being developed for infectious diseases



The majority of all R&D products are being developed for infectious diseases (communicable diseases and neglected tropical diseases combined), followed by non-communicable diseases.

More than half of companies are developing medicines for children

More than half of the 20 Index companies are developing medicines tailored for children, with 7% of the overall research pipeline being devoted to “child-size” medicines.

Access to essential medicines for children is an important element in improving child health, saving children’s lives and meeting the Millennium Development Goals. The needs were for the first time recognised in 2006 when the World Health Organization identified serious gaps in research and several barriers to access, and indicated how to overcome them. The following year, the UN health agency launched the “Make Medicines Child Size” campaign, issuing, for the first time, a WHO model list of essential medicines for children.¹ The Index finds that the industry is responding to this need, although opportunities to do more remain.

Trends

The 2014 Index provides a unique analysis of the level of industry activity on child-tailored medicine since the WHO call for action. It finds that 11 companies are engaged in the effort. Out of the 327 products in the research pipeline for diseases in developing countries, only 23 products are being developed for children, as liquids, chewable tablets, child-appropriate doses, or new formulations. Only one paediatric fixed-dose combination is under development for HIV/AIDS but no such combinations for tuberculosis although the WHO had identified this as a priority need. Fixed-dose combinations can reduce the number of tablets patients need to take and therefore improve treatment compliance. Three of these products have gained regulatory approval since 2012.

Disease focus

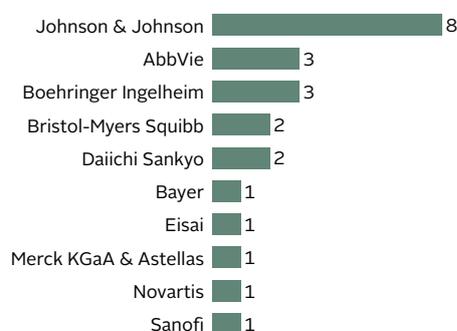
Sixteen (69%) of the “child-size” medicines under development target HIV/AIDS, diabetes, malaria, hepatitis and respiratory syncytial virus infections. Others target a wide range of conditions including cerebrovascular disease, Chagas disease, epilepsy, schistosomiasis, schizophrenia, soil-transmitted helminthiasis and drug-resistant tuberculosis.

Leaders

Johnson & Johnson is the leader in the development of “child-size” medicines, with eight products in its pipeline. AbbVie and Boehringer Ingelheim are developing three each, and Bristol-Myers Squibb and Daiichi Sankyo two each. Bayer, Eisai, Novartis, Sanofi, Merck KGaA and Astellas (the latter two working together) are developing one paediatric product each.

Figure 8

Johnson & Johnson is developing most medicines for children



11 companies are developing 23 medicines suited for children.

Pricing strategies are increasingly tailored

More companies are paying attention to socioeconomic factors such as people’s ability to pay. Importantly, more are tailoring their prices to different segments of the population within countries.

Pricing that focuses on the buyer’s ability to pay is a cornerstone of making medicines affordable in developing countries. It is also a tool for companies to expand into new markets. When addressing disparities in the ability to pay, it is important to differentiate pricing both *between* and *within* countries.

Progress

The number of companies using commercial pricing strategies that also take into account socioeconomic factors has increased from 16 in the 2012 Index to 18 in 2014. Half of these companies are applying such schemes to a greater proportion of their portfolio than they did two years ago.

Increasingly more companies are applying pricing schemes *within* countries, targeting different segments of the population with different prices. The number of companies engaged in such segmentation has grown substantially over successive Indices, from five companies in 2010,

to 12 in 2012, to 16 in 2014. However, the proportion of schemes that specifically target the poorest segment remains limited.

Products covered

Together, the industry has applied pricing strategies to one-third of the 700 relevant products on the market. Use of these strategies is uneven, with some companies using them in all countries they are active in and others restricting them to a few countries. Similarly, some companies apply them to a wide range of their products and others to one or two. The proportion of products under pricing schemes that cover the poorest segments of the population in the lowest price tier is 32%.

Diseases covered

The schemes cover products for 32 diseases, with HIV/AIDS having the most tailored pricing strategies applied to it. However, it is not possible to evaluate whether products have become more affordable for specific patients.

Figure 9
Companies consider affordability for one-third of products

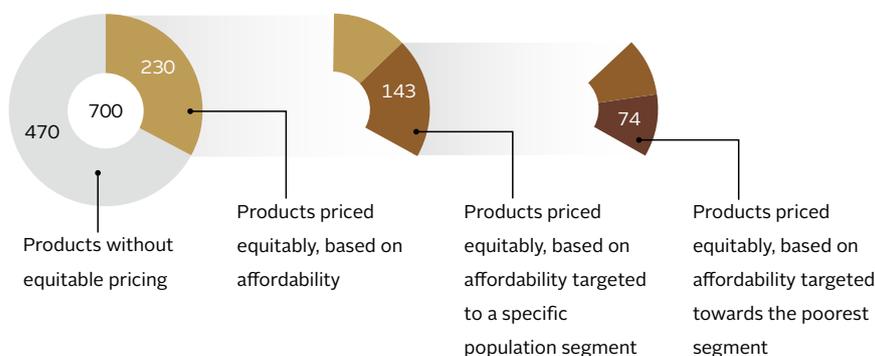
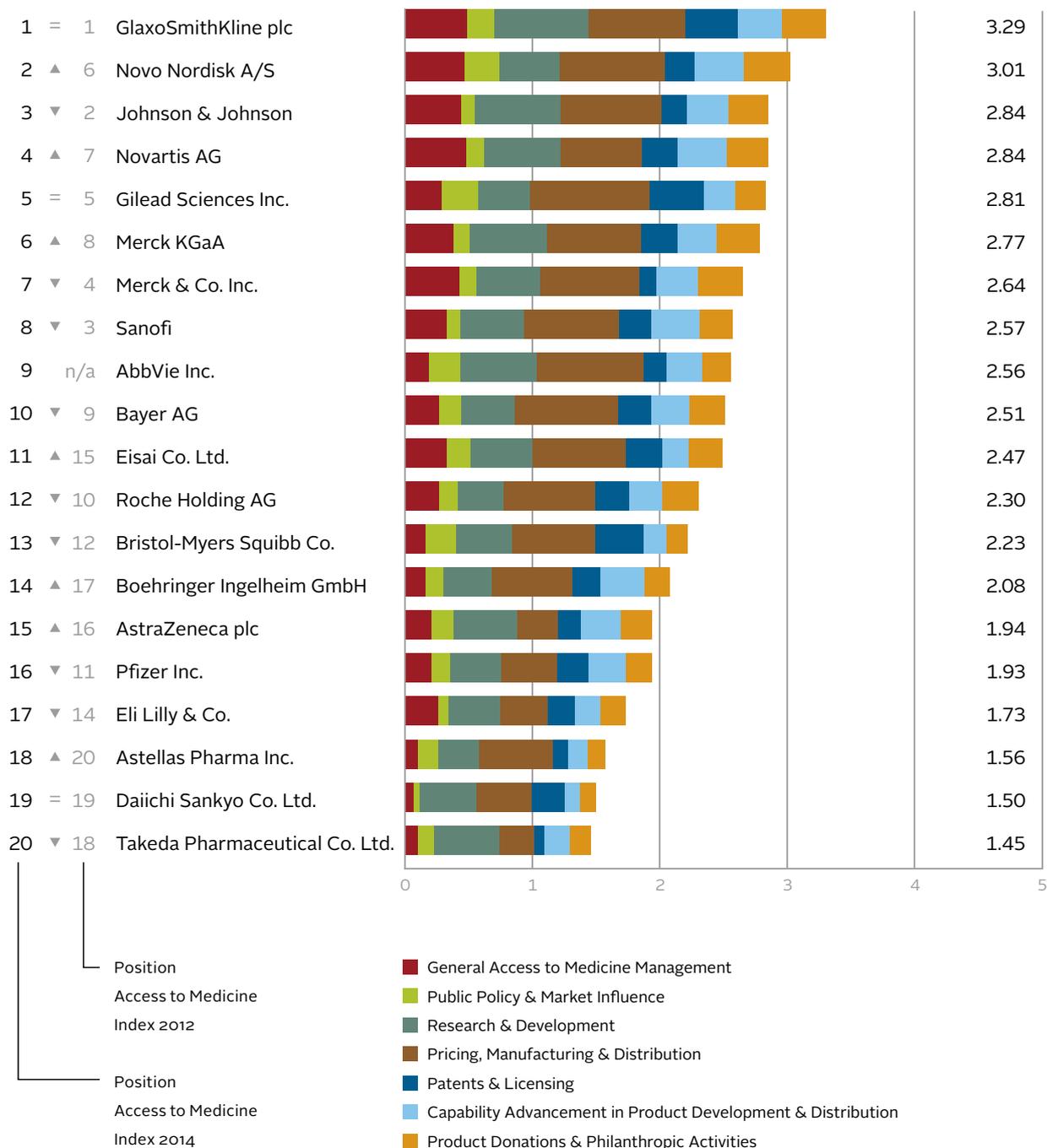


Figure 10

The Access to Medicine Index 2014 – Overall Ranking



A score of zero means lowest and five signifies highest indicator score among the company set.

Leaders innovate constantly

GSK tops the Index for the fourth time, ahead of Novo Nordisk and followed by four tightly packed companies. Overall scores are very close in this leading group of six. However, all companies approach access to medicine differently. Some focus on a few specific diseases, targeting them with deep, comprehensive programmes and initiatives. Others adopt wide-ranging, well-integrated approaches.

The top eight positions are taken by the same eight companies as in 2012, but in a different order, with Novo Nordisk making a remarkable leap into 2nd position. Sanofi and Pfizer fell down the rankings most significantly. Astellas, Daiichi Sankyo and Takeda remain at the bottom of the league, but in a different order, with Astellas rising from lowest place. Notably, despite stricter scoring criteria, these lowest-ranking companies continue to narrow the gap, with higher scores than in 2012.

In 2014, more companies are experimenting with innovative access-oriented business models and more companies take account of socioeconomic factors when setting pricing strategies. Plus, access-to-medicine activities continue to get more organised. Yet companies remain conservative in their approach to patents, and continue to breach ethical standards for corporate behaviour.

No company excels at everything and several stand out in certain specific areas: for instance, Novartis has the largest pipeline of products for developing countries, Sanofi has the most relevant products on the market and Johnson & Johnson dominates when it comes to developing child-friendly medicine. Top performers innovate constantly, usually in several areas at once, and continuously deepen and expand access programmes and initiatives.

How the industry performs

The pharmaceutical industry is continuing to step up its efforts to improve access to medicine in developing countries. However, progress is not equal across all areas or among companies, and there are some areas where the industry as a whole remains static.

The leading companies continue to perform well across most of the seven Technical Areas covered by the Index. Most notably, companies at the bottom are catching up, with higher overall scores than in 2012.

Access-to-medicine activities continue to get more organised, creating a more systematic enabling environment. For example, all 20 companies now have some form of board-level representation for access-to-medicine issues. This compares with 19 in 2012 and 17 in 2010. More companies are experimenting with innovative access-oriented business models. Six have either introduced new models or have expanded pilots; at least three of these have built upon previous pilots. More companies are taking socioeconomic factors, such as ability-to-pay, into account when setting pricing strategies, and are increasingly tailoring prices to different segments of national populations.

In addition, more companies now show evidence of having procedures in place to enforce compliance with standards for conduct of outsourced clinical trials; this has progressed from four companies in 2012 to 10 companies in the current Index.

Together, the companies are now developing 327 products that qualify for analysis, with in some cases more than 35% of company research pipelines targeting conditions relevant to the Index. This includes 137 new product development projects since 2012, the largest proportion of which target communicable diseases. Half of the companies are developing medicines tailored for children, with 7% of the overall industry pipeline being devoted to the development of relevant child-appropriate medicine. Since the 2012 Index, at least 30 relevant new products have gained

regulatory approval. Certain global initiatives have catalysed a proportion of these activities. Recent initiatives such as the Global Health Innovative Technology Fund, the World Health Organization's roadmap on NTDs, and the 2012 London Declaration on NTDs that the roadmap inspired, have led to more intense industry activity.

However, companies have struggled to perform well in other areas. In the area of Public Policy & Market Influence, the 2014 Index's broader investigation of breaches worldwide reveals evidence that almost all companies (18) were the subject of settlements or decisions relating to breaches for competition, bribery, unethical marketing or corruption. It also reveals limited evidence of companies fighting against bad behaviour. Information on breaches in countries beyond those covered by the Index has considerably increased the evidence base in this Technical Area.

In the field of Patents & Licensing, company behaviour has remained static across most areas of measurement. Companies maintain their conservative attitudes to disclosure of patent status and terms of engagement. Encouragingly, pro-access company management of intellectual property has improved, albeit mostly in one particular area: HIV/AIDS licences agreed through a third party, the Medicines Patent Pool.

Leaders

The 2014 Access to Medicine Index has a clear leader and a close second, followed by a cluster of four companies that occupy the 3rd, 4th, 5th and 6th positions. These four have different access profiles but total scores that are very close to each other, demonstrating how tight the competition is for the top slots.

GSK remains in the top position for the fourth consecutive Index. This is driven by robust performance across most areas, with several innovative practices. It has strong governance of access to medicine, an innovative business model focused on Africa and high transparency around its access-to-medicine strategy. The company also leads the Index in the area of Research & Development, with a large relevant portfolio, a large share of its pipeline dedicated to relevant diseases, and numerous access-oriented intellectual property sharing partnerships. However, it fell from its leading position in Pricing, Manufacturing & Distribution, and in Capability Advancement. It also fell in Public Policy & Market Influence, due to convictions or settlements for breaches of ethical marketing standards. Allegations concerning evidence of corrupt practice in China were settled outside the period of analysis for the 2014 Index. Novo Nordisk, despite being a company focused only on a single disease within the scope of the Index, has made a remarkable jump to 2nd place, after rising steadily over successive Indices, moving up from 6th place in 2012 and 8th place in 2010. This is partly due to its integrated approach to access to medicine, high level of transparency and robust codes of conduct, for which evidence of auditing was provided. It renewed its access strategy in 2013, has applied equitable pricing strategies for diabetes products in the majority of relevant countries, and is one of two leaders in rapid registration and filing for marketing approval.

Johnson & Johnson, Novartis, Gilead and Merck KGaA occupy the 3rd, 4th, 5th and 6th places respectively. It is striking that these companies are clustered so closely together, but there is substantial variation between them in their strengths and weaknesses across the areas the Index focuses on.

Johnson & Johnson maintains a strong performance in the Index, dropping one place to rank 3rd. The company is particularly strong in R&D, with a large and diverse pipeline of relevant products, many of which have progressed through the stages of development since 2012. The company ranks highly in its oversight of its access-to-medicine approaches. It also performs well in pricing, taking affordability into account for many products when setting its pricing strategies and applies these in many countries.

Leaders innovate constantly

Leaders usually perform well in several areas of analysis. They have typically strong research pipelines, with access-friendly terms and conditions in partnerships, pricing strategies that target the poor, and IP management policies that stimulate competition. Top performers innovate constantly, and in a competitive Index, usually innovate in several Technical Areas to maintain their role as a leader. Remaining a leader over time is only possible by showing improvements in access policies and practices – standing still means falling back in the Index, as other companies progress. Being a leader requires continuous deepening and expanding of access programmes, and measuring the impact of these programmes on health and socioeconomic outcomes; and publishing the results. It also implies remaining open-minded to developments in the global access-to-medicine agenda, and continuously adapting to any changing expectations, as reflected in refinements made to each new Index methodology.

Novartis climbs three places to 4th position, having made significant improvements in the management of its access-to-medicine activities. The company dropped in rank in Pricing, Manufacturing & Distribution, but a new access-to-healthcare strategy, approved in 2012, shows a clear link between its corporate strategy and its access approach. It has the largest relevant research pipeline of all companies. Novartis is the only company to voluntarily share pharmacovigilance data with national authorities beyond legal requirements.

Gilead has kept its 5th place. It remains a leader in intellectual property management, issuing a wide range of access-friendly licences for its HIV/AIDS products. It also has pricing strategies that take socioeconomic factors into account. The company waives data exclusivity within its licences and was one of only two companies that were not the subject of any settlements or convictions for breaches.

Merck KGaA has also risen up the ranks over successive Indices, from 17th place in the 2010 Index, to 8th in the 2012, to 6th position in the current Index. This is in part due to the development of a strategic focus on access to medicine through its revised Access to Healthcare (A2H) strategy. The company makes a strong commitment to taking a pro-access approach to IP management and licensing in a broad range of countries, has launched new initiatives and is overall highly transparent about its activities.

Laggards

Astellas, Daiichi Sankyo and Takeda once again occupy the last three positions in the Index, although in a different order. As a group they continue to close the gap with the rest of the pack, with improvement in their overall scores.

Astellas rises two places to 18th place, partly because it was linked to fewer breaches than others. It provided more evidence than previously regarding lobbying activities and adapts brochures and packaging to ensure rational use in all disease areas where it is active, and it is active in building local manufacturing capabilities. However, it still has no clear access-to-medicine strategy and does not clearly commit to equitable pricing. It did not disclose its relevant research pipeline, which resulted in a low score in Research & Development.

Daiichi Sankyo remains in 19th place, despite improved performance in some areas. It engages in more product development partnerships based on access provisions, but it has no clear access-to-medicine strategy, manages access issues to a

limited extent and restricts its access activities to philanthropy. Daiichi Sankyo notably has adopted a more access-oriented approach to IP management in this Index.

Takeda has dropped two places to 20th, despite improvements in several areas. It performs well in R&D, but in several areas its performance is significantly weaker than that of its peers. While it demonstrates a stronger focus on access to medicine than in 2012, Takeda does not have a clear access strategy yet and has no pro-access approach to intellectual property. It has a new commitment to intra-country equitable pricing but this has not been translated into strategies for products relevant to the Index.

Risers

Overall individual company movement between the 2012 Index and the 2014 Index is limited. The same companies occupy the top eight positions in the 2014 Index as in the 2012 Index, although Novo Nordisk is a newcomer in the top three. Likewise, the bottom three companies remain the same as in 2012.

The biggest risers in 2014 are Novo Nordisk and Eisai. Novo Nordisk, rising four places from 6th to 2nd, has made the most progress, improving in five of the seven areas the Index analysis focuses on (all except Research & Development and Patents & Licensing). It is now the leader in building local capabilities (Capability Advancement) and in Product Donations & Sustainable Philanthropy. Eisai has risen steadily with each Index. It ranks 11th, up four places from 15th in the 2012 Index, and up five places from 16th in 2010. It performs well in several areas, and rises in four. Eisai's centralised access department shows the company's

more organised approach to access to medicine. Compared with peers, Eisai makes the most progress in pricing, with a new global pricing strategy that will cover all new products.

Other risers include Novartis, Boehringer Ingelheim, Merck KGaA, Astellas and AstraZeneca.

Fallers

The biggest fallers in 2014 are Sanofi and Pfizer. Neither has provided evidence of significant improvement in access to medicine since 2012, and have been overtaken by other companies that demonstrate progress.

Sanofi has dropped five places from 3rd to 8th. It fell in ranking in all areas except for Patents & Licensing and Capability Advancement, where it retains its strong position. It has also lost ground in transparency. It is a leader in product development, and shows commitment to engaging in partnerships on access-oriented terms in certain disease areas, but not in all the disease areas in which it is involved. It is also less transparent than leading companies about terms and conditions of the partnerships it does engage in. It has the most relevant products in the market and applies equitable pricing strategies to many of them. But for a bulk of its products, there is limited evidence of equitable pricing.

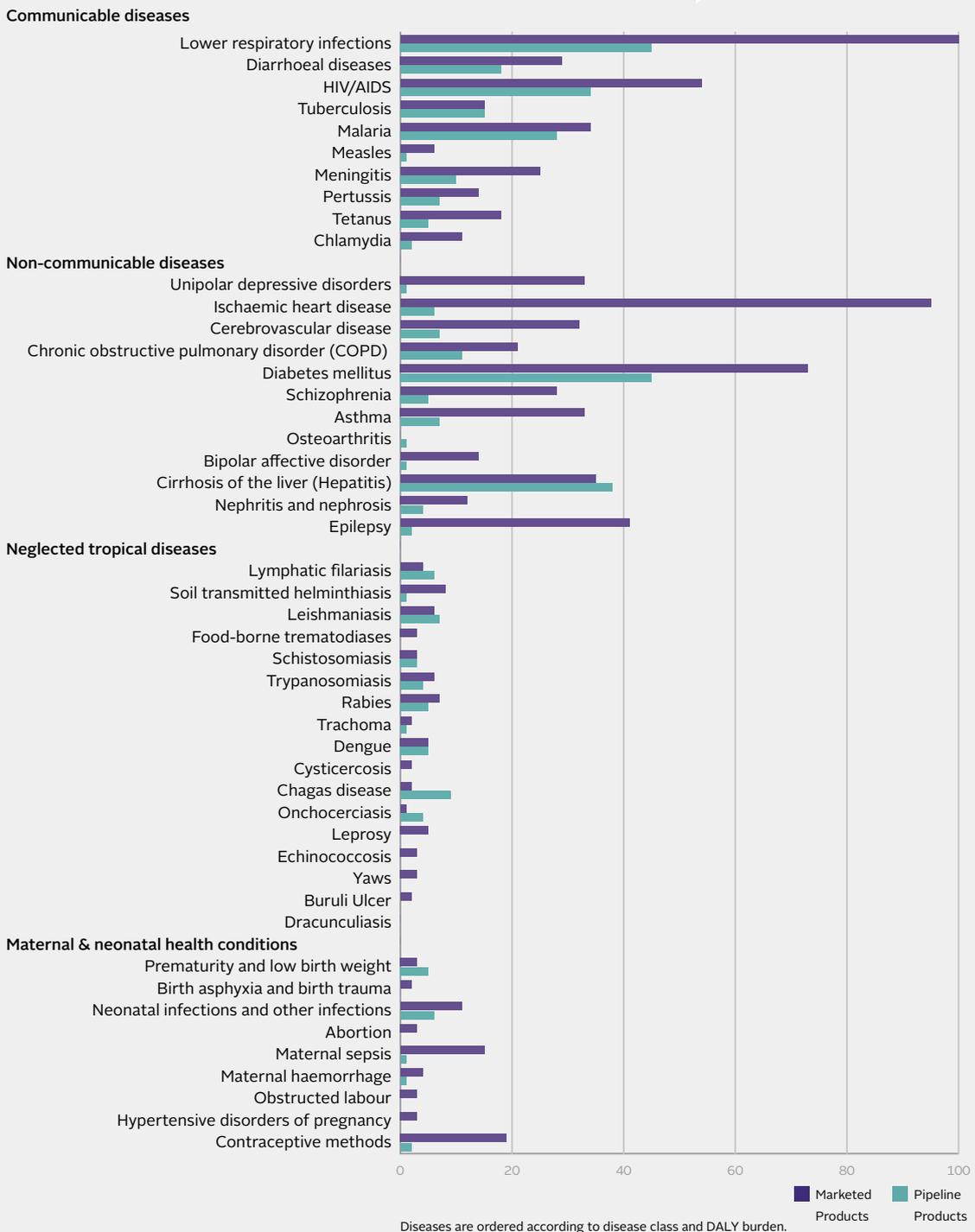
Pfizer has fallen five places from 11th to 16th. It retained its 2012 position in General Access to Medicine Management and Capability Advancement, but has been overtaken by companies performing better in other areas. The Index has identified limited evidence that Pfizer's equitable pricing strategies target the poorest segments of populations. The share of its pipeline relevant to the Index is relatively small, and has shrunk further since the 2012 Index.

Other companies that have fallen in rank include Merck & Co., Eli Lilly and Roche. Roche has fallen over successive indices, from 6th in 2010, to 10th in 2012, to 12th in this Index.

Figure 11

Products in the pipeline and on the market

Pharmaceutical companies focus mainly on 5 diseases: lower respiratory infections, diabetes, cirrhosis of the liver (hepatitis), HIV/AIDS and malaria.



Pipeline and portfolio analysis – where is the industry focusing?

Five diseases appear in both the top ten targeted by R&D pipelines and the top ten targeted by marketed products. Within the scope of the Index, companies are mainly developing and marketing products for a small group of diseases. More than 50% of the industry's

relevant pipeline targets just five diseases: lower respiratory infections, diabetes, cirrhosis of the liver (mostly for hepatitis), HIV/AIDS and malaria. The same five also appear in the top ten diseases with the most products on the market.

The ten diseases with the most marketed products cover 62% of all relevant products on the market: in order, lower respiratory infections, ischaemic heart disease, diabetes, HIV/AIDS, epilepsy, cirrhosis of the liver (mostly for hepatitis), malaria, asthma, unipolar depressive disorders and cerebrovascular disease.

The top ten diseases targeted by R&D pipelines account for 72% of all pipeline products captured by the Index: in order, lower respiratory infections, diabetes, cirrhosis of the liver (mostly for hepatitis), HIV/AIDS, malaria, diarrhoeal diseases, tuberculosis, chronic obstructive pulmonary disease (COPD), meningitis and Chagas disease.

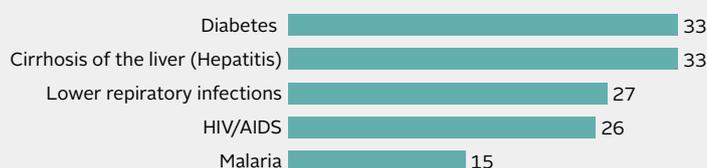
The least attention is being paid to maternal and neonatal health conditions and to neglected tropical diseases. Regarding maternal and neonatal health conditions, this is at least partly explained by the fact that there is less need for product development, and it is specific to local needs and conditions. For neglected tropical diseases, most pipeline products are in early-stage development, which means it will take years before new products reach

markets. Of all 17 neglected tropical diseases in scope, only Chagas disease, rabies, African trypanosomiasis and dengue have products in clinical-stages of development from relevant companies.

For non-communicable diseases, there is a need for products that are suitable for use in developing countries (as well as for other solutions that are beyond the remit of pharmaceutical companies, such as improved lifestyle management and health-system strengthening)¹. The Index observes that while there are many pipeline products for non-communicable diseases, companies are making limited efforts to ensure they are suitable for use by people living in developing countries. There are limited plans to make new products available there, should they gain approval. There are limited equitable pricing strategies relating to non-communicable diseases, particularly compared to the range of strategies for many communicable diseases. Access-oriented licensing strategies remain mostly limited to HIV/AIDS, but there are signs that other disease areas are beginning to be addressed.

Figure 12

Top five diseases in clinical stage pipeline



Clinical stages also focus on same five diseases

Cirrhosis of the liver (mostly for hepatitis) and diabetes receive the most attention: for both diseases, companies have 33 products in clinical stages. This reflects both the market opportunity and the medical need for such products. Other non-communicable diseases

receive comparatively less attention from these companies. Considering the number of products in clinical development, it is important to ensure that plans are put in place to bring these products to people living in developing countries.

For numbered references, see the Appendix.

Industry focuses on non-communicable and communicable diseases

The largest shares of products in the market target non-communicable diseases (49%) and communicable diseases (36%). Similarly, these two disease categories account for the largest shares of the clinical-stage pipeline (47% and 44% respectively).

Sanofi, Novartis, GSK and Pfizer have the most relevant products on the market (accounting for 53% of all marketed products in scope). Novartis, GSK and Sanofi are also in the top five with the largest R&D pipelines, together with Johnson & Johnson and AbbVie: these five account for 54% of the overall pipeline.

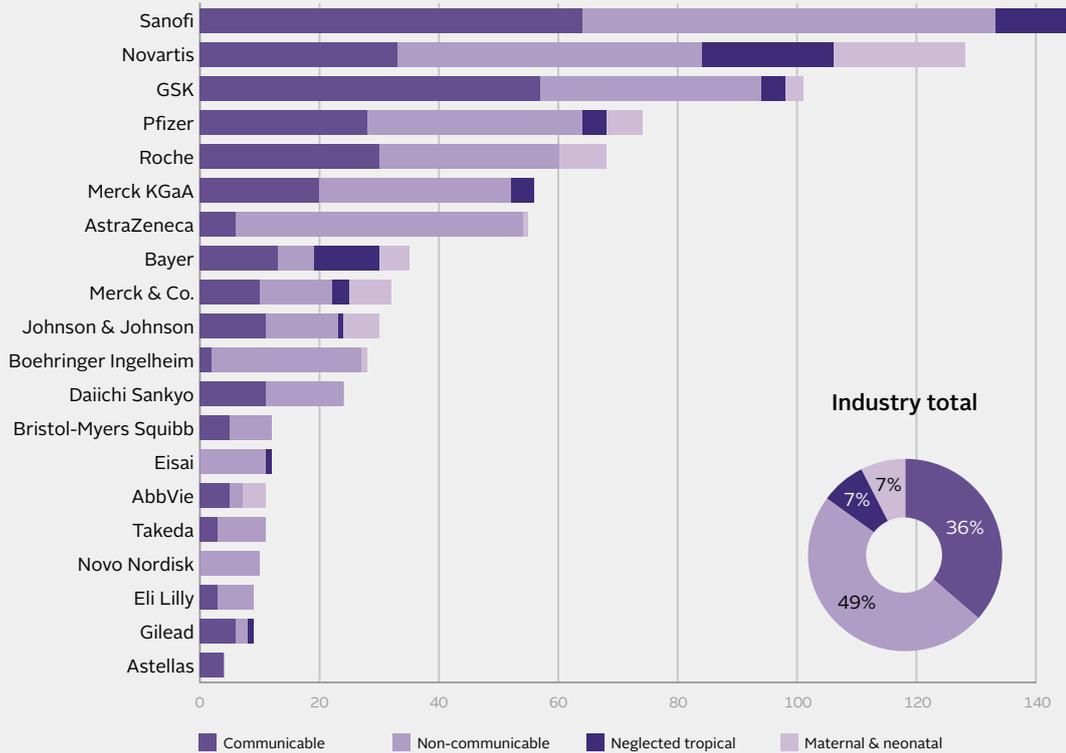
Johnson & Johnson and Boehringer Ingelheim stand out for having a large ratio of clinical-stage pipeline products to products on the market: both have average numbers of relevant marketed products, yet are among the top three companies with the most medicines and vaccines in clinical-stages of development. Others have low ratios: Pfizer has very few relevant products in clinical development, yet is among the top five when it comes to the number of relevant products on the market.

Sanofi has the most relevant products on the market
Sanofi, Novartis, GSK and Pfizer together account for 53% of all products on the market.^a Sanofi is the only one of these four to not have products for all disease classes in scope. It does, however, have the largest overall marketed portfolio, and the most products for communicable diseases and the most for non-communicable diseases. Novartis has the most marketed products for maternal and neonatal health conditions and for neglected tropical diseases. Almost all of the 20 companies measured by the Index have products for multiple disease classes. Only Astellas and Novo Nordisk are active in a single disease class in scope. The majority of marketed products target either non-communicable or communicable diseases.

Novartis has the highest number of products in the pipeline
Pipelines differ hugely between companies, both in size and focus. Novartis has the largest pipeline within scope. Johnson & Johnson, Boehringer Ingelheim, GSK and Sanofi have large clinical-stage pipelines. Novartis, Johnson & Johnson, AbbVie and Eisai have large early-stage relevant pipelines (not shown in chart).

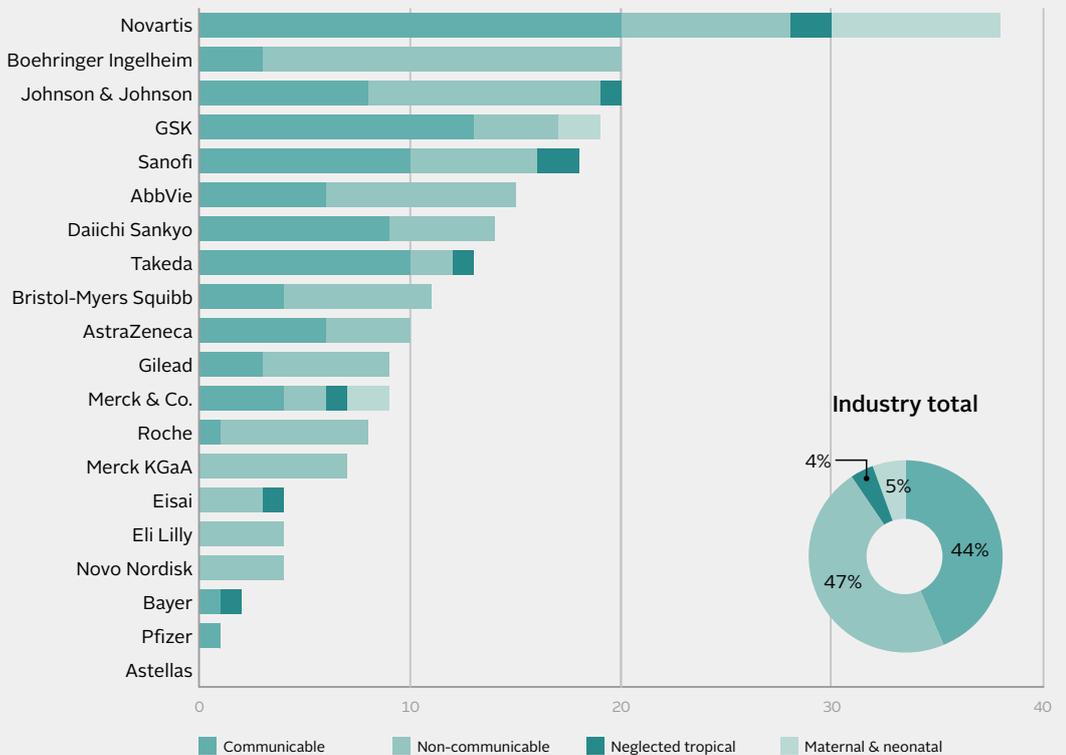
^a This count includes products with multiple indications across disease classes. The number may be higher than the total number of individual products.

Figure 13
Products on the market



Marketed products include medicines, vaccines, diagnostics, vector control products and platform technologies. Products that are indicated for use in multiple diseases are included more than once.

Figure 14
Products in clinical development



The clinical stage pipeline includes medicines (including microbicides) and vaccines only. Products that are being investigated for use in multiple diseases are included more than once.

Regulatory approvals in the last 2 years

During the period of analysis, 11 companies gained regulatory approval by the EMA or the US FDA for at least 30 relevant products targeting 11 diseases in scope: COPD, diabetes, epilepsy, hepatitis, HIV/AIDS, lower respiratory infections, meningitis, tetanus, pertussis, schizophrenia and tuberculosis. Most of these approvals are for products that target diabetes and HIV/AIDS,

including both adapted and innovative products. For HIV/AIDS, this includes a new child-dose tablet from Johnson & Johnson, a new paediatric indication for an existing drug from Bristol-Myers Squibb, and a once-a-day treatment from Gilead. The latter is supported by licences allowing the distribution of generic versions in 100 developing countries.

Figure 15

Johnson & Johnson leads in the number of regulatory approvals

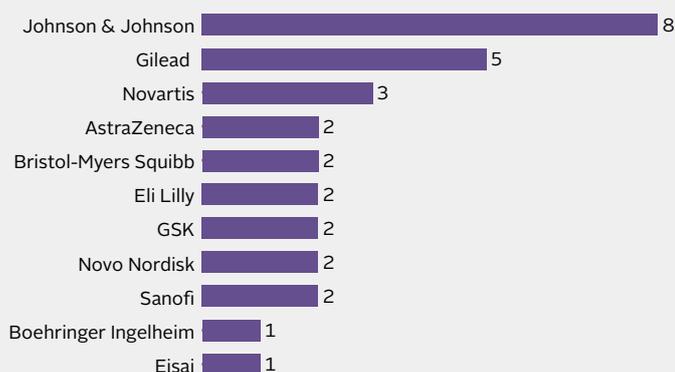
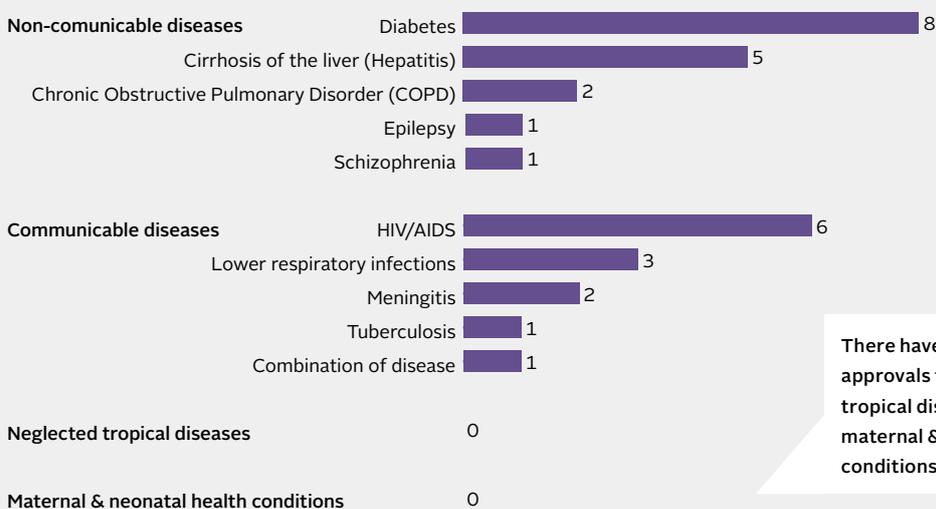


Figure 16

Most approvals are for diabetes and HIV/AIDS



There have been no new approvals for neglected tropical diseases and maternal & neonatal health conditions since 2012.

Table 1

30 products have been approved since 2012

Almost half of the products approved since 2012 are adaptations of existing products.

Company	Brand name (INN) [adaptation]	Index Disease	Product type
Johnson & Johnson	Intelence® (etravirine) - [new dosage strength: 25 mg – paediatric indication]	HIV/AIDS	Medicine
	Prezista® (darunavir) - [new dosage strength: 800 mg]	HIV/AIDS	Medicine
	Sirturo® (bedaquiline)	Tuberculosis	Medicine
	Invega® (paliperidone) - [paediatric indication]	Schizophrenia	Medicine
	Invokana® (canagliflozin)	Diabetes mellitus	Medicine
	Vokanamet® (metformin/canagliflozin) - [Fixed-dose combination]	Diabetes mellitus	Medicine
	Incivo® (telaprevir) - [new dosage strength: 1125 mg]	Cirrhosis of the liver (Hepatitis C)	Medicine
	Olysio® (simeprevir)	Cirrhosis of the liver (Hepatitis C)	Medicine
Gilead	Sovaldi® (sofosbuvir)	Cirrhosis of the liver (Hepatitis C)	Medicine
	Harvoni® (sofosbuvir/Ledipasvir) – [Fixed-dose combination]	Cirrhosis of the liver (Hepatitis C)	Medicine
	Stribild® (elvitegravir/cobicistat/emtricitabine/tenofovir disoproxil fumarate) – [Fixed-dose combination]	HIV/AIDS	Medicine
	Vitekta® (elvitegravir)	HIV/AIDS	Medicine
	Tybost® (cobicistat)	HIV/AIDS	Medicine
Novartis	Bexsero® (meningococcal group B)	Meningitis	Vaccine
	Ultibro® Breezhaler (indacaterol, glycopyrronium) – [Fixed-dose combination]	COPD	Medicine
	Seebri® Breezhaler (glycopyrronium bromide) – [new inhaler]	COPD	Medicine
Astra-Zeneca	Fluenz Tetra® (live attenuated influenza)	Lower respiratory infections	Vaccine
	Zinforo® (ceftaroline)	Lower respiratory infections	Medicine
Bristol-Myers Squibb	Reyataz® (atazanavir) - [paediatric indication]	HIV/AIDS	Medicine
	Daklinza® (daclatasvir)	Cirrhosis of the liver (Hepatitis C)	Medicine
Eli Lilly	Abasria® (insulin glargine)	Diabetes mellitus	Medicine
	Trulicity® (dulaglutide)	Diabetes mellitus	Medicine
GSK	Fluarix® Quadrivalent (influenza)	Lower respiratory infections	Vaccine
	Nimenrix® (meningococcal group ACWY conjugate)	Meningitis	Vaccine
Novo Nordisk	Xultophy® (insulin degludec/liraglutide) – [Fixed-dose combination]	Diabetes mellitus	Medicine
	Ryzodeg® (insulin degludec/insulin aspart) – [Fixed-dose combination]	Diabetes mellitus	Medicine
Sanofi	Hexaxima® (hexavalent vaccine) – [fully liquid vaccine]	Meningitis, cirrhosis of the liver (Hepatitis B), tetanus and pertussis [outside Index Disease scope: diphtheria and polio]	Vaccine
	Lyxumia® (lixisenatide)	Diabetes mellitus	Medicine
Boehringer Ingelheim	Jardiance® (empagliflozin)	Diabetes mellitus	Medicine
Eisai	Fycompa® (perampanel)	Epilepsy	Medicine

There are at least seven other products that are either in the process of registration or for which registration files are publicly unavailable.

