

THE PHARMACEUTICAL INDUSTRY AND GLOBAL HEALTH

FACTS AND
FIGURES 2015



This compendium of facts and figures relating to the pharmaceutical industry and global health aims to provide a snapshot of the work this industry undertakes today. This publication examines the most recent data on pharmaceutical innovation and global health, access to medicines and healthcare systems, as well as the economic footprint of the pharmaceutical industry. The information further illustrates that the research-based pharmaceutical industry is one of the most innovative sectors in the world, which over the past century has played a unique role in developing new and improved medicines and vaccines to prevent and treat diseases.

This is a unique industry. IFPMA members employ over two million of people who are proud to participate in this crucial endeavor. Their work saves millions lives and helps those suffering from disease to recover and lead more productive lives. IFPMA presents this publication to underline the ongoing commitment of the research-based pharmaceutical industry to improving the quality of life for all people worldwide.

We hope that sharing some of the most recent and relevant facts and figures relating to our work can add value to evidence-based policymaking in the global health arena.



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Key facts

RESEARCH & DEVELOPMENT

- It takes 10–15 years to develop a medicine or vaccine.
- The research-based pharmaceutical industry currently spends over USD 141.6 billion on R&D per year.
- In 2014, 50 new pharmaceuticals were launched, out of more than 7,000 compounds in development.
- In 2010–2014, the number of new chemical or biological entities launched on the world market increased to 215 from 162 a decade earlier.
- It costs an average of USD 1.5 billion to develop a single drug.
- In 2012, 5 of the 10 leading global R&D firms were pharmaceutical companies.

INDUSTRY'S CONTRIBUTION TO DISEASES THAT DISPROPORTIONATELY AFFECT THE DEVELOPING WORLD

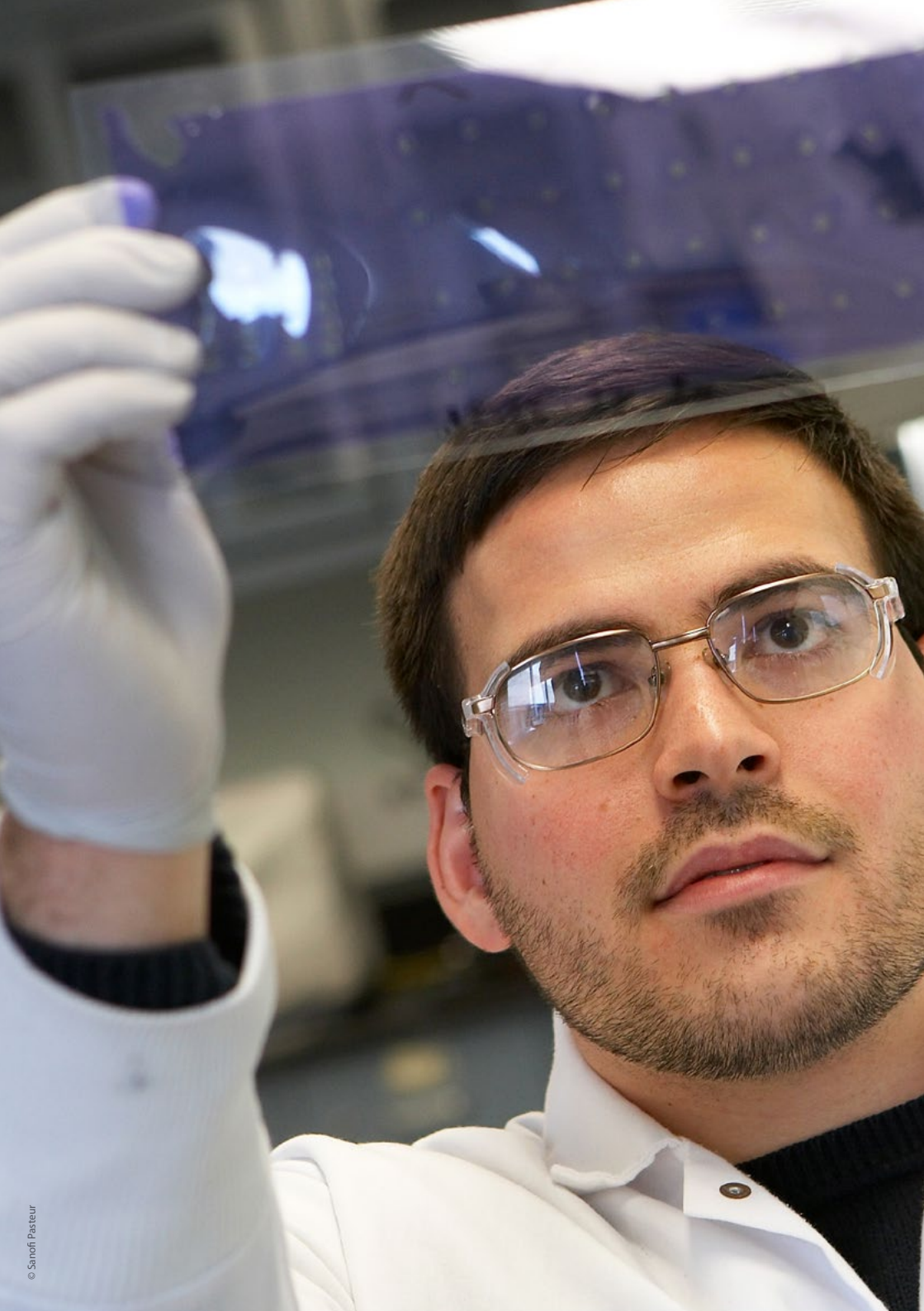
- Drugs and vaccines against malaria are estimated to have saved, between 2011 and 2015, 1.14 million African children's lives.
- Between 2000 and 2013, immunization campaigns helped reduce the number of deaths from measles in Africa by 75%.
- In 2013, there were 475 drugs in the pipeline for diabetes and 159 drugs in development for HIV/AIDS.
- In 2014, IFPMA members had 186 ongoing R&D projects related to diseases of the developing world.
- In 2013, industry was the third largest funder for neglected diseases research, investing over USD 401 million.

THE RESEARCH-BASED PHARMACEUTICAL INDUSTRY'S CONTRIBUTION TO A HEALTHY SOCIETY

- In 2013, the number of drugs in development for particular disease areas were:
 - Cancer: 1,813
 - Cardiovascular diseases: 599
 - Diabetes: 475
 - HIV/AIDS: 159
- For every USD 1 spent on new medicines for congestive heart failure in the United States USD 8.39 in medical spending is saved.

THE PHARMACEUTICAL MARKET

- The pharmaceutical market will reach nearly USD 1,310 billion by 2018.
- Pharming countries will account for 29% of global spending on pharmaceuticals by 2018, compared to 25% in 2013.
- The United States share will increase from 34% in 2013 to 36% in 2018, while Europe's share will fall from 24% in 2013 to 19% in 2018.



Chapter 1

PHARMACEUTICAL INNOVATION AND PUBLIC HEALTH

The research-based pharmaceutical industry plays a unique role in developing new medicines and vaccines to prevent and treat diseases, and improve the lives of patients worldwide. Its key contribution to global health is turning fundamental research into innovative treatments. Industry's success rests on continuous innovation – for the prevention and treatment of common, complex, and neglected diseases, and for improvements in existing treatments. Despite often challenging business and regulatory conditions, the industry undertakes investments that are considerably more risky than those in most high-technology sectors. By investing billions of dollars and thousands of scientist-hours, it pushes the limits of science, fosters medical progress, and contributes to the prosperity of society.

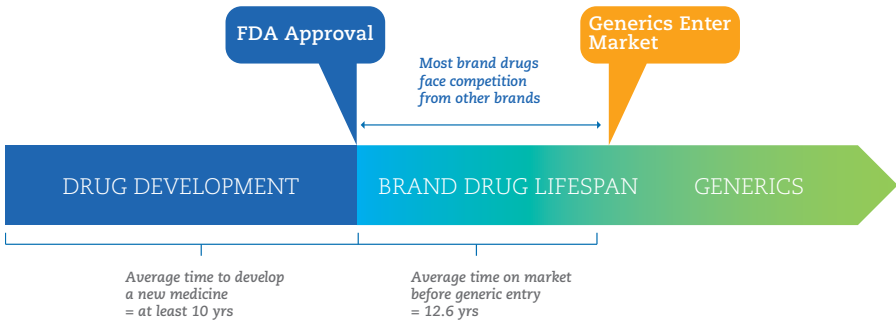
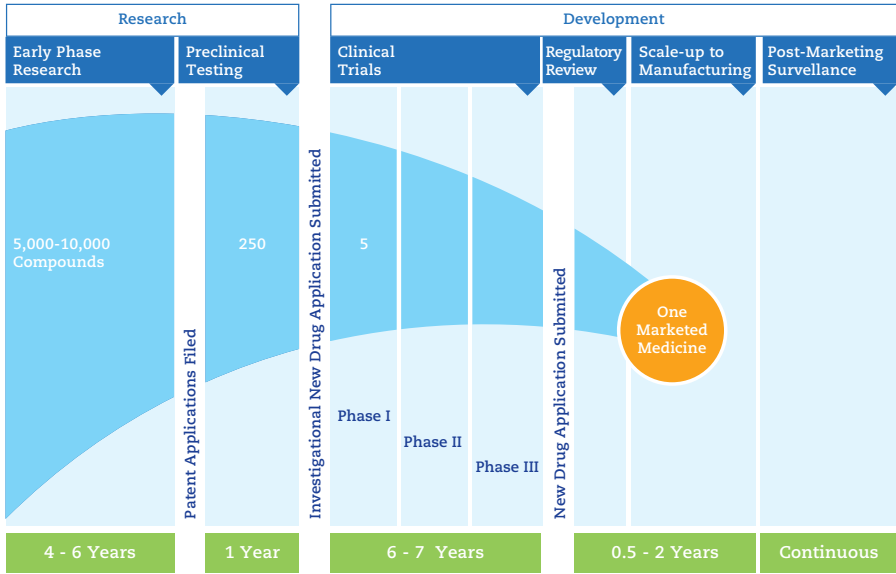
The private sector produces nearly all the medicines and vaccines on the market. When a pharmaceutical company invests in research and development (R&D) of new medicines and vaccines, it first screens for chemical and biological compounds that exhibit the potential for treating new or existing conditions. R&D begins once researchers identify a promising compound among, on average, 5,000–10,000 screened. Researchers then extensively test the compound to ensure its efficacy and safety, a process that can take 10 to 15 years¹. To illustrate, in 2012 43 new medicines were launched², while currently more than 7,000 compounds are at different stages of development globally³. The difference in these numbers highlights the many research hurdles to be overcome before compounds can be developed into safe and effective medicines.

1 PhRMA (2014) Pipeline of Hope. Washington DC: Pharmaceutical Research and Manufacturers of America. <http://www.fromhopetocures.org/pipeline-of-hope>

2 Evaluate Pharma (2015) World Preview 2015, Outlook to 2020. London: Evaluate Ltd., p 27. <http://www.evaluategroup.com/public/reports/EvaluatePharma-World-Preview-2015.aspx>

3 PhRMA (2015) Chart Pack Biopharmaceuticals in Perspective. Washington DC: Pharmaceutical Research and Manufacturers of America, p 24. <http://www.phrma.org/sites/default/files/pdf/chartpack-2015.pdf>

Figure 1: The Research and Development Process^{4,5}



4 Adapted from PhRMA (2015) PhRMA Industry Profile 2011. Washington DC: Pharmaceutical Research and Manufacturers of America, p 37. http://www.phrma.org/sites/default/files/pdf/2015_phrma_profile.pdf

5 PhRMA (2015) Chart Pack Biopharmaceuticals in Perspective. Washington DC: Pharmaceutical Research and Manufacturers of America, p 39. <http://www.phrma.org/sites/default/files/pdf/chartpack-2015.pdf>

A Look into the Pharmaceutical Industry R&D Pipeline

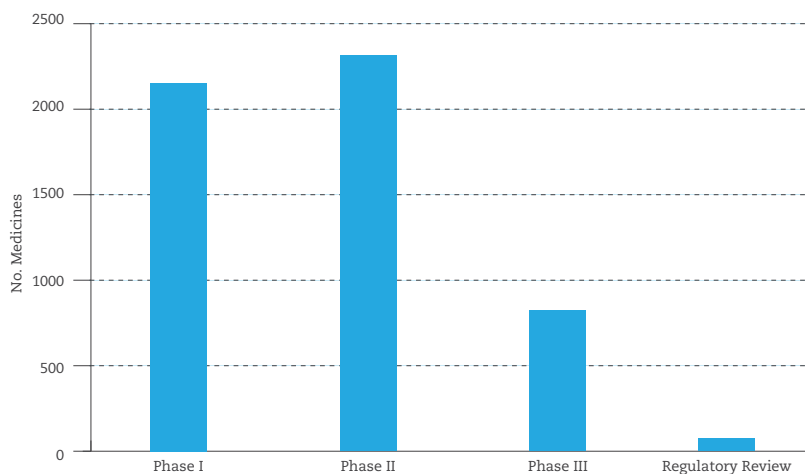
Today, the cost of developing a single drug amounts to over USD 1.5 billion⁶ compared to USD 138 million in 1975. This ten-fold increase reflects the various technical, regulatory and economic challenges facing R&D pipelines. Companies often experience lost R&D investments (that is, R&D expenditures that do not materialize in a market-approved medicine) because pharmaceutical R&D is marked by high failure rates. An early-phase compound may have a promising outlook, but only preclinical and clinical trials will demonstrate its efficacy, quality, and safety. In addition, lost investments may increase when a failure occurs in later R&D phases. A phase III failure is significantly more costly than a preclinical failure because each phase is associated with a certain amount of required investment.

Table 1: R&D Costs, 2013⁷

FUNCTION	USD MILLION	SHARE (%)
Prehuman/Preclinical	10,717.8	20.8
Phase I	3,666.9	7.1
Phase II	5,351.3	10.4
Phase III	15,239.2	29.5
Approval	5,395.4	10.5
Phase IV	7,574.2	14.7
Uncategorized	3,668.7	7.1
TOTAL R&D	51,613.5	100

6 Mestre-Ferrandiz, J., Sussex, J. and Towse, A. (2012) The R&D Cost of a New Medicine. London: Office of Health Economics. <https://www.ohe.org/publications/rd-cost-new-medicine>

7 PhRMA (2015) PhRMA Annual Membership Survey. Washington DC: Pharmaceutical Research and Manufacturers of America, p 6. http://www.phrma.org/sites/default/files/pdf/2015-phrma_profile_membership_results.pdf

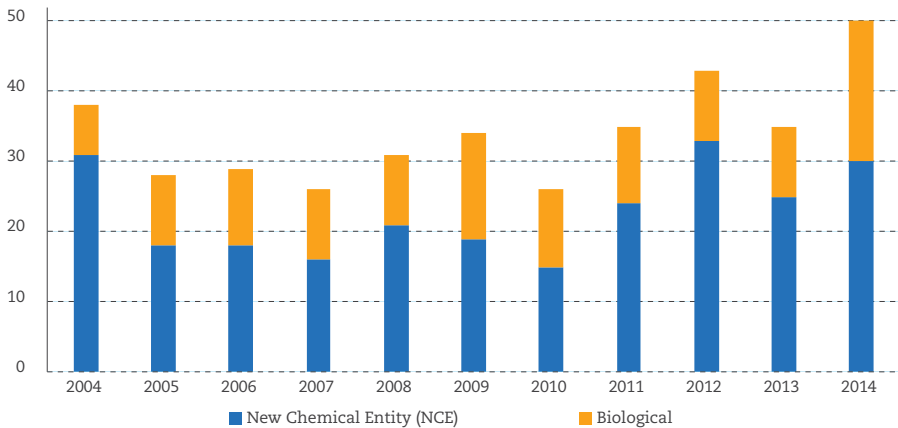
Chart 1: Medicines in Development by Regulatory Phase Globally, 2011⁸Table 2: Medicines in Development for Non-Communicable Diseases (NCDs)⁹

	PHASE I	PHASE II	PHASE III	REGULATORY REVIEW	TOTAL
Cancer	1,265	1,507	288	13	3,073
Cardiovascular	128	230	85	7	450
Diabetes	103	132	43	3	281
Respiratory	123	198	47	2	370

8 PhRMA (2013) The Biopharmaceutical Pipeline: Evolving Science, Hope for Patients. Washington DC: Pharmaceutical Research and Manufacturers of America, p 1. <http://www.phrma.org/sites/default/files/pdf/phrmapipelinereportfinal11713.pdf>

9 Analysis Group (2013) Innovation in the Biopharmaceutical Pipeline: A Multidimensional View. http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2012_Innovation_in_the_Biopharmaceutical_Pipeline.pdf

Chart 2: Number of New Chemical and Biological Entities Approved by the US Food and Drug Administration, 2004-2014¹⁰



Rising R&D costs have been accompanied by more stringent testing requirements. The number of new chemical or biological entities (NCEs and NBEs) launched on the world market increased to 215 in the 2010-2014 period compared with 162 a decade earlier¹¹. In addition, once a medicine receives regulatory approval, national health authorities require companies to track and report patients' experiences (referred to as "pharmacovigilance"). These reporting requirements are becoming stricter, raising the investment cost in a given medicine as long as it is being marketed.

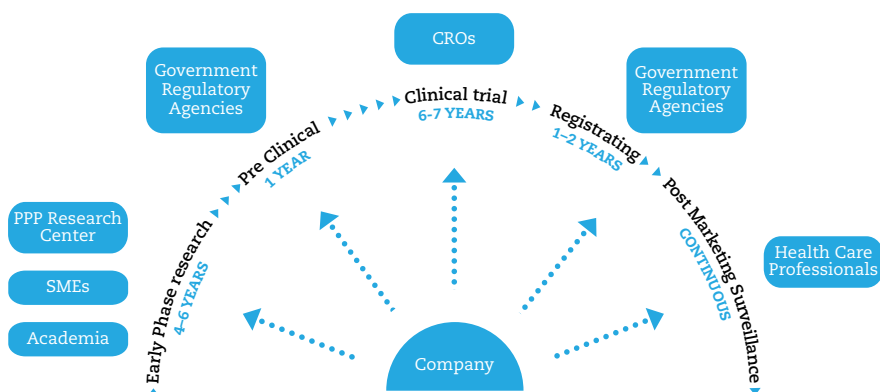
Moreover, many research-based companies are expected to face a substantial drop in revenue in the near future, when many of their patents on "blockbuster" medicines are due to expire. These challenges have not diminished the industry's innovative drive but have rather encouraged it to adopt new models of innovation. Open collaboration and new business models such as joint ventures between pharmaceutical companies and other external entities are ways to increase the productivity of pharmaceutical research by facilitating partnerships involving academia and the public and private sectors. These collaborations facilitate the sharing of expertise, know how, and technologies such as compound databases.

10 Evaluate Pharma (2015) World Preview 2015, Outlook to 2020. London: Evaluate Ltd., p 27. <http://www.evaluategroup.com/public/reports/EvaluatePharma-World-Preview-2015.aspx>

11 EFPIA (2015) The Pharmaceutical Industry in Figures. Brussels: European Federation of Pharmaceutical Industries and Associations, p 8. http://www.efpia.eu/uploads/Figures_2015_Key_data.pdf

Table 3: Trends in Clinical Trial Protocol Complexity¹²

	2000-2003	2008-2011	% CHANGE
Total Procedures per Trial Protocol (median) (e.g., bloodwork, routine exams, x-rays, etc.)	105.9	166.6	57%
Total Investigative Site Work Burden (median units)	28.9	47.5	64%
Total Eligibility Criteria	31	46	48%
Clinical Trial Treatment Period (median days)	140	175	25%
Number of Case Report Form Pages per Protocol (median)	55	171	211%

Figure 2: Pharmaceutical R&D Networks¹³

Pharmaceutical Industry R&D Investments

The research-based pharmaceutical industry is estimated to have spent nearly USD 141.6 billion globally on pharmaceutical R&D in 2014¹⁴.

Of all industrial sectors, the research-based pharmaceutical industry has consistently invested the most in R&D, even in times of economic turmoil and financial crisis.

12 Getz KA, Campo RA, Kaitin KI (2011) Variability in Protocol Design Complexity by Phase and Therapeutic Area. *Drug Inform J*, p 45. <http://dij.sagepub.com/content/45/4/413.short>

13 IFPMA (2012) *The New Frontiers of Biopharmaceutical Innovation*. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 9. http://www.ifpma.org/fileadmin/content/Publication/2013/IFPMA_Incremental_Innovation_Feb_2013_Low-Res.pdf

14 Evaluate Pharma (2015) *World Preview 2015, Outlook to 2020*. London: Evaluate Ltd., p 27. <http://www.evaluategroup.com/public/reports/EvaluatePharma-World-Preview-2015.aspx>

Compared with other high-technology industries, the annual spending by the pharmaceutical industry is 5 times greater than that of the aerospace and defense industries, 4.5 times more than that of the chemicals industry, and 2.5 times more than that of the software and computer services industry¹⁵.

Innovation cannot happen without a number of enabling conditions, such as access to world-class researchers, political and financial stability, and a regulatory framework that protects and rewards innovation. All countries have the potential to foster innovation and improve the functioning of the innovation process.

Table 4: Enabling Factors of Pharmaceutical Innovation¹⁵

EARLY STAGE RESEARCH	<ul style="list-style-type: none"> • World class research institutions • Highly trained workforce (retained or attracted back to the country) • Clusters of innovative companies providing support on core technologies (high throughput screening, gene sequencing etc.) • Partnership encouraging environment
CLINICAL TRIALS	<ul style="list-style-type: none"> • Efficient regulatory system for appraising clinical trials design • Supportive and well-regulated system for enrolment • Strong medical schools and clinicians for designing • Managing and reporting trials design • Growing market receptive to innovation

In the United States, R&D investments of pharmaceutical companies have grown consistently over the past 15 years, and more than doubled the publicly-funded National Institutes of Health's (NIH)¹⁶ expenditures in 2014¹⁷. R&D intensity by the research-based pharmaceutical industry in Japan amounts to 14.6%, in the US to 16.3%, and in the European Union to 13.3%¹⁸. In 2014, the pharmaceutical industry registered 8,568 patents through the Patent Cooperation Treaty (PCT) of the World Intellectual Property Organization¹⁹. No other business sector has such high levels of R&D intensity.

15 Charles River Associates (2012), Policies that encourage innovation in middle-income countries. (Boston, MA: Charles River Associates, 2012).

16 Part of the US Department of Health and Human Services, the National Institutes of Health (NIH) is the US medical research agency, funding universities and research institutions in the US and around the globe.

17 NIH (National Institutes of Health) (2014) NIH Budget. <http://www.nih.gov/about/budget.htm>

18 Joint Research Center (2015) EU R&D Scoreboard. Brussels: European Commission, p 51. <http://iri.jrc.ec.europa.eu/scoreboard14.html>

19 WIPO (2015) Patent Cooperation Treaty Yearly Review – The International Patent System. Geneva: World Intellectual Property Organization, p 48. http://www.wipo.int/edocs/pubdocs/en/wipo_pub_901_2015.pdf

Chart 3: Pharmaceutical R&D Spending²⁰

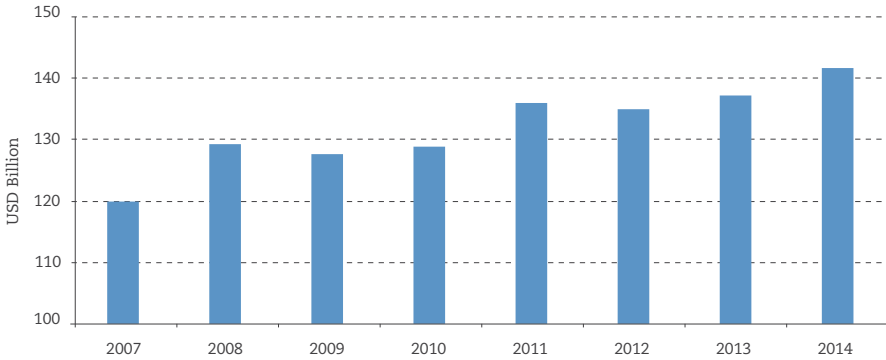
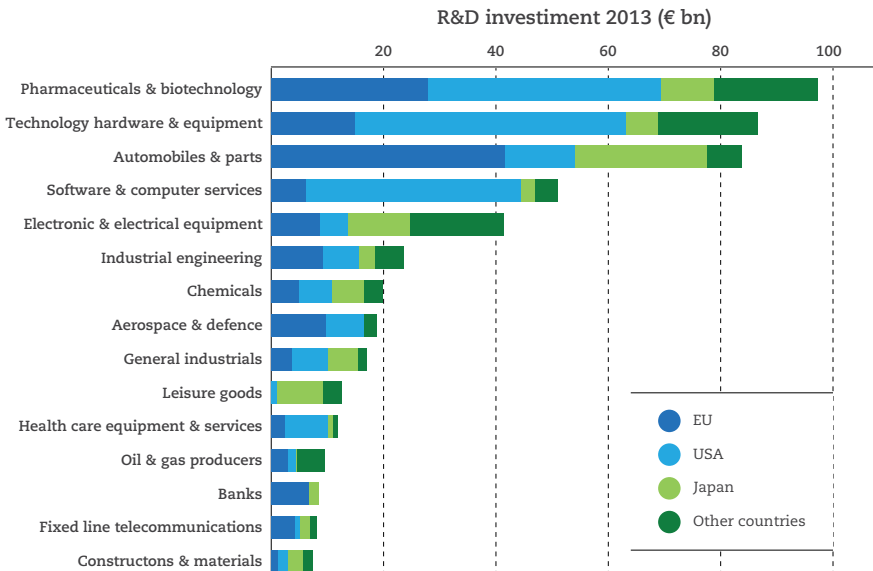


Chart 4: R&D Investments by Sector²¹



20 Evaluate Pharma (2015) World Preview 2015, Outlook to 2020. London: Evaluate Ltd., p 25. <http://www.evaluategroup.com/public/reports/EvaluatePharma-World-Preview-2015.aspx>

21 European Commission (2014) The 2014 EU Industrial R&D Investment Scoreboard; p 49. <http://iri.jrc.ec.europa.eu/scoreboard14.html>

According to European Commission statistics, 5 of the 10 leading global R&D firms in 2013 were pharmaceutical companies²². In 2013, R&D spending by the pharmaceuticals and biotechnology sector grew by 2.4% from the previous year, strengthening its position as the top R&D investing sector²³. These facts are a clear demonstration of the significant contribution the pharmaceutical sector makes to the world economy.

Pharmaceutical R&D and its Impact on Global Health

Pharmaceutical R&D has dramatically improved the lives of patients. Medical discoveries, big and small, have increased life expectancy and resulted in a better quality of life for many. Vaccines have proven to be one of the most effective preventative technologies in the fight against infectious diseases with an almost unparalleled impact on public health, including, but by no means limited to, ridding the world of smallpox, driving polio to the brink of eradication, and virtually eliminated measles, diphtheria and rubella in many parts of the world. Currently, vaccines save the lives of over 2.5 million children each year. Between 2000 and 2013, immunization campaigns cut the number of deaths caused by measles by 75%²⁴, with a reduction of 92% in Africa between 2000 and 2008²⁵. The new generation of vaccines is making the same kind of public health impact as their pioneering predecessors, dramatically reducing the burden of pneumococcal disease and rotavirus disease – two of the biggest killers of children – and cancers caused by HPV (human papilloma virus). Since 1928, scientists have discovered and developed 19 classes of antibiotics²⁶. Currently, 34 new antibacterial compounds are in development of which 15 are vaccines and 19 small and large molecules²⁷. With the help of major medical discoveries, the research-based pharmaceutical industry has developed more than 35 antiretroviral treatments for HIV/AIDS, essential to control of the epidemic²⁸. More than 7,000 medicines are in development worldwide, 159 drugs HIV/AIDS; 1,813 for cancer; 475 for diabetes; and 599 for cardiovascular diseases²⁹.

22 Idem, p60

23 Idem

24 WHO (2015) Fact Sheet Measles. Geneva: World Health Organization. <http://www.who.int/mediacentre/factsheets/fs286/en>

25 GAVI Alliance (2015) Measles Vaccine Support. Geneva: Gavi, the Vaccine Alliance. <http://www.gavialliance.org/support/nvs/measles>

26 Resources for the Future (2008) Extending the cure: Policy responses to the growing threat of antibiotic resistance. Washington DC: Resources for the Future. <http://www.rff.org/RFF/Documents/ETC-06.pdf>

27 IFPMA (2015) Rethinking the Way We Fight Bacteria. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 25. http://www.ifpma.org/fileadmin/content/Publication/2015/IFPMA_Rethinking_the_way_we_fight_bacteria_April2015_FINAL.pdf

28 U.S. Food and Drug Administration (2014) Antiretroviral Drugs Used in the Treatment of HIV Infection. <http://www.fda.gov/ForPatients/illness/HIVAIDS/Treatment/ucm118915.htm>

29 PhRMA (2015) Chart Pack Biopharmaceuticals in Perspective. Washington DC: Pharmaceutical Research and Manufacturers of America, p 24. <http://www.phrma.org/sites/default/files/pdf/chartpack-2015.pdf>

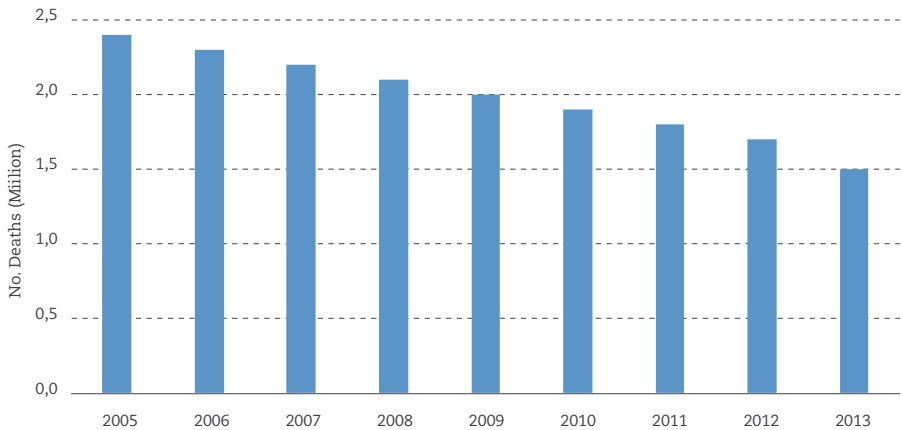
Figure 3: Medicines in Development (Selected Categories)³⁰

Pharmaceutical progress has led to a dramatic decline in death rates for diseases such as HIV/AIDS, cancer, polio, and measles. For example, death rates for HIV/AIDS in the United States have fallen from 16.2 deaths per 100,000 people in 1995 to 2.1 deaths per 100,000 people in 2013, a reduction of 87%³¹. The number of AIDS-related deaths worldwide peaked at 2.5 million in 2005 and has since fallen to an estimated 1.5 million deaths in 2013³². This can be largely attributed to the introduction of new antiretroviral therapies (ARTs) combined with more patients being provided with treatment.

30 PhRMA (2015) Chart Pack Biopharmaceuticals in Perspective. Washington DC: Pharmaceutical Research and Manufacturers of America, p 24. <http://www.phrma.org/sites/default/files/pdf/chartpack-2015.pdf>

31 Centers for Disease Control and Prevention (2015) Health, United States, 2014. Hyattsville: U.S. Department of Health and Human Services. <http://www.cdc.gov/nchs/data/hs/hs14.pdf>

32 UNAIDS (2014) Fact Sheet: 2014 Statistics. Geneva: United Nations AIDS. <http://www.unaids.org/en/resources/campaigns/HowAIDSchangedeverything/factsheet>

Chart 5: Decline in HIV/AIDS Death Rates³³

In the past 15 years alone, over 500 medicines have been approved that offer new hope to patients with hard-to-treat diseases³⁴. The introduction of innovative drugs usually has a two-fold benefit for society. First, it improves the physical and mental well-being of individuals. Second, it reduces hospitalization and other healthcare costs. Thus, for every dollar spent on prescription drugs in the United States, more than two dollars are saved in hospitalization costs³⁵.

Today, if diagnosed early, leukemia can be driven into remission with a once-daily treatment. High cholesterol and other cardiovascular diseases, which required extensive treatment in the 1970s, can now be easily managed with oral therapy. Meanwhile, improvements in existing cancer treatments have cut annual death rates by half³⁶.

33 Idem

34 U.S. Food and Drug Administration (2015) New Drugs at FDA: CDER's New Molecular Entities and New Therapeutic Biological Products. <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DrugInnovation/default.htm>

35 PhRMA Innovation Hub (2015) Innovation by the Numbers. http://www.innovation.org/index.cfm/ToolsandResources/FactSheets/Innovation_by_the_Numbers#11-Shang

36 Analysis Group (2013) Innovation in the Biopharmaceutical Pipeline: A Multidimensional View. http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/2012_Innovation_in_the_Biopharmaceutical_Pipeline.pdf

Pharmaceutical innovation can also reduce the costs incurred by governments and healthcare systems. For example, every USD 1 spent on childhood vaccination in the United States saves USD 10.20 in disease treatment costs³⁷. Another study demonstrated that every USD 1 spent on new medicines for congestive heart failure in the United States saves USD 8.39 in medical spending³⁸. In this manner, pharmaceutical innovation directly impacts patients' health and indirectly alleviates the unseen economic burden of disease.

Figure 4: Direct Medical Costs Saved through Childhood Vaccination³⁹

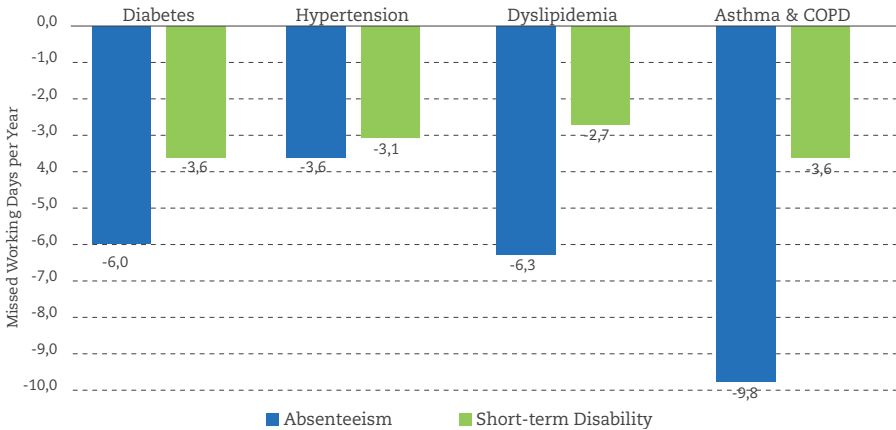


For every \$1.00 the U.S. spends on childhood vaccinations,



\$10.20 is saved in disease treatment costs.

Chart 6: Improving Adherence to Medicines Increases Productivity⁴⁰



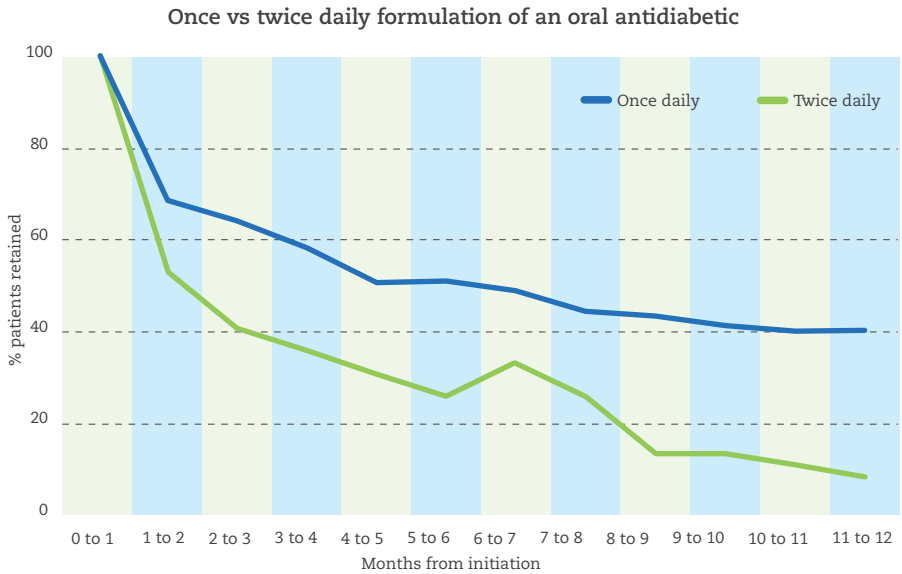
37 Pfizer (2014) The Value of Medicines in Offsetting Healthcare Costs. http://www.pfizer.com/sites/default/files/health/VOMPaper_MedicalCostOffset_12_23_14.pdf

38 Roebuck, M. C.; Liberman, J. N.; Gemmill-Toyama, M.; et al. (2011) Medication Adherence Leads to Lower Healthcare Use and Costs despite Increased Drug Spending. <http://content.healthaffairs.org/content/30/1/91.full.pdf+html>

39 Pfizer (2014) The Value of Medicines in Offsetting Healthcare Costs. http://www.pfizer.com/sites/default/files/health/VOMPaper_MedicalCostOffset_12_23_14.pdf

40 Carls GS, Roebuck C, Brennan TA, et al. (2012) Impact of Medication Adherence on Absenteeism and Short-Term Disability for Five Chronic Diseases. <http://www.ncbi.nlm.nih.gov/pubmed/22796923>

Chart 7: Reducing Number of Formulations per Day Increases Percentage of Diabetes Patients Retained on Treatment⁴¹



Incremental Innovation

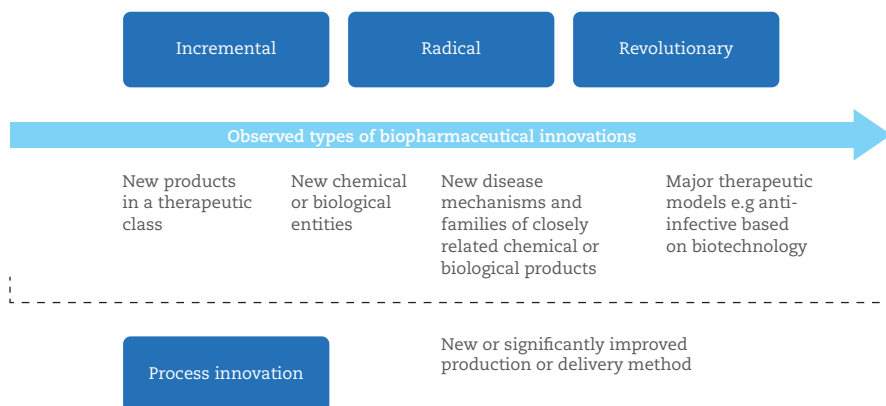
Incremental innovation is the process of improving existing medicines or expanding therapeutic classes to increase therapeutic efficacy, safety, and quality. These improvements are often dependent on the experiences of healthcare providers and patients' needs. Incremental innovation can expand existing therapeutic classes by improving complex molecular structures, reformulating medicines to improve patient administration, or exploring new uses for existing medicines. For example, one way to improve a medicine's therapeutic efficacy profile is to ensure that patients comply with dosing requirements. Thus a once-a-day formulation of a medicine often improves patients' compliance to dosing regimens.

41 IMS Institute for Healthcare informatics (2012) Advancing the Responsible Use of Medicines: Applying Levers for Change, p. 54. https://www.imshealth.com/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/Responsible%20Use%20of%20Medicines/IHII_Advancing_Responsible_Use_of_Meds_Report.pdf

Regardless whether an improvement is a new formulation, an expansion to an existing therapeutic class, or a newly identified medicinal use, incremental innovation involves the same R&D and clinical trial inputs as first-in-class medicines⁴².

Because pharmaceutical innovation is the sum of various, and often discrete, activities, incremental innovation can be misconstrued as “trivial.” According to this view, patenting activity relating to incremental improvements pre-empts generic versions of first-in-class medicines. However, existing intellectual property systems and regulatory procedures prevent exactly this situation. In fact, the patent term of an improved medicine is wholly independent of the term of the first-in-class medicine⁴³.

Figure 5: Categories of Pharmaceutical Innovation⁴⁴



42 IFPMA (2012) Incremental Innovation: Adapting to Patient’s Needs. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 6. http://www.ifpma.org/fileadmin/content/Publication/2013/IFPMA_Incremental_Innovation_Feb_2013_Low-Res.pdf

43 IFPMA (2012) Incremental Innovation: Adapting to Patient’s Needs. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 15. http://www.ifpma.org/fileadmin/content/Publication/2013/IFPMA_Incremental_Innovation_Feb_2013_Low-Res.pdf

44 Idem

R&D for Diseases that Disproportionately Affect the Developing World

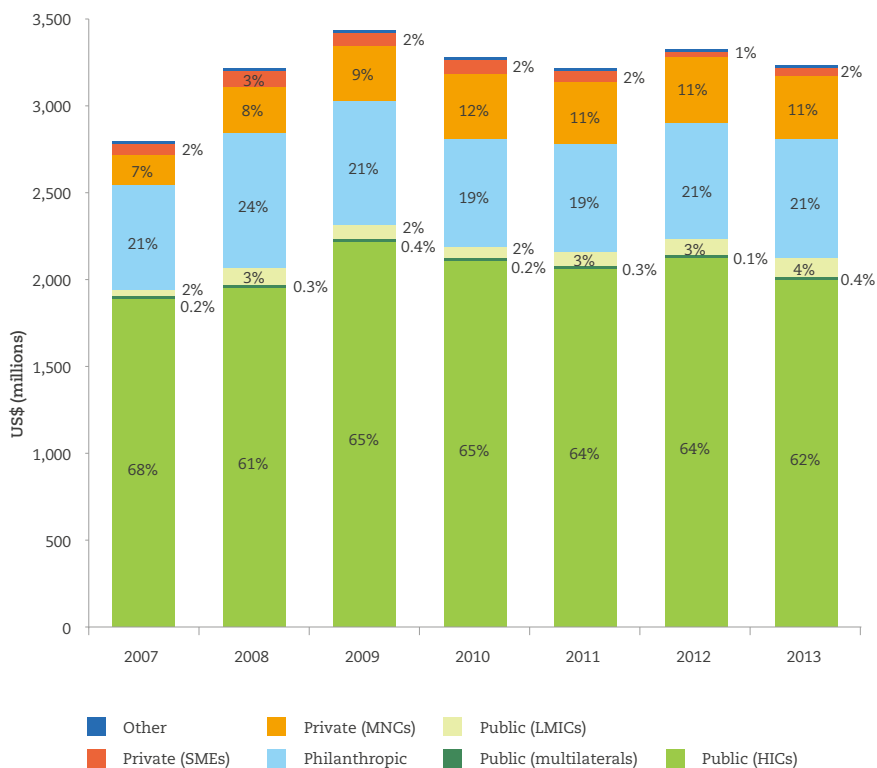
The World Health Organization (WHO) has identified 17 neglected tropical diseases (NTDs), which form a significant part of the global disease burden and affect the lives of more than 1 billion people⁴⁵. Some NTDs can have lifelong consequences for individuals. Others lead to acute infections that can be fatal. These diseases – whose names are not commonly known – include Buruli ulcer disease, dengue, cholera, trachoma, and guinea worm disease, and primarily affect poor people in tropical and subtropical areas.

NTDs demand a distinct business/innovation model because the potential market does not adequately support R&D investments on a commercial basis. In this context, various pharmaceutical companies have collaborated with different stakeholders to form product development partnerships (PDPs), which bring together the expertise and resources of different players including academia, industry, private foundations, and governments. These partnerships are often funded by public or philanthropic organizations, as well as by the research-based pharmaceutical industry. In 2012, the industry contributed about 15% of the total research funding for malaria, 9.5% for dengue, and 21.9% for tuberculosis⁴⁶. Overall, industry was the third largest funder for NTDs research, investing over USD 401 million⁴⁷.

45 WHO (2015) Neglected Tropical Diseases. http://www.who.int/neglected_diseases/about/en

46 G-Finder (2014) Neglected Disease Research and Development Emerging Trends. <http://www.policycures.org/downloads/Y7%20GFINDER%20full%20report%20web%20.pdf>

47 Idem

Chart 8: Total Funding for Neglected Diseases by Funder Type, 2007-2013⁴⁸

SMEs = Small Pharmaceutical Companies & Biotech
MNCs = Multinational Pharmaceutical Companies

These partnerships have proven fruitful and most PDPs currently have a healthy pipeline. For example, the portfolio of the TB Alliance consists of eleven drugs between phase 1 and 4 of clinical trials⁴⁹. The Drugs for Neglected Diseases initiative (DNDi) aims to deliver 11 to 13 new treatments by 2018 for Chagas disease, malaria, leishmaniasis, helminths, pediatric HIV, and sleeping sickness, of which six are already available – unprecedented progress in the fight against these diseases⁵⁰. WIPO Re:Search has facilitated 90 collaborations since its first year to (October 2011) to August 2015⁵¹.

48 Idem

49 TB Alliance (2015) TB Alliance Pipeline http://www.tballiance.org/downloads/Pipeline/TBA_Pipeline_Q3_2015.pdf

50 DNDi (2015) DNDi R&D Projects. <http://www.dndi.org/diseases-projects/portfolio.html>

51 WIPO (2015) Collaborations. Geneva: World Intellectual Property Organization. <http://www.wipo.int/research/en/collaborations>

In 2014, IFPMA members had 186 ongoing R&D projects related to diseases of the developing world⁵². The number of projects, undertaken in-house or in PDPs, has steadily increased over the years. Through its many partnerships, the research-based pharmaceutical industry is helping to construct innovative models to develop and deliver essential healthcare for patients living in the poorest areas of the world.

Table 5: Industry R&D Activity Relating to Diseases of the Developing World, 2005-2014⁵³

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Medicines	32	43	50	58	75	91	82	117	150	168
Vaccines	not counted	6	8	9	9	11	11	15	14	18
Total Projects	32	49	58	67	84	102	93	132	164	186

52 IFPMA (2015) Pharmaceutical R&D Projects to Prevent and Control Neglected Conditions. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 7. http://www.ifpma.org/fileadmin/content/Publication/2015/IFPMA_2014_Status_Report_NTDs_FINAL.pdf

53 Idem



Chapter 2

ACCESS TO MEDICINES AND HEALTHCARE SYSTEMS

A robust healthcare system is an important pillar of every country's socio-economic development process, and sound policies for the pharmaceuticals sector are a fundamental condition for health systems to perform well⁵⁴. Health systems are complex mechanisms through which health products, services, and care are delivered to patients⁵⁵. Their success requires joint effort and collaboration between all the key health actors. As such, the research-based pharmaceutical industry plays an essential role in providing access to medicines and support to the overall healthcare structure.

Distribution of Wealth and Health Outcomes

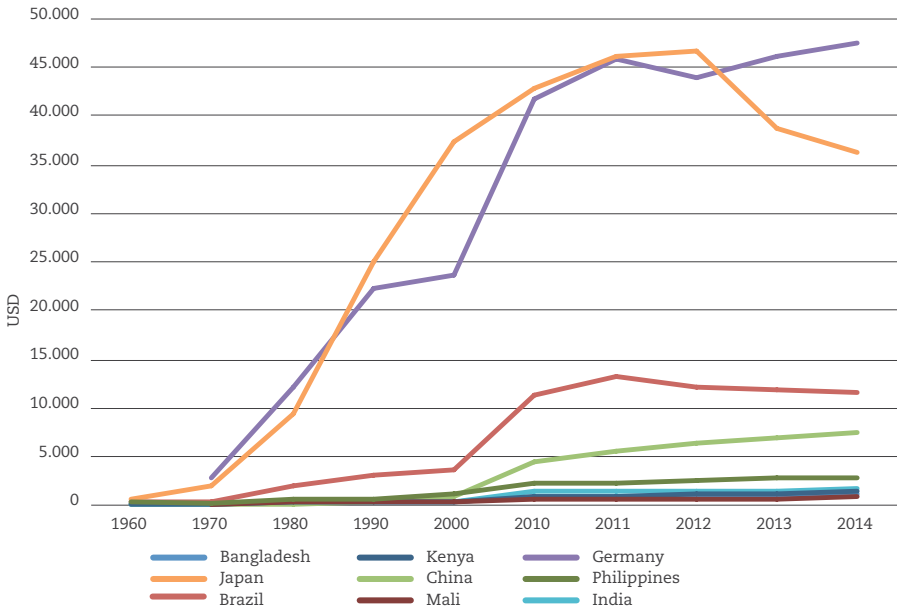
The world is still marked by a sharp disparity in the wealth of countries, which has a major impact on the performance of healthcare systems.

Looking at the regional distribution of wealth, the European Union, North America and Eastern Europe/Central Asia have a GDP per capita between two-and-a-half and five times the world average, whereas Sub-Saharan Africa and South Asia have a GDP per capita equivalent to one-eighth of the world average⁵⁶. People in poor countries have less access to water and sanitation facilities, have lower levels of literacy, and lack adequate infrastructure, including transportation systems that enable travel to healthcare facilities. These elements are essential parts of a healthy economy.

54 WHO (2007) *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*. Geneva: World Health Organization, p 3. http://www.who.int/healthsystems/strategy/everybodys_business.pdf

55 IFPMA (2012) *The Changing Landscape on Access to Medicines*. Geneva: International Federation of Pharmaceutical Manufacturers and Associations, Chapter 2. <http://www.ifpma.org/fileadmin/content/Publication/2012/ChangingLandscapes-Web.pdf>

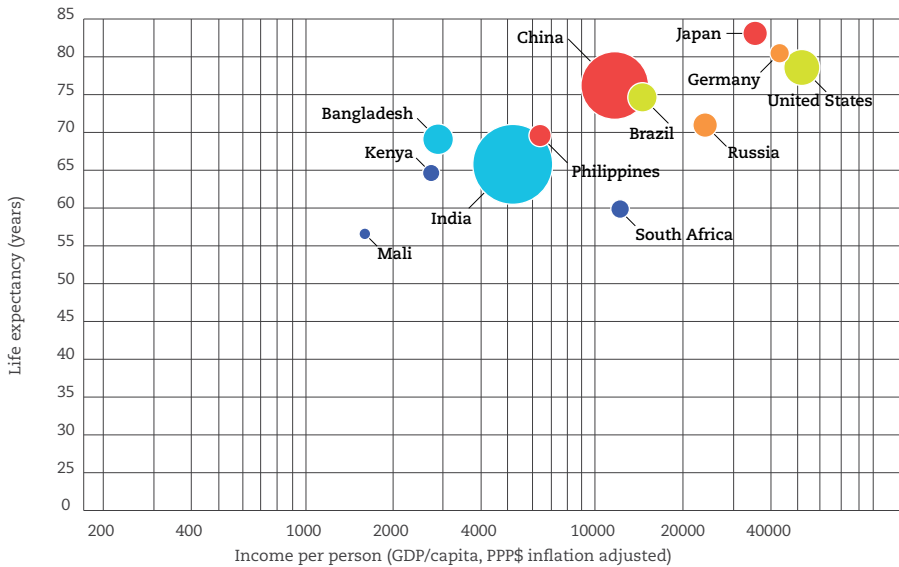
56 World Bank (2015) *GDP per capita (current US\$)*. Washington DC: The World Bank Group. http://data.worldbank.org/indicator/NY.GDP.PCAP.CD/countries?order=wbapi_data_value_2008%20wbapi_data_value&sort=asc&display=map

Chart 9: Evolution GDP per Capita in Selected Countries⁵⁷

Total health expenditures range from 3.5% of GDP in Equatorial Guinea to 17.1% of GDP in the United States. On average, low-income countries spend 6.4% of GDP on financing healthcare systems whereas high-income countries spend more than 11.1% on health. The disparities are also significant in terms of healthcare workers. There are 0.7 physicians per 10,000 inhabitants in low-income countries compared with 31.1 in high-income countries. Likewise, low-income countries have about 13 hospital beds per 10,000 inhabitants whereas the average for high-income countries is 55.7⁵⁸.

⁵⁷ World Bank (2015) GDP per Capita (Current US\$). Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

⁵⁸ World Bank (2015) Health Indicators. Washington DC: The World Bank Group. <http://data.worldbank.org/indicator#topic-8>

Chart 10: Correlation between Income per Person and Life Expectancy, 2013⁵⁹

These divergences in wealth and resources have a decisive impact on people's health. In low-income countries, 76.3 out of 1,000 children die before their fifth birthday compared with 6.3 out of 1,000 in high-income countries (see also Annex 2)⁶⁰. The strong link between wealth and health is also reflected in average life expectancy – 59 years in low-income countries compared with 79 years in high-income countries, a stark difference of 20 years⁶¹.

Healthcare Spending and Workforce

According to the WHO, a health system is built on six building blocks: service delivery; health workforce; information; medical products, vaccines, and technologies; financing; and leadership/governance⁶². A well-functioning healthcare system also promotes productive relationships between governments, patients, and the healthcare industry.

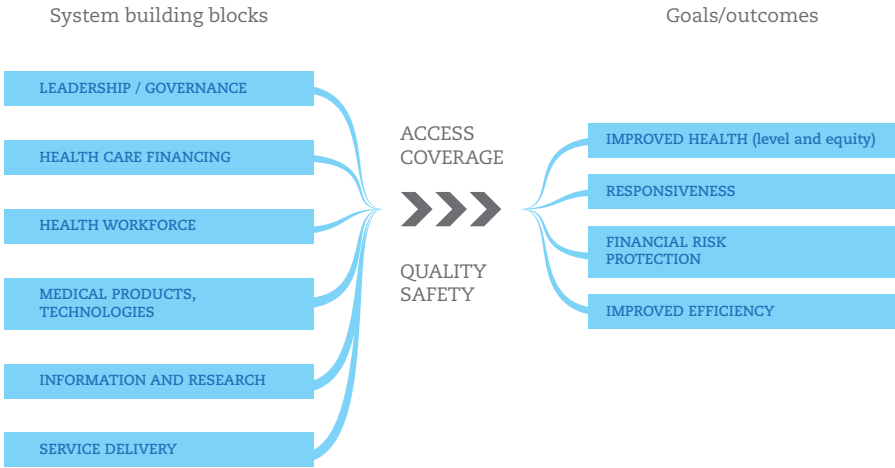
59 Size of the circles reflects the country population. Gapminder (2015) Global Trends: Wealth & Health of Nations. <http://www.gapminder.org>

60 World Bank (2015) Mortality Rate, under-5 (per 1,000 Live Births). Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/SH.DYN.MORT>

61 World Bank (2015) Life Expectancy at Birth, Total (Years). Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/SP.DYN.LE00.IN>

62 WHO (2015) The WHO Health Systems Framework. Geneva: World Health Organization. http://www.wpro.who.int/health_services/health_systems_framework/en

Figure 6: The WHO Health System Framework⁶³



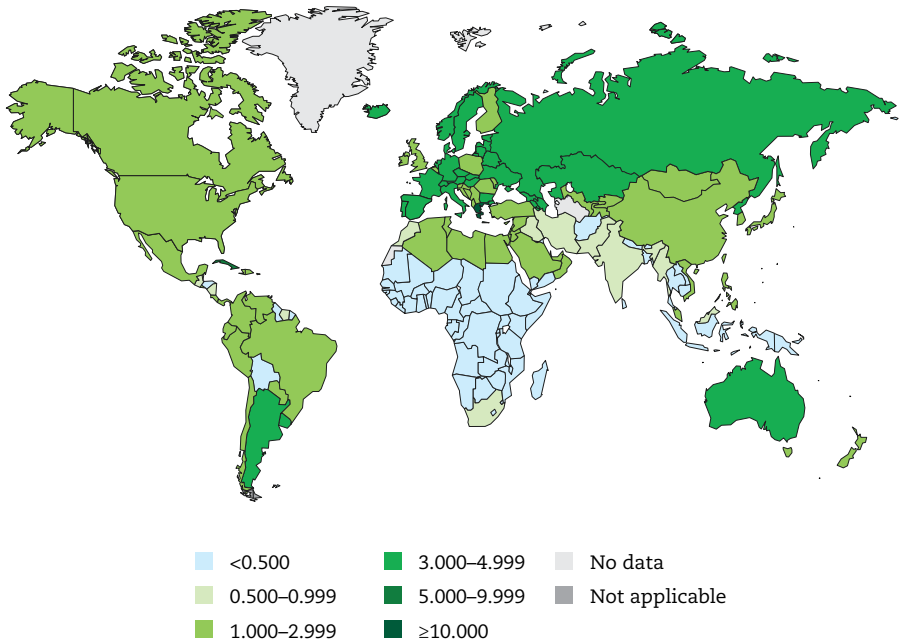
The pharmaceutical industry plays a pivotal role in any healthcare system, by providing medicines and vaccines for most health interventions. A well-performing healthcare system must ensure that pharmaceutical products meet quality requirements and are properly procured, distributed to the different healthcare facilities, and prescribed by properly trained professionals.

Doctors, nurses, and other health professionals form the cornerstone of healthcare systems. Not only do they diagnose, treat, and follow up patients with the right care, they also facilitate adequate patient adherence to treatment. Taking the wrong medicines or not adhering to appropriate treatments can have deleterious effects on patients' health. However, the availability of physicians varies greatly; in Spain, there are 4.9 doctors for every 1,000 inhabitants, while in Ghana there are only 0.1⁶⁴.

63 WHO (2015) The WHO Health Systems Framework. Geneva: World Health Organization. http://www.wpro.who.int/health_services/health_systems_framework/en

64 World Bank (2015) Physicians (per 1,000 People). Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/SH.MED.PHYS.ZS>

Figure 7: Relative Density of Physicians per 1,000 Population (Latest Available Year)⁶⁵

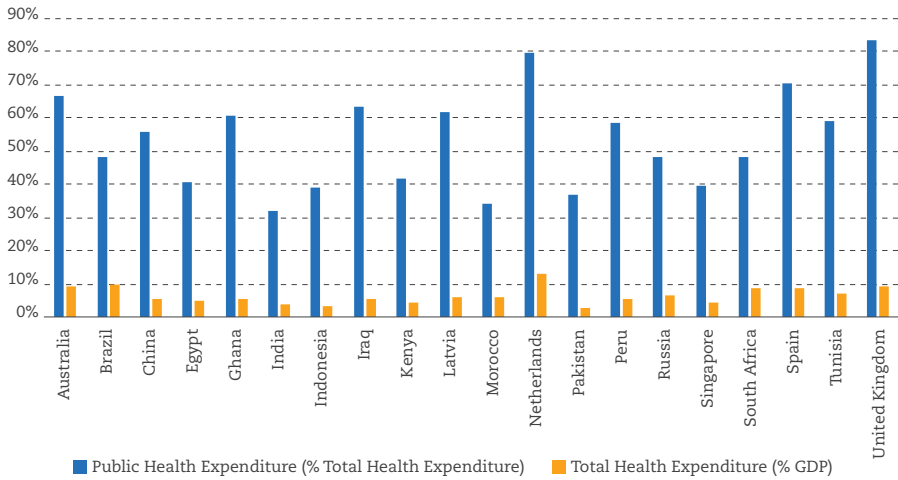


In terms of funding, performing healthcare systems require sufficient allocation of resources by government and the private sector. Unfortunately, public health and the strengthening of healthcare systems have different priority levels in many countries, and the resources made available to health vary significantly from country to country (see Figure 6). For example, in 2013 Jordan invested about 7.2% of its GDP on health, which amounts to 66.0% of total government expenditure. In the same year, Pakistan invested 2.8% and 36.8% respectively⁶⁶.

65 WHO (2015) Global Health Observatory Data Repository: Density of Physicians (Total Number per 1,000 Population). Geneva: World Health Organization. http://gamapservr.who.int/gho/interactive_charts/health_workforce/PhysiciansDensity_Total/atlas.html

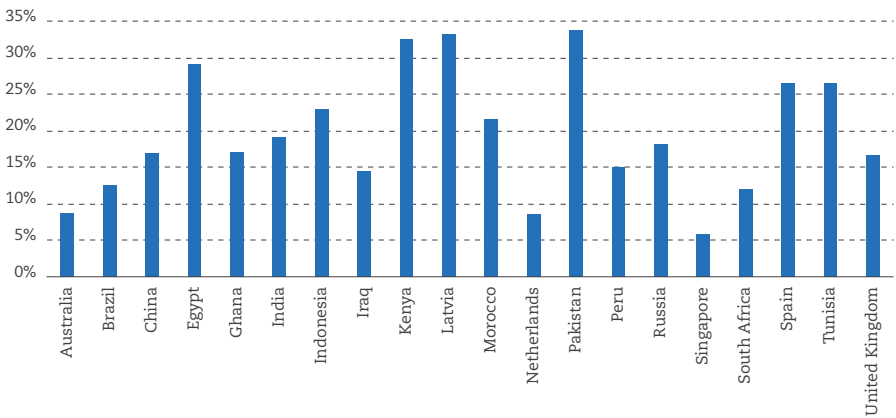
66 World Bank (2015) Health Indicators. Washington DC: The World Bank Group. <http://data.worldbank.org/topic/health>

Chart 11: Total Health Expenditure as a Percentage of GDP and Public Health Expenditure as a Percentage of the Total Health Expenditure⁶⁷



Strong healthcare systems also require strategic long-term planning and political commitment. Health authorities should not only facilitate necessary resources, but also procure medicines effectively and minimize inefficiencies and unnecessary mark-ups in the supply chain, such as taxes and tariffs.

Chart 12: Total Pharmaceutical Sales as a Percentage of Healthcare Expenditure, 2013⁶⁸



67 World Bank (2015) Health Expenditure. Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/all>

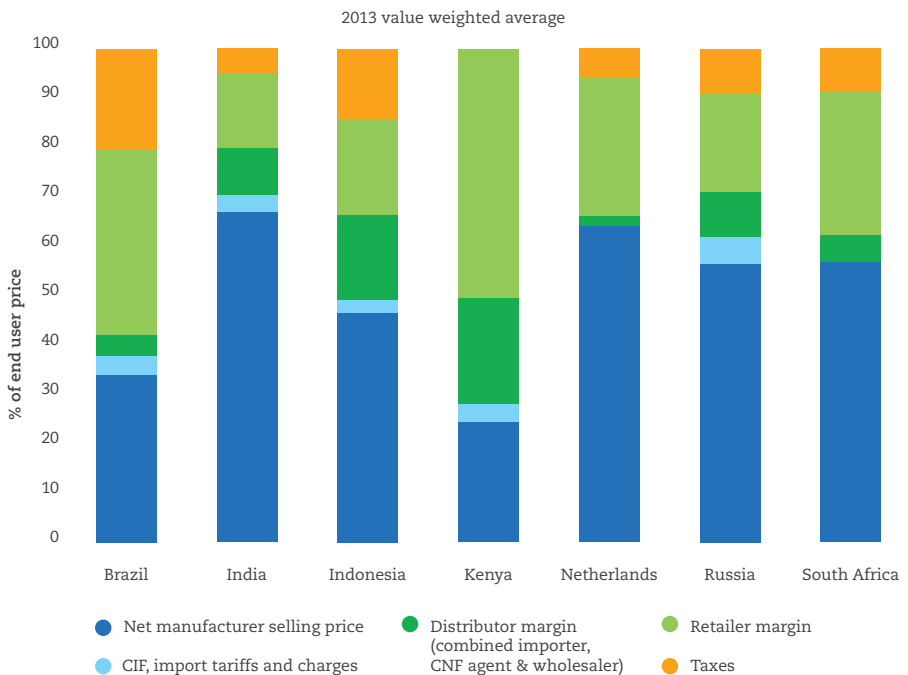
68 Business Monitor International (2015) BMI Pharmaceutical and Healthcare Database. <https://bmo.bmiresearch.com/data/datatool>

Barriers to Access to Medicines and Healthcare

The most obvious and fundamental barriers to access to healthcare and medicines arise from poverty. The poor health infrastructure in certain developing countries is accompanied by serious shortages of doctors, nurses, and pharmacists. In addition, particularly in rural areas, healthcare facilities are located at a considerable distance from patients and the transport network is often precarious. Lack of health literacy can further hinder access to medicines.

Developing countries, especially least-developed countries, often have high mark-up costs that unnecessarily inflate the prices of essential medicines. These include distribution costs, import tariffs, port charges, importers' margins, value-added taxes on medicines, and high margins in the wholesale and retail components of the supply chain.

Chart 13: Examples of “Hidden” Costs of Pharmaceutical Procurement⁶⁹



69 IMS Institute for Healthcare Informatics (2014) Understanding the Pharmaceutical Value Chain. http://www.imshealth.com/imshealth/Global/Content/Corporate/IMS%20Health%20Institute/Insights/Understanding_Pharmaceutical_Value_Chain.pdf

Moreover, poor people with limited or no access to adequate nutrition, safe water, and sanitation are also often unable to afford even basic health products and services. Contrary to widespread belief, it is rarely high-tech solutions but rather primary care interventions that successfully combat poverty-related diseases. Poverty alleviation in general consists of targeted interventions. Some of these programs include better nutrition for mothers, mass vaccination campaigns, access to basic antibiotics, bed nets for malaria prevention, and condom use programs to prevent the spread of HIV/AIDS and other sexually transmitted diseases. These efforts are highly effective in reducing preventable mortality.

Table 6: Selected Infrastructure Indicators, 2012⁷⁰

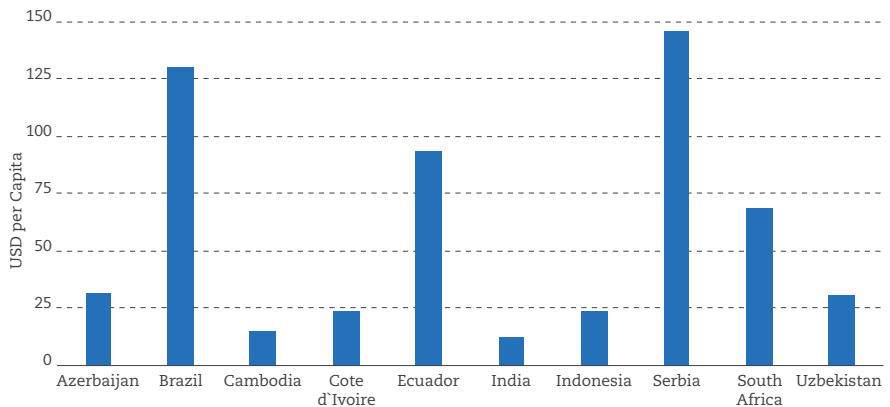
	ROADS PAVED (% TOTAL ROADS)*	IMPROVED SANITATION FACILITIES (% POPULATION WITH ACCESS)	IMPROVED WATER SOURCE (% POPULATION WITH ACCESS)
Arab World	79.6	81.64	85.28
East Asia & Pacific	66.2	69.98	91.71
Europe & Central Asia	86.4	92.58	97.91
Heavily indebted poor countries	16.3	26.23	62.81
High income	84.6	96.30	99.20
Latin America & Caribbean	23.3	81.74	94.03
Least developed countries	20.8	36.21	66.61
Low income	16.3	27.14	63.02
Lower middle income	47.25	48.52	87.43
Middle income	55	59.85	89.77
North America	100	99.98	99.26
South Asia	44.95	39.83	91.17
Sub-Saharan Africa	16.3	29.58	64.44
Upper middle income	60.45	73.49	92.58
World	57.6	63.62	89.32

*2010 Figures

The Role of Pharmaceutical Products in Healthcare

The MDGs highlighted the imperative to adopt collaborative approaches. In particular, Goal 8 promotes global partnership for development, and Target 8e specifically aims to, “in co-operation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries”. The post-2015 Sustainable Development Goals have been adopted, and health has been shown to play a critically important role. Collaboration remains integral to the research-based pharmaceutical industry in their approach to improving the effectiveness of healthcare systems.

Chart 14: *Pharmaceutical Sales per Capita in Selected Low and Middle Income Countries, 2014*⁷¹



The pharmaceutical industry constitutes one of the building blocks of an effective and well-functioning healthcare system. As demonstrated below, pharmaceutical products, such as medicines and vaccines, are fundamental and require appropriate financing. However, pharmaceutical expenditure is only a small percentage of total health expenditure.

Innovative drugs can help to control increasing costs within a healthcare system. For every USD 1 spent on childhood vaccination in the United States, USD 10.20 were saved in disease treatment costs⁷². Prior to the creation of antibiotics used to treat peptic ulcers, the treatment for the disease consisted of major surgery and costly assistance with

71 Business Monitor International (2015) BMI Pharmaceutical and Healthcare Database. <https://bmo.bmiresearch.com/data/datatool>

72 Pfizer (2014) The Value of Medicines in Offsetting Healthcare Costs. http://www.pfizer.com/sites/default/files/health/VOMPaper_MedicalCostOffset_12_23_14.pdf

recovery, requiring as much as USD 17,000 and over 300 days of treatment⁷³. Antibiotics cut the cost of treating ulcers to less than USD 1,000⁷⁴. In addition, patients enjoy a better quality of life and a non-invasive, safer course of treatment.

Chart 15: Impact of Medication Adherence in Chronic Vascular Disease, 2005–2008⁷⁵

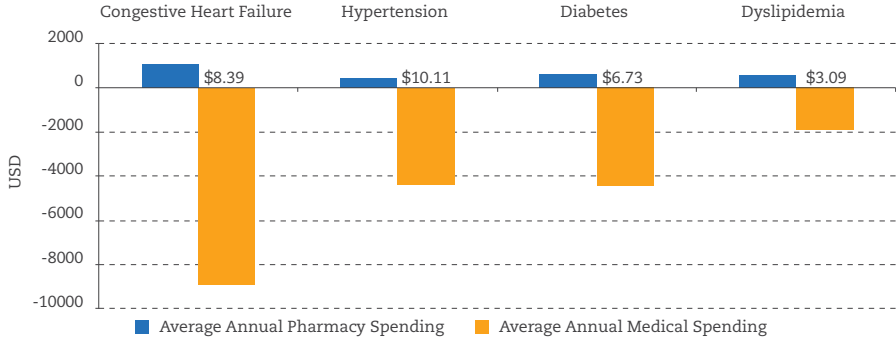
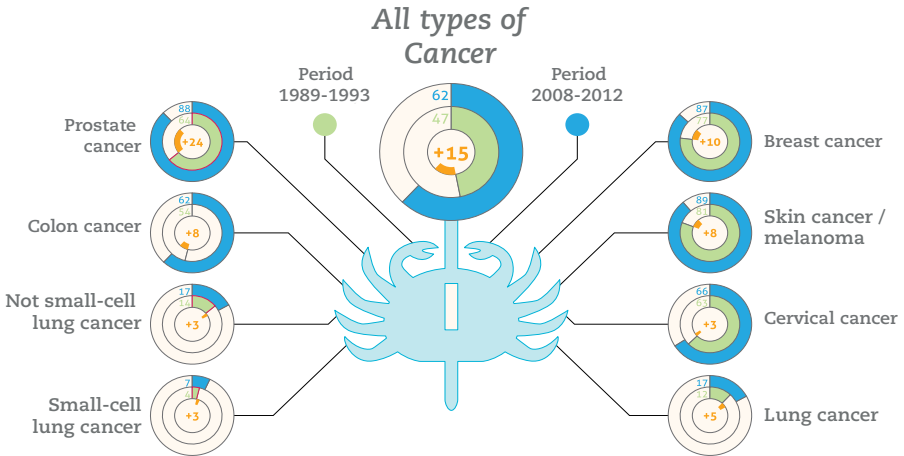


Figure 8: Five-year Survival Rates for Various Cancers, 1989-1993 vs 2008-2012⁷⁶



73 Centers for Disease Control and Prevention (1998) *Helicobacter Pylori and Peptic Ulcer Disease*. <http://www.cdc.gov/ulcer/economic.htm>

74 *Idem*

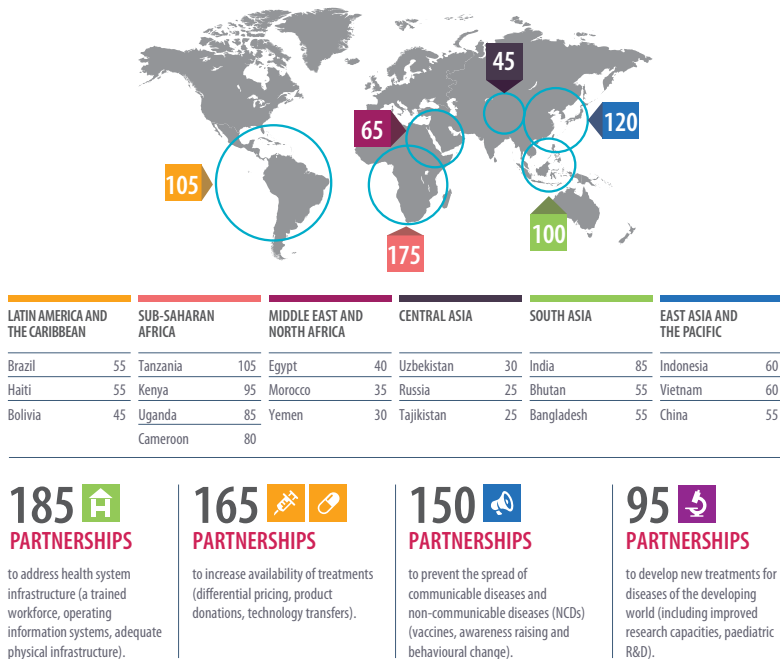
75 Roebuck, M. C.; Liberman, J. N.; Gemmill-Toyama, M.; et al. (2011) Medication Adherence Leads to Lower Healthcare Use and Costs despite Increased Drug Spending. <http://content.healthaffairs.org/content/30/1/91.full.pdf+html>

76 NEFARMA (2015) *Pharma Facts 2015*. <http://www.nefarma.nl/english/pharma-facts-figures>

Pharmaceutical Industry's Contribution to Improving Global Health

Research-based pharmaceutical companies make a unique contribution to improving global health through the innovative medicines they develop. In addition, they have a strong track record of sustaining programs to improve the health of patients in low – and middle-income countries. These initiatives strengthen local healthcare capacity, educate patients and populations at risk, and conduct research and development (R&D) in diseases of the developing world. Companies work alone or in partnerships with different stakeholders to make their products more accessible to poor communities, via donations of high-quality medicines or through differential pricing schemes. Furthermore, several companies are committed to licensing their technologies to quality generic producers, while many others commit to expanding their own production and distribution capacities to meet the needs of patients.

Figure 9: Health Partnerships Undertaken by Research-based Pharmaceutical Companies⁷⁷



77 IFPMA (2014) Developing World Health Partnerships Directory. Geneva: International Federation of Pharmaceutical Manufacturers and Associations, p 5-6. http://www.ifpma.org/fileadmin/content/Publication/2014/2014_Partnership_Directory_Publication-FINAL-web.pdf

The contribution of the research-based pharmaceutical industry is vital in the fight against neglected tropical diseases (NTDs). At least 1 billion people – one person in seven – suffer from tropical diseases such as Buruli ulcer, cholera, dengue, lymphatic filariasis, onchocerciasis, schistosomiasis, trachoma, and African trypanosomiasis (sleeping sickness)⁷⁸. These diseases, many of which are vector-borne, primarily affect poor people in tropical and subtropical areas. Some affect individuals for life, causing disability and disfigurement that often leads to stigmatization; this can itself lead to social exclusion and jeopardize mental health. Other diseases are acute infections, with transient, severe, and sometimes fatal outcomes.

Research-based pharmaceutical companies are selling many medicines at cost and/or donating unlimited supplies of drugs for many neglected tropical diseases. In January 2012, 13 pharmaceutical companies, the governments of the US, the UK and the United Arab Emirates, the Bill and Melinda Gates Foundation, the World Bank, and other global health organizations launched a new collaboration to accelerate progress toward eliminating or controlling 10 NTDs by the end of the decade. The group announced that they would sustain or expand existing drug donation programs to meet demand through 2020; share expertise and compounds to accelerate R&D for new drugs; and provide more than USD 785 million to support R&D efforts and strengthen drug distribution and implementation programs⁷⁹.

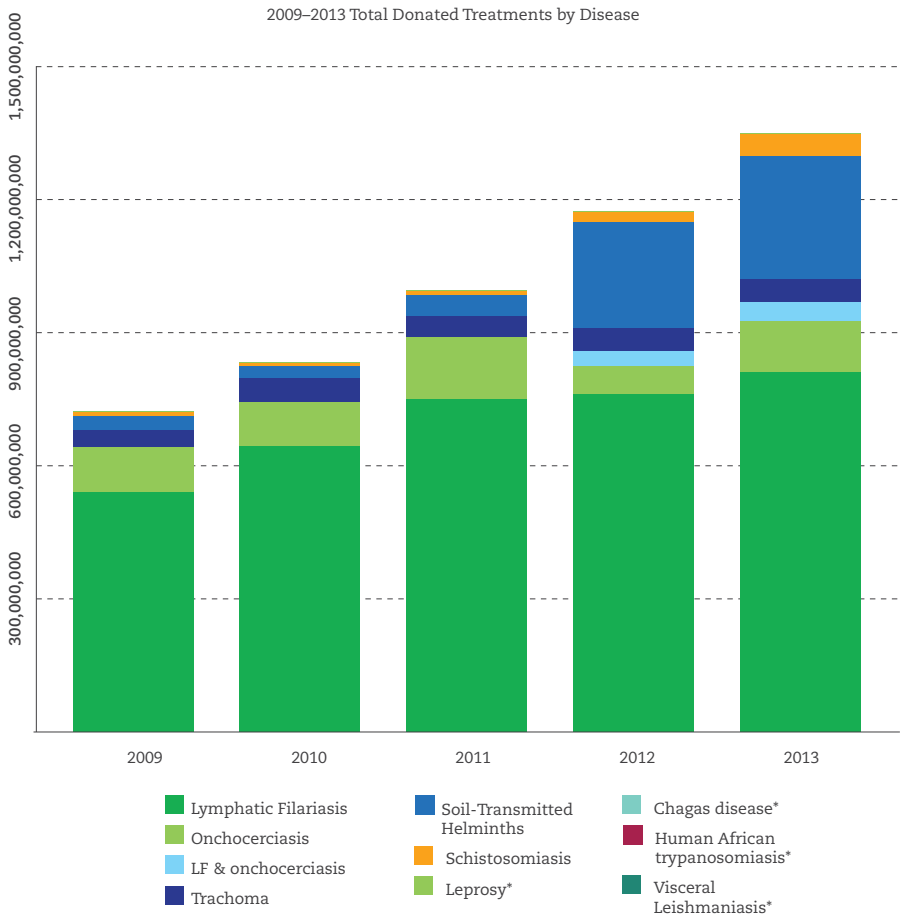
Research-based pharmaceutical companies have pledged to donate 14 billion treatments over the 10 years from 2011 to 2020⁸⁰. This commitment builds on already existing initiatives on NTDs that have been drastically changing the lives of those affected⁸⁰.

78 WHO (2015) Neglected Tropical Diseases. Geneva: World Health Organization. http://www.who.int/neglected_diseases/about/en

79 Uniting to Combat NTDs (2015) Delivering on Promises and Driving Progress. http://unitingtocombatntds.org/sites/default/files/document/NTD_report_04102014_v4_singles.pdf

80 Idem

Chart 16: Treatments Donated and Sold at Cost in Developing Countries for NTDs, 2009-2013⁸¹



HIV/AIDS, while not specifically considered an NTD, disproportionately affects developing countries. Given the serious nature of this epidemic, the research-based pharmaceutical industry, international organizations, and various other stakeholders have committed to combat its spread. Pharmaceutical companies are involved in partnerships that foster access to antiretrovirals (ARV), capacity building, and education.

Healthcare Achievements and Challenges

Since the 1970s, there have been significant improvements in healthcare systems and global health. As a result of concerted efforts of governments, the private sector, and civil society, more than 14 million people have been cured of leprosy; the number of people infected with guinea worm has dropped from 3 million to just 25,000 cases; schistosomiasis (bilharzia) has been effectively controlled in Brazil, China, and Egypt, and eliminated from Iran, Mauritius, and Morocco; and intestinal helminths (worms) have been eliminated in South Korea and are under control in many endemic countries⁸².

Life expectancy has increased all over the world, in developed and developing countries alike. However, not all countries have progressed at the same speed. For example, life expectancy in India has increased from 48 years in 1970 to 66 in 2013, but for Kenya the increase has been more modest – from 52 years (1970) to 62 years (2013). In comparison to these developing countries, life expectancy in the United States increased from 70 years (1970) to 79 years (2013)⁸³. Meanwhile, infant mortality rates have steadily declined over the same period, 1970–2013, in both rich and poor countries⁸⁴.

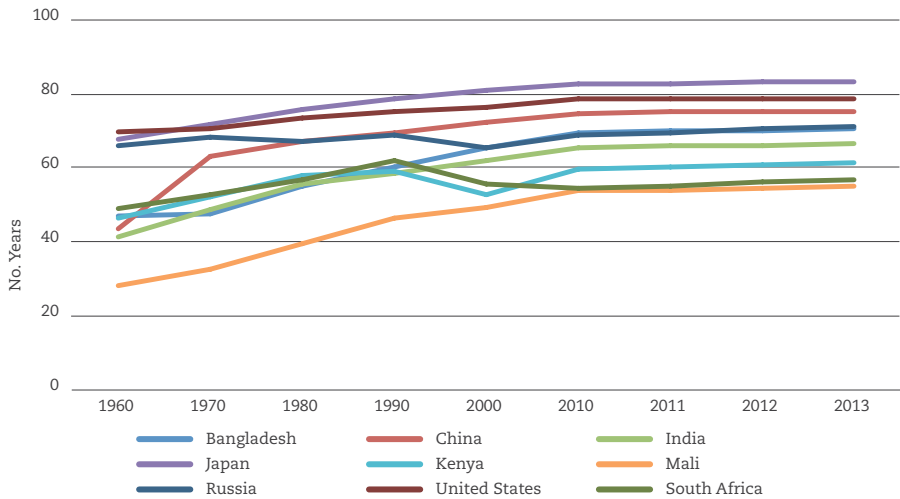
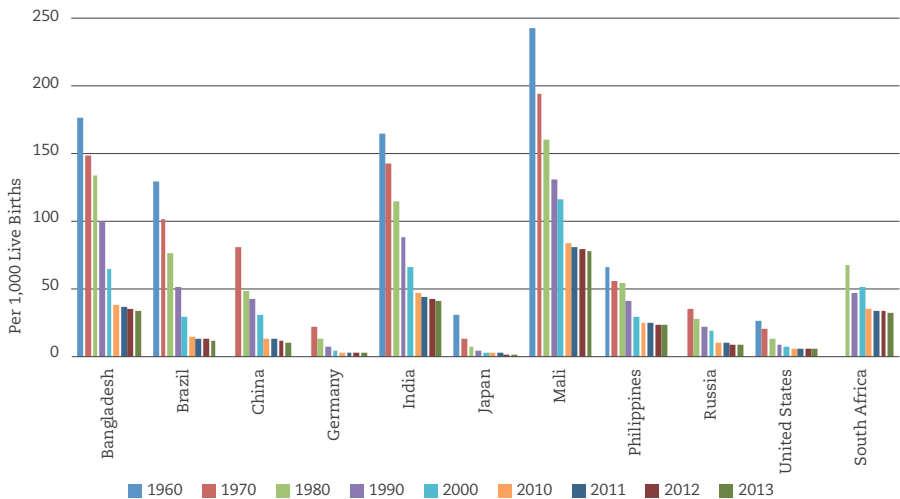
Increased life expectancy, decreased infant mortality, and the adoption of unhealthy lifestyle choices have led to an increase in the burden of non-communicable diseases (NCDs), like heart disease, cancer, chronic respiratory diseases, and diabetes. They are currently the leading causes of death worldwide. Tackling the effects of these demographic changes on NCDs represents a great challenge to society. The research-based pharmaceutical industry recognizes this challenge and is committed to be at the forefront of the battle against NCDs⁸⁵.

82 WHO (2006) *Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities*. Geneva: World Health Organization. http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_2006.2_eng.pdf

83 World Bank (2015) *Life Expectancy at Birth, Total (Years)*. Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/SP.DYN.LE00.IN>

84 World Bank (2015) *Mortality Rate, under-5 (per 1,000 Live Births)*. Washington DC: The World Bank Group. <http://data.worldbank.org/indicator/SH.DYN.MORT>

85 IFPMA (2011) *IFPMA Statement: The Value of Prevention and Partnerships in Combating NCDs*. Geneva: International Federation of Pharmaceutical Manufacturers and Associations. [http://www.ifpma.org/fileadmin/content/Global%20Health/NCDs/IFPMA_Statement_on_Prevention_Finalx\[1\].pdf](http://www.ifpma.org/fileadmin/content/Global%20Health/NCDs/IFPMA_Statement_on_Prevention_Finalx[1].pdf)

Chart 17: Life Expectancy Evolution in Selected Countries⁸⁶Chart 18: Infant Mortality in Selected Countries⁸⁷

86 World Bank (2015) Life expectancy at Birth, Total (Years). Washington DC: World Bank. <http://data.worldbank.org/indicator/SP.DYN.LE00.IN>

87 World Bank (2015) Mortality Rate, Infant (per 1,000 Live Births). Washington DC: World Bank. <http://data.worldbank.org/indicator/SP.DYN.IMRT.IN>

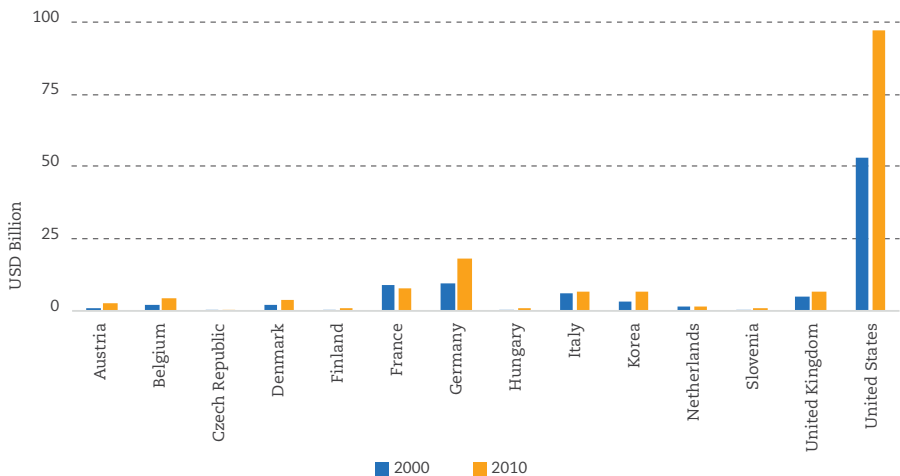


Chapter 3

ECONOMIC FOOTPRINT OF THE PHARMACEUTICAL INDUSTRY

The research-based pharmaceutical industry makes a major contribution to the prosperity of the world economy. It is a robust sector that has been one of the pillars of industrialized economies and is increasingly recognized as an important sector in the developing world as well. It contributes to employment (direct, indirect, or induced), trade (through imports and exports), expenditure on research and development (R&D), and technological capacity building. It is also a necessary foundation for the existence of the generic industry.

Chart 19: Value Added in R&D and Production by the Pharmaceutical Industry in Selected Countries⁸⁸



88 OECD (2015) STAN Industry. Paris: The Organisation for Economic Co-operation and Development. <https://stats.oecd.org/Index.aspx?DataSetCode=STAN08BIS>

Table 7: Key Indicators of the Pharmaceutical Industry's Economic Footprint in Europe⁸⁹

	2000	2010	2013	2014
Production (EUR Million)	125,301	199,131	216,928	220,000
Exports* (EUR Million)	90,935	276,357	305,133	316,500
Imports* (EUR Million)	68,841	204,824	230,242	238,500
Trade Balance (EUR Million)	22,094	71,533	74,891	78,000
R&D Expenditure (EUR Million)	17,849	27,920	30,442	30,500
Employment (Units)	534,882	670,088	706,811	707,000
R&D Employment (Units)	88,397	117,035	115,619	116,000

*Includes Intra-EU Trade

Pharmaceutical R&D and Production

The pharmaceutical industry's activities have a strong and positive influence on the economy. This economic footprint is most visible in the form of investments in manufacturing and R&D, but it often has other positive socioeconomic impacts, such as constant improvements in academic research. It also stimulates the creation of companies that support parts of the research and production process.

The research-based pharmaceutical industry is particularly economically active in production and R&D in certain countries. Pharmaceutical manufacturing accounts for USD 181 billion in the United States (2009), USD 66.5 billion in Japan (2010), and USD 30 billion in France (2010)⁹⁰. Globally, the production value of the pharmaceutical industry amounted to USD 966 billion (2012), more than USD 300 billion higher than in 2006⁹¹. R&D investments amount to USD 49.5 billion in the United States (2009), USD 12.5 billion in Japan (2010), and USD 0.9 billion in France (2010)⁹². Manufacturing and research are

89 EFPIA (2015) The Pharmaceutical Industry in Figures. Brussels: European Federation of Pharmaceutical Industries and Associations, p 3. http://www.efpia.eu/uploads/Figures_2015_Key_data.pdf

90 OECD (2015) STAN R&D and Industry. <https://stats.oecd.org/Index.aspx?DataSetCode=STAN08BIS>

91 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics, p 15. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

92 OECD (2015) STAN R&D and Industry. <https://stats.oecd.org/Index.aspx?DataSetCode=STAN08BIS>

not directly linked; some countries have little research compared to manufacturing capacity, while others have little manufacturing and considerable research.

In 2012, the pharmaceutical industry accounted for 3.8% of the gross value added in manufacturing worldwide. Gross value added is the value of the products manufactured by a company less the value of its purchased materials and services. It thus reflects the additional value generated by the production process. The economic strength of the sector globally roughly corresponds to the GDP of Argentina (USD 434.7 billion)⁹³.

Table 8: Regional Breakdown of the Gross Value Added in the Pharmaceutical Industry (USD Billion)⁹⁴

	2006	2007	2008	2009	2010	2011	2012	CAGR
Asia	85.1	94.9	119.9	131.1	148.7	157.2	163.3	11.5%
Europe	104.3	120.9	135.1	130.5	135.1	146.0	134.8	4.4%
Northern America	95.4	100.4	94.2	110.5	104.9	102.6	105.3	1.7%
Latin America	18.5	20.8	22.7	18.4	20.4	25.2	24.9	5.1%
Africa	3.1	3.4	3.3	4.4	5.0	5.0	5.1	8.8%
Oceania	1.8	2.2	2.1	2.4	3.5	3.2	3.3	11.0%
Worldwide Pharmaceutical Industry	308.2	342.5	377.3	397.3	417.6	439.2	436.8	6.0%

93 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics, p 14. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

94 Idem, p 22

Chart 20: Development of the Gross Value Added and the Annual Growth Rate (Red Line) in Comparison to the Worldwide GDP (Blue Line)⁹⁵



Table 9: Pharmaceutical Production, R&D, and Value Added in Selected Countries, 2010 (USD Billion)⁹⁶

	PRODUCTION (GROSS OUTPUT)	INTERMEDIATE CONSUMPTION	VALUE ADDED	R&D MAIN FIELD OF ACTIVITY
Austria	4.78	2.07	2.71	0.21
Belgium	10.21	5.74	4.46	1.34
Czech Republic	1.49	0.90	0.59	0.08
Denmark	8.24	4.51	3.73	0.91
Finland	1.39	0.50	0.89	0.12
France	29.97	22.00	7.97	0.97
Germany	39.70	21.66	18.04	4.69
Hungary	2.65	1.55	1.10	0.45
Italy	27.04	20.25	6.79	0.71

95 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

96 OECD (2015) STAN Industry. Paris: The Organisation for Economic Co-operation and Development. <https://stats.oecd.org/Index.aspx?DataSetCode=STAN08BIS>

	PRODUCTION (GROSS OUTPUT)	INTERMEDIATE CONSUMPTION	VALUE ADDED	R&D MAIN FIELD OF ACTIVITY
Korea	21.47	15.04	6.43	0.88
Netherlands	6.79	5.34	1.45	0.45
Slovenia	1.57	0.88	0.69	0.25
United States*	180.94	83.89	97.05	49.42

*2009 Figures

Table 10: Production Value of the Pharmaceutical Industry⁹⁷

	2006	2007	2008	2009	2010	2011	2012
Production Value (USD Billion)	651.4	728.8	822.8	844.4	899.0	964.6	966.1
Growth Rate		11.9%	12.9%	2.6%	6.5%	7.3%	0.2%
Value Added Rate	47.3%	47.0%	45.9%	47.1%	46.5%	45.5%	45.2%

Pharmaceutical Industry Employment

The pharmaceutical industry contributes to employment in both developing and developed countries. In 2012, it employed approximately 4.4 million people worldwide; a 794,000 increase from 2006⁹⁸. In the United States, every job in the biopharmaceutical industry supported five jobs outside the pharmaceutical sector, in areas from manufacturing and construction to childcare, retail, accounting, and more. A survey of 17 biopharmaceutical companies in the United States found that spending on services and supplies totaled USD 53 billion across 17 states, translating into more than 3.4 million jobs⁹⁹. The industry currently directly employs more than 810,000 people in the United States and 749,000 people in Europe¹⁰⁰.

97 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics, p 15. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

98 Idem, p 23

99 PhRMA (2015) Biopharmaceutical Research Industry 2015 Profile. Washington DC: Pharmaceutical Research and Manufacturers of America, p 2. http://www.phrma.org/sites/default/files/pdf/2015_phrma_profile.pdf

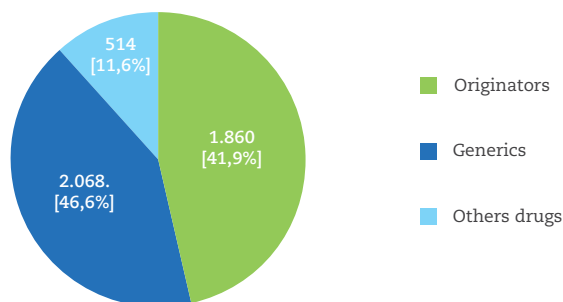
100 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics, p 23. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

High employment in the pharmaceutical sector is not exclusive to high-income countries. The pharmaceutical industry provides high-skilled jobs through direct employment and induces the creation of many more indirect jobs in low – and middle income countries as well.

Table 11: Regional Breakdown of Employment in the Pharmaceutical Industry (Headcount in Thousands)¹⁰¹

	2006	2007	2008	2009	2010	2011	2012	CAGR
Asia	2,153	2,197	2,369	2,507	2,662	2,820	3,003	5.7%
Europe	737	741	734	716	728	738	749	0.3%
Northern America	310	307	302	283	281	276	271	-2.2%
Latin America	232	231	239	240	236	242	259	1.8%
Africa	199	187	169	156	146	143	142	-5.6%
Oceania	17	17	17	18	17	18	18	1.2%
Worldwide Pharmaceutical Industry	3,649	3,680	3,829	3,919	4,070	4,237	4,443	3.3%

Chart 21: Employment (Headcount in Thousands) and Shares of Originators, Generics and Other Drugs, 2012¹⁰²



101 WifOR (2015) The Economic Footprint of the Pharmaceutical Industry: Regional Breakdown and Differentiation between Originators and Generics, p 23. http://www.ifpma.org/fileadmin/content/Publication/2015/wifor_research_report_2015_web.pdf

102 Idem, p 35

Table 12: Employee Compensation in the Pharmaceutical Industry¹⁰³

	2006	2007	2008	2009	2010	2011	2012
Wages & Salaries (USD Billion)	64.3	71.4	81.3	79.3	84.1	91.9	91.3
Growth Rate		11.0%	13.9%	-2.5%	6.1%	9.3%	-0.7%
Wages & Salaries per Employee (USD)	17,600	19,400	21,200	20,200	20,700	21,700	20,600
Growth Rate		10.1%	9.5%	-4.8%	2.2%	5.0%	-5.3%

In addition to directly or indirectly creating jobs, the pharmaceutical industry's presence also leads to dissemination of knowledge in the workforce. Employees working for a pharmaceutical company often receive qualified training and are exposed to new technologies and processes. This knowledge becomes an asset for the entire workforce, as the employees may later change jobs or start their own companies, hence fostering economic development.

Transfer of Technology

Transfer of advanced technology is essential for economic development. It is one means by which low – and middle–income countries can accelerate the acquisition of knowledge, experience, and equipment related to advanced, innovative industrial products and processes. Technology transfer has the potential to help improve health. It also benefits the overall economy by increasing the reliability of supply, decreasing reliance on imports, and raising the competence of the local workforce¹⁰⁴.

103 Idem, p 16

104 IFPMA (2011) *Technology Transfer: A Collaborative Approach to Improve Global Health*. Geneva: International Federation of Pharmaceutical Manufacturers and Associations, p. 17. http://www.ifpma.org/fileadmin/content/Publication/IFPMA_Technology_Transfer_Booklet_2011.pdf

Table 13: Selected Examples of Technology Transfer – Manufacturing Protocols and Entrepreneurial Know-how¹⁰⁵

COMPANY	R&D CENTER	LOCATION	DISEASE	SINCE
Celgene	Celgene Global Health	Summit, NJ, USA	Visceral Leishmaniasis Chagas Human African Trypanosomiasis Malaria Lymphatic Filariasis Onchocerciasis Wolbachia Tuberculosis Hemorrhagic Fevers	2009
GSK	Tres Cantos Medicines Development Campus	Tres Cantos, Spain	Malaria Tuberculosis Kinetoplastids	2002
Merck	R&D Translational Innovation Platform "Global Health"	Geneva, Switzerland	Schistosomiasis & Helminthic Diseases Malaria Co-infections	2014
MSD (Merck & Co. Inc. in the US and Canada)	MSD Wellcome Trust Hilleman Laboratories	New Delhi, India	Rotavirus Otherenteric Diseases	2009
Novartis	Genomics Institute of the Novartis Research Foundation (GNF)	La Jolla, USA	Chagas Disease Leishmaniasis Malaria	2010

Pharmaceutical companies engage in technology transfer for a variety of reasons. While decisions with regard to transfer of technology are sometimes taken on a philanthropic basis, to ensure sustainability these collaborations are usually also driven by commercial rationales and market conditions, which are heavily influenced by policy and regulatory decisions made by national governments.

105 IFPMA (2015) Pharmaceutical R&D Projects to Prevent and Control Neglected Conditions. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 9. http://www.ifpma.org/fileadmin/content/Publication/2015/IFPMA_2014_Status_Report_NTDs_FINAL.pdf

Figure 10: Critical Factors for Creating Favorable Conditions for Pharmaceutical Technical Transfers¹⁰⁶



Trade in Pharmaceuticals

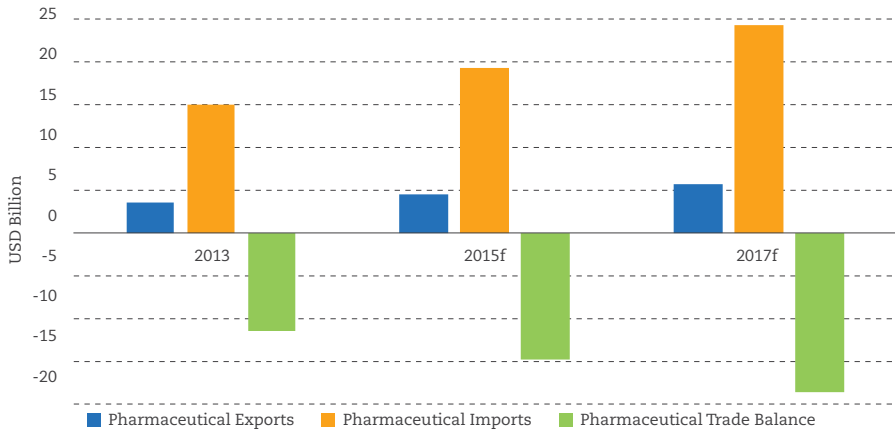
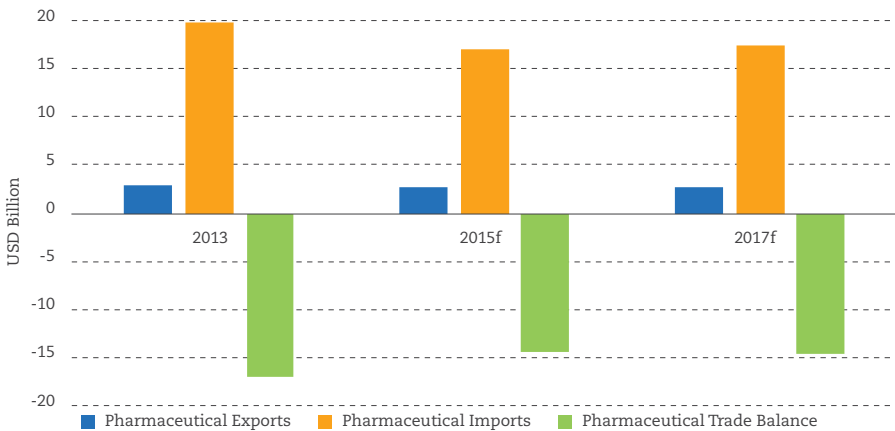
Global sales of pharmaceutical products represent the international spread of medical technology that comes as the result of highly intensive R&D efforts in the exporting countries. At the same time, importing countries receive these benefits through health improvements – even if they do not participate in R&D activities themselves¹⁰⁵. Medical innovation is transmitted across the world, thus contributing to significant gains in average life expectancy¹⁰⁷.

Europe has traditionally been the biggest exporter of pharmaceuticals in the world. Pharmaceutical exports represent more than a quarter of Europe's total high-tech exports¹⁰⁸. In recent years, other countries like India, Singapore and Israel have also managed to position themselves as important pharmaceutical exporters.

¹⁰⁶ IFPMA (2015) Technology Transfer: A Collaborative Approach to Improve Global Health. Geneva: International Federation of Pharmaceutical Manufacturers & Associations, p 8. http://www.ifpma.org/fileadmin/content/Publication/2015/IFPMA_Technology_Transfer_2015_Web.pdf

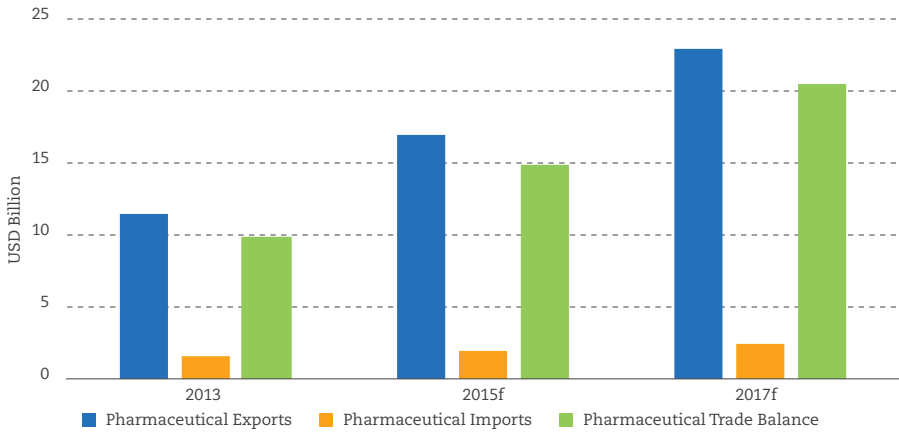
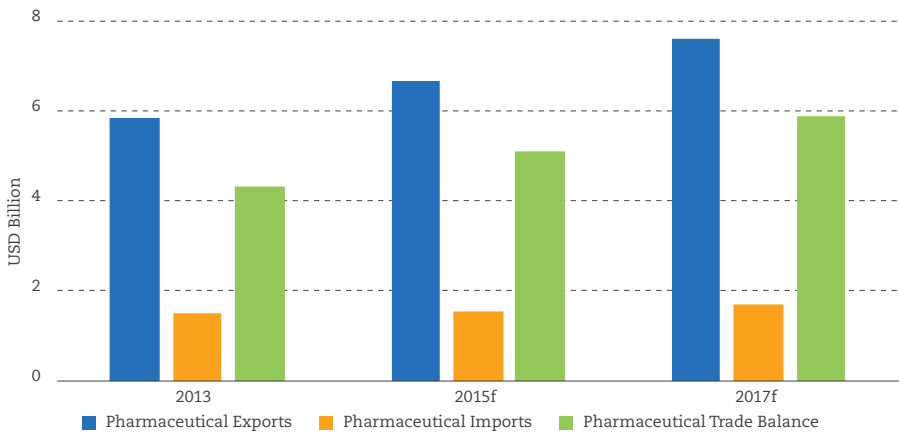
¹⁰⁷ Kiriama N (2010) Trade and innovation: Pharmaceuticals, p. 26

¹⁰⁸ Idem

Chart 22: Pharmaceutical Trade and Forecast, China¹⁰⁹Chart 23: Pharmaceutical Trade and Forecast, Japan¹¹⁰

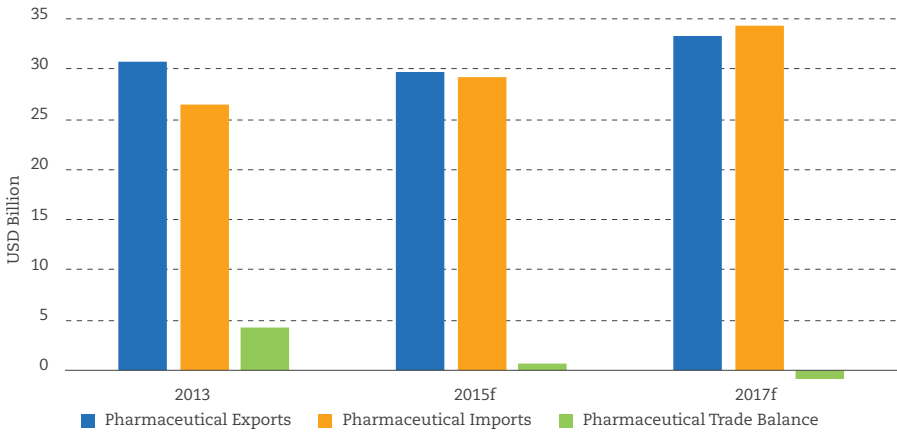
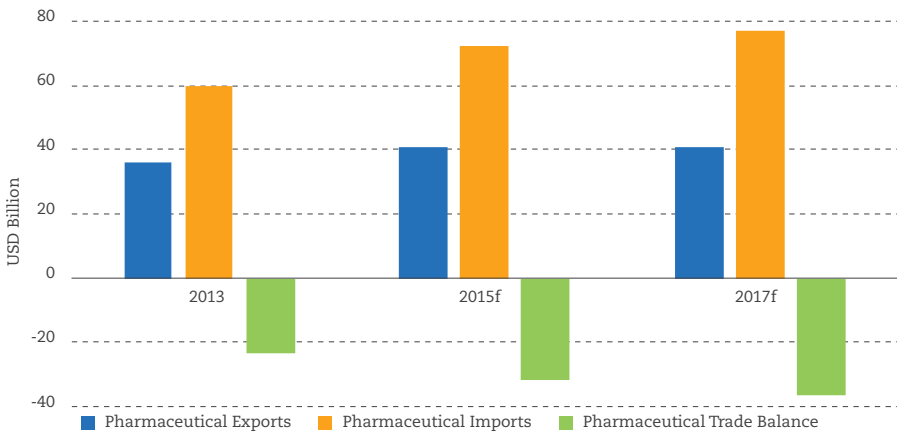
109 Business Monitor International (2015) BMI Pharmaceutical and Healthcare Database. <https://bmo.bmiresearch.com/data/datatool>

110 Idem

Chart 24: Pharmaceutical Trade and Forecast, India¹¹¹Chart 25: Pharmaceutical Trade and Forecast, Singapore¹¹²

111 Idem

112 Idem

Chart 26: Pharmaceutical Trade and Forecast, United Kingdom¹¹³Chart 27: Pharmaceutical Trade and Forecast, United States¹¹⁴

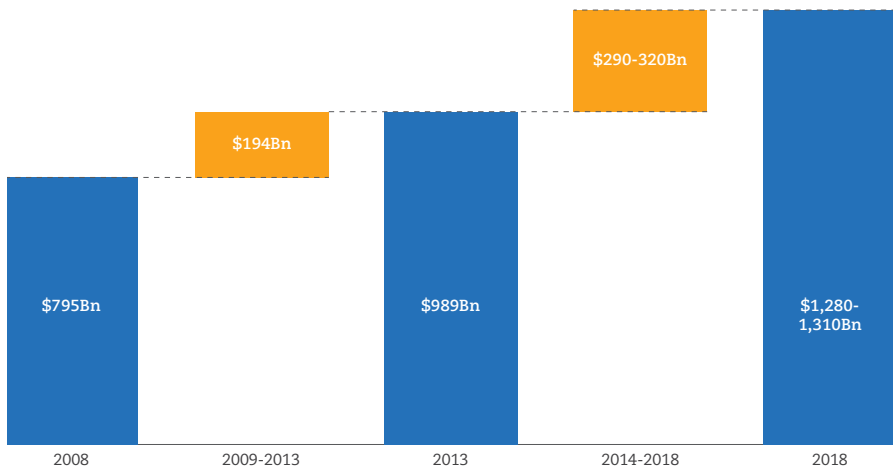
113 Business Monitor International (2015) BMI Pharmaceutical and Healthcare Database. <https://bmo.bmiresearch.com/data/datatool>

114 Idem

The Pharmaceutical Market

The IMS Institute for Healthcare Informatics predicts that the pharmaceutical market will reach nearly USD 1,310 billion by 2018, an increase of nearly USD 320 billion from the USD 989 billion recorded in 2013¹¹⁵. This growth is coming mainly from market expansion in the leading emerging countries and from generics. Global brand spending is forecast to increase to USD 448–459 billion in 2018. Global generic spending is expected to increase to USD 666–681 billion by 2018¹¹⁶.

Chart 28: Global Spending on Medicines¹¹⁷



The United States share of global spending will increase from 34% in 2013 to 36% in 2018, while the European share of spending will decline from 24% to 19%. Meanwhile, pharmerging countries¹¹⁸ will account for 29% of global spending in 2018 from 25% in 2013¹¹⁹.

115 IMS Institute for Healthcare Informatics (2014) Global Outlook for Medicines through 2018. <http://www.imshealth.com/portal/site/imshealth/>

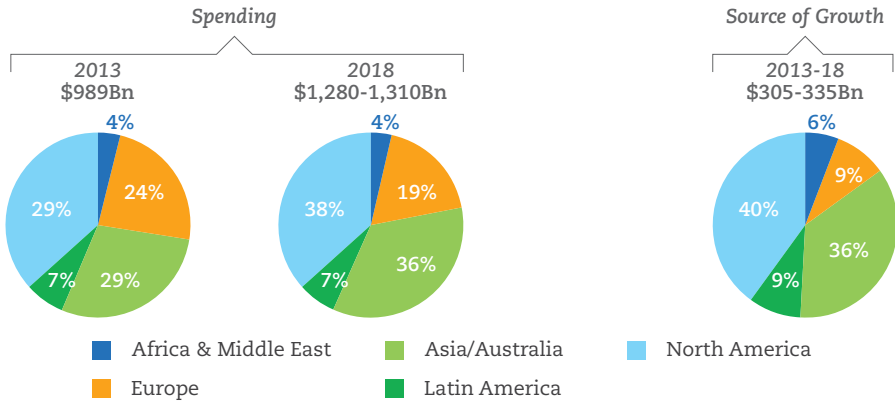
116 Idem

117 Idem

118 Pharmerging countries: China, Brazil, Russia, India, Algeria, Argentina, Colombia, Egypt, Indonesia, Mexico, Nigeria, Pakistan, Poland, Saudi Arabia, South Africa, Thailand, Turkey, Ukraine, Venezuela and Vietnam. IMS Institute for Healthcare Informatics (2014) Global Outlook for Medicines through 2018. <http://www.imshealth.com/portal/site/imshealth/>

119 IMS Institute for Healthcare Informatics (2014) Global Outlook for Medicines through 2018. <http://www.imshealth.com/portal/site/imshealth/>

Chart 29: Spending by Geography¹²⁰

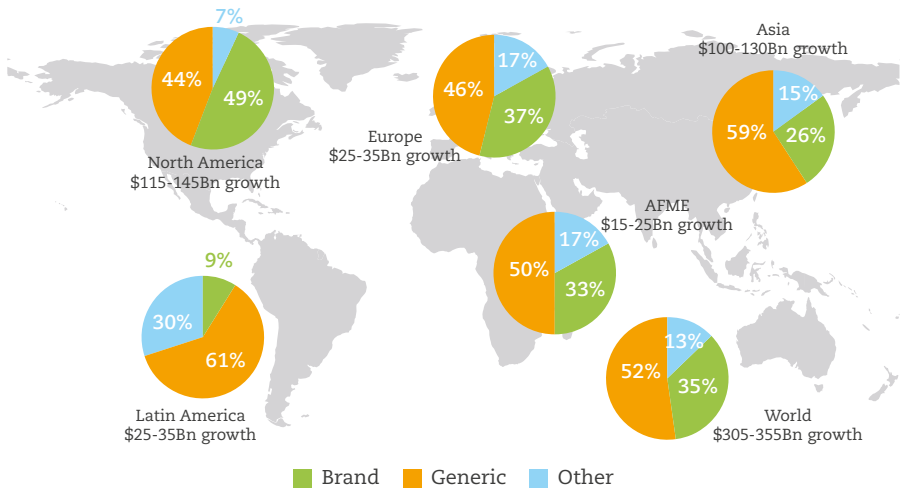


Generic versus Branded Pharmaceutical Products

Branded products accounted for over one-third of global pharmaceutical spending in 2013. However, as patents expire in developed markets, that share is expected to decline. Spending on generic drugs is driving most of the growth in the leading emerging markets, which will contribute to the increase in the share of generic spending. The revenues from generics in 2018 are expected to reach USD 666-681 billion¹²¹.

120 IMS Institute for Healthcare Informatics (2014) Global Outlook for Medicines through 2018. <http://www.imshealth.com/portal/site/imshealth/>

121 Idem

Figure 11: Spending by Segment¹²²

Conclusion

Pharmaceutical innovation is behind some of the greatest achievements in modern medicine. Today people live longer and healthier lives than previous generations. Medical advances allow people to enjoy a better quality of life and increase their productivity, contributing to the overall prosperity of society. Pharmaceutical innovation also creates jobs, spurs technology, and represents an important source of income. Unfortunately, not everyone has yet fully benefited from these medical advances. Poverty and great wealth inequality between and within countries mean that many do not have access to even the simplest healthcare interventions. Addressing these issues is a complex challenge that requires long-term commitment from government, civil society, and the private sector. Through differential pricing schemes, donation programs, and technology transfer initiatives, the pharmaceutical industry has been doing its part to help those in greatest need to also enjoy the benefits of medical progress. Much still needs to be done; the path forward will require a constant rethinking on how to maximize the research-based industry's positive impact on the health and prosperity of societies.

ANNEXES

Annex 1

Life Expectancy and Cause of Death

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
	2000	2013	2000	2013	2012	2012	2012
Afghanistan	15	16	55	61	363	846	169
Albania	17	19	74	78	47	672	48
Algeria	18	18	69	71	98	710	54
Angola	15	16	45	52	873	768	138
Argentina	21	22	74	76	69	467	51
Armenia	18	17	71	75	45	848	49
Australia	23	25	79	82	14	303	28
Austria	22	24	78	81	13	360	31
Azerbaijan	17	19	67	71	71	664	34
Bahamas	21	21	72	75	122	465	46
Bahrain	18	20	75	77	49	506	34
Bangladesh	18	18	65	71	235	549	64
Barbados	22	23	73	75	61	405	28
Belarus	17	18	69	72	28	683	91
Belgium	22	24	78	80	28	357	39
Belize	19	21	71	74	105	471	82
Benin	15	16	55	59	577	762	98

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Bhutan	17	19	60	68	187	573	142
Bolivia	18	19	63	67	226	635	100
Bosnia and Herzegovina	19	21	75	76	20	513	42
Botswana	17	18	50	47	555	612	88
Brazil	19	22	70	74	93	514	80
Brunei	21	21	76	79	56	475	45
Bulgaria	18	20	72	74	33	638	36
Burkina Faso	15	15	50	56	648	784	119
Burundi	15	16	48	54	705	730	147
Cabo Verde	18	20	70	75	142	482	54
Cambodia	20	24	62	72	228	394	62
Cameroon	16	17	52	55	769	675	106
Canada	23	25	79	81	23	318	31
Central African Republic	15	16	44	50	1,212	551	108
Chad	14	15	47	51	1,071	713	115
Chile	22	24	77	80	36	367	41
China	18	19	72	75	41	576	50
Colombia	22	24	71	74	55	377	73
Comoros	15	16	58	61	495	696	132
Congo	16	17	52	59	667	632	89

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Costa Rica	22	23	78	80	31	392	47
Côte d'Ivoire	15	16	46	51	861	794	124
Croatia	19	22	73	77	12	496	40
Cuba	22	22	77	79	33	422	45
Cyprus	21	24	78	80	16	333	27
Czech Republic	19	22	75	78	27	461	39
Democratic People's Republic of Korea	16	17	65	70	117	751	92
Democratic Republic of the Congo	15	15	46	50	921	724	137
Denmark	21	23	77	80	30	406	23
Djibouti	16	16	57	62	626	631	106
Dominican Republic	22	21	71	73	77	396	66
Ecuador	21	22	73	76	97	410	84
Egypt, Arab Rep.	17	18	69	71	74	782	34
El Salvador	21	22	70	72	96	475	158
Equatorial Guinea	15	16	48	53	757	729	134
Eritrea	14	15	56	63	506	672	119

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Estonia	19	22	70	76	19	511	47
Ethiopia	16	18	52	64	559	476	95
Fiji	16	17	68	70	105	804	64
Finland	22	24	77	81	9	367	39
France	23	25	79	82	21	313	35
Gabon	17	18	60	63	589	505	77
Gambia	16	17	55	59	591	630	96
Georgia	19	20	72	74	39	615	32
Germany	22	24	78	81	22	365	23
Ghana	17	17	57	61	476	670	76
Greece	22	24	78	81	24	365	27
Guatemala	20	21	68	72	213	409	111
Guinea	15	16	51	56	680	681	96
Guinea-Bissau	15	15	51	54	870	765	112
Guyana	17	15	63	66	177	1.024	150
Haiti	16	17	57	63	405	725	89
Honduras	21	22	70	74	118	442	81
Hungary	18	20	71	75	17	603	44
Iceland	23	24	80	83	14	312	29
India	16	17	62	66	253	682	116
Indonesia	17	18	67	71	162	680	49

					CAUSE OF DEATH (PER 100,000 POPULATION)		
	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Iran	18	20	70	74	56	569	75
Iraq	18	18	71	69	87	716	129
Ireland	20	24	77	81	22	344	32
Israel	22	25	79	82	31	311	21
Italy	23	25	80	82	16	304	20
Jamaica	21	21	70	73	97	519	52
Japan	25	26	81	83	34	244	41
Jordan	18	19	72	74	53	640	54
Kazakhstan	15	16	66	70	55	950	102
Kenya	17	18	53	62	658	515	101
Kuwait	18	21	73	74	83	406	25
Kyrgyzstan	16	17	69	70	66	835	65
Lao	16	17	62	68	329	680	75
Latvia	19	20	70	74	26	624	55
Lebanon	19	23	74	80	31	385	41
Lesotho	16	16	47	49	1.111	672	143
Liberia	15	16	52	61	609	657	83
Libya	18	20	72	75	53	550	63
Lithuania	20	20	72	74	26	581	76
Luxembourg	22	25	78	82	21	318	31
Macedonia	18	19	73	75	17	637	24

					CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Madagascar	16	17	58	65	430	649	89
Malawi	15	16	46	55	778	655	98
Malaysia	17	19	73	75	117	563	63
Maldives	15	21	69	78	59	487	35
Mali	14	16	49	55	588	866	120
Malta	21	23	78	81	24	365	19
Mauritania	16	16	60	62	619	555	83
Mauritius	18	20	72	74	62	577	44
Mexico	21	21	74	77	57	468	63
Moldova	16	17	67	69	45	788	76
Mongolia	14	16	63	68	83	967	69
Montenegro	20	20	74	75	19	572	41
Morocco	17	18	68	71	132	708	47
Mozambique	15	16	47	50	998	594	175
Myanmar	16	17	62	65	316	709	102
Namibia	16	19	55	64	357	580	76
Nepal	16	17	62	68	252	678	89
Netherlands	22	24	78	81	26	355	22
New Zealand	23	25	79	81	18	314	33
Nicaragua	22	21	70	75	75	547	64
Niger	15	16	51	58	740	649	98

					CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Nigeria	15	16	47	52	866	674	146
Norway	22	24	79	81	25	337	26
Oman	18	20	72	77	84	478	53
Pakistan	17	17	64	67	296	669	99
Panama	23	24	75	78	86	373	67
Papua New Guinea	14	15	59	62	554	693	100
Paraguay	21	21	70	72	77	486	68
Peru	20	23	71	75	121	364	48
Philippines	19	17	67	69	226	720	54
Poland	19	21	74	77	23	495	49
Portugal	21	24	76	80	40	343	25
Qatar	20	22	77	79	28	407	41
Republic of Korea	21	24	76	81	34	302	53
Romania	19	20	71	74	39	612	41
Russia	17	17	65	71	74	790	103
Rwanda	15	18	48	64	402	585	106
Saudi Arabia	18	19	73	76	71	549	41
Senegal	16	16	58	63	588	558	89
Serbia	18	19	72	75	19	658	32
Sierra Leone	11	13	38	46	1.327	964	150

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Singapore	22	25	78	82	66	265	18
Slovakia	19	21	73	76	35	533	39
Slovenia	21	23	75	80	15	369	44
Solomon Islands	16	17	63	68	231	710	75
Somalia	15	16	51	55	927	551	189
South Africa	16	17	56	57	612	711	104
South Sudan	15	16	49	55	831	623	143
Spain	23	25	79	82	19	323	18
Sri Lanka	18	20	71	74	76	501	89
Sudan	17	17	58	62	495	551	134
Suriname	22	23	68	71	84	375	71
Swaziland	16	17	49	49	884	702	120
Sweden	23	24	80	82	19	334	26
Switzerland	23	25	80	83	15	292	25
Syria	19	20	73	75	41	573	308
Tajikistan	17	17	64	67	148	753	52
Tanzania	16	18	50	61	584	570	129
Thailand	20	21	71	74	123	449	73
Timor-Leste	16	17	59	68	344	671	69
Togo	16	17	54	56	682	679	93

	LIFE EXPECTANCY AT AGE 60 (YEARS)		LIFE EXPECTANCY AT BIRTH (YEARS)		CAUSE OF DEATH (PER 100,000 POPULATION)		
					COMMUNICABLE DISEASES	NONCOMMUNICABLE DISEASE	INJURIES
Trinidad and Tobago	17	18	69	70	80	705	98
Tunisia	19	21	73	74	65	509	39
Turkey	19	21	70	75	44	555	39
Turkmenistan	15	16	64	65	116	1.025	93
Uganda	15	17	48	59	697	664	167
Ukraine	17	18	68	71	69	749	67
United Arab Emirates	18	20	74	77	36	547	32
United Kingdom	21	24	78	81	29	359	22
United States	22	23	77	79	31	413	44
Uruguay	21	22	75	77	46	446	54
Uzbekistan	17	17	67	68	86	811	47
Venezuela	21	23	72	75	58	411	103
Vietnam	21	22	74	76	96	435	59
Yemen	16	16	60	63	515	627	84
Zambia	15	17	42	58	764	587	156
Zimbabwe	16	18	44	60	711	599	83

Source: World Health Organization

Annex 2 Health Financing

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013
Afghanistan	161	34	8,10	21,20	78,80	7,10	18,60		93,60	
Albania	539	261	5,90	48,40	51,60	9,80	1,30	74,10	99,70	
Algeria	778	577	6,60	74,20	25,80	9,40	0,10	30,10	97,20	2,70
Andorra	3.338	2.514	8,10	75,30	24,70	23,10		24,20	74,60	23,30
Angola	355	237	3,80	66,70	33,30	7,70	1,70		73,20	
Antigua and Barbuda	1.021	658	4,90	64,50	35,50	14,70	0,30	8,80	75,20	24,80
Argentina	1.725	1.167	7,30	67,70	32,30	31,80	0,50	54,00	65,30	25,90
Armenia	351	147	4,50	41,70	58,30	7,90	6,50		93,90	6,10
Australia	4.191	2.792	9,40	66,60	33,40	18,70			57,10	25,40
Austria	4.885	3.700	11,00	75,70	24,30	16,30		55,10	65,20	18,50
Azerbaijan	957	199	5,60	20,80	79,20	3,50	0,50		89,70	0,70
Bahamas	1.688	743	7,30	44,00	56,00	14,00			54,00	45,10
Bahrain	1.900	1.333	4,90	70,20	29,80	10,60		1,30	49,00	36,70
Bangladesh	95	34	3,70	35,30	64,70	7,80	8,60		93,00	0,10

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Barbados	1.060	647	6,80	61,00	39,00	11,60		0,20	81,90	18,10
Belarus	1.081	707	6,10	65,40	34,60	13,50	0,50		92,00	0,70
Belgium	4.526	3.431	11,20	75,80	24,20	15,60		85,50	82,30	16,90
Belize	458	286	5,40	62,40	37,60	11,90	4,20	13,80	69,80	16,80
Benin	82	44	4,60	54,20	45,80	10,70	23,20	0,20	89,20	10,60
Bhutan	275	203	3,60	73,80	26,20	6,60	13,70		97,10	1,20
Bolivia	372	291	6,10	78,40	21,60	9,70	2,90	41,30	91,70	5,80
Bosnia and Herzegovina	928	650	9,60	70,00	30,00	16,20	1,50	97,50	96,90	0,80
Botswana	851	486	5,40	57,10	42,90	8,80	7,40		12,70	79,90
Brazil	1.454	701	9,70	48,20	51,80	6,90	0,10		57,80	40,40
Brunei Darussalam	1.812	1.664	2,50	91,90	8,10	7,40			97,80	1,10
Bulgaria	1.213	718	7,60	59,30	40,70	11,70		76,40	97,30	1,00
Burkina Faso	109	64	6,40	58,50	40,20	13,50	22,70	0,20	82,70	2,80
Burundi	62	34	8,00	54,70	45,30	13,70	73,30		44,70	1,80
Cabo Verde	279	206	4,40	73,70	26,30	10,00	19,60	29,60	87,70	3,70
Cambodia	229	47	7,50	20,50	79,50	7,70	13,30		75,10	0,30
Cameroon	138	48	5,10	34,70	65,30	8,50	6,30	2,60	94,10	

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Canada	4.759	3.322	10,90	69,80	30,20	18,50		1,90	50,10	41,00
Central African Republic	24	12	3,90	50,30	49,70	15,90	47,00		90,50	1,80
Chad	74	27	3,60	36,90	63,10	5,90	8,80		96,70	0,30
Chile	1.678	795	7,70	47,40	52,60	15,30		8,80	60,30	39,70
China	646	360	5,60	55,80	44,20	12,60	0,10	69,30	76,70	8,00
Colombia	843	641	6,80	76,00	24,00	16,10	0,20	84,30	58,10	41,90
Comoros	90	29	5,80	32,70	67,30	7,60			67,10	
Congo	242	187	4,10	77,50	22,50	8,70	4,90		96,00	3,60
Costa Rica	1.369	1.026	9,90	75,00	25,00	26,90		80,00	93,20	5,10
Croatia	1.517	1.214	7,30	80,00	20,00	12,70		93,50	62,40	37,60
Cuba	1.828	1.700	8,80	93,00	7,00	13,40	0,10		100,00	
Cyprus	2.197	1.018	7,40	46,30	53,70	7,50		1,50	86,50	8,30
Czech Republic	1.982	1.651	7,20	83,30	16,70	14,20		92,70	94,10	1,30
Democratic Republic of the Congo	26	14	3,50	53,10	46,90	12,90	52,40		69,80	2,40
Denmark	4.552	3.886	10,60	85,40	14,60	15,90			87,40	12,10
Djibouti	247	148	8,90	60,00	40,00	14,10		9,50	99,20	0,80

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Dominica	597	421	6,00	70,60	29,40	11,60	1,50	0,10	91,40	2,60
Dominican Republic	631	329	5,40	52,20	49,70	14,10	1,10	47,60	78,50	15,20
Ecuador	789	412	7,50	52,30	47,70	8,50	0,10	43,30	94,20	2,60
Egypt	539	219	5,10	40,70	59,30	5,50	0,20	21,90	97,70	1,70
El Salvador	539	360	6,90	66,70	33,30	18,20	2,00	39,90	85,40	14,60
Equatorial Guinea	1.170	910	3,50	77,80	22,20	7,00	0,90		86,40	
Eritrea	36	16	3,00	45,40	54,60	3,60	34,00		100,00	
Estonia	1.453	1.131	5,70	77,90	22,10	11,70	1,50	86,60	85,40	1,20
Ethiopia	69	42	5,10	61,00	39,00	16,40	32,30		90,60	1,90
Fiji	328	221	4,10	67,40	32,60	8,90	9,80		64,10	25,50
Finland	3.604	2.713	9,40	75,30	24,70	12,10		19,00	75,00	8,40
France	4.334	3.360	11,70	77,50	22,50	15,80		95,10	32,90	58,70
Gabon	735	399	3,80	54,40	45,60	7,20	1,00	27,10	85,20	11,40
Gambia	99	59	6,00	60,10	39,90	13,00	35,70		52,70	7,60
Georgia	697	150	9,40	21,50	78,50	6,70	2,60	68,80	78,90	11,70
Germany	4.812	3.696	11,30	76,80	23,20	19,40		88,90	55,60	40,30
Ghana	214	130	5,40	60,60	39,40	10,60	13,20	22,20	91,90	5,50

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Greece	2,513	1,747	9,80	69,50	30,50	11,70		57,80	86,60	8,90
Grenada	729	345	6,30	47,30	52,70	9,60	0,10	0,50	95,80	1,90
Guatemala	467	176	6,40	37,80	62,20	16,90	1,90	46,20	83,30	4,80
Guinea	59	21	4,70	35,80	64,20	6,80	19,30	4,50	88,00	1,10
Guinea-Bissau	79	16	5,50	20,30	79,70	7,80	14,20	1,50	54,40	
Guyana	426	282	6,50	66,20	33,80	13,90	7,90	2,40	92,50	0,20
Haiti	160	12	9,40	7,40	92,60	1,90	25,90		32,10	
Honduras	400	197	8,70	49,10	50,90	12,20	4,50	28,20	88,70	8,20
Hungary	1,839	1,169	8,00	63,60	36,40	10,20		83,30	75,50	7,10
Iceland	3,646	2,933	9,10	80,50	19,50	15,80		39,60	92,60	
India	215	69	4,00	32,20	67,80	4,50	1,10	6,20	85,90	4,80
Indonesia	293	114	3,10	39,00	61,00	6,60	1,10	17,60	75,10	2,90
Iran	1,414	577	6,70	40,80	59,20	17,50		47,20	88,00	4,20
Iraq	695	441	5,20	63,50	36,50	6,00	0,20		100,00	
Ireland	3,867	2,617	8,90	67,70	32,30	14,10		0,20	52,10	41,30
Israel	2,355	1,393	7,20	59,10	40,90	10,50		71,80	64,50	26,40
Italy	3,126	2,439	9,10	78,00	22,00	14,00		0,40	82,00	4,50
Jamaica	512	293	5,90	57,20	42,80	9,70	1,20	0,20	58,40	38,10

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Japan	3,741	3,071	10,30	82,10	17,90	20,00		87,00	80,20	14,00
Jordan	761	502	7,20	66,00	34,00	13,50	4,70	8,10	69,10	22,90
Kazakhstan	1,023	544	4,30	53,10	46,90	10,90	0,40		98,90	0,20
Kenya	101	42	4,50	41,70	58,30	5,90	45,20	13,10	76,60	9,30
Kiribati	187	154	10,10	82,50	17,50	10,00	17,80		0,50	
Kuwait	2,375	1,962	2,90	82,60	17,40	5,80			90,40	9,60
Kyrgyzstan	221	130	6,70	59,00	41,00	13,20	8,70	64,10	88,80	
Lao	95	47	2,00	49,30	50,70	3,50	26,80	3,10	78,80	1,90
Latvia	1,310	811	5,70	61,90	38,10	9,80			95,70	4,30
Lebanon	1,092	554	7,20	50,70	49,30	10,70	1,10	39,40	69,50	29,60
Lesotho	297	235	11,50	79,10	20,90	14,50	35,10		69,00	
Liberia	88	32	10,00	35,90	64,10	13,20	57,80		40,60	5,60
Libya	764	537	4,30	70,30	29,70	4,30	0,10		100,00	
Lithuania	1,579	1,051	6,20	66,60	33,40	12,10	5,00	85,10	97,60	2,30
Luxembourg	6,518	5,454	7,10	83,70	16,30	13,60		83,60	66,20	26,90
Macedonia	759	523	6,40	68,90	31,10	13,20	0,30	91,60	100,00	
Madagascar	58	36	4,20	62,60	37,40	11,80	38,50		80,30	9,70
Malawi	90	45	8,30	50,00	50,00	16,20	68,30		23,30	4,70

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Malaysia	938	514	4,00	54,80	45,20	5,90		1,20	79,90	16,10
Maldives	1.260	725	10,80	57,60	42,40	16,30	1,00	57,30	88,30	6,50
Mali	122	49	7,10	39,70	60,30	12,30	22,80	0,70	99,60	0,40
Malta	2.652	1.753	8,70	66,10	33,90	13,30		2,70	93,00	6,20
Marshall Islands	703	587	16,50	83,60	16,40	24,00	39,30	16,70	75,20	24,80
Mauritania	138	67	3,80	49,00	51,00	5,50	7,20	15,10	90,70	5,10
Mauritius	864	424	4,80	49,10	50,90	9,50	1,60		91,40	1,40
Mexico	1.061	549	6,20	51,70	48,30	15,40	0,40	55,10	91,50	8,50
Micronesia	448	404	12,60	90,30	9,70	17,70	68,40	18,20	97,50	
Monaco	6.123	5.398	4,00	88,20	11,80	18,80		98,70	59,10	40,90
Mongolia	567	341	6,00	60,20	39,80	10,30	3,70	19,80	93,10	
Montenegro	926	531	6,50	57,30	42,70	9,80	1,40	89,30	100,00	
Morocco	438	149	6,00	33,90	66,10	6,00	0,80	24,60	88,30	11,70
Mozambique	71	33	6,80	46,40	53,60	8,80	48,40	22,80	11,90	
Myanmar	37	10	1,80	27,20	72,80	1,50	15,30	3,00	93,70	
Namibia	749	453	7,70	60,40	39,60	13,90	11,10	2,50	17,90	61,20
Nepal	135	58	6,00	43,30	56,70	11,90	10,10		81,40	

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Netherlands	5,601	4,472	12,90	79,80	12,90	20,70		92,70	41,70	38,40
New Zealand	3,405	2,826	9,70	83,00	17,00	20,50		10,40	62,80	28,70
Nicaragua	382	205	8,40	53,70	46,30	20,90	6,20	36,50	86,50	9,80
Niger	60	22	6,50	36,70	63,30	10,00	11,70	1,50	83,90	0,90
Nigeria	217	60	3,90	27,60	72,40	18,00	5,20		95,80	3,10
Norway	6,308	5,391	9,60	85,50	14,50	18,30		12,20	95,90	
Oman	796	637	2,60	80,00	20,00	4,80			61,40	23,20
Pakistan	126	46	2,80	36,80	63,20	4,70	6,90	2,90	86,80	0,90
Palau	1,288	992	9,90	77,00	23,00	18,00	36,20		46,20	38,90
Panama	796	544	7,20	68,40	31,60	12,80	0,40	50,10	78,70	21,30
Papua New Guinea	114	92	4,50	80,40	19,60	12,60	20,70		55,90	5,50
Paraguay	724	279	9,00	38,50	61,50	7,80	0,60	34,70	92,00	8,00
Peru	626	368	5,30	58,70	41,30	14,70	0,60	35,10	84,60	11,00
Philippines	287	91	4,40	31,60	68,40	8,50	1,40	37,60	82,90	12,40
Poland	1,551	1,079	6,70	69,60	30,40	11,10	0,20	86,20	75,00	2,30
Portugal	2,508	1,622	9,70	64,70	35,30	12,90		1,80	75,40	15,00
Qatar	2,882	2,416	2,20	83,80	16,20	5,80			52,20	38,00

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Republic of Korea	2.398	1.280	7,20	53,40	46,60	11,50		77,80	78,60	13,00
Romania	988	788	5,30	79,70	20,30	12,20		83,00	97,00	1,00
Russia	1.587	762	6,50	48,10	51,90	8,40		38,90	92,40	3,90
Rwanda	162	95	11,10	58,80	41,20	22,30	38,00	11,20	44,60	9,50
Samoa	379	340	7,50	89,50	10,50	17,00	21,90		62,60	
San Marino	3.709	3.258	6,50	87,80	12,20	13,10		72,90	95,70	4,30
Sao Tome and Principe	203	59	6,90	28,80	71,20	5,60	28,70		84,20	
Saudi Arabia	1.681	1.079	3,20	64,20	35,80	5,40			55,30	22,00
Senegal	96	50	4,20	52,30	47,70	7,60	28,90	5,00	77,40	21,10
Serbia	987	597	10,60	60,50	39,50	14,10	0,60	93,60	96,00	0,80
Seychelles	937	862	4,00	92,00	8,00	9,60	9,70		36,80	2,60
Sierra Leone	228	33	11,80	14,30	85,70	11,40	31,30		71,60	0,20
Singapore	3.578	1.424	4,60	39,80	60,20	12,50		11,80	94,30	3,40
Slovakia	2.147	1.503	8,20	70,00	30,00	14,90		90,00	73,90	
Slovenia	2.595	1.859	9,20	71,60	28,40	11,00		93,40	42,70	47,70
Solomon Islands	106	100	5,10	94,00	6,00	12,70	31,90		56,70	

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
South Africa	1.121	543	8,90	48,40	51,60	14,00	1,80	2,80	13,80	81,10
South Sudan	52	18	2,20	35,30	64,70	4,00	68,50		92,30	5,40
Spain	2.846	2.004	8,90	70,40	29,60	13,90		6,60	77,10	20,30
Sri Lanka	304	134	3,20	43,90	56,10	7,40		0,10	83,00	4,10
Sudan	221	47	6,50	21,10	78,90	11,40	2,60	10,60	96,10	1,00
Suriname	744	527	4,80	70,80	29,20	11,00	1,50	41,80	49,40	33,80
Swaziland	564	421	8,40	74,70	25,30	18,10	16,60		42,00	18,70
Sweden	4.244	3.458	9,70	81,50	18,50	15,00			88,10	1,70
Switzerland	6.187	4.083	11,50	66,00	34,00	22,10		69,20	76,10	21,00
Syria	169	78	3,30	46,10	53,90	5,30	0,60		100,00	
Tajikistan	170	52	6,80	30,60	69,40	7,30	10,30		86,70	
Tanzania	126	46	7,30	36,30	63,70	11,20	33,20	4,50	52,10	1,50
Thailand	658	527	4,60	80,10	19,90	17,00	3,80	9,10	56,70	31,30
Timor-Leste	96	88	1,30	91,70	8,30	3,00	46,90		99,40	
Togo	119	62	8,60	52,10	47,90	15,40	5,90	6,50	84,60	4,20
Tonga	250	204	4,70	81,80	18,20	13,70	19,20		67,80	17,90
Trinidad and Tobago	1.663	799	5,50	48,00	52,00	7,20	0,20		81,70	14,30

	PER CAPITA TOTAL HEALTH EXPENDITURE (PPT INT. USD)	PER CAPITA PUBLIC HEALTH EXPENDITURE (PPP INT. USD)	HEALTH EXPENDITURE, TOTAL (% GDP)	HEALTH EXPENDITURE, PUBLIC (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PRIVATE (% OF TOTAL HEALTH EXPENDITURE)	HEALTH EXPENDITURE, PUBLIC (% OF GOVERNMENT HEALTH EXPENDITURE)	EXTERNAL RESOURCES FOR HEALTH (% OF TOTAL HEALTH EXPENDITURE)	SOCIAL SECURITY EXPENDITURE ON HEALTH (% OF GOVERNMENT HEALTH EXPENDITURE)	OUT-OF-POCKET HEALTH EXPENDITURE (% OF PRIVATE HEALTH EXPENDITURE)	PRIVATE PREPAID PLANS (% OF PRIVATE HEALTH EXPENDITURE)
Tunisia	791	468	7,10	59,30	40,70	13,30	1,00	56,30	86,70	10,70
Turkey	1.053	815	5,60	77,40	22,60	10,70		64,10	66,30	
Turkmenistan	276	181	2,00	65,50	34,50	8,70	0,40	6,50	100,00	
Tuvalu	663	663	19,70	99,90	0,10	22,10	18,00		100,00	
Uganda	146	65	9,80	44,40	55,60	24,30	45,50		69,10	0,30
Ukraine	687	374	7,80	54,50	45,50	12,20	0,70	0,60	94,00	2,10
United Arab Emirates	2.233	1.570	3,20	70,30	29,70	9,40			63,20	27,30
United Kingdom	3.311	2.766	9,10	83,50	16,50	16,20			56,40	17,10
United States	9.146	4.307	17,10	47,10	52,90	20,70		87,60	22,30	63,30
Uruguay	1.715	1.203	8,80	70,20	29,80	20,40	0,20	63,00	57,00	43,00
Uzbekistan	330	168	6,10	51,00	49,00	9,70	1,70		94,00	5,60
Vanuatu	115	101	3,90	87,30	12,70	14,10	32,70		56,70	20,60
Venezuela	656	178	3,60	27,10	72,90	4,30		39,00	90,20	3,70
Vietnam	308	129	6,00	41,90	58,10	9,30	2,20	37,00	85,00	
Yemen	200	50	5,40	24,90	75,10	3,90			98,70	1,30
Zambia	192	112	5,00	58,30	41,70	12,60	34,20		66,70	3,50

Source: World Health Organization

Annex 3 Pharmaceutical Sales

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
	2013	2013	2013	2013	2013
Albania	229	72,20	30,20	1,47	150,19
Algeria	3.656	106,60	34,10	3,40	2.340,00
Argentina	7.176	195,20	18,20	957,29	2.067,35
Armenia	155	52,60	33,20	7,50	122,44
Australia	12.501	535,50	8,80	3.284,80	8.898,73
Austria	5.927	697,70	13,00	8.317,42	5.173,74
Azerbaijan	332	35,20	8,10	3,36	245,58
Bahamas	72	189,60	11,30	0,10	50,36
Bahrain	291	218,20	20,50	1,43	227,93
Bangladesh	1.778	11,40	35,90	98,90	196,00
Barbados	100	351,50	34,90	72,79	66,69
Belarus	1.003	107,10	23,10	151,18	702,41
Belgium	7.697	693,10	13,60	47.863,79	38.993,37
Bolivia	257	24,10	14,30	3,18	149,39
Bosnia- Herzegovina	493	128,90	27,00	55,53	308,82
Botswana	196	96,80	24,40	9,89	133,35
Brazil	27.058	135,00	12,50	1.221,00	7.019,38

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Brunei Darussalam	88	211,50	21,20	0,52	58,90
Bulgaria	1.592	220,30	39,30	872,23	1.151,64
Burkina Faso	273	16,10	36,00	0,75	198,16
Cambodia	204	13,50	17,80	1,85	136,27
Cameroon	340	15,30	23,00	0,32	218,50
Canada	21.358	607,10	10,80	5.007,22	11.418,21
Chile	3.618	205,30	17,10	178,59	1.059,59
China	86.589	62,50	16,80	3.549,55	15.097,37
Colombia	4.347	90,00	16,90	456,69	1.974,26
Costa Rica	800	164,20	16,40	261,00	552,81
Cote d'Ivoire	432	21,30	24,70	7,04	265,76
Croatia	1.262	294,10	30,40	517,69	754,02
Cuba	1.348	119,60	19,80	476,67	77,18
Cyprus	368	322,30	22,70	307,81	253,05
Czech Republic	3.570	333,60	26,70	1.498,79	3.630,33
Denmark	3.622	644,60	10,40	5.559,44	3.627,72
Dominica	3	44,40	10,90		21,99
Dominican Republic	692	66,50	21,70	30,38	489,53
Ecuador	1.418	90,10	20,40	24,24	975,24

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Egypt	3.750	45,70	29,10	280,89	1.758,81
El Salvador	453	71,40	26,90	109,84	285,18
Estonia	356	276,80	25,30	64,66	371,62
Ethiopia	395	6,40	26,20	0,66	410,33
Finland	3.935	725,10	16,40	1.004,85	2.271,65
France	44.798	696,80	14,10	35.413,72	23.422,89
Gabon	97	58,00	13,20	0,26	67,85
Georgia	496	114,30	32,60	57,72	307,37
Germany	52.824	664,00	13,60	69.483,30	41.366,20
Ghana	416	16,10	17,10	1,06	194,04
Greece	6.985	627,70	29,60	1.357,06	3.407,72
Guatemala	736	47,60	21,00	233,02	532,65
Guyana	58	72,90	27,40	2,88	41,87
Honduras	495	61,10	30,70	3,93	394,23
Hong Kong	1.449	201,10	9,20	1.497,86	2.330,25
Hungary	2.705	277,70	26,40	4.095,13	3.166,94
Iceland	215	648,00	15,40	90,54	72,05
India	14.581	11,60	19,00	11.444,43	1.527,44
Indonesia	6.106	24,40	22,90	451,24	562,38
Iran	2.459	31,80	13,30	65,58	1.239,79
Iraq	1.546	45,80	14,50	0,13	957,57

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Ireland	3.225	697,00	16,70	24.714,99	4.544,31
Israel	2.024	261,70	9,60	6.029,70	1.720,21
Italy	28.501	467,30	15,20	22.908,79	20.331,60
Jamaica	221	79,20	26,30	3,47	129,18
Japan	112.621	885,80	22,30	2.825,65	19.899,45
Jordan	849	116,70	34,80	615,42	467,00
Kazakhstan	1.800	109,50	18,90	22,62	1.559,67
Kenya	642	14,50	32,50	79,98	421,24
Kuwait	973	288,80	19,20	13,74	499,03
Latvia	410	200,00	33,20	370,55	576,10
Lebanon	1.464	303,50	48,10	35,66	1.069,63
Liberia	43	10,00	14,30	0,01	29,45
Lithuania	762	252,40	26,80	425,86	888,45
Luxembourg	376	708,90	9,90	81,21	412,50
Macedonia	239	113,60	32,50	79,22	154,40
Malawi	180	11,00	42,00	0,08	209,53
Malaysia	2.096	70,50	16,70	187,28	1.305,67
Malta	225	524,70	27,20	361,06	150,08
Mauritius	167	133,80	29,00	28,94	98,65
Mexico	13.194	107,90	16,80	1.502,52	4.629,12
Moldova	361	103,40	38,10	112,44	240,46

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Montenegro	100	161,20	32,00	8,34	71,96
Morocco	1.341	40,60	21,50	103,63	526,99
Mozambique	220	8,50	21,20	0,02	149,47
Namibia	203	88,10	20,90	0,94	143,57
Netherlands	8.038	479,60	8,40	21.077,28	16.132,63
New Zealand	1.166	258,80	6,40	236,38	824,23
Nicaragua	459	75,50	49,20	2,71	363,41
Niger	87	4,80	18,00	0,21	60,53
Nigeria	1.005	5,80	5,10	7,41	304,44
Norway	3.325	659,40	6,90	676,72	1.791,76
Oman	487	133,90	24,30	39,82	324,34
Pakistan	2.062	11,30	33,80	154,03	652,53
Panama	587	151,90	19,10	1.338,37	391,35
Paraguay	266	39,10	8,90	54,48	172,66
Peru	1.622	53,40	15,10	36,27	615,69
Philippines	3.245	33,00	27,60	62,35	967,35
Poland	9.767	255,60	28,30	2.934,65	5.379,37
Portugal	4.516	425,70	21,30	863,23	2.500,70
Puerto Rico	3.020	818,80	40,10	40.419,70	15.504,00
Qatar	458	211,10	10,30	10,55	389,62
Romania	4.139	190,70	41,30	1.208,03	3.374,51

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Russia	24.685	172,80	18,00	647,96	14.314,88
Rwanda	130	11,00	16,10	0,26	94,03
Saint Lucia	12	62,10	14,20	0,17	8,48
Saint Vincent	10	104,00	32,70		6,91
Saudi Arabia	6.582	228,30	27,80	370,60	4.864,99
Senegal	283	20,00	44,30	11,80	178,02
Serbia	1.066	148,80	23,70	240,51	704,86
Singapore	790	145,90	5,80	5.849,51	1.507,56
Slovakia	2.383	437,20	30,50	457,96	1.921,82
Slovenia	933	450,10	21,70	2.991,58	1.103,09
South Africa	3.765	71,30	12,00	390,57	2.147,52
South Korea	14.714	298,70	15,70	1.101,90	3.885,50
Spain	31.792	677,50	26,50	12.487,14	13.821,49
Sri Lanka	524	24,60	26,10	3,22	343,33
Sudan	435	11,50	9,80	0,81	365,99
Suriname	16	32,70	4,60		11,08
Swaziland	26	20,40	8,70	18,70	15,75
Sweden	5.570	581,90	10,30	7.053,54	4.117,27
Switzerland	7.622	943,50	10,20	56.627,98	21.740,18
Syria	194	8,90	18,40	6,43	126,37
Taiwan	5.409	231,30	16,60	363,66	2.524,27

	TOTAL PHARMACEUTICAL SALES (USD MILLION)	PHARMACEUTICAL SALES (USD PER CAPITA)	PHARMACEUTICAL SALES (% OF HEALTH EXPENDITURE)	PHARMACEUTICAL EXPORTS (USD MILLION)	PHARMACEUTICAL IMPORTS (USD MILLION)
Tajikistan	98	12,80	18,20	45,43	72,69
Tanzania	429	8,70	17,80	1,68	286,04
Thailand	4.639	69,20	26,20	324,40	1.765,97
Tunisia	882	80,20	26,40	36,39	536,58
Turkey	9.126	121,80	19,90	709,24	3.973,97
Uganda	403	10,70	18,10	9,00	330,04
Ukraine	4.439	98,10	32,00	244,04	3.011,23
United Arab Emirates	2.299	246,00	17,90	241,16	1.898,94
United Kingdom	38.014	602,10	16,70	30.763,37	26.527,22
United States	347.201	1.084,80	12,10	36.215,49	59.886,09
Uruguay	338	99,10	6,70	121,03	147,34
Uzbekistan	824	28,50	23,70	3,06	526,56
Venezuela	6.798	223,60	45,20	37,74	2.676,85
Vietnam	3.295	35,90	32,50	93,77	2.138,42
Zambia	225	15,50	16,60	0,09	158,26

Source: Business Monitor International

Annex 4 Pharmaceutical Production, R&D, and Value Added in Selected Countries

	PRODUCTION, GROSS OUTPUT (USD BILLION)	INTERMEDIATE CONSUMPTION (USD BILLION)	VALUE ADDED (USD BILLION)	R&D MAIN FIELD OF ACTIVITY (USD BILLION)
	2010	2010	2010	2010
Austria	4,78	2,07	2,71	0,21
Belgium	10,21	5,74	4,46	1,34
Czech Republic	1,49	0,90	0,59	0,08
Denmark	8,24	4,51	3,73	0,91
Finland	1,39	0,50	0,89	0,12
France	29,97	22,00	7,97	0,97
Germany	39,70	21,66	18,04	4,69
Hungary	2,65	1,55	1,10	0,45
Italy	27,04	20,25	6,79	0,71
Korea	21,47	15,04	6,43	0,88
Netherlands	6,79	5,34	1,45	0,45
Slovenia	1,57	0,88	0,69	0,25
United States	180,94	83,89	97,05	49,42

Source: The Organisation for Co-operation and Development

Annex 5: Pharmaceutical Employment

	YEAR	NUMBER OF EMPLOYEES	YEAR	WAGES AND SALARIES PAID TO EMPLOYEES (USD MILLION)	WAGES AND SALARIES PAID TO EMPLOYEES (LOCAL CURRENCY MILLION)
Australia	2011	15.429	2011	990,86	1.339,00
Austria	2009	10.683	2009	675,13	489,00
Azerbaijan	2010	140	2010	0,25	0,32
Belgium	2009	18.614	2009	1.554,60	1.126,00
Brazil	2010	97.677	2010	2.132,40	4.734,95
Bulgaria	2010	7.200	2010	50,34	71,01
Canada	2010	18.452	2010	754,77	816,65
China	2010	1.731.600	2010	11.631,50	72.446,00
Colombia	2011	22.045	2011	115,97	341.084,86
Croatia	2010	3.919	2010	104,67	575,91
Cyprus	2010	1.122	2010	34,98	25,33
Czech Republic	2007	10.110	2007	167,22	3.385,00
Denmark	2009	17.368	2009	1.859,12	10.060,00
Ecuador	2008	2.856	2008	29,49	29,49
Egypt	2010	42.314	2010	221,72	1.562,10
Eritrea	2011	303	2011	0,52	7,95
Estonia	2010	300	2010	6,49	4,70
Ethiopia	2009	1.437	2009	0,71	13,80
Finland	2009	1.371	2009	82,84	60,00
France	2009	78.745	2009	4.869,51	3.527,00
Georgia	2011	1.963	2011	6,82	15,85
Germany	2009	115.141	2009	8.537,87	6.184,00
Greece	2007	6.294	2007	242,59	174,00

	YEAR	NUMBER OF EMPLOYEES	YEAR	WAGES AND SALARIES PAID TO EMPLOYEES (USD MILLION)	WAGES AND SALARIES PAID TO EMPLOYEES (LOCAL CURRENCY MILLION)
Hungary	2009	15.756	2009	394,68	89.033,00
India	2009	414.025	2009	1.278,60	76.638,90
Indonesia	2009	58.875	2009	152,04	1.746.530,00
Iran	2010	22.463	2010	84,68	2.490.702,00
Ireland	2009	16.570	2009	1.355,79	982,00
Italy	2009	65.117	2009	4.048,03	2.932,00
Japan	2010	90.469	2010	4.512,38	458.961,00
Jordan	2010	5.430	2010	51,12	72,15
Kyrgyzstan	2010	290	2010	0,29	15,00
Latvia	2010	1.713	2007	8,25	16,41
Lebanon	2007	699	2007	7,30	7,30
Lesotho	2007	89	2007	0,18	1,32
Lithuania	2010	674	2010	7,62	26,31
Macedonia	2011	1.409	2011	19,45	1.080,72
Malawi	2010	326	2010	0,26	135,68
Malaysia	2010	10.275	2010	76,79	247,90
Malta	2008	622	2008	28,46	20,61
Mexico	2010	49.435	2010	891,28	11.544,59
Morocco	2011	8.492	2010	224,98	1.831,66
Nepal	2008	107	2008	0,08	5,39
Netherlands	2008	16.382	2008	1.049,83	753,00
Norway	2008	3.028	2008	256,47	1.428,00
Oman	2010	666	2010	0,78	2,01
Pakistan	2006	36.336	2006	142,99	8.613,93

	YEAR	NUMBER OF EMPLOYEES	YEAR	WAGES AND SALARIES PAID TO EMPLOYEES (USD MILLION)	WAGES AND SALARIES PAID TO EMPLOYEES (LOCAL CURRENCY MILLION)
Philippines	2008	14.013	2008	125,35	5.469,00
Poland	2009	24.835	2009	503,73	1.561,00
Portugal	2008	6.459	2008	237,01	170,00
Republic of Korea	2008	26.035	2008	771,90	830.000,00
Romania	2010	8.836	2010	98,02	314,30
Russia	2011	74.689	2011	367,39	22.961,94
Singapore	2010	5.363	2010	389,68	486,46
Slovakia	2008	2.603	2008	40,04	29,00
Slovenia	2010	6.233	2010	335,50	243,00
Spain	2009	38.983	2009	2.387,12	1.729,00
Sri Lanka	2006	11.654	2006	15,03	1.565,32
State of Palestine	2009	871	2009	9,89	9,89
Sweden	2009	16.883	2009	1.059,89	8.060,00
Tanzania	2010	1.119	2010	2,47	4.051,40
Thailand	2006	27.080	2006	76,91	2.924,50
Turkey	2009	29.230	2009	702,13	1.461,36
Ukraine	2011	21.532	2011	49,21	1.046,97
United Kingdom	2009	39.910	2009	3.447,01	2.202,00
United States	2008	245.900	2008	18.425,10	18.425,10
Uruguay	2007	3.102	2007	52,28	1.256,81
Vietnam	2010	35.525	2010	102,89	2.169.240,00
Yemen	2009	1.261	2009	1,90	413,95

Source: United Nations Industrial Development Organization

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