

THE PHARMACEUTICAL INDUSTRY AND GLOBAL HEALTH: FACTS AND FIGURES

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International
Federation of
Pharmaceutical
Manufacturers &
Associations

Dear Reader,

This compendium of facts and figures relating to the pharmaceutical industry and global health aims to provide a snapshot of the work this vibrant industry undertakes today. This publication examines some of 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 presented here confirms the ranking of the research-based pharmaceutical industry as 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 and conditions.

This is a unique industry. IFPMA members employ millions of people who are proud to participate in this crucial endeavor. They save millions of lives and help those suffering from disease to recover and lead more productive ones. IFPMA brings this publication to underline the ongoing commitment of the research-based pharmaceutical industry to improving the quality of life for all of the world's people, not only through healthcare but also through economic progress.

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

Eduardo Pisani

Director General
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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 100 billion (EUR 75 billion) on R&D.
 - In 2010, there were 878 medicines in the pipeline for all types of cancer, 193 for diabetes and 303 for rare diseases.
 - In 2009, 25 new pharmaceuticals were launched, out of more than 3,050 compounds in development.
 - In 2006-2010, the number of new chemical or biological entities launched on the world market fell to 151 from 211 a decade earlier.
 - It costs an average of USD 1.38 billion to develop a single medicine.
 - In 2010, five of the 10 leading global R&D firms were pharmaceutical companies.
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INDUSTRY'S CONTRIBUTION TO DISEASES THAT DISPROPORTIONATELY AFFECT THE DEVELOPING WORLD

- Every year, medicines and vaccines prevent at least 3 million deaths from malaria and save 750,000 children from disability.
 - Between 2000 and 2006, immunization campaigns helped reduce the number of deaths from measles in Africa by 91%.
 - In 2010, there were 48 medicines in the pipeline for malaria and 81 medicines in development for HIV/AIDS.
 - In 2010, IFPMA members had 102 ongoing R&D projects related to diseases of the developing world.
 - In 2009, the research-based pharmaceutical industry contributed around 75% of the R&D funding for tuberculosis, malaria and dengue.
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THE RESEARCH-BASED PHARMACEUTICAL INDUSTRY'S CONTRIBUTION TO A HEALTHY SOCIETY

- In 2010, the number of medicines in development for particular disease areas were:
 - Cancer: 878
 - Cardiovascular disorders: 237
 - Diabetes mellitus: 193
 - HIV/AIDS: 81
 - Rare diseases: 303
 - For every USD 24 spent on new medicines for cardiovascular diseases in OECD countries, USD 89 were saved in hospitalization and other healthcare costs.
-

THE PHARMACEUTICAL MARKET

- The pharmaceutical market will reach nearly USD 1,100 billion by 2015.
 - Leading emerging countries will account for 28% of global spending on pharmaceuticals by 2015, compared to 12% in 2005.
 - The US share will decline from 41% in 2005 to 31% in 2015, while Europe's share will fall from 27% in 2005 to 19% in 2015.
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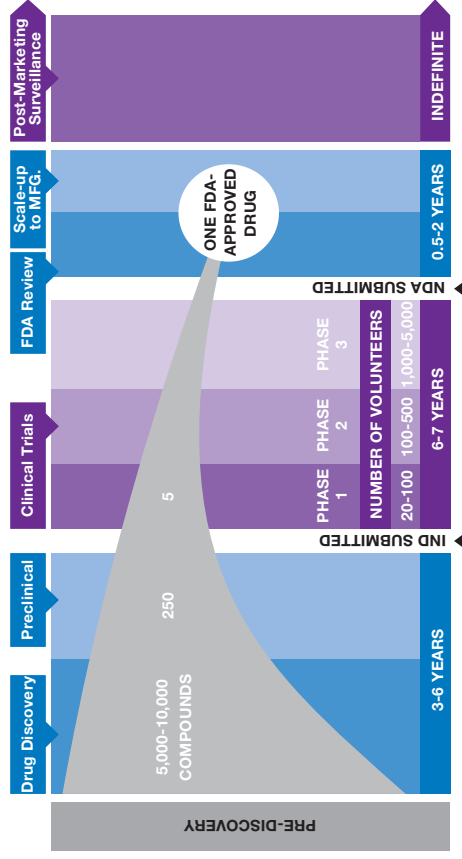
CHAPTER 1

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. Its key contribution to medical progress is turning fundamental research into innovative treatments. Indeed, the industry's success rests on continuous innovation — for the prevention and treatment of common, complex and neglected diseases, and for improvements in existing medicines and treatments. Despite challenging business conditions, the industry undertakes investments that are considerably more risky than those in other high-technology sectors. By investing billions of dollars and thousands of scientist-hours, it pushes the limits of science, improves global health and contributes to the prosperity of society.

For the past 100 years, the private sector has produced almost all the medicines, treatments and vaccines on the market. When a pharmaceutical company invests in research and development (R&D) of new medicines, it first screens for chemical and biological compounds with potential for treating new or existing conditions. The lengthy process of medicine development begins once scientists identify a promising compound among the 5,000 to

FIGURE 1 THE RESEARCH AND DEVELOPMENT PROCESS



Source: PhRMA 2011 profile, *Pharmaceutical Industry*, p. 12. Available at: http://www.phrma.org/sites/default/files/159/phrma_profile_2011_final.pdf

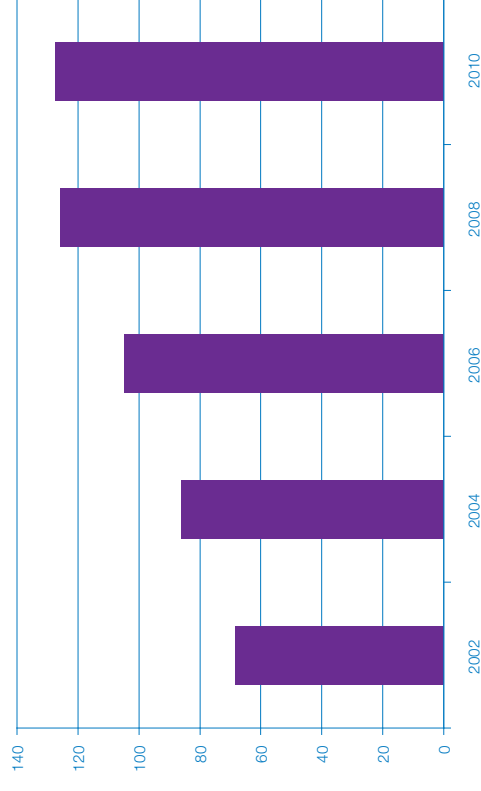
10,000 screened on average. Researchers then extensively test the compound to ensure its efficacy and safety, a process that can take 10 to 15 years before it reaches the market.¹ To illustrate, in 2009, 25 new medicines were launched, while 3,050 compounds were at different stages of development.² The difference in these numbers indicates the many research hurdles that must be overcome before compounds can be turned into safe and effective medicines.

A LOOK INTO THE PHARMACEUTICAL INDUSTRY R&D PIPELINE

Today, the cost of developing a single medicine amounts to over USD 1.38 billion³ compared to USD 138 million in 1975. This 1,000% increase reflects

1 Innovation.org. *Drug Discovery and Development: Understanding the R&D Process*. Available at: <http://www.innovation.org/index.cfm/futureofinnovation/NewMedicinesDevelopment#1%20-%20DIMasi>
 2 Innovation.org. *New Medicines in Development*. Available at: <http://www.innovation.org/index.cfm/FutureofInnovation/NewMedicinesinDevelopment>
 3 PhRMA. 2011. *PhARMA chart pack*. p. 21. Available at: http://www.phrma.org/sites/default/files/159/phrma_chart_pack.pdf

FIGURE 2 PHARMACEUTICAL R&D SPENDING (USD BILLION)



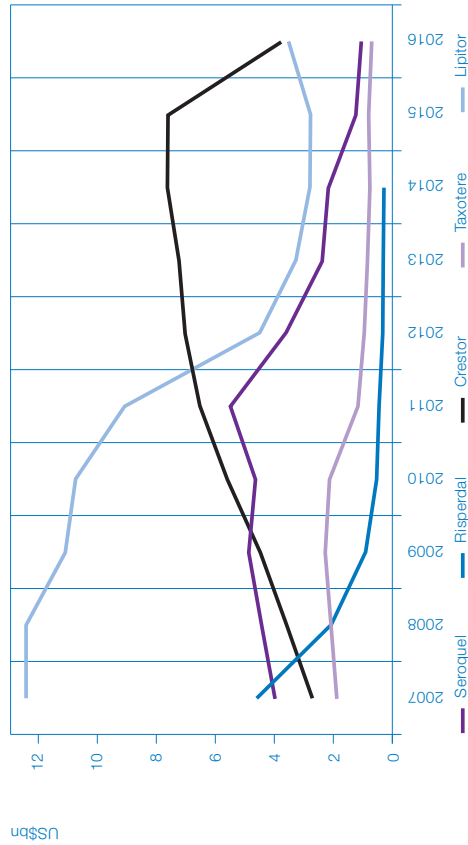
Source: EvaluatePharma. 2010. "Pharma industry cutting its R&D cloth to more sustainable levels" in World Preview 2016. Available at: <http://www.evaluatepharma.com/UniversalView.aspx?type=Story&id=217946§ionID=&isEPVantage=yes>

a need for safer medicines, better quality of treatment and reduced side effects for patients. Accordingly, the research-based pharmaceutical industry globally spent over USD 120 billion on pharmaceutical R&D in 2008-09 (see figure 2).⁴

Rising R&D costs and more stringent testing requirements have been accompanied by a decline in new medicine approvals. The number of new chemical or biological entities (NCEs and NBEs) launched on the world market fell to 151 in the 2006-2010 period compared with 211 a decade earlier.⁵ Moreover, the research-based pharmaceutical industry is expected to face an important decrease in revenue in the near future, as most of its patents on blockbuster medicines⁶ will expire. These challenges have not diminished the industry's innovative drive but have rather encouraged it to adopt new

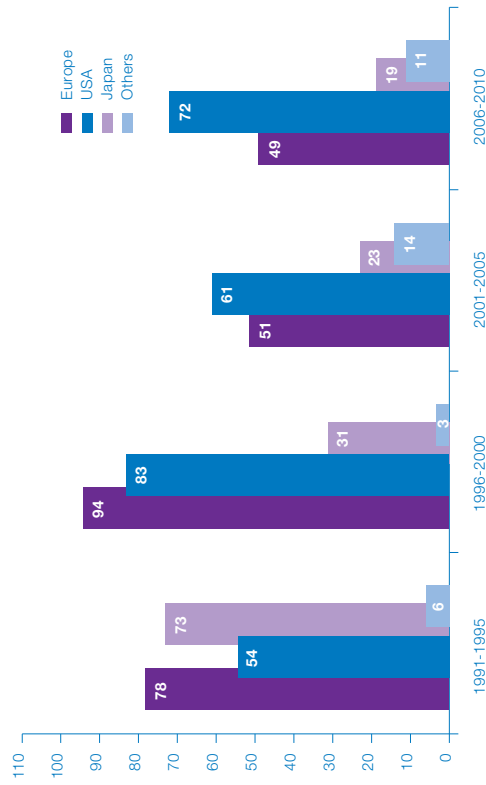
4 EPPIA. 2010. *EPPIA Industry in Figures 2010*, p. 2. Available at: <http://www.epfia.eu/Content/Default.asp?PageID=559&DocID=9158>
 5 *Ibid.*, p. 10.
 6 A blockbuster medicine is one that generates annual sales of at least USD 1 billion for the company that creates it.

FIGURE 3 EFFECT OF PATENT EXPIRATION ON GLOBAL SALES OF SELECTED BLOCKBUSTER DRUGS (USD BILLION)



Source: © Business Monitor International, 2010. Adapted from: BMI Report – Pharmaceutical Innovation: driver of long-term value, p. 7.

FIGURE 4 NUMBER OF NEW CHEMICAL OR BIOLOGICAL ENTITIES LAUNCHED ON WORLD MARKET (1991–2010, BY NATIONALITY OF MOTHER COMPANY)



Source: EFPIA, 2010. *EFPIA Industry in Figures 2010*, p. 10. Available at: <http://www.efpia.eu/content/default.asp?PageID=558&DocID=11586>

models to foster innovation.⁷ In 2007 alone, the pharmaceutical industry registered nearly 70,000 patents through the Patent Cooperation Treaty (PCT) of the World Intellectual Property Organization (WIPO).⁸ 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.

PHARMACEUTICAL INDUSTRY R&D INVESTMENTS

Of all the different industrial sectors, the research-based pharmaceutical industry has consistently invested the most in R&D, even in times of economic turmoil and financial crisis. Compared with other high-technology industries, the annual R&D spending of USD 120 billion by the pharmaceutical industry is five times greater than the R&D investments of the aerospace and defense industries, 3.75 times more than the chemicals industry, and 2.5 times more than the software and computer services industry.⁹

In the United States, R&D investments of pharmaceutical companies have grown consistently over the past 15 years, and have more than doubled the publicly-funded National Institutes of Health's (NIH)¹⁰ expenditures in 2009.¹¹ Furthermore, the research-based pharmaceutical industry in Japan spends every fifth Yen it earns from sales on R&D, in the United States every sixth Dollar and in the European Union every seventh Euro. No other business sector has such high levels of R&D intensity.¹² According to the EU Industrial R&D Scoreboard 2010, which looked at the EU, the US and Japan, the pharmaceutical industry was the top R&D investor in 2009, with positive spending growth, whereas in most of the other sectors, with the exception of health care equipment and services, spending declined.¹³

7 PhRMA, 2011. *PhRMA Industry Profile 2011*, p. 11.

Available at: http://www.phrma.org/sites/default/files/159/phrma_profile_2011_final.pdf

8 WIPO Statistics Database, September 2010. The PCT provides a unified procedure for filing patent applications to protect inventions in each of the treaty's contracting states.

9 European Commission, 2010. "EC Joint Research Centre's 2010 Scoreboard presentation from 17/11/2010", slide 16. Available at: http://ini.jrc.ec.europa.eu/research/docs/2010/SB_2010_BXL_17-11-2010.pdf

10 As part of the U.S. Department of Health and Human Services, the National Institutes of Health (NIH) is the US medical research agency scientists, funding universities and research institutions in the US and around the globe.

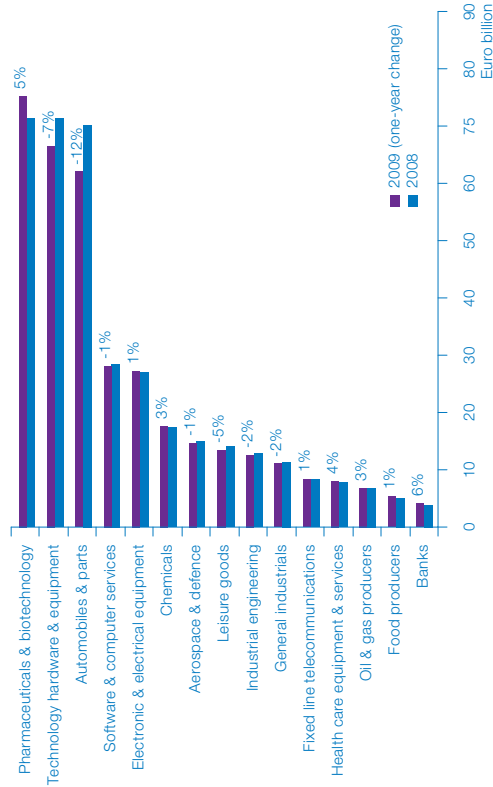
11 PhRMA. *Private and Public R&D Spending*. Available at: <http://www.phrma.org/private-public-rd-spending>

12 European Commission Joint Research Centre (JRC), 2010. *2010 EU Industrial R&D Investment Scoreboard*, p. 33.

Available at: http://ini.jrc.ec.europa.eu/research/docs/2010/SB2010_final_report.pdf

13 *Ibid.*, p. 32.

FIGURE 5 R&D INVESTMENTS BY SECTOR (EUR BILLION)



Source: European Commission, 2010. "EC Joint Research Centre's 2010 Scoreboard presentation from 17/11/2010", slide 15. Available at: http://iri.jrc.ec.europa.eu/research/docs/2010/SB_2010_BXL_17-11-2010.pdf

According to the European Commission statistics, five of the 10 leading global R&D firms in 2010 were pharmaceutical companies,¹⁴ accounting for 19% of the R&D of the top 1,400 companies.¹⁵ 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 enabled the global eradication of smallpox and the regional elimination of polio and measles. Currently, vaccines save the lives of over 2 million children each year. Between 2000 and 2006, immunization campaigns cut the number of deaths caused by

14 European Commission, 2010. EC Joint Research Centre's 2010 Scoreboard presentation from 17/11/2010, slide 9. Available at: http://iri.jrc.ec.europa.eu/research/docs/2010/SB_2010_BXL_17-11-2010.pdf
 15 European Commission Joint Research Centre (JRC), 2010. 2010 EU Industrial R&D Investment Scoreboard, p. 29. Available at: http://iri.jrc.ec.europa.eu/research/docs/2010/SB2010_final_report.pdf

FIGURE 6 MEDICINES IN DEVELOPMENT IN 2010 (SELECTED CATEGORIES)

Condition	Number of Medicines in Development	Condition	Number of Medicines in Development
Alzheimer's and Other Dementias	98	Cardiovascular Disorders	237
Arthritis	74	Diabetes Mellitus	193
Cancer	878	HIV/AIDS	81
Breast Cancer	125	Mental and Behavioral Disorders	252
Colorectal Cancer	82	Parkinson's Disease	25
Lung Cancer	120	Respiratory Disorders	334
Leukemia	119	Rare Diseases ²	303
Skin Cancer	86		

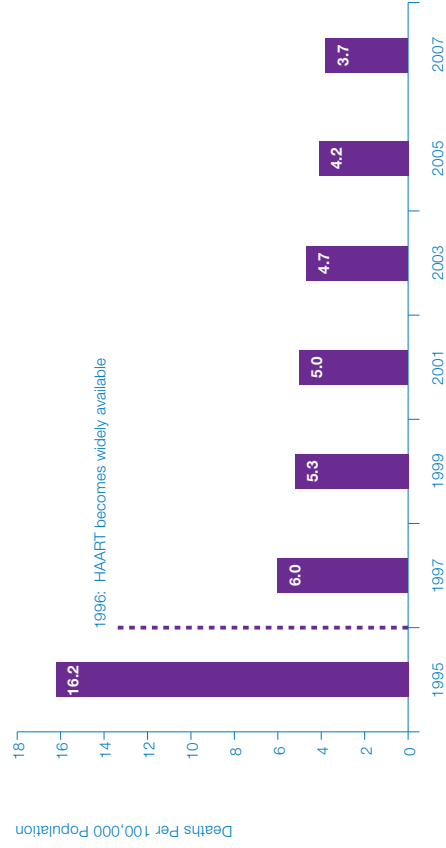
Source: PhRMA Chart Pack, p. 16. Available at: http://www.phrma.org/sites/default/files/159/phrma_chart_pack.pdf

measles by 68%, with a reduction of 91% in Africa. Since 1928, scientists have discovered and developed 19 classes of antibiotics, leading to the treatment and cure of several thousand types of infection and saving over 200 million lives.¹⁶ With the help of major medical discoveries, the research-based pharmaceutical industry has developed more than 20 antiretroviral treatments for HIV/AIDS, essential in control of the epidemic. In 2010, there were 48 medicines in the pipeline for malaria,¹⁷ 81 medicines in development for HIV/AIDS, 878 for all types of cancer, 193 for diabetes and 303 for rare diseases.¹⁸ It is estimated that medicines prevent at least 3 million deaths from malaria and save 750,000 children from disability every year.¹⁹

Pharmaceutical progress has led to a dramatic decline in death rates for diseases such as HIV/AIDS, cancer, polio and measles. For example, death

16 Resources for the future, 2008. *Extending the cure: Policy responses to the growing threat of antibiotic resistance*. Available at: <http://www.rff.org/REF/Documents/ETC-06.pdf>. Accessed on 25 October 2011.
 17 Rughani, G. 2011. "Development of 50 malaria drugs is under threat unless funding expands", in *British Medical Journal*, 2011;342:d4158.
 18 PhRMA, 2011. *PhRMA Chart Pack*, p. 16. Available at: http://www.phrma.org/sites/default/files/159/phrma_chart_pack.pdf
 19 Ehreth, J. The Global Value of Vaccination. *Vaccine* (2003): 21 (7-8):596-600.

FIGURE 7 HIV/AIDS: DECLINE IN DEATH RATES



Source: PHARMA, 2011. *PhARMA chart pack*, p. 6.
Available at: http://www.pharma.org/sites/default/files/159/pharma_chart_pack.pdf

rates for HIV/AIDS in the United States have fallen from 16.2 deaths per 100,000 people in 1995 to 3.7 deaths per 100,000 people in 2007, a reduction of over 75%.²⁰ The number of AIDS-related deaths worldwide peaked at 2.1 million in 2004 and has since fallen to an estimated 1.8 million deaths in 2009.²¹ This can be largely attributed to the introduction of new antiretroviral therapies (ARTs) combined with more patients being provided with treatment.

In the past 10 years alone, over 300 medicines have been approved that offer new hope to patients with hard to treat diseases.²² The introduction of innovative medicines usually has a two-fold benefit for society. First, it improves the physical and mental wellbeing of individuals. Second, it reduces hospitalization and other healthcare costs. Thus, for every dollar spent on prescription medicines in the United States, more than two dollars are saved in hospitalization costs.²³

²⁰ PHARMA, 2011. *PhARMA Chart Pack*, p. 6.
Available at: http://www.pharma.org/sites/default/files/159/pharma_chart_pack.pdf

²¹ UNAIDS database (extracted from <http://www.aidsinfoonline.org/>).

²² PHARMA, 2011. *PhARMA 2011 Profile*, p. 20.

²³ Innovation.org. *Innovation by numbers*. Available at: http://www.innovation.org/index.cfm/ToolsandResources/FactSheets/Innovation_by_the_Numbers#11-Shang. Accessed on 25 October 2011.

Today, if a patient is diagnosed with leukaemia early enough, he or she will be able to drive the cancer into remission by taking a single pill each day. High cholesterol and other cardiovascular diseases, which required extensive treatment in the 1970s, can now be easily managed by taking pills. Meanwhile, improvements in existing cancer treatments have cut annual death rates in half.²⁴

R&D FOR DISEASES THAT DISPROPORTIONATELY AFFECT THE DEVELOPING WORLD

The World Health Organization (WHO) has identified 17 neglected tropical diseases (NTDs),²⁵ which form a significant part of the global disease burden and touch the lives of 1 billion people in the developing world.²⁶ Some NTDs can have lifelong consequences on individuals. Others lead to acute infections which 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 expertise and resources from 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 2009, the industry contributed around 75% of the R&D funding for tuberculosis, malaria and dengue.²⁷ It was also the biggest funder for bacterial pneumonia and meningitis, and rheumatic fever.²⁸

²⁴ *Ibid.*, p. 7.

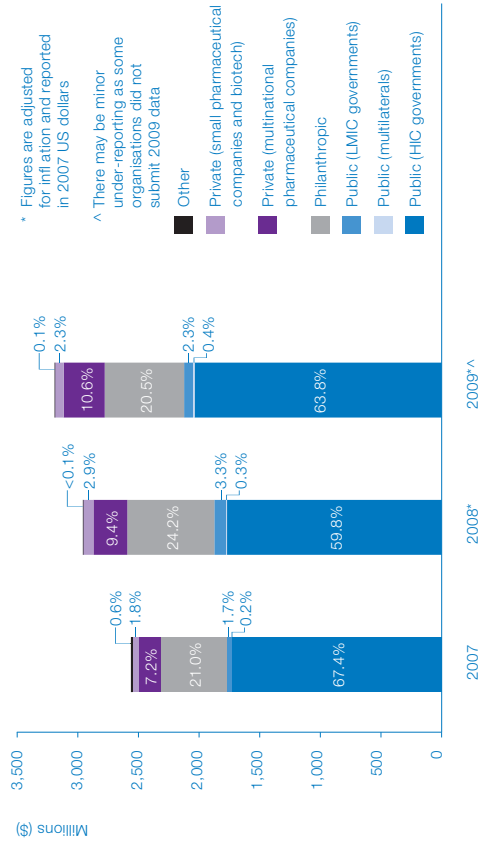
²⁵ Buruli ulcer; Chagas disease (American trypanosomiasis), cysticercosis, dengue/severe dengue, dracunculiasis (guinea worm disease), echinococcosis, fascioliasis, human African trypanosomiasis (sleeping sickness), leishmaniasis, leprosy, lymphatic filariasis (elephantiasis), onchocerciasis (river blindness), rabies, schistosomiasis, soil transmitted helminthiasis, trachoma and yaws.

²⁶ WHO, 2010. *Working to overcome the global impact of neglected tropical diseases: First WHO report on neglected tropical diseases*, p. 1. Available at: http://whqlibdoc.who.int/hq/2010/WHO_HTM_NTD_2010.2_eng.pdf

²⁷ Policy Cures, 2010. *G-FINDER 2010: Neglected Disease Research and development is the global financial crisis changing R&D?* p. 64. Available at: http://www.policycures.org/downloads/g-finder_2010.pdf

²⁸ *Ibid.*, pp. 19–59.

FIGURE 8 TOTAL FUNDING FOR NEGLECTED DISEASES, BY FUNDER TYPE (2007–2009)



Source: Policy Cures. 2010. *G-FINDER 2010: Neglected Disease Research and Development — is the global financial crisis changing R&D?* p. 64. Available at: http://www.policycures.org/downloads/g-finder_2010.pdf

These partnerships have proven fruitful and most PDPs currently have a healthy pipeline. For example, the portfolio of the TB Alliance consists of four medicines in the second phase of clinical trials and two medicines in the third phase of clinical trials.²⁹ The Drugs for Neglected Diseases Initiative (DNDi) aims to deliver six to eight new treatments by 2014 for Chagas disease, malaria, leishmaniasis and sleeping sickness — unprecedented progress in the fight against these diseases.³⁰

In 2010, IFPMA members had 102 ongoing R&D projects related to diseases of the developing world.³¹ The number of projects, undertaken in-house or in partnerships with 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.

²⁹ TB Alliance. 2011. *TB Alliance Portfolio*. Available at: http://www.tballiance.org/downloads/mediakit/TBA_Portfolio_2011.pdf. Accessed on 26 October 2011.

³⁰ DNDi. “Objectives”. Available at: <http://www.dndi.org/overview/dndi/objectives.html>. Accessed on 24 June 2011.

³¹ IFPMA. 2010. *IFPMA Status Report: Pharmaceutical Industry R&D for Diseases of the Developing World 2010*. Available at: http://www.ifpma.org/fileadmin/webnews/2010/pdfs/20101110_Status_Rnd_for_DDW_10Nov2010.pdf

TABLE 1 INDUSTRY R&D FOR NEGLECTED DISEASES (NUMBER OF ONGOING PROJECTS, 2005–2011)

	2005	2006	2007	2008	2009	2010	2011
Medicines	32	43	50	58	75	91	82
Vaccines (not counted)	6	6	8	9	9	11	11

TABLE 2 INDUSTRY R&D FOR NEGLECTED DISEASES (STATUS OVERVIEW AS OF NOVEMBER 2011)

Diseases	Ongoing Medicines R&D Projects	Ongoing Vaccines R&D Projects	Approvals Since 2005	R&D Projects Terminated Since 2005
Tuberculosis	28	3	0	11
Malaria	29	5	2	18
Other Tropical Diseases	25	3	3	15
Total	82	11	5	44

Source: IFPMA.

Since its very beginnings, the research-based pharmaceutical industry has been strongly committed to delivering innovative products and expanding the boundaries of medical science. The industry continuously experiments with different models and reinvents its way of doing business to overcome scientific hurdles. Successful partnerships, leading to new treatments and medicines to combat diseases in both the developed and developing worlds, hold the key to achieving the global health goals of the future.

CHAPTER 2

ACCESS TO MEDICINES AND HEALTHCARE SYSTEMS

A robust healthcare system is an important pillar of the development process, and a sound pharmaceuticals policy is a fundamental condition for health systems to perform well.³² Health systems are complex mechanisms through which health products, services and care are delivered to patients.³³ Their success requires joint effort and collaboration among 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.

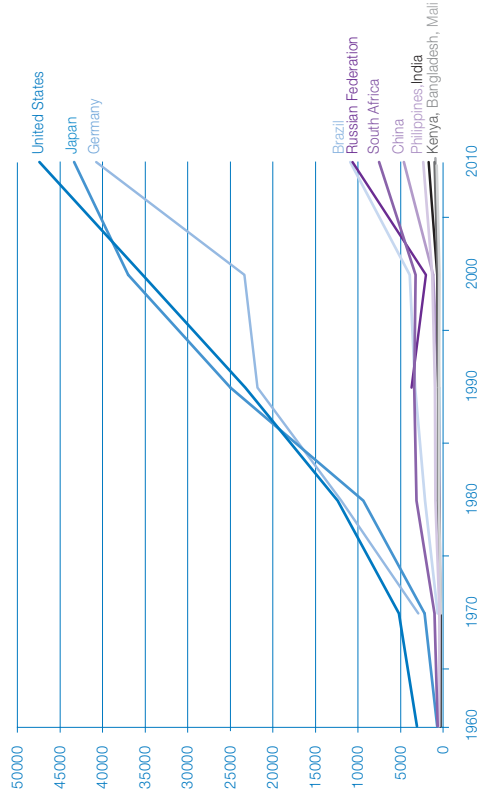
DISTRIBUTION OF WEALTH AND HEALTH OUTCOMES

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.

³² WHO. 2007. *Strengthening health systems to improve health outcomes: WHO's framework for action*. p. 9. Available at: http://www.who.int/healthsystems/strategy/everybodys_business.pdf

³³ IFPMA. 2007. *Pharmaceutical Innovation Platform*, p. 27.

FIGURE 9 EVOLUTION OF GDP PER CAPITA IN SELECTED COUNTRIES



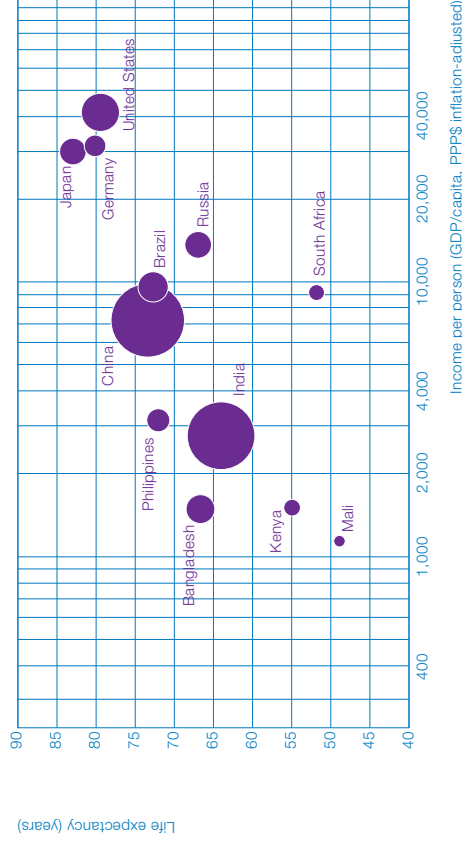
Source: Adapted from: World Bank, 2010. *World Bank Statistics 2010*. Available at: http://data.worldbank.org/indicator/NY.GDP.PCAP.PD?order=wbapi_data_value_2008+wbapi_data_value&sort=asc

Looking at the regional distribution of wealth, the European Union, North America and Eastern Europe/Central Asia have a Gross Domestic Product (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 average.³⁴ People in poor countries have less access to water and sanitation facilities, have lower levels of literacy and lack adequate infrastructure (see also Annex III, pp. 62–73), including transportation systems that enable travel to healthcare facilities. These elements are essential parts of a healthy economy.

Total health expenditures range from 1.9% of GDP in Equatorial Guinea to 15.2% of GDP in the United States. On average, low income countries spend 5.4% of GDP on financing healthcare systems whereas high income countries spend more than 11% on health. The disparities are also significant in terms of healthcare workers. There are 2.8 physicians per 10,000 inhabitants in low income countries compared with 28.6 in high income countries.

34 World Bank, 2010. *World Bank Statistics 2010*. Available at: http://data.worldbank.org/indicator/NY.GDP.PCAP.PD?order=wbapi_data_value_2008+wbapi_data_value&sort=asc

FIGURE 10 CORRELATION BETWEEN INCOME PER PERSON AND LIFE EXPECTANCY



Source: Adapted from: Gapminder "Global Trends: Wealth & Health of Nations" in 2009. Available at: <http://www.gapminder.org>

Likewise, low income countries have about 13 hospital beds per 10,000 inhabitants whereas the average for high income countries is 59 (see also Annex IV, pp. 72–79).³⁵

These divergences in wealth and resources have a decisive impact on people's health. In low income countries, 75 out of 1,000 children die before their fifth birthday compared with six out of 1,000 in high income countries (see also Annex II, pp. 54–61). The strong link between wealth and health is also reflected in average life expectancy — 57 years in low income countries compared with 80 years in high income countries, a stark difference of 23 years.³⁶

35 WHO, 2011. *WHO Statistics 2011*, pp. 82-83 and 94. Available at: http://www.who.int/whosis/whostat/EN_WHS2011_Part2.pdf

36 *Ibid.*, pp. 12-13.

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/governance (see also Annex V, pp. 80–87).³⁷ A well-functioning healthcare system also promotes productive relationships between governments, patients and the healthcare industry.

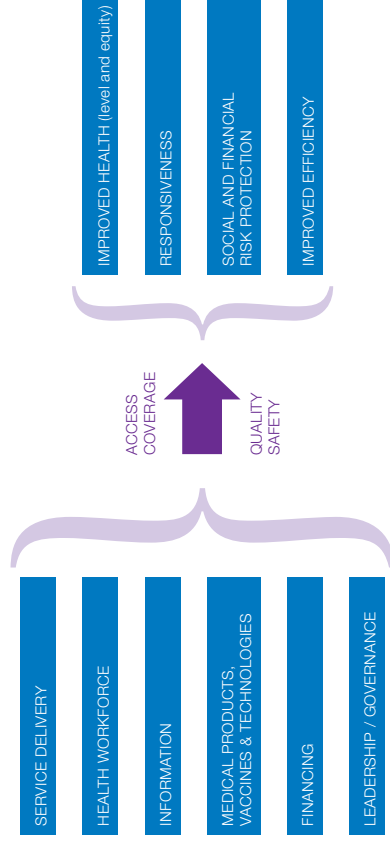
The pharmaceutical industry plays a pivotal role in any healthcare system, by providing medicines and vaccines for most health interventions. A well-performing healthcare system must ensure that pharmaceutical products meet quality requirements and are properly procured, distributed to the different 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 3.75 doctors for every 1,000 inhabitants, while in Ghana there are only 0.85.³⁸

In terms of funding, performing healthcare systems require sufficient allocation of resources by government and/or the private sector. Unfortunately, public health and the strengthening of healthcare systems are not seen as important priorities in many countries, and the resources made available to health vary significantly from country to country (see figure 13). While Jordan invests 9.3% of its GDP on health and the government 16.1% of its budget, Pakistan invests only 2.6% and 3.6% respectively.³⁹

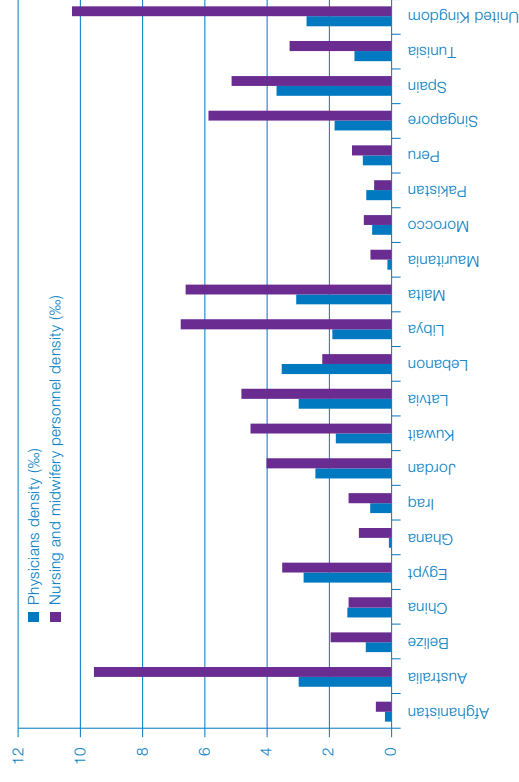
Strong healthcare systems also require strategic long-term planning and political commitment. Health authorities should not only facilitate necessary resources, but also procure medicines effectively, and minimize inefficiencies and unnecessary mark-ups in the supply chain, such as taxes and tariffs. Strengthening healthcare systems is one of the targets set by the UN Millennium Development Goals (MDGs).

FIGURE 11 THE WHO HEALTH SYSTEM FRAMEWORK



Source: WHO. 2007. Strengthening health systems to improve health outcomes: WHO's framework for Action, p. 3. Available at: http://www.who.int/healthsystems/strategy/everybodys_business.pdf

FIGURE 12 HEALTHCARE PROFESSIONALS — DENSITY PER 1,000 POPULATION (2009)



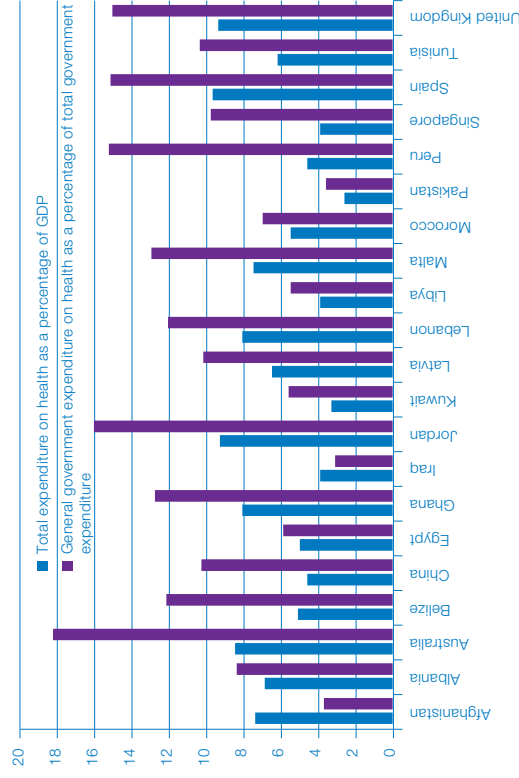
Source: Adapted from: WHO. WHO Global Health Observatory Data Repository. Available at: <http://apps.who.int/ghodata/#>

³⁷ WHO. 2007. Strengthening health systems to improve health outcomes: WHO's framework for Action, p. 3. Available at: http://www.who.int/healthsystems/strategy/everybodys_business.pdf

³⁸ WHO. WHO Global Health Observatory Data Repository. Available at: <http://apps.who.int/ghodata/#>

³⁹ WHO. WHO Global Health Observatory Data Repository. Available at: <http://apps.who.int/ghodata/#>

FIGURE 13 TOTAL HEALTH EXPENDITURE AS A PERCENTAGE OF GDP AND GOVERNMENT SPENDING (2009)



Source: Adapted from: WHO. *WHO Global Health Observatory Data Depository*. Available at: <http://apps.who.int/ghodata/#>

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 developing countries is accompanied by serious shortages of doctors, nurses and pharmacists, among other factors.

In addition, developing countries, especially least developed countries, often have high mark-up costs that inflate unnecessarily 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.

A lack of health literacy can further hinder access to medicines. Moreover, poor people with limited or no access to adequate nutrition, safe water and sanitation are also unable to buy even basic health products and services. Contrary to widespread belief, it is rarely high-tech solutions but rather primary care interventions that will successfully combat poverty-related diseases. Poverty alleviation in general consists of targeted interventions. Some of these programs include better nutrition for mothers, mass vaccination

TABLE 3 EXAMPLES OF "HIDDEN" COSTS OF PHARMACEUTICAL PROCUREMENT

	Sri Lanka	Kenya	Tanzania	South Africa	Brazil	Armenia	Kosovo	Nepal	Mauritius	Average
Import tariff	0%	0%	10%	1%	11.7%	0%	1%	4%	5%	
Port charges	4%	8%	1%							
Clearance and freight	1%	2%								
Pre-shipment inspection	2.75%	1.2%								
Pharmacy board fee		2%								
Importers' margins	25%						15%	10%		
VAT				14%	18%	20%	0%			
Central govt. tax										
State govt. tax					6%					
Wholesaler	8.5%	15%	0%	21.2%	7%	25%	15%	10%	14%	
Retail	16.3%	20%	50%	50%	22%	25%	25%	16%	27%	
Total markup	63.9%	54.2%	74.3%	74%	82.3%	87.5%	73.6%	48%	59.6%	68.6%

Source: Levison, L and Laing, R. 2003. *Essential Drugs Monitor* No. 033. Available at: <http://apps.who.int/medicinedocs/en/d/Js4941e/4.8.html>

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 4 SELECTED INFRASTRUCTURE INDICATORS (2008)

Region Name	Roads, paved (% of total roads)	Improved sanitation facilities (% of population with access)	Improved water source (% of population with access)
Arab World	75.18	75.37	81.51
East Asia & Pacific	47.62	62.93	89.02
Europe & Central Asia	87.97	94.13	98.01
Latin America & Caribbean (all income levels)	33.28	79.45	93.40
North America	53.62	100.00	99.10
South Asia	58.93	35.57	86.64
Sub-Saharan Africa	18.30	31.36	59.72
Heavily indebted poor countries (HIPC)	19.00	27.47	57.70
Least developed countries	19.00	36.16	61.09
Low income	14.12	35.47	63.11
Lower middle income	29.26	45.44	84.32
Upper middle income	50.50	67.83	91.50
Middle income	45.00	56.45	87.84
High income	87.28	99.52	99.56
World	49.10	60.62	86.82

Source: World Bank, 2011. World Bank Development Indicators.
Available at: <http://data.worldbank.org/data-catalog/world-development-indicators>

THE ROLE OF PHARMACEUTICAL PRODUCTS IN HEALTHCARE
The MDGs highlight 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 medicines in developing countries”. Collaboration is now part and parcel of the research-based pharmaceutical industry’s approach to improving the effectiveness of healthcare systems.

The pharmaceutical industry constitutes one of the building blocks of an effective and well-functioning healthcare system. As demonstrated above, 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.

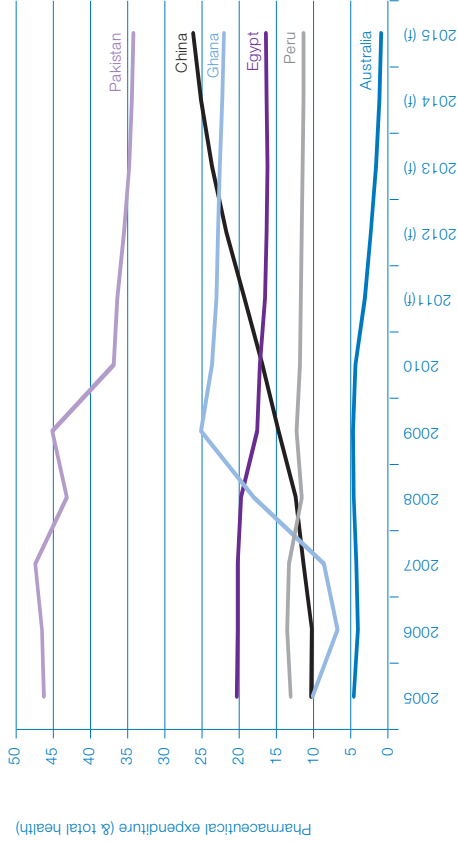
Innovative medicines can help to control increasing costs within a health-care system. For every 24 dollars spent on new medicines for cardiovascular diseases in OECD countries, 89 dollars were saved in hospitalization and other healthcare costs.⁴⁰ Prior to the creation of antibiotics used to treat peptic ulcers, the treatment for the disease consisted of major surgery and costly assistance with recovery, requiring as much as USD 17,000 and over 300 days of treatment.⁴¹ After the advent of antibiotics, the cost of treating ulcers plummeted to less than USD 1,000.⁴² In addition, patients enjoy a better quality of life and a non-invasive, safer course of treatment.

40 Lichtenberg, Frank R. 2009. “Have newer cardiovascular drugs reduced hospitalization? Evidence from longitudinal country-level data on 20 OECD countries, 1995-2003,” *Health Economics*, John Wiley & Sons, Ltd., vol. 18(5), pp. 519-534

41 Centers for Disease Control and Prevention. 1998. “*Helicobacter pylori* and Peptic Ulcer Disease”. Available at: <http://www.cdc.gov/ulcer/economic.htm>

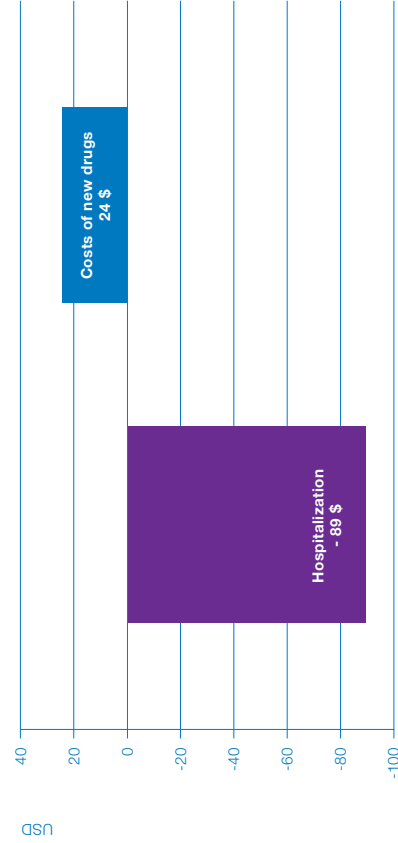
42 Ibid.

FIGURE 14 TOTAL EXPENDITURE ON PHARMACEUTICALS AND OTHER MEDICAL NON-DURABLES AS A PERCENTAGE OF TOTAL EXPENDITURE ON HEALTH (2008)



Source: ©Business Monitor International.

FIGURE 15 COST OF NEWER CARDIOVASCULAR DRUGS COMPARED TO SAVINGS IN HOSPITALIZATION IN 20 OECD COUNTRIES (1995–2003)



Source: Lichtenberg, Frank R. 2009. "Have newer cardiovascular drugs reduced hospitalization? Evidence from longitudinal country-level data on 20 OECD countries, 1995–2003." Health Economics, John Wiley & Sons, Ltd., vol. 18(6), pp. 519–534.

PHARMACEUTICAL INDUSTRY'S CONTRIBUTION

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 programmes 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, a number of 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.

The contribution of the research-based pharmaceutical industry is vital in the fight against neglected tropical diseases (NTDs).⁴³ At least 1 billion people — one person in six — suffer from tropical diseases such as Buruli ulcer, cholera, dengue, lymphatic filariasis, onchocerciasis, schistosomiasis, trachoma and African trypanosomiasis (sleeping sickness). 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, often leading to stigmatization, which can itself lead to social exclusion and jeopardize their mental health. Others are acute infections, with transient, severe and sometimes fatal outcomes.

Research-based pharmaceutical companies are producing medicines free of charge and are donating unlimited supplies of medicines for many neglected tropical diseases. Notable examples include the case of lymphatic filariasis (elephantiasis). Through the Global Alliance to Eliminate Lymphatic Filariasis, GlaxoSmithKline, Merck & Co., Inc. and Eisai are ensuring that individuals infected with the disease get access to such medicines through mass administration of the medicines across subtropical regions of the world. Onchocerciasis (river blindness) is also being tackled by Merck's Mectizan® Donation Program, which has donated more than 1 billion treatments since 1987.⁴⁴

⁴³ World Health Organization. "Neglected Tropical Diseases: Contribution of pharmaceutical companies to the control of neglected tropical diseases." Available at: http://www.who.int/neglected_diseases/pharma_contribution/en/index.html

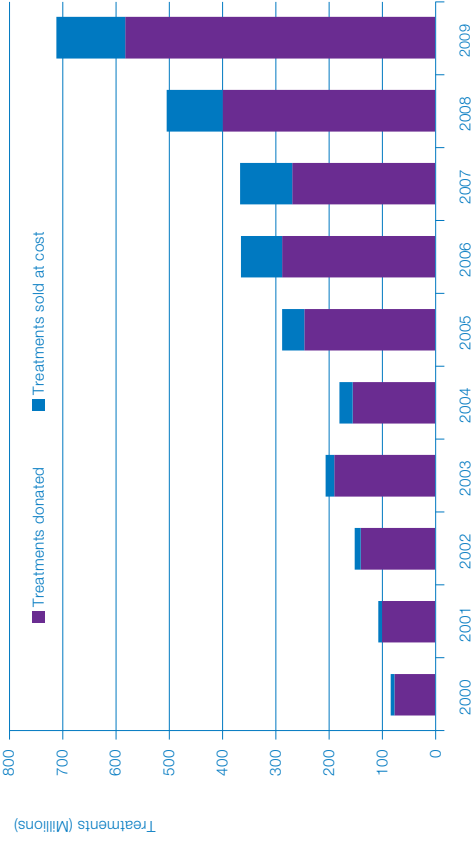
⁴⁴ Mectizan Donation Program. Available at: <http://www.mectizan.org/>

FIGURE 16 VALUE ESTIMATE OF INDUSTRY'S CORPORATE SOCIAL RESPONSIBILITY INITIATIVES IN DEVELOPING COUNTRIES (DONATIONS AND CAPACITY BUILDING)



Source: IFPMA Health Partnerships Survey.

FIGURE 17 TREATMENTS DONATED AND SOLD AT COST IN DEVELOPING COUNTRIES



Source: IFPMA Health Partnerships Survey.

Pfizer has provided over 145 million treatments of Zithromax® for treatment and prevention of the disease in 18 countries since 1998.⁴⁵

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 (ARVs), capacity building and education. For example, Bristol-Myers Squibb's Secure the Future® funds clinical centres in Africa for children and families with HIV/AIDS, and one of its centres in Botswana has over 1,500 children under treatment. Abbott is actively involved in improving access to treatment and fostering capacity building through various initiatives supported by the Abbott Fund.

HEALTHCARE ACHIEVEMENTS AND CHALLENGES

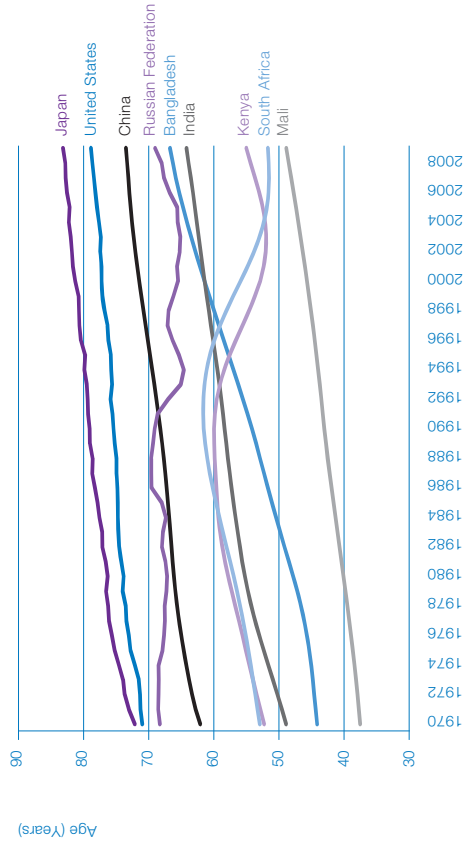
Since the 1970s, there have been significant improvements in healthcare systems and global health. As a result of concerted efforts of governments, the private sector and civil society, more than 14 million people have been cured of leprosy; the number of people infected with guinea worm has dropped 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. Intestinal helminths (worms) have been eliminated in South Korea and are under control in many endemic countries.⁴⁶

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 63 in 2009, but for Kenya the increase has been more modest — from 52 years (1970) to 54 years (2009). In comparison to these developing and less developed countries, life expectancy in the United States increased from 70 years (1970) to 78 years (2009). Meanwhile, infant mortality rates have steadily declined over the same period, 1970 — 2009, in both rich and poor countries.

⁴⁵ Ibid.

⁴⁶ WHO. 2006. *Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities*. Available at: http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_2006.2_eng.pdf

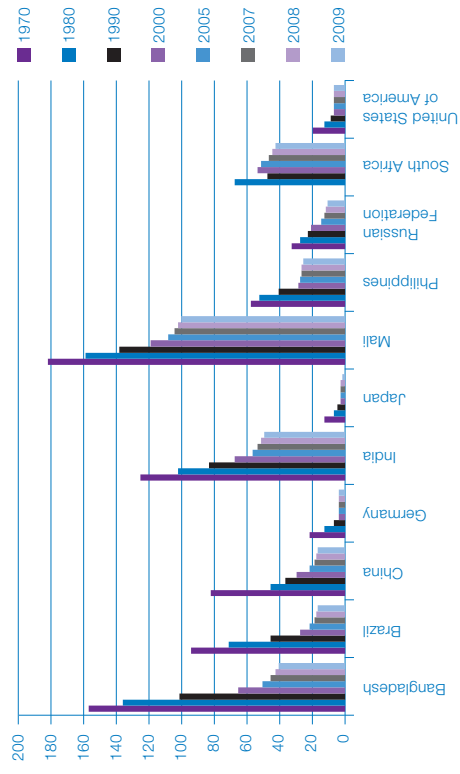
FIGURE 18 LIFE EXPECTANCY EVOLUTION IN SELECTED COUNTRIES



Source: United Nations Population Division. 2009. *World Population Prospects: The 2008 Revision*. New York, United States of America.

Increased life expectancy, decreased infant mortality and the adoption of unhealthy lifestyle choices have all 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 NCDs⁴⁷ and maintain its contribution to the fight against NTDs.

FIGURE 19 INFANT MORTALITY IN SELECTED COUNTRIES (1970–2009)



Source: UNICEF. 2011. "Trends in Infant Mortality Rates." Available at: http://www.childinfo.org/mortality_imrcountrydata.php Accessed on 26 October 2011.

47 IFPMA. 2011. "IFPMA Statement: The Value of Prevention and Partnerships in Combating NCDs". Available at: http://www.ifpma.org/filesadmin/content/Global%20Health/NCDs/IFPMA_Statement_on_Prevention_Final%20.pdf

CHAPTER 3

ECONOMIC FOOTPRINT OF THE PHARMACEUTICAL INDUSTRY

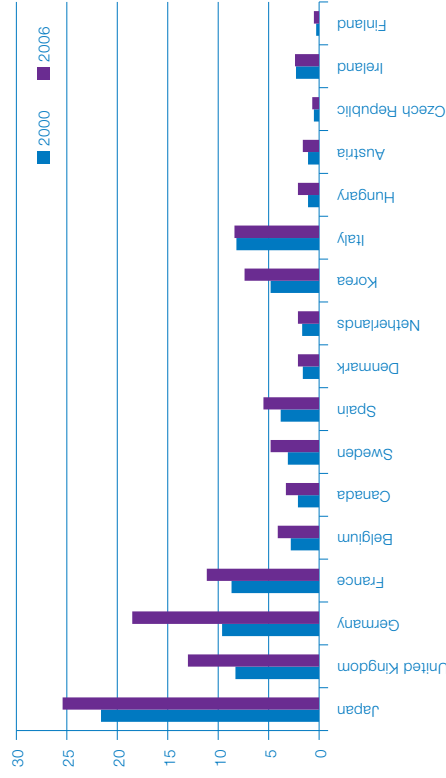
The research-based pharmaceutical industry makes a major contribution to the prosperity of the world economy. It is a robust sector that has been one of the pillars of industrialized economies and is increasingly proving to be an important sector in the developing world as well. It contributes to employment (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.

The R&D pharmaceutical sector in China has around USD 74 billion in total investment and fixed assets,⁴⁸ while in Brazil, the industry contributed USD 134 million in R&D in 2008 alone.⁴⁹ The industry also has a positive impact in countries that still lack innovative capacity, through the technology diffusion that allows significant improvements in the healthcare sector and, in many cases, production of generics.

⁴⁸ China Today. 2007. "Biopharmaceutical Industry Trends in China A Five-year Prospective". BioPharm International, March 1, 2007.

⁴⁹ Interfarma member survey, correspondence with Interfarma, May 2010.

FIGURE 20 VALUE ADDED OF THE PHARMACEUTICAL INDUSTRY (R&D AND PRODUCTION) IN SELECTED COUNTRIES (USD BILLION AT PURCHASING POWER PARITY)



Source: Adapted from: Kiriyyama, N., 2010. OECD: Trade & Innovation: Pharmaceuticals OECD Trade Policy Working Paper No. 113, p. 15.

TABLE 5 KEY INDICATORS OF THE PHARMACEUTICAL INDUSTRY'S ECONOMIC FOOTPRINT IN EUROPE

	1990	2000	2009	2010
Production (€ mil.)	63,010	123,793	189,012	190,000
Exports* (€ mil.)	23,180	90,935	249,426	270,000
Imports* (€ mil.)	16,113	68,841	190,635	200,000
Trade balance (€ mil.)	7,067	22,064	58,791	70,000
R&D expenditure (€ mil.)	7,766	17,849	27,440	27,000
Employment (units)	500,879	536,733	640,286	640,000
R&D employment (units)	76,126	88,397	116,682	115,000

* Includes Intra-EU trade

Source: EFPIA, 2011. *The Pharmaceutical In Figures 2011*. Data relate to EU-27, Norway and Switzerland since 2005 (EU-15 before 2005).

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.

The research-based pharmaceutical industry is particularly economically active in production and R&D across several countries. In 2006, pharmaceutical manufacturing accounted for USD 178.5 billion in the United States, USD 62.6 billion in Japan and USD 42.2 billion in France. In the same year, R&D investments amounted to USD 38.9 billion in the United States, USD 9.4 billion in Japan and USD 3.6 billion in France. However, manufacturing and research are not directly linked. Some countries have little research compared to manufacturing capacity, while others have little manufacturing and considerable research.

PHARMACEUTICAL INDUSTRY EMPLOYMENT

The pharmaceutical industry contributes to employment in both developing and developed countries. In the United States, every job in the pharmaceutical industry supported 3.7 jobs outside the pharmaceutical sector in 2008.⁵⁰ In addition to the 655,000 directly employed, more than 900,000 jobs were dependent on business with the pharmaceutical industry and another 1.5 million jobs were induced by it.

High employment in the pharmaceutical sector is not exclusive to high income countries. In 2006, the pharmaceutical industry (including generics) employed 1.3 million people in China,⁵¹ directly employed over 92,000 people in Brazil,⁵² 25,000 in Turkey⁵³ and 4.2 million in India.⁵⁴ The pharmaceutical

⁵⁰ PHRMA, 2008. "The Biopharmaceutical Sector's Impact on the Economy of the United States." Available at: http://www.phrma.org/sites/default/files/159/phrma_u_s_fact_sheet_2008_vfinal_2.pdf

⁵¹ UNIDO Data, 2006. "Employees in Pharmaceuticals, chemicals etc." Available at: <http://data.un.org/Data.aspx?d=UNIDO&f=tableCode%3a04%3bisiCode%3a2423> Last accessed 02 September 2011.

⁵² Brazilian Institute for Geography and Statistics (IBGE), 2006. "PIA Survey". Available at: <http://www.ibge.gov.br/home/estatistica/economia/industria/pia/empr> Accessed on 02 September 2011.

⁵³ Pharmaceutical Manufacturers Association of Turkey. "Employment". Available at: http://www.ileis.org.tr/asp_pages/index.asp?sayfa=265&menuk=12; Accessed on 05 September 2011.

⁵⁴ Indian Drug Manufacturers' Association. Available at: <http://www.idma-assn.org/aboutidma.html>. Accessed on 5 September 2011.

TABLE 6 PHARMACEUTICAL PRODUCTION, R&D AND VALUE ADDED IN SELECTED COUNTRIES (USD BILLION)

Country	Production		R&D		R&D/Production		Value Added	
	2000	2006	2000	2006	2000	2006	2000	2006
United States	115	178.5	12.8	38.9	11.1%	21.8%	55	91.5
Japan	46.6	62.6	4.8	9.4	10.3%	15.1%	21.6	25.4
UK	17.5	25.3	4.5	6.2	25.6%	24.4%	8.3	13
Germany	24	41.8	2.3	4.2	9.6%	10.2%	9.6	18.5
France	30.3	42.2	2.6	3.6	8.4%	8.5%	8.7	11.1
Belgium	7	10.5	0.7	1.1	9.4%	10.6%	2.8	4.1
Canada	6	8.9	0.6	1.1	9.5%	12.5%	2.1	3.3
Sweden	5.4	8.9	1.2	1	23.1%	10.9%	3.1	4.8
Spain	10.9	15.5	0.4	0.9	3.6%	6.1%	3.8	5.5
Denmark	0.3	5.1	-	0.9	-	17.8%	1.6	2.1
Netherlands	6.8	6.3	0.4	0.6	6.5%	9.8%	1.7	2.1
Korea	17	23.5	0.2	0.6	1.1%	2.6%	4.8	7.4
Italy	23.3	26.9	-	1.1*	-	4.1%	8.2	8.4
Hungary	2.4	4.3	0.2	0.4	6.6%	9.1%	1.1	2.1
Austria	2.6	3.1	-	0.3	-	10.3%	1.1	1.6
Czech Republic	1.1	2.1	0.03	0.3	2.9%	14.0%	0.5	0.7
Ireland	4.8	7.1	0.07	0.3	1.4%	3.8%	2.3	2.4
Finland	0.6	0.8	0.2	0.2	25.4%	28.5%	0.3	0.5

* Data from FARMINDUSTRIA

Source: Adapted from: Kiriyama, N. 2010. OECD: Trade & Innovation: Pharmaceuticals OECD Trade Policy Working Paper No. 113, p. 15.

TABLE 7 EMPLOYMENT IN THE PHARMACEUTICAL INDUSTRY IN SELECTED COUNTRIES (2007)

Country	Jobs	Country	Jobs
Azerbaijan	178	Lesotho	89
Bulgaria	7,948	Lithuania	797
Croatia	4,155	Morocco	6,386
Cyprus	1,144	Oman	481
Eritrea	167	Romania	9,946
Ethiopia	1,177	Russian Federation	84,832
Georgia	1,197	Slovenia	5,540
Jordan	5,654	Macedonia	1,492
Kyrgyzstan	360	Tanzania	1,237
Latvia	2,004	Uruguay	3,102

Source: INDSTAT — United Nations Industrial Development Organization.

industry provides high-skilled jobs through direct employment and induces the creation of many more indirect jobs.

In addition to the jobs directly and indirectly created by the pharmaceutical industry, there is the dissemination of knowledge through these jobs. 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 workforce.

TABLE 8 SELECTED EXAMPLES OF TECHNOLOGY TRANSFER — MANUFACTURING PROTOCOLS AND ENTREPRENEURIAL KNOW-HOW TRANSFER

Technology transferor	Beneficiary	Receiving country	Year started
Biken	PT. Blo Farma (Parsero)	Indonesia	2007
Bristol-Myers Squibb	Emcure; Aspen Pharmacare	India; South Africa	2006
Chemo-Sero-Therapeutic Research Institute	Government Pharmaceutical Organization	Thailand	2010
Daiichi Sankyo	Daiichi Sankyo Pharmaceutical (Shanghai) Co., Ltd.; Inter Thai. Olic (Thailand) Ltd.	China; Thailand	2004; 2005
Eisai	9 manufacturers	China; India; Indonesia; Jordan; Thailand	2004-2010
Gilead	14 generic companies	India; South Africa	2006
GlaxoSmithKline	Oswaldo Cruz Foundation (Fiocruz)	Brazil	1985; 2010; 2007
Johnson & Johnson (Tibotec)	Hetero Drugs Limited; Matrix Laboratories Limited (a Mylan company); Aspen Pharmacare	India; South Africa	2011
Eli Lilly	Hisun Pharmaceuticals; Shasun Chemicals and Drugs; SIA International; Aspen Pharmacare	China; India; Russian Federation; South Africa	2003
Merck & Co., Inc. (Nobilon)	Government Pharmaceutical Organization in Thailand; Serum Institute of India; Zhejiang Tiayuan Biopharmaceuticals in China	China; India; Thailand; WHO	2009
Merck KGaA (MerckSerono)	MerckSerono Mexico	Mexico	2007
Novartis	Advanced Bio Extracts (ABE)	Kenya; Uganda; Tanzania	2005
Bristol-Myers Squibb; Gilead; Johnson & Johnson; Merck & Co., Inc.; ViiV Healthcare	International Partnership for Microbicides (IPM)	Global	2008
Roche	State Pharmaceutical Laboratory of Pernambuco (LAFEPPE)	Brazil	2003
Sanofi-aventis	Sanofi-Aventis Morocco	Morocco	2006
Takeda	Tianjin Takeda Pharmaceuticals Co., Ltd.;	China; Indonesia	1999; 2002; 2003; 2004
ViiV Healthcare	8 licensing agreements	India; Kenya; South Africa	2001

(For a more detailed description of these initiatives, see http://www.ifpma.org/fileadmin/content/Global%20Health/Access/Tech%20Transfer/FPMA_Publication_Technology_Transfer_Booklet_2011.pdf)

TABLE 9 CRITICAL FACTORS FOR CREATING FAVORABLE CONDITIONS FOR PHARMACEUTICAL TECHNICAL TRANSFERS

1. A viable and accessible local market
2. Political stability, good economic governance
3. Clear development priorities
4. Effective regulation
5. Availability of skilled workers
6. Adequate capital markets
7. Strong intellectual property rights (IPR) and effective enforcement
8. Quality of the relationship between industry and government

Source: Technology Transfer: a Collaborative Approach to Improve Global Health, p. 17. Available at http://www.ifpma.org/fileadmin/content/Publication/FPMA_Technology_Transfer_Booklet_2011.pdf

Pharmaceutical companies can engage in technology transfer for corporate responsibility reasons or commercial ones. 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.

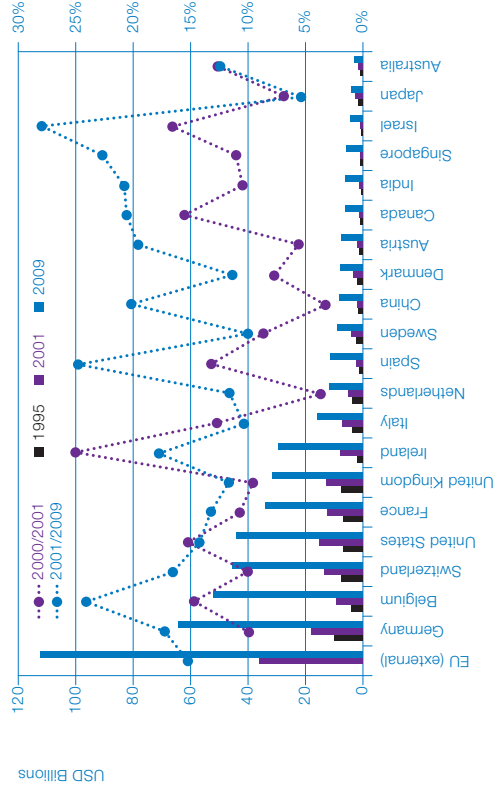
TRADE IN PHARMACEUTICALS

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 themselves.⁵⁵ Medical innovation is transmitted across the world, thus contributing to significant gains in average life expectancy.⁵⁶

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 exports. However, as shown in figure 21, other countries have

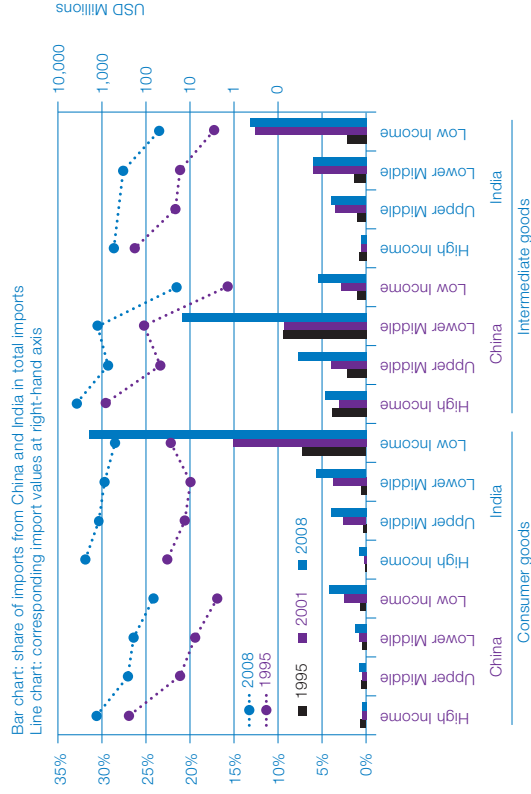
55 Kiriyama, N. 2010. OECD: Trade & Innovation: Pharmaceuticals OECD Trade Policy Working Paper No. 113, p. 26. 56 Ibid., p. 27, based on Papageogiou et al. (2007).

FIGURE 21 MAJOR PHARMACEUTICAL EXPORTERS (EXPORT VALUES IN 1995, 2001 AND 2009, AND GROWTH RATES)



Source: Kiriya, N. 2010. OECD: Trade & Innovation: Pharmaceuticals OECD Trade Policy Working Paper No. 113, p. 32.

FIGURE 22 IMPORTS FROM CHINA AND INDIA BY COUNTRY INCOME GROUP



Source: Kiriya, N. 2010. OECD: Trade & Innovation: Pharmaceuticals OECD Trade Policy Working Paper No. 113, p. 33.

experienced strong export growth in the last decade, including China, India, Singapore and Israel.

Although the global shares of exports from India and China in value terms are relatively modest, they play an important role in pharmaceutical trade for low income countries, especially for generic medicines. In 2009, low income countries imported more than 30% of their pharmaceuticals from India. Lower middle income countries with some manufacturing capacity also buy many of their Active Pharmaceutical Ingredients (APIs) from China, accounting for more than 20% of their total imports of intermediate goods.

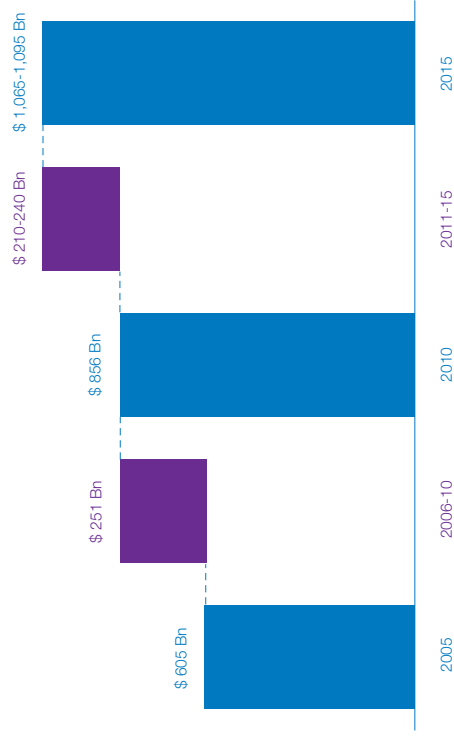
THE PHARMACEUTICAL MARKET

The IMS Institute for Healthcare Informatics predicts that the pharmaceutical market will reach nearly USD 1,100 billion by 2015, a USD 210-240 billion increase from the USD 856 billion recorded in 2010. However, growth in the next five years will slow to 3-6% annually compared with over 6% a year in the period 2005-2010.

This growth is coming mainly from market expansion in the leading emerging countries and from generics. In developed markets, sales of new branded medicines are expected to increase by USD 119 billion to 2015, but this will be offset by losses due to patent expiration of USD 120 billion. On the other hand, generic sales in developed markets are expected to grow by USD 47 billion.⁵⁷ The US share of global spending will decline from 41% in 2005 to 31% in 2015, while the European share of spending will decline from 27% to 19%. Meanwhile, the leading emerging countries will account for 28% of global spending in 2015 from 12% in 2005.

57 Ibid., p. 7.

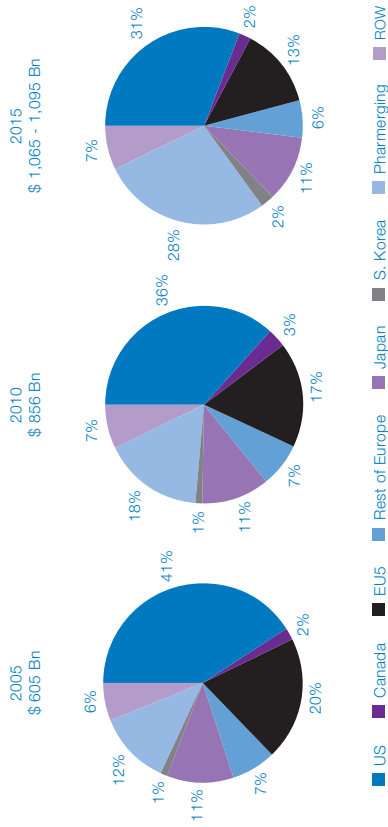
FIGURE 23 GLOBAL SPENDING ON MEDICINES



Notes: Spending in USD with variable exchange rates. Compound annual growth rate (CAGR) in USD using constant exchange rates.

Source: IMS Institute for Healthcare Informatics, The Global Use of Medicines: Outlook Through 2015, May 2011, p. 4.

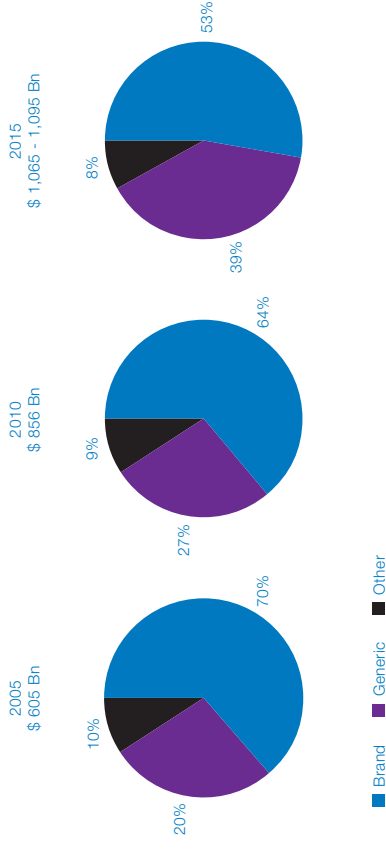
FIGURE 24 SPENDING BY GEOGRAPHY



Notes: Spending in US\$ with variable exchange rates.

Source: IMS Institute for Healthcare Informatics, The Global Use of Medicines: Outlook Through 2015, May 2011.

FIGURE 25 SPENDING BY SEGMENT



Notes: Spending in USD with variable exchange rates. Brand, Generic, and Other segments defined by IMS's proprietary market segmentation methodology which covers 31 leading pharmaceutical markets globally. Estimated global generic spending includes estimates of unaudited markets and market segments. Estimates of Brand and Generic segments in other markets based on IMS Institute for Healthcare Informatics research. Brands include off-patent brands. Generics include branded generics. Other includes over the counter (OTC) and non-categorized products.

Source: IMS Institute for Healthcare Informatics, The Global Use of Medicines: Outlook Through 2015, May 2011.

GENERIC VERSUS BRANDED PHARMACEUTICAL PRODUCTS

Branded products accounted for nearly two thirds of global pharmaceutical spending in 2010. However, as patents expire in developed markets, that share is expected to decline. Spending on generic medicines 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 2015 are expected to reach USD 400-430 billion, 70% of which will be outside developed markets⁵⁸.

CONCLUSION

Pharmaceutical innovations are behind some of the greatest achievements in modern medicine. We 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 even to the simplest healthcare interventions. Addressing these issues is a complex challenge that requires long-term commitment from governments, 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.

ANNEX I – PHARMACEUTICALS PATENTS

PATENT COOPERATION TREATY (PCT): NUMBER OF PATENT APPLICATIONS BY FIELD OF TECHNOLOGY

Field of technology	1992	1997	2002	2007
Pharmaceuticals	25,582	36,968	56,214	69,638
Biotechnology	16,338	23,604	40,109	33,930
Telecommunications	34,322	51,987	67,260	92,168
Computer technology	45,841	58,478	91,198	145,282
Optics	47,880	50,827	65,145	81,770
Medical technology	31,344	43,786	59,699	80,678
Materials, metallurgy	28,558	25,214	27,549	36,089
Environmental technology	15,256	18,064	19,898	25,584
Engines, pumps, turbines	26,409	30,359	39,948	51,926
Textile and paper machines	32,596	34,621	37,436	37,946
Civil engineering	38,375	48,675	49,977	62,844

Source: WIPO Statistics Database, September 2010.

PCT PHARMACEUTICALS PATENTS BY COUNTRY OF ORIGIN (2003–2007)

Country	Patents	Country	Patents
Austria	134	Great Britain	1,764
Australia	444	Italy	769
Canada	249	Japan	3,679
Switzerland	864	Korea	762
China	557	Netherlands	249
Germany	2,512	Sweden	428
Finland	72	United States	21,347
France	1,407	Others	7,413

Source: World Intellectual Property Indicators, 2010.

ANNEX II — LIFE EXPECTANCY AND CHILD MORTALITY

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Afghanistan	48	149	191	103	133	76
Albania	73	18	1	16	1	97
Algeria	72	36	26	31	22	88
Andorra	82	4	0	3	0	98
Angola	52	161	121	98	72	77
Antigua and Barbuda	74	8	0	7	0	99
Argentina	75	14	10	12	9	99
Armenia	70	20	1	18	1	96
Australia	82	5	1	4	1	94
Austria	80	4	0	4	0	83
Azerbaijan	68	46	9	39	8	67
Bahamas	76	16	0	14	0	98
Bahrain	74	10	0	9	0	99
Bangladesh	65	48	140	38	109	89
Barbados	76	20	0	17	0	94
Belarus	70	6	1	4	0	99
Belgium	80	4	1	4	0	94
Belize	73	17	0	14	0	97
Benin	57	115	39	73	25	72
Bhutan	63	56	1	44	1	98
Bolivia	68	54	14	42	10	86
Bosnia and Herzegovina	76	8	0	8	0	93
Botswana	61	48	2	36	2	94
Brazil	73	19	55	17	48	99
Brunei Darussalam	77	7	0	6	0	99
Bulgaria	74	13	1	11	1	96

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Burkina Faso	52	176	120	93	64	75
Burundi	50	142	38	88	24	91
Cambodia	61	51	16	43	14	92
Cameroon	51	136	93	84	58	74
Canada	81	6	2	5	2	93
Cape Verde	71	36	0	29	0	96
Central African Republic	48	159	23	106	16	62
Chad	48	173	80	99	46	23
Chile	79	9	2	8	2	96
China	74	18	315	16	272	94
Colombia	76	19	18	17	15	95
Comoros	60	86	2	63	2	79
Congo	55	93	13	61	8	76
Cook Islands	76	9	0	8	0	78
Costa Rica	79	10	1	9	1	81
Côte d'Ivoire	76	123	80	86	56	67
Croatia	78	6	0	5	0	98
Cuba	81	6	1	5	0	96
Cyprus	77	4	0	3	0	87
Czech Republic	50	4	0	3	0	98
D.P.R. of Korea	70	33	12	26	9	98
D.R. Congo	49	170	465	112	306	76
Denmark	79	4	0	3	0	84
Djibouti	60	91	2	73	2	73
Dominica	74	12	0	11	0	99
Dominican Republic	71	27	6	22	5	79

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Ecuador	75	20	6	18	5	66
Egypt	71	22	41	19	35	95
El Salvador	72	16	2	14	2	95
Equatorial Guinea	53	121	3	81	2	51
Eritrea	66	61	11	42	8	95
Estonia	75	5	0	4	0	95
Ethiopia	54	106	271	68	171	75
Fiji	69	17	0	15	0	94
Finland	80	3	0	2	0	98
France	81	4	3	3	3	90
Gabon	62	74	3	54	2	55
Gambia	60	98	6	57	4	96
Georgia	71	22	1	20	1	83
Germany	80	4	3	3	2	96
Ghana	60	74	57	50	38	93
Greece	80	4	1	3	0	99
Grenada	73	11	0	9	0	99
Guatemala	69	32	14	25	11	92
Guinea	52	130	48	81	31	51
Guinea-Bissau	49	150	8	92	5	76
Guyana	67	30	0	25	0	97
Haiti	62	165	45	70	19	59
Honduras	69	24	5	20	4	99
Hungary	74	6	1	5	1	99
Iceland	82	2	0	2	0	92
India	65	63	1696	48	1305	71

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Indonesia	68	35	151	27	115	82
Iran	73	26	34	22	29	99
Iraq	66	39	43	31	35	69
Ireland	80	4	0	3	0	89
Israel	82	5	1	4	1	96
Italy	82	4	2	3	2	91
Jamaica	71	24	1	20	1	88
Japan	83	3	3	2	3	94
Jordan	71	22	4	18	3	95
Kazakhstan	64	33	13	29	11	99
Kenya	60	85	122	55	80	74
Kiribati	68	49	0	39	0	82
Kuwait	78	11	1	10	1	97
Kyrgyzstan	66	38	5	33	5	99
Lao	63	54	8	42	6	59
Latvia	72	10	0	8	0	96
Lebanon	74	22	2	19	1	53
Lesotho	48	85	5	65	4	85
Liberia	56	103	15	74	11	64
Libya	72	17	2	13	2	98
Lithuania	73	7	0	5	0	96
Luxembourg	81	3	0	2	0	96
Macedonia	74	12	0	10	0	96
Madagascar	65	62	44	43	31	64
Malawi	47	92	56	68	36	92
Malaysia	73	6	3	5	3	95

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Maldives	75	15	0	14	0	98
Mali	53	178	120	99	68	71
Malta	80	6	0	5	0	82
Marshall Islands	59	26	0	22	0	94
Mauritania	58	111	13	75	9	59
Mauritius	73	15	0	13	0	99
Mexico	76	17	37	14	31	95
Micronesia	69	42	0	34	0	86
Monaco	82	4	0	3	0	99
Mongolia	69	32	2	26	2	94
Montenegro	75	8	0	7	0	86
Morocco	73	36	23	30	20	98
Mozambique	49	135	114	92	77	77
Myanmar	64	66	56	50	43	87
Namibia	57	40	2	29	2	76
Nauru	60	40	0	32	0	99
Nepal	67	50	35	41	29	79
Netherlands	81	4	1	4	1	96
New Zealand	81	6	0	5	0	89
Nicaragua	74	27	4	23	3	99
Niger	57	143	100	73	52	73
Nigeria	54	143	861	88	537	41
Niue	72	22	0	19	0	99
Norway	81	3	0	3	0	92
Oman	74	9	1	8	0	97
Pakistan	63	87	423	70	347	80

Location	Life expectancy at birth (years)	Under-five mortality rate	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Palau	72	19	0	15	0	75
Panama	77	20	1	17	1	85
Papua New Guinea	63	61	12	47	10	58
Paraguay	74	25	4	21	3	91
Peru	76	19	11	15	9	91
Philippines	70	29	66	23	52	88
Poland	76	6	3	5	2	98
Portugal	79	4	0	3	0	95
Qatar	78	8	0	7	0	99
Republic of Korea	80	5	3	4	2	93
Republic of Moldova	69	19	1	16	1	90
Romania	73	14	3	11	3	97
Russian Federation	68	12	20	9	16	98
Rwanda	59	91	38	59	25	92
Saint Kitts and Nevis	74	8	0	7	0	99
Saint Lucia	74	16	0	14	0	99
Samoa	70	20	0	17	0	49
San Marino	83	2	0	2	0	92
Sao Tome and Principe	68	80	0	53	0	90
Saudi Arabia	72	18	12	15	10	98
Senegal	62	75	34	50	23	79
Serbia	74	7	1	6	1	95
Seychelles	73	14	0	12	0	97
Sierra Leone	49	174	39	114	26	71
Singapore	82	3	0	2	0	95
Slovakia	75	8	0	7	0	99

Location	Life expectancy at birth (years)	Under-five mortality rate (thousands)	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
Slovenia	79	3	0	2	0	95
Solomon Islands	71	27	0	23	0	60
Somalia	51	180	70	108	42	24
South Africa	54	57	58	41	41	62
Spain	82	5	2	4	2	98
Sri Lanka	71	17	6	14	5	96
St. Vincent & Grenadines	73	21	0	19	0	99
Sudan	59	103	143	66	92	82
Suriname	72	31	0	27	0	88
Swaziland	49	78	3	55	2	95
Sweden	81	3	0	2	0	97
Switzerland	82	5	0	4	0	90
Syrian Arab Republic	74	16	8	14	7	81
Tajikistan	68	63	12	52	10	89
Tanzania	55	76	133	50	90	91
Thailand	70	13	11	11	9	98
Timor-Leste	67	55	2	46	2	70
Togo	59	103	19	66	12	84
Tonga	71	16	0	13	0	99
Trinidad and Tobago	70	27	1	24	0	94
Tunisia	75	16	3	14	3	98
Turkey	75	18	24	14	19	97
Turkmenistan	63	56	6	47	5	99
Tuvalu	64	33	0	27	0	90
Uganda	52	99	141	63	92	68
Ukraine	68	13	7	11	6	94

Location	Life expectancy at birth (years)	Under-five mortality rate (thousands)	Number of under-five deaths (thousands)	Infant mortality rate	Number of infant deaths (thousands)	Measles (MCV) immunization coverage (%)
United Arab Emirates	78	7	1	6	1	92
United Kingdom	80	5	4	5	4	86
United States of America	79	8	32	7	28	92
Uruguay	76	11	1	9	0	94
Uzbekistan	69	52	31	44	27	95
Vanuatu	71	14	0	12	0	52
Venezuela	75	18	11	16	9	83
Viet Nam	72	23	34	19	28	97
Yemen	65	77	69	57	52	58
Zambia	48	111	60	69	38	85
Zimbabwe	49	80	29	51	19	76

Notes: Life expectancy at birth (years) — base year 2009; Under-five mortality rate (probability of dying by age 5 per 1000 live births) — base year 2010; Number of under-five deaths (thousands) — base year 2010; Infant mortality rate (probability of dying between birth and age 1 per 1000 live births) — base year 2010; Number of infant deaths (thousands) — base year 2010; Measles (MCV) immunization coverage among 1-year-olds (%) — base year 2009.

Source: WHO Global Health Observatory Data Repository. Available at: <http://apps.who.int/ghodata/#>

ANNEX III — SELECTED SOCIOECONOMIC INDICATORS (BASE YEAR IN PARENTHESIS)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Afghanistan	-	-	29.3 (06)	-	75.2 (10)
Albania	95.9 (08)	-	-	0.6 (08)	52 (10)
Algeria	72.6 (06)	-	73.4 (08)	-	33.5 (10)
American Samoa	-	-	-	-	7 (10)
Andorra	-	-	-	-	12 (10)
Angola	69.9 (09)	-	-	-	41.5 (10)
Antigua and Barbuda	98.9 (08)	-	-	-	69.7 (10)
Arab World	-	-	75.1 (08)	-	43.5 (10)
Argentina	97.7 (09)	25023 (09)	-	0.8 (09)	7.5 (10)
Armenia	99.5 (09)	845 (08)	90.5 (08)	1.2 (08)	36.3 (10)
Aruba	98.1 (09)	-	-	-	53.1 (10)
Australia	-	9674 (09)	-	-	10.9 (10)
Austria	-	5784 (09)	-	-	32.4 (10)
Azerbaijan	99.5 (07)	2079 (09)	50.6 (06)	1 (08)	47.8 (10)
Bahamas, The	-	-	-	-	15.9 (10)
Bahrain	91.3 (09)	-	81.4 (08)	-	11.4 (10)
Bangladesh	55.9 (09)	2885 (09)	-	-	71.9 (10)
Barbados	-	-	-	-	59.2 (10)
Belarus	98.7 (09)	5491 (08)	-	0.1 (08)	25.7 (10)
Belgium	-	3578 (09)	78.2 (08)	-	2.5 (10)
Belize	-	-	-	-	47.3 (10)
Benin	41.6 (09)	758 (08)	-	-	58 (10)
Bermuda	-	-	-	-	-
Bhutan	-	-	-	-	63.2 (10)
Bolivia	90.6 (08)	2866 (09)	-	13.6 (07)	33.5 (10)
Bosnia and Herzegovina	97.8 (09)	1016 (09)	-	-	51.4 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Botswana	84 (09)	888 (09)	-	-	38.9 (10)
Brazil	-	29817 (09)	-	3.8 (09)	13.5 (10)
Brunei Darussalam	95.2 (09)	-	-	-	24.3 (10)
Bulgaria	98.3 (09)	4159 (08)	-	1 (07)	28.3 (10)
Burkina Faso	-	-	-	-	79.6 (10)
Burundi	66.5 (09)	-	-	-	89 (10)
Cambodia	77.5 (08)	-	-	28.2 (07)	77.2 (10)
Cameroon	70.6 (07)	-	-	9.5 (07)	41.6 (10)
Canada	-	-	-	-	19.4 (10)
Cape Verde	84.8 (09)	-	-	-	38.9 (10)
Cayman Islands	98.8 (07)	-	-	-	-
Central African Republic	55.2 (09)	-	-	62.8 (08)	61.1 (10)
Chad	33.6 (09)	-	-	-	72.4 (10)
Channel Islands	-	-	-	-	88.6 (10)
Chile	98.6 (08)	-	-	0.1 (06)	11 (10)
China	93.9 (09)	65491 (09)	53.5 (08)	-	55.1 (10)
Colombia	93.2 (09)	1672 (09)	-	16 (06)	24.9 (10)
Comoros	74.1 (09)	-	-	-	71.8 (10)
Congo, Dem. Rep.	66.9 (09)	3641 (09)	-	59.2 (06)	64.8 (10)
Congo, Rep.	-	795 (08)	7.1 (06)	-	37.9 (10)
Costa Rica	96 (09)	-	25.2 (08)	0.6 (09)	35.7 (10)
Cote d'Ivoire	55.2 (09)	639 (09)	7.9 (07)	23.7 (08)	49.9 (10)
Croatia	98.7 (09)	2723 (09)	86.8 (08)	-	42.2 (10)
Cuba	99.8 (09)	5076 (09)	-	-	24.3 (10)
Curacao	-	-	-	-	-
Cyprus	97.9 (09)	-	64.6 (08)	-	29.7 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Czech Republic	-	9539 (09)	-	-	26.5 (10)
Denmark	-	2131 (09)	100 (09)	-	12.8 (10)
Djibouti	-	-	-	-	11.9 (10)
Dominica	-	-	-	-	25.4 (10)
Dominican Republic	88.2 (07)	-	-	4.2 (07)	29.5 (10)
East Asia & Pacific (all income levels)	-	-	47.6 (08)	-	51.1 (10)
East Asia & Pacific (developing only)	93.5 (09)	-	15.8 (08)	-	54 (10)
Ecuador	84.2 (09)	-	14.8 (07)	4.4 (09)	33.1 (10)
Egypt, Arab Rep.	66.3 (06)	5195 (09)	86.8 (08)	-	57.2 (10)
El Salvador	84.1 (09)	-	-	5.1 (08)	38.7 (10)
Equatorial Guinea	93.3 (09)	-	-	-	60.3 (10)
Eritrea	66.5 (09)	-	-	-	78.4 (10)
Estonia	99.7 (09)	929 (09)	28.7 (08)	-	30.5 (10)
Ethiopia	29.8 (08)	-	13.6 (07)	-	82.4 (10)
Euro area	-	130021 (09)	91.8 (08)	-	26.4 (10)
Europe & Central Asia (all income levels)	-	378955 (09)	87.9 (08)	-	30 (10)
Europe & Central Asia (developing only)	97.8 (09)	173207 (09)	85.8 (08)	-	35.8 (10)
European Union	-	213945 (09)	91.8 (08)	-	25.9 (10)
Faeroe Islands	-	-	-	-	57.5 (10)
Fiji	-	-	-	-	46.6 (10)
Finland	-	5919 (09)	65.4 (08)	-	36.1 (10)
France	-	33778 (09)	100 (09)	-	22.2 (10)
French Polynesia	-	-	-	-	48.4 (10)
Gabon	87.7 (09)	810 (09)	-	-	14 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Gambia, The	46.4 (09)	-	-	-	41.9 (10)
Georgia	99.7 (09)	1566 (09)	94 (07)	15.2 (08)	47.1 (10)
Germany	-	33706 (09)	-	-	26.2 (10)
Ghana	66.6 (09)	953 (08)	-	29.9 (06)	48.5 (10)
Gibraltar	-	-	-	-	-
Greece	97.1 (09)	1552 (09)	-	-	38.6 (10)
Greenland	-	-	-	-	16 (10)
Grenada	-	-	-	-	69 (10)
Guam	-	-	-	-	6.8 (10)
Guatemala	74.4 (09)	-	-	11.7 (06)	50.5 (10)
Guinea	39.4 (09)	-	-	43.3 (07)	64.6 (10)
Guinea-Bissau	52.1 (09)	-	-	-	70 (10)
Guyana	-	-	-	-	71.5 (10)
Haiti	48.6 (06)	-	-	-	50.4 (10)
Heavily indebted poor countries (HIPC)	-	-	19 (08)	-	67.1 (10)
High income	98.4 (09)	-	87.2 (08)	-	22.4 (10)
High income: nonOECD	90.9 (09)	-	87.2 (08)	-	16.7 (10)
High income: OECD	98.8 (09)	521668 (09)	88.5 (08)	-	22.8 (10)
Honduras	83.5 (07)	-	-	23.2 (07)	51.2 (10)
Hong Kong SAR, China	-	-	100 (10)	-	-
Hungary	99.3 (09)	7793 (09)	37.6 (08)	0.1 (07)	31.7 (10)
Iceland	-	-	36.6 (08)	-	7.7 (10)
India	62.7 (06)	63273 (09)	49.3 (08)	-	69.9 (10)
Indonesia	92.1 (08)	3370 (08)	59.1 (08)	18.7 (09)	46.3 (10)
Iran, Islamic Rep.	85 (08)	-	-	-	30.5 (10)
Iraq	78 (09)	2025 (09)	-	4 (07)	33.6 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Ireland	-	1919 (09)	100 (10)	-	38.1 (10)
Isle of Man	-	-	-	-	49.4 (10)
Israel	-	1005 (09)	100 (08)	-	8.3 (10)
Italy	98.8 (09)	16959 (09)	-	-	31.6 (10)
Jamaica	86.3 (09)	-	-	-	46.3 (10)
Japan	-	20036 (09)	79.6 (07)	-	33.2 (10)
Jordan	92.1 (07)	294 (09)	100 (08)	0.3 (06)	21.5 (10)
Kazakhstan	99.6 (09)	14205 (09)	89.8 (08)	0.1 (07)	41.5 (10)
Kenya	87 (09)	1917 (06)	-	-	77.8 (10)
Kiribati	-	-	-	-	56 (10)
Korea, Dem. Rep.	99.9 (08)	-	2.8 (06)	-	36.6 (10)
Korea, Rep.	-	3378 (09)	78.5 (08)	-	18.1 (10)
Kosovo	-	-	-	-	-
Kuwait	93.9 (08)	-	-	-	1.5 (10)
Kyrgyz Republic	99.2 (09)	417 (09)	-	1.9 (07)	63.4 (10)
Lao PDR	-	-	13.5 (08)	33.8 (08)	66.8 (10)
Latin America & Caribbean (all income levels)	-	-	33.2 (08)	-	20.7 (10)
Latin America & Caribbean (developing only)	91 (09)	-	28.1 (08)	-	20.6 (10)
Latvia	99.7 (09)	1885 (09)	100 (08)	-	31.8 (10)
Least developed countries: UN classification	-	-	19 (08)	-	70.4 (10)
Lebanon	89.6 (07)	-	-	-	12.8 (10)
Lesotho	-	-	-	-	73.1 (10)
Liberia	59 (09)	-	-	83.6 (07)	36.5 (10)
Libya	88.8 (09)	-	-	-	22.1 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Liechtenstein	-	-	-	-	85.8 (10)
Lithuania	99.6 (09)	1767 (09)	28.6 (08)	0.1 (08)	32.8 (10)
Low & middle income	80.3 (09)	-	29.2 (08)	-	54.3 (10)
Low income	61.4 (09)	-	14.1 (08)	-	71.7 (10)
Lower middle income	70.6 (09)	-	-	-	60.3 (10)
Luxembourg	-	275 (09)	-	-	17.8 (10)
Macao SAR, China	93.4 (06)	-	100 (10)	-	-
Macedonia, FYR	97.1 (09)	699 (09)	56.5 (08)	0.2 (08)	32.1 (10)
Madagascar	64.4 (08)	854 (06)	-	-	69.8 (10)
Malawi	73.6 (09)	797 (08)	-	-	80.2 (10)
Malaysia	92.4 (09)	1665 (09)	82.7 (06)	-	27.8 (10)
Maldives	-	-	-	-	59.5 (10)
Mali	26.1 (06)	-	-	51.4 (06)	66.7 (10)
Malta	-	-	87.5 (08)	-	5.3 (10)
Marshall Islands	-	-	-	-	28.2 (10)
Mauritania	57.4 (09)	728 (09)	26.8 (07)	-	58.6 (10)
Mauritius	87.8 (09)	-	98 (08)	-	57.4 (10)
Mayotte	-	-	-	-	-
Mexico	93.4 (09)	26704 (09)	35.2 (08)	1.7 (08)	22.2 (10)
Micronesia, Fed. Sts.	-	-	-	-	77.3 (10)
Middle East & North Africa (all income levels)	-	-	82.8 (08)	-	38.3 (10)
Middle East & North Africa (developing only)	74.3 (09)	-	74.3 (08)	-	41.9 (10)
Middle income	82.9 (09)	-	45 (08)	-	51.4 (10)
Moldova	98.4 (09)	1157 (09)	85.8 (08)	1.8 (08)	58.8 (10)
Monaco	-	-	100 (09)	-	-

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Mongolia	97.4 (09)	1814 (09)	-	-	42.5 (10)
Montenegro	-	-	-	-	40.5 (10)
Morocco	56 (09)	2110 (09)	67.7 (08)	2.5 (07)	43.3 (10)
Mozambique	55 (09)	3116 (09)	20.7 (08)	59.5 (08)	61.6 (10)
Myanmar	92 (09)	-	-	-	66.1 (10)
Namibia	88.5 (09)	-	-	-	62 (10)
Nepal	59.1 (09)	-	55.8 (06)	-	81.8 (10)
Netherlands	-	2886 (09)	-	-	17.1 (10)
New Caledonia	96.4 (09)	-	-	-	34.5 (10)
New Zealand	-	-	65.8 (08)	-	13.2 (10)
Nicaragua	-	-	12 (07)	-	42.7 (10)
Niger	-	-	20.6 (08)	43 (07)	83.3 (10)
Nigeria	60.8 (09)	3528 (07)	-	-	50.2 (10)
North America	-	28455-	53.6 (08)	-	17.8 (10)
Northern Mariana Islands	-	-	-	-	8.7 (10)
Norway	-	4114 (09)	80.4 (07)	-	22.4 (10)
Not classified	-	-	-	-	-
OECD members	-	562410 (09)	86.5 (08)	-	23 (10)
Oman	86.6 (08)	-	43.4 (08)	-	28.3 (10)
Pakistan	55.5 (08)	7791 (09)	-	22.5 (06)	63 (10)
Palau	-	-	-	-	17.3 (10)
Panama	93.6 (09)	-	38.1 (08)	2.3 (09)	25.2 (10)
Papua New Guinea	60 (09)	-	-	-	87.5 (10)
Paraguay	94.5 (07)	-	-	5 (08)	38.5 (10)
Peru	-	2020 (09)	-	5.9 (09)	28.4 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Philippines	95.4 (08)	479 (08)	-	22.6 (06)	33.6 (10)
Poland	99.5 (09)	19764 (09)	68.1 (08)	-	38.8 (10)
Portugal	94.9 (09)	2842 (09)	-	-	39.3 (10)
Puerto Rico	90.4 (09)	-	-	-	1.2 (10)
Qatar	94.7 (09)	-	-	-	4.2 (10)
Romania	97.6 (09)	10776 (09)	-	0.5 (08)	45.4 (10)
Russian Federation	99.5 (09)	85194 (09)	80 (07)	-	27.2 (10)
Rwanda	70.6 (09)	-	-	-	81.1 (10)
Samoa	98.7 (09)	-	-	-	76.6 (10)
San Marino	-	-	-	-	5.7 (10)
Sao Tome and Principe	88.7 (09)	-	-	-	37.8 (10)
Saudi Arabia	86.1 (09)	1020 (09)	-	-	16.4 (10)
Senegal	49.6 (09)	-	-	-	57.1 (10)
Serbia	-	4058 (09)	47.7 (08)	0.1 (08)	47.6 (10)
Seychelles	91.8 (08)	-	96.4 (08)	0.2 (07)	44.7 (10)
Sierra Leone	40.9 (09)	-	-	-	61.6 (10)
Singapore	94.7 (09)	-	100 (08)	-	-
Sint Maarten (Dutch part)	-	-	-	-	-
Slovak Republic	-	3623 (09)	-	-	43.2 (10)
Slovenia	99.6 (09)	1228 (09)	100 (08)	-	52 (10)
Solomon Islands	-	-	-	-	81.4 (10)
Somalia	-	-	-	-	62.6 (10)
South Africa	88.7 (07)	22051 (09)	-	17.3 (06)	38.3 (10)
South Asia	61 (09)	-	58.9 (08)	-	69.8 (10)
South Sudan	-	-	-	-	-
Spain	97.6 (09)	15043 (09)	-	-	22.6 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Sri Lanka	90.5 (08)	1463 (08)	-	7 (07)	84.9 (10)
St. Kitts and Nevis	-	-	-	-	67.6 (10)
St. Lucia	-	-	-	-	72 (10)
St. Martin (French part)	-	-	-	-	-
St. Vincent and the Grenadines	-	-	-	-	52.2 (10)
Sub-Saharan Africa (all income levels)	-	-	18.2 (08)	-	62.5 (10)
Sub-Saharan Africa (developing only)	62.2 (09)	-	18.2 (08)	-	62.5 (10)
Sudan	70.2 (09)	4508 (09)	-	-	54.8 (10)
Suriname	94.6 (08)	-	-	-	24.4 (10)
Swaziland	86.9 (09)	300 (09)	-	-	74.5 (10)
Sweden	-	9946 (09)	23.5 (08)	-	15.3 (10)
Switzerland	-	3544 (09)	100 (08)	-	26.4 (10)
Syrian Arab Republic	84.1 (09)	1801 (09)	91 (08)	-	45.1 (10)
Tajikistan	99.6 (09)	616 (09)	-	-	73.5 (10)
Tanzania	72.9 (09)	2600 (10)	7.3 (08)	67.8 (07)	73.6 (10)
Thailand	-	4429 (09)	-	-	66 (10)
Timor-Leste	50.6 (07)	-	-	37.4 (07)	71.9 (10)
Togo	56.8 (06)	-	21 (07)	38.6 (06)	56.6 (10)
Tonga	99 (06)	-	-	-	74.7 (10)
Trinidad and Tobago	98.7 (09)	-	-	-	86.1 (10)
Tunisia	77.5 (08)	1991 (09)	75.1 (08)	-	32.7 (10)
Turkey	90.8 (09)	8686 (09)	-	-	30.4 (10)
Turkmenistan	99.5 (09)	3095 (09)	-	-	50.5 (10)
Turks and Caicos Islands	-	-	-	-	6.7 (10)

Country/Location	Literacy rate, adult total (% of people ages 15 and above)	Rail lines (total route-km)	Roads, paved (% of total roads)	Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	Rural population (% of total population)
Tuvalu	-	-	-	-	49.6 (10)
Uganda	73.2 (10)	-	-	37.7 (09)	86.7 (10)
Ukraine	99.6 (09)	21678 (09)	97.8 (08)	-	31.9 (10)
United Arab Emirates	-	-	-	-	22 (10)
United Kingdom	-	16173 (09)	100 (08)	-	9.9 (10)
United States	-	226205 (09)	67.3 (08)	-	17.7 (10)
Upper middle income	93.3 (09)	-	50.5 (08)	-	42.5 (10)
Uruguay	96.2 (09)	2993 (08)	-	-	7.5 (10)
Uzbekistan	99.3 (09)	4230 (09)	-	-	63.1 (10)
Vanuatu	82 (09)	-	-	-	74.4 (10)
Venezuela, RB	95.1 (07)	336 (08)	-	2.9 (06)	6 (10)
Vietnam	92.7 (09)	2347 (09)	47.6 (07)	13 (08)	71.2 (10)
Virgin Islands (U.S.)	-	-	-	-	4.7 (10)
West Bank and Gaza	94.5 (09)	-	100 (06)	-	27.9 (10)
World	83.6 (09)	-	49.1 (08)	-	49.1 (10)
Yemen, Rep.	62.3 (09)	-	-	-	68.2 (10)
Zambia	70.8 (09)	-	-	-	64.3 (10)
Zimbabwe	91.8 (09)	2563 (08)	-	-	61.7 (10)

Note: PPP – Purchasing Power Parity.

Source: World Bank, 2011, World Bank Development Indicators.
Available at: <http://data.worldbank.org/data-catalog/world-development-indicators>

ANNEX IV – HEALTH WORKFORCE DENSITY (PER 1,000 POPULATION)

Note: base year in parenthesis

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Afghanistan	0.21 (09)	0.5 (09)	0.03 (09)			
Albania	1.15 (07)	4.03 (07)	0.39 (07)			
Algeria	1.207 (07)	1.947 (07)	0.243 (07)	0.292 (07)	0.029 (07)	0.028 (07)
Andorra	3.72 (07)	4.18 (07)	1.09 (07)			
Angola	0.08 (04)	0.07 (04)	0.14 (04)	0.11 (04)		0.02 (04)
Argentina	3.16 (04)	0.48 (04)	0.5 (04)	0.51 (04)		
Armenia	3.7 (07)	4.87 (07)	0.05 (07)			
Australia	2.991 (09)	9.589 (09)	1.038 (09)	0.514 (06)	0.05 (06)	0.096 (06)
Austria	4.75 (09)	7.84 (08)	0.61 (08)			
Azerbaijan	3.79 (07)	8.42 (07)	0.19 (07)			
Bahrain	1.44 (08)	3.73 (08)	0.24 (08)	0.5 (08)		
Bahrain					0 (04)	2.3 (04)
Bangladesh	0.3 (07)	0.27 (07)	0.06 (07)	0.03 (07)	0.33 (07)	
Barbados	1.81 (05)	4.86 (05)	0.93 (05)	0.05 (05)		0.02 (05)
Belarus	4.87 (07)	12.56 (07)	0.31 (07)			
Belgium	2.99 (08)	0.3 (08)	1.2 (08)			
Belize	0.83 (09)	1.96 (09)	0.39 (09)		0.54 (09)	
Benin	0.059 (08)	0.771 (08)	0.002 (08)	0.027 (08)	0.01 (04)	0.897 (08)
Bhutan	0.023 (07)	0.2411 (07)	0.0384 (07)	0.0738 (07)	0.1048 (07)	0.553 (07)
Bolivia, PS	1.22 (01)		0.55 (01)	0.06 (01)	0.19 (01)	0.95 (01)
Bosnia and Herzegovina	1.42 (05)	4.69 (05)	0.08 (05)			
Botswana	0.34 (06)	2.84 (06)	0.19 (04)	0.15 (04)	0.52 (06)	
Brazil	1.72 (07)	6.5 (07)	0.54 (07)	0.52 (00)		4.89 (00)
Brunei Darussalam	1.42 (08)	4.88 (08)	0.11 (08)			
Bulgaria	3.64 (08)	4.72 (08)	0.13 (01)			
Burkina Faso	0.064 (08)	0.729 (08)	0.024 (08)	0.035 (08)	0.091 (06)	0.852 (08)

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Burundi	0.03 (04)		0.01 (04)	0.02 (04)	0.09 (04)	0.3 (04)
Cambodia	0.23 (08)	0.79 (08)	0.04 (08)		0.11 (04)	
Cameroon	0.19 (04)		0.04 (04)	0.11 (04)		0.36 (04)
Canada	1.9132 (06)	10.048 (06)	0.8314 (06)	1.1247 (06)		0.0987 (06)
Cape Verde	0.572 (08)	1.317 (08)	0.09 (04)	0.16 (04)	0.14 (04)	1.888 (08)
Central African Republic	0.08 (04)		0 (04)	0.01 (04)	0.05 (04)	0.04 (04)
Chad	0.04 (04)		0 (04)	0.04 (04)	0.03 (04)	0.17 (04)
Chile	1.09 (03)					
China	1.415 (09)	1.377 (09)	0.254 (09)	0.164 (09)	0.827 (09)	0.683 (09)
Colombia	1.35 (02)					
Comoros	0.15 (04)		0.05 (04)	0.08 (04)	0.05 (04)	0.34 (04)
Congo	0.095 (07)	0.824 (07)	0.015 (07)	0.086 (07)	0.03 (04)	1.098 (07)
Cook Islands	1.18 (04)	4.71 (04)	0.12 (04)			
Costa Rica	1.32 (00)		0.53 (00)		1.29 (00)	4.68 (00)
Côte d'Ivoire	0.144 (08)	0.483 (08)	0.022 (08)	0.07 (04)		0.902 (08)
Croatia	2.59 (07)	5.58 (07)	0.57 (07)			
Cuba	6.4 (07)	8.64 (07)	0.62 (07)	0.95 (07)		
Cyprus	2.3 (06)	3.98 (06)	0.19 (06)			
Czech Republic	3.63 (08)	8.55 (08)	0.58 (08)			
Korea, DPR	3.29 (03)		0.6 (03)	0.04 (03)		
Congo, DR	0.11 (04)		0.02 (04)	0.01 (04)		0.28 (04)
Denmark	3.42 (07)	14.54 (07)	0.48 (07)			
Djibouti	0.23 (06)	0.8 (08)	0.32 (08)	0.11 (05)	0.03 (04)	0.29 (05)
Dominican Republic	1.88 (00)		0.4 (00)			
Ecuador	1.48 (00)					
Egypt	2.83 (09)	3.52 (09)	1.67 (09)	0.27 (04)		0.07 (04)

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
El Salvador	1.6 (06)	0.41 (08)	0.32 (08)	0.3 (08)		
Equatorial Guinea	0.3 (04)	0.24 (04)	0.17 (04)	2.51 (04)		0.15 (04)
Eritrea	0.05 (04)	0.02 (04)	0.06 (04)	0.06 (04)		0.18 (04)
Estonia	3.41 (05)	6.82 (08)	0.66 (08)		3.83 (00)	7.94 (00)
Ethiopia	0.02 (07)	0.24 (07)	0.02 (07)	0.02 (07)	0.3 (07)	
Fiji	0.45 (03)	1.98 (03)	0.11 (03)			
Finland	2.74 (05)	15.52 (07)	1.07 (07)	1.95 (02)		
France	3.5 (06)	8.94 (09)	1.23 (09)			
Gabon	0.29 (04)	0.05 (04)	0.05 (04)	0.2 (04)		0.11 (04)
Gambia	0.038 (08)	0.568 (08)	0.03 (08)	0.059 (08)	0.072 (08)	0.848 (08)
Georgia	4.54 (07)	3.89 (07)	0.06 (07)			
Germany	3.53 (08)	10.82 (08)	0.6 (08)			
Ghana	0.085 (09)	1.046 (09)	0.071 (08)	0.012 (08)	0.192 (08)	1.394 (08)
Greece	6.04 (05)	3.66 (08)	0.88 (06)			
Guinea	0.1 (05)	0.04 (05)	0.02 (05)	0.03 (05)	0.02 (05)	0.05 (05)
Guinea-Bissau	0.045 (08)	0.551 (08)	0.022 (08)	0.117 (08)	2.92 (04)	0.793 (08)
Guyana	0.48 (00)					
Honduras	0.57 (00)		0.14 (00)			
Hungary	3.1 (08)	6.33 (08)	0.58 (08)			
Iceland	3.93 (08)	16.48 (08)	1.18 (08)			
India	0.6 (05)	1.3 (05)	0.52 (06)		0.05 (05)	
Indonesia	0.29 (07)	2.04 (07)	0.14 (07)	0.04 (03)	0 (03)	1.04 (03)
Iran	0.89 (05)	1.41 (05)	0.2 (05)	0.29 (04)	0.36 (04)	1.04 (04)
Iraq, IR	0.69 (09)	1.38 (09)	0.17 (09)	0.47 (04)	0.08 (04)	1.33 (04)
Ireland	3.19 (05)	15.67 (09)	1.02 (09)			
Israel	3.63 (07)	6.15 (07)	0.76 (07)			

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Italy	4.24 (08)	6.52 (09)	1.02 (08)			
Jamaica	0.85 (03)					
Japan	2.06 (06)	4.14 (06)	1.36 (06)			
Jordan	2.45 (09)	4.03 (09)	1.41 (09)	1 (04)	0.18 (04)	3.15 (04)
Kazakhstan	3.88 (07)	7.83 (07)	0.86 (07)			
Kenya	0.14 (02)	0.1 (04)	0.1 (04)	0.22 (04)		0.06 (04)
Kiribati	0.3 (06)	3.02 (04)	0.01 (06)			
Kuwait	1.793 (09)	4.55 (09)	0.298 (09)			4.133 (09)
Kyrgyzstan	2.3 (07)	5.66 (07)	0.02 (07)			
Lao, PDR	0.27 (05)	0.97 (05)				
Latvia	2.99 (09)	4.84 (09)	0.59 (08)			
Lebanon	3.54 (09)	2.23 (09)	1.23 (09)	0.32 (05)		
Lesotho	0.05 (03)	0.03 (03)	0.03 (03)	0.08 (03)		0 (03)
Liberia	0.014 (08)	0.274 (08)	0.075 (08)	0.032 (08)	0.04 (04)	0.463 (08)
Libya	1.9 (09)	6.8 (09)	0.36 (09)			
Lithuania	3.66 (08)	7.32 (08)	0.77 (08)			
Luxembourg	2.86 (07)	11.32 (06)	0.85 (07)			
Madagascar	0.161 (07)	0.01 (04)	0.01 (04)	0.02 (04)		0.36 (07)
Malawi	0.019 (08)	0.283 (08)	0.021 (08)	0.034 (08)	0.732(08)	1.274 (08)
Malaysia	0.94 (08)	2.73 (08)	0.17 (07)			
Maldives	1.6 (07)	4.45 (07)	0.82 (07)	0.86 (07)	2.27 (07)	
Mali	0.049 (08)	0.297 (08)	0.008 (08)	0.006 (08)	0.077 (07)	0.142 (08)
Malta	3.07 (09)	6.63 (09)	0.56 (09)			
Marshall Islands	0.56 (08)	2.53 (08)	0.03 (08)			
Mauritania	0.13 (09)	0.672 (09)	0.036 (09)	0.036 (09)	0.284 (09)	1.304 (09)
Mauritius	1.06 (04)		1.16 (04)	0.26 (04)	0.19 (04)	1.64 (04)

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Mexico	2.89 (04)	3.98 (04)	0.76 (04)	0.46 (00)		4.17 (00)
Micronesia	0.56 (05)	2.26 (05)	0.15 (05)			
Mongolia	2.76 (09)	3.5 (08)	0.4 (08)		0.02 (08)	
Morocco	0.62 (09)	0.89 (09)	0.27 (09)	0.05 (04)		0.2 (04)
Mozambique	0.027 (06)	0.308 (06)	0.041 (06)	0.04 (06)		0.017 (06)
Myanmar	0.46 (09)	0.8 (08)	0 (04)	0.04 (04)	0.08 (08)	0.99 (04)
Namibia	0.37 (07)	2.78 (07)	0.18 (07)	0.08 (07)		3.87 (04)
Nauru	0.71 (06)	4.93 (08)	0.07 (08)		1 (08)	
Nepal	0.21 (04)		0.01 (04)	0.12 (04)	0.63 (04)	
Netherlands	3.92 (07)	0.15 (08)	0.17 (08)			
New Zealand	2.38 (07)	10.87 (07)	0.71 (07)	0.97 (01)	8.12 (01)	
Nicaragua	0.37 (03)					
Niger	0.019 (09)	0.137 (08)	0.001 (08)	0.019 (08)		0.188 (08)
Nigeria	0.395 (09)	1.605 (08)	0.133 (08)	0.168 (08)	0.137 (08)	2.507 (08)
Niue	4 (06)	15 (06)	1 (06)			
Norway	4.08 (09)	14.76 (08)	0.76 (08)			
Oman	1.9 (09)	4.11 (08)	0.81 (08)	0.75 (08)	0.095 (07)	0.095 (07)
Pakistan	0.81 (09)	0.56 (09)	0.05 (04)	0.06 (04)	0.06 (09)	1.29 (04)
Palau	1.3 (06)	5.9 (06)	0.05 (07)			
Panama	1.5 (00)		0.86 (00)		0.46 (00)	2.33 (00)
Papua New Guinea	0.05 (09)	0.51 (08)			0.62 (08)	
Paraguay	1.11 (02)		0.33 (02)		1.15 (02)	
Peru	0.92 (09)	1.271 (09)	0.061 (09)	0.038 (09)		2.899 (09)
Philippines	1.15 (04)	6 (04)	0.61 (04)			
Poland	2.14 (09)	5.73 (08)	0.61 (08)			
Portugal	3.76 (09)	5.33 (08)	0.65 (08)			

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Qatar	2.76 (06)	7.37 (06)	1.26 (06)	0.85 (06)		
Republic of Korea	1.97 (08)	5.29 (08)	1.21 (08)	1.17 (04)		
Republic of Moldova	2.67 (07)	6.65 (07)	0.72 (07)			
Romania	1.92 (06)	4.19 (06)	0.04 (06)			
Russian Federation	4.31 (06)	8.52 (06)	0.08 (06)		2.99 (00)	
Rwanda	0.02 (05)	0.45 (05)	0 (05)	0.06 (05)	1.48 (04)	0.1 (04)
Saint Kitts and Nevis	1.1 (00)	4.71 (00)	0.5 (00)	0.4 (00)	1.55 (00)	
Saint Lucia	0.47 (02)	2.16 (02)				
St. Vincent and the Grenadines	0.75 (00)	3.79 (00)			0.38 (00)	
Samoa	0.27 (05)	0.94 (05)	0.02 (05)			
Sao Tome and Principe	0.49 (04)		0.15 (04)	0.31 (04)	2.27 (04)	1.75 (04)
Saudi Arabia	0.939 (08)	2.098 (08)	0.058 (08)			2.418 (08)
Senegal	0.059 (08)	0.42 (08)	0.01 (08)	0.02 (08)		0.794 (08)
Serbia	2.04 (07)	4.43 (07)	0.19 (07)			
Serbia and Montenegro	2.06 (02)		0.19 (02)			
Seychelles	1.51 (04)		0.76 (04)	0.74 (04)		
Sierra Leone	0.016 (08)	0.168 (08)	0.032 (08)	0.009 (08)	0.022 (08)	0.278 (08)
Singapore	1.83 (09)	5.9 (09)	0.37 (09)			
Slovakia	3 (07)	6.58 (08)	0.47 (07)			
Slovenia	2.47 (08)	8.16 (08)	0.5 (08)			
Solomon Islands	0.19 (05)	1.45 (05)	0.11 (05)			
Somalia	0.04 (06)	0.11 (06)	0.01 (06)	0.02 (05)		0.01 (05)
South Africa	0.77 (04)		0.28 (04)	0.04 (04)	0.32 (04)	0.51 (04)
Spain	3.71 (09)	5.16 (09)	1.07 (09)			
Sri Lanka	0.49 (06)	1.93 (07)	0.04 (07)	0.08 (07)		0.01 (04)

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Sudan	0.28 (08)	0.84 (08)	0.01 (08)	0.027 (06)	0.027 (06)	0.027 (06)
Suriname	0.45 (00)					
Swaziland	0.16 (04)	3.2 (00)	0.06 (04)	0.07 (04)	4.34 (04)	0.29 (04)
Sweden	3.58 (06)	11.57 (06)	0.73 (06)			
Switzerland	4.07 (09)	15.96 (08)	0.58 (08)			
Syria	1.5 (08)	1.86 (08)	0.81 (08)			0.5576 (06)
Tajikistan	2.01 (06)	5.03 (06)	0.11 (03)			
Thailand	0.3 (04)	1.52 (04)	0.12 (04)		0.65 (00)	1.93 (00)
Macedonia	2.55 (06)	4.34 (06)	0.45 (06)			
Timor-Leste	0.1 (04)		0.02 (04)	0.04 (04)	2.02 (04)	0.22 (04)
Togo	0.053 (08)	0.274 (08)	0.002 (08)	0.057 (08)	0.09 (04)	0.838 (08)
Tonga	0.29 (02)	2.93 (07)	0.04 (02)			
Trinidad and Tobago	1.18 (07)	3.56 (07)	0.49 (07)			
Tunisia	1.19 (09)	3.28 (09)	0.2 (09)	0.4 (04)		1.61 (04)
Turkey	1.45 (08)	1.89 (08)	0.33 (08)	0.19 (08)		
Turkmenistan	2.44 (07)	4.52 (07)	0.2 (07)			
Tuvalu	0.64 (08)	5.82 (08)	0.09 (08)	0.06 (04)	0.19 (05)	0.11 (05)
Ukraine	3.13 (06)	8.45 (06)	0.48 (06)			
United Arab Emirates	1.93 (07)	4.09 (07)	0.59 (07)			
United Kingdom	2.74 (09)	10.3 (09)	0.66 (09)			
Tanzania	0.01 (06)	0.24 (06)	0 (06)	0.01 (06)		0.02 (02)
United States of America	2.67 (04)	9.82 (05)	0.88 (00)	2.28 (00)		24.76 (00)
Uruguay	3.736 (08)	5.548 (08)	0.531 (08)	0.17 (08)		0.695 (08)
Uzbekistan	2.62 (07)	10.81 (07)	0.03 (07)			
Vanuatu	0.12 (08)	1.7 (08)	0.01 (08)		0.95 (08)	
Venezuela, BR	1.94 (01)	1.13 (01)				

Country	Physicians	Nursing and midwifery personnel	Pharmaceutical personnel	Laboratory health workers	Community and traditional health workers	Health management & support workers
Viet Nam	1.22 (08)	1.01 (08)	0.32 (06)			
Yemen	0.3 (09)		0.13 (04)	0.23 (04)	0.29 (04)	0.59 (04)
Zambia	0.055 (06)	0.706 (06)	0.009 (06)	0.047 (06)		0.928 (06)
Zimbabwe	0.16 (04)		0.07 (04)	0.07 (04)	0.04 (04)	

Source: WHO Global Health Observatory Data Depository. Available at: <http://apps.who.int/ghodata/#>

ANNEX V — HEALTHCARE FINANCING (BASE YEAR 2009)

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Afghanistan	7.4	21.5	3.7	17.5	98.9
Albania	6.9	40.9	8.4	2.7	99.8
Algeria	4.1	80.6	9.2	0.1	94.7
Andorra	7.7	68.1	21.3	0.0	74.8
Angola	4.6	89.0	8.4	2.7	100.0
Antigua and Barbuda	5.1	74.8	11.0	0.0	85.4
Argentina	9.5	66.4	14.6	0.0	59.2
Armenia	4.7	43.5	6.6	8.4	92.9
Australia	8.5	70.1	18.3	0.0	59.0
Austria	11.1	74.5	15.8	0.0	72.2
Azerbaijan	5.8	23.6	3.7	0.6	90.8
Bahamas	7.2	45.0	12.6	0.0	42.4
Bahrain	4.5	68.7	10.9	0.0	57.9
Bangladesh	3.4	32.9	7.9	7.9	96.5
Barbados	6.8	64.3	10.8	1.9	80.6
Belarus	5.8	70.6	8.8	0.2	67.4
Belgium	11.8	68.4	14.8	0.0	81.0
Belize	5.1	71.0	12.2	0.7	100.0
Benin	4.2	55.2	8.5	22.6	92.7
Bhutan	5.5	81.9	13.3	7.6	100.0
Bolivia	5.1	65.1	8.0	7.1	81.9
Bosnia and Herzegovina	10.9	61.3	15.1	1.0	100.0
Botswana	10.3	80.0	16.7	18.8	34.0
Brazil	9.0	45.7	6.1	0.0	57.1
Brunei Darussalam	2.9	87.7	6.8	0.0	98.9

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Bulgaria	6.4	55.4	9.1	0.0	96.9
Burkina Faso	6.4	61.7	16.3	21.9	93.0
Burundi	13.1	46.0	11.8	45.2	66.1
Cambodia	5.9	21.3	7.5	8.8	92.8
Cameroon	5.6	27.9	8.2	8.1	94.9
Canada	10.9	68.7	17.0	0.0	49.6
Cape Verde	3.9	74.0	10.2	7.4	99.7
Central African Republic	4.3	38.7	11.0	40.4	95.0
Chad	7.0	55.2	13.8	6.9	96.7
Chile	8.3	47.4	16.0	0.0	64.6
China	4.6	50.3	10.3	0.0	82.6
Colombia	6.4	84.2	17.9	0.1	50.0
Comoros	3.4	61.6	8.0	15.3	100.0
Congo	3.0	53.8	5.3	7.2	100.0
Cook Islands	4.5	93.8	10.6	10.3	100.0
Costa Rica	10.5	67.4	30.6	0.2	87.6
Côte d'Ivoire	5.2	20.7	5.1	10.4	98.8
Croatia	7.8	84.9	17.6	0.0	95.9
Cuba	11.3	92.7	14.7	0.1	100.0
Cyprus	6.0	41.2	5.8	0.0	86.7
Czech Republic	7.6	80.2	13.3	0.0	90.1
D.R. Congo	2.0	23.9	1.7	118.8	0.3
Denmark	11.2	80.1	15.3	0.0	89.0
Djibouti	7.0	76.9	13.9	30.2	98.6
Dominica	6.4	63.9	11.8	0.5	84.2

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Dominican Republic	5.9	41.4	12.4	1.4	65.7
Ecuador	6.1	48.4	8.4	0.9	87.3
Egypt	5.0	41.1	5.9	1.5	97.7
El Salvador	6.4	60.4	12.3	7.9	87.9
Equatorial Guinea	3.9	86.9	7.0	3.2	83.5
Eritrea	2.2	44.6	3.1	65.6	100.0
Estonia	7.0	75.5	11.7	3.9	97.4
Ethiopia	4.3	47.6	11.4	39.5	80.1
Fiji	3.6	73.1	9.1	3.4	61.2
Finland	9.7	72.1	12.6	0.0	75.3
France	11.7	76.6	16.0	0.0	34.6
Gabon	3.5	47.9	8.3	1.7	100.0
Gambia	6.0	50.1	11.6	26.3	48.5
Georgia	10.1	28.7	7.5	5.8	94.1
Germany	11.4	75.7	18.0	0.0	53.9
Ghana	8.1	53.2	12.8	14.3	78.6
Greece	10.6	62.6	13.0	0.0	94.5
Grenada	7.4	51.0	9.4	0.8	97.7
Guatemala	7.1	36.9	15.9	2.3	89.2
Guinea	5.7	15.2	4.3	15.6	99.4
Guinea-Bissau	6.1	25.5	4.0	42.0	56.0
Guyana	8.1	89.7	14.5	30.8	100.0
Haiti	6.1	22.1	9.5	37.5	60.8
Honduras	6.0	56.8	13.2	7.9	83.5
Hungary	7.4	69.9	10.2	0.0	83.6

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Iceland	8.2	82.3	13.1	0.0	90.8
India	4.2	32.8	4.1	1.1	74.4
Indonesia	2.4	51.8	6.9	1.8	73.2
Iran	5.5	39.0	8.7	0.0	96.6
Iraq	3.9	72.2	3.1	3.1	100.0
Ireland	9.7	79.6	16.0	0.0	72.9
Israel	7.5	59.1	10.0	0.0	72.5
Italy	9.5	77.3	14.2	0.0	85.6
Jamaica	5.1	55.8	5.6	1.8	71.0
Japan	8.3	80.0	17.9	0.0	80.6
Jordan	9.3	64.6	16.1	1.7	83.5
Kazakhstan	4.5	59.2	11.3	0.3	98.8
Kenya	4.3	33.8	5.4	36.1	77.4
Kiribati	12.2	84.7	8.7	27.0	0.6
Kuwait	3.3	83.9	5.6	0.0	91.6
Kyrgyzstan	6.8	50.9	11.7	12.1	81.3
Lao	4.1	19.1	3.8	0.0	75.8
Latvia	6.5	60.5	10.2	0.0	96.7
Lebanon	8.1	49.2	12.1	1.3	79.8
Lesotho	8.2	68.2	8.2	30.4	68.9
Liberia	13.2	39.7	17.2	47.0	52.2
Libya	3.9	66.1	5.5	1.0	100.0
Lithuania	6.6	68.3	12.8	0.0	97.9
Luxembourg	7.8	74.2	13.7	0.0	72.7
Macedonia	6.9	66.5	12.1	1.0	99.2

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Madagascar	4.1	67.1	15.1	28.3	67.8
Malawi	6.2	58.0	12.1	99.1	28.5
Malaysia	4.8	44.8	7.1	0.0	73.2
Maldives	8.0	64.9	7.5	1.2	72.0
Mali	5.6	47.9	9.3	25.6	99.5
Malta	7.5	75.4	13.0	0.0	89.6
Marshall Islands	16.4	97.0	20.0	57.8	100.0
Mauritania	2.5	62.6	4.9	25.6	100.0
Mauritius	5.6	36.0	7.9	1.7	88.7
Mexico	6.5	48.3	11.9	0.0	92.3
Micronesia	13.8	90.7	20.6	68.9	97.5
Monaco	3.9	88.0	18.5	0.0	58.2
Mongolia	4.7	65.2	10.5	0.0	78.0
Montenegro	9.3	72.5	13.6	1.1	91.0
Morocco	5.5	34.4	7.0	0.2	86.3
Mozambique	6.2	75.5	14.2	65.7	43.6
Myanmar	2.0	9.7	0.8	10.2	95.5
Namibia	5.9	66.6	12.1	14.9	17.8
Nauru	10.9	70.5	18.5	46.9	7.1
Nepal	5.8	35.3	8.6	13.7	72.4
Netherlands	10.8	77.2	16.2	0.0	37.7
New Zealand	9.7	80.4	18.3	0.0	71.0
Nicaragua	9.5	56.6	17.9	11.8	91.9
Niger	6.1	57.6	14.5	32.6	96.2
Nigeria	5.8	36.3	6.4	4.9	95.6

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Niue	16.9	99.2	15.8	55.4	100.0
Norway	9.7	78.6	16.7	0.0	98.8
Oman	3.0	78.8	5.8	0.0	63.5
Pakistan	2.6	32.8	3.6	3.7	84.5
Palau	9.9	76.4	14.3	52.1	40.3
Panama	8.3	71.6	15.2	0.1	84.5
Papua New Guinea	3.5	69.3	8.0	17.5	55.9
Paraguay	7.1	42.9	12.3	1.7	88.7
Peru	4.6	58.6	15.3	1.0	75.7
Philippines	3.8	35.3	7.2	4.4	83.5
Poland	7.1	68.2	10.9	0.0	88.4
Portugal	11.0	69.9	15.4	0.0	77.5
Qatar	2.5	79.3	6.8	0.0	78.2
Republic of Korea	6.5	54.1	12.3	0.0	87.1
Republic of Moldova	11.9	53.7	14.1	3.9	97.8
Romania	5.4	78.9	11.8	0.0	98.1
Russian Federation	5.4	64.4	8.5	0.0	80.9
Rwanda	9.0	43.2	16.8	53.2	44.4
Saint Kitts and Nevis	6.0	59.3	8.0	0.0	94.4
Saint Lucia	8.1	66.5	11.8	1.9	94.6
Samoa	7.0	87.3	15.9	12.6	62.9
San Marino	7.1	85.5	13.6	0.0	96.3
Sao Tome and Principe	7.1	41.0	13.2	38.7	68.5
Saudi Arabia	5.0	67.0	8.4	0.0	51.9
Senegal	5.7	55.6	11.6	14.0	78.5

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Serbia	9.9	63.3	13.9	0.4	94.0
Seychelles	4.0	76.8	11.4	1.4	30.9
Sierra Leone	13.6	10.5	6.4	19.6	89.5
Singapore	3.9	41.5	9.8	0.0	94.1
Slovakia	8.5	67.3	14.0	0.0	88.5
Slovenia	9.1	70.2	12.9	0.0	48.8
Solomon Islands	5.4	91.1	16.8	28.5	54.2
South Africa	8.5	40.1	9.3	1.9	29.6
Spain	9.7	72.1	15.2	0.0	77.0
Sri Lanka	4.0	45.2	7.3	2.0	86.7
St Vincent & Grenadines	5.6	56.6	9.5	2.3	100.0
Sudan	7.3	27.4	9.8	3.2	96.2
Suriname	7.2	45.0	12.6	0.0	42.4
Swaziland	6.3	63.3	9.3	12.2	42.3
Sweden	9.8	78.6	13.8	0.0	92.8
Switzerland	11.3	59.6	20.0	0.0	75.0
Syrian Arab Republic	2.9	31.0	4.6	1.0	100.0
Tajikistan	5.3	33.2	6.4	11.7	97.5
Thailand	4.3	75.8	14.0	0.5	68.1
Timor-Leste	12.3	71.0	9.8	0.0	25.6
Togo	5.5	23.9	6.4	18.5	84.2
Tonga	5.3	78.8	14.5	4.2	84.7
Trinidad and Tobago	5.6	48.2	9.8	0.2	81.8
Tunisia	6.2	54.0	10.4	1.2	87.0
Turkey	6.7	75.2	12.8	0.0	64.7

Location	Total expenditure on health as a percentage of gross domestic product	Government expenditure on health as a percentage of total expenditure on health	General government expenditure as a percentage of total government expenditure	External resources for health as a percentage of total expenditure on health	Out-of-pocket expenditure as a percentage of private expenditure on health
Turkmenistan	2.3	52.4	7.0	0.6	100.0
Tuvalu	10.5	99.8	11.0	16.0	100.0
Uganda	8.2	19.0	11.6	20.9	65.4
Ukraine	7.0	54.7	8.6	0.5	92.9
United Arab Emirates	2.8	69.3	8.9	0.0	66.0
United Kingdom	9.4	83.6	15.1	0.0	63.7
United Republic of Tanzania	5.1	73.6	18.1	56.5	65.1
United States of America	16.2	48.6	18.7	0.0	24.2
Uruguay	7.4	63.1	13.8	0.0	32.4
Uzbekistan	5.2	47.4	9.6	1.8	98.0
Vanuatu	3.3	87.1	12.2	16.6	58.5
Venezuela	6.0	40.0	8.6	0.0	90.6
Viet Nam	7.2	38.7	8.9	1.7	90.2
Yemen	5.6	28.0	4.3	5.3	98.6
Zambia	6.1	59.5	15.7	39.1	67.2
Zimbabwe	8.1	38.4	9.3	5.5	50.3

Source: WHO Global Health Observatory Data Repository. Available at: <http://apps.who.int/ghodata/#>

ANNEX VI – PHARMACEUTICAL TRADE (BASE YEAR 2010)

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$mn	Pharmaceutical imports, US\$mn
Afghanistan	.265	8.7	-	-
Albania	.202	63.2	1.17	149.40
Algeria	2.649	74.7	4.03	1,471.70
Angola	.267	14.0	0.02	195.60
Argentina	7.462	184.6	739.51	1,410.50
Armenia	.110	36.1	4.98	88.70
Australia	11.396	511.7	3,263.37	8,323.90
Austria	5.810	692.2	7,211.85	5,033.60
Azerbaijan	.205	22.4	1.23	149.10
Bahamas	.050	146.4	2.58	123.00
Bahrain	.192	152.2	0.55	152.10
Bangladesh	1.400	9.4	64.10	165.00
Barbados	.127	463.9	36.07	72.30
Belarus	.720	75.0	112.71	9.70
Belgium	6.051	564.9	50,845.49	37,524.20
Belize	.014	43.5	0.01	-
Benin	.160	18.1	0.25	115.80
Bolivia	.186	18.7	2.41	5,844.70
Bosnia-Herzegovina	.403	107.2	-	-
Botswana	.216	107.6	6.46	517.10
Brazil	20.954	107.5	1,006.14	35.30
Brunei Darussalam	.059	145.8	-	123.70
Bulgaria	1.324	176.7	542.64	874.60
Burkina Faso	.223	13.6	-	151.00
Burundi	0.05 (f)	6.4	-	-
Cambodia	.194	13.7	0.48	130.80
Cameroon	.215	11.0	0.20	668.60
Canada	25.002	735.0	5,786.32	11,247.60

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$mn	Pharmaceutical imports, US\$mn
Cape Verde	.015	30.1	192.35	10.90
Central African Rep.	.042	9.6	-	28.90
Chad	.045	4.4	-	32.50
Chile	2.710	158.3	127.29	0.30
China	52.345	39.0	1,623.40	138.00
Colombia	3.442	74.3	434.27	6,988.50
Congo, Dem. Rep.	.145	2.2	-	-
Costa Rica	.525	112.7	346.56	1,421.50
Cote d'Ivoire	.391	19.8	3.96	16,591.30
Croatia	1.235	280.4	407.94	693.00
Cuba	.150	13.3	-	498.90
Cyprus	.409	371.0	1,201.36	273.00
Czech Republic	4.220	402.1	56,970.00	3,419.30
Denmark	2.526	455.1	-	3,188.60
Djibouti	.042	47.4	7,663.82	30.60
Dominican Republic	.674	67.9	17.06	449.10
Ecuador	1.025	70.9	28.72	718.30
Egypt	2.693	33.2	244.11	1,021.50
El Salvador	.510	82.3	99.75	320.80
Equatorial Guinea	.006	9.0	-	3.90
Estonia	.304	226.4	54.54	287.70
Ethiopia	.401	4.8	1.18	282.10
Finland	3.873	723.2	1,004.25	2,093.80
France	39.794	633.8	33,906.83	21,438.40
Gabon	.085	56.7	1.53	56.80
Gambia	.012	7.1	-	11.90
Georgia	.405	93.0	26.81	209.90
Germany	50.857	617.9	-	40,243.10

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$bn	Pharmaceutical imports, US\$mn
Ghana	.360	14.6	9.44	160.90
Greece	9.553	841.0	1,319.33	4,418.00
Guatemala	.572	39.8	204.52	381.50
Guinea	.081	7.8	-	59.40
Guinea-Bissau	.007	4.0	-	4.50
Guyana	.055	73.1	-	-
Honduras	.473	62.2	4.81	359.10
Hong Kong	1.027	145.6	1,033.53	1,905.20
Hungary	3.274	327.9	3,103.07	2,866.00
Iceland	.200	624.3	71.77	67.10
India	13.822	11.3	6,159.87	1,332.80
Indonesia	4.00	16.7	261.33	434.60
Iran	2.910	39.4	29.03	984.80
Iraq	.696	22.0	0.13	430.60
Ireland	3.170	709.2	25,071.70	3,149.90
Israel	1.800	242.5	5,023.82	1,410.00
Italy	25.802	426.1	15,278.00	16,715.40
Jamaica	.225	83.1	5.71	150.30
Japan	109.250	863.4	3,018.38	10,798.40
Jordan	.581	94.0	601.75	426.90
Kazakhstan	1.217	76.0	16.39	892.30
Kenya	.368	9.1	105.96	249.10
Kuwait	.637	232.8	8.42	416.60
Kyrgyzstan	.131	24.5	0.29	94.90
Laos	.033	5.4	-	-
Latvia	.500	222.1	359.49	577.00
Lebanon	1.175	278.0	17.00	859.00
Libya	.530	83.5	0.06	353.60

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$bn	Pharmaceutical imports, US\$mn
Lithuania	.601	180.9	291.10	694.50
Luxembourg	.344	678.8	87.33	417.90
Macedonia	.219	106.4	61.67	122.10
Madagascar	.087	4.2	-	61.00
Malawi	.178	12.0	0.27	118.80
Malaysia	1.404	49.4	137.66	975.10
Mali	.216	14.1	-	151.00
Malta	.201	482.6	-	-
Mauritania	.019	5.5	-	12.70
Mauritius	.123	94.9	-	82.10
Mexico	11.780	103.8	988.51	5,136.80
Moldova	.186	52.2	60.01	173.60
Mongolia	.045	16.7	-	-
Morocco	1.046	32.7	57.52	423.90
Mozambique	.070	3.0	-	47.80
Namibia	.222	97.2	1.44	161.10
Netherlands	7.826	471.1	15,154.87	16,812.60
New Zealand	.946	216.5	179.89	746.40
Nicaragua	.300	51.8	2.63	237.30
Niger	.205	13.2	-	142.90
Nigeria	.674	4.2	3.91	326.80
Norway	3.061	626.8	619.49	1,632.00
Oman	.300	108.8	29.19	188.30
Pakistan	1.793	10.3	106.45	471.70
Panama	.430	122.4	21.22	318.30
Paraguay	.165	25.6	25.62	106.00
Peru	1.093	37.6	29.10	502.40
Philippines	2.741	29.4	39.76	735.20

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$mn	Pharmaceutical imports, US\$mn
Poland	10,587	276.6	1,686.28	4,914.10
Portugal	4,615	432.3	531.61	2,562.40
Puerto Rico	2,752	734.1	42,406.90	15,970.80
Qatar	.272	154.8	0.95	231.40
Romania	3,756	174.8	756.40	2,689.80
Russia	17,920	125.3	314.38	9,979.10
Rwanda	.082	7.7	0.71	58.40
Saint Lucia	.011	55.0	0.17	7.50
Saint Vincent	.009	86.3	-	5.80
Saudi Arabia	3,380	123.2	173.55	2,496.20
Senegal	.221	17.8	12.95	139.20
Serbia	.860	118.0	195.48	332.80
Seychelles	.004	44.1	-	2.10
Sierra Leone	.043	7.4	1.33	31.30
Singapore	629	123.7	4,479.00	1,501.80
Slovakia	2,223	407.0	429.86	1,700.80
Slovenia	.987	486.1	2,067.76	871.90
South Africa	3,117	62.2	128.10	1,945.10
South Korea	11,423	237.1	957.20	3,771.80
Spain	21,330	462.9	11,618.57	13,307.10
Sri Lanka	.386	18.5	1.84	211.00
Sudan	.657	15.1	0.09	388.20
Suriname	.016	32.0	-	10.90
Swaziland	.009	7.8	-	7.30
Sweden	3,848	410.2	7,956.23	3,655.90
Switzerland	5,641	736.1	43,880.12	136.90
Syria	.396	19.4	253.61	98.90
Taiwan	4,098	176.4	217.15	117.50

(f) forecast

Source: ©Business Monitor International.

Geography	Pharmaceutical sales, US\$bn	Pharmaceutical sales, per capita, US\$	Pharmaceutical exports, US\$mn	Pharmaceutical imports, US\$mn
Tajikistan	.070	10.2	201.82	49.40
Tanzania	.164	3.7	9.82	1,878.80
Thailand	3,989	58.5	-	1,379.30
Togo	.111	18.4	-	81.00
Trinidad & Tobago	.167	124.6	0.99	-
Tunisia	.649	61.9	27.80	391.40
Turkey	11,171	153.5	524.58	4,241.70
Turkmenistan	.052	10.4	-	-
Uganda	0.41 (f)	12.1 (f)	-	2,373.20
Ukraine	2,923	64.3	189.63	102.10
United Arab Emirates	1,390	185.0	53.47	1,118.70
United Kingdom	29,078	468.7	31,056.74	19,347.50
United States	327,026	1053.6	39,407.15	53,888.70
Uruguay	.328	97.3	122.23	145.50
Uzbekistan	.463	16.9	1.33	296.90
Venezuela	6,209	214.3	23.98	1,403.50
Vietnam	1,713	19.5	50.15	1,324.40
Yemen	.287	11.9	1.73	244.10
Zambia	.217	16.6	0.93	152.30
Zimbabwe	.142	11.3	2.91	78.20

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