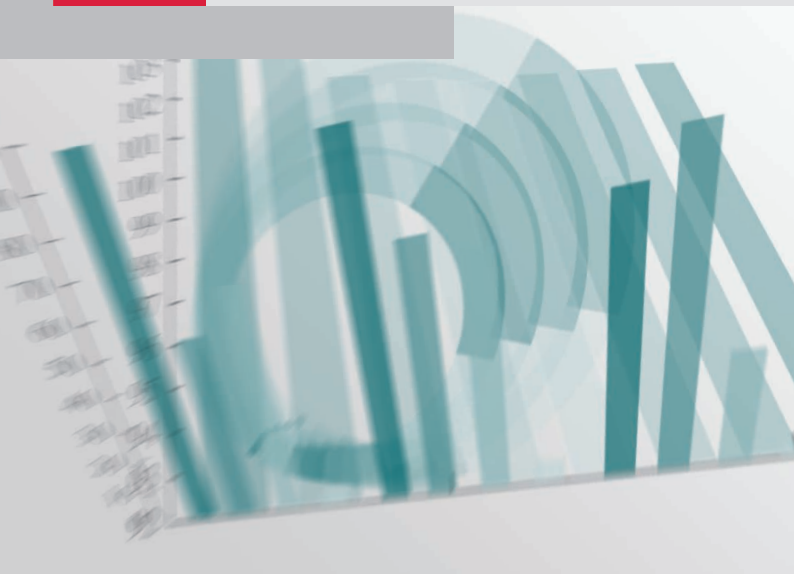
Pharma-Data 2010

BPI



Pharma-Data 2010

German
Pharmaceutical
Industry Association
BPI

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Preface

Pharmaceutical drugs play a central role in the health care system and the national economy in Germany.

From the patient's point of view, quick and timely access to pharmaceutical drugs constitutes an important aspect in not only the treatment, but also in the prevention and diagnostic of diseases. The innovativeness and competitive capacity of the pharmaceutical industry significantly contributes to progress in the medical sector and creation of value in the German economy. The industry employs a high proportion of highly qualified staff. In general, the pharmaceutical industry must operate within the area of health care policy, social policy, economic and industrial policy.

Despite the significance of pharmaceutical drugs for our health, the public image of the pharmaceutical industry is mostly negative, as manufacturers of pharmaceutical drugs must meet manifold expectations: on one hand, they are to meet health- and socio-political goals and comply with high ethical standards in the fields of research, production and sales; on the other hand, as a business enterprise they must secure their own economic base. The last point in particular leads to public discrediting even in the context of political debates.

To secure Germany as a location for the pharmaceutical industry, which significantly contributes to growth and employment, one must accept that the contribution of the pharmaceutical industry cannot merely be reduced to the aspect of cost reduction. Instead of the national economic perspectives the value of pharmaceutical drugs should rather be the focus. For example, drug therapy may be able to reduce the number of sick leave days, shorten hospital stays, prevent aggravation of diseases and prevent illness with preventive therapies. Therefore, pharmaceutical drugs not only improve the patient's quality of life but also make a positive contribution to the national economy.

In the year 2009, the pharmaceutical market was again affected by several changes. As an example, a compulsory supply from pharmaceutical companies to full-service wholesalers was established in the context of the 15th amendment of the German Medicines Act. Furthermore, the statutory health insurance providers were actively trying to enter rebate contracts for generic drugs, which were promising to achieve short-term savings for these companies in the new world of the morbidity-focused risk adjustment scheme.

In the end, the debates were heavily influenced by the parliamentary elections in the autumn of 2009 combined with hope that the high degree of regulation in the statutory health insurance-pharmaceutical drugs area would be subject to a systematic evaluation and, with a consensus of all stakeholders, be rolled back to a few instruments only. Unfortunately, this remains wishful thinking from the present perspective.

Generally, it has to be taken into consideration that governmental interference will impair the supply of the population with pharmaceutical drugs in the long run. In this context it should be reiterated that research with well-established active substances must again become worthwhile in Germany, as this remains the basis for achievement of significant therapeutic improvements. The advantages for patient care must not be jeopardized by rigid or increasingly restrictive reimbursement options.

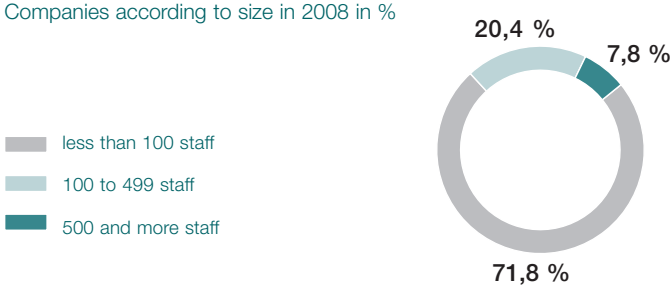
The political health care framework conditions must secure a high degree of freedom of choice in quality-assured, individual therapies as well as preventive options in all therapeutic fields and for all parties involved in the health care sector as well as the population.

This 40th edition of „Pharma-Data“ once more presents facts and background information of the pharmaceutical market with the purpose to objectify the sometimes controversial debate about this sector.

Sector structure

According to the trade register at the Federal Office for Statistics, there are 877 pharmaceutical companies* registered in Germany. Over the course of the last few years, it has become increasingly difficult to determine the number of companies due to changing reporting groups at the Federal Office for Statistics on the one hand and methodical differences on the other. Additionally, there may be conglomerates consisting of several different companies, which in turn can be composed of individual firms and specialist business units. Accordingly, determining the number of specialist business units – as a core element of pharmaceutical production – as well as determining the number of contract manufacturers would seem appropriate. This data, however, is only partially recorded at the Federal Office for Statistics.

Companies according to size in 2008 in %



Source: Calculation of the BPI, based on data of the VCI and of the Federal Office for Statistics 2010.

* In the "cost structure statistics", the Federal Office for Statistics shows 241 companies (reporting category 20+). There are an additional 308 companies with staffing levels of less than 20. The large number of companies registered can also be explained by the existence of many marketing authorization holders that are considered pharmaceutical companies.

The pharmaceutical companies include medium-sized companies, as well as companies under owner-management and German branches of multinational corporations. Furthermore, biotechnology companies are to be considered. These companies primarily develop and/or produce pharmaceutical drugs and diagnostic products, and are partially included in the 877 companies named. It is still true that around 92 % of companies manufacturing pharmaceutical drugs in Germany employ less than 500 staff.

The German Pharmaceutical Industry Association [Bundesverband der Pharmazeutischen Industrie e. V. (BPI)] is the only association in Germany that represents the entire spectrum of the pharmaceutical industry on a national and international level. Small- and medium-sized companies, as well as internationally active corporations are represented in the BPI. Its members include research-driven pharmaceutical companies, generic companies, companies from the fields of biotechnology, phytopharmaceuticals, homeopathic / anthroposophical medicine, as well as pharmaceutical service providers. With almost 60 years of experience in the field of pharmaceutical drug research, development, drug approval, manufacturing and marketing, the BPI offers integrative solutions for the entire pharmaceutical market.

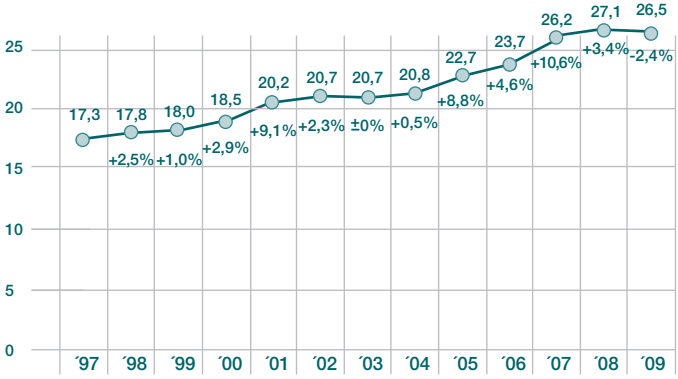
Almost two-third of the BPI member companies are owner managed. Approximately 90 % of the companies are active on a national, as well as on an international level. Although the proportion of export business is constantly growing, many companies generate the greater proportion of their turnover on the German market. The future of these companies focusing on Germany as a business location is heavily influenced by the political health care framework in Germany.

Production

In 2009, the pharmaceutical industry in Germany produced pharmaceuticals valued at 26.5 billion Euros. This represents a decrease of 2.4 % compared to the year 2008. Domestic production significantly depends on prices, pharmaceutical drugs imports as well as export demand.

Pharmaceutical Production* from 1997 - 2009**

(Production value in billion Euros, changes compared to the previous year in %)



* Industrial sector 24.4, production of pharmaceutical drugs

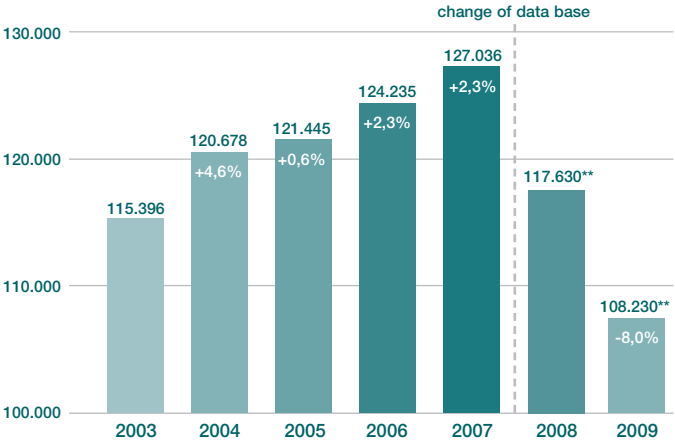
* From 2009 the GP 21 (pharmaceutical and similar goods) replaces the GP 244.This new statistical classification prevents a direct comparison with values from previous years.

Source: Illustration of the BPI, based on data of the VCI and the Federal Office for Statistics 2010.

In 2009, 108,230 staff were employed by companies producing pharmaceutical goods.

Employees

Development of staff numbers* in companies pertaining to the pharmaceutical industry 2003-2009 (changes compared to the previous year in %)



* *The data refer to companies (reporting category 20+). Up to 2007, there was a change from specialist operating sectors to the level of "companies" in respect to the previous data of the Pharma-Data, since the report category 20+ for specialist operating sectors was discontinued by the Federal Office for Statistics as part of the bureaucracy reduction law.

** for data from the year 2008 onwards the change of the branch of industry from WZ 24.4 to WZ 21 should be considered. This new statistical classification prevents a direct comparison with data from previous years.

Source: Illustration of the BPI based on data obtained of the VCI and the Federal Office for Statistics 2010.

External trade

In 2009, pharmaceuticals valued at 47.4 billion Euros were exported from the Federal Republic of Germany. This corresponds to a decrease of 0.4 % compared to the previous year of 2008. At the same time, pharmaceuticals valued at 35.6 billion Euros were imported into the Federal Republic of Germany in 2009. This constitutes an increase of 4.4 % compared to 2008. The main supplier of pharmaceuticals to Germany is Ireland, followed by the USA, Switzerland and Great Britain. France comes in 5th place, followed by Italy and Belgium.

Import and export of pharmaceutical drugs*

(in million Euros, and change compared to the previous year in %)

Year	Import		Export**	
	million Euros	+/- %	million Euros	+/- %
2001	12,051.17	+16.4	20,478.36	+34.9
2002	19,284.83	+60.0	18,835.18	-8.0
2003	19,327.83	+0.2	22,230.11	+18.0
2004	22,221.42	+15.0	28,681.63	+29.0
2005	25,585.17	+15.1	31,758.85	+10.7
2006	28,366.72	+10.9	36,474.52	+14.8
2007	32,706.83	+15.3	41,908.34	+14.9
2008	34,063.16	+4.1	47,549.32	+13.5
2009	35,552.63	+4.4	47,365.96	-0.4

* Business branch 21, Production of pharmaceutical goods. A new statistical classification was introduced in 2008. The production of pharmaceutical goods is now to be found in WZ 21 (previously WZ 24.4).

** Because of statistical peculiarities and different surveys, the production statistics and external trade statistics cannot be compared with each other.

Source: Illustration of the BPI based on data of the VCI and the Federal Office for Statistics 2010.

Main suppliers of pharmaceuticals* for Germany (in million Euros)

	2004	2005	2006	2007	2008	2009
Ireland**	7,217.43	7,388.86	8,283.95	8,626.71	8,985.03	7,934.95
USA	4,083.77	4,857.61	5,027.26	5,931.85	6,501.50	7,193.86
Switzerland	1,697.06	2,153.74	2,729.90	4,502.61	4,333.46	4,845.13
Great Britain	1,382.29	1,786.18	1,815.59	1,847.81	1,682.74	2,299.63
France	1,392.87	1,804.79	2,034.73	1,897.93	1,842.35	1,741.96
Italy	716.80	1,180.83	1,193.98	1,367.09	1,415.20	1,546.32
Belgium	743.47	1,081.82	1,027.49	1,204.81	1,318.56	1,292.36
Spain	580.64	668.87	829.72	990.18	1,038.00	1,205.72
The Netherlands	1,177.82	951.24	952.55	1,369.03	1,224.94	1,182.51
Sweden	783.24	908.04	998.17	990.65	1,029.17	1,106.91
Others	2,446.03	2,803.19	3,473.39	3,872.57	4,692.22	5,203.30
Total	**22,221.42**	**25,585.17**	**28,366.72**	**32,601.23**	**34,063.16**	**35,552.63**

* Business branch 21, Production of pharmaceutical goods. A new statistical classification was introduced in 2008. The production of pharmaceutical goods is now to be found in WZ 21 (previously WZ 24.4).

** Because of generous EU subsidies the economy in Ireland has developed very well in the last years. Many chemical companies also use the good conditions governing the location Ireland to produce a significant share of their preliminary products (especially pharmaceutical products) and then export them for further processing. Due to this division of labor the export trade with Ireland has increased tremendously.

Source: Illustration of the BPI based on data of the VCI and the Federal Office for Statistics 2010.

Main clients for pharmaceuticals* from Germany (in million Euros)

	2004	2005	2006	2007	2008	2009
Belgium**	7,624.16	9,092.61	10,076.72	11,070.24	11,616.23	10,918.27
USA	3,793.20	3,742.55	4,222.33	4,330.88	5,752.41	5,861.38
The Netherl.	1,774.05	1,755.23	2,497.69	3,526.56	4,367.44	4,423.55
Switzerland	2,063.10	1,917.03	2,320.16	2,488.89	2,419.29	2,865.12
Great Britain	1,384.94	1,528.72	1,806.50	2,229.93	2,443.45	2,440.71
France	1,495.02	1,520.30	1,576.24	1,903.22	2,249.68	2,255.97
Italy	1,343.80	1,579.71	1,687.55	1,991.34	2,045.26	2,192.60
Spain	826.36	930.57	1,013.97	1,196.50	1,207.85	1,254.42
Austria	773.30	966.12	955.55	1,069.27	1,161.28	1,252.11
Japan	802.23	875.79	837.10	864.64	924.48	1,151.52
Others	6,801.47	7,850.23	9,480.71	11,236.87	13,361.96	12,750.33
Total	**28,681.63**	**31,758.85**	**36,474.52**	**41,908.34**	**47,549.32**	**47,365.97**

* Business branch 21, Production of pharmaceutical goods. A new statistical classification was introduced in 2008. The production of pharmaceutical goods is now to be found in WZ 21 (previously WZ 24.4).

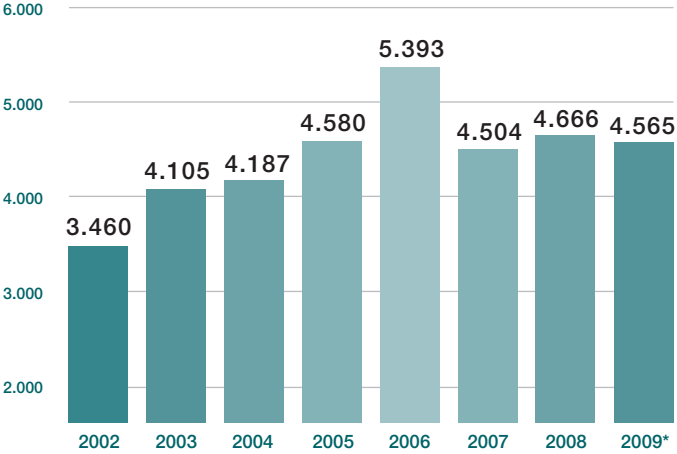
** The remarkably high export rate is explained by the VCI with special items.

Source: Illustration of the BPI based on data of the VCI and the Federal Office for Statistics 2010.

Research and development

In 2009, the pharmaceutical industry, invested a total of about 4.6 billion Euros in research and development (R&D) in Germany. With this, investments into R&D were at approximately the same level compared to the previous year (4.7 billion Euros).

Investment for research and development by the pharmaceutical industry 2002 - 2009 (in million Euros)



* planning data 2010

Source: Illustration of the BPI based on data of the Stifterverband Wirtschaftsstatistik 2010.

Hence, the R&D costs of the pharmaceutical industry constitute around 8.0% (previous year: 8.1%) of the overall R&D investments of the German economy (57,404 Million Euros). With this investment volume, the pharmaceutical industry is in fourth place behind the automobile industry, the electronics industry and the services sector.

The data are based on available data at editorial deadline of the German Stifterverband Wissenschaftsstatistik, which are still based on planning data for previous years.

While the projected data for R&D costs for 2008 had to be adjusted upwards after the actual numbers were available, the planning data for the year 2010 (based on projected data of the previous year) had to be markedly adjusted downwards (4.811 million Euros for 2009). This development shows that the pharmaceutical industry was forced to adapt its planning to the changing market conditions, and that the cost-reduction trends in the health care sector resulted in reduced spending for R&D in comparison to what was planned.

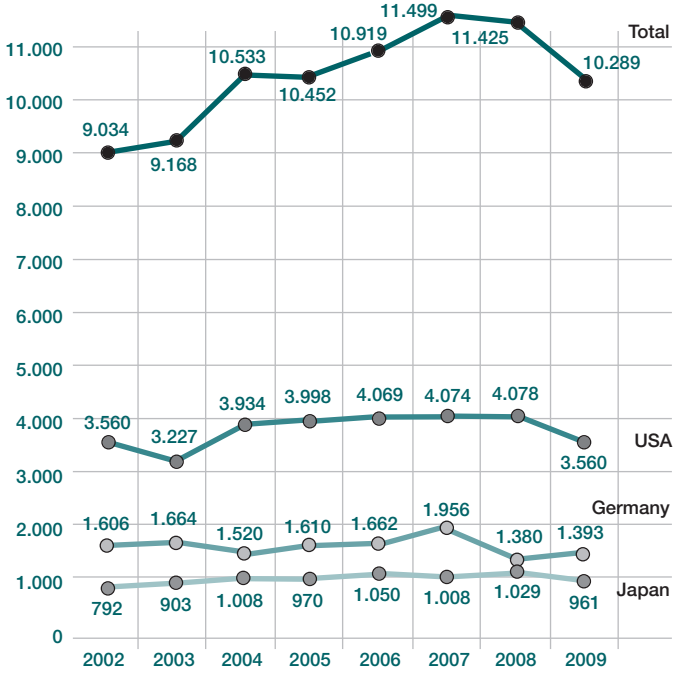
Relatively speaking, the pharmaceutical industry is one of the most research-intense sectors, with a share of the R&D costs versus turnover amounting to about 17%, thus securing future jobs in Germany. The trend in the development of the R&D costs is also reflected in the development of employment figures: the number of staff employed in R&D in 2008 increased to 18,735 compared to 15,516 in the year 2001. With this, the number of staff in this sector increased by around 20% in the period from 2001 to 2008, while it stagnated in the whole chemical industry during the same period of time. Data were not available for the year 2009 at editorial deadline.

Source: (R&D data reports 2010 and 2005/2006, Stifterverband Wissenschaftsstatistik; Federal Office for Statistics 2010)

Patents

Patents are an incentive for innovations, guaranteeing the patent holder marketing exclusivity for a certain time period in return for a risky development. This applies equally to all economic areas. Patents have a special impact on the pharmaceutical industry because the time it takes to develop new active substances (NCE / NBE = New Chemical Entities / New Biological Entities) is 8 to 12 years, a relatively long period, and the costs for development are comparably high.

Published patent applications and patents granted concerning pharmaceutical drugs effective in Germany

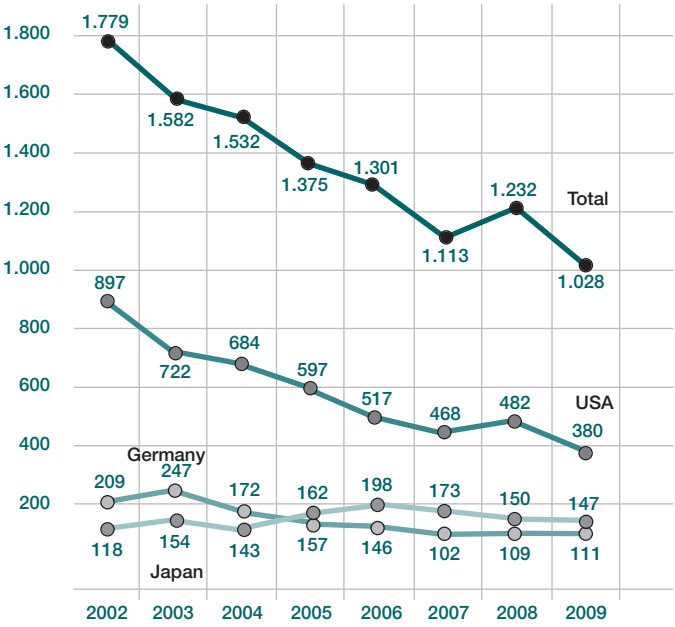


Data are based on the database PATDPA with the patent applications and/or patent grants published in the respective year. Patent applications and/or patent approvals were counted at the German and European Patent Office. Duplicates are not counted.

Source: Illustration of the BPI based on data of the German Patent and Trademark Office, 2010

10,289 patent applications for pharmaceutical drugs were published in Germany in the year 2009, which represents a decrease of 9.9 % compared to the previous year. The most important patent applicant is still the USA, holding approximately 35 % of all patent applications. Germany comes second with 13.5 % (compared to 12% in the previous year). While patent applications from Germany decreased by almost 30% from 2007 to 2008, the number remained relatively constant in 2009.

Patent applications in the sector of pharmaceutical drugs with biotechnological reference



Data are based on the database PATDPA with the patent applications and/or patent grants published in the respective year. Patent applications and/or patent approvals were counted at the German and European Patent Office. Duplicates are not counted.

Source: Illustration of the BPI based on data of the German Patent and Trademark Office 2010.

The number of patent applications for pharmaceutical drugs with biotechnological reference decreased to 1,028 in 2009 compared to 1,232 patent applications in 2008. Applicants from Germany are in third place with 111 patent applications, following the USA (380 patent applications) and Japan (147 patent applications). Compared to the year 2002, the number of patent applications decreased by about 47 % in this sector.

Research and development of pharmaceutical drugs

Nowadays, innovations are still a driving force for successful development of pharmaceutical companies. New active substances, formulations and production processes secure employment at the business location Germany.

The purpose of research and development (R&D) in the pharmaceutical sector is to improve diagnostic methods, symptomatic or causal treatments or the preventive treatments, as well as to increase available options and close existing therapeutic gaps. Innovations in the pharmaceutical industry are achieved in several areas:

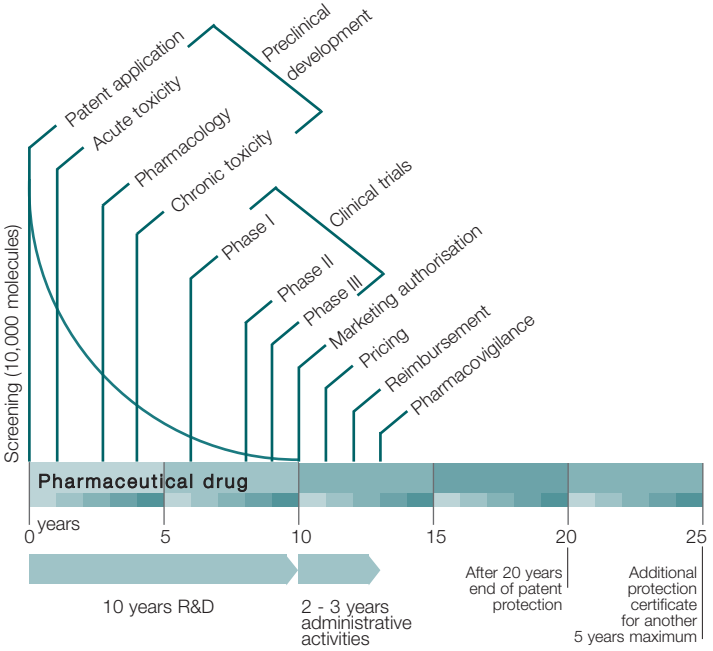
- -> New active substances
  Chemically defined active substances, defined natural substances, phytopharmaceuticals, biopharmaceuticals, "me-too" substances (molecular variants of known active substances with a similar chemical structure)
- -> New pharmaceutical forms and new specifically active combinations of active substances
- -> Extension of the indications of known active substances
- -> Specific improvements of active substances, new application forms
- -> Other new treatment options
- -> Improved or new manufacturing technologies of active substances

For all forms of innovation, a high level of effort in R&D, testing and approval is required. Even a minimal change of the molecular structure of a substance can result in the reduction of side effects, enhanced efficacy with a reduced dose or increased availability in the body.

Improvements of the pharmaceutical form can increase benefit, make application easier or improve the dosing regimen. Therefore, these incremental improvements are an essential part of progress in the pharmaceutical industry, as in other economic sectors, e.g. the automobile industry or the IT sector.

New technologies contribute to manufacturing and availability of goods in greater quantities, improved quality or at reduced costs. Especially in therapies which are very expensive due to a complex manufacturing technology, these innovations can improve availability for patients and reduce the burden for the health care system at the same time.

Stages of pharmaceutical drug research and development in the EU

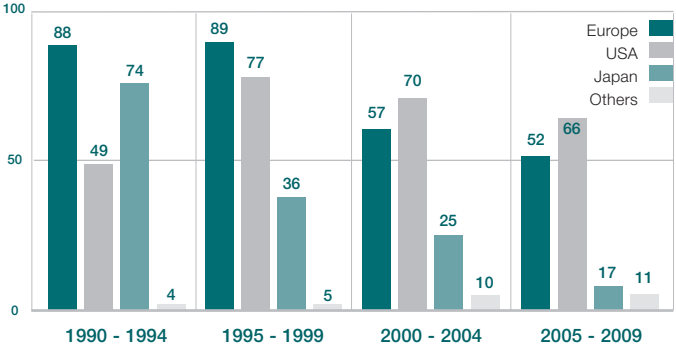


Source: Illustration of the BPI based on the European Federation of Pharmaceutical Industries and Associations (EFPIA) 2010.

The pharmaceutical companies often have less than 10 years to market a new product and to earn back the start-up costs, generate profit for investment into R&D and to compensate for losses in the development process. The high development costs in relation to the short period of market exclusivity forces global marketing and, therefore, promote big multinational enterprises with the necessary financial capacity. These were increasingly formed in the past years via numerous mergers and acquisitions; this process is still ongoing.

Despite this trend and rising costs for development for pharmaceutical companies in Europe - the European Federation of Pharmaceutical Industry and Associations (EFPIA) reports an increase of 2.3 billion Euros to 27 billion Euros between 1980 and 2008 (prognosis)- the number of newly introduced active substances decreased markedly.

New active substances (new chemical or biological entities – NCE/NBE) 1990 – 2009 sorted by invention countries worldwide



Source: Illustration of the BPI based on data of the EFPIA 2010.

In order to accurately calculate the development costs for pharmaceutical drugs, the regulatory framework - especially the reimbursement policies - within which the pharmaceutical industry operates, must be reliable. While regulatory requirements are mainly controlled centrally, the reimbursement policies are controlled by each country on a national level.

The ability to plan costs is an essential basis for investment decisions in the R&D sector. Unfortunately, the situation in Germany has not improved in the last years, as proven by 21 reform acts in the health care sector since 1989. If this trend continues it is hardly predictable at this point of time what the situation concerning reimbursements and the market environment for a development just beginning now will look like in 10 to 12 years when the product will be ready for marketing. As such, the economic basis required for innovations – the ability to plan costs – is missing for companies which mainly generate their turnover in Germany. The drafts for the Act for restructuring the drug market (AMNOG) and the SHI System Modification Act under discussion in 2010 are a case in point: they are again associated with drastic changes for pharmaceutical companies. The early benefit assessment in particular represents a completely new course setting for the reimbursement of new pharmaceutical drugs in Germany and also raises complex questions in view of methodology and implementation. Cost-planning frameworks in Germany as a business location need to be different.

In the context of the current discussion surrounding costs and spending in the health care system, the costs for the development of a new active substance, which was estimated to be 900 Million USD in 2003 and up to 1.3 Billion USD in 2006, is again and again referred to. These evaluations were based on a record of the overall development costs for new chemical or biological substances in relation to the actual number of newly authorised pharmaceutical drugs. Therefore, the costs for failed developments and so-called opportunity costs, i.e. the profit that could have been generated with the financial funds used during the development period, are included in this median. According to estimations, only one or two out of 5,000 to 10,000 substances screened during pharmaceutical drug development will eventually achieve marketing authorisation status, and not every marketed product is economically successful.

It should also be noted that the figures are controversially discussed in the public. If the pure expenses („out of pocket expenses") are considered, the expenditures are still in the range of 540 million USD. Even critics estimate the costs for the development of new active substances within the range of many million Euros. Apart from the discussion surrounding the appropriate methodology for this calculation, the key point is still the same: the development of innovative pharmaceutical drugs is a very complex, risky and tedious process.

The high costs are interpreted in a way that smaller companies do not have a stake in the innovation process, as the required expenditures cannot be financed with turnovers of less than billions. In this context one must not overlook that significant innovations are also possible with considerably lower financial expenditures, especially when it is possible to access previously published data. This concerns, among other things, the improvement of well-established pharmaceutical drugs with new pharmaceutical formulations or the research into new indications or new patient groups for treatment.

Many current therapy standards were developed on the basis of these incremental improvements. Despite this, such innovations are not appreciated as such by the public or by decision makers in politics and management. Therefore, they are not considered in the framework definitions, as is clearly seen in the current draft for the Act for restructuring the drug market (AMNOG). However, the (additional) benefit on a patient level does not depend on whether an active substance is new or well-established. A well-established pharmaceutical drug, which became available for treatment of a previously untreatable indication due to research, has the same value for a patient as a newly developed active substance. The search for new pharmaceuticals on the basis of well-established active substances and the improvement of the corresponding legal framework is of great importance especially for location-bound,

mainly medium-sized companies, as they only have limited resources available for investment into research and development.

To optimally use all opportunities for therapeutic progress, interdisciplinary work, cooperation and networking between all competent partners is essential. Cooperation between companies of all sizes is therefore an important factor for the development of pharmaceutical drug innovations.

Therapeutic progress in this context is what offers advantages for patients in comparison to existing therapies, e.g. active substances for thus far untreatable illnesses, improved efficacy, fewer side effects or improved usability. At the time of marketing authorization, which is based on quality, efficacy and safety criteria, it is hardly possible to make a valid statement on whether or not a new product is better than an existing therapy because available data from clinical studies is often insufficient. Only when advantages are achieved in diagnostics or therapy in medical practice and a higher benefit for patients can be proven does the innovation offer a true therapeutic improvement. The patient's benefit as well as other clinical, economical and humanitarian results of health-related measures in the individual or the population is assessed by the field of Outcomes Research (OR).

Bio-engineering and genetic engineering

The innovation process in pharmaceutical drug development is mainly driven by progress in life sciences. New methods and findings in the complex metabolism processes of living cells, cell compounds, organs and living beings make it increasingly possible to understand the development of diseases in detail on a molecular level and to develop targeted therapies and medicines. The active substances can either be small synthetic molecules or biological molecules. Biological molecules are either chemically similar to or even identical with endogenous substances. They are therefore suitable for treating diseases caused by a deficiency of endogenous substances, e.g. the administration of insulin in diabetics, administration of erythropoetin (EPO) in renal disease or cancer. In the past, these substances had to be isolated from body parts of humans or animals in a complex procedure and could hardly be obtained in sufficient quantities. Furthermore, the transmission of diseases in the manufacturing process of could not always be avoided.

These restrictions were overcome by modern biotechnology and genetic engineering. Today there are already over 200 medicines approved on a biotechnological basis in Germany. These represented approximately 16% of the turnover in the pharmacy market in 2009. Biotechnology therefore ceased to be a futuristic vision a long time ago, and day by day provides concrete benefit for the patient. Insulins constitute the main share of the global market, followed by immunomodulators, and EPO, as well as vaccines and other hormones.

Other molecules are monoclonal antibodies – whose significance keeps growing in the therapy of cancer-, receptor molecules, enzymes and receptor antagonists. Meanwhile, first products based on DNA or RNA are also available. There are numerous

new therapy approaches, which will lead to the development of completely new products medium or long term. Further areas with dynamic development are genetic therapy, tissue engineering and the regenerative medicine, which in connection with the public discussion about stem cells has gained particular public attention lately.

Of the five candidates still in the process of marketing authorisation in 2009, one product obtained market authorization in April 2009: Removab (Catumaxomab, Fresenius Biotech) for the treatment of malignant ascites. This worldwide first tri-functional antibody represents an innovation developed in Germany, in cooperation with TRION-Pharma. Including the non-clinical development stage, there were 340 active substances in the development pipeline in 2009. This is an increase of 8% compared to the previous year. The development progress is visible in the shift in the number of active substances in the different stages of clinical studies (phase I-III): the number of active substances in phase I decreased to 42 biopharmaceutical active substances in 2009 compared to 50 in 2008, whereas in the previous years the number was on a constant rise. In phase II and III there was an increase of 13 % to 85 active substances and 40% to 14 active substances, respectively.

The long periods for pharmaceutical drug development and their reasons were already discussed in sections „Patents“ (p. 15) and “Research and development of pharmaceutical drugs” (p.18). In this context it is not surprising that in terms of development of ready-to-market products with marketing authorization, the German biotech companies are lagging behind compared to the USA, where the biotechnology sector developed much earlier. Companies in the USA conducting research and development with biotechnological methods obtained more marketing authorizations since 2003 than the conventional big pharmaceutical companies.

The developments in the field of biotechnological pharmaceutical drugs and therapies are still in the early stages. With the decoding of the human genome, increasing understanding of the function of proteins and peptides, and their extremely complex interactions due to systems biology, the knowledge base keeps growing. With the aid of bioinformatics, new techniques are developed in order to extract essential and required information from the enormous data volumes available. Integrating the different fields of knowledge will result in the development of new active substances, completely new mechanisms of action and therapy approaches.

Nowadays the individualization of therapies is already noticeable, as well as testing of individual efficacy rates or side effects of pharmaceutical drugs due to the use of pharmacogenomic or metabolomic examinations.

With increased understanding of the pathomechanisms and therapy methods developed on that basis, many patients with diseases that are considered as incurable now will have access to affordable therapy in the long run. Aside from this primary goal there is also hope of lowering therapy costs in the long run through revolutionary new therapy approaches that, for instance, can prevent the outbreak or development of an illness, or that replace chronic symptomatic treatment with causative healing.

Besides this, new perspectives in the field of “biosimilars” are opening up. This term is used to describe biologically active substances marketed as a generic preparation after the patent protection of the original pharmaceutical drug has expired. They are called biosimilars because biological molecules show minor differences and therefore are not completely identical. For this reason, the effort for testing and authorization of biosimilars is significantly higher than for other generics and the expected price drop is not as significant as it is for other pharmaceutical drugs. The European Medicines Agency (EMA) granted the first marketing authorizations for biosimilars for the European market in 2006.

The marketing authorization of the active substance EPO, which was developed in Germany, represented a milestone in this sector midyear 2007, as EPO was the first biotechnologically produced biosimilar with a truly big potential market volume.

In Germany - especially since the mid-nineties and due to public financial support - a biotechnological industry has developed on the basis of start-up and spin-off companies, which, according to data provided by Ernst & Young, achieved a turnover of almost one billion Euros (960 million Euros) in 2009, which meant stagnation compared to 2008.

The majority of these companies developed diagnostics, pharmaceutical drugs, therapies and associated technologies and methods.

The biotechnology sector in Germany 2009
(in Million Euros, changes compared to the previous year in %)

	2008	2009	
Number of companies			
Core segment	386	387	< 1 %
Extended segment	501	531	6 %
Number of staff			
Core segment	9.794	9.861	1 %
Extended segment	14.450	14.450	< 1 %
Turnover			
Core segment	960	960	0 %
Extended segment	2.191	2.200	< 1 %
R&D expenditures			
Core segment	794	746	- 6 %
Extended segment	1.061	1.000	- 6 %

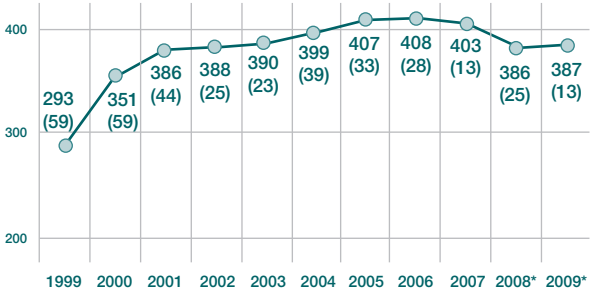
Source: Illustration of the BPI based on data of the EFPIA 2010.

The number of biotechnology companies remained stable in 2009 compared to the previous year, despite the financial and economic crisis that hit start-up companies particularly hard: based on data of the German Biotechnology Report 2010 by Ernst & Young there were 387 companies in 2009 compared to 386 in the year before. In this context it needs to be considered that the different sources these data are based on used different definitions for counting biotechnology companies. The core segment defined by Ernst & Young focused on pure biotechnology companies. Big enterprises and companies that are not solely involved in biotechnology are not included. The current Ernst & Young report 2010 for the first time also considers an extended segment of biotechnology companies, which is consistent with the data collection of "biotechnologie.de" as assigned by the Federal Ministry of Research and Education (BMBF) and therefore allows comparability of both data collections. The data collection of "biotechnologie.de" is based on a definition that includes the fields of industrial and green biotechnology, which counted 531 companies.

All the companies in the data collection of Ernst & Young in 2008 and 2009 were newly assigned, which is the reason for discrepancies to the data collections from previous years. Taking these discrepancies into consideration, the number of companies in the core segment stagnated during the last years and counts around 390 companies. But all data collections state that the number of start-up companies (13 in 2009) fell to the lowest level in years. In 2008 there were 25 start-up companies, which was only a slight increase compared to the years before. Eleven companies disappeared, six due to insolvency and five due to acquisitions and mergers.

Mergers and acquisitions of firms have gained great significance, leading to a slight decline in the number of companies, but, on the other hand, larger and more powerful structures. Biotech companies became more and more interesting for acquisition, e.g. the acquisition of Jerini Ag by Shire Ltd (GB) or acquisition of U3-Pharma by Daiichi Sankyo Co., Ltd. in previous years. In 2009 for instance, the B.R.A.H.M.S AG was acquired by Thermo Fisher Scientific Inc.

Number of biotech companies (start-ups in brackets)



* A new statistical classification prevents a direct comparison of values from previous years.

Source: Illustration of the BPI based on data of Ernst & Young AG 2007-2010.

However, this trend did not continue during the last year, noticeable in the acquisition volume, which significantly decreased to 400 million Euros compared to 800 million Euros in 2008. It remains to be seen how the trend regarding acquisitions will develop against the background of the recovering worldwide economy within the next years. Until now, these acquisitions focused on companies that mainly offered quickly marketable products in field of diagnostics, tissue-engineering and service provision. Interestingly, companies with this orientation, e.g. Quiagen or Miltenyi Biotec, more and more concentrated not only on development but also on the manufacturing and marketing of own products.

In general, there are excellent future prospects for medical bioengineering considering the products already launched on the market, the products advanced in development as well as the products constantly moving up from fundamental research. A requirement for this is a predictable and stable health care system. This especially applies to reimbursement policies, because the fundamental for decisions made on investments in R&D are the refinancing conditions, i.e. reimbursement policies in the pharma market. The current discussion about the Act for restructuring the drug market (AMNOG) with its planned fundamental changes of the reimbursement policies in Germany is therefore of great significance for the further development of innovative pharmaceutical drugs in Germany.

Sources:

Boston Consulting Group: Medizinische Biotechnologie in Deutschland 2010;

DiMasi J, Hansen R, Grabowski H.: “The price of innovation: new estimates of drug development costs“, Health Economics 22(3), 2003, 151-185;

DiMasi J, Grabowski H.: “The Cost of Biopharmaceutical R&D: Is Biotech Different?”, Managerial and Decision Economics 28, 2007, 469-479;

Ernst & Young: Deutscher Biotechnologiereport 2007 - 2010, Global Biotechnology Report 2010

Continuous monitoring of the safety of pharmaceutical drug safety / pharmacovigilance

Pharmacovigilance is an umbrella term that encompasses all measures in order to recognize side effects of pharmaceutical drug therapy and to avoid incorrect use of pharmaceutical drugs.

In general, each effective pharmaceutical drug can also induce undesired effects. However, they usually only occur in one of 100,000 patients or even less.

The risk assessment of a pharmaceutical drug in the whole population is the matter of pharmacoepidemiology. It is generally considered to be the basic science of the safety of pharmaceutical drugs. The purpose is to identify the causative relationships between exposure and efficacy, if possible to prophylactically prevent undesired adverse effects and to increase the therapeutic benefit.

The Paul-Ehrlich-Institute (PEI) is the responsible national competent authority for vaccines, blood preparations and sera; for all other medicines, this is the Federal Institute for Drugs and Medical Devices (BfArM). The European Medicines Agency (EMA) is responsible for process implementation on the European level, and issues recommendations, which are then implemented in all member states through decisions of the European Commission in a legally-binding manner.

Identification of side effects in clinical trials

The data collected on side effects in clinical trials (i.e. under ideal controlled conditions) is not representative for the use of the drug in daily practice. On the one hand, the pre-defined inclusion and exclusion criteria for clinical trials narrow down the target population to such an extent, that extrapolating from this population to the general public is not always valid. On the other hand, the frequencies of adverse drug effects in these relatively small patient collectives is often lower than the frequencies reported later in the general population.

As a result, certain side effects, for example those occurring with specific underlying conditions or with certain concurrent medications, are not identified in the clinical trials.

The monitoring of drugs under the conditions of everyday practice, i.e. after market authorization, is of the highest importance for furthering drug safety and so for quality management of treatments.

Pharmaceutical companies are obliged to actively collect, evaluate and report cases of adverse reactions or interactions, contraindications and quality issues related to their drugs. The reports must be submitted to the respective competent authority. Reports of serious adverse reactions must also be reported in an expedited fashion to the national authorities of the EU member states and the EMA in London. This reporting requirement pertains to all reports involving the drug of interest arising nationally or in another EU member state, but also in countries outside of Europe. The BPI is also integrally involved in the continuous exchange of information between the pharmaceutical industry and the regulatory authorities.

In order to comply with these reporting requirements, pharmaceutical companies are required to appoint a responsible person for pharmacovigilance (or, according to German law, the so-called Stufenplanbeauftrager). This person is responsible for collecting and evaluating safety information and for coordinating necessary measures to be taken. This person is personally liable for his or her activities. On a national (German) level, the so-called "Stufenplan" per § 63 German Medicines Act serves to monitor, collect and evaluate risks associated with pharmaceutical drugs.

Should further measures for the protection of patient welfare be deemed necessary, these measures are immediately implemented. For the most part, these measures are implemented by the pharmaceutical company in question, but in some cases they are the result of special requirements set forth by the national or EU regulatory authorities. The "Stufenplanverfahren" described in the German Medicines Act regulates which measures must be taken by a pharmaceutical company in order to increase patient safety, including such measures as changing the patient information leaflet or withdrawing the drug from the market. Many drug safety procedures, called "Referrals", are increasingly being coordinated not on a national level, but by the EMA on an EU-wide level.

Reports of side effects

According to the BfArM, the authority received around 47,000 individual case reports of adverse reactions originating in Germany in 2009. The majority of these reports were submitted by the pharmaceutical industry, while almost two thirds of the remaining reports were submitted by the Drug Commissions of the health professions. Only about 4 % of the reports were submitted on paper. An increase in the number of literature reports was noted, which is due to well-established systems for literature screening in pharmaceutical companies. The large majority of the reports concerns events that occurred outside of Germany, in particular outside of the EU. This is due to the current regulatory reporting requirements as per § 63b of the German Medicines Act.

About two thirds of the reports submitted to the Paul-Ehrlich-Institute (PEI), which consistently receives fewer reports than the BfArM, were related to reports of vaccination complications. These cases are reported in compliance with the infection protection law (Gesetz zur Verhütung und Bekämpfung von Infektionskrankheiten beim Menschen – IfSG; law for the prevention and fighting of infectious disease in humans). Approximately 30 % of the reported cases pertain to monoclonal antibodies, while 10 % concern cellular blood products.

The overall increase in reports may be traced back to improved methods for reporting, including electronic reporting via the internet.

EU-wide exchange of safety data

In the field of drug safety (pharmacovigilance), the swift exchange of information between the individual competent authorities of the EU member states is of great significance. For that reason, the EU has created graduated information systems where, depending on urgency, the respective required procedures are applied. A so-called Rapid Alert System concerning pharmacovigilance is used whenever one of the member states identifies a suspected change of the benefit-risk ratio of a given pharmaceutical drug which might require changes to the approval status.

Both German national competent authorities closely cooperate with the local state authorities, and with those of other European nations. There are also close contacts with authorities of states outside Europe, the World Health Organization (WHO), the pharmaceutical drug commissions of the health care professions, as well as with pharmacovigilance centers that collect reports of adverse drug effects.

"Rote Hand Brief" as a direct health professional communication

The "Rote Hand Brief" is an instrument for direct health profession communications concerning information on newly identified, significant risks concerning the use and administration of pharmaceutical drugs and measures for risk mitigation.

The Pharma Codices of the pharmaceutical industry associations BPI and VFA (AKG – "Arzneimittel und Kooperation im Gesundheitswesen" [pharmaceuticals and cooperation in the health care sector] and FSA – "Freiwillige Selbstkontrolle Arzneimittelindustrie" [voluntary self-monitoring of the pharmaceutical industry]) obligate their members to send out important information concerning pharmaceutical drug safety, in coordination with the national competent authorities, to health professional circles, i.e. to physicians and to the Drug Commissions of the German Medical Association and the German Pharmacists.

The members of the associations are obliged to use the symbol of a red hand with wording "Important information concerning a pharmaceutical drug" on envelopes as well as on letters concerning newly identified, severe side effects, recalls of faulty batches or other information that needs to reach the physician and/or pharmacist in the fastest possible way in order to secure patient safety.

This is to warrant that important information cannot be overlooked amidst the daily mail.

The global pharmaceutical market

In 2009, the global turnover of pharmaceutical drugs totaled 806.6 billion USD, an increase of 3.6 % compared to the previous year.

Development of the global pharmaceutical market

	2005	2006	2007	2008	2009
Total market (billion USD)	601,2	645,0	713,6	778,3	806,6
Change compared to previous year (in %)		+ 7,3	+ 10,6	+ 9,1	+ 3,6

Source: Illustration of the BPI based on data of IMS World Review 2010.

80 % of the total turnover of the global pharmaceutical market is generated by North America, Europe and Japan. The turnover in North America increased by 5.1 % to 319.5 billion US Dollars, which represents 40 % of the global pharmaceutical turnover in 2009. At the same time, the European pharmaceutical market shrunk by 4 % to 236.7 billion US Dollars, while Latin America marginally increased its pharmaceutical turnover by 0.6 % to 48.7 billion US Dollars.

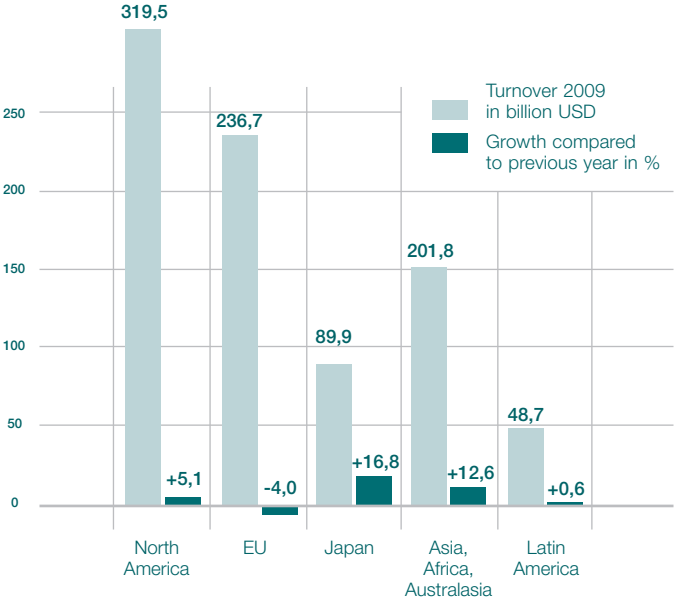
Top 10 pharmaceutical markets worldwide and growth to LCD* (in %)

Country	Turnover 2009 (million US-Dollars)	Growth to LCD 2009 (%)
USA	300,748	5
Japan	89,865	6
Germany	41,275	4
France	40,575	1
China	31,688	27
Italy	26,857	4
Spain	22,818	6
Great Britain	19,843	5
Canada	18,705	6
Brasil	17,403	13

* LCD: Local currency dollar – currency fluctuations in the country are not considered, so the growth rate in the various countries is comparable.

Source: Illustration of the BPI based on data of IMS World Review 2010.

Global pharmaceutical market by region 2009



Source: Illustration of the BPI based on data of IMS World Review 2010.

Overall, the health care market is a growing market with considerable employment potential. To date, many diseases are still untreatable, while increasing life expectancy and changing consumer interest, as well as the search for a higher quality of life, have increased the demand for health-related services and products. In addition, advances in the fields of medicine and pharmacy, particularly in molecular and cellular biology, generate novel innovation incentives. Furthermore, a trend toward personalized medicine in the form of individualized diagnostics and treatments is evident.

The European pharmaceutical market

Currently, the EU includes 27 member states.

Upon closer analysis, these pharmaceutical markets are heterogeneous with regards to market size, yet all show continuous growth. Pharmaceutical pricing and reimbursement are regulated in different ways in the different countries. However, a common feature of these markets in an increasing competition in the generics sector.

The analysis of the annual turnover in the EU-15 in 2009 shows that, in absolute volume, Germany, France, Italy, followed by Spain represent the largest pharmaceutical markets. In terms of growth compared to the previous year, however, Greece is first, followed by Spain, Portugal and Great Britain.

Pharmaceutical markets of the EU-15

EU-member state	Turnover* for 2009 (million USD)	Growth** to LCD 2009 (%)
Germany	41,275	3.66
France	40,575	0.63
Italy	26,857	4.33
Spain	22,818	6.40
Great Britain	19,843	5.26
Greece	7,537	9.51
Belgium	6,208	3.06
The Netherlands	5,417	-3.31
Portugal	5,395	6.38
Austria	4,180	2.59
Sweden	3,798	2.24
Denmark	2,708	4.69
Finland	2,619	-0.04
Ireland	2,556	4.10
Luxembourg	241	4.00
Total	192,029	3.60

* Turnovers from the markets observed, plus estimation of partial markets not observed, result in the total turnover of a member state at manufacturer price.
** LCD: Local currency dollar - currency fluctuations in the individual member state are not reflected, allowing comparisons between the individual member states.

Source: Illustration of the BPI based on data of IMS Health 2010.

In the following, selected eastern and central European member states with special economic relationships will be looked at in more detail.

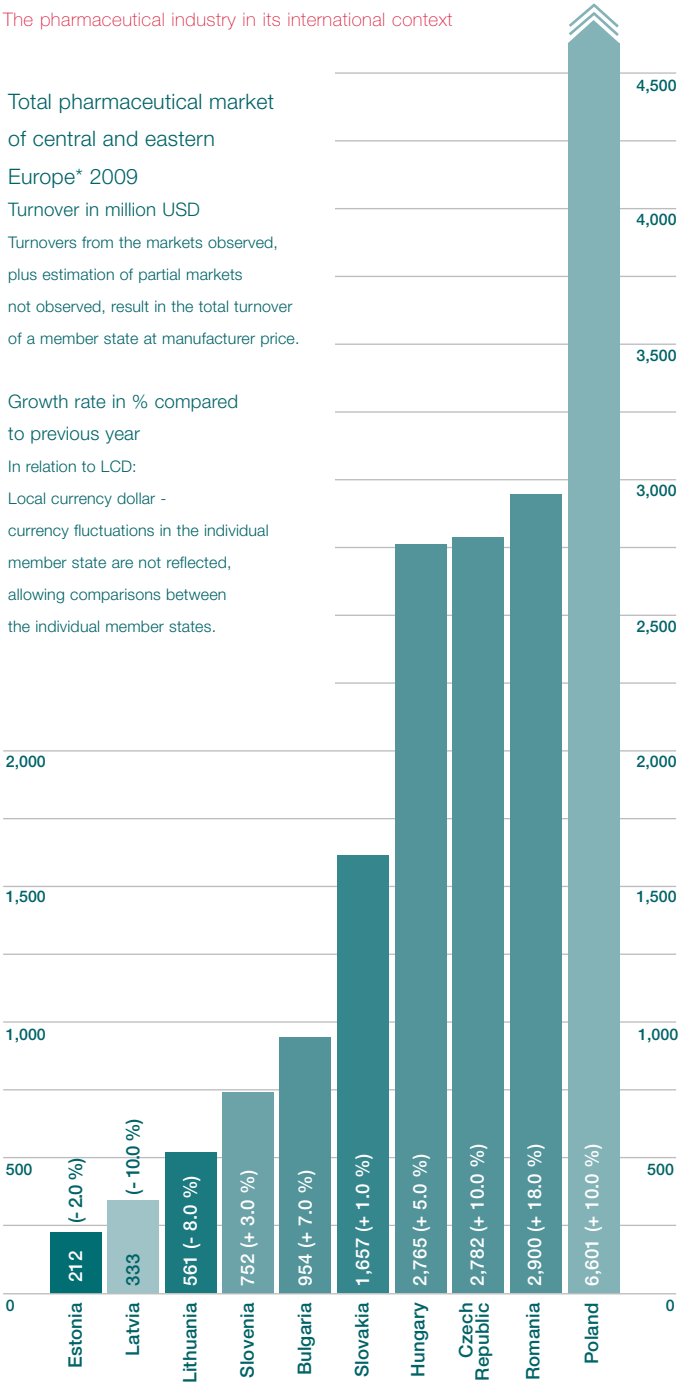
Total pharmaceutical market of central and eastern Europe* 2009

Turnover in million USD

Turnovers from the markets observed, plus estimation of partial markets not observed, result in the total turnover of a member state at manufacturer price.

Growth rate in % compared to previous year

In relation to LCD:
Local currency dollar - currency fluctuations in the individual member state are not reflected, allowing comparisons between the individual member states.



* No data are available for Malta and Cyprus

Source: Illustration of the BPI based on data of IMS World Review 2010.

Over the next five years, IMS Health is expecting an average growth rate of 3 % in the EU member states. By comparison, a growth rate of 4.8 % is predicted for non-EU member states. The five most important EU markets are expected to grow by 3.2 %.

Market prognosis using constant exchange rates, growth in %, manufacturer price.

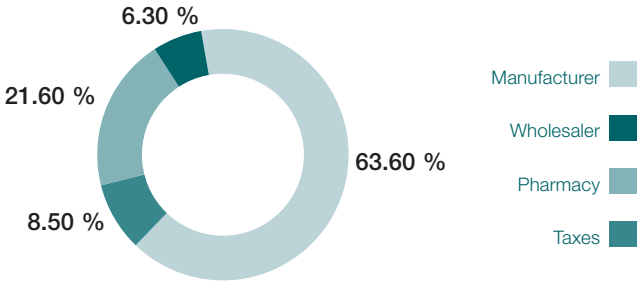
Europa	2009 - 2014
EU top five member states	3.2 %
EU member states	3.0 %
Non-EU member states	4.8 %
Global market	6.2 %

Source: Illustration of the BPI based on data of IMS Market Prognosis Global 2010.

International comparison of pharma-ceutical drug prices

A pharmaceutical product varies in price from country to country for various reasons, including simple factors such as different VAT. In addition, direct governmental intervention often regulates the profit margins allowed to different trade levels (e.g. pharmacies, wholesalers). These factors account for the pricing variance across Europe. When conducting international comparisons of pharmaceutical drug prices, it is important to note that this is only possible based on individual trade levels. For example, when selecting the dominant trade level in Germany, it is necessary to verify if this trade level is also dominant in other countries or at least has a sufficient market share. Also, the data based on the manufacturer price is not available for all countries, so that the prices may need to be recalculated. Political influences on pricing and reimbursement, as well as national prescribing and treatment habits also impact on drug pricing. When conducting overall market comparisons, volume adjustments are necessary.

Pharmaceutical price structure in Europe (2008)
- Based on pharmacy retail price



The values constitute a non-weighted mean value for Europe.

Source: Illustration of the BPI based on EFPIA 2010.

The graph of the pharmaceutical price structure in Europe shows the share of each individual trade level in the pharmaceutical drug prices in Europe. This clearly illustrates that the drug manufacturers are not the only group influencing drug prices, as the pharmacy retail price also contains components contributed by other factors such as distribution and VAT.

Value Added Tax (VAT) rates in Europe (as of 1 January 2010)

Country	Standard VAT rate (%)	VAT rates applied to drugs Prescription (%)	OTC (%)
Belgium	21.0	6.0	6.0
Bulgaria	20.0	20.0	20.0
Denmark	25.0	25.0	25.0
Germany	19.0	19.0	19.0
Estonia	20.0	9.0	9.0
Finland	22.0	8.0	8.0
France[1]	19.6	2.1-5.5	2.1-5.5
Greece	19.0	9.0	9.0
Great Britain[2]	17.5	0.0	17.5
Ireland[3]	21.0	0.0-21.0	0.0-21.0
Iceland	24.5	24.5	24.5
Italy	20.0	10.0	10.0
Croatia	22.0	0.0	22.0
Latvia	21.0	10.0	10.0
Lithuania	21.0	5.0	5.0
Luxembourg	15.0	3.0	3.0
Malta	18.0	0.0	0.0
The Netherlands	19.0	6.0	6.0
Norway	25.0	25.0	25.0
Austria	20.0	10.0	10.0
Poland	22.0	7.0	7.0
Portugal	20.0	5.0	5.0
Romania	19.0	9.0	9.0
Sweden	25.0	0.0	25.0
Switzerland	7.6	2.4	2.4
Slovak Republic	19.0	10.0	10.0
Slovenia	20.0	8.5	8.5
Spain	16.0	4.0	4.0
Czech Republic[4]	20.0	10.0	10.0
Hungary	25.0	5.0	5.0
Cyprus	15.0	0.0	0.0

[1] Pharmaceutical drugs subject to reimbursement: 2.1 %, Pharmaceutical drugs not subject to reimbursement: 5.5 %

[2] Pharmaceutical drugs purchase by hospitals: 17.5 %

[3] Pharmaceutical drugs for oral administration: 0 %, other: 21.0 %

[4] VAT was increased for all pharmaceutical drugs from 5% to 10% on 1 January 2009

[5] VAT was increased for all pharmaceutical drugs from 20% to 10% on 1 January 2009

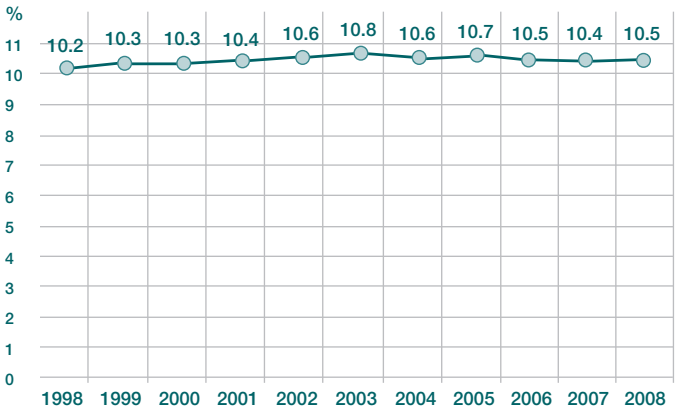
Source: Illustration of the BPI based on EFPIA 2009.

When comparing the VAT rates applied to pharmaceuticals, it may be noted that only Bulgaria, Denmark, Germany, Iceland and Norway apply the full standard VAT rate.

The health care market in Germany

When analyzing expenditures, it is important that note that a conclusive evaluation is not possible based only on these figures. This requires a more detailed and in-depth analysis of, for example, organizational structures or social circumstances and frameworks. However, the percentage of the GDP that a society dedicates to its health care system reflects the importance of the health care system for that society. Therefore, a high percentage of GDP dedicated to health care does not necessarily constitute wasteful spending.

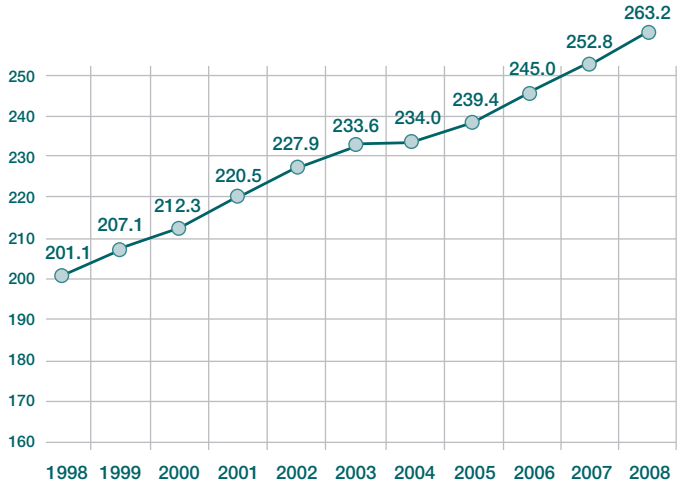
Development of health care expenditures - share of the GDP in %



Source: Illustration of the BPI based on data of the Federal Statistical Office 2010.

The share of health care expenditures of the GDP has remained stable in Germany over the course of the years: in 1998, it was at 10.2 % and in 2008, at 10.5 %.

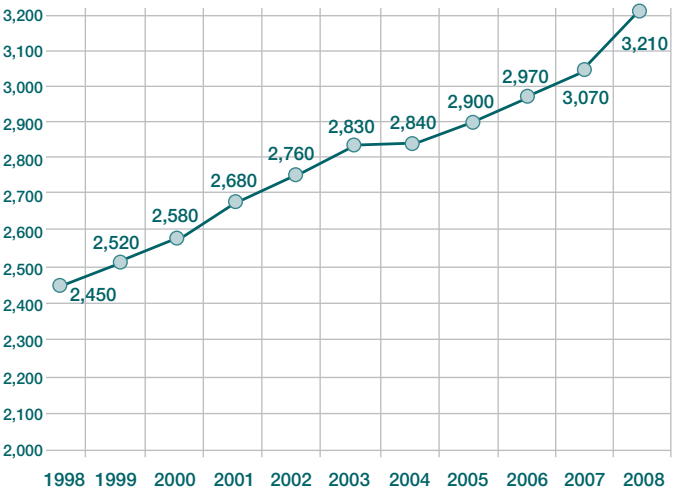
Development of nominal health care expenditures (in billion Euros)



Source: Illustration of the BPI based on data of the Federal Statistical Office 2010.

Nominal health care expenditures in Germany have been continually on the rise since 1998 and, by 2008, were at 263.2 billion Euros. This constitutes an increase of 4.1 % compared to 2007. In the same period, health costs per inhabitant rose by 4.6 %, from 3,070 Euros in 2007 to 3,210 Euros in 2008.

Development of health care expenditures per inhabitant (in Euros)



Source: Illustration of the BPI based on data of the Federal Statistical Office 2010.

According to current data from the Federal Statistical Office, 4.6 million people (every tenth employee) was working in the German health care sector end of 2008. The number of jobs in the health care sector rose by 1.7 % in 2008 as compared to 2007. The primary cause of this is an increase in the health service professions (e. g. nursing) and social professions (e.g. geriatric care taker). In 2008, the largest number of staff (83 %), was employed in outpatient, inpatient and day-patient care health care facilities.

In an ageing society such as Germany, with a structural shift toward older, multi-morbid people, and increasing chronic diseases owing to lifestyle and nutritional habits, the health care service sector is forced to find sustainable solutions. To do this, the potential of a strong, innovative, job-intensive health care sector must be strengthened, not weakened.

Health care policy interventions over the last years display a tendency toward encouraging competition between stakeholders, and toward integrative health care solutions. However, a financially sustainable health service care system in Germany still seems to be a distant prospect.

Due to continually rising contributions to the Statutory Health Insurance (SHI), the development of SHI expenditures is of great interest each year. The SHI expenditures constituted ca. 7.1 % of GDP in 2009. The SHI expenditures for drugs in 2009 were 1.3 % of GDP. Therefore, the drug expenditures of the SHI did not increase beyond the general economic growth rate. In view of this development, there is no evidence of a “cost explosion” in the health care sector.

The financial situation of the SHI is influenced by structural problems, i.e. changes in both the revenues as well as the expenditures.

When it comes to revenues, the following factors may have a negative impact:

-> Increase in the number of so-called mini-jobs (marginal employment)
-> Loss of incomes subject to social insurance deductions
-> Stagnating earned income
-> Salary receipt with simultaneous increases in other sources of income
-> Decreasing pension payments with an increasing number of pensioners
-> Shift toward private health insurance
-> Decrease of health care insurance contributions for the recipients of unemployment benefits
-> Loss of supplementary and lump sum payments
-> Short time work

On the expenditures side, changes are needed because of

-> increases in chronic diseases
-> medical and technological progress in combination with an ageing population
-> Remuneration reform for physicians in outpatient care
-> Hospital tariff contracts
-> Expansion of SHI benefits, e.g. palliative care
-> Value Added Tax (VAT) increase to 19% from January 1s t, 2007
-> Implementation of the European legislation on working hours
-> Costs for implementation of the electronic health card

In Germany, the premiums paid to the SHI are wage-based, making trends in the number of employees in jobs subject to social insurance of particular interest. Whether or not the reform of the financing structures for SHI planned for this year will ensure sustainable revenues remains to be seen.

While the German Economic Optimization of Pharmaceutical Care Act (Arzneimittelversorgungs-Wirtschaftlichkeitsgesetz), introduced in 2006, mainly focused on cost reduction for drug expenditures, the German Act to Reinforce Competition between the German Statutory Health Insurance providers (GKV- Wettbewerbsstärkungsgesetz) in 2007 aimed to foster competition in the health care sector.

The German Act to Reinforce Competition between the German Statutory Health Insurance providers also initiated structural changes. The benefits offered by SHI providers became more variable by allowing optional (supplementary) insurance plans. Most optional plans focus either on reimbursement of costs or on deductibles. Only one optional plan allows for reimbursement of homeopathic, anthroposophic and phytoptherapeutic drugs, but in combination with a supplementary premium. These were steps in the right direction, but further optional insurance plans need to be explored. For example, optional plan could be offered for the reimbursement of over-the-counter (OTC) drugs. This would be the beginning of true competition between the different insurance companies. The insured customer's position would be strengthened and would have the option of supplementing the standard SHI benefit portfolio with individually chosen supplementary plans.

The above-mentioned legislation gives the SHI providers more options for moving away from the collective contractual agreements (statutory service portfolios) to individualized contracts. The introduction of these supplementary insurance plans and rebate contracts has allowed the SHI providers to become "Players" instead of simply "Payers" in the German health care system. As a result, the plans on offer to consumers have become much more diverse. Inevitably, this leads to questions regarding cartel laws and competition, and the entrepreneurial activities of the SHI are subject to more intensive scrutiny. In order to ensure fair market practices, the same competition rules and regulations must apply to all stakeholders. The partial opening and application of §§ 19-21 of the German Act against restraints on Competition (Gesetz gegen Wettbewerbsbeschränkungen) are insufficient.

In January 2009, a health care fund was introduced as a compromise between the political concepts of a "citizen insurance", and a "per capital flat premium". From the BPI's point of view, this is not a solution to the problem of financing a sustainable health care system. The deficit forecasts of both the political stakeholders and the SHI providers for the next years emphasize this. The current plans for changing the financial structure of the health care system may be a first step. However, at this time, the level of the standard SHI premium in combination with the morbidity-adjusted risk adjustment scheme will lead to mergers and acquisitions among the approximately 160 SHI providers, leaving a lower number of competitors in this market.

It is the position of the pharmaceutical industry that in a system combining income dependent premiums and flat-rate premiums, the insured persons should be able to determine how the flat-rate premium is used in order to finance an individualized health insurance package.

From the perspective of the pharmaceutical industry, a first step toward a fundamental and financially sustainable reform of the SHI system would be freezing the employer's contribution and turning it into a part of an employee's salary. On the one hand, this would break the current link between health care costs and labor expenditures, while on the other hand allowing the employee to have full control over premium payments to the SHI provider of his or her choice for the insurance plan of his or her choice. In this, the insured person takes on more responsibility, but without becoming financially overwhelmed.

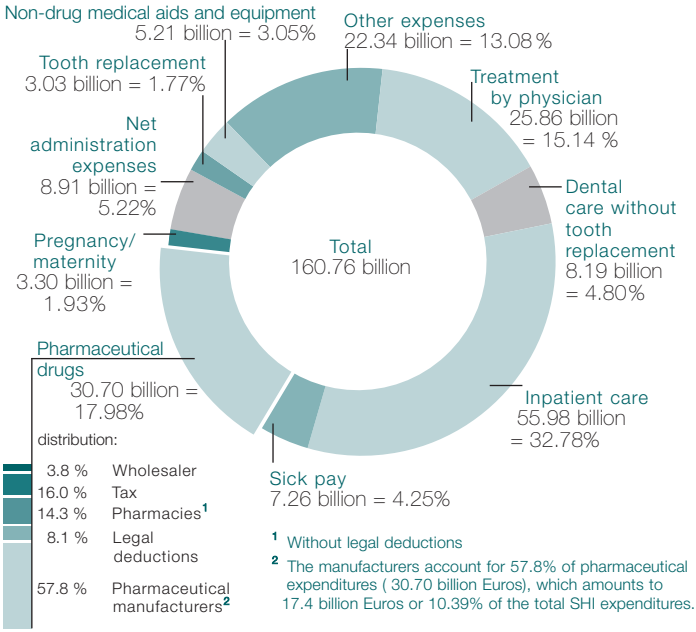
In the course of further reforms, the increasing trend toward standardizing of therapies needs to be stopped. At a time when the pharmaceutical industry is ever more capable of developing individualized treatment options and applying them in medical practice, the manifold therapy options must not be restricted solely for the purpose of cost reduction, e.g. through treatment guidelines or exclusions published by the self-government of SHI providers.

Future health care reforms must contribute significantly to deregulation and streamlining of administration in favor of increased personal responsibility and entrepreneurial freedom for the stakeholders concerned. The goal should be to allow the service providers in the health care sector to concentrate the greatest share of their energy on providing the best possible care to patients.

Cost structure of the Statutory Health Insurance (SHI) System

According to the view of the national expert panel, the goal of cost limitation is always a "tightrope walk between withdrawal effects that cause increasing premiums, primarily outside the health sector, for consumers and investors, and the positive effects that are generated by health costs and the services financed by them" (expert opinion in 2003).

Cost structure of the Statutory Health Insurance (SHI) 2009
(in billion Euros and as % of all SHI-costs)



1 Without legal deductions

2 The manufacturers account for 57.8% of pharmaceutical expenditures (30.70 billion Euros), which amounts to 17.4 billion Euros or 10.39% of the total SHI expenditures.

Source: Illustration of the BPI based on KJ1 2010.

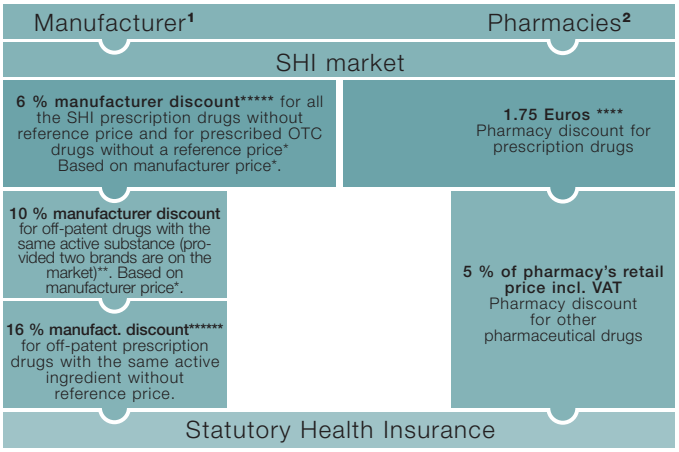
Inpatient care, at 55.98 billion Euros, is the most cost-intensive sector of the SHI system. The combined expenditures for pharmaceutical drugs (30.70 billion Euros) and for medical treatment (25.86 billion Euros) amount to 56.56 billion Euros, which accounts for nearly the total expenditures of the inpatient care sector. The share of pharmaceuticals expenditures alone was at 17.98 % of the total SHI expenditures.

When analyzing the SHI pharmaceuticals expenditures, the amounts the the different trade levels contribute to these costs are often neglected, i.e. the proportion of the wholesalers' and pharmacies' margins, and the Value Added Tax. If a given pharmaceutical drug at manufacturer price costs one Euro, on average, one needs to add on a 6 % wholesaler margin, 3 % plus 8.10 Euros for the pharmacy margin, as well as 19 % Value Added Tax. The retail price would total just about 11 Euros.

Irrespective of this, rising pharmaceutical expenditures, as well as falling point values of medical treatment, are predominantly caused by the increase of outpatient therapy options, as well as a shift from the inpatient to the outpatient care. The Diagnosis Related Groups (DRGs) and the related shorter inpatient stays are going to reinforce this tendency even more in the years to come. As in the past, the shift in services has not been followed by the required funding.

The broader public too often does not realize that manufacturers as well as pharmacists are required to grant an obligatory discount for the stabilization of the SHI expenditures, as shown below.

SHI obligatory discounts***



* From 1 April 2006 to 31 March 2008, an increase in the discounts by an increase in the manufacturer price in comparison to price levels on 1 November 2005 **(price increase moratorium).** Another moratorium is in place from 1 August 2010 to 31 December 2013.

** If at least 30% less than the respective reference price, then a) the 10% discount is automatically drops and b) the SHI can waive the co-payments for patients for certain drugs as long as there are savings for the SHI.

*** General prohibition of "discounts in kind"

**** Increase to 2.30 Euro since 1 April 2007 and retroactive decrease to 1.75 Euro since 2009.

***** Increase in the 6% discount to 16% (from 1 August 2010 to 31 December 2013); exceptions: German Social Code V §103a Section 3b for prevention of cumulative cost burdens of more than 16%, as well as simultaneous price increase moratorium.

****** maximum cost burden of 16% capped starting 1 August 2010

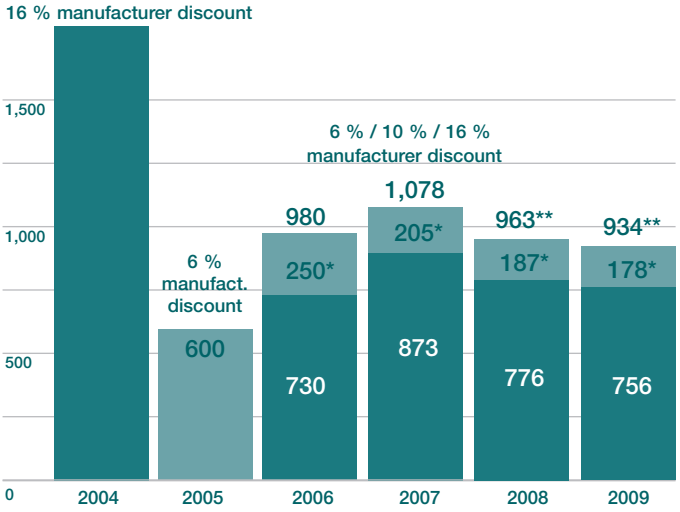
1 German Social Code V § 130a Sect. 1; German Social Code V § 130a Sect. 3a, 3b

2 German Social Code V § 130 Sect. 1

Source: Illustration of the BPI 2010.

The obligatory discounts have been mandatory since the solidarity tax was instituted in 2002 (200 million Euros), and they have been adapted several times. On 1 August 2010, the 6% obligatory discount, which had been reduced in the beginning of 2005, was increased again to 16%. The 16% obligatory discount for off-patent drugs with the same active substance (as defined in the German Economic Optimization of Pharmaceutical Care Act) was kept in place, but capped at 16%. Therefore, for drugs without a reference price, a mandatory discount of 16% must be paid on the manufacturer price. In addition, a price increase moratorium (versus the price levels of 1 August 2009) is planned from 1 August 2010 to 31 December 2013.

Cost burden of the pharmaceutical industry due to obligatory discounts 2004–2009 (in million Euros), manufacturer price



* So-called “discount for generics”

** Discount decrease due to (among other factors) the price moratorium ending in April 2008

Source: IMS Health PharmaScope® 2010.

In 2009, the cost burden of the pharmaceutical industry due to the obligatory discounts was more than 930 million Euros. The small- and medium-sized enterprises are particularly hard hit by these additional costs because they are unable to cross-subsidize the expenditures from other parts of their product palette. Such political interventions contradict the official commitment to supporting small- and medium-sized enterprises. State interventions accelerate the consolidation of the market in favor of larger pharmaceutical companies or companies with very diverse product portfolios.

Discount / rebate contracts in the SHI system

Since 2003, the SHI providers have had the legal option (§ 130a sect. 8 German Social Code V) to negotiate individual rebate / discount contracts with pharmaceutical companies. In the first few years, this regulation had nearly no practical significance. However, with the German Act on reinforcing SHI competition (GKV-WSG)coming into effect in 2007, this instrument has rapidly gained momentum as a result of the accompanying measures, such as its relevance for the bonus-malus system for doctors, reduced co-payments for patients and through the legal requirement of preferential dispensing of rebated drugs in the pharmacies. From then onward, the debate was characterized by legal disputes about the application of distribution, competition and cartel laws.

Until 2008, there were still open issues concerning the applicability of the Cartel Procurement Law –in connection with the requirement to conduct Europe-wide calls for tender – as well as the valid legal procedure for reviewing rebate contracts. Finally, in October 2007, the EU Commission initiated contract violation proceedings against the Federal Republic of Germany for violating EU Procurement Law when entering into rebate contracts. Only with the implementation of the German Law to enhance organizational structures of SHI (GKV-OrgWG) did German lawmakers begin to take action. The new rules, which went into force on 18 December 2008, provide that when entering into contracts as per German Social Code V § 130a sect. 8 Book, procurement law is applicable “provided the pre-requisites mentioned therein are fulfilled”. In doing so, the public mandate of the SHI providers for providing health care insurance must be taken into account.

There is now a split legal procedure for the review of discount contracts: the first stage is handled by the procurement chambers, and the second by the respective state-level social court. In addition, a special procedure for settling procurement- related disputes in the social courts was implemented and codified in the German Social Court Law (SGG), which meets the special requirements of procurement-related disputes.

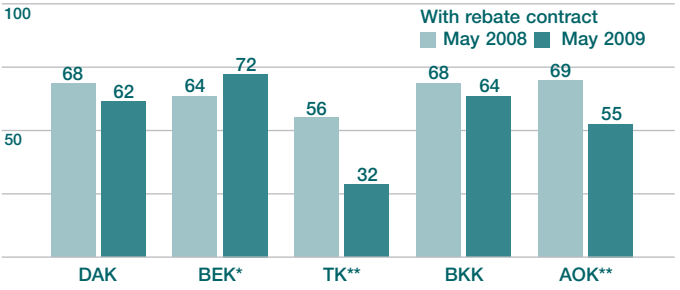
The Act for the Modernization of Procurement Law of 24 April 2009 is also of great importance. This regulation requires the calls for tender to be divided into partial and specialist lots, something that can be helpful to small- and medium-sized enterprises. But the act also contains important regulations for legal protection of the stakeholders, in particular regarding the invalidity of illegal de facto procurement (§ 101b sect. 1 GWB). However, this invalidation only applies if a complaint is submitted to the procurement chamber within 30 days of obtaining knowledge of the contract or no longer than six months after the contract is signed (§101 b sect. 2 GWB).

While the applicability of Procurement Law to rebate contracts concerning generic drugs, may be considered clear, a final legal decision on the issue concerning discount contracts patented drugs is still pending.

An essential aspect here is whether Statutory Health Insurance providers, when signing a rebate contract concerning patented drugs, are actually making a selection decision for the insured persons. This pre-selection would be an important characteristic of a public service contract as applied to procurement law, since patented drugs cannot be substituted with discounted equivalents at the pharmacies.

Meanwhile, the number drugs subject to rebate contracts is consistently high for all SHI providers. In May 2010, the BEK (Barmer Ersatzkasse) had the highest market share of rebated drugs (72%) in the generics segment.

Share of discounted drugs in different Statutory Health Insurance providers (market share in %)



* Barmer Ersatzkasse merged with Gmünder Ersatzkasse in 2010

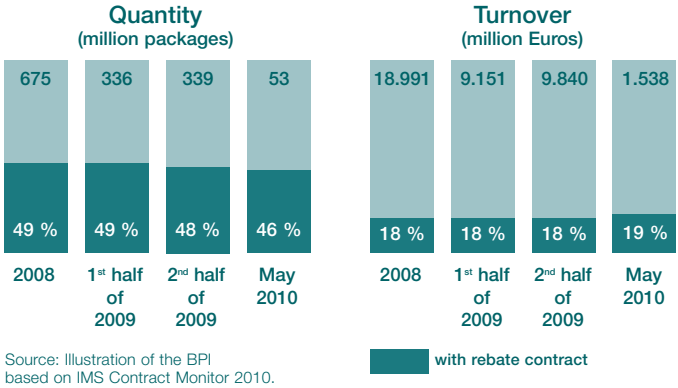
** At the time the data was collected, many rebate contracts had expired.

Source: Illustration of the BPI based on IMS Contract Monitor 2010.

According to IMS Health, almost half of the dispensed medications in the SHI market were subject to rebate contracts as of May 2010. In 2009, 175 health insurance providers had 6,127 rebate contracts in place with 129 pharmaceutical companies covering 26,609 pharmaceuticals. In June 2010, IMS reported that 157 health insurance providers had contracts with 134 pharmaceutical companies. There were 8,425 contracts in place covering more than 27,000 pharmaceuticals.

Being excluded from a rebate contract has the same effects as a partial exclusion from the market since the contractually set time period (usually two years) stipulates the preferred distribution of the discounted pharmaceuticals. If the AOK (Allgemeine Ortskrankenkasse), for example, has a market share of 40 % this results in very negative effects for the bidder who is not awarded the contract. If this company has in the past generated its highest turnover with the majority of its medicinal products with the AOK, the exclusion from the rebate contract may even be an existential threat.

SHI-market and pharmaceutical drugs subject to rebate contracts



Source: Illustration of the BPI based on IMS Contract Monitor 2010.

It is necessary to level the competitive playing field for all stakeholders in the health care market: all contractual arrangements between SHI providers and care givers and pharmaceutical companies need to be subject to cartel and competition regulations (GWB and UWG, respectively). As more and more SHI providers merge, the market leverage of the SHI providers is growing steadily.

Regarding the applicability of cartel laws, changes in this direction are anticipated pursuant to the German government's draft of the Act for Restructuring the Drug Market (Arzneimittelmarketneuordnungsgesetz – AMNOG) dated 29 June 2010, which is expected to come into effect on 1 January 2011. These changes will more particularly affect the regulations concerning formation of cartels (§§ 1-3 GWB) and the regulatory tools and sanctions allowed by cartel law that will be available to the Bundeskartellamt (bureau in charge of overseeing competition) for enforcement purposes. In addition, the draft legislation stipulates changing the current split legal procedure for disputes arising with the SHI providers to civil jurisdiction.

In general, selective contracting between manufacturers and SHI providers is undertaken within a highly regulated system characterized by massive market interventions, as well as the monopolistic position of the SHI providers. The "regulation jungle" – including reference pricing and co-payment waivers – needs to be reviewed.

The German pharmacy market

The developments in the German pharmacy market present a very heterogeneous picture. Compared to 2008, the total turnover in the pharmacy market assessed at manufacturer prices rose in 2009 by 3.7 % to a total of 24.7 billion Euros. For prescription drugs, there was an increase in turnover of 4.3 %. The turnover with OTC medications, on the other hand, was decreased by 3.6 %.

Looking at the volume trends in the overall market reveals that in 2009 there was a slight decrease. The largest decline of 4.1% compared to the previous year is found within the non-drug sector.

Turnover developments in the pharmacy market 2006–2009

(in million Euros)

	2006	2007	2008	2009	Change vs. previous year in %
Total	21,825.2	22,789.3	23,777.6	24,656.7	3.7
Prescription only	16,904.0	17,742.1	18,623.1	19,420.9	4.3
OTC (in pharmacies)	2,844.9	2,900.3	2,964.5	2,922.2	- 1.4
Non-drugs	1,226.3	1,267.0	1,283.1	1,340.6	4.5
Narcotics	652.2	682.4	716.6	789.5	10.2
Non-pharmacy OTC	192.8	192.6	185.1	178.3	- 3.6
Drugs and Chemicals	4.9	5.0	5.3	5.2	- 1.1

Source: Illustration of the BPI based on data of Insight Health 2010.

Sales trends in the pharmacy market 2006–2009 (packages in millions)

	2006	2007	2008	2009	Change vs. previous year in %
Total	1,559.5	1,586.0	1,609.1	1,600.9	- 0.5
Prescription only	674.8	697.9	728.5	729.2	0.1
OTC (in pharmacies)	684.1	691.1	688.9	678.5	- 1.5
Non-drugs	141.9	140.2	135.1	135.2	0.1
Narcotics	50.3	48.2	46.8	47.7	2.1
Non-pharmacy OTC	7.8	8.5	9.2	9.7	5.7
Drugs and Chemicals	0.6	0.6	0.6	0.6	- 4.1

Source: Illustration of the BPI based on data of Insight Health 2010.

[1] For this survey, the wholesale turnovers and the direct sales of manufacturers to pharmacies was recorded. Afterwards, these were re-assessed using the manufacturer price. Turnovers of manufacturers with hospitals are not included.

When comparing the development of the pharmaceutical drug segments in 2009 according to sub-categories, the largest growth in comparison to the previous year was found in anthroposophic medicines (7.6 %). Pharmaceutical drugs increased by 3.8 %.

Turnover development of pharmaceutical drug segments according to sub-categories 2006–2009 (in million Euros)

	2006	2007	2008	2009	Change vs. previous year in %
Total	21,825.2	22,789.3	23,777.6	24,656.8	3.7
Pharmaceutical drugs	17,131.6	17,451.6	18,092.7	18,776.8	3.8
Biopharmaceuticals	2,370.5	2,951.2	3,236.3	3,380.5	4.5
Phytopharmaceuticals	800.2	800.8	828.2	805.5	- 2.8
Other*	673.2	710.0	718.5	756.5	5.3
Diagnostics	580.4	593.6	606.0	632.0	4.3
Homeopathic medicines	233.4	243.8	252.2	258.4	2.5
Anthroposophic medicines	35.8	38.3	43.7	47.1	7.6

* Hygiene products, injection equipment, disinfectants, sideline products, DROGEN, medical devices, chemicals, veterinary medicines, nutritional supplements, diet products

Source: Illustration of the BPI based on data of Insight Health 2010.

In terms of volume, anthroposophical medicines increased the most in 2009 (8.7 %), followed by diagnostics (2.8%). The sales volumes of pharmaceutical drugs fell by 0.7%.

Sales volumes of pharmaceutical drug segments according to sub-categories 2006–2009 (in million packages)

	2006	2007	2008	2009	Change vs. previous year in %
Total	1,559.5	1,586.5	1,609.2	1,601.0	- 0.5
Pharmaceutical drugs	1,211.5	1,236.2	1,260.1	1,251.6	- 0.7
Phytopharmaceuticals	132.8	130.8	132.0	129.5	- 1.9
Other*	120.2	119.3	114.1	115.3	- 1.1
Homeopathic medicines	47.4	49.8	51.5	52.5	1.9
Diagnostics	26.6	26.9	27.5	28.3	2.8
Biopharmaceuticals	14.9	17.0	17.1	16.3	- 4.4
Anthroposophic medicines	6.1	6.5	6.9	7.5	8.7

* Hygiene products, injection equipment, disinfectants, sideline products, DROGEN, medical devices, chemicals, veterinary medicines, nutritional supplements, diet products

Source: Illustration of the BPI based on data of Insight Health 2010.

In Germany, over 100 pharmaceutical companies with highly qualified staff are engaged in producing anthroposophic and homeopathic medicines. Germany is the market leader in the fields of phytopharmaceuticals, anthroposophic and homeopathic medicines. The medicines are used all across the European Union. In Germany alone, there are some 60,000 physicians who regularly prescribe homeopathic and anthroposophic medicines. Outside of Europe, the homeopathic field enjoys global popularity, especially in the USA, Central and South America, Asia, India, and South Africa. Anthroposophic medicine is especially popular in North and South America, as well as in Australia and New Zealand.

An analysis of the Top 10 indications according to the Anatomical Therapeutic Chemical Classification (ATC-3) shows an overall slightly decreasing trend in sales volumes. Compared to the previous year, the largest growth (6.61 %) was in the field of ulcer treatments, followed by expectorants (5.28 %) and beta blockers (3.55 %).

Top 10 leading indication areas (ATC-3) in the pharmacy market 2009 by sales volumes

Indication areas (ATC-3)	Packages in thousands	% to previous year	Share of total turnover in %	Share of total sales in %
Total	1,601,020.9	- 0.50	100.00	100.00
N02B other analgesics	152,742.5	0.48	2.07	9.54
R01A nasal preparations, topical	73,210.5	0.93	0.66	4.57
R05C expectorants without anti-infectants	66,734.3	5.28	0.96	4.17
V03X other therapeutic preparations	52,267.1	1.65	0.95	3.26
A02B ulcer therapeutic agents	46,131.7	6.61	2.81	2.88
M01A anti-phlogistic/anti-rheumat., non-steroid.	43,922.8	- 1.28	0.78	2.74
C07A beta-blockers	37,394.7	3.55	0.88	2.34
M02A anti-rheumatory, and analgetics, topical	29,989.0	- 8.88	0.53	1.87
N05B hypnotics and sedatives	26,550.0	- 4.00	0.45	1.66
A06A laxatives	25,867.7	3.52	0.39	1.62

Source: Illustration of the BPI based on data of Insight Health 2010.

The turnover developments in the Top 10 indications according to ATC-3 show the highest increases (as compared to the previous year) to be in the area of anti-TNF preparations, antineoplastic medications and antipsychotics. The share of these three groups in the total turnover in the pharmacy market was 8.64% in 2009.

Top 10 leading indication areas (ATC-3) in the pharmacy market 2009 by turnover

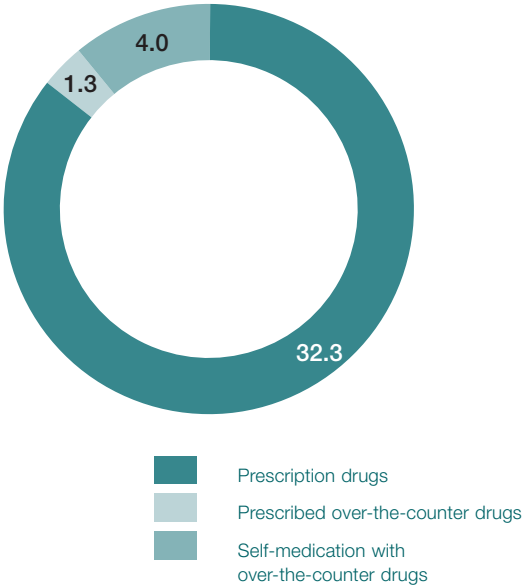
Indication areas (ATC-3)	In thousands Euros	% to previous year	Share of total turnover in %	Share of total sales in %
Total	24,656,734.2	3.70	100.00	100.00
A10C Human insulin and analogs	854,336.3	1.00	3.46	0.80
N05A Antipsychotics	786,226.8	19.79	3.19	0.84
J07A Vaccines, monovalent	711,631.4	- 22.39	2.89	0.42
A02B Ulcer treatments	692,869.6	- 11.74	2.81	2.88
L04B Anti-TNF preparations	688,891.4	23.92	2.79	0.02
N02A Analgesics, narcotics	685,421.0	10.67	2.78	0.41
L04X Other immune suppressants	659,346.1	15.69	2.67	0.13
L01X Other antineoplastic agents	656,289.0	20.63	2.66	0.06
L03B Interferons	610,974.3	10.95	2.48	0.02
C09D Angiotensin II antagonists	598,502.5	11.56	2.43	0.53

Source: Illustration of the BPI based on data of Insight Health 2010.

The German pharmaceutical market

The illustrations below show the different segments of the pharmaceutical market in pharmacies. For prescription drugs assessed with the pharmacy's retail price, IMS Health determined a total turnover of 32.3 billion Euros in 2009. The turnover of over-the-counter medicines showed a total of 5.3 billion Euros for 653 million packages.

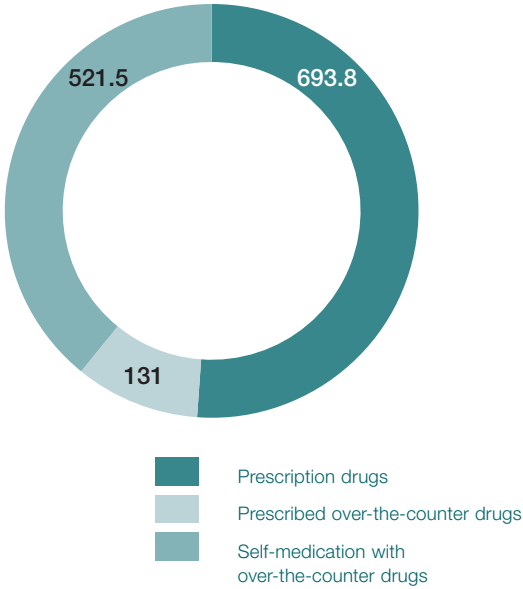
2009 turnover of pharmaceuticals in pharmacies at pharmacy retail price (in billion Euros)



Source: Illustration of the BPI based on data of IMS Health 2010.

In 2009, 131 million package units of over-the-counter drugs were reimbursed by the SHI providers, while 522 million units were purchased for self-medication.

Sales volumes of pharmaceuticals in pharmacies 2009
(in million package units - PU)



Source: Illustration of the BPI based on data of IMS Health 2010.

The differences between turnover and sales volumes can particularly be traced back to the price level of the pharmaceutical drugs under consideration. At 46.58 Euros per package, the average pharmacy retail price of a prescription drug is clearly above the average price of over-the-counter drugs (8.22 Euros).

The price differences between over-the-counter and prescription drugs are an expression of the different competitive situation of these products. Over-the-counter drugs are proven products that have already been on the market for quite some time, and that are frequently subjected to competition from generics. There are also many phytopharmaceuticals in this segment of highly effective pharmaceutical drugs. The group of prescription drugs contains many innovative medicinal products, which are still partially protected by patent and have a higher price to cover the high R&D costs.

The OTC market

The turnover developments in the German pharmacy market in 2009 with pharmacy-only drugs, non-pharmacy-only drugs and health products (GMS, Gesundheitsmittel)* is still dominated by pharmacy-only drugs at 80 % (sales volumes: 78 %). However, for the past years, the share of health products in the pharmacy market has been increasing (share in turnover 2004: 11.4 %, in 2009: 15.3 %). In the last two years the turnover in health products has increased by 2.4 %. When one looks at the corresponding sales volumes, however, it is clear that there were significant price increases, while the increases in sales volumes were relatively moderate (share in sales volumes 2004: 15.5 %; 2009: 16.2 %).

In comparison to the previous year, the OTC market showed slight decreases (sales volumes: -1.0 %; turnover: -1.3 %) to levels below those in 2004, the year the health care modernization act eliminated, with a few exceptions, reimbursement of non-prescription drugs.

Development of turnover in the German OTC pharmacy market

Turnover in thousand Euros at pharmacy retail price

	2004	2005	2006	2007	2008	2009
Pharmaceutical drugs						
- Pharmacy-only	5,497,728	5,529,331	5,294,711	5,285,794	5,108,196	4,981,124
- OTC	368,999	350,075	334,815	328,635	316,233	301,134
GMS pharmacy	752,342	820,650	845,954	833,337	899,387	957,149
Total	6,619,069	6,700,056	6,475,480	6,447,766	6,323,816	6,239,406

Market share in %	2004	2005	2006	2007	2008	2009
Pharmaceutical drugs						
- Pharmacy-only	83.0	82.6	81.8	82.0	80.8	79.8
- OTC	5.6	5.2	5.2	5.1	5.0	4.8
GMS pharmacy	11.4	12.2	13.0	12.9	14.2	15.4
Total	100	100	100	100	100	100

Source: Illustration of the BPI based on data of IMS Health 2010.

*GMS: Defined as products competing with pharmaceutical drugs.

Development of sales volumes in the German OTC pharmacy market

Volume in thousands of package units

Packages	2004	2005	2006	2007	2008	2009
Pharmaceutical drugs						
- Pharmacy-only	679,006	686,585	653,090	641,636	619,023	608,031
- OTCs	53,497	51,202	48,958	46,965	45,093	44,764
GMS pharmacy	134,253	137,866	127,207	123,271	122,142	125,915
Total	866,756	875,653	829,255	811,872	786,259	778,711

Market share in %	2004	2005	2006	2007	2008	2009
Pharmaceutical drugs						
- Pharmacy-only	78.3	78.4	78.8	79.0	78.7	78.1
- OTCs	6.2	5.9	5.9	5.8	5.8	5.7
GMS pharmacy	15.5	15.7	15.3	15.2	15.5	16.2
Total	100	100	100	100	100	100

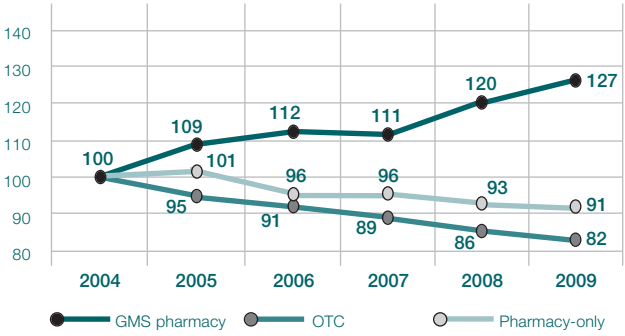
Source: Illustration of the BPI based on data of IMS Health 2010.

As in the past, the mail-order distribution channel has continued to show dynamic developments. However, determining the turnover and sales volumes in the mail-order business continues to be difficult due to unvalidated numbers. However, it is clear that there is a shift from in-pharmacy dispensing of pharmaceuticals to mail-order distribution. In 2009, the turnover of the mail-order business with OTC drugs and health products has increased by 29 % and has a 9-10 % share in the OTC market. Strong brands and large package sizes often have a far greater share, perhaps up to 30 %. Only very few companies are able to compensate their losses in turnover in the pharmacy-dispensed pharmaceuticals with turnover increases in the mail-order business.

Every fifth non-prescription product sold in pharmacies is also a non-pharmacy-only product (share in sales volumes: 22 %; share in turnover: 20 %). As demonstrated in the following graph, this trend has been observed since 2004.

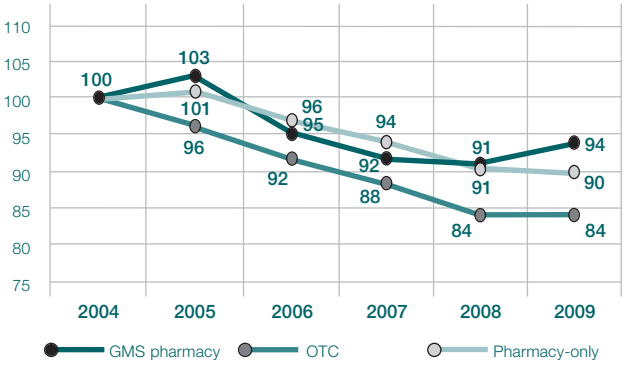
Indexed illustrations of turnover and sales development of over-the-counter drugs in the German pharmacy market (index comparison, based on turnover (pharmacy retail price) 2004 = 100; based on sales volumes: units 2004 = 100)

Developments in turnover (index)



Source: Illustration of the BPI based on data of IMS Health 2010.

Developments in sales volumes (index)



Source: Illustration of the BPI based on data of IMS Health 2010.

In the category of non-drugs, higher quality products are increasingly on offer. For instance, the average price of a non-drug health care product sold in pharmacies rose from 5.60 Euros in 2004 to 7.60 Euros in 2009.

In 2009, the average pharmacy retail price of a product in the German pharmacy market was 8.01 Euros. The average price in the category with the highest sales volumes for pharmacy-only drugs was 8.19 Euros in 2009, which slightly lower than the average price in 2008 and is also slightly below the average pharmacy retail price of 2004. Over the next years, further developments in the German pharmacy market such as the growth of the mail-order business, expansion of franchising and cooperation amongst pharmacies are going to exert a strong influence on price development.

Average pharmacy retail price for OTCs in the pharmacy market

Prices in Euro	2004	2005	2006	2007	2008	2009
Pharmaceutical drugs						
- Pharmacy-only OTCs	8.10	8.05	8.11	8.24	8.25	8.19
- Non-pharmacy OTCs	6.90	6.84	6.84	7.00	7.01	6.73
GMS pharmacy	5.60	5.95	6.65	6.76	7.12	7.60
Mean value (weighted by sales volumes)	7.64	7.65	7.81	7.94	8.04	8.01

Source: Illustration of the BPI based on data of IMS Health 2010.

The SHI pharmaceutical market

The SHI pharmaceutical market gives an overview of prescriptions as well as turnover financed by the SHI system. Turnovers are calculated on the basis of the pharmacy retail prices; therefore, they include the respective wholesaler and pharmacy margins, as well as VAT.

Number of prescriptions paid for by the SHI system 2007 – 2009

Subcategory	2007	2008	2009
Total	650,335,197	667,003,515	676,899,399
Pharmaceuticals*	613,586,153	629,456,340	638,822,371
Diagnostics	20,446,525	21,698,994	22,771,213
Other**	6,078,950	6,234,597	6,202,602
Phytopharmaceuticals	6,477,890	6,037,534	5,859,104
Homeopathics	2,935,017	2,754,183	2,397,214
Anthroposophic medicines	810,662	821,867	846,895

* Including biopharmaceuticals

** Hygiene products, injection equipment, disinfectants, sideline products, DROGEN, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on data of Insight Health 2010.

In 2009, an overall volume of 677 million prescriptions were financed through the SHI system. The share of pharmaceuticals in the total prescription volume is around 94.4 %. Looking at the development of the volume of prescriptions, it becomes clear that the volume of prescribed diagnostics has continuously increased, currently making up 3.4 % of the total volume of prescriptions. Phytopharmaceuticals are prescribed in 0.9 % of cases, homeopathic medicines in 0.36 % of cases.

Turnover financed by the SHI system 2007-2009, pharmacy retail price in Euros

Subcategory	2007	2008	2009
Total	28,052,797,192	29,528,498,932	30,864,476,672
Pharmaceuticals*	26,961,959,508	28,392,747,595	29,655,832,501
Diagnostics	795,000,609	837,568,419	903,840,160
Other**	163,333,797	169,548,039	177,035,601
Phytopharmaceuticals	85,036,837	81,166,781	81,393,935
Anthroposophic medicines	20,467,646	21,874,882	23,672,421
Homeopathics	26,998,795	25,593,216	22,702,055

* Including biopharmaceuticals

** Hygiene products, injection equipment, disinfectants, sideline products, DROGEN, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on data of Insight Health 2010.

Development of market shares as financed by the SHI system 2007-2009 in %

	Prescription volumes			Turnover		
Subcategory	2007	2008	2009	2007	2008	2009
Total	100.00	100.00	100.00	100.00	100.00	100.00
Pharmaceuticals	94.35	94.37	94.37	96.12	96.15	96.08
Diagnostics	3.14	3.25	3.36	2.83	2.84	2.93
Other*	0.93	0.93	0.92	0.58	0.57	0.58
Phytopharmaceuticals	1.00	0.91	0.87	0.30	0.27	0.26
Anthroposophic medicines	0.12	0.12	0.13	0.07	0.07	0.08
Homeopathics	0.45	0.41	0.35	0.10	0.09	0.07

* Hygiene products, injection equipment, disinfectants, sideline products, DROGEN, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on data of Insight Health 2010.

In looking at turnover, it is clear than the turnover in pharmaceuticals was 29.7 billion Euros or 4.5 % over the levels of 2009. The market share of pharmaceuticals is 96 %. The relatively small share of phytopharmaceuticals (0.3 %) in SHI spending is primarily due to the lower average price for such products. The same is true for homeopathics, which account for 22.7 billion Euros or a mere 0.1 % in SHI expenditures.

Top 10 leading indications (ATC-3) in the SHI market 2009 by sales volumes

Indications (ATC-3)	Prescriptions	% to previous year	%-share of total volume	%-share of total turnover
Total	676,899,399	1.48	100.00	100.00
M01A antiphlog. / antirheum., non-steroid	36,960,396	5.58	5.46	1.99
N02B other analgesics	35,623,893	0.58	5.26	1.84
C07A beta-blockers	33,250,213	3.81	4.91	1.82
A02B ulcer treatments	26,896,633	5.11	3.97	3.39
C09A ACE inhibitors	24,019,441	4.22	3.55	1.14
T02D diabetes tests	22,196,678	4.91	3.28	2.77
C03A diuretics	21,383,415	1.25	3.16	1.30
H03A thyroid preparations	19,397,472	4.46	2.87	1.01
C08A calcium antagonists	18,134,523	4.00	2.68	2.46
N06A antidepressants / mood stabilizers	17,958,498	2.31	2.65	1.03

Source: Illustration of the BPI based on data of Insight Health 2010.

When looking at sales volume in 2009, the “other analgesics”, followed by “ulcer treatments” and “diabetes tests”, showed the highest growth rates. This group corresponds to 8.15 % of the total turnover.

Top 10 leading indications (ATC-3) in the SHI market 2009 according to turnover

Indication areas (ATC-3)	In million Euros	% to previous year	%-share of total volume	%-share of total turnover
Total	30,864.5	4.53	100.00	100.00
A10C human insulin and analogs	1,173.4	1.03	1.76	3.80
N05A antipsychotics	1,080.6	16.68	1.72	3.50
A02B ulcer treatments	1,047.3	- 8.48	3.97	3.39
J07A vaccines, monovalent	913.2	- 17.65	0.55	2.96
L04B Anti-TNF preparations	909.3	23.87	0.04	2.95
N02A analgesics, narcotics	882.7	10.72	0.88	2.86
T02D diabetes tests	855.6	7.84	3.28	2.77
L04X other immune suppressants	817.7	17.19	0.25	2.65
L03B interferons	766.4	10.32	0.05	2.48
N06A antidepressants / mood stabilizers	758.4	- 1.51	2.68	2.46

Source: Illustration of the BPI based on data of Insight Health 2010.

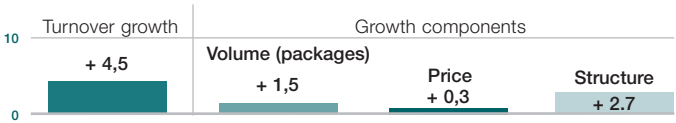
Looking at turnover, in 2008, it was the immune suppressants that, before other antineoplastic agents, presented the highest growth rate compared to the previous year of 2007. Concerning the highest declines, antipsychotics registered with 9.8 %.

The SHI structural component

The structural component allows for detailed consideration of the development of factors affecting SHI pharmaceutical expenditures. It is possible to identify to what extent there has been a trend toward the prescription of innovative and patented pharmaceutical drugs. The structural effect comprises different effects (package size, dosage/ strength and pharmaceutical form) and effects within and/or among pharmaceutical segments as well as indication groups among each other.

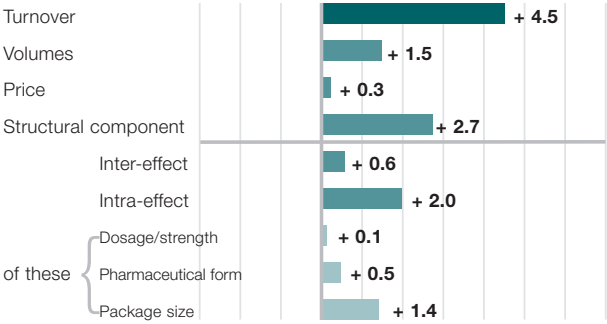
As a quantitative instrument of market research and health care policy, the SHI structure component study of IMS HEALTH shows the individual components (price, volume and structure) of changes in turnover.

SHI - structural component, growth rates, 2008
(changes to previous year in %)



Source: Illustration of the BPI based on data of the IMS® SHI-Structural component study 2010.

Growth components in 2009 as a cause of the turnover developments in the SHI market, divided into sub-groups (in %), pharmacy retail price



Quelle: IMS® SHI-Structural component study 2010.

In 2009, the IMS structural component decreased to 2.7 %. In the past, this component has been between 5 % and 8 %. The price level in the SHI pharmaceutical market increased by 0.3 %, while the volumes increased by 1.5 %.

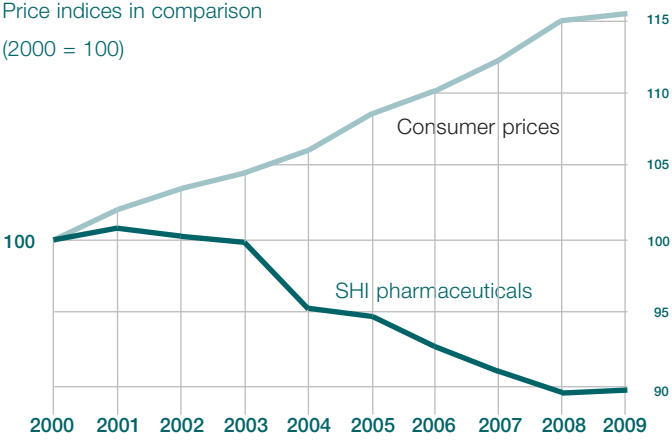
By simple addition, one can form the individual components (e.g. the structural component "package size") for the individual forms of administration, the preparation in general, as well as at the hierarchy levels above. The SHI market is described based on the pharmacy 's retail prices, including VAT. The structural component study shows changes for four different segments.

The “Pharmaceutical Atlas” of the IGES takes a different approach. The essential difference to IMS is in the different definition of the components. When it comes to structure of the turnover components, the IGES looks at consumption, treatment approach, generics, dosage/package size, manufacturer and pricing components. There are detailed analyses for the 22 indications with the most prescriptions. The quantitative unit of measure used in the Atlas refers to the Defined Daily Dose (DDD). The IMS HEALTH structure component analysis is based on quantitative units such as packages units or tally units.

It has been shown that changes in pricing, volumes and quality all have an influence on expenditures. Innovative pharmaceuticals, which generate high costs in development, naturally have a higher price level, but they also contribute significantly to the treatment of previously untreatable or insufficiently treatable diseases, offering a significant benefit to the affected patients. At the same time, many well-established (often generic) drugs are available for the treatment of less severe diseases. These drugs' price levels have been trending downward since 2006, though the actual price level is obscured by rebate contracts.

The SHI-Pharmaceuticals Index, which is based on a slightly different calculation method compared to the figures of the IMS structural analysis, also confirms this decline in drug prices in the SHI system for 2009, especially when compared with the development of consumer prices.

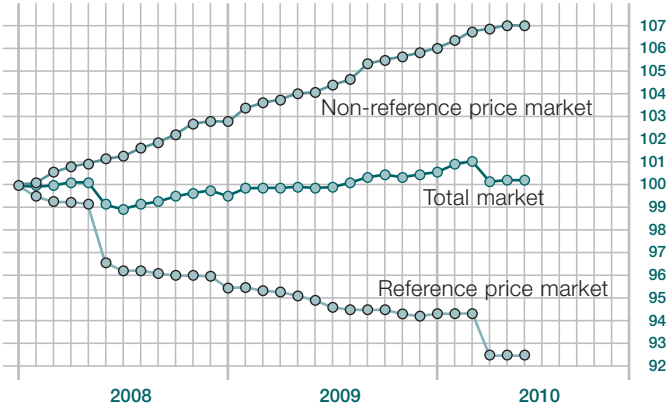
Price development for pharmaceuticals -
Price indices in comparison
(2000 = 100)



Sources: Illustration of the BPI based on data of the Federal Statistical Office 2010.

As part of the German Act on SHI Modernization (GMG), a new pharmaceutical drug price ordinance has been in effect since 1 January 2004, which – for the prescription-only segment – has led to decreasing distribution costs for high-priced pharmaceuticals, while those for low-cost pharmaceuticals have increased. Furthermore, since 2006, the significant effects of the German Act on Economic Optimization of Pharmaceutical Care (AVWG) have become evident. Prices, especially for pharmaceutical drugs under reference pricing, are continuously decreasing.

Price development according to market segments between January 2008 - June 2010 (January 2008 = 100)



Source: Illustration of the BPI based on data of the Wissenschaftliches Institut der AOK (WidO) 2010.

The number of pharmaceutical drugs in Germany

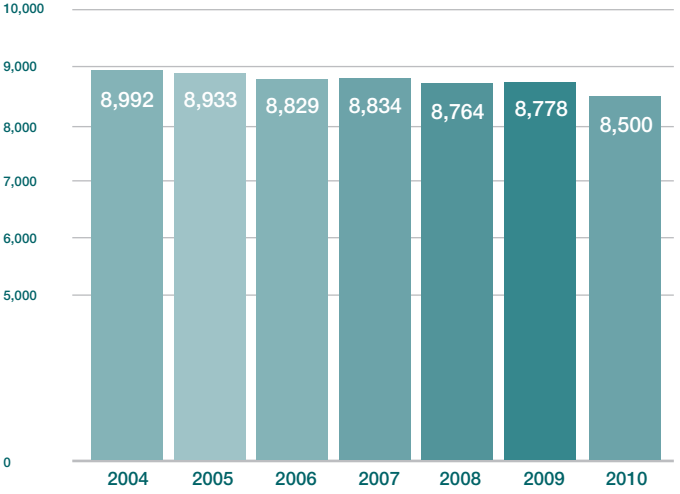
One focus of criticism is the high number of pharmaceutical drugs on the German market in an international comparison. However, a more differentiated approach is required in this matter, as the method for tallying the number of drugs differs internationally.

As of 8 April 2010, the BfArM reported marketing authorizations or registrations for 58,651 pharmaceutical drugs over all indications. The “Rote Liste®” for 2010, the comprehensive drug registry for Germany, only includes 8,500 preparations, with a total of 34,619 prices (pharmaceuticals are almost always marketed at different prices for different package sizes).

This difference between nearly 60,000 authorised pharmaceuticals on the one hand and only roughly 10,000 drug entries in the “Rote Liste®” can be explained by the different tallying methods and the only partial listing of self-medication drugs in the “Rote Liste®”.

In Germany, a separate marketing authorisation is required for each strength and each pharmaceutical form of a single active substance. This means there is a separate authorisation for each cream, unction or salve of the same active substance. This is a German phenomenon. In other countries, as well as the European Medicines Agency, preparations with the same strength, but different pharmaceutical forms, are still counted as one single marketing authorisation.

Number of pharmaceutical drugs listed in the “Rote Liste®"



Source: Illustration of the BPI based on data of the “Rote Liste®" 2010.

Also, the number of drugs reported by the BfArM is simply the maximum number of preparations that may be marketed in Germany. This does not necessarily mean that these products are indeed marketed at all times. The authorisation of a pharmaceutical drug does not necessarily require that drug to also be marketed. It is not unusual for marketing authorisation holders to only market a part of the authorized product available to him. However, the marketing authorisation of an unmarketed drug will expire after three years (Sunset Clause).

The “Rote Liste®” is open to all suppliers of pharmaceutical drugs. This registry is particularly popular with physicians, so that most pharmaceutical companies wishing to have their products prescribed by physicians have a vested interest in have their products listed. Drugs intended primarily for self-medication are not listed as extensively.

However, a listing of these self-medication drugs is still relevant, as even non-prescription medications may be covered by the SHI companies (so-called OTC-reimbursement list). Also, the “Rote Liste®” is also a reference for other health professionals such as pharmacists.

In short, the number of pharmaceutical drugs available on the German market cannot be determined with absolute certainty. In general, the number of drugs available on a single market says more about the supply amplitude and supply depth of the market than about a possible over-saturation of the market, since the number of drugs gives no information on the actual use of the drugs.

Interventions in the pharmaceutical market - future prospects

Over the course of the years, governmental interventions in the pharmaceutical market have increased. Since 1989, changes to pharmaceutical legislation have been made nearly every year, leading to fundamental changes in the pharmaceutical market. These changes have required continuous adjustment and adaptation on the part of pharmaceutical companies.

The fundamental problem of achieving sustainability in the SHI system in Germany has thus far not been solved; on the contrary, health care policy has negatively influenced both the industrial and the service-providing health care sector. Transparency and planning reliability are increasingly threatened and the concentration process in the pharmaceutical industry,

which is not market-driven, but a result of government intervention, is exacerbated. Small and medium sized enterprises are particularly threatened by this development. Attempts to prevent the formation of oligopolies in other industries are completely contradicted in the pharmaceutical industry, where the formation of these oligopolies is encouraged.

In addition, the overall health care system has become so complex, that is nearly impossible to determine the effects of an individual legislative intervention.

A policy focused purely on cost-containment in the pharmaceutical market fails to do justice to the contribution of the pharmaceutical industry towards the treatment of diseases and the perception of Germany as a highly competitive industrial powerhouse.

Future growth potential is predicted for novel therapies in biomedicine, genetic medicine and tissue engineering. Even though these therapeutic approaches are only at the start of their development, the legal framework for their approval at the EU level has already been put in place. The Act on reinforcing SHI Competition (GKV-WSG) clearly shows that the government, through various new legislative tools, has a continued interest to controlling and regulating the market penetration of innovative medicinal products, which are usually also higher priced. Since the spring of 2010, it has become clear that this drug segment will be under increased scrutiny in the pending reforms in 2011. The draft legislation stipulates an early assessment of an added benefit of each drug, as well as fixed rebates agreed upon with the SHI central association.

The industrial parameters for 2009 were primarily shaped by effects of the previous health care reforms (including the error control procedure for mandatory manufacturer discounts per § 130a 3b for off-patent drugs with identical active substances, the new legal framework for rebate contracts , and reforms in procurement law), the implementation of the health care fund ("Gesundheitsfond"), a morbidity-adjust risk adjustment scheme for the health insurance providers, the confirmation of the ban on ownership of multiple pharmacies and on pharmacies owned by non-pharmacists, the withdrawal of an initiative to ban mail-order pharmacies, as well as the many debates focusing on the election year of 2009.

In its attempts to regulate the SHI expenditures, the Christian Democratic-Free Democratic coalition government has reverted to old legislative patterns for cost-containment by first implementing higher mandatory manufacturer discounts and then instituting a price moratorium. One of the problems with this is the expected duration of more than three years for these policies. The coalition government is hoping this will generate a short-term influx of funds, to be followed by more substantial reforms in a second step. The planned reforms are to focus on an early assessment of the added benefit of new drugs, as well as price negotiations. The final form of the implementation of these policies is currently under debate.

On the level of the EU, additional activities with consequences for the national pharmaceutical market are currently being advanced. These activities are focusing on topics such as the health claims regulation, patient information and pharmacovigilance, drug counterfeiting and new system for package coding.

If one thing seems certain, it is that the pharmaceutical industry will be confronted with new industry parameters and legal frameworks every year. The industry will have no other choice than to confront these challenges, even at the cost of planning reliability.

Index

Acronyms

AKG	Arzneimittel und Kooperation im Gesundheitswesen (Pharmaceuticals and Cooperation in the Health Care Sector)
AMG	Azneimittelgesetz (German Medicines Act)
AMNOG	Arzneimittelmarktneuordnungsgesetz (Act for restructuring the drug market)
AOK	Allgemeine Ortskrankenkasse (a German public health insurance company)
ATC Code	Anatomic Therapeutic Chemical Classification
AVP	Apothekenverkaufspreis (pharmacy retail price)
AVWG	Arzneimittelversorgungs-Wirtschaftlichkeitsgesetz (Economic Optimization of Pharmaceutical Care Act)
BfArM	Bundesinstitut für Arzneimittel und Medizinprodukte
BIP	GDP
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Research and Education)
BMG	Bundesministerium für Gesundheit (Federal Ministry of Health)
BPI	Bundesverband der Pharmazeutischen Industrie e. V. (German Association for Pharmaceutical Industry)
DDD	Defined Daily Dose
DRGs	Diagnosis Related Groups
EFPIA	European Federation of Pharmaceutical Industry and Associations
EMA	European Medicines Agency
EU	European Union
F&E	R & D (Research and development)

FSA	Freiwillige Selbstkontrolle Arzneimittelindustrie (Voluntary Self-regulation for the Pharmaceutical Industry)
G-BA	Gemeinsamer Bundesausschuss (Federal Joint Committee)
GKV	Gesetzliche Krankenversicherung (Statutory Health Insurance; SHI)
GKV-OrgWG	Gesetz zur Weiterentwicklung der Organisationsstrukturen in der Gesetzlichen Krankenversicherung (Act to enhance the organizational Structures of Statutory Health Insurance)
GKV-WSG	GKV-Wettbewerbsstärkungsgesetz (Act to Reinforce Competition between the German Statutory Health Insurance)
GMG	GKV-Modernisierungsgesetz (SHI System Modernization Act)
GMS	Gesundheitsmittelstudie (health product study)
GWB	Gesetz gegen Wettbewerbsbeschränkungen (Act against Restraints of Competition)
HAP	Herstellerabgabepreis (manufacturer price)
IGES	Institut für Gesundheits- und Sozialforschung (a research institute for health and healthcare)
IMS	IMS HEALTH GmbH & Co. OHG
Insight Health	INSIGHT Health Management GmbH
LCD	Local Currency Dollar
MwSt.	VAT
NCE / NBE	New Chemical or New Biological Entities
OTC	Over-the-counter / Self-medication
OR	Outcomes Research

Acronyms

PE	Packungseinheit (package unit; PU)
PEI	Paul-Ehrlich-Institute
Phytos	Phytopharmaceuticals
PKV	Private Krankenversicherung (Private health insurance)
SGB V	Sozialgesetzbuch V (Code of Social Law V)
SGG	Sozialgerichtsgesetz (Social Court Code)
UAW	Unerwünschte Arzneimittelwirkung (adverse drug reaction)
WHO	World Health Organisation
WidO	Wissenschaftliches Institut der Ortskrankenkassen (Scientific institute of the AOKs)

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