

Healthcare Facts and Figures



All facts and figures were correct at time of going to print (February 2009)

IPHA

The Irish Pharmaceutical Healthcare Association (IPHA) represents the international research-based pharmaceutical industry in Ireland. Its member companies include both manufacturers of prescription medicines and non-prescription or consumer health care medicines.

Introduction

As outlined in this latest edition of Healthcare Facts and Figures the cost of developing a new medicine has increased from \in 149 million in 1975 to \in 1,059 million in 2006. It is also taking longer to bring a new medicine from the laboratory to a patient.

As impressive as advances in pharmaceuticals have been, our work is far from over. Thousands upon thousands of people with serious diseases and conditions, and a healthcare system struggling with rising costs can benefit from new medicine discoveries.

In this context it must be recognised that it is the medicines of today that inevitably pay for the medicines of tomorrow.

We are on the verge of a new era of personalised and tailored medicine that holds great promise for patients and the healthcare system. That promise, however, is not a given and depends on sustained, substantial investment in R&D, a supportive public policy environment and an appropriate regulatory framework.



2009 Healthcare Facts and Figures

New medicines help patients to recover from ill health, faster and more fully. They make it possible to prevent or slow the development of many diseases, turning for example, previously fatal illnesses into manageable chronic conditions and helping avoid the discomfort of invasive surgery. They also offer cost savings and improve efficiency, delivering financial benefits to the whole healthcare system, through optimal management and reduction of treatment times, hospitalisation and time off work. These advances have immeasurably improved the lives of Irish patients, as well as their families and care givers.

The encouragement of innovation in medicines, in how we deliver medicines and in how we deliver healthcare is central to the improvement of our healthcare system, of patient health and of our country's economic development and needs to continue to be rewarded.

Dr Gerald Farrell

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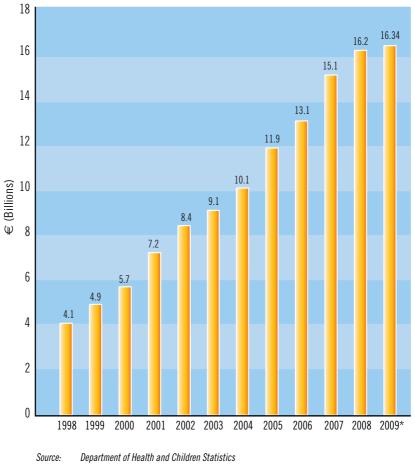
Healthcare

- The last decade has seen an unprecedented increase in health expenditure following a period of cutbacks and stagnation in the 1980's and the early 1990's. Public expenditure on health will have almost quadrupled in the period 1998 to 2009.
- Healthcare expenditure in Ireland, relative to other European States, is coming from a low base. Irish expenditure in 2007, as a percentage of GDP, is the lowest alongside Luxembourg in the EU.
- The Irish healthcare system remains a mix between public expenditure (75%) and private expenditure (25%). Over 50% of the population now have some form of private health insurance.
- The numbers employed in the health services increased by over 60% between 1997 (68,084) and 2007 (111,505).
- State expenditure on medicines has increased in tandem with the increase in public expenditure on healthcare. Medicines account for just 14.7 % of total healthcare expenditure – a small but vital component.
- Irish consumption of medicines remains amongst the lowest in Western Europe. Growth in the Irish market has to be viewed against this background and against the ever-increasing sums being invested to improve public health.

Today

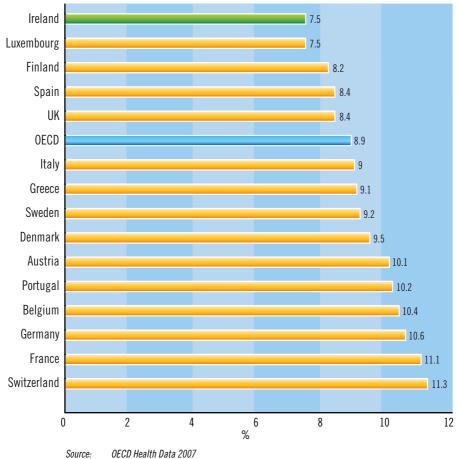
 The pharmaceutical industry has recognised that the State faces a challenge in funding healthcare going forward and has agreed robust, cost effective arrangements for the supply of medicines to the health services. The State has estimated that these arrangements will result in savings of €300 million in the State medicines bill in the period through to September 2010, savings which will provide the State with the monies to fund new therapies which offer hope to patients of longer, healthier, more active lives.

Public Expenditure on Health 1998-2009



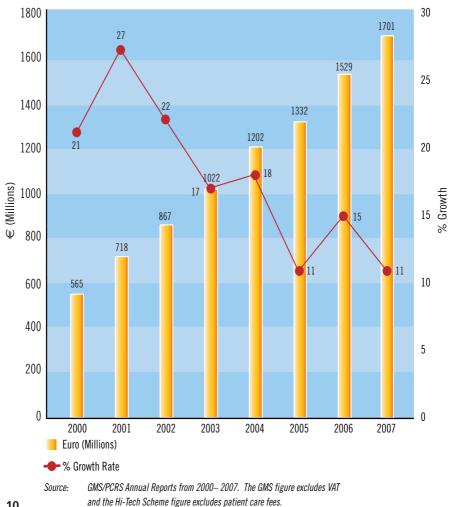
* Budget provision for 2009

Health Expenditure as a % of GDP 2007



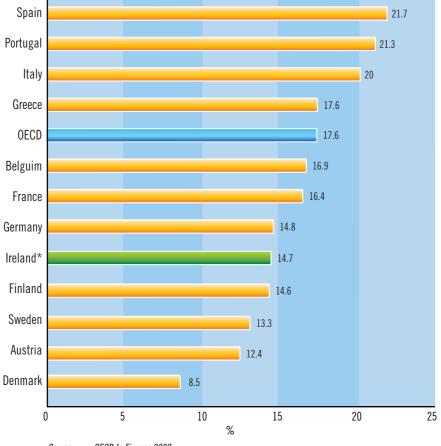
(e) Estimate

State Expenditure on Medicines 2000-2007



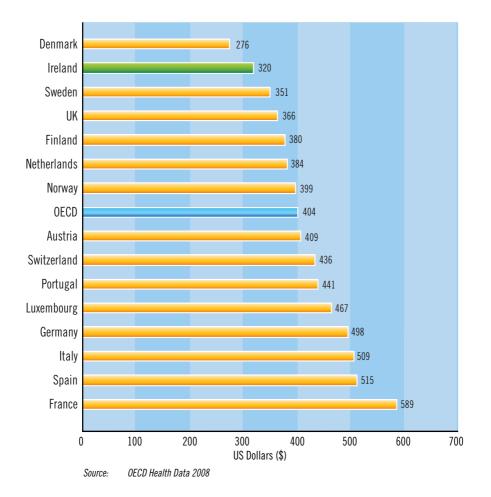
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Pharmaceutical Expenditure as a % of Healthcare Expenditure in Selected Countries 2006

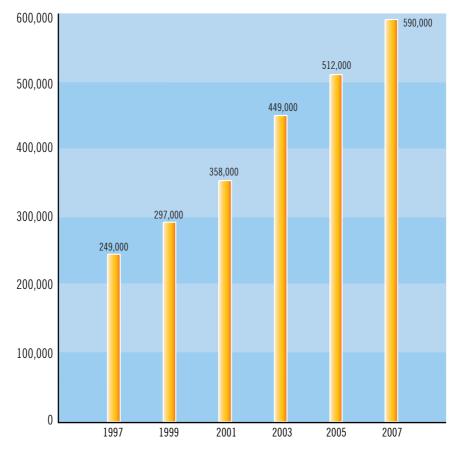


Source: OECD In Figures 2008 * IPHA calculation

Pharmaceutical Expenditure per Capita in Western Europe 2007

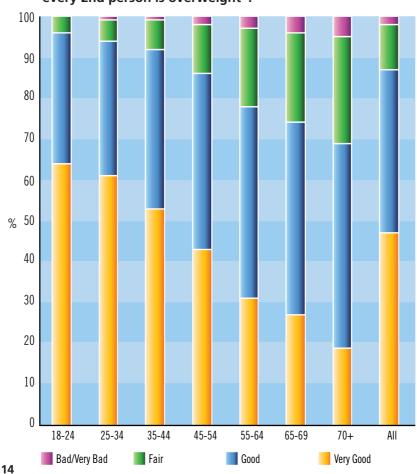


Number of Day Cases Treated in Ireland 1997-2007



Source: Department of Health and Children Health Statistics 2005; HSE Annual Reports 2006 – 2007

Self-perceived Health Status by Age Group 2007



This is in a country where 1 in every 4 persons is obese and every 2nd person is overweight*.

Source:

Health Status and Health Service Utilisation Q3 2008, Central Statistics Office * SLAN 2007 Report (Survey of Lifestyle, Attitude & Nutrition)

Prevalence and Burden of Chronic Disease

- Chronic diseases such as diabetes, hypertension, heart disease and stroke are a large and growing burden on the health of Irish people and the Irish healthcare system. In the United States it is estimated that chronic diseases are responsible for about two-thirds of the rise in healthcare spending over the last 15 to 20 years.
- The rising prevalence of chronic disease is partly the result of a population that is ageing and increasingly obese.
- Today, approximately 25% of the Irish population have a chronic disease accounting for 78% of the country's healthcare spending.
- Approximately 80% of GP consultations and 60% of hospital days are related to chronic disease and their complications making those people the most frequent users of healthcare in Ireland.
- 2 out of 3 patients admitted as medical emergencies have exacerbations of chronic disease and 60% of deaths are as a result of a chronic disease.
- Chronic diseases can be disabling and reduce a person's quality of life, especially if left undiagnosed or untreated. For example, every 30 seconds, somewhere in the world a lower limb is amputated as a consequence of diabetes.
- There is a significant increase predicted in chronic disease due to the estimated doubling of the elderly population over the next 30 years. This has implications for the healthcare system, if the current trends continue, bed requirements in hospitals will increase by 50-60% over the next 15 years.
- Many of the consequences and costs of chronic disease are avoidable through screening, early intervention, behaviour change and the elimination of key risk factors such as poor diet, inactivity and smoking.

Self-Care

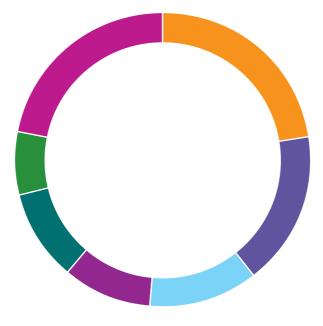
- Consumers want to actively manage their own health and are taking greater individual responsibility for their healthcare and health choices.
- The health, social and economic benefits of responsible selfmedication are well known and have been extensively reported.¹
 - Patients and consumers benefit due to wellness, enhanced productivity and improved health in terms of prevention and increased patient satisfaction as a result of being able to obtain the correct medication directly.
 - Employers gain by having employees attend work when they might otherwise have stayed at home.
 - General Practitioners save time which enables them to better use that time for those patients with complicated or serious illnesses. A recent report estimated that 51.4 million GP consultations in the UK were solely for minor ailments. It estimated that this represented 18% of a GP's workload. Furthermore it estimated that the total cost to the NHS of these consultations was €2.5 billion and 80% of this cost (€2.15 billion) related to the cost of the GP's time.² It also presents more of an opportunity for doctors to educate patients about common ailments and diminishes patient expectations of a prescription for every visit.
 - Pharmacists play a more active advisory role using their skilled knowledge of medicines and expertise in advising on symptoms.
 - Consumers pay less visits to accident and emergency departments and doctor surgeries. This in turn reduces the number of prescriptions, most of which are paid for, directly or indirectly, by the State.

E.g. Guiding Principles in Self-Medication: WSMI: http://www.wsmi.org/publications.htm Minor ailments cost the NHS £2 billion/year. Pharm J 2008; 280:1090

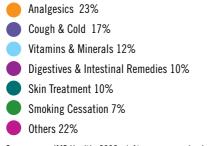
Today

- The Association of the European Self-Medication Industry (AESGP) has estimated that savings of over €75 million annually could be achieved in Ireland if self-medication was practised more widely. The savings could then be put to better use elsewhere in the healthcare system.
- Self-medication is an important element of the total Irish market for pharmaceutical products. The leading areas of the market include analgesics (23%), cough and cold treatments (17%) and vitamins and minerals (12%).

Self Medication Market in Ireland 2007

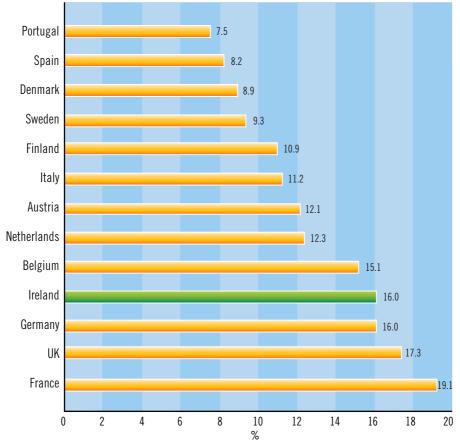


Total Market: €315 m*



8 Source: IMS Health, 2008 * At consumer price level

OTC Medicines as a % of the Total Pharmaceutical Market 2007



Source: AESGP Economic and Legal Framework for Non-Prescription Medicines 2008

Demograp

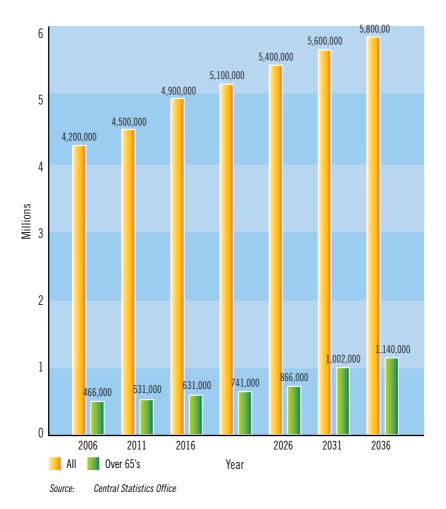
- The population of the Republic of Ireland increased by nearly 325,000 in the four year period April 2002 to April 2006. Having only recently passed 4 million, the population is set to exceed 5 million within the next 15 years and projected to rise to 5.8m by 2036.
- With an average age of 35.6 years Ireland has a relatively youthful age structure; however this is set to change. Those aged 65 and over will account for 20% of the population (1.14 million) by 2036 as against just 11% of the population (430,000) in 2001 and the number of those aged 80 and over is set to treble from a 2001 level of 98,000 to 320,000 in 2036. These changes will have significant implications for public spending and in particular healthcare expenditure as the elderly typically require 2–5 times as many resources as those under 65.
- The life expectancy of those over the age of 65 has improved significantly in recent years but remains low by comparison to our Western European neighbours.
- Circulatory diseases continue to be the principal cause of death in Ireland and along with cancer account for nearly two thirds of all deaths.
- Approximately one in five deaths in Ireland is of a person aged less than 65 years old.

2009 Healthcare Facts and Figures

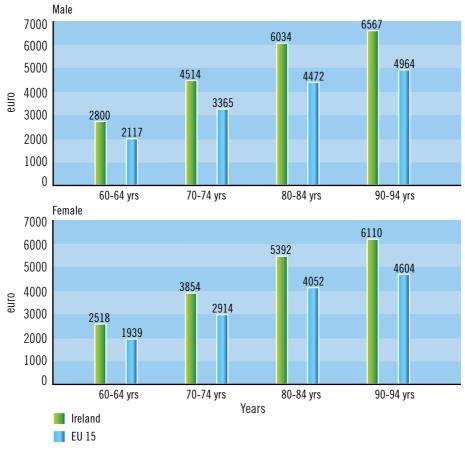
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Population Projections 2006-2036

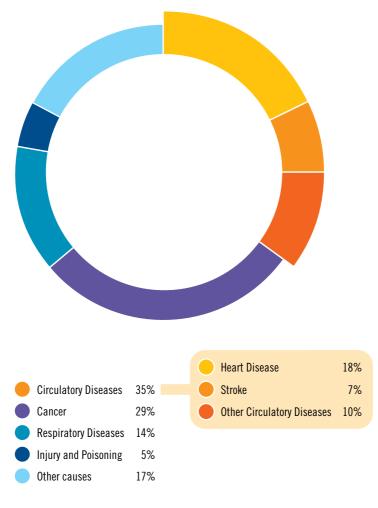


Comparison of Age-Related Public Expenditure



Source: The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long term care, education and unemployment transfers (2004-2050), European Commission 2006

Main Causes of Death in Ireland 2007





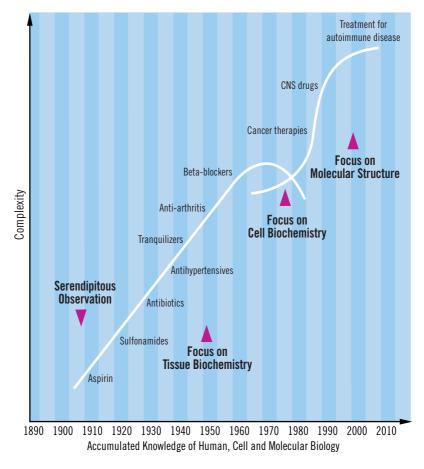
Healthcare

- Research and development of new medicines offers hope to an ageing population of a longer healthy life, well beyond that of previous generations. For example, there are currently over 750 medicines in development to combat cancer, 547 for neurological conditions and 303 for rare diseases.
- Research based pharmaceutical companies are the engines of medicines innovation. They have discovered and developed over 90% of all new medicines made available to patients worldwide over the last twenty years.
- The discovery, development, testing and gaining of regulatory approval for new medicines has become an even more highly complex, lengthy, risky and expensive process. Each success is built on many, many prior failures. On average only one or two of every 10,000 promising molecules will successfully pass extensive tests and stringent regulatory requirements and go on to be approved as medicines, which are suitable for use in patients. As such the cost of developing a medicine has gone from €149 million in 1975 to €1,059 million in 2006.
- It takes an average 10 to 12 years to develop a new medicine from the time it is discovered to when it passes the regulatory standards of safety, quality and efficacy and is available to patients. Once on the market the average medicine has only 8 to 10 years of effective patent protection left before facing generic competition. Only three out of ten marketed medicines produce revenues that match or exceed their R&D costs before they lose patent protection.
- The European pharmaceutical industry employed over 107,000 people in R&D in 2007 and spent a total of €24.8 billion on such work.

Tomorrow

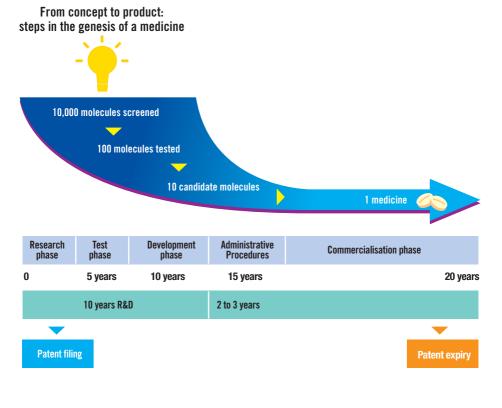
 Innovation is central to the creation of the knowledge based economy of the 21st century. In Ireland pharmaceutical industry R&D is responsible for 20% of all business R&D. If innovation is to flourish then it must be rewarded. Whilst Ireland retains a proinnovation outlook this is increasingly not the case in Europe generally with patient access to new medicines via State reimbursement systems being delayed or even denied entirely. As a result of this less favourable climate for innovation more and more pharmaceutical companies, including European ones, are deciding to locate new R&D facilities outside Europe.

Evolution of Innovative Medicines



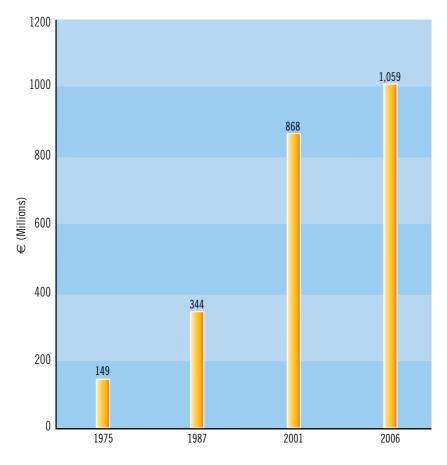


Medicines Life Cycle



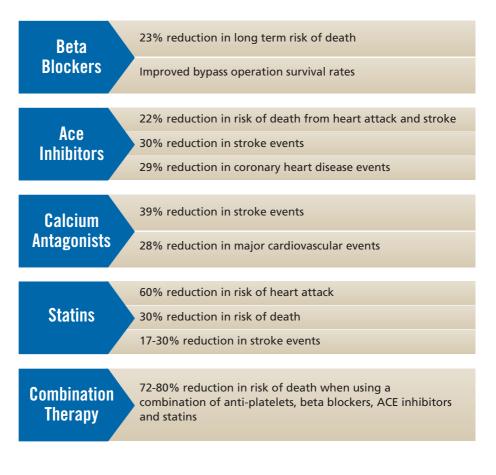
Source: LEEM

Cost of Developing an Innovative Medicine



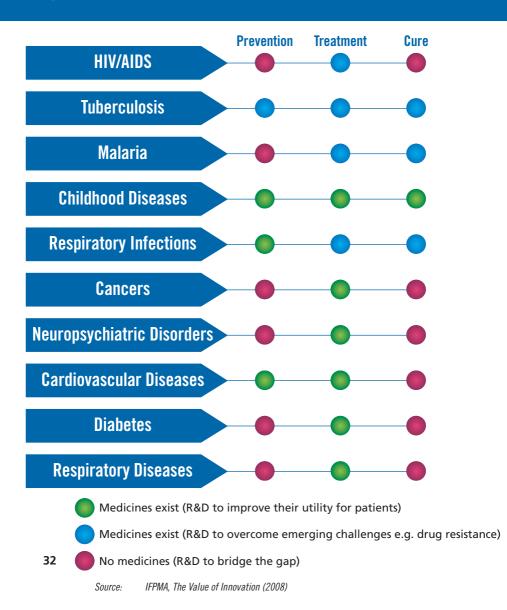
Source: J.A DiMasi and H.G. Grabowski, 'The Cost of Biopharmaceutical R&D: Is Biotech Different?, Price of Innovation: New Estimates of Drug Development Costs', Managerial and Decision Economics 28 (2007) : 469- 479

Benefits of Innovative Medicines

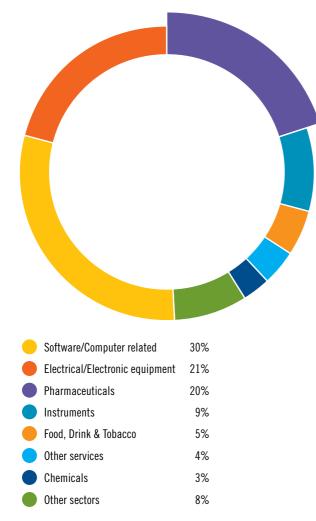


Source: Adapted from an ABPI Report (2004) The Human and Economic Value of Pharmaceutical Innovation and Opportunities for the NHS: Blood Pressure Lowering Treatment Trialists' Collaboration (2000) The Lancet. See also IFPMA: The Value of Innovation (2008).

Need for Continued Medicines Innovation

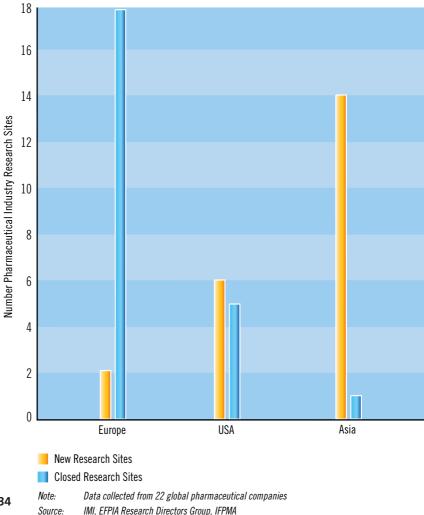


Business Sector R&D in Ireland



Forfás Research and Development Statistics in Ireland, 2006 – at a glance

Changes in Location of Pharmaceutical Industry Research Sites in the Period 2001-2006



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The Medic

- The international research-based pharmaceutical industry is critical to the health of the nation as it plays a vital role in the Irish economy.
- More than 120 pharmaceutical companies have a presence in Ireland, of which 13 of the world's top 15 pharmaceutical companies have substantial operations. The industry directly employs over 24,500 people, half of whom are third level graduates, with as many again employed in the provision of services to the sector. The industry contributes approximately €3 billion annually in taxes to the State.
- Pharmaceutical production in Ireland currently generates nearly 50% of the country's exports and 11% of its Gross Domestic Product which contribute to making Ireland the largest net exporter of medicines in the world.
- Nearly €7 billion has been invested by the pharmaceutical sector over the last nine years in a period when job growth in the sector has averaged 1,000 annually. According to IDA Ireland the replacement value of the investment by the pharmaceutical sector in the Irish economy is over €40 billion.

ines Industry

 The market for pharmaceuticals continues to grow as outlined in the next section on Medicines in the Community and there are opportunities for the industry to develop its operations in Ireland still further.

Leading Pharmaceutical Companies by Sales in Ireland and Globally

Ireland Top 10¹

Global Top 10²

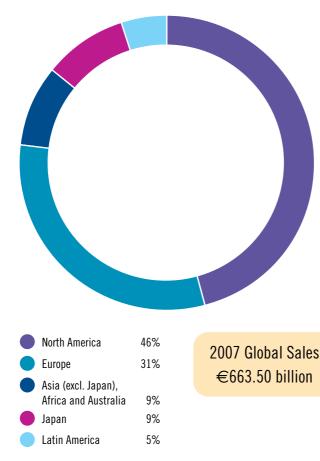
By Rank	By Rank
1. Pfizer	1. Pfizer
2. AstraZeneca	2. GlaxoSmithKline
3. GlaxoSmithKline	3. Novartis
4. sanofi-aventis	4. sanofi-aventis
5. Wyeth	5. AstraZeneca
6. Roche	6. Johnson & Johnson
7. Novartis	7. Roche
8. Merck Sharp & Dohme	8. Merck & Co.
9. Abbott	9. Abbott
10. Lilly	10. Lilly

Source: ¹ IMS Health Data Dec 2008

² IMS Health Data Dec 2008

Note: "Merck & Co., Inc." has its headquarters in Whitehouse Station, NJ, USA and operates in most countries outside the U.S., including Ireland, as Merck Sharp & Dohme.

Distribution of Global Pharmaceutical Sales by Region



Source: IMS Midas, Dec 2007

9 of the world's top 15 medicines are produced in Ireland

Rank	Medicine	Company	
1.	Lipitor	Pfizer	
5.	Enbrel	Wyeth	
7.	Zyprexa	Eli Lilly	
8.	Remicade	Remicade Centocor	
9.	Singulair	Merck Sharp & Dohme	
10.	Risperdal	Janssen Pharmaceuticals	
12.	Takepron Takeda		
13.	Effexor XR	Wyeth	
15.	Actos	Takeda	

Source: IPHA Analysis. Rankings based on IMS Health Data, Dec 2008

World Trade in Pharmaceuticals 2006

Country	Exports \$	Imports \$	Balance \$
Ireland	12,734	1,753	10,981
Switzerland	20,663	10,292	10,371
Germany	32,243	24,622	7,621
UK	18,508	12,679	5,829
France	18,023	12,231	5,792
Sweden	6,350	2,362	3,988
Belgium	28,410	25,679	2,731
Austria	3,861	2,781	1,080
Netherlands	9,046	8,937	109
Italy	9,727	9,949	-222
Spain	5,338	6,951	-1,613
Japan	1,878	5,753	-3,875
USA	19,129	32,318	-13,189

Source: International Trade Centre, a joint agency of the World Trade Organisation and the United Nations (http://www.intracen.org/dbms/country/CA_CtryIndex.Asp?CT=372)

Medicines in

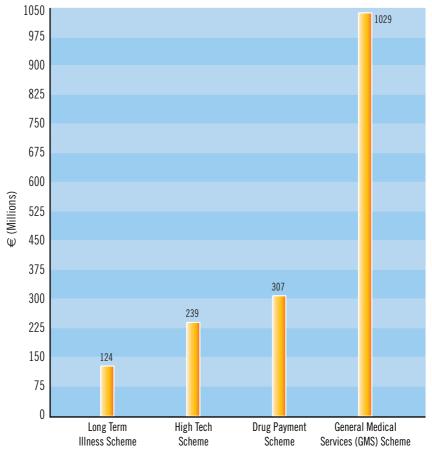
Expenditure on the community medicines schemes has risen steadily in recent years. The factors behind that growth include:

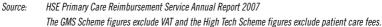
- Ireland's rapidly increasing and ageing population as outlined in the section on Demographic Trends.
- The development of new treatments becoming available and more patients availing of them: for example in the areas of preventative medicine and the long-term treatment of chronic illness. The number of patients registered under the High Tech Scheme in 2007 was 41,500, a five fold increase on the figure in 1997 (8,250).
- The introduction of Government initiatives to improve public health: the cardiovascular and the cancer strategies were launched with a view to improving poor health outcomes in these disease areas. They have resulted in more people being treated and naturally an increase in the utilisation of medicines. For example the prescribing frequency of cardiovascular system medication under the GMS Scheme increased from 3.6 million in 1996 to 11.1 million in 2007 (an increase of 208%).
- Epidemiological evolution: the increased incidence of chronic and non-communicable diseases is generally quite costly to treat. Ireland has one of the highest incidences of asthma in the world, currently 12%, and increasing levels of diseases like diabetes and obesity.
- State decisions on eligibility and administration of the community drug schemes: The granting of medical cards to everyone over 70 and the introduction of the Drug Payment Scheme resulted in substantial growth in the State bill. For example the Deloitte review of the Governance and Accountability Mechanisms in the Community Drug Schemes (2003) noted that the provision of medical cards to the over 70s cost an additional €126m in the first full year of the arrangement in 2002. It also noted that the number of claimants under the DPS increased by 40% between 2000 and 2002.

the Community

The growth in medicine expenditure also has to be seen in the context of the fact that Ireland historically has one of the lowest levels of consumption of medicines per head of population, so it is only to be expected that spending on medicines will increase as the healthcare system endeavours to improve life expectancy and quality of life. It also has to be seen in the context of the large scale and ongoing increases in Irish health spending.

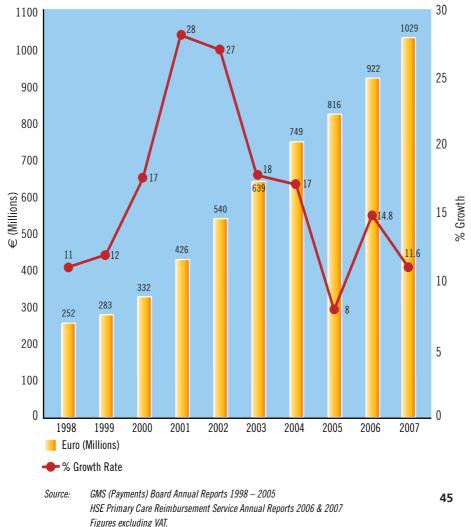
Community Medical Schemes Expenditure 2007





GMS Scheme Expenditure and % Growth Rate 1998-2007

The Scheme provides free medical services to persons who would not otherwise be able, without undue hardship, to afford such services.



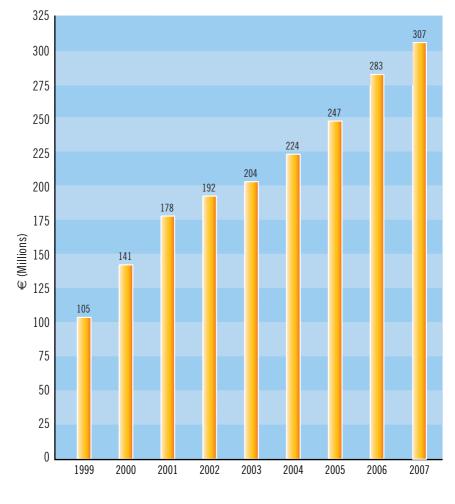
Ageing of the GMS Scheme 1994-2007

While the overall numbers eligible for medical cards has fallen since 1994, the number of cardholders aged 65 and over has increased by nearly 36% (a trend significantly accentuated by the granting of medical cards to everyone over 70 years old in 2001).

Year	Total No. of Eligible Persons	As a % of the Population	Total No. Aged 65 years+	65+ as a % of Eligible Persons
1994	1,287,000	36.0%	297,000	23.1%
2000	1,148,000	30.3%	323,000	28.1%
2004	1,149,000	29.3%	383,000	33.3%
2007	1,276,000	30.1%	416,000	32.6%

Source: GMS (Payment) Board Annual Reports 1994-2005 HSE Primary Care Reimbursement Service Annual Reports 2006 & 2007

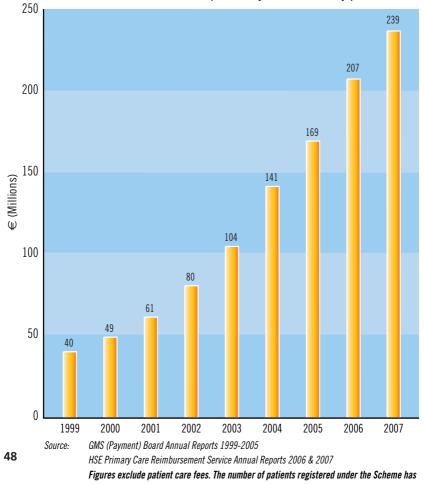
Drugs Payment Scheme Expenditure 1999-2007



Source: GMS (Payment) Board Annual Reports 1999-2005 HSE Primary Care Reimbursement Service Annual Reports 2006 & 2007

High Tech Scheme Expenditure 1999-2007

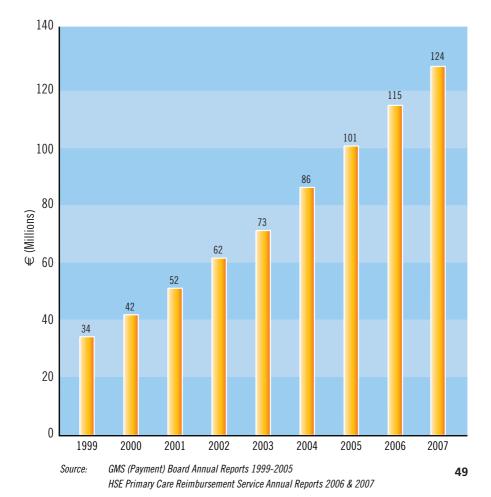
Developments in biotechnology and therapeutics have given rise to the introduction of medicines for the treatment of medical conditions, many of which previously had either no effective treatment or required extended in-patient hospital care. Under the Scheme these medicines are dispensed by the community pharmacist.



increased from just over 8,000 in 1998 to nearly 41,500 in 2007.

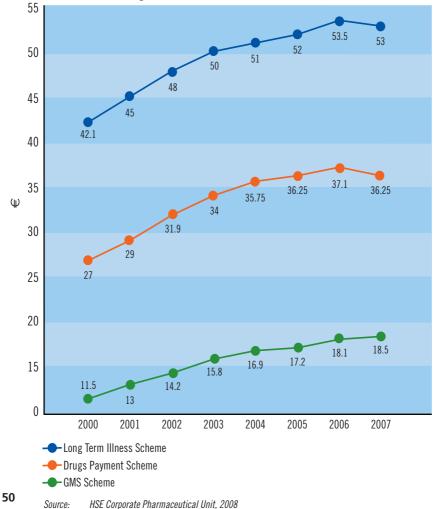
Long Term Illness Scheme Expenditure 1999-2007

The Long Term Illness Scheme is for persons who suffer from one or more defined long term illnesses. It gives such persons the right to obtain, irrespective of income, relevant medication free of charge.



Creating Headroom for Innovative Medicines

Per Item Cost on GMS Scheme is stabilising while the DPS and LTI Scheme is reducing





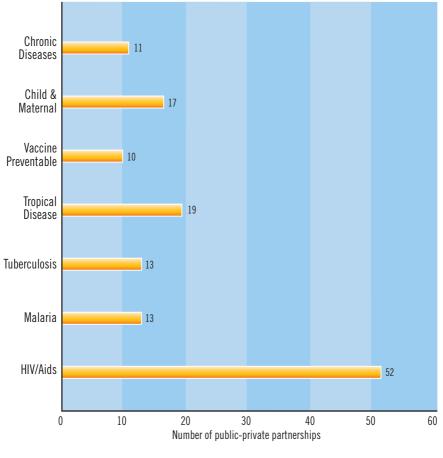
Medicines and

- Of the 340 medicines on the World Health Organisation (WHO) essential drugs lists, 95% of them have no patents. This means that there is no patent obstacle preventing cheap generic copies of the vast majority of essential medicines being produced locally for poor people in developing countries. But those people are not getting them.
- Patents do not prevent access to medicines. The real barrier hindering access to treatments is in fact a lack of the basic healthcare infrastructure required to get existing medicines to people. Other factors such as a lack of access to basics like food, decent housing and clean water, armed conflict, corruption, bureaucracy and the lack of simple prevention measures like condoms and mosquito nets, unfortunately mean that poor health is endemic for the world's poorest people.
- Pharmaceutical companies globally are currently involved in more than 150 health partnerships and programmes in the developing world which are designed primarily to improve access to medicines and other aspects of healthcare. Seventy-eight of these involve capacity building activities. These include the provision of basic health education, encouraging behavioural change, training health personnel, mounting prevention campaigns, as well as providing infrastructure for delivering healthcare services.
- In the period 2000 to 2008, the industry provided enough health interventions – medicines, vaccines, equipment, health education and training – to help nearly 1.75 billion people in developing countries.

Global Health

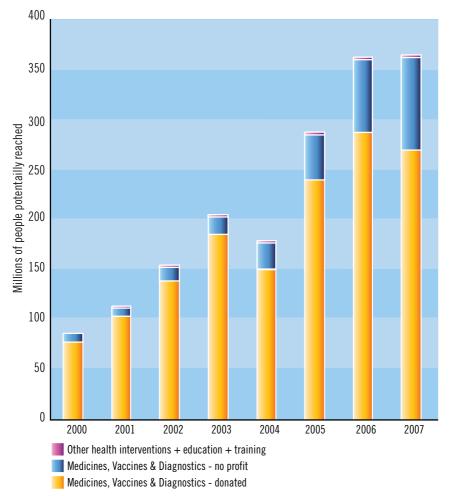
- The industry has made available medicines, vaccines, equipment, training and health education worth \$9.2 billion, of which \$2.7 billion was in 2007 alone, to the developing world since the United Nations announced the Millennium Development Goals.
- Pharmaceutical companies are involved in 67 R&D programmes, up from 58 in 2007, for neglected tropical diseases and other diseases of the developing world such as malaria, sleeping sickness, dengue fever and chagas disease.

Industry Supported Public-Private Partnerships in the Developing World



Source: IFPMA Partnerships to Help Build Healthier Societies in the Developing World 2007 www.ifpma.org/healthpartnerships

Number of Positive Health Interventions made in the Developing World



A positive health intervention is: (a) the delivery of sufficient medicine to cure one person of one disease, (b) the provision of a course of therapy sufficient to manage one disorder in one person for one year, (c) provision of sufficient vaccine to immunise one person against one disease for at least one year, or (d) delivery of a proven program of health education or training to one person. These metrics were used because, while companies know the number of doses they make available, they have a less precise view of the number of patients actually treated. Source: IFPMA www.ifpma.org/healthpartnerships



Open...to see the footprint of Ireland's pharmaceutical industry.



Bristol Myers Squibb Pharmaceuticals Celgene **Cephalon Pharma** Covidien Eisai Eli Lilly & Company Forest Laboratories GlaxoSmithKline GlaxoSmithKline Consumer Healthcare **Grunenthal Pharma** Helsinn Birex Therapeutics **Ipsen Pharmaceuticals** Janssen-Cilag Labopharm Europe LEO Pharma Henkel Loctite Lundbeck MEDA McNeil Healthcare Merck Serono MSD Mundipharma Novartis **Novartis Consumer Health** Novo Nordisk Nycomed Organon Laboratories Pfizer Healthcare **Pierre Fabre** Proctor & Gamble **Reckitt Benckiser** Rehels **Roche Products** Rottapharm sanofi-aventis Sanofi Pasteur MSD Schering Plough Pharmaceuticals Servier Laboratories Shire Pharmaceuticals Solvay Healthcare SSL Healthcare **Stiefel Laboratories** Takeda **Tillotts Pharma UCB** Pharma Wyeth Consumer Healthcare Wyeth Pharmaceuticals

1 Dublin

Amgen

Arch

BOC

Abbott Laboratories

Bayer Consumer Care

Astellas Pharma

Biogen Idec

2) Cork

Cara Partners A Menarini Pharmaceuticals Centocor **Alliance Pharmaceuticals** Corden Dyno AstraZeneca Pharmaceuticals FMC **Bayer Schering Pharma** Boehringer Ingelheim Novartis Pfizer 3 Newbridge Wyeth Medica (AHP) 5 Servier 6 TEVA Cashel 8 Ranbaxy Clonmel

Cognis (Henkel) Eli Lilly & Company **GE** Healthcare **Gilead Sciences** GlaxoSmithKline Janssen (J&J) Recordati Schering Plough Quest (ICI) Wexport (Leo)

16) Monaghan Norbrook Labs

Abbott Diagnostics

Stiefel Laboratories

Fort Dodge (AHP)

(12) Ennis

Olympus

Roche

13 Athlone

Elan

15) Sligo

(14) Westport

Allergan

Athlone Pharmaceuticals

Brav Takeda

4 Rathdrum Schering Plough

Arklow

Waterford Arkopharma Genzyme Lawter International Novartis Agribusiness

Dungarvan GlaxoSmithKline

Clonmel Healthcare (Stada) MSD

Killorglin 10 Astellas Pharma Temmler

> Limerick Aughinish Alumnia (Glencore AG) Heraeus Info Lab (Huber Group) Schwarz Pharma Wyeth Nutritional (AHP)



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