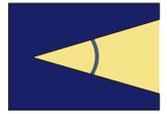


European **Observatory**
on Health Care Systems



Health Care Systems in Transition

Luxembourg



The European Observatory on Health Care Systems is a partnership between the World Health Organization Regional Office for Europe, the Government of Norway, the Government of Spain, the European Investment Bank, the World Bank, the London School of Economics and Political Science, and the London School of Hygiene & Tropical Medicine

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Target 19 – RESEARCH AND KNOWLEDGE FOR HEALTH

By the year 2005, all Member States should have health research, information and communication systems that better support the acquisition, effective utilization, and dissemination of knowledge to support health for all.
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Keywords

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European Observatory on Health Care Systems

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Foreword

The Health Care Systems in Transition (HiT) profiles are country-based reports that provide an analytical description of each health care system and of reform initiatives in progress or under development. The HiTs are a key element that underpins the work of the European Observatory on Health Care Systems.

The Observatory is a unique undertaking that brings together WHO Regional Office for Europe, the Governments of Norway and Spain, the European Investment Bank, the World Bank, the London School of Economics and Political Science, and the London School of Hygiene & Tropical Medicine. This partnership supports and promotes evidence-based health policy-making through comprehensive and rigorous analysis of the dynamics of health care systems in Europe.

The aim of the HiT initiative is to provide relevant comparative information to support policy-makers and analysts in the development of health care systems and reforms in the countries of Europe and beyond. The HiT profiles are building blocks that can be used to:

- learn in detail about different approaches to the financing, organization and delivery of health care services;
- describe accurately the process and content of health care reform programmes and their implementation;
- highlight common challenges and areas that require more in-depth analysis;
- provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policy-makers and analysts in the different countries of the European Region.

The HiT profiles are produced by country experts in collaboration with the research directors and staff of the European Observatory on Health Care Systems. In order to maximize comparability between countries, a standard template and questionnaire have been used. These provide detailed guidelines

and specific questions, definitions and examples to assist in the process of developing a HiT. Quantitative data on health services are based on a number of different sources in particular the WHO Regional Office for Europe health for all database, Organisation for Economic Cooperation and Development (OECD) health data and the World Bank.

Compiling the HiT profiles poses a number of methodological problems. In many countries, there is relatively little information available on the health care system and the impact of reforms. Most of the information in the HiTs is based on material submitted by individual experts in the respective countries, which is externally review by experts in the field. Nonetheless, some statements and judgements may be coloured by personal interpretation. In addition, the absence of a single agreed terminology to cover the wide diversity of systems in the European Region means that variations in understanding and interpretation may occur. A set of common definitions has been developed in an attempt to overcome this, but some discrepancies may persist. These problems are inherent in any attempt to study health care systems on a comparative basis.

The HiT profiles provide a source of descriptive, up-to-date and comparative information on health care systems, which it is hoped will enable policy-makers to learn from key experiences relevant to their own national situation. They also constitute a comprehensive information source on which to base more in-depth comparative analysis of reforms. This series is an ongoing initiative. It is being extended to cover all the countries of Europe and material will be updated at regular intervals, allowing reforms to be monitored in the longer term. HiTs are also available on the Observatory's website at <http://www.observatory.dk>.

Acknowledgements

The Health Care System in Transition report on Luxembourg was written by Elizabeth Kerr (European Observatory on Health Care Systems) on the basis of information supplied by staff of the Directorate of Health, the Ministry of Health, the General Inspectorate of Social Security and the Union of Sickness Funds, Luxembourg. Their generous help is much appreciated. The research director for the Luxembourg HiT was Elias Mossialos, who also reviewed the draft.

The current series of Health Care Systems in Transition profiles has been prepared by the research directors and staff of the European Observatory on Health Care Systems.

The European Observatory on Health Care Systems is a partnership between the WHO Regional Office for Europe, the Government of Norway, the Government of Spain, the European Investment Bank, the World Bank, the London School of Economics and Political Science, and the London School of Hygiene & Tropical Medicine.

The Observatory team working on the HiT profiles is led by Josep Figueras, Head of the Secretariat and the research directors Martin McKee, Elias Mossialos and Richard Saltman. Technical coordination is by Suszy Lessof. The series editors are Anna Dixon, Judith Healy, Elizabeth Kerr and Suszy Lessof.

Administrative support, design and production of the HiTs has been undertaken by a team led by Phyllis Dahl and comprising Myriam Andersen, Sue Gammerman and Anna Maresso. Special thanks are extended to the WHO Regional Office for Europe health for all database from which data on health services were extracted; to the OECD for the data on health services in western Europe, and to the World Bank for the data on health expenditure in central and eastern European (CEE) countries. Thanks are also due to national statistical offices which have provided national data.

Introduction and historical background

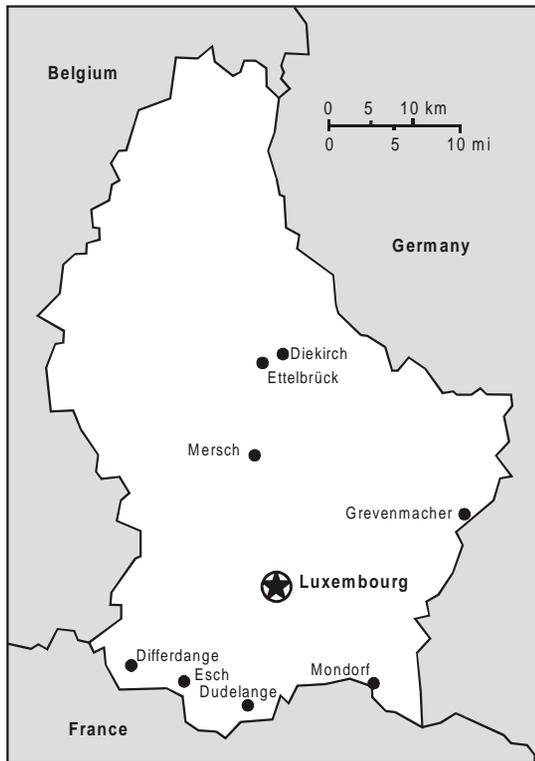
Introductory overview

The Grand Duchy of Luxembourg is a constitutional monarchy located in western Europe, bordered by Belgium to the west and north, Germany to the east and France to the south. The site of its capital, Luxembourg city, was first fortified in 953 and became an independent fiefdom of the Holy Roman Empire in 1364. Initially ruled by a Count and then by a Duke, Luxembourg was established as a Grand Duchy by the Congress of Vienna in 1815. The ruling house of Nassau came to the throne of Luxembourg in 1890; the present Grand Duke, Jean, succeeded his mother in 1964.

Luxembourg's climate is temperate and its rural landscape dominated by gently undulating agricultural land and forest. The Ardennes Mountains extend from Belgium into the north of Luxembourg. The south-west of the country is the focus for its heavy industry, while in the south-east, along the banks of the River Moselle which divides Luxembourg from Germany, various white and sparkling wines are produced.

Luxembourg is the smallest of the European Union member states, with an area of 2586 km². Its population was estimated to be 420 416 in July 1997 (of whom over one fifth lived in the capital) and is gradually increasing (1.16% up from 1996). Luxembourg's relations with its neighbours are close. In 1921 it forged economic union with Belgium, covering trade and most financial matters, including currency (either Belgian or Luxembourg francs are valid currency in Luxembourg); and the Benelux partnership of Belgium, Luxembourg and the Netherlands followed in 1944.

Luxembourg's population, chiefly Roman Catholic, are impressive linguists; it is standard to be trilingual in Letzeburgesch (a German dialect, which is the national language), French (the main language of official documents and legislation) and German. English, Italian and Portuguese are also widely used, as these are the first languages of substantial communities now settled in Luxembourg. The *lingua franca* between all of these communities is generally French.

Fig. 1. Map of Luxembourg¹

The Grand Duchy's government is composed of a 12-member Cabinet (Council of Ministers), headed by a Prime Minister and Vice Prime Minister who are selected from a directly elected unicameral Chamber of Deputies and appointed by the Grand Duke. The chamber comprises 60 members elected for a five-year term from party lists in multi-member constituencies; it usually includes representatives of a number of Green and special interest parties alongside the more established centre-left and conservative groups. The Christian Democrats usually hold the balance of power in each coalition government. Voting is universal and compulsory from the age of 18. The country is divided into three administrative districts: Diekirch (north), Grevenmacher (south-east) and Luxembourg (south-west).

Luxembourg's stable, prosperous economy features moderate growth, low inflation and low unemployment (4.0% in January 1997). Its gross domestic product (GDP) was \$10 billion (in US \$PPPs) in 1995; per capita GDP was

¹ The maps presented in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the European Observatory on Health Care Systems or its partners concerning the legal status of any country, territory, city or area or of its authorities or concerning the delimitations of its frontiers or boundaries.

\$24 500 (in US \$PPPs). Agriculture accounts for some 5% of GDP and is based on small, family-owned farms. Grains and potatoes are the main crops, and livestock (especially cattle) are raised. Vineyards are concentrated in the south-east of the country. The industrial sector was until recently dominated by iron and steel production, as part of the Luxembourg-Lorraine iron-mining basin occupies the south-west of the country; but this has now diversified into other manufacturing industries, producing textiles, chemicals, tyres and other mechanical goods. Services, especially banking and telecommunications, also now account for a major part of Luxembourg's GDP. Luxembourg city is an important international financial centre.

Health indicators

Life expectancy at birth in Luxembourg in 1997 was 74.24 years for men and 80.52 for women. Life expectancy for the whole population in 1995 (77.41 years) was almost equal to the EU average (77.44 years) and well above the WHO European Region average (72.46 years). Infant mortality saw a slight increase over the two years to 1997 (5.1 per 1000 live births), but, as in most of the European Region, is decreasing over the longer term (from 7.09 per 1000 live births in 1990 and 8.28 in 1985). The population is ageing and, of the (approximately) 420 000 population, only 200 000 are economically active. The leading causes of death in Luxembourg in 1998 were diseases of the circulatory system (cardiovascular and cerebrovascular disease) followed by cancer, respiratory diseases and external causes (accidents and suicides).

Historical background

Health care delivery

A French visitor to Luxembourg at the close of the eighteenth century described the inhabitants of the country as of “generally robust...physical constitution”. However, this may have been in spite of, rather than due to the health care available at that time! The same witness described the hospital at Pfaffenthal (built a century earlier, in 1684) as “defective in all proportions....the rooms are too damp, too dark and could more justifiably be called prisons than rooms fit to receive patients”.

Deficiencies in the provision of health care had not gone unnoticed by the state. The first existing official document referring to health care in Luxembourg,

in 1732, forbids medical practice without licence; and throughout the following century the government would continue to attempt to register and control all those who claimed skills in the provision of health care. Administrative units set up for this purpose in 1818, the “Medical Commissions”, were established in each district to regulate “everything relative to the exercise of the different branches of the art of healing”. Their duties included: examining and judging the capacity and qualifications of those established to practice any branch of medicine (i.e. doctors, dentists, surgeons, midwives, pharmacists, oculists and herbalists); granting certificates of qualification to practice; ensuring satisfactory medical practice in their area on an ongoing basis; and performing surveillance for contagious diseases on their territory.

By 1841, Luxembourg had become a Grand-Duchy independent of the Netherlands but under the sovereignty of its King. At his (King William II’s) instigation, the Medical Commissions were supplemented by a body which still exists to this day: the Medical College. From that date the College, composed of a president appointed for life by the King and six members (four doctors and two pharmacists) appointed for life by the Grand Duke, directed the health service of the Grand Duchy.

In the same year, miners boring for rock-salt discovered the hot springs which led to the foundation of the spa at Mondorf-les-Bains – a valued health care resource for well over a century to come.

In 1843, a Royal Ordinance on the organization of the health service produced the first list of all persons authorized to exercise any branch of the “art of healing”. In that year, 44 doctors, 2 dentists, 128 midwives, 21 pharmacists and 7 veterinary surgeons came forward for registration. This number of health personnel increased only gradually until the last decade of the century when the number of recruits started to rise sharply.

At the turn of the twentieth century, the leading causes of death (according to Luxembourg’s mortality statistics, first collected in 1902) were communicable diseases: typhoid, smallpox, measles and scarlet fever. Their hazards had long been known; as early as 1800, under French rule of Luxembourg, the authorities had appealed to the population to bring their children forward for free smallpox vaccination. In 1902 a Grand-Ducal decree introduced an impressive system for monitoring communicable diseases. All doctors and midwives were to make written notification of any case of a specified eight diseases to the local health inspector, whose duty it was immediately to transmit this information to the President of the Medical College; he then drafted a weekly report on this subject to the government. In an effort to obtain as complete a picture as possible of disease prevalence, a financial incentive of 1.5 francs was offered to doctors and midwives for every notification made.

The system's list of notifiable diseases has been much modified over the past century; its basic structure less so.

Throughout the history of Luxembourg's health care system the vast majority of medical personnel have been not state-employees, but self-employed workers. Whether operating from hospital facilities or from elsewhere, with very few exceptions, doctors have been paid on a fee-for-service basis by their patients (who have, in the last century, been reimbursed by the health insurance funds). Current exceptions to this fee-for-service system are some salaried medical professionals at two of Luxembourg's hospitals. The neuro-psychiatric hospital, established in the late nineteenth century, was the last to be run by the state but was brought into line with all other hospitals by legislation in 1998 and will henceforth, like them, be run by an independent administrative board. The Centre Hospitalier de Luxembourg (CHL), the main hospital in the capital, continues to pay its medical staff on a salary system.

Until the early twentieth century, the majority of hospitals – 13 establishments in 1918 – were run by religious organizations. Local authorities ran four establishments in 1918 and the national steel company (ARBED) ran three near its major plants. The state played a minor role, directly managing only three hospitals in 1918. Over the century, the relatively cheap health care resource provided by religious orders has receded. Higher “secular” staff costs were a principal reason why the hospital sector started to need state subsidy later in the century; the 1976 law on hospital planning provided for this and also formed the first attempt by the state to influence planning in the hospital sector.

During the twentieth century, the total number of health care facilities has also tended to fall due to ongoing rationalization and to the decline of certain facilities such as independent midwifery practices. Thus from 33 general and maternity hospitals/facilities and 2 psychiatric establishments in 1953, numbers have dropped to a total of 14 acute care hospitals in 1999 – soon to reduce to 13 when two of the smaller establishments are replaced by a larger single one (a plan known as the “New Hospital Project”).

Health care financing

Compulsory health insurance for manufacturing and industrial workers was introduced in Luxembourg in 1901, following the similar scheme introduced in Germany by Bismarck in 1883. Insurance developed quickly, and there were already 73 individual funds by 1903. By 1925, the insurance sector had grown in complexity and diversity, and legislation was required to codify the sickness insurance, the accident insurance (introduced in 1902) and the old age/incapacity

insurance (introduced in 1911) into one system. The same law substantially increased the benefits paid, and was further amended in 1927 and 1933.

After the Second World War, Luxembourg retained elements of the German insurance system which had replaced Luxembourg's *Code des Assurances Sociales* during the German occupation in 1940–1944. Most significant amongst these elements was the extension of insurance to cover pensioners. In 1952, the compulsory insurance was further extended to civil servants and other categories of public employees; in 1958, to the independent professions (e.g. businessmen and craftsmen), in 1963 to farmers and in 1964 to the independent intellectual professions (e.g. doctors, architects and lawyers).

By 1973, the working population, their families, and all pensioners were covered by compulsory health insurance. The insurance was run by 11 sickness funds, to which people were automatically allocated according to their professional group. The level of contributions was set by the individual funds and varied considerably between them.

By now, however, it was increasingly hard for the sickness funds to cover the increasing costs of health care simply from the contributions they received. The financial situation of the funds (particularly that of the funds for manufacturing and industrial workers) was perilous. In 1974, legislation was therefore passed to allow significant injections of state resources, up to 40% of the funds' total receipts. The 1974 reform also standardized contribution levels across all sickness funds, and stated that these were to be set by the government from now on.

In 1978, further reform established an administrative union of the different sickness funds. Although nine individual funds for different professional groups continued to exist, they lost much of their power. Negotiation of rates with providers was now undertaken by the Union and risk was pooled across all funds so that the year-end deficit of one could be covered by the profit of another.

Even with the added boost of state funding, however, the sickness funds were in financial trouble again by the early 1980s; so legislation in 1983 extended patient co-payment for treatment in an attempt at cost-containment. This resulted in a one-off reduction in health care costs, after which they started to rise again.

Further reform was to follow in 1992. The government originally intended to abolish the (now nine) separate sickness funds, but faced with strong opposition from professional groups settled for a compromise. The funds were allowed to continue only as agencies for direct contact with the insured citizen,

while all of their responsibilities except the actual administration of reimbursement to members were transferred to the Union of Sickness Funds. The 1992 Act also introduced a new financing system for hospitals; instead of the previous uniform per diem payment system, which encouraged spiralling hospital costs, each hospital was to negotiate its own individual budget directly with the Union of Sickness Funds. This change came into force from 1 January 1995.

Organizational structure and management

Organizational structure of the health care system

The fundamental principles of the Luxembourg health system are free choice of the provider by the patient, compulsory health insurance, and compulsory provider compliance with the fixed fees-for-service set for the insurance system.

The system is split between prevention and treatment, in terms of both provision and financing. For the most part, preventive services are the responsibility of the Ministry of Health; interventions are provided by a few public services and by private practitioners and non-profit associations paid from the Ministry budget. Curative treatment is a shared responsibility of the Ministry of Health and the Ministry of Social Security. The former supervises the organization of health services and subsidises the hospital sector, while the latter is responsible for the sickness insurance system. (This split is not entirely clear-cut; the sickness insurance system has reimbursed preventive dental care services since the 1970s and an increasing number of other services, e.g. breast cancer screening and hepatitis B vaccination, since legislation in 1992.)

Ministries other than Health and Social Security involved in health-related areas include:

- the Ministry of Environment as regards air and water pollution, waste, noise pollution;
- the Ministry of Family Welfare as regards homes for elderly people including nursing care, home aid services, services for the handicapped;
- the Ministry of Labour as regards safety at work;
- the Ministry of Housing as regards housing projects and subsidies for individual homes;
- the Ministry of Education as regards training of some health professionals and health education in schools;

sector, require representatives of the Ministry of Health in various interdisciplinary committees and boards. Examples of bodies with such Ministry of Health representation would be: committees within, or run by other government departments and private associations; boards of organizations such as hospitals or the Luxembourg Red Cross; committees overseeing contracted-out health and social sector work.

For all these duties, the Ministry employs about 30 staff.

The *Directorate of Health* also reports to the Minister of Health, as the executive administration for public health in Luxembourg. It has its own responsibilities, such as to study the overall health situation in the country, to advise public authorities on public health matters, to oversee the implementation of laws and regulations on public health, to take immediate measures to protect public health in the face of any threat and to contribute to health policy on the national and international level.

The Directorate employs about 110 staff in the following divisions:

- the Division of Health Inspection which deals with public health inspection, communicable diseases and environmental health;
- the Division of Preventive Medicine which is responsible for preventive services and health promotion;
- the Division of Curative Medicine which is responsible for the planning and control of hospital care, quality control in laboratories and the supervision of the practice of health professionals;
- the Division of School Health which supervises school health services;
- the Division of Occupational Health which is responsible for the planning and control of occupational health services;
- the Division of Pharmacy which advises the Minister on the licencing of medicines and supervises the practice of professional pharmacists;
- the Division for Protection against Ionising and Non-Ionising Radiation.

In addition, the *Service of Social and Therapeutic Activities (AST)* is responsible for promoting and supervising services dealing with handicap, mental illness, drug addiction and home nursing services. Most of these services are contracted out to the non-profit private sector. This service, which has until now operated outside the Directorate of Health and has reported directly to the Ministry of Health, is in early 1999 in transition towards becoming the *Division of Social Medicine* within the Directorate of Health.

About one third of the directorate's staff work in the field, for example in school health services in secondary schools, screening services for sight and hearing impairment.

Although the Directorate and the Ministry function separately, the Directorate is also the ministry's source of expert advice on health care questions. Thus an important part of the Directorate's work is feeding into consultations by the Ministry on policy questions, and the Ministry draws upon the Directorate's staff resources for representation in committees and working groups.

Ministry of Social Security

Two sections of the Ministry of Social Security are responsible for the sickness insurance system. The General Inspectorate of Social Security supervises legal, regulatory, statutory, contractual and financial operations, and the Office of Medical Control deals with disability at work, authorizations for reimbursement (including those for treatment abroad), medical profiles, supervision of outpatient care and abuse of the health system by patients.

Insurance is compulsory, and is managed and provided by the Union of Sickness Funds in conjunction with nine individual agencies to which people are allocated on the basis of their professional occupation. Services eligible for reimbursement are registered on lists adopted jointly by the Ministers of Health and Social Security.

Hospital budgets are negotiated annually between each individual hospital and the Union of Sickness Funds. All such negotiations must be endorsed by the Minister of Social Security.

Other government ministries

The Ministry of Health collaborates with the Ministry of Education on school health services and on the training of health professionals and the approval of professional qualifications from abroad.

The Directorate of Health's Division of Occupational Health collaborates with the Ministry of Labour to supervise safety in the workplace.

The Ministry of the Environment has lead responsibility for dealing with air and noise pollution, water and sanitation and waste disposal. On a local level such environmental issues form the main health-related activities of local authorities (since curative and preventive care and health promotion are run on a national basis). On a national level, the Ministry of the Environment's duties involves some coordination with the Ministry and Directorate of Health. Much of the work of the latter's Division of Health Inspection relates to environmental health threats.

The Ministry of Justice chairs an Inter-Ministerial Committee on Drugs to coordinate policies on drug abuse between all ministries involved in the problem

of drug abuse. The Ministry of Family and Social Welfare shares with the Ministry of Health the cost of home nursing services, rehabilitation and family planning clinics. The Ministry of Housing liaises with the Directorate of Health over health inspections of state-provided housing. The Ministry of Transport is responsible for legislation on transport safety, and for information campaigns to the public on transport safety issues.

Local authorities have legal responsibility for public health protection in Luxembourg. In practice, however, many local authorities only discharge environmental responsibilities such as the supply of drinking water, sewage and waste disposal, housing and local traffic regulation. Preventive health services and health promotion are generally provided by private sector (non-profit) organizations, partly funded by the state; in addition a few preventive services are reimbursed on a national level by the sickness insurance system.

The nongovernmental sector

A major role is played in preventive health care by the non-profit nongovernmental sector. Most preventive and health promotion services are contracted out to the non-profit sector and funded by the state (or in some cases by the new long-term care insurance). The Luxembourg League for Prevention and Medico-Social Action and the Luxembourg Red Cross jointly organize a network of community health service providers under the title *Service medicosocial et social polyvalent de secteur*. This network provides community preventive health services (such as school health services) for areas whose local authorities do not; and its local representatives also form an important channel for distribution of health education material from the Directorate of Health. Other preventive services which require the attention of an individual practitioner (such as vaccination, breast cancer screening, family planning advice and antenatal care) tend to be provided by private sector physicians, and are financed by the sickness insurance or by the state. Non-state providers are even more significant in curative health care, since all hospitals operate independently of the state and doctors are almost all self-employed.

In terms of insurance, however, the private sector's role is minor. In 1994 voluntary health insurance schemes reimbursed benefits worth only 2.2% of those reimbursed by the Union of Sickness Funds.

The voluntary sector

Luxembourg has a few voluntary organizations for the representation of patients with certain diseases; but voluntary workers hardly feature in the provision of health care. Possibly the strict regulations on the practice of all health professions tend to discourage an active role for volunteers, who are usually unqualified.

In addition, the attitude towards voluntary care seems to be that since Luxembourg is a prosperous country, it ought to pay health professionals an adequate wage to provide high quality care.

Representative organizations for health professionals

Health professionals in Luxembourg are represented by two different types of professional groups:

- Groups which are the official interlocutors with the government on any changes to the law which may affect their members. It is a legal requirement for the government to consult these groups on any draft legislation. These groups basically consist of the Medical College which represents doctors, dentists and pharmacists; and the Superior Council of Certain Health Professions which represents all other health professionals.
- Individual professional associations, of which one has developed for every specialism – there is no legal requirement for the government to consult these groups individually on legal changes, but in practice it usually does.

Planning, regulation and management

Primary care

The supply of primary care in Luxembourg is dictated by demand, since patients have free choice of primary care provider and there is no legal means to limit the volume of medical activity. For that reason, it is hard for the state to plan. Nor (since European Union legislation introduced the mutual recognition of medical qualifications) is there any legal means to curb the flow of medical personnel into Luxembourg. To practise in Luxembourg, physicians simply need approval of their (foreign) diploma by the Ministry of Health (if delivered in an EU member state) or by the Ministry of Education (if delivered in other countries) and an authorization from the Ministry of Health. Luxembourg's remuneration and licencing system is attractive, as a licence to practise in Luxembourg means automatic access to remuneration by the compulsory health insurance system. So the number of physicians practising in the country will probably continue to increase for the foreseeable future.

The supply of dentists is also increasing whilst, in contrast, the opportunities for pharmacists are limited because the total number of pharmacies in the country is controlled.

Secondary/tertiary care

The hospital sector in Luxembourg is regulated by the law on hospitals of 28 August 1998. Numbers of hospitals and minimum standards for hospital services are planned via regulations (the so-called *National Hospital Plans*) enacted under this law.

Hospitals are administered by boards of administrators, who are responsible for the general policy of the hospital. Hospitals are independent of the state although there may be representatives of the state on some boards (if so, state representatives are usually in the minority).

The financing of hospitals is drawn from two sources:

1. Each hospital negotiates its operating budget with the Union of Sickness Funds, without the direct interference of the state.
2. Major investment costs for construction and equipment are financed by the state at a rate of 80%. Significant new equipment has to be authorized by the Minister of Health.

All requests for investments and authorizations, and all draft legislation related to the hospital sector, must be submitted to the "Permanent Hospitals Committee". This Committee is composed of representatives of the government, the Union of Sickness Funds, the Federation of Hospitals, the medical profession, and other health professions, and is chaired by the Director General of Health. The services of the Directorate of Health generally give technical advice to the Committee.

In May 1999, legislation allocated 26 billion LUF for the modernization and reconstruction of all remaining acute hospitals and for the creation of some new national services such as heart surgery and radiotherapy. A commissioner appointed by the government is responsible for the appropriate use of state resources by hospitals.

Tight state planning and regulation apply to the development of public health services (e.g. the laws on occupational health, school health services and preventive interventions during pregnancy and early childhood) and the health care financing system, which is the subject of a complex legislative framework.

Decentralization of the health care system

There is little decentralization of the health care system to regional power in Luxembourg. The role of local authorities is for the most part restricted to various environmental health responsibilities such as the supply of drinking

water, sewage and waste disposal, housing and local traffic regulation. Some local authorities also provide community preventive health care such as school health services, and some play a fairly powerful role as the owners of hospitals (or a lesser one simply as members of their administrative boards).

Health care finance and expenditure

Health care services in Luxembourg are financed by health insurance. The insurance falls into two categories: statutory and voluntary. Table 1 shows that the statutory insurance system is the main source of finance for health care in Luxembourg and contributes by far the largest share of its cost. This share has remained fairly stable over the last few years.

Table 1. Main sources of finance (%)

Source of finance	1980	1985	1990	1994	1995	1996
Public						
Taxes	–	–	20.9	14.7	15.4	14.8
Statutory insurance	–	–	–	75.9	77.1	77.8
Private						
Out-of-pocket	7.2	9.2	5.5	6.7	6.2	5.9
Private insurance (non-profit)	–	1.6	1.4	1.5	1.4	1.5

Source: OECD health data, 1998.

Main system of finance and coverage

Statutory health insurance

Health care services which are necessary and useful and administered in the most economic way possible are financed by the statutory health insurance system which covers 99% of the population. The exceptions who are not covered are civil servants and employees of European and international institutions (who have their own health insurance funds) and any unemployed person who is receiving neither unemployment benefit nor a public pension. The compulsory health insurance is managed and provided by the Union of Sickness Funds

and nine individual agencies to which people are allocated on the basis of their professional occupation.

The health insurance has three sources of finance; contributions from the state (a maximum of 40% of the total), from employers (about 30% of the total) and from insured individuals (about 30%). Contributions are collected centrally for all branches of social security by the Common Centre of Social Security and are allocated to the Union of Sickness Funds.

The state's contribution to the funds is set at 10% of the total contributions of the active work force and 250% of the total contributions of pensioners (although if pensioners' contributions rise above 31% of the contributions of others, the state will pay only a 10% contribution for all categories). The state's contributions are limited to a maximum of 40% of the total resources of the insurance system.

The employer's share of the contributions varies from sector to sector of the labour market. The employers of most salaried employees pay an equal sum to that paid by their employees; the army, the police force and the prison service pay the entirety of their employees' contributions; employers pay nothing toward voluntary insurance schemes joined by their employees and nothing, by definition, toward the health insurance of the self-employed.

Individuals' health insurance contribution rates depend on whether they are economically active or not. Economically active individuals' contributions are calculated as a percentage of their gross income. This contribution is subject to a maximum limit which is activated when income reaches five times the "minimum guaranteed income". The minimum guaranteed income is set by law (in early 1999 it was 46 878 LUF per month). Individuals with income under this minimum (who should in any case be on state benefits) do not contribute to health insurance. To calculate pensioners' contributions, the same percentage is applied to their income but the minimum cut-off point is 30% higher than the minimum guaranteed income; pensioners with income below this cut-off point do not contribute to health insurance.

On several occasions in the past, the resources of Luxembourg's sickness funds have failed to cover their expenditure and they have needed state subsidy. To prevent any recurrence of such shortfall the Union of Sickness Funds is now obliged to balance its budget by maintaining a reserve of between 10% and 20% of the total expenditure of the insurance system. This expenditure is reviewed annually and, if the reserve bypasses the fixed limits, an "alarm" device signals the need for specific actions – e.g. increase of contribution rates, or regulation of the volume of consultations and services. The contribution rates are reset by the General Assembly of the Union by 1 January each year. In early 1999 the contribution rates for financing of the health insurance system

were: 5.1% (of gross income) for health care itself; 0.3% for a monthly living allowance during illness for the self-employed and those salaried employees who benefit from continuation of salary for the first four months of illness; 5% for an adequate monthly living allowance for those employees who do not so benefit.

The Union of Sickness Funds is responsible for paying for all the benefits directly provided on a fee-for-service basis in Luxembourg and abroad and for hospitals' expenditure, but the individual sickness funds continue to reimburse the recipient for certified expenditure on goods and services.

Doctors are paid on a fee-for-service basis (with the exception of a few doctors working in the neuro-psychiatric hospital, and the unique salary system of the Centre Hospitalier de Luxembourg). Doctors have to accept the fixed statutory fee levels; there is no distinction between doctors on the basis of whether they work from within hospitals or not. Having paid for ambulatory care, the insured patient is reimbursed most of the fee at the rate set by law, minus a proportion which is forfeited as a co-payment. Reimbursement is currently set at 80% of the fee for the first visit by a general practitioner to the patient in any 28 days (ie. copayment at 20%), 95% for the first visit made by a patient to a GP or for any specialist consultation, and 100% for further visits.

All services given by health professionals are defined by the Ministers of Social Security and Health on the basis of detailed proposals from a board of experts (the Nomenclature Committee). They are set out in the two volumes of fee schedules or "nomenclatures" which are published each year; one volume covers the services given by doctors and dentists, and the second the services given by other health professionals. The "nomenclatures" set out the value of each service, and the fee level for that service is calculated by multiplying the value by a factor (the "standard fee") which is negotiated each year between the Union of Sickness Funds and the organizations representing health professionals.

The state maintains a comprehensive list of drugs approved for use in Luxembourg, and the cost of most drugs on the list is 80% reimbursed by the sickness funds. However, drugs used for the treatment of specified long-term or serious illnesses are 100% reimbursed, drugs classed as for "comfort purposes" are reimbursed at 40%, and others are not reimbursed. Drugs administered during hospital treatment do not fall within the above system, but are charged to hospital budgets.

In hospital, sickness insurance covers the cost of a second class room minus a small patient co-payment of LUF 219 per day. Patients must pay extra if they want a first-class room or greater flexibility in the timing of elective inpatient and outpatient care and they can do this through additional, voluntary health insurance.

The state meets all the costs of maternity care; maternity service costs are charged directly by hospitals to the Union of Sickness Funds, and the Union seeks reimbursement from the government.

People can opt to pay contributions to continue their membership of the statutory health insurance scheme even if their employment is terminated or if they have chosen to stop working.

Complementary sources of finance

Voluntary health insurance

As a proportion of total benefits reimbursed, voluntary health insurance has always been limited as the compulsory public system reimburses so many services. For example, benefits reimbursed by voluntary health insurance funds were worth only 2.2% of those reimbursed by the Union of Sickness Funds in 1994. However, 75% of the active population do belong to voluntary complementary health insurance schemes, which they will use to pay for services which are not classed as necessary or useful. An example of such a service would be first-class hospital accommodation. The state encourages Luxembourg-based voluntary insurance via tax relief on premiums. Three insurance providers should be mentioned.

Mutual Medico-Surgical Fund (CMCM)

The main Luxembourg-based voluntary health insurance scheme is the Caisse Médico-Chirurgicale Mutualiste (“Mutual Medico-Surgical Fund”) or “CMCM”. The following services are covered by the CMCM:

- hospital costs not covered by the statutory insurance (i.e. co-payments)
- additional charges for a private room in hospital
- pre- and post-operative treatment costs
- dental prostheses not covered by the statutory insurance
- convalescence costs
- diagnostic, medical, operative and hospitalization costs for a surgical intervention abroad
- partial reimbursement where no agreement exists on the cost of a treatment
- health care provided during a journey abroad.

Members of CMCM mainly use it to reclaim co-payments for hospital services in Luxembourg, the cost of orthodontal treatment and the cost of services in other countries.

Mutual aid societies

Mutual aid societies, of which membership is based on profession, offer little more than limited life assurance. However, the tax system strongly encourages membership of these societies by exempting them from revenue and property tax and making contributions to them deductible from income tax, and they have one very important feature – membership of CMCM requires prior membership of a mutual aid society.

German health insurance funds

Various German health insurance funds have started to try their luck on the Luxembourg market. Their opportunities are limited because of the wide range of benefits covered by either statutory insurance or the CMCM; but a few hypothetical scenarios do offer them an opening. For example, reimbursement for hospital care outside Luxembourg requires prior authorization from the Union of Sickness Funds. If a patient is severely ill, and is referred to one of the nearby teaching hospitals in France or Germany, the Union is extremely unlikely to refuse authorization – but people may fear such an eventuality. In addition, if a Luxembourger wishes to have the option of hospital care outside Luxembourg for a condition which is not severe, he or she may welcome the opportunity of German fund membership.

Health care benefits and rationing

The Union of Sickness Funds reimburses costs of treatment outside the hospital sector according to rates set in the statutes of the Union of Sickness Funds, which define the diseases, treatments and drugs which are excluded from reimbursement. Health care services of which most or all of the cost is covered by statutory insurance include:

- Medical care and dental care
- Treatments given by other health professionals, on medical prescriptions
- Laboratory analyses
- Most dental and orthopaedic prostheses
- Pharmaceutical products
- Products and equipment necessary to treatments covered by insurance

- Hotel costs of a hospital stay
- Outpatient or inpatient care costs
- Convalescent care
- Transport costs.

Services not covered include:

- Most antenatal tests for chromosomal anomalies and foetal malformations
- Some infertility treatments (and those which are allowed require detailed certification and, in some cases, prior authorization)
- Ostiodensitometry
- Surgical or laser treatments of refraction
- Surgical treatment of obesity, unless there is a detailed medical report stating that all previous non-surgical treatments have failed (and even then treatment is subject to certain limitations)
- Replacement of breast implants for which no authorization was given by the health insurance in the first place.

The services of health professionals are reimbursed within the sickness insurance system rather than from hospital budgets, even if they practise within hospital premises.

Relations between the sickness funds and health care providers practising in Luxembourg are defined in collective agreements. There are separate agreements between the Union of Sickness Funds and each type of provider, i.e. doctors, dentists, other health professionals, medical analysis and clinical biology laboratories, establishments for therapeutic care, e.g. the thermal baths at Mondorf-les-Bains, the specialist establishment for functional rehabilitation, suppliers of orthopaedic prostheses, pharmacists, opticians, the Luxembourg Red Cross (for blood transfusions, and preparation and provision of blood and blood products) and providers of transport services for those taken ill or the victims of accidents.

Medical care

The patient is reimbursed 80% of the fee for a home visit by a general practitioner (i.e. 20% co-payment) for the first visit in any 28-day period. Subsequently the co-payment decreases – visits are reimbursed at a rate of 95%. Visits to the doctor's surgery by the patient, or to any specialist, are also reimbursed at a rate of 95%. Pre- and post-natal care is reimbursed at a rate of 100%. When doctors are summoned by the emergency services the cost is

100% reimbursed. There are limitations on the number of GP visits, or visits to more than one doctor of the same specialism, within certain time periods.

Dental care and dental prostheses

Up to an annual sum of LUF 1334, 100% of dental bills are reimbursed by the sickness insurance system. Beyond that sum, all dental services are reimbursed at 80% of agreed rates according to the statutes of the Union of Sickness Funds. The cost of dentures is reimbursed at 100% of agreed tariffs provided the patients have their teeth examined each of the preceding two years. However the agreed rate may be a small proportion of the real cost to the patient.

Co-payment is waived for the provision of a few dental prostheses, whilst those which are not considered necessary are not reimbursed at all.

Orthopaedic prostheses

The cost of prostheses which are deemed necessary is reimbursed at 100%, according to the statutes of the Union of Sickness Funds. There is a co-payment of LUF 2743 for orthopaedic shoes. There are small co-payments for the repair of permanent prostheses, and limitations on the frequency of replacement and repair which can be charged to sickness insurance.

Treatments given by health professionals other than physicians or dentists

Most treatments which given by nurses are reimbursed at 100% of the cost to the patient. The first eight physiotherapy sessions per year are reimbursed at 80%; sessions exceeding that number, and any session as part of inpatient hospital treatment, are reimbursed at 100%. Speech therapy is reimbursed at 100% of the rate set in the state-endorsed lists, as long as treatment is undertaken within the time limit specified; sessions exceeding eight per year require prior authorization. Midwives' services endorsed as necessary at delivery are reimbursed at 100%; other, pre-natal services rendered by midwives require a 20% co-payment from the patient.

Functional rehabilitation

The treatment of victims of accidents or illness who require functional rehabilitation is undertaken in the one specialist establishment in the country, and reimbursed at rates which vary according to the treatment needed. Medical recommendation of such treatment, and the treatment plan, is examined by the Office of Medical Control, which reports to the Ministry of Social Security, before authorization is given. Authorization must be renewed after three months.

Laboratory analyses

Costs of laboratory analyses, which are performed at Luxembourg's National Laboratory of Health, in the laboratories attached to hospitals or in private laboratories, are 100% reimbursed by the sickness insurance system.

Pharmaceutical products

The Directorate of Health maintains a comprehensive list of drugs approved for use in Luxembourg. The list displays the retail price of each drug, and the percentage of its price which will be reimbursed by the sickness funds (as long as the drug is medically prescribed). The list is divided into categories:

- normal rate (most drugs): the sickness funds cover 80% of the cost of these drugs;
- preferential rate: drugs which have a precise therapeutic purpose, usually with regard to long-term or particularly serious illnesses (cancer, severe hypertension, etc) – the sickness funds cover 100% of the cost of these drugs;
- reduced rate: drugs classed as for “comfort” purposes, e.g. minor painkillers, anti-flu drugs, energizers – the sickness funds cover 40% of the cost of these drugs;
- non-reimbursed items: for example, contraceptives (unless prescribed for a therapeutic purpose), vitamin supplements, tonics and several products for which there is commercial advertising are included on the list as they are officially approved for use in Luxembourg, but 0% of their cost is reimbursed.

Drugs administered during hospital treatment do not fall within the above system, but are charged to hospital budgets.

Products and equipment necessary to treatments covered by insurance

These are listed on annexes to the statutes of the Union of Sickness Funds, and are reimbursed at set rates according to their sale price (or a fixed reference price for certain products).

Convalescent care

After major surgery, a serious illness or lengthy hospitalization, a patient can claim the cost of convalescent care, in a recognized establishment, for not

more than 21 days at a maximum daily fee of LUF 823. Cures at the thermal baths at Mondorf-les-Bains which have been recommended by a physician and are on the state-endorsed register of reimbursable treatments are reimbursed at 100%; others may be reimbursed at 80% or 60%.

Transport costs

The sickness insurance system covers:

- ambulance or aerial transport by public emergency service in case of emergency (reimbursed at 100%);
- non-urgent ambulance transport at 70% if operated by public ambulance service and at 40 LUF/km if by private ambulance service;
- taxi transport (reimbursed at 28 LUF/km) to hospital or other treatment centre for certain medical treatments (eg. dialysis, chemotherapy, radiotherapy) if this treatment is required 4 times or more within 90 days;
- a set rate of reimbursement (7 LUF/km) for patients using other forms of transport to obtain treatment (calculated on the basis of the shortest possible route).

There are very detailed rules for the reimbursement of these costs, in some cases requiring prior authorization.

Visual and hearing aids

Spectacles and contact lenses are reimbursed at rates set in the statutes of the Union of Sickness Funds. However, certain circumstances merit exceptions (i.e. 100% reimbursement) for shatterproof or tinted spectacle lenses, contact lenses, and replacement of any visual aid more than once every two years. Medical prescriptions are required for contact lenses, spectacles with shatterproof or tinted lenses, spectacles for children under 14 years, and the first artificial eye to be fitted. Some spectacle frames are free; others are reimbursed up to a ceiling of LUF 1600. Hearing aids are reimbursed at 100%.

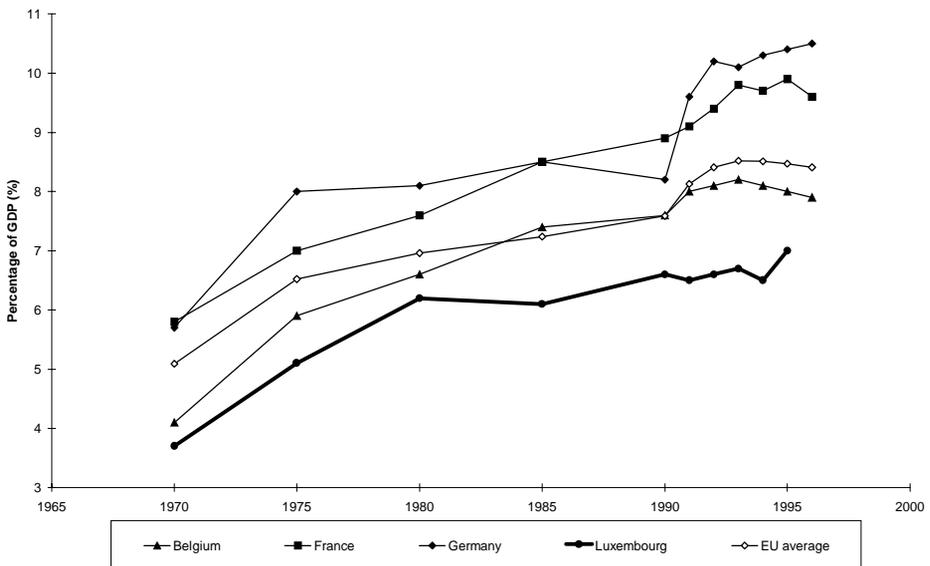
Blood- and plasma-derived products

Blood- and plasma-derived products are mainly administered during hospital treatment, and are paid for by the sickness insurance system at rates agreed between the Union of Sickness Funds and the Luxembourg Red Cross (which supplies them).

Health care expenditure

Figs 3, 4 and 5 below show that Luxembourg's health care expenditure as a share of GDP is far below the western European average, and the lowest amongst its immediate neighbours Belgium, France and Germany; however Luxembourg's expenditure per capita (in US \$PPPs) on health care seems to be one of the highest in Europe. This apparent contradiction has two explanations. Firstly, per capita expenditure figures based on the resident population can be misleading since a significant minority (about 25%) of Luxembourg's insured workers are commuters coming from the neighbouring countries. Secondly, Luxembourg's per capita GDP is one of the highest in the EU.

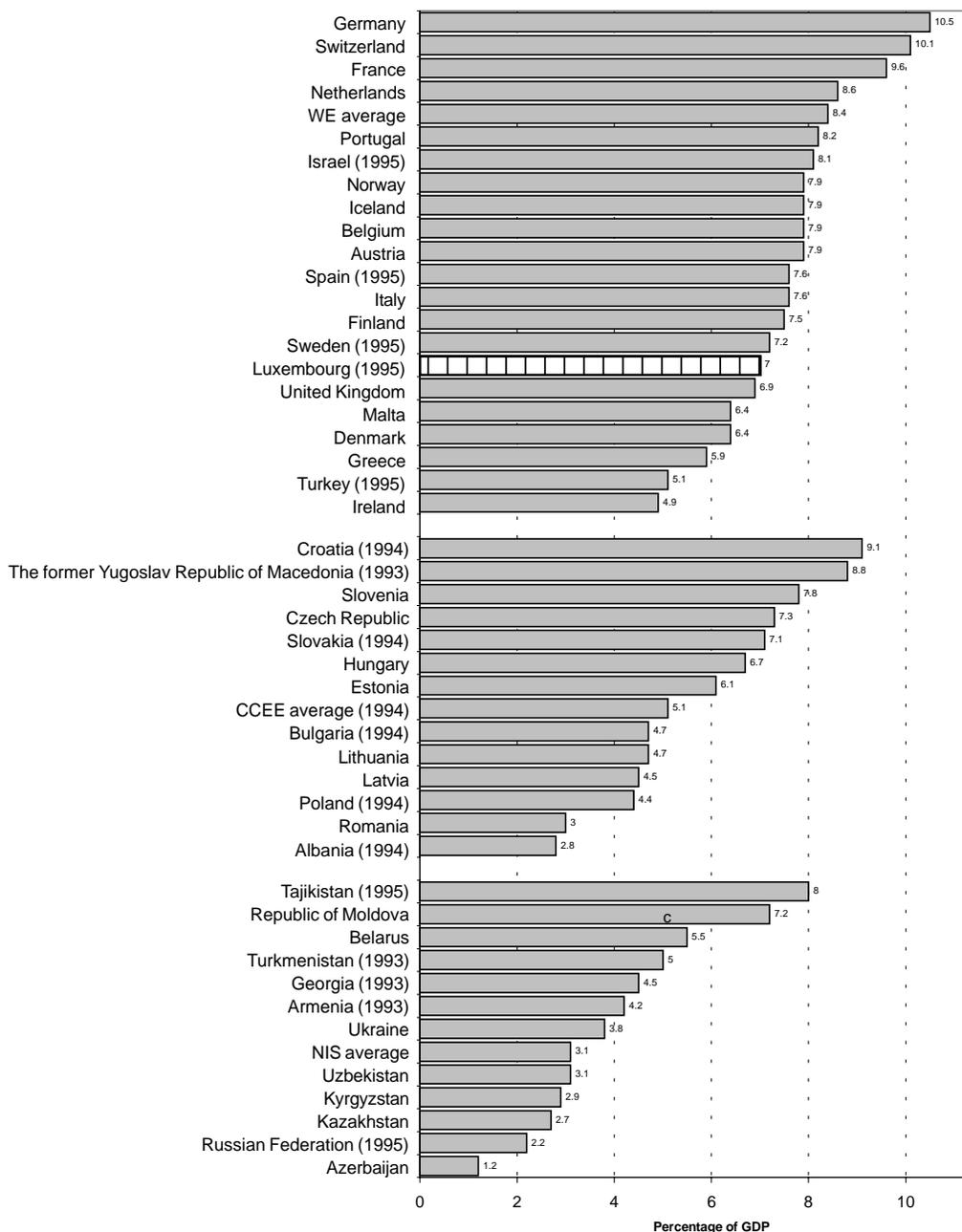
Fig. 3. Trends in health care expenditure as a share of GDP (%) in Luxembourg and selected western European countries, 1970–1996



Source: WHO Regional Office for Europe health for all database.

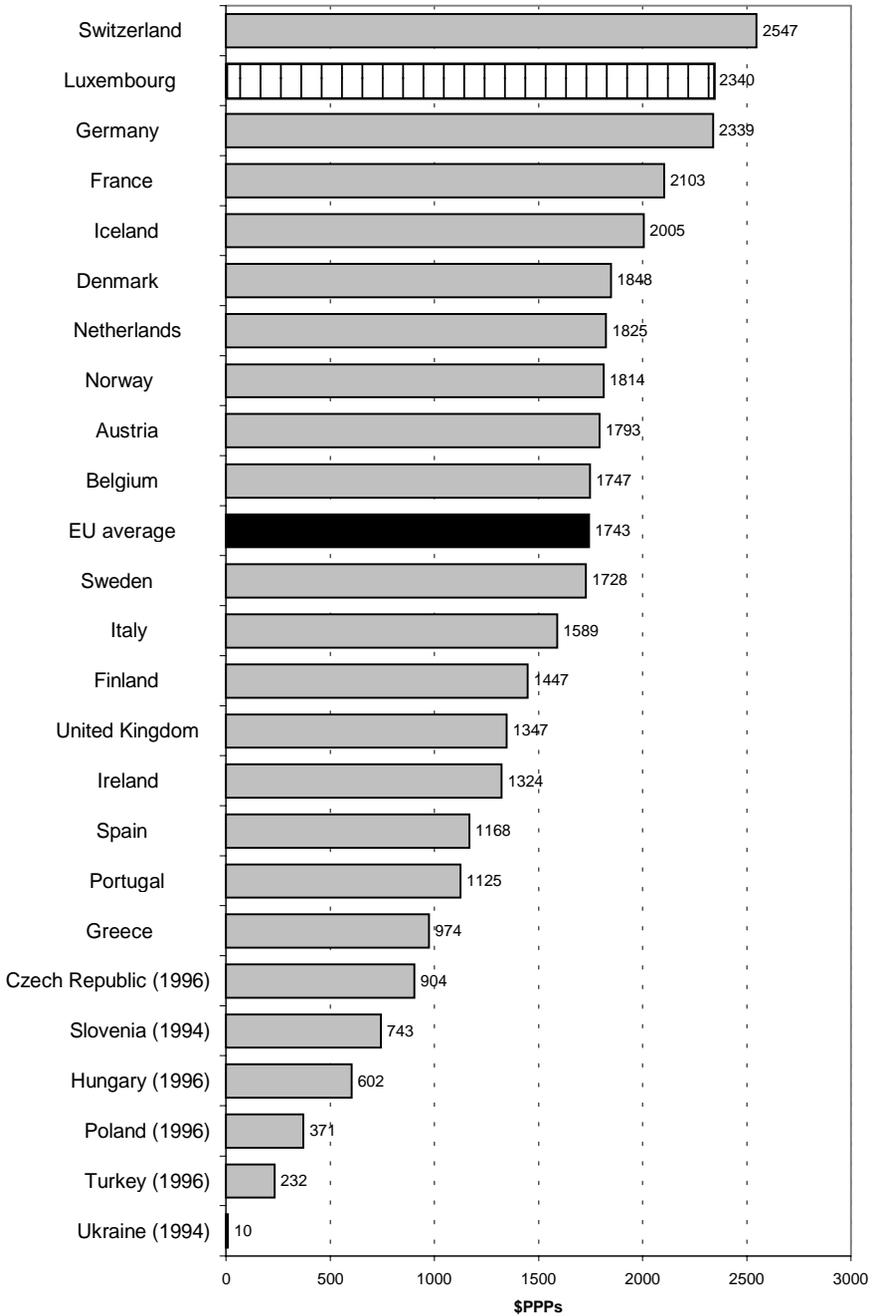
Table 2 and Fig. 6 show that in Luxembourg, as in other western European countries, total expenditure on health care has significantly increased in real terms since the 1970s; the proportion of total expenditure accounted for by the public sector has remained constantly fairly high, and is still one of the highest in Europe. This reflects the (past and present) supreme importance of the public, compulsory insurance system in the financing of health care in Luxembourg.

Fig. 4. Total expenditure on health as a percentage of GDP in the WHO European Region, 1996 or latest available year



Source: OECD health data, 1996; World Bank; WHO Regional Office for Europe health for all database.

Fig. 5. Health care expenditure in US \$PPPs per capita in Europe, 1997 or latest available year



Source: WHO Regional Office for Europe health for all database.

Table 2. Trends in health care expenditure in Luxembourg, 1970–1997

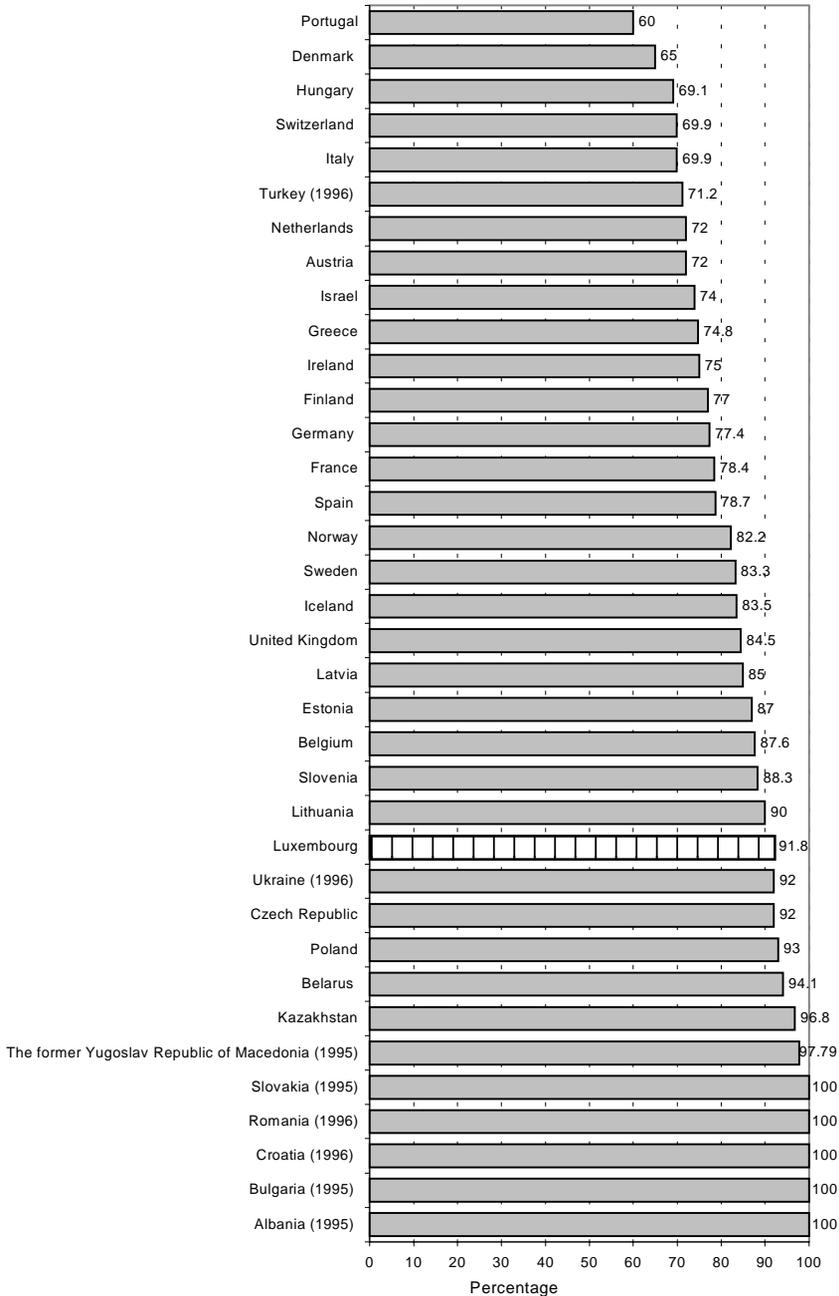
Total expenditure on health care	1970	1980	1985	1990	1992	1994	1995	1996	1997
Value in current prices (million LUF)	2 250	9 082	13 918	22 667	26 661	31 614	33 927	35 470	39 200
Value in 1990 constant prices (million LUF)	7 406	15 336	17 384	22 667	24 757	22 662	22 663	22 665	–
Value per capita (US \$PPP)	147	605	892	1 495	1 743	1 956	2 077	2 139	2 340
Share of GDP (%)	3.7	6.2	6.1	6.6	6.6	6.5	7.0	–	–
Public as share of total expenditure on health care (%)	88.9	92.8	89.2	93.1	92.8	91.8	92.4	92.6	91.8

Source: OECD health data, 1998; WHO Regional Office for Europe health for all database.

The compulsory health insurance's administrative costs were estimated to be 4.4% of total public expenditure on health in 1998. Reimbursement procedures are rendered more complicated by the fact that a certain proportion of people covered by Luxembourg's health insurance actually live outside the country, so insurers need to be familiar with fees and reimbursement conditions both within and outside Luxembourg. For this reason administrative costs are unlikely to reduce in the near future.

National data on the compulsory health insurance system break down the expenditures of the system into three main categories: goods and services reimbursed, cash payments (mainly for capital investments) and maternity services which are classed separately as being 100% financed by the state. In 1997, expenditure in these three categories was 29 264 million LUF, 4138 million LUF and 2072 million LUF respectively for 313 686 insured persons.

Fig. 6. Public expenditure as a percentage of total expenditure on health in WHO's European Region, 1997 or latest available year



Source: OECD health data file, 1998; World Bank; WHO Regional Office for Europe health for all database.

Health care delivery system

Primary health care and public health services

Primarily health care in Luxembourg is provided mainly by general practitioners (GPs) who are self-employed and mostly work in single practices. However, GPs have no gatekeeping role, so they are in competition with specialists to whom patients can go directly even for primary care. Primary care providers charge the fees negotiated between their professional representatives and the Union of Sickness Funds, and they are bound to respect these fees by law. Patients pay GPs directly, on a fee-for-service basis, and are later reimbursed by their compulsory (or voluntary, where applicable) sickness fund. However, most medical consultations are subject to a non-reimbursable patient co-payment.

Primary dental care is provided by private dental practitioners, and reimbursed (up to a 1334 LUF ceiling) at 100% of the agreed rate as noted in the statutes of the sickness funds. Even dental prostheses considered necessary are reimbursed at 100% of this rate if the patient has undergone annual dental check-ups in the previous two years.

Much primary care nursing is provided by “medico-social centres” on contract to the national and local authorities. The centres are administered jointly by the Luxembourg Red Cross and the Luxembourg League for Prevention and Medico-Social Action. Centres are spread throughout the territory of Luxembourg, and are involved in the provision of child health clinics, school health services, assessment of handicapped children and health education and antenatal advice. “Social nurses” from the centres combine the role of health visitors and social workers.

Public health services

Maternal and child health services

Legislation covering the protection of mothers and babies envisages at least five medical examinations and one dental examination during pregnancy and one medical examination within ten weeks after delivery. Antenatal care is not compulsory, but there is a financial incentive for mothers to use antenatal services, because receipt of child benefit is conditional on the completion of certain medical examinations. Antenatal care and postnatal care for mothers is given by private obstetricians and midwives, and reimbursed (at 100%) by the sickness funds. Almost all preventive medical examinations of infants and young children (up until 4 years of age) are performed by private paediatricians in maternity hospitals and services and in independent practices (charged on a fee-for-service basis and reimbursed at 100% by the funds). A few of such examinations are performed at the child health clinics of the Red Cross free-of-charge.

Children are screened for metabolic disorders at birth, for vision defects between 6 months and 4 years, and for hearing defects at the ages of 6 months and 30 months. These screenings are performed by special services under the Directorate of Health and are free-of-charge.

Immunizations within Luxembourg's official vaccination programme (which follows the WHO Expanded Programme on Immunization) are offered free-of-charge as the Ministry of Health covers the cost of the vaccines themselves and the doctor's fee is 100% reimbursed by the sickness funds. Immunization is not compulsory in Luxembourg, but is highly recommended; information and encouragement on the subject of vaccination is given to parents (and prospective parents) by paediatricians and NGOs providing facilities for small children.

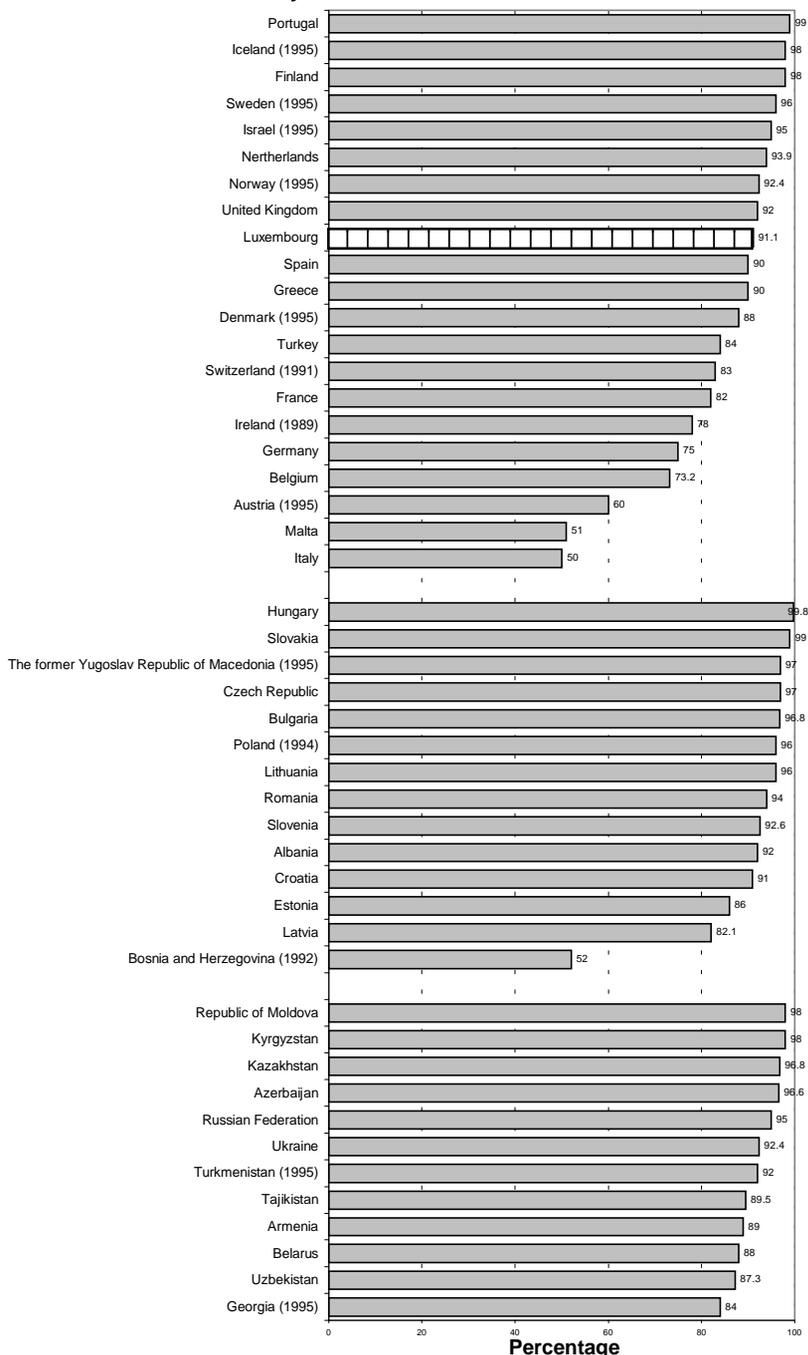
However, efforts by the government and NGOs to encourage vaccination may now have to be stepped up, in the face of increasingly active campaign groups drawing attention to the dangers and side-effects of vaccination.

A rigorous survey of immunization coverage published in 1997 (*Enquête de Couverture Vaccinale au Grand-Duché de Luxembourg*) found measles vaccine coverage of 91.1% (as shown in Fig. 7). This is a surprisingly high figure given that vaccination is not compulsory.

School health services

Legislation states that preventive health services must be provided for children at school from the age of four years. School health services, comprising medical surveillance of schoolchildren and health promotion activities, are organized

Fig. 7. Levels of immunization against measles in the WHO European Region, 1996 or latest available year



Source: WHO Regional Office for Europe health for all database.

in a few cases by local authorities but more often by the Luxembourg League for Prevention and Medico-Social Action and the Red Cross, and in the case of secondary schools by the Division of School Health in the Directorate of Health. A “Healthy Schools” project is run by the Ministry of Education.

Occupational health services

Employers in Luxembourg, as in other EU member states, have to comply with European legislation on occupational health. In 1994 the European Community legislated to require all member states to establish a national occupational health service (Directive 89/391 EEC). Luxembourg’s National Occupational Health Service has been operational from 1 January 1995, to promote the occupational health of employees of private sector organizations which do not have an in-house occupational health unit. The service is funded via a charge levied on all affiliated employers.

Since 1995, seven occupational health services have been created. Beside a national (semi-public) service which deals with workers in the world of commerce and skilled manual workers, there exist two company services for the chemical and rail sectors, and four inter-company services which are responsible for workers in the sectors of steel, banking, health and small and medium-sized enterprises.

The Directorate of Health’s Division of Occupational Health oversees the work of the 35 physicians working in these seven occupational health services for the private sector, and is responsible (with the Inspectorate of Labour within the Ministry of Labour) for analysing the impact of nuisances to workers’ health in every business in Luxembourg (about 16 000 companies with 210 000 workers). The physicians’ duties are: to identify and assess risks in the workplace; to perform the medical examinations required by law; and to advise on organization of the workplace, health education, hygiene, etc.

The second part of Directive 89/391 extends the requirement for occupational health service cover to the public sector, but Luxembourg has not yet implemented this requirement.

Health Inspection

The Division of Health Inspection within the Directorate of Health is by law the mandatory adviser to local authorities on public health questions, and monitors public health activities in a wide range of sectors. Its work divides into two parts: public health inspections, and information dissemination. In early 1999 the Division employed 2 doctors, 4 health inspectors (i.e. qualified nurses with extra specialist training) and one agricultural expert, as well as support staff.

Public health inspections

The Division's health inspectors examine:

- water safety standards
- food standards
- safety in sports centres and tourist facilities
- public health in rural areas
- public health in schools (in cooperation with the Division for School Health and the Ministry of Education)
- public health in state-provided housing (in cooperation with local authorities)
- health standards in nursing homes
- public health issues related to burials and cemetery maintenance.

The Division's inspection personnel are assisted in their work by the staff of the Customs Service. In 1998 they carried out 165 routine inspections, and a further 38 following requests from the public. In addition, numerous opinions were provided to architects prior to building or renovation work and opinions were delivered on the expansion of industrial premises and tourist facilities, and so on. In addition, the Environmental Health Service (which is overseen by the Division of Health Inspection) inspects private residences for health threats at the request of members of the public or their doctors. It made 420 home visits in 1998.

The Division also mounts a 24-hour response service ready at all times to react to any threat of escape of toxic substances due to fire or accident.

Information dissemination

The Division of Health Inspection is responsible for publication of monthly bulletins on the prevalence of all notifiable diseases in Luxembourg.

Family planning

Contraceptives are only provided on medical prescription, and are not reimbursed by the sickness funds unless they are prescribed for therapeutic purposes (in which case authorization for reimbursement must be obtained from the Office of Medical Control). However, contraceptives are provided free-of-charge in family planning centres to young people and to those who cannot afford them. Family planning centres also offer sex education sessions for secondary schools on a voluntary basis and counselling for marital problems, abortion, rape and sexual abuse. Abortion was legalized in 1978, but there are no statistics on the number of abortions performed.

HIV/AIDS prevention

HIV incidence has remained fairly constant in Luxembourg since 1985, with 30 known new infections in 1998 (average incidence 1985–1997 was 28 new infections per year). HIV/AIDS prevention activities are the responsibility of the Division of Preventive Medicine. The division itself focuses on information campaigns aimed at the general public and particularly at young people. Specific action for risk groups such as prostitutes, prisoners and drug addicts, and anonymous, free HIV tests (performed on request and accompanied by counselling) are mainly carried out on contract by the private (non-profit) sector. Some of this work is done at the “Counselling Centre for AIDS”, set up and run by the Red Cross on state funding.

HIV tests are processed by the National Laboratory of Health and the laboratory of the Centre Hospitalier de Luxembourg (CHL).

A National AIDS Surveillance Committee was set up by the Minister of Health as early as 1984 on the advice of the World Health Organization. The Committee advises on national AIDS policy and provides for collaboration with organizations such as WHO, the Council of Europe and the EU. All private non-profit organizations active in this area are represented on the Committee.

Illegal drug policy and prevention of drug abuse

Luxembourg’s Ministry of Justice chairs an Inter-Ministerial Committee on Drugs to coordinate policies on drug abuse between all ministries involved in the problem of drug abuse (e.g. Health, Family Welfare, Education, Justice) and several national organizations active in this field. The implementation of national policy is facilitated by a National Prevention Centre on Drug Addiction and by a complex network of nongovernmental organizations, including centres for young addicts, substitution programmes and streetworkers.

The Service of Social and Therapeutic Activities (soon to become the Division of Social Medicine within the Directorate of Health) also shares the task of combating drug abuse in Luxembourg. The service is also responsible for Luxembourg’s “focal point” within the European Monitoring Centre for Drugs and Drug Addiction, and other EU initiatives; and for contact with numerous other supranational organizations active in drug policy – the Council of Europe, the United Nations, and so on.

Screening programmes

Cancer screening is run by the Directorate of Health, the Union of Sickness Funds and the Luxembourg Cancer Foundation. Cervical cancer screening has been available in Luxembourg since the 1960s, and uptake of this service has been high ever since the 1970s, during which decade mortality from cervical

cancer fell from 10 to 2.5 persons per 100 000. Screening takes place at private practices and family planning clinics. Breast cancer screening is carried out in private medical practices and in the radiological services of hospitals, and all costs are paid directly to service providers by the sickness funds.

Diabetes

A programme for the early detection of non-insulin dependent diabetes is being developed by the Division of Preventive Medicine, specialists working in diabetes care and the Diabetes Patient Association.

Other recent priority initiatives

The Division of Preventive Medicine of the Directorate of Health is involved in planning and organizing prevention programmes and health promotion campaigns in collaboration with schools, health professionals and social services. The major public health problems in Luxembourg are: risk behaviour leading to increased risk of cancer (principally smoking); unhealthy nutrition; alcohol abuse; risk behaviour leading to HIV contraction; accidents. Recent initiatives on priority issues include:

Cancer prevention: A multiannual programme focusing on mammography, cervical cancer screening and the hazards of sun and UV-ray exposure has been set up by the Division of Preventive Medicine and the Division of Radio-protection.

Smoking: Promotion of non-smoking, in partnership with the Luxembourg Cancer Foundation, concentrates on exhibitions and “Smoke-Busters” clubs for schools, promotion of World Anti-Tobacco Day and legislation curbing smoking in public places and tobacco advertising.

Drink-driving: The Road Safety Association and the Division of Preventive Medicine together ran a media campaign encouraging young drivers not to drink; recent campaigns by the Ministry of Transport have also focused on the young as a target group.

Nutrition and physical activity: There are ongoing public information campaigns on healthy eating, and within general promotion of healthy lifestyles more emphasis has recently been placed on increased physical activity.

Health education in schools: The Division of Preventive medicine produces health education magazines several times a year to be distributed in schools, as there is particular emphasis on the young as a target group

Healthy Cities: in 1998, the Division of Preventive Medicine launched a “Healthy Cities” project, with the support of the Ministry of the Interior and of local authorities.

The National Committee against Alcohol Abuse: This Committee is in charge of policy on alcohol abuse, including epidemiological studies, treatment of abusers, counselling of their families and health education campaigns.

Secondary and tertiary care

Secondary and tertiary care is provided by 14 acute care hospitals spread throughout the country (including the neuro-psychiatric hospital at Ettelbrück). One of these, a hospital for maternity services, is run for profit by the private sector. Of the remaining 13, around half are run by local authorities and half by non-profit (mainly religious) organizations. None of Luxembourg's acute-care hospitals is maintained by the state. The number of acute-care hospitals will shortly reduce to 13 when two of the smaller establishments are replaced by one larger facility in a plan known as the "New Hospital Project".

In 1997 a total of 2533 beds were maintained by the 14 hospitals, i.e. 6.13 beds per thousand inhabitants. 5400 people (2.6% of all employment in Luxembourg) worked in these hospitals.

Management structures differ almost between every hospital. All hospitals are run by Administrative Boards, which negotiate separately with the Union of Sickness Funds for their hospitals' annual budgets.

Table 3 shows a steady decrease – albeit from a relatively high level – in the number of hospital beds per 1000 population and their utilization rate over the last 3 decades.

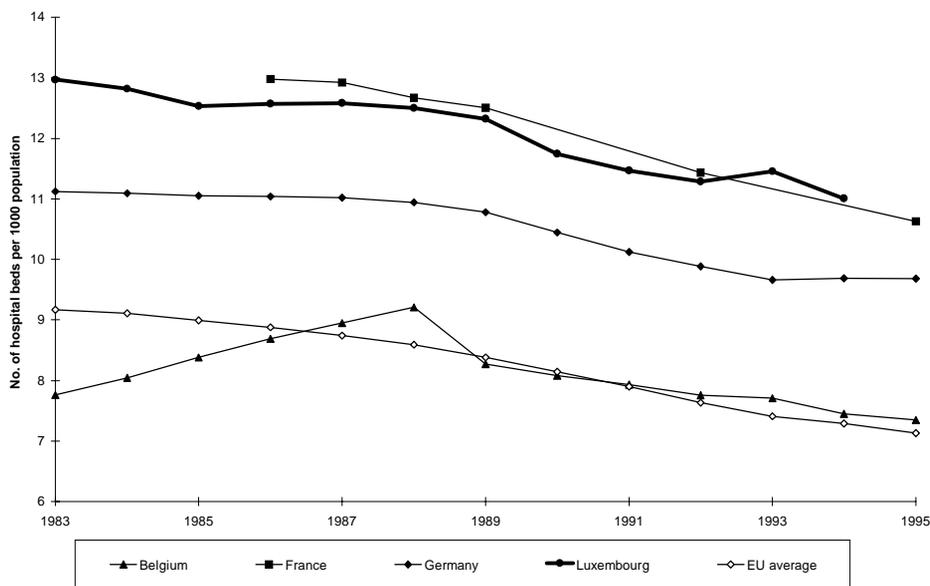
As seen from Tables 3 and 4 and Figs 8 and 9, in comparison to other western European countries Luxembourg appears to have a relatively high number of hospital beds per 1000 population and higher than average utilization rate as measured by admission rate, occupancy levels and especially length of stay. However, the average length of stay shown in Table 4 could be deceptive; the inclusion of figures from the neuro-psychiatric hospital (and possibly of medium-term care beds) pushes up the overall figure, explaining why length of stay appears so high for Luxembourg (15.3 days in 1995). More accurate information is likely to be available from now on, as data on acute hospitals are now clearly separated from the rest. In 1997, for example, the average length of stay in the 11 general hospitals ranged between 5.5 and 9.3 days.

Table 3. Inpatient facilities utilization and performance in Luxembourg, 1970–1996

Inpatient	1970	1980	1985	1990	1992	1994	1995	1996
Admissions per 100 population	13.4	16.6	18.8	19.9	20.3	19.4	–	–
Average length of stay in days	27.0	23.2	20.4	17.6	16.5	15.5	15.3	15.3
Occupancy rate (%)	–	82.6	80.9	82.9	81.4	75.0	–	–

Source: OECD health data, 1998.

Fig. 8. Hospital beds per 1000 population in Luxembourg and selected European countries, 1983–1995



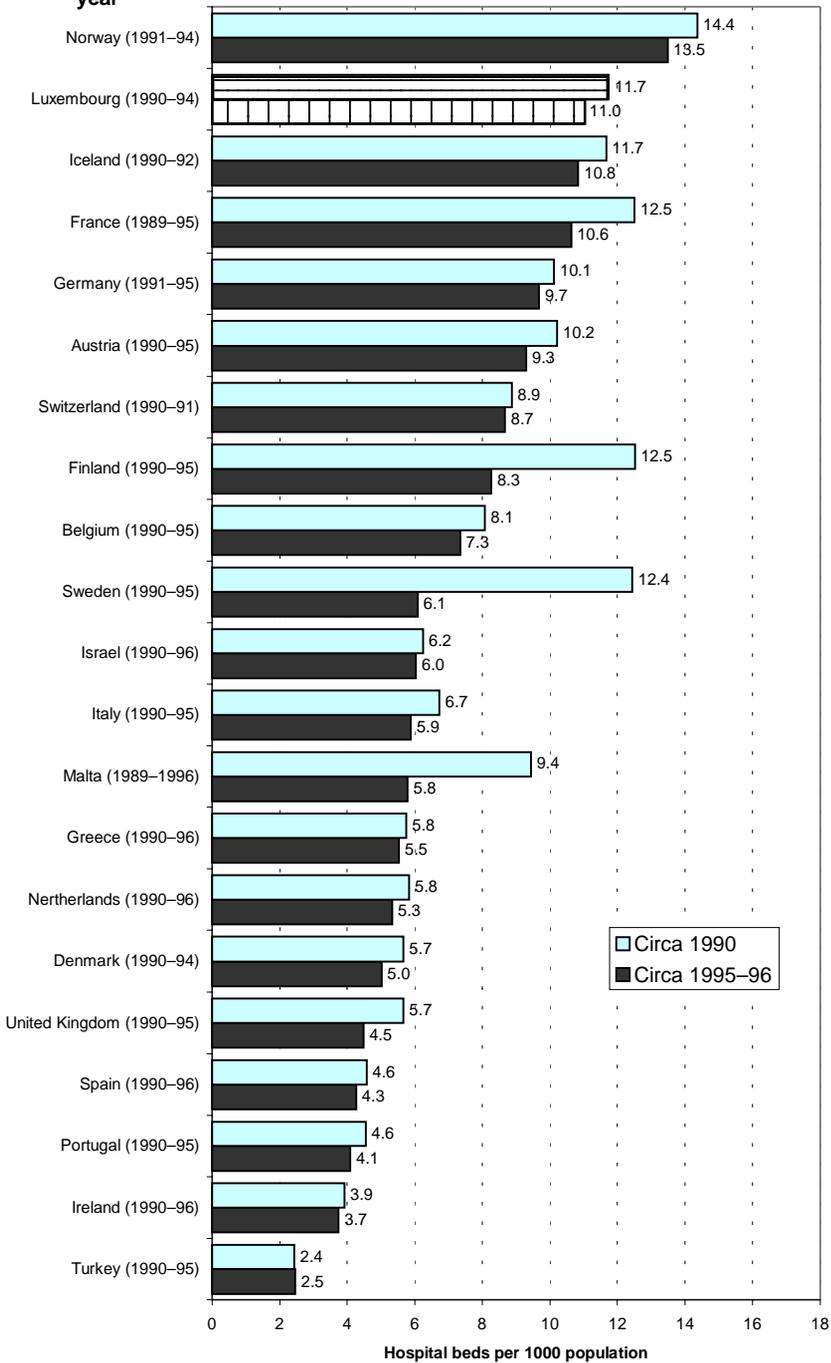
Source: WHO Regional Office for Europe health for all database.

Table 4. Inpatient utilization and performance in the WHO European Region, 1996 or latest available year

Country	Hospital beds per 1000 population	Admissions per 100 population	Average length of stay in days	Occupancy rate (%)
Western Europe				
Austria	9.3 ^b	24.7 ^b	10.9 ^b	75.9 ^b
Belgium	8.3 ^b	19.6 ^b	11.4 ^b	81.4 ^b
Denmark	5.0 ^c	21.6 ^c	7.5 ^b	81.7 ^c
Finland	8.7 ^b	26.8	11.6	74.0 ^b
France	10.6 ^b	22.7 ^b	11.2 ^b	75.4 ^b
Germany	9.4 ^a	20.8 ^a	12.5 ^a	76.2 ^a
Greece	5.8	13.5 ^d	8.2 ^b	–
Iceland	10.8 ^e	28.0 ^c	16.8 ^e	–
Ireland	3.7	15.1	7.5	82.3
Israel	6.0	18.6	10.1	94.0
Italy	5.9 ^b	16.6 ^b	10.5 ^b	75.7 ^b
Luxembourg	11.0 ^c	19.4 ^c	15.3 ^b	75.0 ^c
Netherlands	5.3	10.2	13.9	73.2
Norway	13.5 ^c	15.0 ^b	10.0 ^b	79.4 ^b
Malta	5.8	16.0 ^a	4.56 ^a	72.2 ^a
Portugal	4.1 ^b	11.3 ^b	9.8 ^b	72.6 ^b
Spain	4.3	10.7 ^c	11.0 ^b	73.9 ^c
Sweden	6.1 ^b	18.5 ^b	7.8 ^b	75.9 ^b
Switzerland	8.7 ^f	15.0 ^c	–	78.4 ^d
Turkey	2.5 ^b	6.3 ^b	6.4 ^b	55.6 ^b
United Kingdom	4.5 ^b	15.9 ^b	9.9 ^b	–
CCEE				
Albania	3.2 ^b	9.0 ^b	8.2 ^b	–
Bosnia and Herzegovina	4.5 ^f	8.9 ^f	13.3 ^f	70.9 ^f
Bulgaria	10.7	17.5	13.2	64.1
Croatia	6.2	14.8	13.3	89.6
Czech Republic	9.0	20.4	12.5	74.3
Estonia	7.6	17.9	12.7	71.9
Hungary	8.2	24.2	10.3	74.4
Latvia	10.3	20.9	14.2	–
Lithuania	10.6	20.8	14.0	–
Poland	6.3 ^b	–	10.8 ^b	–
Romania	7.6	21.5	10.0	–
Slovakia	7.5 ^b	18.3 ^b	11.7 ^b	79.2 ^b
Slovenia	5.7	15.5	10.5	77.6
FYR of Macedonia	5.4 ^b	9.7 ^b	15.0	59.9
NIS				
Armenia	7.1	7.5	14.5	40.4
Azerbaijan	9.5 ^a	5.7 ^a	17.5 ^a	–
Belarus	11.6	24.9	15.2	88.7 ^c
Georgia	4.7	4.6	10.6	26.8 ^c
Kazakhstan	8.4 ^a	15.1 ^a	16.5 ^a	80.8 ^a
Kyrgyzstan	8.4	16.4	14.9	80.5
Republic of Moldova	12.1	18.9	18.1	80.8
Russian Federation	11.6	20.5	16.9	87.7
Tajikistan	7.2	10.7	15.0	59.9
Turkmenistan	11.5 ^c	17.0 ^c	15.1 ^c	63.6 ^c
Ukraine	10.8	20.2	16.8	81.9
Uzbekistan	7.9	16.2	13.9	–

Source: OEC Health Data File, 1996; WHO Regional Office for Europe health for all database. **Note:** ^a 1997, ^b 1995, ^c 1994, ^d 1993, ^e 1992, ^f 1991.

Fig. 9. Hospital beds per 1000 population in western Europe, 1990 and latest available year



Source: WHO Regional Office for Europe health for all database.

Social care

In 1998 a new law (dated 8 September) was passed to regulate the relationship between the state and nongovernmental organizations working in social care. The law covers accreditation and funding of care services and cooperation with service providers.

The state's role in this sector consists mainly of issuing care providers with accreditation, funding them and managing their contracts. As well as the Ministry of Family and Social Welfare and the Ministry of Health, the Ministries of Women, Labour, Housing, Education, Youth and Justice are also involved in overseeing this wide sector. The sector's services include (as well as those mentioned above) AIDS and drug addiction prevention activities, resources for single parents, shelter for the homeless and youth training. Services are organized by independent NGOs or jointly by the Luxembourg League for Prevention and Medico-Social Action and the Luxembourg Red Cross through the network of community health service providers entitled *Service medicosocial et social polyvalent de secteur*.

The Service of Social and Therapeutic Activities (planned to become the Division of Social Medicine within the Directorate of Health) is responsible for promoting and supervising services dealing with handicap, mental illness, drug addiction and home nursing services. The Division advises on policy in this sector, taking into account the views of nongovernmental organizations (NGOs) aired in consultative committees. It also runs the Luxembourg focal point of the European Monitoring Centre on Drugs and Drug Addiction.

Luxembourg's nursing homes and "integrated centres" for the elderly, homes and day centres for the mentally ill and disabled and special schooling for mentally-handicapped children are a responsibility either of the Ministry of Family and Social Welfare or the Ministry of Health and of the Ministry of Education. These services (except schools) are public institutions managed according to private law or contracted out to the private (non-profit) sector.

Luxembourg's psychiatric care system was until recently extremely centralized. In 1990 Luxembourg had the highest number of psychiatric beds in Europe, almost all in the state-run neuro-psychiatric hospital at Ettelbrück which was founded over a century ago. Reform of this system was long overdue, and after wide consultation it is planned gradually to replace it with five psychiatric inpatient units (at the existing hospital and four regional acute-care hospitals) and two specialist units for children and adolescents. The rest of the neuro-psychiatric hospital will be given over to special units for geronto-

psychiatry and rehabilitation and to units for medium and long-term psychiatric care.

The financing and provision of long-term care was not covered by health insurance until very recently. Instead, long-term care patients received, under certain conditions, an allowance from the Ministry of Health. In addition most of the long-term care services were subsidised by the state. In June 1998, the Chamber of Deputies passed legislation introducing long-term-care insurance. The state is to contribute 45% of the budget and the remainder is to be met by contributions paid from employment and taxable income, and a special contribution from the electricity providers. Benefits have been paid since January 1999. Items covered include home and institutional nursing care, rehabilitation, home aid, nursing appliances, counselling and other social support for the elderly and the physically handicapped. Rehabilitation, nursing appliances and psychiatric care are still covered by the sickness funds.

During the passage of the law, the federations of NGOs and the unions for workers in the social care sector agreed on a new scheme for remuneration. Remuneration is now committed to rise by a greater margin than will be reimbursed by the state. Finding the funds to meet this shortfall from 2000, when the state ceases to do so, may cause severe problems.

The extra funds provided by the reform for the financing of long-term care are, however, extremely welcome. The insurance presently only covers the provision of care for the elderly and the physically handicapped, but if the current scheme is seen to work well over the next few years, it may be extended to include services for AIDS victims, drug addicts and the mentally ill.

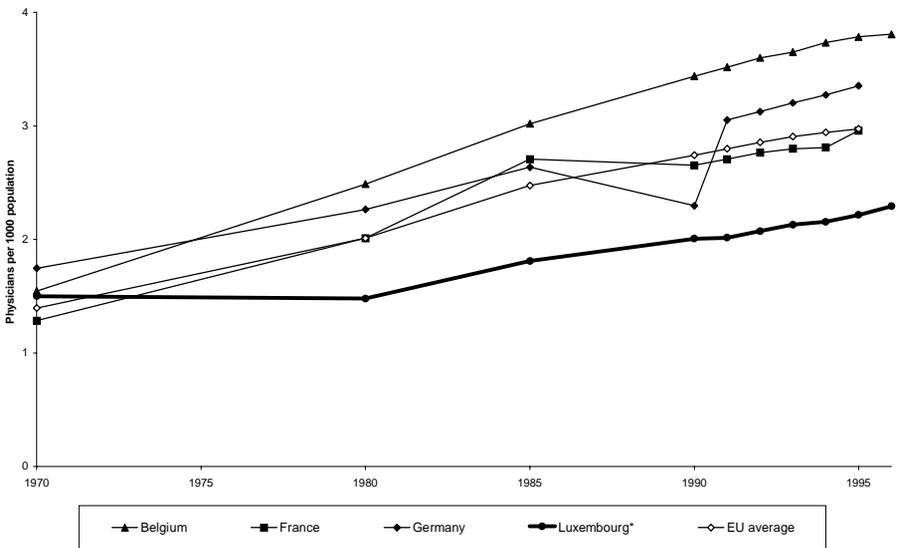
Human resources and training

Human resources

Numbers of doctors practising in Luxembourg have risen steadily over the last three decades, from 362 in 1970 to 563 in 1981 and 766 in 1990. In 1997, there were 344 general practitioners, 656 specialists and 277 dentists in the country, about half of whom practised in the capital.

However, the population to be served has also increased over time, and as Fig. 11 shows, the number of doctors per 1000 population in Luxembourg is still fairly low in comparison to the western European average.

Fig. 10. Physicians per 1000 population in Luxembourg and selected European countries, 1970–1996



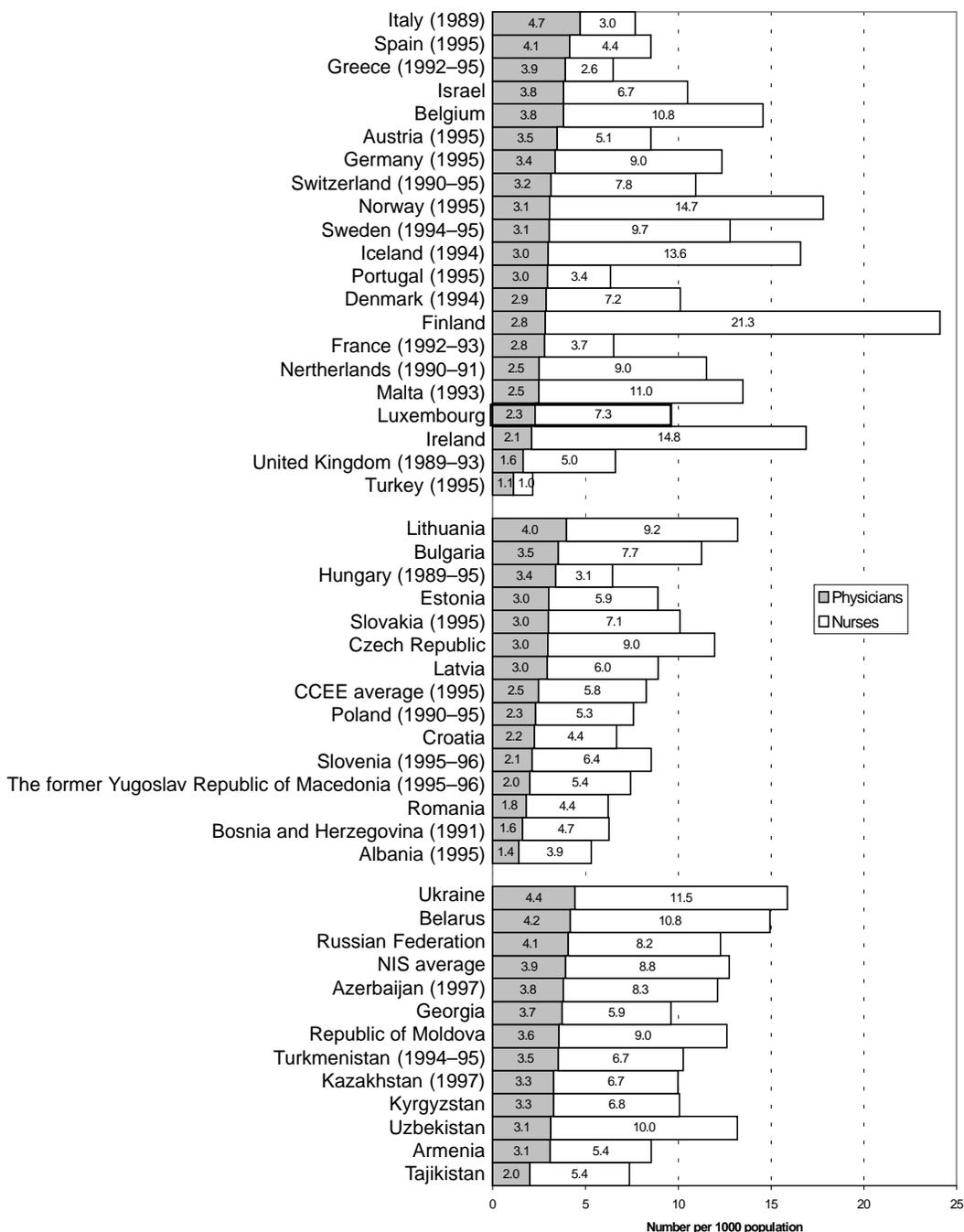
Source: WHO Regional Office for Europe health for all database.

The number of doctors practising in Luxembourg will probably continue to increase for the foreseeable future, because the country has an attractive remuneration and licensing system and, since European Union legislation introduced the mutual recognition of medical qualifications, there has been no legal means to restrict the influx of medical personnel. Once in Luxembourg, physicians have to compete in the market to attract patients, who have free choice of primary care provider; but there is no medical unemployment in Luxembourg. The same situation applies to dentists, whilst in contrast the opportunities for pharmacists are limited because the total number of pharmacies in the country is controlled.

Before the 1990s, there was very little data on the number of nurses practising in Luxembourg. In 1992 registration of nurses and other health professionals was made compulsory, and there is now a state-maintained register of qualified nurses and other health professionals in the country. This put the number of nurses practising in 1998 at 3294, of whom 2467 were general nurses and the remainder specialists in various areas of health care.

Table 5 confirms the general steady increase of numbers of health professionals practising in Luxembourg, although data on numbers of certified nurses have been lacking until recently.

Fig. 11. Number of physicians and nurses per 1000 population in the WHO European Region, 1996 or latest available year



Source: OECD health data 1998; WHO Regional Office for Europe health for all database.

Table 5. Health care personnel in Luxembourg, 1970–1994

Year	Number per 1000 population			
	Active physicians	Active dentists	Certified nurses	Active pharmacists
1970	1.1	0.3	–	0.5
1975	1.5	0.3	–	0.5
1980	1.7	0.4	–	0.6
1985	1.8	0.5	–	0.7
1990	2.0	0.5	–	0.8
1991	2.0	0.5	–	0.8
1992	2.1	0.5	–	0.9
1993	2.1	0.5	–	0.8
1994	2.2	0.5	6.8	0.9
1995	2.2	0.5	7.0	–
1996	2.3	0.5	7.3	–

Source: OECD health data 1998, WHO Regional Office for Europe health for all database.

Training

There is no full university in Luxembourg (students can only complete their first two years of study in the country) nor a medical school. The 20 or so medical students from Luxembourg each year therefore receive their training abroad, mainly in Belgium, France or Germany. Dentists and graduate nurses are also trained abroad – in short, any health profession requiring more than three years' training after secondary school will require a period of training abroad. Following completion of their training, physicians simply need approval of their foreign diploma by the Ministry of Health (if delivered in an EU member state) or by the Ministry of Education (if delivered in other countries) and authorization from the Ministry of Health to practise in Luxembourg.

Professional qualifications requiring three years of training (e.g. the basic nursing qualification and those for paramedics, laboratory technicians and surgical assistants) can be gained in Luxembourg itself. The Ministry of Education takes the lead in determining policy for this training; it takes place at the Technical College for Health Professions which has a main campus in Luxembourg city and two annexes at Esch and Ettelbrück.

Monitoring of health care personnel

Monitoring for inadequate clinical quality

The Medical College and the Superior Council of Certain Health Professions are disciplinary bodies (the former for doctors, dentists and pharmacists, and

the latter for all other health professions). However, they have extremely weak powers; they can remonstrate with irresponsible or negligent professionals, but cannot fine them nor prevent them from practising.

Monitoring for abuse of the social security system

A Surveillance Committee, set up by the Ministry of Social Security, determines when a health professional has made an “unjustified deviation” from the fee schedule for individual medical acts. It can summon the provider in question to a hearing, can carry out an investigation and can warn providers. Two arbitration bodies known as the Lower and Upper Council for Social Insurance can go further, to suspend providers from health insurance for up to six months, ask them to return fees received, or fine them up to LUF 500 000.

Pharmaceuticals and health care technology assessment

Pharmaceuticals

Luxembourg imports all pharmaceutical products, so retail prices are usually based on those used in the country of origin which is generally Belgium, Germany or France (because translation of labelling adds to the cost of importing from other countries). A comprehensive list of drugs approved for use in Luxembourg is maintained by the Directorate of Health’s Division of Pharmacy. The list serves a dual purpose as both national formulary and guide to reimbursement; against each drug is marked its retail price and the percentage of this price which will be reimbursed by the Union of Sickness Funds. Reimbursement percentages were, until 1995, assessed and allocated by the Division of Pharmacy; since then the Union of Sickness Funds has officially taken over this task, but on the basis of work still done by the Division of Pharmacy.

The list is divided into categories:

- normal rate (most drugs): the Union of Sickness Funds covers 80% of the cost of these drugs;
- preferential rate: drugs which have a precise therapeutic purpose, usually with regard to long-term or particularly serious illnesses (cancer, severe hypertension, etc.) – the Union of Sickness Funds covers 100% of the cost of these drugs;

- reduced rate: drugs classed as for “comfort” purposes, e.g. minor painkillers, anti-flu drugs, energizers – the Union of Sickness Funds covers 40% of the cost of these drugs
- non-reimbursed items: for example, vitamin supplements, tonics and several products for which there is commercial advertising are included on the list as they are officially approved for use in Luxembourg, but 0% of their cost is reimbursed.

Patients present their medical prescription and their insurance card and pay the non-reimbursable percentage of the drug cost (i.e. in most cases 20% of retail price) at a pharmacy in order to obtain their medicines. The pharmacy takes the prescription as proof of advance medical authorization, and also uses it as documentation when claiming back the rest of the drug cost from the Union of Sickness Funds. Drugs administered during a visit to a doctor or during hospital treatment do not fall within the above system; they are respectively claimed back by doctors or charged to hospital budgets. Hospitals base their drug budgets on the retail prices quoted by the state list.

New drugs have to be authorized for entry to the Luxembourg market by the Minister of Health, who signs each authorization on the basis of advice from the Directorate of Health’s Division of Pharmacy. Part of the authorization process involves a reconnaissance by the Luxembourg authorities to check that the retail price (based on the price in the country of origin) is justifiable.

The Division’s duties also include supervising the practice of professional pharmacists and advising on authorization of new pharmacies. In early 1999 there were 79 pharmacies in the country; 53 were public (run by self-employed pharmacists, but on concession from the state) and the private sector ran the remainder. The number of pharmacies in the country is controlled, as new pharmacies require authorization by the state. A new pharmacy can open if a commune demonstrates the demand for it and the Division of Pharmacy gives authorization. However, the number of pharmacies tends to remain fairly constant.

The seniority of Luxembourg’s qualified pharmacists is assessed on a points system throughout their working lives, and on reaching a certain number of points a pharmacist is eligible to inherit the management of any public pharmacy which falls vacant (which happens automatically when the holder of the state concession reaches the age of 70).

Until 1995, patients had to advance the total cost of a drug to the pharmacy, and themselves received reimbursement at the relevant percentage (usually 80%). Since 1995, the patient has only advanced the non-reimbursable

percentage. The justification for moving to the present system was that the state could delegate certain monitoring tasks, such as gathering information on doctors' prescribing patterns, to pharmacies. To pay pharmacies for this extra work, an administration charge which pharmacies had been required to pay to the Union of Sickness Funds since 1983 (5% of the official price of each drug) was abolished. However, some observers argue that the new system contains incentives to increase expenditure on pharmaceuticals. Before 1995, patients were far more aware of the cost of pharmaceuticals. Since then, patients (and their doctors) have known that they will not have to advance the total drug cost even temporarily, so they are keen to be prescribed more, and more expensive, drugs.

A possible future reform in this sector (which has been suggested by the Union of Sickness Funds) would be the inclusion within the approved drug list of guidance to doctors on which drugs to prescribe. Indeed some sections of the list already do so. The aim of such guidance is to influence the prescribing behaviour of doctors – but again opinion differs as to whether this is out of concern primarily for service quality or for cost containment. Cost containment is not yet a prominent feature in Luxembourg; as far as pharmaceuticals are concerned, patients expect to be (and usually are) given a prescription during a medical consultation. There is little discussion of trying to encourage Luxembourg's physicians to prescribe generic drugs.

Health care technology

The government publishes (and revises every three years) a list of pieces of costly, specialized medical equipment which cannot be purchased by hospitals without special authorization of the Minister of Health. In early 1999 this list specified 31 categories of health care technology (although as a result of the 1998 law on hospitals this number is soon to be reduced). Under the 1976 law on hospital planning, the Minister of Health authorizes this equipment to be installed in hospitals according to the needs of the population estimated in each National Hospital Plan. The authorization process includes consultation with the Permanent Hospitals Committee, an advisory board composed of representatives from the government, Union of Sickness Funds, hospitals and the health professions. The 1998 hospital law provided for up to 80% of the cost of this equipment to be met by the state, so hospitals are unlikely to purchase these costly items without applying for authorization and funding from the Ministry of Health. Less costly items are reimbursed by the Union of Sickness Funds.

Financial resource allocation

Third-party budget setting and resource allocation

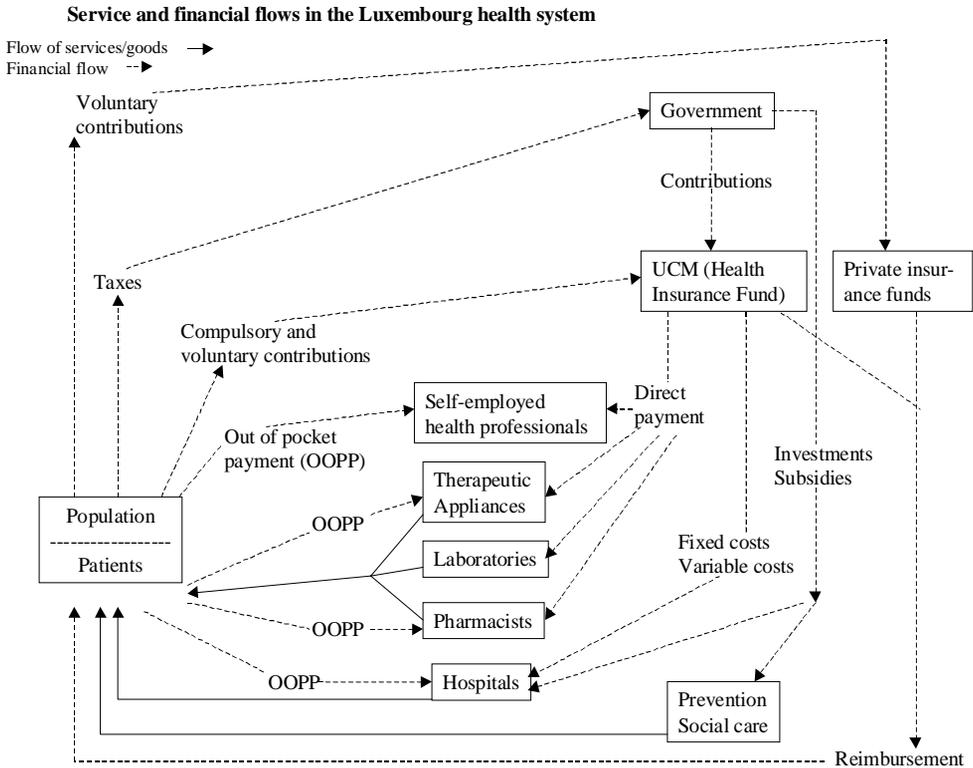
The budget of the compulsory health insurance system, which takes account of future financial developments and needs within the system, is the responsibility of the General Assembly of the Union of Sickness Funds. The state's contribution to compulsory health insurance is limited to 40% of its total budget and the Union of Sickness Funds is obliged to balance its budget by maintaining a reserve at all times. However, in addition to contributing to the main insurance coverage system, the state wholly or partly funds a wide range of other goods and services – e.g. health promotion activities and other preventive and public health services, maternity services, investment in hospital infrastructure and technology, social care services and some training. The administration (and funding) of some of these budget categories is shared between the Ministry of Health and other Ministries; for example, the Ministry of Education meets most of the cost of the training of health care personnel.

Because of Luxembourg's small size, few decisions about the allocation of health care resources are delegated to local authorities. However, hospital budgets are determined individually by negotiation between each hospital's administrative board and the Union of Sickness Funds. In these negotiations the power of local authorities and powerful local personalities can come into play.

Payment of hospitals

Until 1995, hospitals were financed on the basis of a uniform per diem payment, lump sum payments for various surgical operations, and fee-for-service remuneration of physicians. However, a shortfall resulted, and to attempt to cover costs a prospective payment system has been in operation since 1995. The

Fig. 12. Financing flow chart



Source: adapted from IGSS, Luxembourg, 1998.

sickness funds transfer prospective budget payments directly to individual hospitals. Patients are also required to pay a small daily fee.

Individual hospital budgets are negotiated between the Union of Sickness Funds and the hospitals themselves. The budgeting and payment process starts early each year. Before 1 April the Ministry of Social Security circulates to hospitals an assessment of external factors which could affect hospital budgeting. The signatory parties (the Union and the hospitals) have until 1 May to negotiate the terms of the budget. Each hospital drafts its budget, based on a combination of historical data, inflation, changes in career structures, agreements with trade unions and so on. (Supplementary personnel costs are renegotiated each year; the most important category is nursing staff, where all parties in the Luxembourg system have agreed to use the Canadian PRN system for measuring workload in nursing units.) Each hospital's budget is submitted by 1 June to the Union of Sickness Funds for verification. The Union has until

1 September to submit any final disagreement to a Hospital Budget Committee which must reconcile the signatory parties.

Hospitals receive three categories of payments:

1. Non-activity-related (hospital maintenance) payments, paid each month: this pays for the cost of keeping the hospital ready to treat patients;
2. Activity-related payments, paid according to units of activity accomplished and documented in invoices presented by the hospital to the sickness funds (or to the state in some cases – e.g. maternity care, of which the government funds 100%). To be reimbursed, a hospital has to establish an individual bill for each patient;
3. Bonuses of up to 2% of the total hospital budget, which are payable if the hospital follows a quality programme determined by the Union of Sickness Funds.

Major investment costs for construction and equipment are financed by the state at a rate of 80%. Significant new equipment has to be authorized by the Minister of Health, in accordance with the National Hospital Plan. There is no overall budget for running costs as each hospital negotiates its operating budget with the Union of Sickness Funds, without the direct interference of the state

Payment of physicians and other health professionals

With a few exceptions, doctors in Luxembourg are self-employed and paid on a fee-for-service basis (and have to accept the fixed statutory fee levels). The exceptions to this rule are a few doctors in the neuro-psychiatric hospital, and the unique salary system of the Centre Hospitalier de Luxembourg (CHL).

In the CHL all medical professionals' earnings (from normal fee-for-service payments) are centrally pooled and then reallocated by hospital management as salaries. This system dates from the CHL's origins; the hospital was set up in the early 1970s, at a period when principles of social solidarity were strongly felt, so its salary system was designed to reallocate income more equitably between different health professions. This system benefits professionals (such as paediatricians) who produce fewer chargeable units than others due to, for example, longer consultation times, and it removes the incentive for such professionals to increase their unit output at the expense of quality of service. In practice, however, professionals at the CHL are subject to the same fee-for-service incentives – albeit to a lesser extent – than those at other hospitals, because CHL management monitors earnings and will question those who

generate low levels of income. It is important to note that from the point of view of the patient, even the doctors in CHL are paid on a fee-for-service basis; the patient still has to pay the set fee at the point of use.

The neuro-psychiatric hospital at Ettelbrück was the last to be run by the state, but was brought into line with all other hospitals by legislation in 1998 and will henceforth, like them, be run by an independent administrative board. Its existing staff will continue to be paid as civil servants for the rest of their careers, but new recruits will be remunerated as private employees. Services will be charged for on a fee-for-service basis.

Besides doctors, the only other major group of health professionals who are self-employed are physiotherapists. Almost all other health professionals are waged employees, and their remuneration level is negotiated between unions and employers.

Fees for services

All services given by health professionals are defined by the Ministers of Social Security and Health on the basis of proposals from a board of experts. They are set out in the two volumes of fee schedules or “nomenclatures” which are published each year; one volume covers the services given by doctors and dentists and the second the services given by other health professions. The “nomenclatures” set out the value of each service, and the fee level for that service is calculated by multiplying the value by a factor (the “standard fee”) which is negotiated each year between the Union of Sickness Funds and organizations representing health professionals. Professionals then have to accept the statutory fee levels set. Table 6 shows some examples of statutory fee levels in 1999.

A surveillance committee, set up by the Ministry of Social Security, is responsible for determining when a health professional has made an “unjustified deviation” from the statutory fee levels. In the case of “unjustified deviation”, a number of sanctions can be taken. The provider can be suspended from health insurance for up to six months, issued with a warning, asked to return fees charged or fined (up to LUF 500 000 for individual doctors).

Having paid for ambulatory care, an insured patient is reimbursed most of the fee at the rate set by law, minus a proportion which is forfeited as a co-payment. For example, reimbursement is currently set at 80% of the fee for the first visit by a general practitioner to the patient in any 28 days (i.e. co-payment at 20%), 95% for the first visit made by a patient to a GP or for any specialist consultation, and 100% for further visits.

Table 6. Examples of statutory fee levels for certain services, 1999

Health professional	Service	Fee (1999) (in LUF)
GP	Normal consultation (patient visits doctor)	805
Most medical specialists	Normal consultation	650
GP or medical specialist	Visit (doctor visits patient)	1 385
Nurse	Taking blood sample	70
Nurse	Placing patient on intravenous drip	349
Laboratory technician	Western blot test	1 095
Laboratory technician	Test of blood sample for toxoplasmosis	547

Source: Union des Caisses de Maladie, Luxembourg, nomenclatures, 1999.

Health care reforms

Reforms of the health care delivery system

The *1976 law on hospital planning* formed the first attempt by the state to influence planning in the hospital sector. It had two principal aims:

- to try to limit and regulate the development of the hospital sector;
- to create a legal framework through which the state could subsidise the hospital sector, for which hospitals' representatives had been pressing for some time.

This legislation provides the legal context within which successive National Hospital Plans in 1982, 1989 and 1994 have determined the levels of hospital infrastructure and equipment deemed necessary to serve Luxembourg's population.

1977: Legislation introduced *preventive interventions during pregnancy and early childhood*. Regular medical checks for mothers and infants were to be reimbursed by the sickness insurance funds.

1980: A *Law on the Directorate of Health* replaced earlier legislation (1952) on public health officers. It defined new areas of responsibility for the Directorate, and organized the administration to perform these tasks.

1980: Legislation established as a separate entity the National Laboratory of Health (which had previously come under the control of the Director General of Health).

1982: First National Hospital Plan.

1987: A *Law on School Health* (replacing regulations of 1919) introduced a requirement for thorough medical check-ups for schoolchildren at certain ages, in addition to annual shorter screenings. The law also provided for individual health counselling for pupils and emphasized the need for close cooperation with mental health services within education.

1989: *Second National Hospital Plan.*

1990: *Law on the development of hospital services*, building on the 1976 law on planning.

1994: *Law on occupational health services.* This legislation, codifying Luxembourg's efforts to protect the health of workers at the workplace and to prevent accidents and occupational diseases, implemented an EU Directive (Directive 89/391 EEC) to set up a national occupational health service.

1994: The *Third National Hospital Plan* continued to steer the allocation of hospital beds and equipment towards a more equitable reflection of the needs and geographical distribution of the population. It dealt with the allocation of acute beds, research into the quality of care and patient safety and development of alternatives to long-term hospital care (bearing in mind increasing rehabilitation needs, especially of the elderly).

1994: *Legislation creating the National Prevention Centre on Drug Addiction.* This centre is financed by the Ministry of Education, and is responsible for coordinating preventive activities in the field of drug addiction. It has been operational since 1995.

1998: (July) A new law on hospitals succeeded the previous laws on hospital planning (1976) and development of hospital services (1990) which had introduced a basic structure for financial contributions by the state towards investment in hospitals' infrastructure and equipment. The new law set a range of rates for these contributions depending on the type of investment, and also introduced standards and guidelines for the organization of hospitals and hospital departments and defines the rights of patients. It forms an important part of Luxembourg's preparation for its fourth National Hospital Plan, which is likely to be finalized in 2000 or 2001.

Possible future changes

The main objectives for future action are: to define minimum standards for hospital services; to promote the quality of care and the continuity of care

between hospitals and primary health care services; to improve hospital information systems; to improve the monitoring of outcomes of health care activities; and to secure the rights of the patient. Better integration of doctors into hospital financing systems may also be a priority.

Reforms of health care financing

The early development of the health insurance system was described under “Historical Background” above. Since 1970, the most significant changes in the system have been the reforms of 1974, 1978, 1992 and 1998. There were also minor changes in 1981–1983.

1974: *Legislation on sickness fund benefits:* this legislation established uniformity of benefits for all categories of persons insured across all sickness funds, and redefined the state’s contributions to the financing of the sickness insurance. Also in this law the sickness insurance system started to recognize the importance of (and the duty to reimburse) preventive care, by offering 100% reimbursement of dental treatment if the patient had had a dental check-up each year for the previous two years.

1978: *Further reform of the sickness funds* created a “risk community” among all funds so that end-year deficit of some funds could be covered by surplus of others, and allowed the state contribution to the financing of the funds to grow to almost 40%.

1981–1983: *Minor legislation on sickness funds and health personnel* brought increases in co-payment levels, refinements in the pharmaceutical reimbursement system, reduction of remuneration for doctors and a framework for the adjustment of pay of hospital employees with the cost of living.

1992: *Major reform of the sickness insurance system:* in original drafts of this legislation the government intended to abolish the nine separate sickness funds, but faced with strong opposition from professional groups it had to compromise, allowing the funds to continue to exist as agencies for direct contact with the insured citizen. All other responsibilities (most notably direct reimbursement to providers), were transferred to the Union of Sickness Funds.

Also under the 1992 law the state agreed to subsidise sickness funds for pensioners at a far higher rate (250% of their contributions) than for the currently employed (10%), because pensioners consume more health care than the active

population and their contributions to health care are lower. State input to all funds was formally limited to 40% of their total budget.

Finally, for cost containment purposes, the 1992 law defined the nomenclature of all medical and nursing acts, set a time limit for the conclusion of contracts between providers and the Union of Sickness Funds, and introduced a new financing system (from 1 January 1995) for hospitals. The new system abolished the uniform *per diem* payment system, which encouraged spiralling hospital costs, and instead mandated each hospital to negotiate its own individual budget directly with the Union of Sickness Funds. This system still excludes individual doctors working in hospitals, who continue to be paid on a fee-for-service basis.

1998: *Legislation introducing insurance to cover the cost of long-term care.* Until 1998, the lack of insurance to cover long-term care for the elderly and the handicapped was a source of concern in Luxembourg. 1998 legislation started to fill the gap, introducing insurance covering home and institutional nursing care, rehabilitation, home aid, nursing appliances, counselling and other support for the elderly and the mentally and physically handicapped. The state pays 45% of the cost of such care, and the remainder is met by the insured person's contributions and by levies on the patient's estate revenues, if any. Benefits have been paid since January 1999.

Possible future changes

The long-term-care insurance described above covers care for the elderly and the mentally and physically handicapped. Services for AIDS victims, for drug addicts and the mentally ill are not yet covered, and these may be candidates for inclusion in future if the current scheme is seen to work well over the next few years. Another possible target for reform is the continued parallel existence of the Union of Sickness Funds and the nine individual funds, which is thought to lead to wastage and unnecessary extra bureaucracy.

Health for all policy

A "Health For All" paper was prepared by the Directorate of Health and published by the Ministry of Health in 1994. It set priority targets in the following areas:

Cardiovascular diseases: Reduction of mortality from diseases of the circulatory system by at least 30% by the year 2002 (from 486/100 000 in 1988–1990 to 340/100 000 in 2002); reduction of mortality from coronary disease (in the under-65s) by 20% by the year 2002 and (in over-65s) by 30%; reduction of mortality from stroke by 25% in the under-65s and 30% in the over-65s by the

same year; promotion of healthy nutrition and physical activity and reduction of alcohol consumption and smoking, and detection of other risk factors.

Cancer: Reduction of lung cancer deaths by 15% in the under-65s by the year 2002 (i.e. from 24/100 000 in 1988–1990 to 20/100 000) via a strategy to reduce smoking overall in the population by one third (from 33% in 1987–1990 to 22% in 2002); to reduce mortality from breast cancer in the vulnerable population by 25% by the year 2002 via promotion of screening programmes; to promote cervical cancer screening and reduce cervical cancer deaths to 3 in 100 000 by 2002.

Accidents: Reduction of mortality from accidents by 25% by the year 2005. Prevention campaigns to reduce road traffic accidents have had no impact on young people (age group 15-24 years) so these are to be the priority target group; a secondary priority will be the over-65s.

Diabetes: Increasing information available on the disease; primary prevention via health education on nutrition, etc; promotion of early detection of the disease in order to prevent complications.

Communicable diseases: Revision of the surveillance system, updating of the immunization programme and an AIDS/HIV prevention strategy defined until the year 2003.

Mental health: Reduction of suicide and attempted suicide; reduction of prevalence of mental illness; improvement of the quality of life of persons with mental and psychological problems (no numerical targets specified).

Environmental health: Creation of an Environmental Health Service, overseen by the Directorate of Health's Division of Health Inspection; increased attention to actions to limit polluting emissions and destruction of the ozone layer, and to air quality, water quality, food standards, waste disposal, urban habitats and protection against ionising and non-ionizing radiation. (Much of this area is covered by European Community or international law).

Health at school : Emphasis on the importance of the existing system for medical surveillance in schools; reinforcement of the school as a health promoting environment via health education, safe facilities, good nutrition and sport.

Occupational health: Ten objectives relating to the improvement of health and safety at work (which were mainly taken up in legislation passed in 1994).

Conclusions

Fundamental principles

The fundamental principles which guide the health care system in Luxembourg are the coverage of the whole population by the compulsory insurance system which pays for the majority of services, and the patient's right to choose his/her preferred provider (who is reimbursed at the rates set by the insurance system). The attitude taken in Luxembourg is that patients in the late twentieth century can easily access information about the range of health care available; they are expected to do so and exercise informed choice, taking responsibility for their own health. Of course, transparency of information about health care providers is crucial to this principle. Only if there is adequate information is the patient's "informed choice" authentic.

This central principle of free patient choice applies not only to the primary health care provider, but also – through voluntary insurance coverage – to the standard and location of secondary care. The importance which Luxembourgers attach to free choice by the patient means that Luxembourg is unlikely in the foreseeable future to introduce a referral system between primary care providers and secondary and tertiary care.

Evaluation and cost containment

Luxembourg is a rich country. Unsurprisingly, therefore, cost-containment in the health care system has not been as urgent a priority in Luxembourg as elsewhere. Some claim that the lack of real expenditure constraints has resulted in inadequate evaluation of capital projects in the health sector – for example, the state may in the past have made capital grants to hospitals without rigorous prior evaluation of the value or effectiveness of the project or equipment planned. As in many fee-for-service systems, monitoring of health care delivery seems to have been more focused on quantity, than quality of output.

Even if true in the past, this tendency has receded in recent years. Reformers have tried to develop the sense that even in a rich country, the insured citizen and potential patient has a right to expect money to be spent in the most effective way. Thus evaluation of service quality and effectiveness needs to play a major role. Integrating such evaluation into the mentality of the health care professions has been a key aim of recent legislation. For example, a law passed in 1998 limited the accreditation of hospital services to only five years at a time. At the end of that period services must seek re-evaluation and accreditation; in addition hospital managers are being encouraged to perform regular internal assessments between (in preparation for) external evaluations. Thus the state hopes to establish qualitative evaluation and the concept of value-for-money as an accepted part of health service planning and delivery.

Other challenges for the future

Generally, the main internal challenge facing the Luxembourg health system in future is the need to take on board the modern tools of evaluation and cost-containment and tailor them to complement the principal characteristics of the current system. More specifically, key areas which will require hard work and attention over the next few years will be the new long-term-care insurance system (and other changes in social care), and the administration of the pharmaceutical reimbursement system.

However, other challenges have resulted from external factors, and these will also need to be addressed. In particular, the “Decker and Kohll” judgments of the European Court of Justice have special significance for Luxembourg. Briefly, EC Regulation 1408/71 (which coordinates EU member state social security systems) stipulates that patients seeking medical treatment in another member state must seek prior authorization from their own social insurance provider if they wish the costs of their treatment reimbursed. However, encouraged by the free movement of people, capital, goods and services within the European Union internal market, in 1998 two Luxembourg citizens challenged the requirement for prior authorization before the European Court of Justice. The Court ruled that the Luxembourg sickness insurance system:

- had infringed Articles 30 and 36 of the Maastricht Treaty (on the free movement of goods in the Community) by refusing reimbursement of the cost of a pair of spectacles bought in Belgium on the grounds that no prior authorization had been sought (the Decker judgment);
- had infringed Articles 59 and 60 (on the freedom to provide services throughout the Community) in refusing to reimburse for treatment by an orthodontist based in Germany (the Kohll judgment).

In Luxembourg, people are already used to seeking goods and services in different member states which may only be half an hour's drive away. The Decker and Kohll judgments encourage them to treat health care no differently from other goods and services. Yet the impact for the sickness funds will probably be manageable as long as the judgments apply only to ambulatory health care services, not to inpatient care. If (as is thought likely) the principle of the judgments is extended via a further court case to cover inpatient care, the implications for the system will be more significant. Firstly, inpatient care is generally more expensive than ambulatory care, so the cost to Luxembourg's system – of paying for medical treatment received abroad whilst not benefiting from the service activity within the national economy – would be greater. Secondly, if patients sought inpatient care abroad to such an extent that Luxembourg hospitals became seriously underused and had to close, this would impact upon the equity of distribution of care throughout the country.

Luxembourg's health care planners will need to monitor the possible implications of the judgments carefully. Some of those implications, however, may be positive. The Decker and Kohll judgments can be seen as an incentive to ensure that Luxembourg's health care is of such high quality that citizens are not tempted to look elsewhere; and to develop evaluation and accreditation standards to be able to prove this high quality to the consumer.

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