# Provision of Ambulatory Health Services in Poland: A Case Study from Krakow

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# 1. Introduction

Health care in the formerly communist states of Eastern Europe has traditionally been financed and managed by the state and provided in facilities owned and run by the government. Primary health care in this system has traditionally been produced and delivered by a vast network of service centers located in areas where people live, work or study. Administered by provincial or local governments, primary health care has been provided by multi-specialist teams of physicians trained in internal medicine, pediatrics, and gynecology, and by dentists, nurses, midwives and ancillary support staff. In-patient care has been provided in state-run facilities at the provincial and regional levels, and in national-level teaching universities.

The transition to a free-market economy, however, is rapidly changing this scenario. In response to opportunities and challenges brought about by the move away from central planning toward market-based economies since the 1980s, the formerly communist states of Eastern Europe have introduced a number of reforms in the finance, management and organization of the health sector. Though varying in content and timing, the general direction of reform has been toward decentralization to lower levels of the public sector, privatization of public sector services, greater choice for patients, establishment of new provider payment mechanisms, separation of financing and provision of health care and introduction of national health insurance. In most of these countries, the strategies and mechanisms of health sector reform have accompanied or followed broader structural changes in governance, authority relationships and ownership resulting from a combination of social, political and ideological forces.

Following reforms in health care financing and management in particular and shifts in political and economic ideology in general, significant changes are occurring in the system of delivery of health care services. With decentralization and the introduction of new physician payment mechanisms, a whole new class of publicly financed private providers has developed. Private practice by physicians, which was known but not widespread even during the days of socialism, is witnessing an exponential growth rate, and new opportunities to work in privately owned hospitals are becoming available. At the same time, however, the security and familiarity with the public system is keeping many physicians from making a complete break from the old system, many of whom hold multiple jobs in multiple organizations.1 As a result, the provision of health services has taken on a very complex form, with a wide variety of providers, distinguished both by sources of financing and by their ownership status, operating in a health system characterized by significant interactions between the public and private sectors.

Much of the recent debate in health sector reform in countries of Eastern Europe, however, has focused on financing, especially health insurance, and on management, especially autonomy and privatization, and very little attention has been given to the changing organization in the provision and delivery of health services. As a result, our knowledge of the supply side of the health sector is very inadequate, so much so that we do not even have a suitable vocabulary to describe the new emerging categories of health providers and to understand the constantly changing organization of health services provision.

There are several reasons why understanding the organization and supply of health services is so important (Berman, 1999). First, understanding what factors determine provider behavior is critical to designing appropriate financial and other incentives for physicians. Second, understanding the supply side and its relationship to the health system as a whole is necessary for designing policy interventions to achieve systemic changes. And third, to the extent that organized providers are as likely to affect the health sector reform process as be affected by it, an

[1] There is no official record of multiple job-holding among physicians; only the principal employment is recorded by the Chamber of Physicians. However, anecdotal evidence suggests that almost every physician works in more than one facility.

understanding of the organization of the suppliers of health care is essential to designing and planning the process of reform.

This study presents an account of the organization and supply of health care services in Poland. The analysis shows that more than one-third of all ambulatory health care contacts are provided in the private sector, in over one thousand units located in the city. Private out-of-pocket expenditure is the biggest source of funding of outpatient care, most of which is on drugs. Informal payments for health care are substantial, accounting for about 33% of all out-of-pocket expenditure on ambulatory health care, excluding drugs.

The rest of the paper is organized as follows. A brief description of the Polish health care system is placed in section 2. Section 3 contains the research questions. Data collection is described in section 4 followed by the main results in section 5. The paper ends with a discussion of policy implications in section 6.

## 2. Background: The Health Care System in Poland

The health care system has undergone significant changes over the last few decades, and the major trends can be examined over three historical periods: 1945-1989, 1990-1998 and January 1, 1999 onwards. Socialism was the distinctive political ideology before 1989, and the Polish healthcare system was but a sub-system of the larger command economy. Even though the first of the movements in support of a free-market structure had started in early 1980s, it was not until 1989 that the transition away from communism started in earnest. This was a period of widespread reforms in practically all sectors of the economy, and the health sector was no exception. After a decade of legislative reforms and preparation for a market economy, Poland introduced social health insurance in 1999, marking a new era in the transformation of the health sector.

*1945-1988*
Except for a brief period of limited Bismarkian-type social insurance that covered about 7% of the population between 1918 and 1939, general tax revenues have financed health care in Poland, even before the Second World War. Under the communist form of government after 1945, health care was declared a public responsibility and, like other parts of the economy, the administration of the health system also came to be strongly centralized. All facilities were brought under state ownership and central financing through budgetary transfers. Based on the *Siemaszko* model of the erstwhile Soviet Union, the health care system in Poland emphasized access and offered free universal public health care to all. The national budget, either directly through the Ministry of Health, or through other ministries like Defense, Interior, Transportation and Industry, supported a huge network of state-financed hospitals and clinics. At the heart of this network of health services were over five hundred z*espol* o*pieki* z*drowotnej* (*zoz*), or integrated health and social service units, which served the 49 *voivodships*, or provinces.

Primary health care in this system was provided by multi-specialist teams of physicians trained in internal medicine, pediatrics, and gynecology, and by dentists, nurses, midwives and ancillary support staff, and delivered through over three thousand service centers. In urban areas, primary health care was provided in *przychodnias*, or large polyclinics, which also offered some specialist and diagnostic services. In rural areas, primary health care centers were generally smaller, and usually had one physician and one nurse. Emergency care was provided in emergency care units and by ambulance services. In-patient services were provided in *voivod*-owned general and specialist hospitals located in urban centers across the country and in highly-specialized teaching hospitals of the 11 medical universities.

All health care personnel were state employees and paid on salary-basis, and levels of compensation were low. There is some evidence of private practice by physicians in this period, but the volume of services provided was probably low. Only the very senior physicians like Directors of hospitals and Department Heads had private practices and that too largely because of the obvious connection they could provide to hospital services. Since farmers were not covered for free health care till 1971, private practice was more common in rural areas compared to urban areas. Informal payments by patients to physicians in public facilities were a common practice, but not much is known about the nature and extent of these payments.

All this set in place a system of incentives and a system of practice in response to these incentives. First, given the nature of allocation of funds, the management of health facilities in the *voivods*, *gminas* and *zozs* had few incentives to develop fiscal and strategic planning functions. The predictability of budgetary allocations undermined the need to improve managerial and organizational capacity, which effectively slowed down the process of innovation and ability to respond to environmental changes. Second, the system of compensation based on salaries undermined the importance of effort and productivity. As a consequence, there was little effort to improve efficiency and quality of care, and patients faced a situation of erratic service. In addition,

low physician salaries were kept low, leading to a situation in which physicians look to other sources to augment their salary incomes. And third, there was little reorganization and restructuring of the public sector over time, as a result of which the public health care system became overstaffed, with widespread misallocation of resources, underutilization of capacity in some areas and under-supply in others, and shortage of drugs and medical supplies.
The Polish system of health care financing and delivery in this period was generally successful in contributing to rapid declines in morbidity and mortality, and increase in life expectancy. However, patients generally remained dissatisfied with quality of care, restrictions in access and limits on choice of providers. Medical personnel complained of low wages, and many looked for alternate employment to complement the low government salaries. More and more physicians started practicing privately. Motivation among health administrators and managers remained low, in part because there were no incentives to think differently.

*1989-98*
In January 1990, the government in Poland introduced a package of reforms to change the centrally planned communist system into a free market economy. All prices were permitted to move freely, money supply was tightened, the currency devalued, and private entrepreneurship encouraged. At the same time, a number of health system reforms and enabling legislation were introduced in finance, organization and management of health services. The general direction of these reforms has been toward establishment of new health care production units, greater autonomy to hospitals, decentralization in health care administration, and a greater role for local self-governments in health care financing, management and delivery. Accompanying these general reforms were widespread recognition of patient choice, and new provider payment mechanisms, both of which were to have a significant impact on the demand and supply of health care.

In the years since, the newly-decentralized provinces and autonomous municipalities have implemented an impressive array of innovations in financing and management of health, and though the pace and content has varied across the country, the social and political ideology of a free market has been a constant theme. Using the instrument of contracts to achieve the separation of functions of provision and finance, many *voivods*, *zozs* and *gminas* introduced new methods of paying physicians, that include fee-per-visit, fee-per-procedure, and capitation. Since paying public physicians by any other method except salaries was not possible under existing regulations governing state employees, physicians accepting alternative methods of payment first had to resign from government service. This led to the creation of a whole new class of private physician practices supported by public funds. At the same time, the growth in private physician practices supported entirely by out-of-pocket payments by patients accelerated both in terms of the number of physicians practicing privately and the number of patient visits. While privatization of public hospitals has been very slow, many new private facilities, especially those providing ambulatory and diagnostic services, have entered the health market.

This period also witnessed the privatization of state-owned pharmacies. Prior to 1990, all pharmacies were owned and operated by Cefarm, a public-sector company that maintained retail outlets in whole of Poland. In the early 1990s, Cefarm allowed its employees to take over the retail pharmacies, and by 1993, the share of Cefarm in total sales had dropped down to less than 25% of the market. The privatization was helped in part by the relaxation on import of foreign drugs, and in part because there were no restrictions on who could own and operate the pharmacy. By mid-1990s, however, new regulations were passed that allowed only a pharmacist to own and operate the pharmacies. Over the years, Cefarm itself has been privatized, having been taken over by the employees of the company. The current share of Cefarm in the pharmaceutical retail market is around 20%.

However, in the face of significant economic restructuring and budgetary pressures following the transition of the economy from a socialist system to a free-market economy, the successes in health outcomes realized during the socialist times have been difficult to sustain. Health standards that at one time were comparable to levels in Western Europe started declining.

Moreover, with the opening of the economy and the restoration of democracy in 1989, many inherent weaknesses in the health care system began to surface. While emphasis on access and universal free care has been maintained, issues like quality of care and freedom of choice of provider became increasingly prominent in public discussions. The lack of incentives for physicians and other medical and non-medical personnel in the public health care system became more apparent, and dissatisfaction with low salaries and limited infrastructure is more openly voiced. Rising patient expectations following the economic and ideological transition and the inability of the existing system to satisfactorily meet these demands started putting new pressures for reforms in all aspects of health care finance, management and delivery.

*January 1, 1999 onwards*

The most significant and far-reaching health sector reform started in January 1, 1999 with the introduction of the social health insurance system. The new system relies on 16 regional health insurance funds and one health insurance fund for employees of military services, with a dedicated 7.5 percent payroll tax premium as the main source of revenues. With the introduction of the new system, the eligibility for health care is restricted to those who contribute to the health insurance fund. For those who are employed, the premium is deducted from payroll tax and collected by employers. The self-employed pay premium directly, while the state provides premium support for the homeless, the unemployed and the disabled. An equalization fund has been established in order to adjust for the disparities in income and expenditure in different regions, and 40% of each Health Insurance Fund's revenues are deposited into this fund and subsequently paid back to the regional funds according to a formula based on age and income. In addition to what is financed by the Health Insurance Fund, a large number of highly specialized procedures under tertiary care are financed directly from the State budget (31 procedures fully financed from the budget and 21 partially financed). The total budget of health care in 1999 was estimated to be 23 billion PLN.

The health insurance funds, in turn, purchase health services directly from the providers, public or private. While theoretically the insurance funds can contract with any provider, public providers were assured of contracts, at least during the first year. In this process, the role of local self-governments has been significantly diluted, with the insurance funds negotiating directly with the appointed management of the city-owned *zozs* and independent hospitals belonging to the provincial government.

## 3. Research Questions

**The main objectives of this study are:**

(a) provide a comprehensive typology for health care providers of ambulatory services;
(b) quantify the role of different provider types in the overall city market for ambulatory care services;
(c) quantify the main financing mechanisms for ambulatory care services in Krakow, including informal and unofficial payments; and
(d) explore the implication of the provider market for ambulatory care services in Krakow for Poland's new health insurance system.

## 4. Data Collection

The present analysis of the market for ambulatory health services is based on the data collected in a primary survey in the *gmina* of Krakow, Poland, in 1998. Krakow is the third largest city of Poland and, till the 17th century, was the capital of Poland. Located in the southern region of the country in the valley of the *Wistula* river, Krakow is one of the centers of education, social, economic and cultural life in Poland. With a population of 712,000 in 1997, Krakow is home to about 2% of all people in Poland. There are 34 physicians, 6.4 dentists and 59.4 nurses per 10,000 population in Krakow, which is significantly more than the national average of 23.2, 4.6 and 54.8 respectively for Poland as a whole. Besides the 4 *zozs* and 211 *przychodnias*, ambulatory healthcare in Krakow is provided by the ambulatory department in 12 *voivod*-owned hospitals, by 12 *voivod* and *gmina*-financed family practices, and by 154 non-public health facilities and 1,096 individual physician practices.

Data on public provision of services was collected from records maintained by the respective governments, while provider surveys were carried out to get information on private physicians and facilities. Supply-side data on the private sector is drawn from a sample comprised of all the 154 non-public health care facilities registered with the *voivod's* office in Krakow, 10% of the 1600 physician private practices and 15% of the 682 dental practices registered with the *gmina*. The sample of physicians and dentists was randomly chosen from the list supplied by the *gmina* and the relevant registration offices. Provider-specific surveys were designed to collect information on a variety of supply side issues, including hours of work, number and specialization of medical personnel employed, number of patients examined, types of services provided, schedule of fees, statement of costs, types of contracts, etc. For physician and dental practices, the questionnaires also sought information on such demographic and educational aspects as age, marital status, place of residence, qualifications and field of specialization.

Of the 154 *Niepubliczny Zaklad Opieki Zdrowotnej (npzoz)* or non-public health care organizations, 91 questionnaires were completed, for a response rate of 59%. About 31% of physician practices and 21% of dental practices were physically not in existence, even though their names and addresses appeared on the list. Of the 137 physician practices contacted, 109 questionnaires were completed, for a response rate of 80%. Similarly, of the 81 dental practices contacted, 71 questionnaires were completed, for a response rate of 88%.

Patient out-of-pocket expenditure information was obtained through telephonic household surveys. Household surveys sought information on patient choice of providers, number of visits, types of services used, satisfaction rating of providers, and out-of-pocket expenditure on fees, informal payments, drugs, and medical examinations. The questionnaires also collected information on such demographic, education and economic characteristics as age, marital status, family-size, education, occupation, income, etc.
There are about 200,000 households in Krakow, and about 71% of them have a domestic telephone connection. Five persons were randomly chosen from each page of the domestic telephone directory of Krakow, for a total of 2,070 households, representing about 1% of the population. A total of 1,291 household questionnaires were completed, representing a response rate of 65%.

# 5. Results

The discussion in this section is organized according to the framework proposed in Berman (1999), and the findings are reported along the dimensions of service focus, typology, salience, content, governance, motivation and incentives and financing of ambulatory health care in Krakow in 1998.

## I. SERVICE FOCUS

In describing the organization of the provision of ambulatory health care services in Krakow, we focus on the full range of ambulatory services, including specialists' services, diagnostics and radiology. Treatments involving overnight hospital stay are not included in the service focus. Ambulatory care was defined to include: physician consultations in the fields of internal medicine, pediatrics, obstetrics, gynecology, cardiology, surgery, neurology, dentistry, mental health, rheumatology, ophthalmology, E.N.T., rehabilitation, urology, proctology, gastrology, pain treatment, and other specializations; minor and ambulatory surgeries; health promotion and disease prevention; diagnostic and laboratory services; emergency care not involving hospitalization; home visits and nursery care.

## II. TYPOLOGY OF HEALTH CARE PROVIDERS

Besides the several historically recognized organizational forms through which ambulatory services are provided, many new provider institutions have developed in the last few years, particularly in the private sector. The three established organizational forms of public provision, based on the nature and location of services provided, are: (i) dispensary-based ambulatory services[2]; (ii) hospital-based ambulatory services; and (iii) facility-based emergency services. Private providers can be classified into five categories, depending on the nature and location of services as well as on source of financing. These are: (i) public financed family medicine services; (ii) out-of-pocket financed specialist physician services provided by *npzoz*s; (iii) specialist ambulatory services provided in physician private practices; (iv) home visits provided by physicians; and (v) facility-based emergency services. In all, therefore, there are eight categories of providers of ambulatory care in Krakow.

Table 1 presents the total number of provider units in each category type. Dispensary-based ambulatory services are provided in 211 facilities organized in 4 *Samodzielny Publiczny Zaklad Opieki Zdrowotnej (spzozs)*, or independent health care institutions, owned by the City of Krakow, and one health care organization owned by the provincial government, or the *voivod*. The types of services provided in these institutions include: physician consultations in the field of internal medicine, pediatrics, obstetrics, gynecology, cardiology, surgery, neurology, dentistry, mental health, rheumatology, ophthalmology, E.N.T., rehabilitation, urology, proctology, gastrology, pain treatment, etc., health promotion and disease prevention, diagnostic and laboratory services, home-visits, and nursery care.

Hospital based ambulatory departments provide outpatient services for Krakow City inhabitants as well as for Krakow *voivodship* and other *voivodships'* inhabitants. There are 109 ambulatory departments in 12 hospitals, providing outpatient specialists' services. Emergency outpatient services are provided by Krakow Emergency Care Unit, a separate organization, which has 15 branches in Krakow and neighboring cities, and by the Emergency Care Unit in the *Zeromski* hospital.

2 Here, and throughout the remainder of the text, by "dispensary-based" ambulatory services we refer to the outpatient services that are provided in polyclinics, as opposed to hospital-based ambulatory services or individual clinic-based ambulatory services.

In the private sector, there are 12 family physician practices in Krakow that provide health services for Krakow City inhabitants enrolled on the lists of these practices. There are 154 *npzoz* providing a wide range of ambulatory services. Health care organizations that employ more than 2 physicians and are not owned by the government are registered with the *voivod* office as non-public health care institutions. The services provided in these *npzozs* include physician consultations in almost all fields of medicine, minor surgeries, and most diagnostic and laboratory services. In addition, there are 1,096 private physician practices providing specialist outpatient consultation services.[3] These practices are typically one-person clinics, and in some cases employ an additional physician, and provide a wide array of services depending on the specializations of the physicians concerned.

There are 203 independent physicians and 47 physicians from 31 *npzozs* who provide home visits to patients. Services provided typically include specialist outpatient consultations similar to the previous category, except that they are provided in the patients' homes. Finally, there are two private facilities providing only emergency ambulatory services.

## III. SALIENCE: VOLUME AND NUMBER OF PROVIDERS

*Volume*

Dispensary-based public ambulatory facilities accounted for 4,129,126 patient contacts (54.1% of total), by far the largest for any one category (Table 2). The share of other public sector providers was small: 303,533 for hospital-based ambulatory services and 515,794 for public emergency services, accounting for only 4% and 6.8% of total patient contacts, respectively. The public sector as a whole accounts for 4,948,454 patient contacts, or 64.9% of total contacts.

In the private sector, the *npzoz*s account for the highest number of patient contacts: 1,414,339 or 18.5% of all contacts, followed by individual physician private practices, who account for 1,109,240 or 14.5% of all contacts. Family medicine practices provided only 113,236 services (1.5% of total), with home visits accounting for 40,100 contacts (0.5% of total patient contacts). The private emergency facility provided very few services. Overall, the private sector accounted for 2,712,855 patient visits, or 35.1% of all patient contacts.

It is important to note that the large number of services in the public sector does not necessarily reflect the market share in terms of patients or services. Diagnostic and laboratory tests, which are counted as separate visits in the public facilities, are treated only as one visit by private facilities. Moreover, referral rates in public facilities are very high compared to the private sector, so that one episode of illness is often reflected as multiple visits to public providers.[4]

*Number of providers*

Since multiple job holding is common among physicians and many physicians hold part-time appointments in different facilities, we count the number of physicians in full time equivalence (based on 40-hours week) instead of head-count. The dispensary-based ambulatory services in the public sector employ 753 physician full time equivalents (FTE), the highest for all categories. The hospital-based public ambulatory services employ 194 physician FTE, while emergency services account for 244 physician FTE. Overall, the public sector employs 50.4% of all physician-FTE in Krakow.

In the private sector, the *npzoz*s are the leading employers of physicians (679 FTE) followed by individual physician practices (359 FTE). The family medicine practices employ 19 physician FTE, while 113 physician FTE provides home visits to patients. In all, the private sector employs 1170 physician FTE, or 49.6% of all physician FTE in Krakow.

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[3] Generally speaking, the services provided by these physicians are specialized services in nature; primary health care services are also provided, but patients usually visit private physicians for specialized services.

[4] Note that this leads to an overestimate of public provider importance.

## IV. CONTENT

We present the content dimension of provision in terms of types of human resources, the scope of ambulatory services and patients' perceptions of quality of care.

Multiple job holding is fairly common in Poland, and the health sector in Krakow is no exception. Physicians work in a number of different facilities for a variety of employers, and many work part-time. For these reasons, a headcount of physicians does not provide very useful information. Moreover, physicians provide several different kinds of services in the same institution, and it is not always easy to classify them as working in the outpatient ambulatory department or in the inpatient wards. The numbers provided in this section are therefore in terms of physician FTE; also, figures for physicians providing hospital-based ambulatory care are "best estimates".

Dispensary-based public ambulatory services are provided by multi-specialist teams of 753 physicians trained in internal medicine, pediatrics, and gynecology, and by dentists, nurses, midwives and ancillary support staff in 49 *przychodnias*, or large polyclinics, in the 4 zozs of Krakow. Most *przychodnias* are open for patients for 12 hours a day, and employ multiple staff on two shifts.

Hospital-based ambulatory services are provided by 194 physician-FTE in 109 units in 12 hospitals, and are available to patients 6 hours a day. Hospital-based emergency services are provided by 244 physicians 24-hours a day in 16 units in 7 facilities.

In the private sector, ambulatory care is provided in 12 publicly financed family medicine practices formed by 19 physicians out of whom 7 graduated from residency-based specialization in family medicine while 12 have other specializations, such as pediatrics and internal medicine. All practices are situated in newly renovated premises. The family practices are open 10 hours a day (8 a.m. to 6 p.m.). In addition to primary care, family medicine practices are also fund-holders for specialists services, diagnostic and laboratory tests. Under the contracts with Krakow *gmina*, family medicine practices provide the same range of services that is provided by *spzozs.*

The 154 *npzoz*s employ 679 physician-FTE, drawn from a wide range of specializations. Almost all *npzoz*s (80%) employ physicians with internal medicine specializations. Other common level-1 specialties include dentistry (72% of all *npzoz*s),[5] surgery (22%), dermatology (22%), neurology (16%), gynecology (15%), ophthalmology (14%), ENT (13%) and pediatrics (12%). Gynecologists are the majority among level 2 specializations (67% of all *npzoz*s), followed by internal medicine (54%), surgery (46%), ENT (34%), cardiology (26%), ophthalmology (24%) and pediatrics (20%).

Most *npzoz*s (64%) are open during both morning and evening hours, while 11% are open only in the morning and 6.5% only in the evening. Few (4.7%) are open 24 hours a day. Some *npzoz*s (6.5%) also have beds for patients for daytime stay.

Ambulatory services are also provided by individual specialists in 1,096 practices, most of which are open for only a few hours on few days in the week (average of 3 days for a total of 10.85 hours a week). Most physicians in these practices have specialization in internal medicine (39%), followed by surgery (15%), gynecology (14%), pediatrics (9%), ENT (6%) and ophthalmology (6%).

*Scope of services*

There is a wide variation in the range and comprehensiveness of services available to the users at the different types of providers units. The public-financed dispensary-based ambulatory services are provided by teams of physicians, and offer a wide range of internal medicine, gynecological, pediatric and dental services. Organized in *przychodnias*, these centers offer

[5] Note that dentistry is not included in all statistics presented in this paper.

many specialist referral services and diagnostic services as well. Specialists in different medical fields provide hospital-based ambulatory services, typically in such specialties as cardiology, neurology, dermatology, laryngology, surgery and pediatrics, but also in much more narrow specialties such as proctology or child neurosurgery.

Family medicine practices provide comprehensive services under one roof. The scope of specialist services provided by the family medicine practices is the same as provided by the *spzozs*. Most of the specialists are hired part time on a fee-for-service basis and paid by family doctors who are the fund-holders. Most common specializations are gynecology, surgery, dermatology, laryngology, ophthalmology, neurology and psychiatry. The family medicine practices also provide basic laboratory and diagnostic tests. All told, there are 49 different types of tests that the family medicine practitioners agree to provide under the terms of their contracts with the Krakow *gmina*. These include: blood count, blood chemistry, urine analysis, EKG, USG (abdominal, prenatal), X-ray (chest, bone X-ray), Barium test, and gastroscopy. The family medicine practices are the gatekeepers in the system and patients cannot go directly to specialists and seek health care without a referral from the family doctor.

Besides routine checkups, patient examinations and minor surgeries, a large number of *npzoz*s provide many different laboratory and diagnostic services as well. These include blood count, blood sedimentation, urine tests, thyroid tests, cholesterol and glucose tests, x-rays, barium tests, ultra-sonography (abdomen, antenatal, small organs and heart), and EKG. Many *npzoz*s also arrange for home-visits by their physicians.

*Quality of Care*

Health care reforms have created an interest in the quality of health care produced and delivered in Poland. In Krakow, the *gmina* has conducted two studies on quality of outpatient services provided by the 4 *spzozs* and family medicine practices. A survey conducted by Lawthers et al (1998) shows that there has been a general improvement in access to public health care providers in the *przychodnias* compared to previous years. For instance, the average waiting time for registration in Krakow *przychodnias* is now less than 10 minutes, and the waiting time for an appointment to see a specialist is less than 3 days. In another study, Roznanski et al (1998) show that the general level of patient satisfaction in the publicly financed family practices is significantly higher compared to the health care services provided in the public *spzozs*.

Not much is known about the quality of care offered by other practitioners; however, anecdotal evidence indicates generally higher levels of patient satisfaction in the private care sector compared to public providers.

## V. GOVERNANCE

Health care units in Poland are registered either as ‘public’ or ‘private’, depending on the status of the owner of the unit. Public health care units, i.e., those owned by the *voivod, powiat* or *gmina* are registered as *Samodzielny Publiczny Zaklad Opieki Zdrowotnej* or *spzoz*. Non-public health care units, i.e., those owned by religious or missionary organizations, insurance companies, foundations, trade unions, professional and other associations, local or international corporations, civil partnerships or an individual are registered as *Niepubliczny Zaklad Opieki Zdrowotnej* or *npzoz*.

The publicly-owned *spzozs* are not-for-profit institutions devoted to health services provision, and have the status of independent and autonomous public health care institutions, as described in the Health Institutions Act of 1991 and subsequent amendments. The management of the *spzozs*, appointed by the owners of the unit, are fairly independent in matters concerning routine and daily operations, personnel decisions, including hiring, firing and setting remuneration levels, allocation of funds, and entering into contracts and other legal interactions.[6] Ownership is strongly

[6] For more details on the management and governance structure in the *spzozs*, please see Campbell, Chawla et al (1999): “Enhancing Managerial Autonomy in Polish Facilities”.

reflected at the level of strategic planning, investment policy and assets management. Thus, the assets of the health unit, including land, buildings and equipment, cannot be sold or otherwise disposed off without the express approval of the owners. Similarly, the owner approves the overall financial plans of the *spzoz*, but the management has a fair degree of autonomy within the overall limits defined by the plans. The rules and practices governing public hospitals and emergency service, owned by the *voivod* or the *powiat*, are very similar.

In the non-public sector, health practices are organized either on an individual basis or as *npzozs*, depending if the number of physicians participating in the practice is less or more than 2, respectively. The *npzozs* can be set up by *individuals* alone or in the form of a *civil partnership*, and by *corporations*, *cooperatives*, *associations* and *foundations*, and the pattern of governance varies with the ownership pattern.

*Civil partnership* is a loose partnership of individuals bound by a common entrepreneurial objective. Partners are responsible for all issues related to the partnership, management, strategic planning as well as daily operations. *Civil partnership* does not have a legal personality and is not a subject of corporate taxation. Partners pay personal income tax proportionately to their income. All partners are liable equally and responsible fully for the debts.

A *Corporation* is a legal partnership typically created in order to maximize access to and availability of capital. Unlike the *civil partnership*, the management is separated from ownership. This professionally-appointed management enjoys a high degree of autonomy form the owners, and is responsible for most operational as well as strategic issues. The owners of the *corporation* are responsible for debts up to the amount of their equity in the *corporation*. A *corporation* is a legal entity and operates under the provisions of the Trade Code, and is responsible for taxes under the general rules applicable to all companies. Health services are exempted from Value Added Tax (VAT); however the regulation do not allow for writing off the purchased VAT and this considerably increases cost of final health care service.

A *Cooperative* is a business society owned and run by its members, who make an equity contribution to the *cooperative*. The stakeholders choose the Board that controls the *cooperative's* activities. Operational management is assigned by the Board of Members or by the General Assembly of all Stakeholders. The management of the cooperative is responsible for all operational decisions. Like the *corporation,* the *cooperative* also pays the corporate income tax under general rules applying to all companies.

An *Association* is formed by a group of 15 or more individuals joined together for a common interest. Membership of associations is voluntary, and all members pay a participation fee. *Associations* typically do not run business activities, though there is nothing in the rules of business that prohibits them from doing so. The *associations* are managed by professional staff who take all the operational decisions, while the Board of Members retains control over strategic decision-making. Like the *corporation*, the associations are also subject to all taxes as applicable.

A *Foundation* is an organization set up to support certain 'causes', usually philanthropic. A *Foundation* may be set up by individuals or by institutions, and be managed either professionally or by the founders. Because of the nature of their business, foundations typically enjoy several tax benefits.

The family medicine practitioners, a group that is rapidly growing and strengthening its position at the market, are typically organized as *individuals* or as *civil partnership npzozs*. A few family practices are also organized as *corporations*. Specialist practices employing more than 2 physicians are organized as *npzozs*, and operate on the general principles of governance as determined by their ownership types. Of the 154 *npzozs* in Krakow, 21.5% are owned by individual entrepreneurs, 21.5% are *civil partnerships*, 20% are *cooperatives*, 40% are *corporations*, 2% are owned by *foundations*, and 5% are *associations*. Finally, specialist practices with 2 or less physicians are organized as *individual* enterprise.

In general, healthcare institutions in the non-public sector enjoy a greater degree of managerial freedom and autonomy in practice compared to the public sector units.

## VI. MOTIVATION AND INCENTIVES

Several different factors motivate physicians to maximize health care services and supply high quality health care to their patients. At the same time, different institutional and working arrangements offer different incentives to physicians for maximizing quantity and quality of services. This combination of the nature of the motivating factors and types of incentives plays an important role in determining the nature, type and extent of services offered to the patients.

Dispensary and hospital-based ambulatory services represent the most traditional way of provision of health care in Poland. All physicians are state employees, and share all the benefits and disadvantages that accompany such jobs. Typically paid on a salary basis, the general compensation levels, till end of 1998 at least, have been significantly lower than average salaries in Poland, and offer little motivation or incentives for the physicians and other health care providers. However, these physicians enjoy professional stability, personal job security through long-term assignments and, specially the hospital-based physicians, a respected position in the medical society and among the patients. Most physicians also have the opportunity to share work between an ambulatory and a hospital ward, receiving thereby better access to the superior equipment and advanced medical technology as well as to modern treatment procedures. Thus, while physicians working in the publicly financed outpatient dispensaries enjoy limited direct financial returns from their jobs, the second-order financial gains from access to government facilities and patients can potentially be significant.

The regime of motivations and incentives for private providers are vastly different from those of the public providers described above. In general, the private providers have better opportunities of having high earnings compared to public physicians, but lack the stability and job security that the public sector offers. Family physicians, as self-established practitioners funded from the state budget, enjoy professional independence, freedom and self-responsibility for the organization of the daily work; yet have some degree of stability of earnings. Paid on the basis of a capitation fee per enrollee, the family physicians have the incentives to maintain high quality of services and reputation so as to sustain the list of patients, and at the same time have all the reasons to keep the cost of treatment low. Specialist institutional and private practices are set up usually by highly specialized physicians, who are principally employed in some state-owned facility. These practices are a source of legal income, in many cases several-fold higher than the state salaries. For those with a lower rank within medical profession, private practices also offer an opportunity to extend their medical practice beyond the formal or informal limits imposed by their superiors.

Private home visits, the least attractive form of private practice, is typically favored by physicians who cannot count on ambulatory services alone to provide them with enough work or income. Physicians performing home visits can also use this opportunity to enroll patients to the private practice. And finally, foreign groups wanting to enter the Polish market have developed private emergency services. Offering very high remuneration and good working environment, the companies offering private emergency services are able to attract many good physicians.

## VII. FINANCING

*Consumer expenditure*
Consumer expenditure figures are given in tables 4 and 5. Of the total annual out-of-pocket expenditure of 291 million zloty (or 378 zloty per person per year), ambulatory services in the public sector account for 167 million zloty, or 57.5% of total consumer expenditure on ambulatory health care in Krakow. In the private sector, consumer expenditure is highest for ambulatory services provided in physician practices (37 million zloty) followed by *npzoz*s (29 million zloty).

An analysis of out-of-pocket expenditure by patients across different types of expenditure reveals that two-thirds of all expenditure is on drugs alone, accounting for 197 million zloty. Formal payments to institutional providers account for 44 million zloty, or 15% of total expenditure, followed by informal payments to medical and administrative personnel, that account for 31 million zloty, or 11% of total expenditure. Among the different provider types, medical and administrative personnel working in public facilities account for almost 29 million zloty of total informal payments of 31 million zloty.

*Sources of finance*

The flow of funds (sources to uses) for ambulatory care in Krakow in1998 is presented in table 7. Out of the total expenditure of 562.37 million zlotys, out-of-pocket payments accounted for 291.28 million zlotys, or 51.8 % of the total. Bulk of the private out-of-pocket expenditure (66.75%) was on drugs, the remaining distributed across different types of providers. Public providers accounted for 48% of out-of-pocket expenditure on ambulatory health care (excluding drugs), with the private sector providers receiving the balance 52%. The single-largest recipient of private expenditure on health was the dispensary-based ambulatory services in the public sector, accounting for 40.34 % of total out-of-pocket expenditure on ambulatory health care excluding drugs. Among the private providers, out-of-pocket expenditure was the highest for non-public specialist practice (26% of total private expenditure excluding drugs), followed by out-of-pocket financed *npzozs* (19%).

Out of the public expenditure of 271.09 million zlotys on ambulatory health care, reimbursement for drugs accounted for 146.39 million zlotys (54%). Among the public providers, the largest recipient of public money were the *zozs*, accounting for 81.26 million zlotys, equivalent to 71.33% of total public expenditure (excluding drugs). Private providers received very little money, with only 3.28 million zlotys (2.6%) going to the family practitioners.

*Payment methods*

Three principal forms of physician payments were present in Krakow in1998: salary, capitation fee and fee-for-service. All physicians and other medical staff in the public sector were paid on a salary basis, and also received bonuses which, in the case of at least one zoz, was linked to individual productivity. The publicly financed family medicine practitioners were paid on the basis of a capitation fee per enrollee, that accounted for a wide range of general and referral services such as consultations, treatment, specialist consultations, minor surgery and simple diagnostic and laboratory tests. The rest of the private sector was organized on a fee-for-service basis.

## 6. Discussion

The Krakow provider markets analysis (PMA) has provided one of the first comprehensive pictures of the development of new forms of organization and delivery of ambulatory health care services since the liberalization of the late 1980s. In addition, this study was carried out just prior to the introduction of national health insurance in January 1999.

The new health insurance system and associated changes incorporate a number of factors that will certainly influence the organization and delivery of ambulatory care in Krakow. The city's *zoz*s have become "independent" with substantial financial and management autonomy. Ambulatory care providers will henceforth be mainly financed through contracts with the new regional sickness fund although they may still carry out public health tasks with budgetary funding. Private providers may also receive sickness fund contracts. The PMA study provides a baseline measure of the pre-insurance setting and raises a number of important questions for the implementation of health insurance in Krakow.

The new sickness fund in Krakow is expected to finance the mandatory benefit package for virtually the whole population of the city. Initially, its premium revenues will approximately equal the pre-insurance funding level. The benefit package covers almost all the services included as ambulatory care in our study. Thus, one striking finding of the PMA study is that the total spending on ambulatory care in Krakow is approximately twice the current public expenditure. The new sickness fund will be unable to finance the current level of consumption without substantial new funds or reallocation of funds from non-ambulatory services.

In addition, while public providers appear to have higher productivity than private providers (this may be partly an artifact of how contacts are reported in public facilities), private providers still deliver about one third of all patient contacts. We suspect that many of these private providers are also simultaneously holding jobs in public facilities and deriving valuable additional income from their private practices.

What are the implications of this gap in financing and volume for health insurance? It is difficult to say precisely because we lack information on whether this gap is concentrated among certain groups in the population who should get priority attention, for example children, the poor, or the elderly. However, if the gap is reasonably widely distributed, it would be desirable for health insurance to try to cover the gap for both health and equity reasons. (If it is mainly the most affluent population purchasing better amenities, it could actually have a positive effect on the system, but we think this unlikely.

The PMA study suggests that the excess demand and expenditure for ambulatory not now covered by public spending will not be easy to bridge with health insurance, for several reasons, including:

- The population is accustomed to meeting a large share of their ambulatory care needs outside of public facilities and to paying for it out-of-pocket. They are also accustomed to significant out-of-pocket payments for public facility services.
- Private providers are numerous and used to earning significant sums in fee-for-service ambulatory care. Some of these providers also hold public jobs and count on their other income.
- Sickness funds cannot count on additional premium or budgetary resources in the short run and face tough financial decisions as it is between inpatient and other services/facilities. The size of private financing for ambulatory care is about equal to that of public financing.

The data on out-of-pocket spending also show the large share of spending going to purchase drugs – about two-thirds of private spending or one-third of total spending. It is not clear how much of this consumption should be covered by health insurance, but it is probably a significant share.

How might the sickness funds respond to this high level of uncovered ambulatory care? There are three main options. First, do nothing. This option allows the excess demand of the population for ambulatory care to be met in the fee-for-service and retail drugs market until such as time as sickness funds can fully finance the service to which the population is entitled. This option may be sensible if these uncovered services are mainly consumed by the affluent or are of low priority for health and equity reasons.

However, the existence of this large additional market may significantly disrupt other sickness fund efforts to improve efficiency and quality in current publicly provided services. To the extent that public providers also earn significant private income from informal charges and private practice, it will be difficult to introduce effective payment-based incentives to improve their behavior in covered services.
A second option is to try to reduce demand for ambulatory care. This might be done by introducing copayments for ambulatory care and for drugs provided. But if these copayments only apply to services in publicly owned facilities, they simply increase the relative price of public services and encourage more use of private services. However, if sickness funds agree to cover almost all providers and most drugs prescribed, including the private ones, they might be able to finance the gap with copayments, including significantly higher copayments for those choosing to use private providers or purchase certain drugs.

A third option is to act on the supply side. One possibility would be to reduce the scope of the covered benefit package, but then provide coverage at all providers. Another possibility would be to reduce sickness fund spending on inpatient care and use the resources saved to finance additional ambulatory care. The health implications of this are unclear and would need to be analyzed. Also, it is unknown whether this would increase or decrease population satisfaction.

The main issue here is that the PMA study has confirmed that the ambulatory care market in Krakow is diverse and that there is significant consumption of clinical services and drugs outside of the benefit package that is supposed to be covered by health insurance. Leaving this situation untouched weakens the sense of new entitlement and quality that Poland wants the population to perceive in the new insurance system. This may damage political support for the system and encourage movement to voluntary private insurance and self-payment. But devising effective measures to address this gap in coverage is not easy, given the constraints on financing in the new system and the incentive providers and patients face to go outside the system. If these problems cannot be addressed, Poland can easily move to a more privatized system of financing and provision. International experience suggests this lead to reductions in fairness, health status, and population satisfaction. But solving this problem in the current constrained setting is also not easy.

## Table 1. Distribution of Health Care Providers Delivering Ambulatory Services

| ***Ownership*** | ***Type of Provider*** | ***No. of facilities*** | ***Percent of TOTAL*** |
|---|---|---|---|
| Public | Dispensary-based ambulatory services | 211 units in 4 zozs | 11.5 |
| Public | Hospital based ambulatory services | 109 units in 12 hospitals | 6.0 |
| Public | Facility-based emergency services | 16 units in 7 units facilities | 0.9 |
| Private | Public financed family medicine practice | 12 practices | 0.7 |
| Private | Out-of-pocket financed *npzoz* | 154 *npzoz*s | 8.4 |
| Private | Non-public specialist private practice | 1,096 practices | 59.7 |
| Private | Non-public home visits service | 234 practices | 12.8 |
| Private | Non-public emergency service | 1 facility | |
| **TOTAL** | | **1833** | **100** |

**Table 2. Shares of total volume of services as distributed across providers**

| ***Ownership*** | ***Type of Provider*** | ***No. of Services*** | ***Percent of TOTAL*** |
|---|---|---|---|
| Public | Dispensary-based ambulatory services | 4,129,126 | 54.1 |
| Public | Hospital based ambulatory services | 303,533 | 4.0 |
| Public | Facility-based emergency services | 188,692<br>327,102 | 6.8 |
| Private | Public financed family medicine practice | 113,236 | 1.5 |
| Private | Out-of-pocket financed *npzoz* | 1,261,154<br>153,185 | 18.5 |
| Private | Non-public specialist private practice | 1,109,240 | 14.5 |
| Private | Non-public home visits service | 40,100 | 0.5 |
| Private | Non-public emergency service | | |
| **TOTAL** | | **7,625,368** | **100** |

**Table 3. Estimated number of ambulatory care providers (in full-time equivalence)**

| ***Ownership*** | ***Type of Provider*** | ***Number (full-time equivalent)*** | ***Percent of TOTAL*** |
|---|---|---|---|
| Public | Dispensary-based ambulatory services | 753 | 31.9 |
| Public | Hospital based ambulatory services | 194 | 8.2 |
| Public | Facility-based emergency services | 244 | 10.3 |
| Private | Public financed family medicine practice | 19 | 0.8 |
| Private | Out-of-pocket financed *npzoz* | 679 | 28.8 |
| Private | Non-public specialist private practice | 359 | 15.2 |
| Private | Non-public home visits service | 113 | 4.8 |
| Private | Non-public emergency service | | |
| **TOTAL** | | | **100** |

**Table 4. Average out-of-pocket expenditure per visit (for those seeking care) on out-patient health care for Krakow**

| *Ownership* | *Type of Provider* | *Formal payment* | *Informal payment* | *Drugs* | *Additional examinations* | *Other* | *TOTAL* |
|---|---|---|---|---|---|---|---|
| Public | Dispensary-based ambulatory services | 8.34 | 3.17 | 52.72 | 3.63 | 1.27 | **70.13** |
| Public | Hospital based ambulatory services | 5.73 | 11.45 | 50.52 | 4.40 | 2.02 | **77.11** |
| Public | Facility-based emergency services | 21.76 | 4.71 | 39.80 | 5.29 | - | **75.57** |
| Private | Public financed family medicine practice | 1.25 | - | 38.45 | 0.51 | - | **42.21** |
| Private | Out-of-pocket financed *npzoz* | 104.00 | 4.76 | 63.74 | 8.64 | 0.79 | **186.94** |
| Private | Non-public specialist private practice | 77.04 | 2.13 | 44.10 | 4.14 | 0.53 | **133.95** |
| Private | Non-public home visits service | 52.57 | 4.76 | 68.87 | 15.92 | - | **149.12** |
| Private | Non-public emergency service | 40.00 | - | 200.00 | - | - | **248.00** |
| Self Care | | | | 7.54 | 0.38 | 0.09 | **8.01** |

### Table 5. Annual out-of-pocket expenditure on out-patient health care for Krakow

| *Ownership* | *Type of Provider* | *Formal payment* | *Informal payment* | *Drugs* | *Additional examinations* | *Other* | ***TOTAL*** |
|---|---|---|---|---|---|---|---|
| Public | Dispensary-based ambulatory services | 572,681 (0.4%) | 25,979,377 (17.8%) | 108,340,278 (74.1%) | 8,381,989 (5.7%) | 2,919,682 (2%) | **146,194,006 (100%)** |
| Public | Hospital based ambulatory services | 1,452,050 (7.7%) | 2,904,099 (15.4%) | 12,810,614 (68.2%) | 1,116,343 (5.9%) | 511,285 (2.7%) | **18,794,391 (100%)** |
| Public | Facility-based emergency services | 756,702 (30.4%) | 163,611 (6.6%) | 1,383,878 (55.6%) | 184,063 (7.4%) | - | **2,488,254 (100%)** |
| Private | Public financed family medicine practice | 163,611 (3.1%) | - | 5,032,636 (95.6%) | 66,888 (1.3%) | - | **5,263,135 (100%)** |
| Private | Out-of-pocket financed *npzoz* | 15,821,207 (54.2%) | 818,056 (2.8%) | 10,950,861 (37.5%) | 1,484,028 (5.1%) | 136,343 (0.5%) | **29,210,496 (100%)** |
| Private | Non-public specialist private practice | 22,531,149 (60.2%) | 624,255 (1.7%) | 12,897,670 (34.5%) | 1,211,713 (3.2%) | 154,846 (0.4%) | **37,419,634 (100%)** |
| Private | Non-public home visits service | 2,257,835 (40%) | 204,514 (3.4%) | 2,957,825 (48.5%) | 683,661 (11.2%) | - | **6,103,835 (100%)** |
| Private | Non-public emergency service | 81,806 (16.7%) | - | 409,028 (83.3%) | - | - | **490,834 (100%)** |
| Self-care | | - | - | 42,660,517 (94.1%) | 2,137,555 (4.7%) | 519,762 (1.2%) | **45,317,834 (100%)** |
| **TOTAL** | | **43,637,041 (15%)** | **30,693,912 (10.5%)** | **197,443,308 (67.8%)** | **15,266,239 (5.2%)** | **4,241,918 (1.5%)** | **291,282,419 (100%)** |

**Table 6. Governance**

| ***Ownership*** | ***Type of Provider*** | ***Legal form*** | ***Owner*** | ***Objectives/Mission*** | ***Operational decision making*** | ***Strategic planning*** |
|---|---|---|---|---|---|---|
| Public | Dispensary-based ambulatory services | Spzozs | Gmina | Statutory | Appointed Management | Owner |
| Public | Hospital-based ambulatory services | Spzozs | *Gmina, poviat, voivod* (elected Marshall) | Statutory | Appointed Management | Owner |
| Public | Facility-based emergency services | *Spzozs* | Voivod | Statutory | Appointed Management | Owner |
| Private | Public financed family medicine practices | Individual business activity or *npzoz* | Individuals or civil partnership, cooperative, corporation, association, foundation | Individual entrepreneurship or as listed | Individuals or as listed | Individuals or as listed |
| Private | Out-of-pocket financed n*pzoz* | *Npzoz* | Civil partnership | Entrepreneurship | Partners | Partners |
| | | | Cooperative | Common interest; entrepreneurship | Professional management | Board of Members |
| | | | Corporation | Entrepreneurship | Professional management | Board of Shareholders |
| | | | Association | Common interest; not business | Professional management | Board of Members |
| | | | Foundation | Common purpose; philanthropic | Professional management | Board of Founders |
| Private | Non-public specialist private practice | Individual business activity | Individuals | Individual entrepreneurship | Individuals | Individuals |
| Private | Non-public home visits service | Individual business activity or *npzoz* | Individuals or civil partnership, cooperative, corporation, association, foundation | Individual entrepreneurship or as listed | Individuals or as listed | Individuals or as listed |
| Private | Non-public emergency service | Individual business activity or *npzoz* | Individuals or civil partnership, cooperative, corporation, association, foundation | Individual entrepreneurship or as listed | Individuals or as listed | Individuals or as listed |

## Table 7. Flow of Funds (sources to uses)

| ***Uses of Funds*** | | ***Sources of Funds*** | | ***TOTAL*** |
|---|---|---|---|---|
| ***Ownership*** | ***Type of Provider*** | ***Public*** | ***Private*** | |
| Public | Dispensary-based ambulatory services | *89,264,300* | *37,853,728* | ***127,118,028*** **(22.6%)** |
| Public | Hospital-based ambulatory services | *15,781,988* | 5,983,777 | **21,765,765 (3.9%)** |
| Public | Facility-based emergency services | 16,820,253 | 1,104,376 | **17,924,629 (3.2%)** |
| Private | Public financed family medicine practices | 3,281,760 | 230,499 | **3,512,259 (0.6%)** |
| Private | Out-of-pocket financed n*pzoz* | - | 18,259,635 | **18,259,635 (3.2%)** |
| Private | Non-public specialist private practice | - | 24,521,964 | **24,521,964 (4.4%)** |
| Private | Non-public home visits service | - | 3,146,010 | **3,146,010 (0.5%)** |
| Private | Non-public emergency service | - | 81,806 | **81,806 (0.0%)** |
| Self-care | | - | 2,657,317 | **2,657,317 (0.5%)** |
| Drugs | | 145,936,122 | 197,443,308 | **343,379,430 (61.1%)** |
| **TOTAL** | | **271,084,423 (48.2%)** | **291,282,420 (51.8%)** | **562,366,843 (100%)** |

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## Appendix: Sources of data

| ***Source*** | ***Data-type*** |
|---|---|
| Krakow City budget office. | 1. Number of *zoz* and family practice facilities;<br>2. Number of *zoz* and family practice employees;<br>3. Number of services provided by *zoz* and family practice;<br>4. *Zoz* and family practice public expenditure |
| Krakow *Voivod* budget office | 1. Expenditure on drugs, *hospital and emergency* public expenditure |
| Regional Center for Health Systems management, Krakow, December 1998. Department of Cost Analysis and Prognostics. (This report contained data for the first three quarters of 1998 only, from which the annual figures have been extrapolated). | 1. Number of *hospital and emergency* facilities;<br>2. number of *hospital and emergency* employees;<br>3. number of services provided by *hospital and emergency*;<br>4. *hospital and emergency* public expenditure |
| Harvard-Jagiellonian Consortium survey, 1998. Provider Market Analysis | 1. Out-of-pocket expenditure |
| *Voivod* register of *npzoz* | 1. Number of *npzoz* facilities;<br>2. Number of *npzoz* employees;<br>3. Number of services provided by *npzoz*; |
| City register of individual health providers | 1. Number of individual practices;<br>2. number of individual practices' employees; 3. Number of services provided by individual practices; |