

chapter twenty

Poland: The Jednorodne Grupy Pacjentów – Polish experiences with DRGs

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20.1 Hospital services and the role of DRGs in Poland

20.1.1 The Polish health care system

Poland has a mixed system of public and private health care financing. Total health expenditure amounts to about €667 per capita per year, which corresponds to 6.6 per cent of gross domestic product (GDP) (European Commission, 2009). Public expenditure accounts for roughly 72 per cent of total health expenditure and is mostly based on mandatory social health insurance contributions. Private expenditure accounted for about 24 per cent of total health expenditure in 2008, and predominantly took the form of out-of-pocket payments and co-payments from members of social health insurance schemes, for example for food and accommodation at rehabilitative care facilities, or for a certain percentage of the costs of medicines and diagnostic examinations (Kuszeński & Gericke, 2005; European Commission, 2009).

The three most important actors in the system are: (1) the Ministry of Health, (2) the territorial governments, and (3) the National Health Fund (NFZ) (Kuszeński & Gericke, 2005). The Ministry of Health is responsible for policy-making and regulation. As such, it designs national health policies, finances major capital investments and oversees medical science and medical education. The territorial governments (local, county and municipality levels) manage the majority of public hospitals; they develop strategies and health plans for their populations, as well as engaging in health promotion activities. The NFZ, which

was established in 2003 is the purchaser of health care services for all members of the social health insurance system.

About 98 per cent of the population are members of a social health insurance scheme and contributions currently amount to 9 per cent of most individuals' taxable income. Contributions are paid either to the Social Insurance Institution (ZUS) or to the Agricultural Social Insurance Fund (KRUS), which forward collected contributions to the NFZ. Health care benefits for uninsured people, the unemployed population and individuals requiring complex and expensive medical care are financed directly from tax-funded state budgets or the budgets of local governments. State budgets also contribute to capital expenditures of health care providers, while recurrent costs are paid from health insurance contributions managed by the NFZ (Ministry of Health, 2008).

The NFZ is composed of 16 regional branch offices, plus one central office. It is supervised by the NFZ Council, consisting of nine members appointed by the Prime Minister for a five-year term. The NFZ pools and manages all revenue received through contributions from social health insurance members. As the purchaser of health care, the NFZ operates within a budget that is fixed for a given year. A 'Universal Catalogue of Services' is defined at the national level and the regional branches of the NFZ negotiate contracts with providers competing for contracts in the form of a competitive bid. There are strict regulations prohibiting the NFZ from engaging in the direct provision of health care services and from undertaking income-generating activities.

20.1.2 Hospital services in Poland

Historically, there has been a relatively strict separation between outpatient care and inpatient care in Poland (Kuszewski & Gericke, 2005). Outpatient care (both delivered by general practitioners (GPs) and specialists) is mostly provided in private medical practices or in independent health care institutions. Hospital care is provided either in general (county) hospitals, specialized (province (*voivodship*))-level hospitals, or highly specialized university hospitals.

Throughout most of the 1990s, hospitals in Poland had the status of budgetary units that received funds from the Ministry of Health or from territorial governments. This changed fundamentally with the Law on Universal Health Insurance that came into effect in 1999. The law introduced a split between the purchasers and providers of health care and all public hospitals were obligated to change their status into independent institutions that must generate revenue through health service delivery. As a result of the reform, hospitals can incur deficits and make profits. However, most hospitals are still public and are owned by territorial governments (Kozierkiewicz, 2008).

At the end of 2007, there were 578 public hospitals and 170 non-public hospitals in Poland (Table 20.1). The share of non-public hospitals increased from 4 per cent in the year 2000 to almost 23 per cent in 2007. Changes in the total number of hospitals have been difficult to identify. However, the number of hospital beds has continued to decrease since the year 2000. In absolute numbers, there were 8 per cent fewer hospital beds in 2007 than in 2000, a decrease that is even more pronounced when looking at the number of hospital

Table 20.1 Number of hospitals, hospital beds and patients in Poland, 2000, 2005 and 2007

<i>Year</i>	<i>2000</i>	<i>2005</i>	<i>2007</i>	<i>Change in %</i>
	<i>Number (%)</i>	<i>Number (%)</i>	<i>Number (%)</i>	<i>2000 to 2007</i>
Hospitals by ownership				
Total	716	781	748	4
Public	686 (96)	611 (78)	578 (77)	-16
Non-public	30 (4)	170 (22)	170 (23)	467
Number of hospital beds				
Total	190 952	179 493	175 023	-8
Beds per 100 000 inhabitants	515	469	459	-11
Number of patients treated in hospitals				
Number of inpatients (in thousands)	6 007	6 739	6 850	14
Number of day cases in hospital wards (in thousands) ^a	-	895	1 014	-

Sources: Central Statistical Office, 2009b; ^aCentral Statistical Office, 2007 (p. 124), 2008 (p. 135), 2009a (p. 145).

beds per 100 000 inhabitants. That said, some departments have seen increases in the number of beds over the same period of time (for example, the number of beds in cardiology, oncology, psychiatry, and intensive care units (ICUs) increased by more than 10 per cent (Świderek, 2009)). Although the number of hospital beds decreased from 2000 to 2007, the total number of patients treated in hospitals increased by 14 per cent.

In recent years, the number of day-care patients in hospitals has increased dramatically, and during the course of 2007, hospitals treated more than 1 million patients as day cases.

A typical treatment episode starts when a patient visits a primary health care physician who issues a referral to a specialist physician or a hospital. There is a group of specialist physicians (dermatologists, oculists, gynaecologists, oncologists, psychiatrists), for which no referral is required. In an emergency, a patient is admitted directly to a hospital. Treatment is completed when the patient is discharged from the hospital. If further treatment is required, the patient is referred to another hospital, a primary health care physician or a specialist physician (see Figure 20.1).

Since the introduction of social health insurance in 1999, hospitals must raise the majority of their revenues through the provision of health services to social health insurance members. In 2007, this is thought to have accounted for more than 60 per cent of total revenues for hospitals. In order to improve purchasing for social health insurance members, the NFZ introduced a

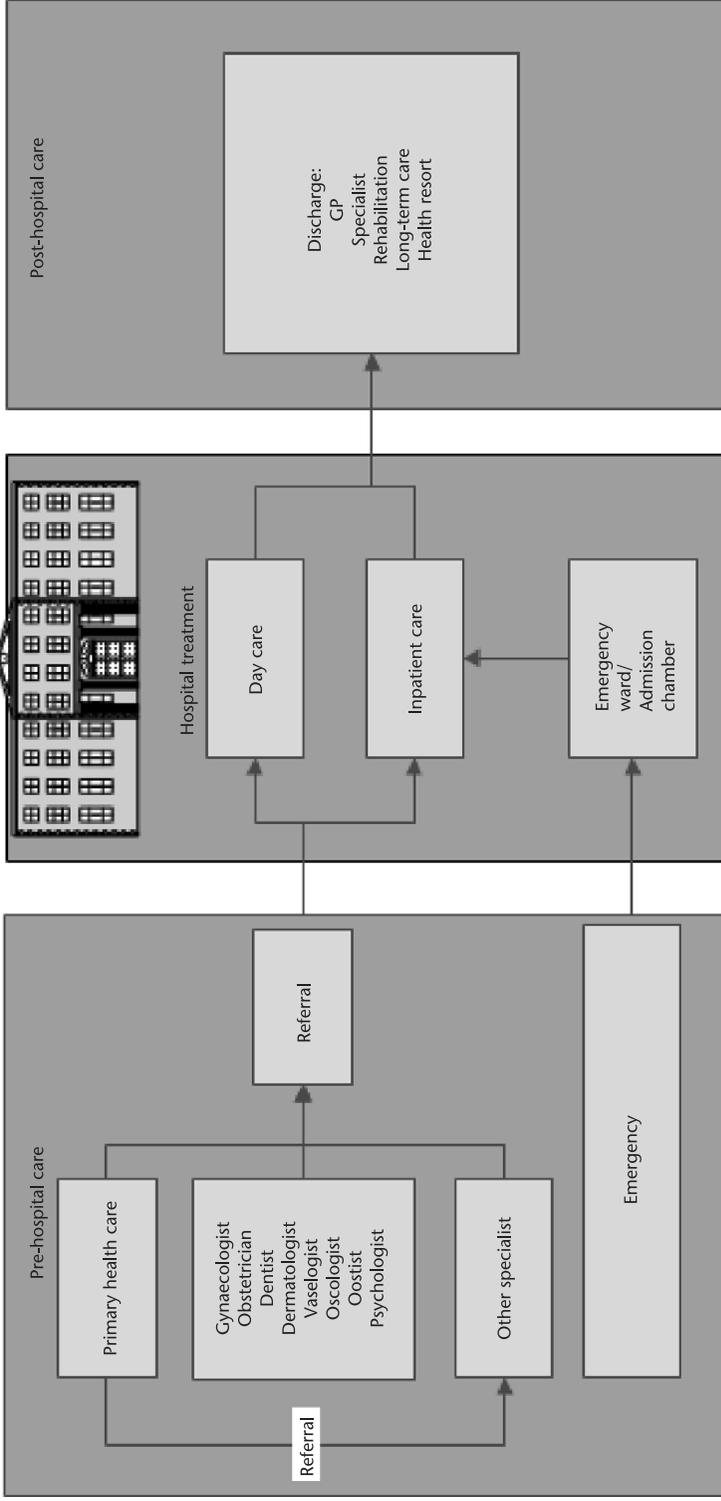


Figure 20.1 Typical episode of care across sectoral borders
 Source: NFZ, 2010.

diagnosis-related group (DRG)-based hospital payment system in 2009, which means that the majority of hospital revenues are now related to DRG-based hospital payment. However, in addition to these revenues, hospitals still receive financial contributions from national and territorial governments for capital investments, for teaching and research, and for highly specialized services. In addition, hospitals also receive funds from private sources (benefactors).

20.1.3 Purpose of the DRG system

Prior to the introduction of DRG-based hospital payment in Poland, hospital payment was based on a 'Catalogue of Health Care Products' that was annually updated by the NFZ (Kozierkiewicz et al., 2006). Similar to DRGs, health care products were defined through specific diagnoses or procedures, and hospitals received a flat payment per admission based on the point value of a given product. However, in contrast to DRGs, the system was not based on systematic coding of all the diagnoses and procedures of the patients. Consequently, information was available only for the specific services defined by the Catalogue of Health Care Products. Since the definitions of products changed every year and the number of items in the catalogue continued to increase, the system lacked transparency. In addition, because of the constantly changing product definitions, hospital performance could not be assessed across time. Furthermore, the NFZ used its position of power to negotiate hospital payment rates that were often below the costs of service provision (Kozierkiewicz et al., 2006). This led to a deterioration of service quality and compromised access to hospital care through the emergence of waiting lists.

The main goals of introducing DRG-based hospital payment in Poland were: (1) to improve resource allocation to hospitals, and (2) to increase transparency of service provision.

DRG-based hospital payment was considered to be better able to provide adequate (fair) reimbursement to hospitals for delivered services, which was thought to increase the availability of services and to improve quality. Furthermore, DRG-based hospital payment was assumed to promote cost-accounting practices within hospitals, which would enable effective auditing of provider accounts, and would – ultimately – restrict unjustified increases in health care costs.

Transparency of hospital services was expected to improve because DRG-based hospital payment requires the collection of detailed data on every patient admitted to hospital (including primary diagnosis, secondary diagnoses, procedures, length of stay, gender and age). Given the need for data collection, hospitals would be encouraged to develop information technology (IT) systems that could facilitate the flow of information between the regional NFZ branch offices and service providers. Consequently, the NFZ would have better data regarding patients treated by contracted providers, and provider performance.

Last but not least, the international success of DRG-based hospital payment systems influenced the decision to introduce a similar system in Poland.

20.2 Development and updates of the DRG system in Poland

20.2.1 The current DRG system at a glance: the *Jednorodne Grupy Pacjentów*

In July 2008, a national DRG system was introduced in Poland, entitled *Jednorodne Grupy Pacjentów* (JGP), which can be translated as 'homogeneous groups of patients'. The British Healthcare Resource Groups (HRGs) (Version 3.5) served as the starting point for the JGP system, resulting in similarities between the two systems. Each JGP represents a distinct group of patients with similar characteristics (for example, diagnoses, procedures, patient age) and similar resource-consumption patterns or costs. Table 20.2 summarizes some of the main facts regarding the first national DRG system in Poland (Schreyögg et al., 2006).

Since July 2008, all hospitals (public and private) that have contracts with the NFZ must classify their patients using JGPs in order to receive DRG-based hospital payment for services they deliver. The system covers only hospital inpatient services and (similar to the British system of HRGs) differentiates between emergency admissions, planned admissions and day-care treatment episodes. Rehabilitation is only partly included, and psychiatry is not included in the JGP system. Rehabilitative care is mostly financed using fee-for-service payments; psychiatric services are paid for by means of per diem payments. However, plans are being developed to extend DRG-based hospital payment to include these areas of care (see section 20.8).

The NFZ enters into contracts with hospitals, specifying which JGPs hospitals are permitted to provide. In order to receive payments under the JGP system, hospitals must group each patient into a specific JGP and report such data to the regional branch of the NFZ. Each JGP has a predetermined score between 5 points (for example, 'minor procedure on eye's protective apparatus') and

Table 20.2 Main facts relating to the first national DRG version in Poland: the JGP system

Date of introduction	Patient classification: July 2008 Hospital payment: January 2009 (voluntarily since July 2008)
(Main) purpose DRG system	DRG-based hospital payment Homogeneous Groups of Patients (JGP) (based on British Healthcare Resource Groups (HRGs) Version 3.5)
Data used for development	Expert consultations, data on length of stay
Number of DRGs (as of 2010)	518
Applied to	All hospitals (public and private) that have contracts with the NFZ
Range of included services	All hospital inpatients and day cases except psychiatric and rehabilitative care. Since October 2010, also including neurological and cardiological rehabilitation
Range of included cost categories	Capital and recurrent costs, excluding major investments
Update of JGP	Scheduled for 2011

Source: Compiled by the authors based on grey literature from the NFZ.

4706 points (for example, ‘transplantation of hematopoietic cells’), specified in the JGP catalogue. Depending on the score, hospitals receive a fixed sum of money, which is the same for all hospitals contracted by the NFZ.

Four documents are essential for the JGP system: (1) the JGP catalogue, which contains a full list of all JGPs, their scores and some further specifications; (2) the JGP characteristics file, which specifies the variables that define each JGP; (3) the grouper algorithm, which describes how to develop a grouper software tool by outlining all steps necessary in order to select the correct JGP; and (4) a parameterization file that is a functional form of the grouper algorithm (Gilewski, 2010).

The JGP catalogue is divided into 16 sections (or major diagnostic categories, MDCs) that correspond to anatomic or physiological systems of the body or to a specific clinical specialty (see Table 20.3). The 16 sections contain a total of 518 JGPs. Within each section, JGPs are arranged from highest to lowest scores. There are a total of 283 procedural JGPs and 235 medical JGPs.

20.2.2 Development of the JGP system

When the first national JGP system was introduced in July 2008, it was the result of several years of preparation and experimentation with different DRG systems in Poland: at the end of the 1990s, regional sickness funds had used DRGs for hospital payment in the Łódzkie, Dolnośląskie and Podkarpackie *voivodships* for several years (see Figure 20.2). After 2003, when sickness funds had been replaced by the NFZ, interest in DRGs remained strong.

Table 20.3 Sections of the JGP system

<i>Section</i>	<i>Section name</i>	<i>Number of DRG groups</i>
A	Diseases of the nervous system	36
B	Eye diseases	31
C	Diseases of the face, oral cavity, throat, larynx, nose and ears	27
D	Diseases of the respiratory system	29
E	Heart diseases	57
F	Diseases of the digestive system	39
G	Diseases of the liver, bile ducts, pancreas and spleen	24
H	Diseases of the musculoskeletal system	47
J	Diseases of breasts and skin, and burns	30
K	Diseases of the hormonal system	27
L	Diseases of the genitourinary system	45
M	Female genital diseases	22
N	Obstetrics and care of neonates	22
P	Paediatrics	27
Q	Vascular diseases	30
S	Diseases of blood-forming organs, poisoning and infectious diseases	25
Total		518

Source: Regulation of the President of the NFZ No. 69/2009.⁵

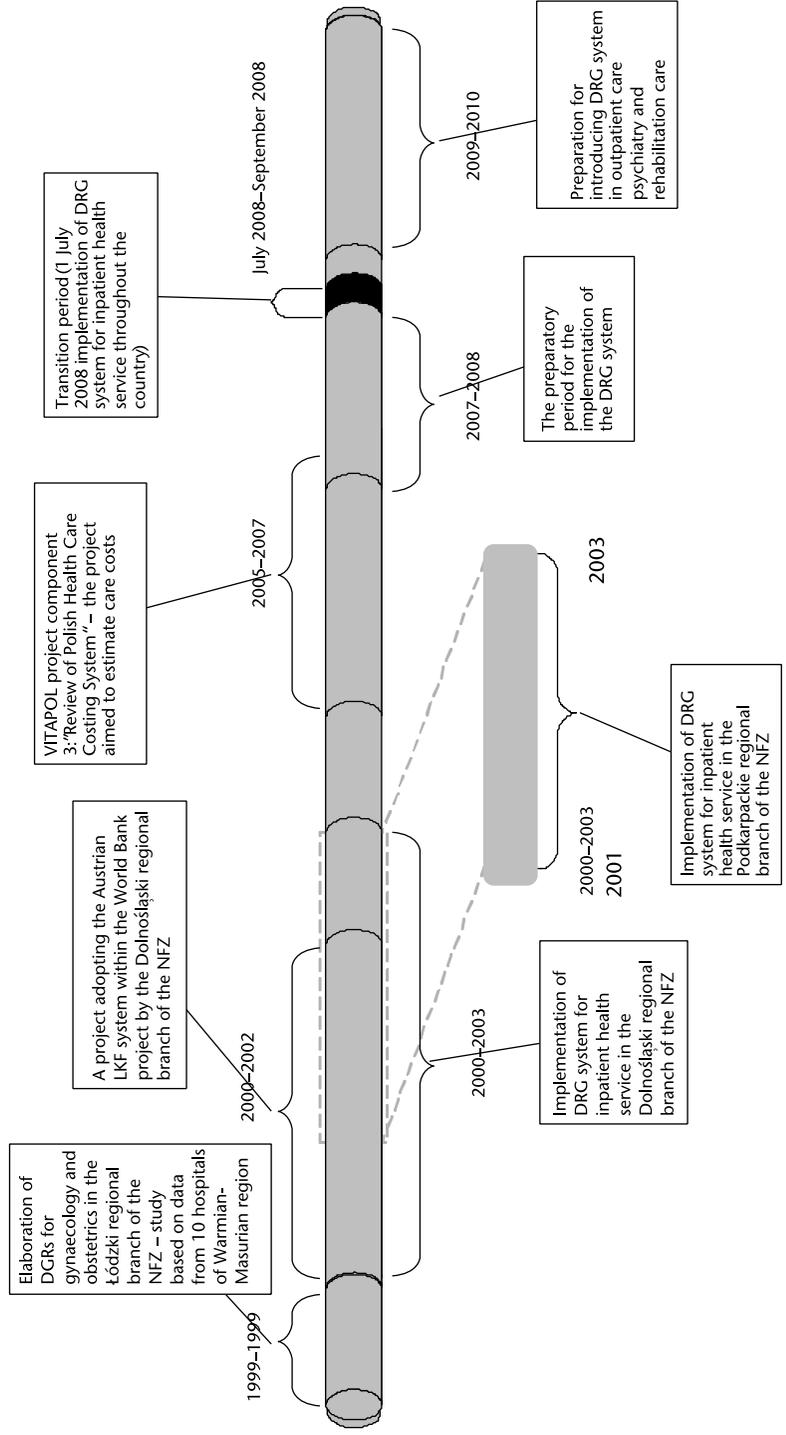


Figure 20.2 Timeline: introduction of the national JGP system in Poland and prior sub-national uses of DRGs
 Source: NFZ, 2010.

Between 2004 and 2006, a European Union (EU)-funded research project on hospital costs in Poland (VITAPOL) contributed to the establishment of a close working relationship between British experts and Polish NFZ managers. The project generated interest in British HRGs and, in early 2007, the final decision was made by the President of the NFZ to introduce DRG-based hospital payment in Poland on the basis of British HRGs.

The process of developing the Polish JGP hospital payment system stretched over a period of about two years. In a first step, the NFZ adapted British HRGs to the Polish context. In order to do so, the British Classification of Interventions and Procedures (OPCS) was mapped to ICD-9-PL codes (WHO International Classification of Diseases 9th revision, Polish Clinical Modification). In a second step, hospital services from the previously existing Catalogue of Health Care Products were matched to HRGs. Since the number of hospital products in the old system was greater than the number of 'homogeneous groups of patients' (there were 1500 hospital products in 2005 but only 518 JGPs), the new groups of patients sometimes contained different types of hospital services. Therefore, in a third step, the (old) prices for the different types of services within one JGP were assessed, and – if possible – homogeneity of prices was increased by reassigning cases to different JGPs.

Once the draft version of the patient classification system had been prepared, a score (or price) per JGP was calculated by the NFZ: the price of each of the old hospital products within a JGP was weighted by the relative frequency of the service within the JGP, in order to calculate a (weighted) average price for the services grouped into one JGP. This calculated score per JGP was then compared with price ratios in the British HRG system. Furthermore, length-of-stay thresholds were determined for certain JGPs in order to define outlier cases, for which hospitals would receive supplementary payments.

Finally, the financial impact of the new DRG-based hospital payment system was estimated, based on data relating to the payment rate per JGP and the anticipated number of patients per JGP. The estimated expenditures (for the NFZ and regional branches of the NFZ) and estimated revenues (for selected providers) were compared to expenditures and revenues under the old system, in order to assess the financial impact of the hospital payment reform.

A draft version of the JGP system was published in August 2007 and discussed in a process of broad consultations with medical professionals and hospital managers. During numerous meetings between the NFZ and national consultants (recognized experts in a specific medical specialty, appointed by the Minister of Health), a number of modifications were agreed upon that were introduced into the President of the NFZ's draft ordinance. In March 2008, an early JGP version was tested as a pilot project in 44 selected hospitals. On the basis of the information gathered, the NFZ further modified the ICD-9-PL classification of procedures and the definitions and payment rates of JGPs (Kozierkiewicz, 2009).

As part of a broader process of extending the JGP system to other areas of care (see section 20.8), the NFZ started to introduce JGPs for neurological and cardiological rehabilitation patients treated at hospitals in October 2010. Rehabilitation patients are grouped on the basis of their primary diagnosis, medical

procedures, secondary diagnoses and the assessment of each patient's health status according to the Barthel Activity of Daily Living scale, the American Spinal Injury Association scale and the Gross Motor Function Classification System. A total of 14 DRGs were created within neurological rehabilitation and three within cardiological rehabilitation.

During most of the process of introducing JGPs, Poland experienced a period of sustained high economic growth, which resulted in increased revenue for the NFZ. As a result, the NFZ had sufficient funds to increase total expenditure for hospital care and to raise payment rates for previously underfunded services. These additional revenues were an important positive influence in the process of introducing DRG-based hospital payment in Poland, since they helped to assure support from providers for the new payment system.

20.2.3 Sources of information used for developing and updating the JGP system

As already described, the JGP system is mostly based on imported British HRGs. However, Polish data were used to assess the adequacy of HRGs in the Polish context and to calculate JGP scores: first, information about the prices of hospital products under the previous payment system was used to assess the homogeneity of JGPs in Poland. Second, national hospital statistics from 2006/2007 were used to estimate the relative frequency of services bundled within each JGP, in order in turn to estimate payment rates. Third, data on hospital patients' lengths of stay were used to determine length-of-stay thresholds that delimit the number of days for which hospital payments are calculated on the basis of JGPs. Furthermore, information about innovative medical technologies is used to update the system. Unfortunately, data on costs of hospital services are not systematically collected by the NFZ and are not used to develop the JGP system. However, cost data from specific hospitals were used (albeit in a non-systematic way) to inform decisions during the process of setting the payment rate(s) under the old hospital payment system (Kozierkiewicz et al., 2006), and such data are still being used under the new system.

20.2.4 Regularity and methods of system updates

The JGP system was introduced by the NFZ in mid-2008. Since then, a number of minor updates have been introduced into the system (mostly in the second half of 2008). In most cases, these were motivated by suggestions from medical consultants or health care providers, but also by economic analyses conducted by the NFZ. In some cases, these suggestions have resulted in the creation of new JGPs. However, in order to introduce new JGPs, it must be demonstrated that the proposed group would comprise more than 300 cases, or that total payments for patients in the JGP would amount to more than PLN (Polish Zloty) 1.5 million per year (about €370 000).

At present, JGP scores are updated annually and are the same for all health care providers in Poland. In the years to follow, the principle of universal

applicability of scores may be subject to change. The point value, used to convert scores per JGP into PLN depends on the resources available in the NFZ's annual financial plan.

Decisions relating to the introduction of new medical technologies into the Polish hospital sector are made by the Ministry of Health on the basis of recommendations from the Health Technology Assessment Agency (*Agencja Oceny Technologii Medycznych*, AOTM) (see section 20.6).

Major updates to the JGP system are planned for the year 2011. Among other things, the NFZ plans to introduce a new process of regular updates to the patient classification system and to the payment rates (see section 20.8).

20.3 The current patient classification system

20.3.1 Information used to classify patients

Each JGP is defined on the basis of data available from the common hospital discharge dataset. This contains information about the diagnoses of patients (primary diagnosis and secondary diagnoses coded using ICD-10; procedures coded using ICD-9-PL; demographic variables (age and gender); reason for hospital admission/discharge; and length of stay). After hospital discharge, one JGP is selected for the entire hospital stay by a specialized software program called a 'grouper', which uses information about diagnoses, procedures, age, type of admission, type of discharge and length of stay to classify patients into the appropriate group of patients.

20.3.2 Classification algorithm

The grouping algorithm is illustrated in Figure 20.3. In a first step, the grouper checks whether any services were provided that are reimbursed without being assigned to a specific JGP. For example, very costly procedures such as transplantations, treatment of drug-resistant epilepsy, and chemotherapy are excluded from the further grouping process (see Figure 20.4 for reimbursement components besides those for JGPs). The next step of the grouping algorithm is to check whether any significant procedures were performed. If this is the case, the grouper determines for each procedure a rank between 0 and 6. The highest ranked procedure is then indicated as the dominant procedure for the hospital stay. However, unlike in the British HRG system, the grouper does not automatically select the dominant procedure. Instead, health care providers can manually select the procedure that was the most important during the hospital stay in question.

Subsequently, this procedure determines the section of the JGP system. If the rank of the procedure is > 2 , which is the case for most operating room (OR) procedures, the JGP is determined directly (94 basic 'surgical' procedural JGPs). If the procedure rank is ≤ 2 , the grouper checks whether additional conditions concerning secondary diagnoses, secondary procedures, age, gender, and so on are met, in order to determine the JGP (191 procedural JGPs).

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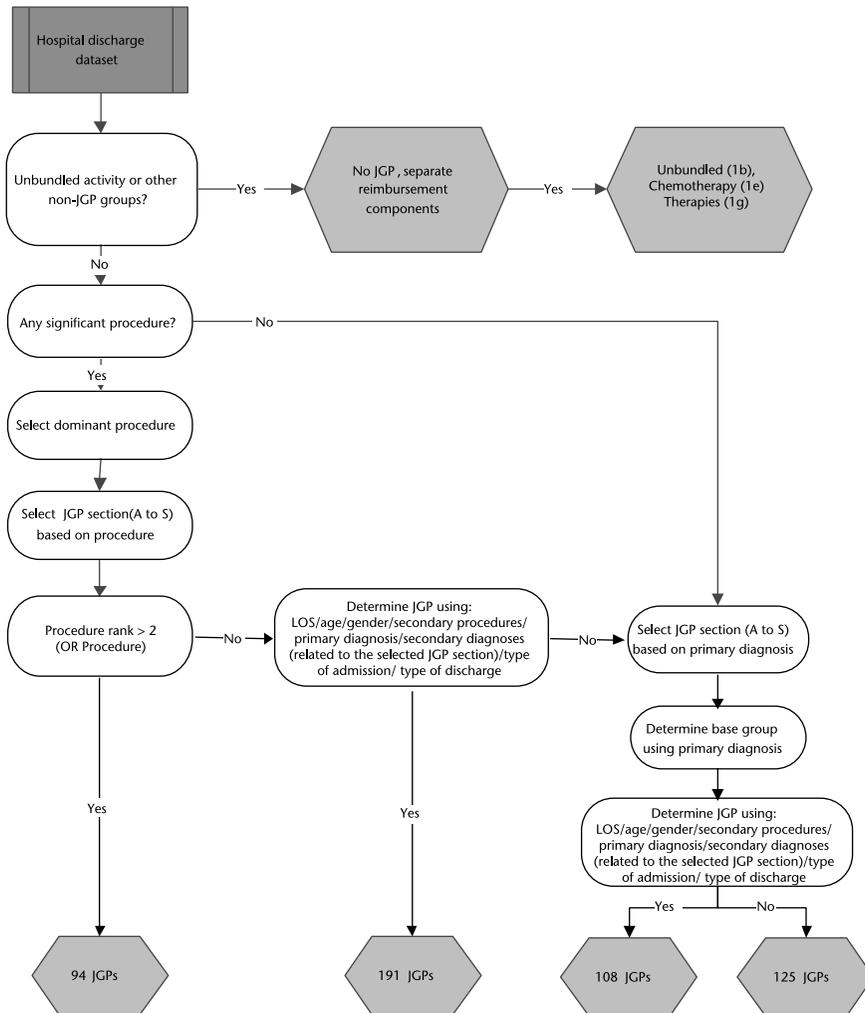


Figure 20.3 JGP grouping algorithm

Source: Compiled by the authors based on grey literature from the NFZ.

Cases without any procedures – or those cases for which a JGP could not be determined by the grouping algorithm described so far – are assigned to the relevant section of the JGP system on the basis of the primary diagnoses of the hospital stay. Subsequently, the primary diagnosis determines a base group. Depending on the primary diagnosis, the JGP can be determined directly (for 108 medical JGPs), or additional conditions may have to be met (for 125 medical JGPs).

Whether a specific secondary diagnosis is considered a to be a complication or co-morbidity (CC) in the grouping process depends on the section of the JGP system concerned. For every section, a list of ICD-10 codes exists that defines

Table 20.4 Differences between British HRGs and Polish JGPs

	<i>British HRGs (Version 3.5)</i>	<i>Polish JGPs</i>
Procedure classification system	OPCS	ICD-9-PL
Selection of dominant procedure	Groupers select highest ranked procedure	Provider selects most relevant procedure of hospital stay
Poly-trauma cases	Included in 'Pre-MDC'-like group	No specific groups. JGP score is inflated depending on the number of affected organs
Paediatric cases	Specific section only for neonates	Separate section for paediatrics
Number of chapters/sections	19	16
Number of groups	610	518

Source: Compiled by the authors based on grey literature from the NFZ.

relevant CCs for the section. In addition, a global list of secondary diagnoses exists, which are considered CCs in all sections.

Each JGP is characterized by a three-digit code. The first digit is a letter indicating the section of the JGP system, for example 'F' is used for diseases of the digestive system (see Table 20.4). The second and third digits are numbers that specify the JGP group, for example 'F83' for appendectomy in uncomplicated cases of appendicitis. In general, lower numbers indicate more complex groups of patients, while higher numbers indicate less-complicated (less-costly) groups of patients. However, there are several important differences between the JGP system and the British HRG system. The most important differences are summarized in Table 20.4.

20.3.3 Data quality and plausibility checks

Hospitals submit all data relevant for reimbursement to the regional branch offices of the NFZ. The NFZ withholds payments in the event that the required information is not complete. Data quality and plausibility are regularly verified: first, health care providers verify their data before sending them to regional branch offices of the NFZ, in order to avoid external auditing. Second, the NFZ verifies that data are complete and checks for plausibility of combinations of diagnoses and procedures. Finally, the NFZ carries out coordinated monitoring by sending out review teams to hospitals, to check patients' medical documentation. If any irregularities are detected, the health care provider must correct its reports and financial penalties are applied.

In October 2009, the Section for Verification and Validation Standards of the NFZ launched a central process of validation and verification of reported data. The aim is to harmonize and automate most processes of validation and verification and to contribute to improved data quality. However, at present, coding problems detected during the process of validation and verification indicate that hospitals still need to improve medical monitoring and controlling in order to improve data quality.

20.3.4 Incentives for up-coding or wrong-coding

Since hospital payment is determined to a large extent by patients' JGPs, hospitals have strong incentives to 'optimize' their coding practices in order to achieve higher payments. However, during data quality checks and controls of patient records at hospitals, the NFZ regularly checks for up- and wrong-coding. If fraudulent coding practices are detected, hospitals may be punished by means of penalties (high fines), or even termination of the contract.

20.4 Cost accounting within hospitals

20.4.1 Regulation

Health care facilities are obliged to produce cost-accounting statements according to the rules set out in an Ordinance of the Minister of Health and Social Policy.¹ However, this document does not specify in detail how health care providers should carry out their cost accounting. Consequently, significant discrepancies exist in the methods of calculating costs between particular service providers.

Given the lack of consistent cost-accounting data, the JGP system is currently not directly related to the costs of hospital services. The only available information on costs of hospital services in Poland is selective. Some hospitals collect cost information on particular medical care episodes and voluntarily submit it to the NFZ. The NFZ may use this information in the process of setting payment rate(s), but does not use it in a systematic way.

20.4.2 Main characteristics of the cost-accounting system

Recently, the NFZ has launched an initiative to establish a cost database. The idea is that about 15 hospitals will collect data on the costs of selected treatment episodes included in the JGP system. The initiative will allow hospitals to know more about their cost structures in comparison to other hospitals. Hospitals that want to participate in the project must fulfil certain requirements. They must:

- comply with the aforementioned Ordinance of the Minister of Health and Social Policy (Dz.U.98.164.1194);
- allocate overhead costs to direct cost centres through a step-down cost-accounting approach;
- estimate costs of sub-ward cost centres (ORs, doctors' rooms for the provision of services for numerous wards, diagnostic laboratories, and so on);
- estimate total costs at direct cost centres; that is, costs at medical departments engaged in the provision of services to patients;
- collect patient-level data on certain consumed resources (drugs, high-cost materials, diagnostic tests, and so on);
- disaggregate costs according to defined cost groups: labour, drugs, diagnostic tests, medical materials, and overheads.

As a result, hospitals should be able to provide information about (1) per diem costs (both 'hotel' costs and care costs), (2) average costs per patient, (3) costs of medical procedures, and (4) costs of services provided by hospital wards for other wards or outside the hospital. In order to standardize the methods of gathering the data from selected service providers, the NFZ has prepared a web-based application which will facilitate the sharing of information.

20.5 JGPs for hospital financing

20.5.1 Role of JGP-based hospital payment in the overall financing of hospitals

All hospitals in Poland that have contracts with the NFZ are financed through the JGP system. The same conditions apply to all hospitals, irrespective of ownership status, hospital type, or regional differences. The system applies to all patients, including day cases, except for psychiatric and most rehabilitative care patients. Payments under the JGP system are supposed to cover the full costs (capital, personnel, overheads, and so on, except costs of major investments) of all services provided by hospitals between admission and discharge of the patient. However, hospitals may receive additional funds for investments from regional governments, for teaching from the Ministry of Science and Higher Education, and from patients for add-on services, such as for a sole-occupancy treatment room.

No information is available on the budget structure of hospitals. However, it is assumed that public funds contracted from the NFZ constitute more than 60 per cent of hospitals' total budgets.

20.5.2 Calculation of JGP scores and trimming

As described in subsection 20.2.2, calculation of JGP scores was based mainly on information about prices of services from the old catalogue of hospital products and the assumed relative frequency of these services within one JGP (in the years 2006–2007). In addition, the ratio of JGP scores was compared with the price ratio of comparable HRGs, while taking into account particularities of the Polish health care system. In particular, the costs of intensive care treatment were included in the most complex groups of patients and costs of medical equipment were considered.

Scores per JGP differ according to the type of admission of the patient. For example, in general, JGP scores are lower for planned hospital admissions or day-care treatment episodes than for unplanned hospital admissions. Table 20.5 shows an example of different scores, according to the type of admission, for a selected group of JGPs.

In order to adequately remunerate hospitals for treating cases with very high costs (outliers), the JGP system provides supplementary payments for cases with a 'very long' lengths of stay (LOS outliers). These cases are identified using an upper LOS threshold, beyond which cases are to be considered to be outliers.

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Table 20.5 Example of JGP scores and supplementary points for selected JGP groups

JGP	Name	JGP score			Upper LOS threshold	< 2-day stay score	Per diem surcharge
		General admission	Planned admission	Day care			
G24	Cholecystectomy with CCs	71	70	69	–	–	–
G25	Cholecystectomy	63	60	57	–	–	–
N34	Minor surgical intervention on infants and babies	57	–	–	10	11	5

Source: President of the National Health Fund, Order No. 69/2009/DSOZ on defining conditions of concluding and executing such contracts as hospital treatment, 3 November 2009.

The threshold is defined through a non-parametric trimming method based on the interquartile range, and is applied only to certain JGPs:

$$\text{upper LOS threshold} = Q3 + 1,5 * (Q3 - Q1),$$

where:

Q1 is the LOS of the first quartile of patients within a particular JGP and

Q3 is the LOS of the third quartile of patients within a particular JGP

Beyond this threshold, the JGP score is increased by a per diem-based supplementary point value that amounts to 80 per cent of the average per diem value per day below the upper LOS threshold. This is because it is assumed that beyond the upper LOS threshold, the intensity of care is lower. However, upper LOS thresholds are not calculated for planned hospitalizations and day-care treatment episodes.

For certain JGPs the system identifies short-stay outliers; namely, cases in which the patient should usually stay in hospital for more than one day (in accordance with standard medical practice). If these cases are discharged after only one day, hospitals do not receive the full JGP-based payment. Instead, the JGP score is reduced for these lower length-of-stay outliers to 20 per cent of the full JGP score (except in the case of death of a patient during the first day of hospital stay). Table 20.5 shows an example of a JGP score for lower length-of-stay outliers within a particular JGP.

20.5.3 JGP-based hospital payment

Before hospital payment takes place, the regional branch offices of the NFZ check whether JGPs reported by the provider are consistent with the scope of their contracts. For example, if a hospital has grouped a patient into a surgical JGP but does not have the right to provide the procedure, the patient is reclassified by the NFZ into a JGP that was specified in the contract.

Figure 20.4 illustrates the calculation of hospital payment under the JGP-based hospital payment system in Poland. Hospital payment is determined, on the one hand, by basic score points for the JGP (1a) or basic scores for unbundled services (1b), chemotherapy (1e) or therapeutic programmes (for

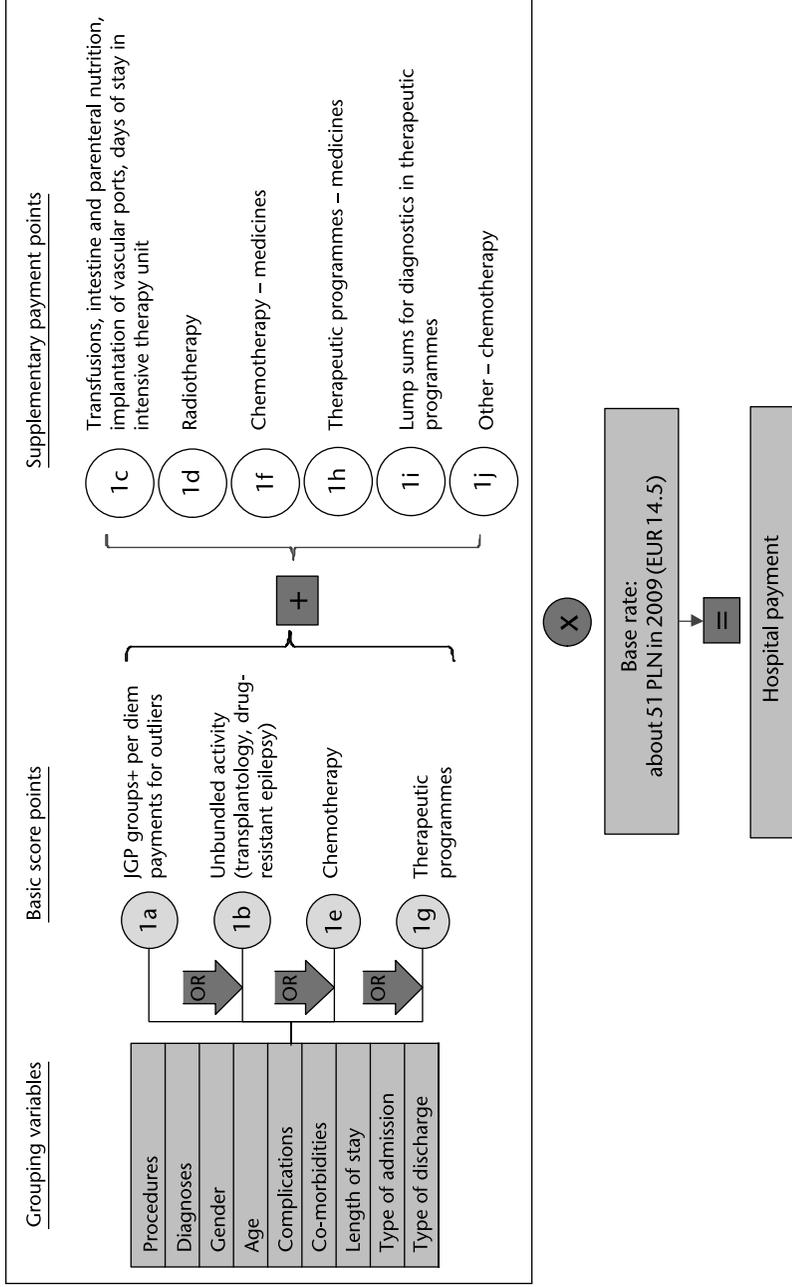


Figure 20.4 Calculation of hospital payment in the era of JGPs

Source: NIZ, 2010.

example, treatment of chronic hepatitis) (1g). On the other hand, additional points are added to the score as supplementary payments for specific services (1c, 1d, 1f, 1h–j). For chemotherapy (1e) or therapeutic programmes (1g), the basic score points are supposed to cover the costs of the stay in hospital, whereas the supplementary payment points 1f or 1h pay for specific medicines or diagnostic evaluations. There are 429 such supplementary payments for a range of specific high-cost drugs or procedures. The sum of points for the JGP score, plus supplementary payment points, is multiplied by a base rate (point value) in order to calculate hospital payment for a specific patient. The base rate was PLN 51 (about €14.5) in 2009 and 2010. The rate depends on the total available NFZ budget and is determined through negotiations between the NFZ, the Ministry of Health and representatives of associations of medical professionals.

20.5.4 Quality-related adjustments

The JGP system does not adjust the hospital payment for specific quality indicators. All hospitals receive the same amount of money (fixed) for each JGP, which means that hospitals face strong incentives to lower their costs. This could potentially compromise the quality of care. However, the quality of hospitals is taken into account by the NFZ prior to the conclusion of contracts with hospitals. In particular, the NFZ considers two types of quality standards – these are implemented by health care providers of their own accord and are not legally binding:²

1. International Organization for Standardization (ISO) certificates (ISO 14001, 9001) that certify organizational quality standards of management processes, but not medical standards;
2. accreditation by the National Center for Quality Assessment, which assesses quality on the basis of measurable (structure, process and outcome) indicators. The indicators are dynamic and subject to periodical modifications.

In addition, further structural quality standards are specified in the ‘Acts and regulations of the Minister of Health’.³ For example, personnel must have certain qualifications, equipment must undergo regular controls, and floor space must comply with certain criteria. Furthermore, the NFZ verifies that Ministry of Health requirements for the provision of specific services are met before determining the scope of contracts with hospitals, that is, before deciding which services the hospital will be allowed to provide.

20.6 New/innovative technologies

As a result of the ‘Act on health care benefits financed from public funds’⁴ the AOTM was established. Hospitals, pharmaceutical companies and manufacturers of medical equipment can apply to the AOTM with a proposal for a new technology. The agency assesses applications and makes recommendations regarding whether or not a specific technological innovation should be included

in the list of public health care benefits that is published by the Minister of Health. As part of the assessment, the AOTM establishes the level of superiority of the new technology compared to existing treatment options, and assesses possible ways of financing it, along with conditions for implementation. In the process, the AOTM holds meetings with a Consultative Council composed of 12 members who are experts in the assessment of health care technologies. The Council meets once a month and can approve a new technology through majority vote. Subsequently, the president of the AOTM must consult with legal experts and with the NFZ President in order to ensure that the financial impact of introducing a specific technology does not compromise the financial stability of the NFZ. The final decision regarding whether or not to incorporate a new technology into the list of health care benefits is made by the Ministry of Health.

Unlike in other countries (see Chapter 9), there is no system to specifically encourage the adoption of innovations, for example through additional payments for the use of certain technologies. If a specific technology is included in the list of public health care benefits, it is either financed through an existing JGP, or a new JGP is created to account for the higher costs of the new technology. Alternatively, high-cost drugs or procedures can be added to one of the lists for supplementary payments, for example 1c, 1d, 1f, 1h–j (see Figure 20.4).

20.7 Evaluation of the JGP system

20.7.1 Official evaluations

The pilot testing of JGPs in early 2008 has been the only official evaluation of the JGP system thus far. However, the main objectives at the time were to test coding practices, the practical functioning of the JGP grouper algorithm and the possibility of paying providers using JGPs (Paszkiwicz, 2008). In addition, the pilot study generated information that facilitated the improvement of the classification of medical procedures and JGP characteristics. The effects of the introduction of JGPs on quality or efficiency of health care service provision were not assessed during the pilot study and still remain unknown.

20.7.2 Authors' assessment

The main advantage of the Polish JGP system is that it contributes to transparency in the hospital sector. Grouping algorithms are publicly available and the payment system is based on transparent procedures. In addition, the JGP system contributes to increased availability of data relating to hospital activity, by enforcing coding of diagnoses and procedures and grouping this information into JGPs.

However, important shortcomings persist: cost accounting and collection of cost data are not standardized in Poland, and cost information is not systematically used to determine payment rates. This means that payment rates do not necessarily reflect the costs of service provision. Hospital payments for

certain services may be too generous, while other services are not financed sufficiently. Consequently, hospital payments may be considered unfair; they may provide the wrong incentives and could lead to unintended behaviour patterns on the part of providers (see Chapter 6 of this volume). Furthermore, the system does not take into account structural differences between providers, even though these differences may have a significant impact on providers' costs of service provision (Busse et al., 2008).

20.8 Outlook: Future developments and reform

In 2011 the NFZ plans to implement a new change-management system. This will be the most significant alteration of the JGP system since its introduction in 2008. The change-management system is intended to provide a regulatory framework for the process of updating the JGP system. Three main characteristics of the change-management system are as follows: (1) updates to the system will occur no more than twice a year; (2) the JGP patient classification system will be updated on the basis of statistical analyses of length of stay and cost data; and (3) cost data will be used to determine payment rates.

An interesting feature of the proposed change-management process is that it is intended to create two lists: one detailing the most frequently performed JGPs, and another itemizing the JGPs with the highest expenditures. Updates to the JGP patient classification system (for example, splitting of groups, creating new groups, and so on) will focus on the most important JGPs from the two lists. In terms of the payment rate-setting procedure, various projects are currently in the process of improving cost-accounting practices in health facilities, supported by the Ministry of Health and the European Commission. If cost-accounting standards can be sufficiently improved, payment rates will be more closely related to the costs of service provision in Polish hospitals. Furthermore, plans exist to depart from the uniform applicability of a national base rate and to introduce structural and quality adjustments for certain hospitals.

Another major development is that the NFZ plans to gradually extend the JGP system to other areas of care, such as rehabilitation and psychiatry. As mentioned in subsection 20.2.2, the introduction of JGPs for cardiological and neurological rehabilitation in October 2010 forms part of this broader process.

In conclusion, the JGP system is still at a relatively early stage in Poland. The planned change-management system aims to continuously improve the JGP system to better reflect Polish health care patterns and costs of service provision. It seems very likely that JGP-based hospital payment will provide adequate reimbursement to hospitals in the long term, and will thus contribute to improved quality and efficiency of hospital care in Poland.

20.9 Notes

- 1 Ordinance of the Minister of Health and Social Policy on special principles of cost accounting in public health care facilities, 22 December 1998 (Dz. U. of 1998: No. 164, item 1194 as amended); and Ordinance of the Minister of Health and Social Policy on

- guaranteed hospital treatment benefits, 29 August 2009 (Dz. U. of 2009: No. 140, item 1143 as amended).
- 2 President of the National Health Fund, Order No. 73/2009/DSOZ on defining assessment criteria for offers, 13 November 2009.
 - 3
 - Ordinance of the Minister of Health of 3 March 2004 sets forth the requirements which need to be met by the premises and equipment of a medical diagnostic laboratory with special focus on the sanitary condition of the premises and equipment, as well as technical and substantive requirements for the staff and the manager of the laboratory. (Dz.U. No. 43, item 408 of 2004 as amended)
 - Ordinance of the Minister of Health of 23 March 2006 sets forth the quality standards for medical diagnostic and microbiological laboratories as regards the operations of medical laboratory diagnostics, assessment of their quality and diagnostic value and laboratory interpretation and authorization of test results. (Dz.U. No. 61, item 435 of 2006 as amended)
 - Ordinance of the Minister of Health of 27 March 2008 concerning minimum requirements for health care units which provide medical services consisting of X-ray diagnostics, interventional radiology and radioisotope diagnostics and treatment of non-cancerous diseases (Dz. U. 2008, No. 59, item 365)
 - Ordinance of the Minister of Health of 29 March 1999 concerning the qualifications of personnel at various positions in public health care institutions. (Dz. U. 1999, No. 30, item 300).
 - 4 Act on health care benefits financed from public funds, 27 August 2004 (Dz. U. of 2008, No 164, item 1027, as amended).
 - 5 President of the National Health Fund, Order No 69/2009/DSOZ on defining conditions of concluding and executing such contracts as hospital treatment, 3 November 2009.

20.10 References

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