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## Analysis of the quality of hospitalization based on the assessment of patients in Lublin, Poland

### Abstract

**Introduction.** The problem of health care affects every country. The structure and quality of hospitalization in Poland have changed over recent years. The state's management of a balanced policy is possible prior to the collection of reports allowing to obtain data enabling assessment of changes in the health structure of the population, development of statistical data, as well as implementation and supervision of the National Health Program.

**Aim.** The aim of the study was to evaluate the quality of hospitalization basing on the patients' assessment of the availability, conditions, course of treatment and contact with hospital staff in the city of Lublin.

**Material and methods.** The material for analysis was data collected from 254 patients. Respondents represented departments of diabetology, rehabilitation and internal diseases. The group consisted of 159 women and 95 men aged 19-84. The interview questionnaire was a research tool. Respondents were asked to assess: accessibility to hospital, efficiency of completing formalities when admitted to the hospital, cleanliness in the room, quality of the gastronomic services and contact with nursing and medical staff. Likert's 5-point scale was used. Statistical analysis was performed using the software "STATISTICA 10.0".

**Results.** Most respondents assessed the quality of hospitalization as satisfactory. As many as 99% of respondents assessed contact with doctors as good or very good. Contact with nursing staff was rated as good by 88% of respondents.

**Conclusions.** This study demonstrated good quality of health care in the examined hospital in Lublin. However, it is important to emphasize the need for further research aimed at collecting data on the presented problem.

**Keywords:** public health, hospitalization, healthcare, patients' assessment.

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### INTRODUCTION

The World Health Organization defines medical care as a part of the health care, which uses scientifically proven and accepted methods and techniques, commonly available for each individual of the community. Since, quality assurance and performance evaluation have become central issues in medicine, the WHO has taken on the task of controlling the quality of medical care and its improvement through the implementation of the program "Health for All". In Poland, the quality of life resource management, including the issue of health, is controlled by the Centre for Monitoring Quality in Health Care located at the Jagiellonian University [1].

The quality of medical services in Poland has changed significantly over the last years, since in 1997 the act of universal health insurance was introduced [2]. The phenomenon of competition and soliciting of a beneficiary increased the efficiency of medical facilities.

The assessment of the quality of medical services consists of three elements. Two of them are internal controls – self-evaluation of the doctors, according to their own standards

of proceeding, and evaluation of patients' satisfaction with the quality of care. The third element is the mechanism of external control, carried out on behalf of the patient population.

In the traditional approach to measuring the quality of care, the dominant view was that the patient is not competent, and does not have enough medical knowledge as to objectively assess the quality of services obtained. The quality of services provided in the hospital was evaluated on the basis of certain standards or objective data and indicators or by health care providers, managers, hospital accreditation bodies, or the National Health Fund. This approach is being increasingly modified and currently the process of evaluating the quality of care takes into account the data obtained from the measurement of subjective opinion of patients about the care provided. The patient's perception of the quality of care received in institutions and his/her satisfaction can definitely differ from that of the professionals, so full assessment of the quality of services should be the result of the analysis of data from different sources. The importance of patient satisfaction reflects the fact that in 1970, the United States National Center for Health Services Research and Development established three

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indicators: mortality, morbidity and patient satisfaction as measures of overall health assessment. In Poland, the measurement of patient satisfaction of health services is a requirement imposed by health care facilities by entities that accredit hospitals and the level of patient satisfaction of services is regarded as one of the indicators of the overall quality of care provided in a health care institution.

**AIM**

The aim of the study was to evaluate the quality of hospitalization basing on the patients assessment of the availability, conditions, course of treatment and contact with hospital staff in the city of Lublin.

**MATERIAL AND METHODS**

The material for the analysis was the data collected from 254 patients at different stages of treatment. Respondents represented the following wards: diabetology – 128 individuals (50.39%), rehabilitation – 50 individuals (19.69%) and internal ward – 76 individuals (29.92%). The age range of respondents was from 19 to 84 years. The group consisted of 159 females and 95 males.

Patients were divided into three age groups: 19-39 years old (21 people; 8.2%), 40-60 years old (122 individuals; 48%), 61-84 years old (111 individuals; 43.7%).

The study was carried out in 2010 during the 6 month period from January to June in the hospitals in Lublin. The author’s interview questionnaire was the research tool. For evaluation the 5-point Likert scale (5 point – very good, 4 points – good, 3 points – intermediate (rather good) and 1 and 2 points reflecting bad and very bad) was used. The data was tested using the non-parametric tests of independence. The significance level was set as  $p < 0.05$ . Statistical analysis was performed using software “STATISTICA 10.0”.

**RESULTS**

**1. Assessment of access to the hospital**

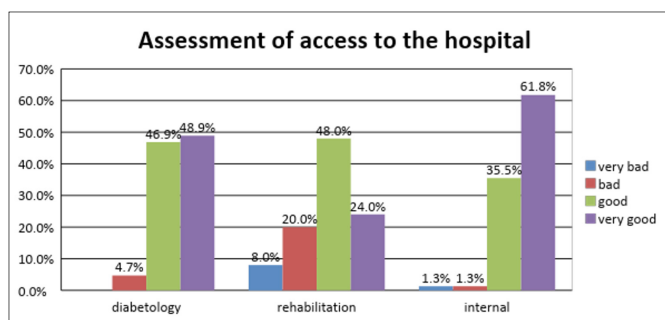


FIGURE 1. Assessment of access to the hospital.

The analysis of respondents’ answers concerning access to the hospital revealed that the vast majority evaluates access to the hospital as good or very good. The highest percentage score of “very good” answers (62%) among the analyzed wards has the department of internal, which is the easiest to get into. Only 2 patients of this department pointed the difficulty of access to the hospital. In contrast, every fifth patient of rehabilitation department stated that the availability of this department is “bad” and 4 patients (8%) assessed even that it is „very bad”.

No significant correlation was found between the access to the hospital wards and the subjective assessment of patient groups considering age ( $p=0.9515$ ), gender ( $p=0.9187$ ) and first and second hospital stay ( $p=0.2728$ ).

**2. Evaluation of functioning the hospital admissions by patients**

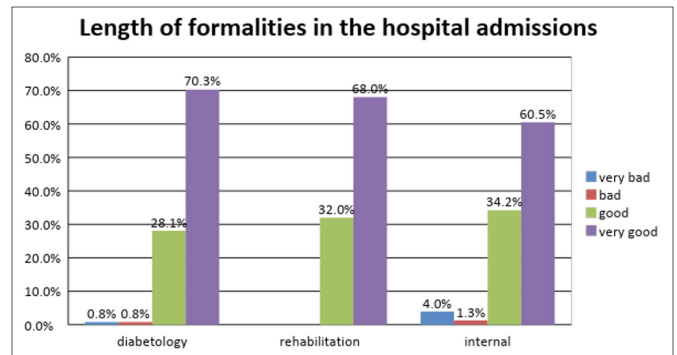


FIGURE 2. Evaluation of functioning the hospital admissions by patients.

In the group of patients receiving treatment in the hospital, 170 of them (66.93%) rated the length of formalities in the hospital admissions as “very good”. Only 6 patients found the length of formalities as „bad” or „very bad”.

No significant correlation was found between the functioning of the hospital admissions and the subjective assessment of patient groups considering age ( $p=0.09551$ ), gender ( $p=0.2136$ ) and first and second hospital stay ( $p=0.5097$ ).

**3. Evaluation of patient rooms in wards by patients**

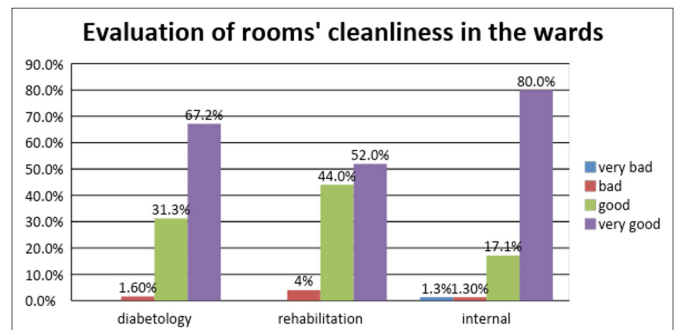


FIGURE 3. Evaluation of patient rooms in wards by patients.

Analyzing the results of 254 respondents, the vast majority of patients (68%) gave the highest score in Likert rating scale. Patients were the most satisfied with the cleanliness of the department of internal medicine – 80% of the respondents pointed it is “very good”.

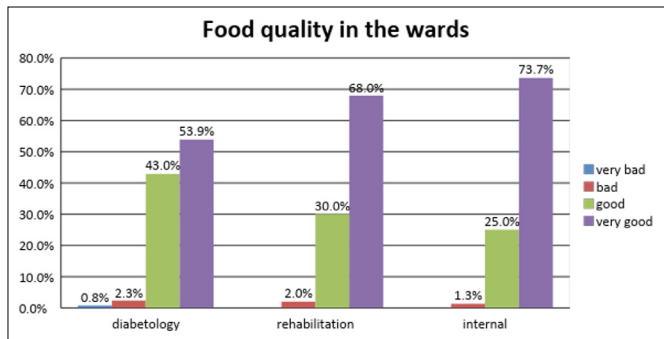
The second group of patients with „very good” mark were the patients from diabetes ward (67.19%), while only half of the patients (52%) from rehabilitation department gave such assessment. Only a small percentage of patients from each department (2%) was dissatisfied with the cleanliness, most of them were patients from the rehabilitation ward. The significant correlation was found between patient’s assessment concerning the cleanliness of the wards and gender of the respondents ( $p=0.0021$ ). Up to 80% of men were very satisfied with the cleanliness, while the percentage of women was lower – 61.01%.

No significant correlation was found between the cleanliness of the wards and the subjective assessment of patient

groups considering age ( $p=0.76$ ) and first and second hospital stay ( $p=0.7254$ ).

Another factor, apart from housing and technical conditions, which is very important for patients during stay in hospital, is appropriate and good-quality diet.

**4. Assessment of hospital foodservice quality**



**FIGURE 4. Assessment of hospital foodservice quality.**

No statistically significant correlation was found between the subjective assessment of the patient and the quality of food at the various wards ( $p=0.0124$ ). Assessing the quality of the meals in the hospital departments, the internal medicine department was rated the best – 74% of the respondents evaluated food service quality as „very good”. In the second place in terms of patient satisfaction with the quality of the food was the rehabilitation ward (68% respondents answered „very good”), and the last one was the diabetes ward (54% “very good” answers). The worst evaluated ward by the patients – with the answers „bad” and “very bad” was the diabetes ward (3.12%), followed by the rehabilitation ward (2%) and the department of internal medicine (1.32%).

No significant correlation was found between the quality of food and the subjective assessment of patient groups considering age ( $p=0.3955$ ), gender ( $p=0.4382$ ), first and second hospital stay ( $p=0.7371$ ).

**5. Evaluation of nursing care quality in the wards**

Frequent contact with patients, as well as a wide range of activities performed with the patient, stand behind the fact that nurses are an important component in the assessment of patient satisfaction with hospital stay.

No significant correlation was found between the subjective assessment of the patient and the nursing care quality among departments ( $p=0.9905$ ).

**TABLE 1. Evaluation of nursing care quality in the wards.**

Evaluation of nursing care quality	Department			Total	
	Diabetology	Rehabilitation	Internal		
Bad	Amount	0	1	0	1
	%	0.00%	2.00%	0.00%	0.39%
Good	Amount	16	5	9	30
	%	12.50%	10.00%	11.84%	11.81%
Very good	Amount	112	44	67	223
	%	87.50%	88.00%	88.16%	87.80%
Total	Amount	128	50	76	254
	%	50.39%	19.69%	29.92%	100.00%

Kruskal-Wallis Test:  $H(2, N=254)=0.0190292; p=0.9905$

The vast majority of patients evaluated nursing care quality as very satisfying, regardless of the department. Only 1 patient (0.39%) from the whole group of respondents was displeased with the nursing care.

No significant correlation was found between the nursing care quality and the subjective assessment of patient groups considering age ( $p=0.4600$ ), gender ( $p=0.3284$ ), first and second hospital stay ( $p=0.2841$ ).

**6. Evaluation of medical care quality in the wards**

The quality of health care provided by a physician can be judged by patients through the evaluation of interpersonal relationships and passing the information. The vast majority of patients were content with the way of providing information about treatment. As many as 99% of patients evaluated communication with doctors as “good” or “very good” – 85% of which gave the highest mark.

No significant correlation was found between the quality of medical care and the subjective assessment of patient groups considering age ( $p=0.6080$ ), gender ( $p=0.4906$ ), first and second hospital stay ( $p=0.2859$ ) and ward ( $p=0.2940$ ).

**DISCUSSION**

The pursuit of sustainable health policy requires the collection of data on the current state of health in the population and data on the factors influencing this situation. The information collected through various information systems is regularly analyzed in detail. In addition, these systems are synchronized with systems present in other EU countries. This allows for regular data collection at the main European Statistical Office – Eurostat. Since the 1970s data in Poland is collected by the National Institute of Public Health – National Institute of Hygiene (NIZP-PZH). Cyclical reports allow us to obtain an objective assessment of the effects of implementation of the National Health Program (NHP). Currently collected reports allow to obtain the data enabling assessment of changes in the health structure of the population within the European Regional Office WHO “Health 2020” strategy [3].

The Central Statistical Office prepares “Health and Health Care” annals [4,5] for the previous years. This is a detailed statistical analysis of the functioning of broadly understood health care in Poland. It concerns both the public and private sectors. The latest yearbook was published at the beginning of 2017 [5].

In our study, a group of respondents rated access to hospitals as satisfactory. In 2015 there were 956 general hospitals with over 186,000 beds in Poland. Contrary to the situation in other EU countries, there is no trend in reducing the number of beds in 24-hour residential care. In 2012 there were 486 hospital beds available per 100,000 inhabitants, while in the European Union there was an average of 496 beds for the same number of citizens [4]. Compared to 2009, the number of beds decreased by only 0.9% (in EU decreased by 3.8%) [4-6]. The largest number of beds were available in surgical and internal medicine departments (41 and 25/100.000 respectively), and the lowest number of beds were available in units characterized with long-term care – geriatric and toxicological wards (less than 1 bed/100.000 inhabitants) [5]. According to the data of the Center for Health Information Systems [7], more than 200 new health care facilities have been added since 2010 in Poland.

In recent years, the simplification and digitalization of the hospital enrollment process has improved the efficiency of admission. In the case of emergency admissions, the Triage system is applied to patients in the Emergency Care Units. According to Waldrop et al. [8] and Horwitz et al. [9], the median of waiting time for medical consultation in the U.S. was 87% in the Triage system, and the system sensitivity was set at 83%. Unfortunately, there are no similar studies available on the functioning of this system in Poland and the European Union. In the case of “waiting time” for specialist consultations or outpatient visits – authors cannot use any reliable statistics taking into account the generalized situation in Poland and the European Union. This is because there is no possibility of referring the value of the calculated index to the accepted standards for maximum waiting time for a particular health benefit [10] and for the free movement of patients between healthcare centers [11].

In the study, the respondents rated cleanliness in the departments as high. This is due to strict standards of cleanliness in hospitals across the European Union. However, there are still cases of negligence. The authors wish to emphasize the role of factors influencing the microbiological cleanliness of hospital departments which are directly independent of the influence of healthcare workers. Primarily, this is patients’ self-awareness of the general hygiene. According to Krogulski [12], the level of microbiological cleanliness is not influenced by the location of the hospital itself, e.g. in a large urban area or in a small city.

The diet of patients in hospitals should meet high standards of nutrition [13]. Unfortunately, in Poland, feeding in hospitals raises many objections and in many cases does not meet the principles of rational nutrition. Orkus et al. [14] found deviations from the general assumptions of dietary regimens, like the lack of seasoned fruits and vegetables in the hospital diet. In addition, the meals served were based on energy values but did not provide adequate nutritional value. In the study, Pokrzywa et al. [15], the lack of adequate vitamin and mineral supplementation in the hospital diet has been highlighted. Undoubtedly, the high standards of patient nutrition in hospital departments require higher financial costs and a holistic approach to the issue of patients’ rational diet.

The quality of nursing care in hospital departments is influenced by the number of nursing staff employed at the facility. In 2015 there was average of 490 nurses per 100.000 inhabitants in the Polish society. By comparison, in the European Union, the average was set at 780 nurses per 100.000 inhabitants [16]. In the study, Aiken et al. [17] it was proved that the earnings level is also important for the quality of nursing care. This was highlighted by two groups of respondents – both nursing staff and patients. It has also been shown that improvement of working conditions and reduction of patients per nurse index was associated with improved quality of care and hospitalized patients’ satisfaction.

One of the most important aspects of successful hospitalization, in addition to comprehensive diagnostics and treatment, is the documented communication on the patient- doctor link. According to statistics [5], in Poland there are 220 specialist doctors per 100.000 inhabitants, what in practice makes it impossible to conduct holistic medical care for each individual patient. This number contrasts with data from other EU countries, where the proportion is 350 doctors per 100.000 people. In Poland this percentage is increasing year by year, but in many medical significant fields, deficits of specialists can be indicated and predicted in the coming years.

## CONCLUSIONS

Summing up, this study demonstrated good quality of health care in the examined hospital in Lublin. However, it is important to emphasize the need for further research aimed at collecting data on this issue. Continuous development and expansion of information systems is necessary. In-depth analysis and reasonable planning healthcare quality improvement will undoubtedly ameliorate the patients’ functioning during hospitalization and also in post-discharge perspective.

## REFERENCES

1. A WHO Collaborating Centre For Development of Quality and Safety in Health Systems: [http://www.cmj.org.pl/] (accessed: 12.03.2015).
2. Ustawa o powszechnym ubezpieczeniu zdrowotnym z dnia 6 lutego 1997 r. (Dz.U.1997.28.153).
3. Wojtyniak B, Goryński P. Sytuacja zdrowotna ludności Polski i jej uwarunkowania. Warszawa: Narodowy Instytut Zdrowia Publicznego, Państwowy Zakład Higieny; 2012.
4. Zdrowie i Ochrona Zdrowia w 2013 r. Social Surveys and Living Conditions Department, Central Statistical Office. Warszawa; 2014.
5. Zdrowie i Ochrona Zdrowia w 2015 r. Social Surveys and Living Conditions Department, Central Statistical Office. Warszawa; 2017.
6. Podstawowe dane z zakresu ochrony zdrowia w 2009 r. Social Surveys Division Central Statistical Office. Warszawa; 2010.
7. Centrum Systemów Informacyjnych Ochrony Zdrowia. [https://www.csioz.gov.pl/] (accessed: 30.10.2017).
8. Waldrop RD, Harper DE, Mandry C. Prospective assessment of triage in an urban emergency department. *Southern Med J.* 1997; 90(12):1208-12.
9. Horwitz LI. United States emergency department performance on wait time and length of visit. *Ann Emerg Med.* 2010;55(2):133-41.
10. Rozporządzenie Ministra Zdrowia z dnia 27 grudnia 2007 r. w sprawie sposobu i kryteriów ustalania dopuszczalnego czasu oczekiwania na wybrane świadczenia opieki zdrowotnej (Dz.U.07.250.1884).
11. Krot K, Glińska E. Problem dostępu do usług medycznych po reformie służby zdrowia w Polsce. nierówności społeczne a wzrost gospodarczy. *Uniwersytet Rzeszowski.* 2003-2004;3:399-413.
12. Krogulski A. Hospitals location and indoor air microbiological quality. *Rocz PZH.* 2008;59(1):97-102.
13. Jarosz M. Zasady prawidłowego żywienia chorych w szpitalach. Warszawa: Wydawnictwo Instytutu Żywności i Żywienia; 2011.
14. Orkus A, Zając E. Assessment of the energy and nutritional values of diets used in patients on the example of a chosen hospital in Great Poland. *Eng Sci Technol.* 2015;3(18).
15. Pokrzywa P, Cieślak E. Ocena sposobu żywienia pacjentów w szpitalach województwa małopolskiego. *Żywność-Nauka Technologia Jakość.* 2008;1(56):138-45.
16. Health at a Glance: Europe 2016: State of Health in the EU Cycle; OECD Publishing.
17. Aiken LH, Sermeus W, den Heede KV, et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ.* 2012;344:e1717.

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