

# Effects of Changes in Ownership of the Polish Hospital on the Patients' Opinion About Its Functioning

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## Abstract

System changes in health care centers have been directed at introducing such marketing elements into the Polish health care system as managerial approach to managing the centers and contracting medical services and quality management. High quality of the medical services and patients' satisfaction became the key factors deciding about "the brand" of a health care center. The aim of the work was to assess the effect of changes in ownership of the hospital on the patients' opinion about its functioning. Patients' satisfaction survey was carried out through an anonymous questionnaire among 2702 respondents before and 2795 respondents after the transformation of the hospital. Multivariate analysis of variance (MANOVA) was used to analyze the collected empirical material. The assessment of the functioning of the admission center and hospital wards was significantly higher among the respondents asked after the transformation of the hospital as opposed to the assessment before it. Transforming the public hospital in Poland into a commercial company helped improve its functioning in the opinion of patients. There is a need to carry out further systematic research into the patients' satisfaction better adjust the hospital's offer to the needs of the hospitalized people.

## Keywords

hospital, patients' satisfaction, transformation, medical service, patient's needs

## Introduction

Introducing a reform of health care system in Poland caused significant changes in the range of functioning and organization of medical centers.<sup>1,2</sup> As a result of this reform, there were many redundancies at hospitals, the number of beds was reduced and some units were even closed or transformed into commercial companies.<sup>3,4</sup> The process is based on the liquidation of the independent health care center and establishing an entity such as a partnership instead.

A hospital in Tomaszów underwent a transition from a health care center into an Independent Public Health Care Centre Ltd. between August 8, 2008, and June 30, 2009, as one of the first Polish hospitals, following the Health Care Institutions Act; as a result, it became a team of identified individuals and assets.

High quality of the provided medical services and patients' satisfaction became the main factor that determined the changes.<sup>5-10</sup>

Familiarizing with the opinion of patients enables adjusting the center to their expectations and consequently, contributing to the increase in competition. This work aimed at assessing the influence of these changes in ownership on the patients' opinion about the hospital's functioning. The following

assumptions were achieved: improvement in the provided services, higher quality of services, employing highly qualified personnel, thanks to the increased level of salaries that was the result of higher profits, creation of a new administration structure, and finally the increase in the institution's competition. The objective which was specifically aimed at, was the answer to the question which areas of the hospital's functioning need improvement, which will also help to assess a better strategy for further transitions of hospitals throughout Poland.

## Methods

The survey was carried out among the respondents hospitalized at the Polish hospital in Tomaszów (all patients who

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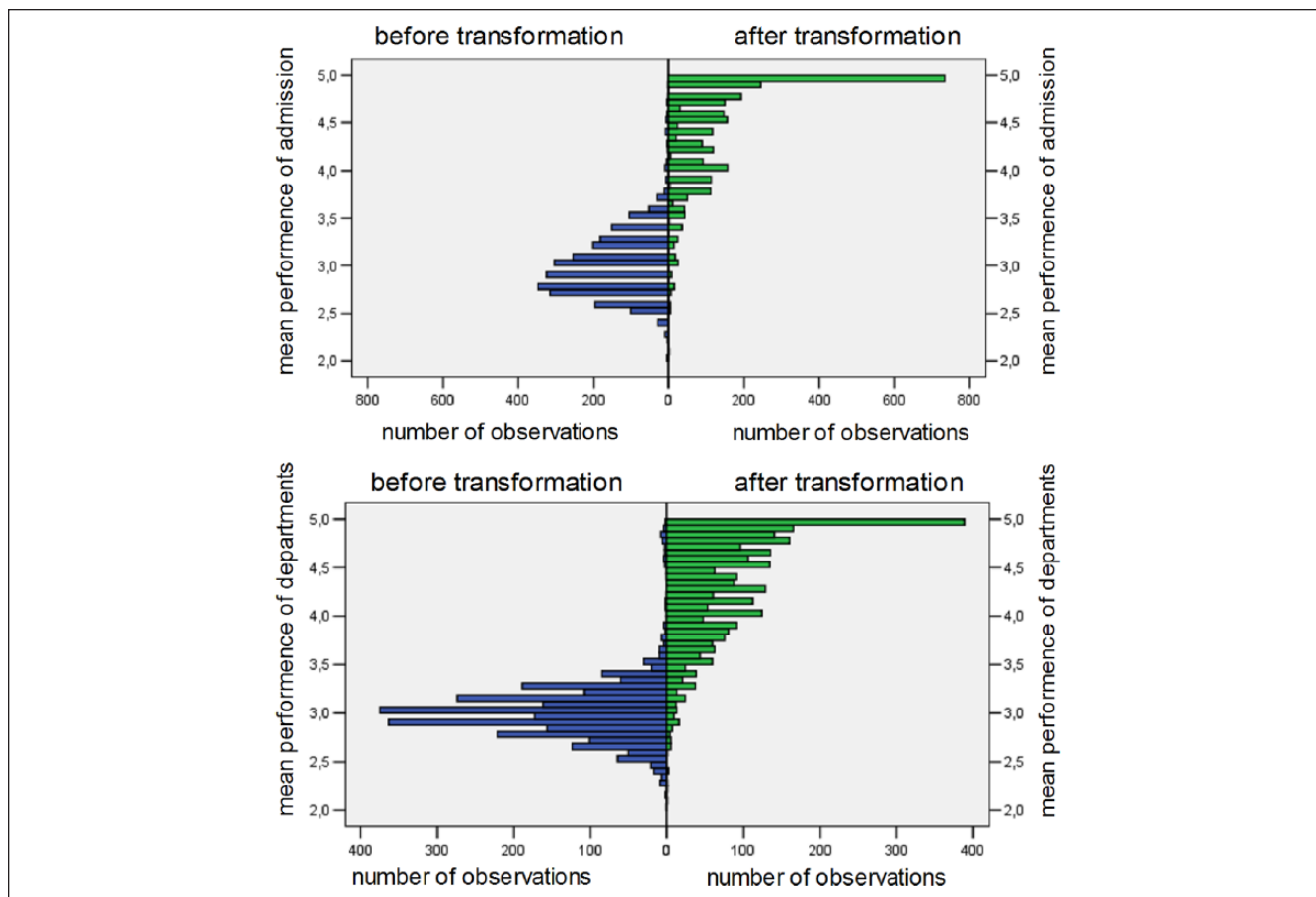
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**Table 1.** Characteristic of the Tested Groups of Respondents Before and After the Transformation.

	Before transformation (n = 2702)		After transformation (n = 2795)	
	n	%	n	%
Age (years)				
<20	28	1.0	155	5.5
21-30	177	6.6	508	18.2
31-40	449	16.6	424	15.2
41-50	800	29.6	372	13.3
51-60	839	31.1	612	21.9
>60	408	15.1	724	25.9
Sex				
Female	1808	66.9	1651	59.1
Male	893	33.1	1142	40.9
Place of living				
City	1870	69.3	1636	58.6
Countryside	827	30.7	1156	41.4
Marital status				
Single	280	10.4	486	17.4
Married	1264	46.8	1716	61.5
Divorced	651	24.1	188	6.7
Widow/widower	507	18.8	401	14.4
Education				
Primary school/vocational	964	35.8	1225	44.0
High school	1283	47.6	1109	39.9
University education	449	16.7	447	16.1
Employment				
Unemployed	156	5.8	482	17.3
Temporary employment	781	28.9	281	10.1
Full-time	1174	43.4	818	29.4
Farmer	69	2.6	136	4.9
Pension/retirement	522	19.3	1067	38.3
Maintenance conditions				
Bad	35	1.3	72	2.6
Average	1129	41.9	1039	37.4
Satisfactory	1295	48.0	1242	44.7
Very good	238	8.8	428	15.4
Living conditions				
No flat	23	0.9	34	1.2
Multi-family house	1613	59.7	1241	44.5
House	1065	39.4	1516	54.3
Toilet in the flat				
No toilet and bathroom	63	2.3	100	3.6
Access to toilet only	507	18.8	152	5.4
Toilet and bathroom in the flat/house	2131	78.9	2540	91.0
Which hospital stay				
First	529	19.6	768	27.5
Second	1294	47.9	662	23.7
Third or more	878	32.5	1358	48.7
Why this hospital				
Had no other choice	682	25.2	475	17.0
Wanted to get treatment at this hospital	813	30.1	475	17.0
Hospital is closest to the place of living	1207	44.7	1838	65.9
Mode of admission				
Ambulance	501	18.5	391	14.0
Stand-alone application	264	9.8	447	16.0
Doctor's referral	1936	71.7	1957	70.0



**Figure 1.** Histogram of the mean performance of departments before (left panel) and after (right panel) transformation.

volunteered between August 8, 2008, and June 30, 2009). It took 2 years to collect all questionnaires—1 year before and 1 year after the transition. Patients were asked on the last day of their hospitalization and completed the anonymous survey completely voluntarily. Urns were placed in the hospital, where patients could place their filled questionnaires that had previously been included in the pilot study,<sup>11</sup> where the responsiveness and understanding of the questions were assessed.

The survey included 5497 patients: 2702 before and 2795 patients after the hospital's transition. The first stage comprised of a comparison of the population of respondents before and after the hospital's transition. All of the evaluated elements of the characteristic that differentiated the studied populations are shown in Table 1.

### Description of Research Tools

The survey concerning satisfaction among the patients was carried out using an anonymous survey that included 46 questions. The questions were grouped into four thematic domains: 1—evaluation of doctors' work, 2—evaluation of nurses' work and the assisting personnel, 3—evaluation of personnel organization and information provided to patients, and 4—evaluation of housing conditions and board. The survey also

included questions concerning socio-demographic data and questions concerning social living conditions of the patients. The respondents assessed the functioning of the admission center and hospital wards using a 4-degree scale of evaluation (2 = *negative*, 3 = *average*, 4 = *good*, 5 = *very good*). Arithmetic means of evaluation of the admission center and hospital wards in individual domains were included as well as global evaluation of all the questions assessing the admission center and the hospital wards.

### Methods of Statistical Analysis

For statistical analysis of the collected empirical material, a multivariate analysis of variance (MANOVA) was used. The time of evaluation of the functioning of the admission center and the hospital wards (prior vs. after the transition) as well as the type of ward was included into the model as dependent variables. Average evaluations in individual domains and global average evaluations of the functioning of the admission center and the hospital wards were included in the model as independent variables. Due to the skewed distribution of the variables determining the general average evaluation (see Figure 1) and the average evaluations in individual domains prior to be included in

**Table 2.** Admission Performance: Before-After Comparisons in Each Domain.

	Before transformation mean <sup>a</sup>	After transformation mean <sup>a</sup>	M difference <sup>b</sup>	95% confidence interval	
Domain 1	3.00	4.53	1.53	1.49	1.56
Domain 2	3.17	4.56	1.39	1.36	1.42
Domain 3	2.81	4.26	1.45	1.41	1.49
Domain 4	2.95	4.38	1.43	1.39	1.46
Total	3.02	4.46	1.44	1.41	1.46

<sup>a</sup>The model includes variables that describe difference between population studied before and after transformation.

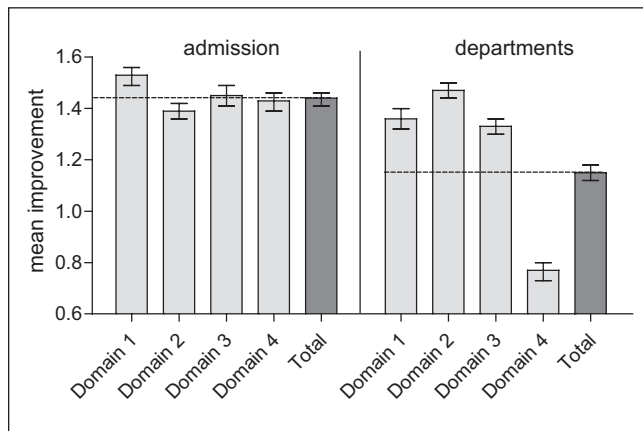
<sup>b</sup>The model is corrected for multiple comparisons.

**Table 3.** Hospital Departments Performance: Before-After Comparisons in Each Domain.

	Before transformation mean <sup>a</sup>	After transformation mean <sup>a</sup>	M difference <sup>b</sup>	95% confidence interval	
Domain 1	3.04	4.40	1.36	1.32	1.40
Domain 2	3.03	4.50	1.47	1.44	1.50
Domain 3	2.95	4.28	1.33	1.30	1.36
Domain 4	3.16	3.92	0.77	0.73	0.80
Total	3.06	4.21	1.15	1.12	1.18

<sup>a</sup>The model includes variables that describe difference between populations studied before and after transformation.

<sup>b</sup>The model is corrected for multiple comparisons.

**Figure 2.** Mean improvement in the assessment of hospital performance according to each domain.

analysis of variance (ANOVA), they were transformed into a normal distribution.

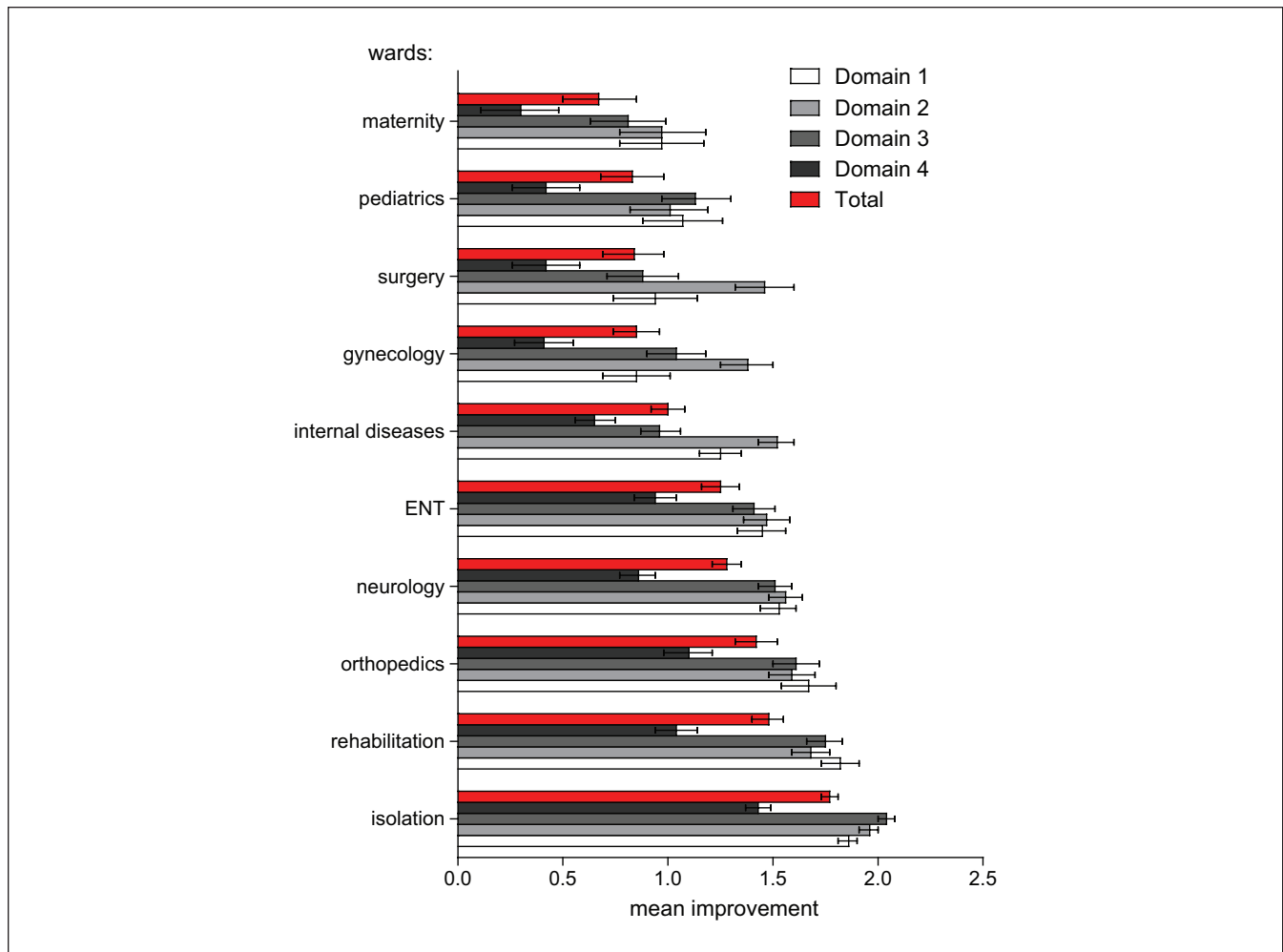
## Results

In the chi-square test, all independent variables differed significantly between the populations of the respondents who were studied prior to and after the transition (for all independent variables,  $P < .001$ ).

In the second stage, using the multifactorial ANOVA model, the analysis was carried out of the influence of the hospital's transition on the change in the assessment of its

functioning. In all domains, the evaluation of both the admission center and the hospital wards (see Tables 2 and 3, and Figure 2) was significantly higher among the respondents asked after the transition as opposed to their assessment prior to the transition of the institution. Average values prior to and after the transition as well as average values of the improvement in individual domains are presented in Tables 2 and 3. The multifactorial ANOVA made it possible to estimate the average values including the influence of a different characteristic of the studied populations prior to and after the transition and including the correction for the multiple comparisons in individual domains. While comparing both populations, the greatest improvement in the functioning of the admission center after the transition was noted in Domain 1 (assessment of the work of doctors) and the lowest level of improvement was observed in Domain 2 (assessment of the work of nurses). The greatest improvement in the functioning of the hospital wards after the transition was observed in Domain 2 (assessment of the work of nurses) whereas the lowest level of improvement was noted in Domain 4 (assessment of the housing conditions and board). The general improvement in the assessment of the functioning of the admission center was significantly higher when contrasted with the general improvement of the assessment of the functioning of the hospital wards. For each domain and for total effect,  $P$  levels were  $< .0001$ .

The multifactorial ANOVA model presented interaction between the dependent variables ( $P < .0001$ ), which point out to significant differences between the hospital wards in their influence of the transition on the patients' opinion concerning their functioning (see Figure 3).



**Figure 3.** Mean improvement in the assessment of hospital performance according to the hospital department.

ENT=ear-nose-throat.

The greatest improvement in the evaluation of the functioning was observed for the ward of infectious diseases and the lowest level of improvement was noted for the maternity ward. The lowest level of improvement for all wards was noted for Domain 4 (assessment of housing conditions and board).

## Discussion

In the context of a hospital transition, it is of essence to obtain feedback from patients of such an institution that would concern the quality of the services provided.<sup>12,13</sup>

The presented results show clearly that transforming this hospital led to the improvement in the opinion of its patients about its functioning. Both the opinions of patients about the hospital personnel work and the housing conditions were better. In addition, significant differences as for the improvement of opinion of the respondents were noted concerning both the admission center and individual hospital wards. The lowest level of improvement in the opinion of patients was

noted in the area of housing conditions of the hospital. Both prior to and after the transition, the organization of work of the personnel and informing the patients were assessed low. The study enables to introduce changes, aiming at improvement of the relationship between the institution and its patients, and further provides a constant number of patients who are aware of a high level of the provided services that are also adjusted to the needs these patients have.

A similar study of satisfaction among patients was carried out at a district hospital in Brzeziny.<sup>11</sup> The results showed that patients assessed the wards positively for all medical services (60% of the respondents voted for very good or good). Thanks to the studies, there was a restructure in the number of hospital beds, and the wards were additionally equipped with specialized medical equipment that helped shorten a patient's stay in hospital. Patients expressed their dissatisfaction with the time of waiting for a hospital bed, information provided by doctors (concerning the therapy and the treatments), and the quality of meals.

In summary, a proper direction of the hospital's transition may lead to the improvement of the patients' opinion about its functioning. The differences between the discussed issues as well as the differences in the opinion of individual hospital wards and the admission center suggest the need to implement individual plans of transformation.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The work was financed from the funds of statutory funds of the Social Medicine Institute of the Medical University of Łódź No. 503/6-029-01/503-01.

### References

1. Włodarczyk C, Karkowska D. Decentralization in healthcare analysis and experiences in Central Eastern Europe in the 1990s. In: Shakarishvili G, ed. *Decentralization in Healthcare: Analysis and Experiences in Central and Eastern Europe in the 1990s*. Budapest: Local Government and Public Service Reform Institute; 2005:375-434.
2. Kunkel ST, Westerling R. Different types and aspect of quality systems and their implications. A thematic comparison of seven quality systems at a university hospital. *Health Policy*. 2006;76(2):125-133.
3. Hamidi Y, Zamanparvar A. Quality management in health systems of developed and developing countries: which approaches and models are appropriate? *J Res Health Sci*. 2008;8(2):40-50.
4. Wagner C, Ikkink KK, Vanderwal G. Quality management systems and clinical outcomes in Dutch nursing home. *Health Policy*. 2006;75(2):230-240.
5. Hall JA, Dornan MC. Patient sociodemographic characteristics as predictors of satisfaction with medical care: a meta-analysis. *Soc Sci Med*. 1990;30:811-818.
6. Cheng SH, Yang MC, Chiang TL. Patient satisfaction with and recommendation of a hospital: effects of interpersonal and technical aspects of hospital care. *Int J Qual Health Care*. 2003;15(4):345-355.
7. Young GJ, Meterko M, Desai KR. Patient satisfaction with hospital care: effects of demographic and institutional characteristics. *Med Care*. 2000;38:325-334.
8. Sun BC, Adams J, Orav EJ, Rucker DW, Brennan TA, Burstin HR. Determinants of patient satisfaction and willingness to return with emergency care. *Ann Emerg Med*. 2000;35:426-434.
9. Sixma HJ, Spreeuwenberg PM, van der Pasch PA. Patient satisfaction with the general practitioner: a two-level analysis. *Med Care*. 1998;36:212-229.
10. Tonio S, Joerg K, Joachim K. Determinants of patient satisfaction: a study among 39 hospitals in an in-patient setting in Germany. *Int J Qual Health Care*. 2011;23(5):503-509.
11. Krakowiak J, Kocemba W, Stelmach W, Kowalska A, Marjański A. [Researching on patients' satisfaction from medical and out of medical non-medical services in Łódź province's county hospitals. County Hospital in Brzeziny]. *Przedsiębiorczość i Zarządzanie*. 2010;11:129-142. (Polish)
12. Riiskjaer E, Ammentorp J, Kofoed PE. The value of open-ended questions in surveys on patient experience: number of comments and perceived usefulness from a hospital perspective. *Int J Qual Health Care*. 2012;24:509-516.
13. Hesselink G, Schoonhoven L, Plas M, Wollersheim H, Vernooij-Dassen MM. Quality and safety of hospital discharge: a study on experiences and perception of patients, relatives and care providers. *Int J Qual Health Care*. 2013;25:66-74.