Philanthropic hospitals benefited by financial incentive program: a performance analysis

Hospitais filantrópicos beneficiados por programa de incentivo financeiro: uma análise de desempenho

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ABSTRACT The state of São Paulo has adopted a financial incentive program for philanthropic hospitals. The objective of this study was to analyze the performance of the hospitals participating in this program in 2012. Performance indicators were analyzed according to hospital size and municipal size, using the Proadess performance model (Evaluation of Health System Performance). There was a difference in the performance of the hospitals according to the size: small hospitals presented unfavorable results in relation to the indicators of access, efficiency and effectiveness. This result corroborates the need to reassess financial incentive programs for small hospitals configured as general hospitals.

KEYWORDS Hospital administration. Health services. Service indicators. Health management. Hospital services.

RESUMO *O estado de São Paulo adotou um programa de incentivo financeiro para hospitais filantrópicos. O objetivo deste estudo foi analisar o desempenho dos hospitais participantes desse programa em 2012. Foram analisados os indicadores de desempenho segundo o porte hospitalar e o porte municipal, empregando-se o modelo de desempenho do Proadess (Avaliação de Desempenho do Sistema de Saúde). Encontrou-se diferença no desempenho dos hospitais segundo porte: os hospitais de pequeno porte apresentaram resultados desfavoráveis com relação aos indicadores de acesso, eficiência e efetividade. Esse resultado corrobora a necessidade de reavaliar programas de incentivo financeiro para hospitais de pequeno porte configurados como hospitais gerais.*

PALAVRAS-CHAVE *Administração hospitalar. Serviços de saúde. Indicadores de serviços. Gestão em saúde. Serviços hospitalares.*

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Introduction

In the state of São Paulo, philanthropic hospitals and, in particular, Holy Houses of Mercy are responsible for an important portion of hospital care offered to the Unified Health System (SUS)[1]. In 2012, of the total number of hospitals that provided care to SUS, more than 66% of the institutions were of a philanthropic nature, according to data from the National Registry of Health Establishments (CNES)[2].

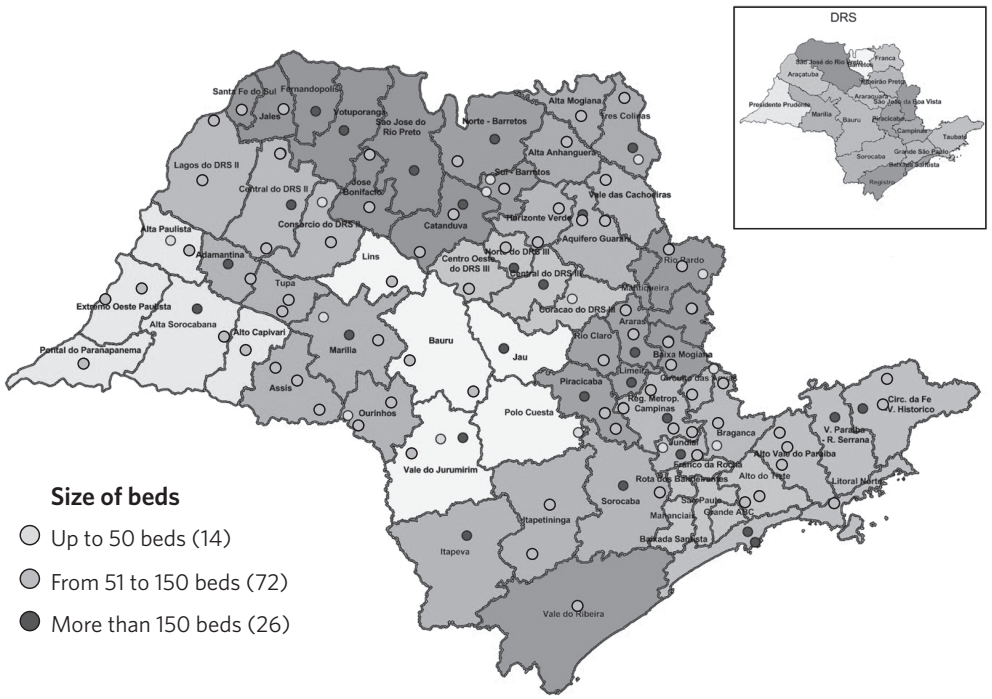
The increase of costs in hospital care (due to the demographic and epidemiological transitions), the technological advance and the need to improve the quality of care provided by the Holy Houses and philanthropic hospitals led to the proposal of a program of financial support to these institutions[1]. This program was settled and approved by the Bipartite Interagency Commission (BIC) of the state of São Paulo, in 2007 and 2009, with the objective of financially supporting philanthropic entities responsible for hospital health services of regional reference of the SUS and improving regional organization and quality of hospital care. The number of participating hospitals was established according to the population size of each Health Region (HR): up to 80.000 inhabitants, one hospital; from 80.000 to 200.000 inhabitants, two hospitals; from 200.000 to 400.000 inhabitants, three hospitals; and more than 400.000 inhabitants, four hospitals, regardless of whether they are under state or municipal management[3,4]. The total value of the incentive to be granted was also set based on the same population criteria: regions with up to 80 thousand inhabitants, R$30.000,00 monthly; regions with between 80 and 200 thousand inhabitants, R$100.000,00 monthly; regions with between 200 and 400 thousand inhabitants, R$200.000,00 monthly; and regions with more than 400 thousand inhabitants, R$450.000,00 per month[3,4].

It was agreed that these Philanthropic Hospital Units (PHU) should present minimum criteria to be covered by this financial incentive: more than 30 hospital beds, demonstrate regional or micro-regional coverage and compliance with standards and procedures with surveillance instances, auditing and other. Hospitals that provided predominant care for chronic and psychiatric patients and those who only provided ambulatory care were excluded from the program. They were established as mandatory conditions for the inclusion of hospitals in the program the availability of 100% of the SUS beds to the competent regulatory body and other outpatient procedures defined and prioritized by the corresponding Regional Interagency Committee (RIC)[3,4].

The financial values to be transferred would be shared among the managers: 70% of the state manager and 30% of the municipal managers. The selection of the PHU beneficiaries was delegated to the RIC, as well as the definition of the corresponding incentive values within the limit established by HR[3].

Figure 1 shows the distribution of selected hospitals, according to HR and the Regional Health Department (RHD), for 2012.

Figure 1. Spatial distribution of Philanthropic Hospital Units (PHU) of the financial incentive program by Health Region (HR) and by Regional Health Department (RHD), according to hospital size. State of São Paulo, 2012



Source: Datasus[9], CNES[9], IBGE[12], SESSP[13], 2012.

The description and analysis of the hospital performance indicators of these PHUs contemplated by the financial incentive would contribute to directing the reformulation of the adopted election criteria. It is, therefore, opportune to investigate the performance of these institutions, to recognize qualifying elements, and to promote adjustments to subsidize the formulation of new incentive policies.

The objective of this study was to analyze the performance of hospitals participating in the financial incentive program to philanthropic hospitals in the state of São Paulo, in 2012.

Methods

A cross-sectional descriptive study with secondary data was performed. In 2012, the state of São Paulo was organized in 64 HR, all of them with constituted RIC. All HR indicated philanthropic hospitals to participate in the financial assistance, except for the Metropolitan Region of São Paulo, where only one of the six RICs indicated a hospital unit.

The present study contemplated the description of the indicators of all PHU included in the financial incentive program in 2012.

The selected performance indicators and the variables of hospital size and municipal size were described. The hospital size variable was organized according to the stratum of number of beds by PHU, adopting to the composition of the strata the orientation indicated by the Ministry of Health (MH)[5,6]: small size, less or equal to 50 beds; medium size, from 51 to 150 beds; and large size, with more than 150 beds (GM Ordinance nº 2.224, December 2002). The variable municipal size was organized according to the stratum of number of inhabitants per municipality:

small size – less than 50.000 inhabitants; medium size – from 50.000 to less than 100.000 inhabitants; large size – 100.000 inhabitants or more.

The performance indicators described were selected according to the quality criteria established by McGlynn[7]: reliability, feasibility, uses and limitations. The indicators were classified according to the sub-dimensions, adapted from the model proposed by the Performance Evaluation of the Brazilian Health System (Proadess)[8]. The sub-dimensions adopted for analysis of the performance dimension were access, adequacy, effectiveness and efficiency. The indicators used were: access – number of outpatient procedures per month, number of hospitalizations and number of deliveries per month; efficiency – hospital occupancy rate, average length of stay, proportion between the value of the incentive program and the amount paid for SUS production; effectiveness – percentage of Hospitalizations for Conditions Sensitive to Basic Care (ICSAB); and adequacy – hospital mortality rate and cesarean rate (*chart 1*).

The main sources of data were: CNES[9], Outpatient Information System of SUS (SIA/SUS)[10], Hospital Information System of the SUS (SIH/SUS)[11]. Demographic data were obtained from the Brazilian Institute of Geography and Statistics (IBGE)[12].

Chart 1. Indicators used, dimension, calculation method, data sources and reliability

Dimension	Indicator	Method of calculation	Data source	Reliability/availability
Access	Number of outpatient procedures/month	Number of outpatient procedures (monthly average in 2012) per hospital unit	Ambulatory Information System (SIA/SUS)	Outpatient information is processed by SIA/SUS, with the Consolidated Ambulatory Production Bulletin (BPA-C), the Individualized Ambulatory Production Bulletin (BPA-I) and the Authorization of High Complexity Procedures (Apac) as data sources. They include all consultations, follow-ups and individual consultations performed by doctors, including when performed in multi-professional care.
Access	Number of hospitalizations/month	Number of hospital admissions (monthly average in 2012) per hospital unit	Hospital Information System (SIH/SUS).	The information about hospitalization has as data sources the Hospitalization Authorizations – AIH (SIH/SUS). This is, for most brazilian states and municipalities, the only source of hospitalization data. It includes only the paid hospitalizations, not all those that were effectively performed by the SUS, according to the limits defined in the physical and financial programming of the SUS. There is a possibility of underreporting of the number of hospitalizations performed in public hospitals financed by direct transfer of resources, and not by production of services.
Access	Number of births/month	Number of hospital deliveries SUS (monthly average in 2012) per hospital unit		
Effectiveness	Percentage of Hospitalizations for Conditions Sensitive to Basic Care (ICSAB)	$\frac{\text{Nº ICSAB}}{\text{Total of hospitalizations.}} \times 100$		
Adequação	Hospital mortality rate	$\frac{\text{Nº of Deaths (after 24hs hospitalization)}}{\text{Nº of hospital exits.}} \times 100$		
Adequação	Hospital mortality rate	$\frac{\text{Nº of cesarean deliveries occured}}{\text{Total of deliveries}} \times 100$		
Eficiência	Hospital Occupancy Rate	$\frac{\text{Nº of patients per day}}{\text{Total of beds per day.}} \times 100$		
Eficiência	Average stay	$\frac{\text{Nº of patients per day}}{\text{Total of outputs}} \times 100$		

Chart 1. (cont.)

Efficiency	Proportion between the value set by the Incentive Program and the amount paid by the SUS per institution.	$\frac{\text{Value Pro-Holy House II}}{\text{Billing value SUS}} \times 100$		Hospital Information System (SIH/SUS).	The amounts set by the Regional Interagency Commissions by institution are approved by the BIC and published in the Official State Gazette (DOE). The values paid by SUS production are based on Datasus, which for most municipalities is the only source of data on SUS production.

The statistical measures used to describe the indicators were: median, 25h percentile (P25), 75th percentile (P75). The analysis of the indicators was performed according to hospital size and municipal size.

The data used in this study were obtained from the official information systems, available for public access. Data on the institutions that make up this financial aid program were provided by the State Department of Health of São Paulo (SESSP)[13], also with public access.

Results

Of the total of 112 PHU, 13 (12%) were small size, 72 (64%) were medium size and 27 (24%) were large size (*table 1*). The indicators were analyzed by dimension according to hospital size and municipal size. It was observed that a small PHU was indicated by the RIC in a large municipality, and a large PHU, located in a small municipality. In the group of municipalities of medium size no small hospital was found benefited.

Table 1. Distribution of hospitals of the incentive program according to number of beds, by municipal population size, state of São Paulo, 2012

Population Range	Number of beds					
	≤ 50	%	51 to 150	%	150	%
< 10.000	1	7,69	0	0	0	0
10.000 a 20.000	9	69,23	5	6,94	0	0
20.000 a 50.000	2	15,38	26	36,11	1	3,70
50.000 a 100.000	0	0,00	24	33,33	5	18,52
> 100.000	1	7,69	17	23,61	21	77,78
Total	**13**	**100,00**	**72**	**100,00**	**27**	**100,00**

Source: IBGE[12], Datasus[9], CNES[9], SESSP[13], 2012.

In the analysis of the performance indicators, it was observed that the three access indicators (number of outpatient procedures per month, number of hospitalizations per month and number of deliveries per month) had a positive relation with the size of the PHU and the size of the municipality: the larger the indicator, the larger the hospital size (*table 2*). This relation was maintained after a stratified analysis by municipalities (*table 3*): large size hospitals in large size municipalities presented a number of hospitalizations per month 8.5 times greater, and a number of births per month 8.9 times higher.

The percentage of ICSAB, an indicator of effectiveness, was 1.7 times higher in PHU of

small size (27.7%) than in large ones (16%). In the analysis stratified by municipality, these small PHUs in small municipalities presented a percentage 8 times greater of ICSAB in relation to large hospitals in large municipalities. In large municipalities, the performance of ICSAB has remained worse in small PHUs.

In the efficiency sub-dimension, the occupancy rate was higher in PHU of large size (79.6%), and the performance of the small PHU was 2.1 times smaller. Regarding the averages of permanence, the differences according to the size were not as expressive: the larger PHU presented 1.5 times more average of permanence than the smaller ones, a result that was not modified by the analysis stratified by size of municipality. The median of the proportion of the benefit value in relation to the output approved by the SUS production of the hospital was four times higher in small hospitals compared to large hospitals. It is noteworthy that in a quarter of small hospitals this figure was higher than 55%. After stratifying the analysis by size of municipalities, this difference remained, and it was observed that a small PHU located in a large municipality had a higher percentage – 57.4%.

Regarding adequacy indicators, the hospital mortality rate observed in the small and medium-sized group of hospitals increases by 2.5 times when these hospitals are located in larger municipalities. This same relation was not verified for the group of large hospitals. The median cesarean rate presented a smaller variation in relation to the hospital size, with a 51.5% increase in small size, to 57.5% in large size. It was possible to observe that the largest cesarean rate occurred in a large PHU in a small municipality (86.5%).

Table 2. Distribution of medians (25th percentile – P25 - and 75th percentile – P75 percentile) of performance indicators by hospital size of the hospitals of the incentive program. State of São Paulo, 2012

Indicators	Hospital size (by number of beds)							
	≤50		51 to 150		>150		Total	
	Median	(P25%; P75%)	Median	(P25%; P75%)	Median	(P25%; P75%)	Median	(P25; P75)
Acess								
Nº of outpatient procedures/ month	4.731	(2.286; 7.153)	9.307	(6.120; 15.926)	28.909	(18.124; 46.867)	12.449	(6.338; 22.873)
Nº of hospitalizations/month	101	(79; 143)	306	(207; 404)	772	(564; 937)	333	(201; 498)
Nº of births/month	13	(8; 17)	39	(22; 61)	107	(69; 162)	40	(21; 86)
Effectiveness								
Percentage of ICSAB	27,7	(22,1; 37,1)	21,5	(15,8; 29,4)	16,5	(12,76; 20,5)	20,9	(15,5; 27,8)
Efficiency								
Proportion of the value set by the incentive program and the amount paid by the SUS per institution	40,2	(21,9; 55,8)	25,0	(16,7; 39,9)	9,9	(6,8; 13,1)	21,9	(11,9; 36,4)
Occupancy rate	37,5	(30,1; 47,4)	49,9	(38,8;66,1)	79,6	(69,8; 87,5)	52,7	(38,8; 73,9)
Average stay	3,0	(2,6; 3,2)	3,3	(3,0; 3,8)	4,4	(3,83; 4,9)	3,4	(3,1; 4,1)
Adequacy								
Cesarean rate	51,5	(42,8; 77,9)	56,3	(44,4; 70,4)	57,4	(44,36; 68,8)	56,2	(44,3; 70,4)
Hospital mortality rate	3	(2,2; 3,3)	4,4	(3,1; 5,7)	5,7	(4,6; 6,8)	4,5	(3,1; 5,7)

Source: Datasus[9], CNES[9], SIA[10], SIH[11], SESSP[13], 2012.

Table 3. Distribution of the medians of the performance indicators according to municipal size and hospital size of the hospitals of the incentive program, São Paulo, 2012

Indicators	Municipal Size								
	Up to 50.000 hab.			50.001 to 100.000 hab.			<100.000 hab.		
	Hospital size			Hospital size			Hospital size		
	≤ 50	51-150	>150	≤50	51-150	>150	≤ 50	51-150	>150
Access									
Nº of outpatient procedures/month	4.264	7.609	13.479	-	10.921	27.383	20.380	28.481	32.248
Nº of hospitalizations/month	94	204	298	-	354	652	279	464	808
Nº of births/month	13	21	25	-	45	63	84	90	116
Effectiveness									
Percentage of ICSAB	27,8	29,5	35,2	-	20,8	16,9	22,1	13,2	15,3
Efficiency									
Occupancy rate	36,1	39,0	31,3	-	54,4	80,0	74,2	83,9	79,6
Average stay	2,9	3,0	3,8	-	3,4	4,0	3,9	4,1	4,5
Proportion of the value set by the incentive program and the amount paid by the SUS per institution	37,7	26,0	17,3	-	25,3	9,4	54,5	16,8	9,9
Adequacy									
Cesarean rate	52,3	61,7	86,5	-	58,0	45,2	37,5	42,9	57,4
Hospital mortality rate	2,8	3,9	5,4	-	4,6	5,7	6,3	5,7	5,7

Source: Datasus[9],CNES[9],SIA[10],SIH[11],IBGE[12],SESSP[13], 2012.

Discussion

The aim of this incentive program for philanthropic hospitals was to provide financial support to philanthropic entities that provided health services, such as general hospitals, which constituted regional references, as well as to improve the territorial organization and quality of hospital care. The selection strategy of these hospitals that would be contemplated by the incentive was given by the indication of the RIC, with the use of election criteria agreed in BIC. The distribution according to the hospital size of the PHU contemplated by the financial incentive program showed that the indication prioritized the medium and large hospitals. However, approximately 12% were small PHUs. The PHUs of small hospital size presented an unfavorable performance, especially in the indicators of access, effectiveness and efficiency. In Brazil, and also in the state of São Paulo, studies have indicated worse performance evaluations among small hospitals[1,2,14,15].

The observed performance of the access indicators was positively related to hospital and municipal transport, that is, the larger the size, the better the performance. This result is expected and determined by the existing hospital structure, that is, by the installed capacity of the larger PHUs and by the greater demand in municipalities with larger population sizes[16,17]. However, it should be noted that the small general PHUs presented a very restricted service offer, which could be better organized in the regional health service system. As has been pointed out in other publications, these hospitals do not present economies of scale, and there is a direct relationship between quality and quantity of procedures[1,2,14,15].

The effectiveness indicator, percentage of ICSAB, was higher in small size hospitals, even when located in larger municipalities. This result was similar to that found in 2013 in the universe of hospitals in the state of São Paulo with less than 50 beds, in which the percentage of ICSAB was

29%[14]. The provision of services in small general hospitals contributes to unnecessary hospitalizations[2]. This high proportion of hospitalizations of simpler cases, often unnecessary, may indicate that the urgent care of cases with low complexity, which should be resolved in the basic care network, was performed by these small hospitals. In addition, the high percentage of ICSAB may indicate a lack of quality and a lack of articulation in the Regional Health Care Network (RRAS)[18].

In relation to the indicators of occupancy rate, efficiency indicator, the performance of all PHU was lower than that found for all hospital units with SUS service in the state in 2013 (67%). Regarding small hospitals, performance was similar[11]. The result of the poorer performance of this indicator in small hospitals, as compared to large ones, corroborates the findings in other studies conducted in the state of São Paulo[1,2,14]. The apparent idleness of beds, demonstrated by occupation rates below 80%, should be examined considering the differences between the different clinics, which reflect the changing demographic and epidemiological profiles and the existence of great regional inequalities, not only in the supply of beds, but also in its complexity and resolubility. Economies of scale can be found in hospitals with more than 100 beds, due to the direct relationship between quality and quantity[16,19].

The cost of financing small size hospitals is disproportionately high compared to their low efficiency[1,15]. Another efficiency indicator used was the amount of value allocated by the incentive program on the financial value received by the SUS production, which was much higher for small PHUs compared to large PHUs – four times higher. In 25% of small-scale UHFs, this resource accounted for more than half of the financial value received by SUS production, a result that indicates difficulties in the sustainability of these PHUs and their dependence on the incentive program to maintain their operation. In addition, the distribution of the proportions found evidences the need to revise the current criterion: the proportional distribution of the number of hospitals contemplated according to the size of the regions, a factor that could have led to distortions in the indication of hospitals. In one of the HR, a small philanthropic hospital was indicated, even though there were other larger public hospitals in the region, only to complete the PHU quota contemplated by HR. This result points to the fragility of the PHU election criterion benefited by this program.

Regarding the adequacy indicators, the worst performance in a small PHU in a large municipality was noticed. The institutional mortality found was twice as high in small PHU, located in a larger municipality, in relation to the PHU located in a small municipality. This result was not as expected. In the evaluation of hospital mortality, the concern should be focused on identifying the deaths that could be avoided by the hospital, but also reflects the severity of demand. In hospitals that are more complex, this rate could be high due to the severity of the cases treated[20], however, such an analysis should be carried out with caution, since only a single small PHU was contemplated with the incentive program in one large municipality. Institutional mortality rates can be considered as a possible indicator to discriminate services with different performance in the quality of the patient care process[20,21].

Medium size and large size hospitals showed a higher cesarean rate, regardless of the size of the municipality. One of the large PHUs located in a small township presented a caesarean rate approximately six times higher than what is recommended by the World Health Organization[22].

Therefore, one may raise some limitations related to the data sources used. The largest of these refers to the CNES. This data source does not always accompany the changes, which occur in institutions, which, as a consequence, can cause distortions in some of the selected performance indicators[23].

Another limitation concerns the production data used that were approved by the SIA and SIH system, and there may be differences between the procedures presented by the supplier and those approved, that is, it is possible that the production was higher than the one obtained[24].

Meeting the health needs of the population must always be the central objective of a health system. Health services are an integral part of the system, whose performance influences the living conditions and determinants of health[25]. The confrontation of a health condition must be done by providing people with the complete cycle of care for them, that is, in a health care network[16]. Financial aid to health services needs to consider the regional context, existing health services, and how they are organized. The hospital is a point of attention for these networks, and it is up to public managers to define the role of the institution in the network and to monitor their performance.

A program of financial assistance to health services should aim to improve the health of the population, always considering the characteristics of the territory in which the service is located. The role it should and would have to play would be based on a regional planning that would take into account, in addition to its physical and human resources structures, the range of health services in the territory, the conditions of access and the regional context. Thus, as proposed by the incentive program, the indication of the institutions to be covered by this financial aid should continue to be attributed to the RIC. However, the criteria for indication and financial figures to be given to each hospital, as well as the appropriateness of funding for small hospitals, would need to be reviewed.

Conclusions

This result corroborates the need to reassess financial incentive programs, especially for small hospitals configured as general hospitals. The financial incentive program should be directed to PHU that present good performance and articulation with the other points of attention of the network, in a more favorable relation of investment and quality of care.

Collaborators

Tanira Gomes de Toledo Barros: organized the project and the planning. Performed the analysis and interpretation of the data. Elaborated the draft and revised the content. Participated in the final approval of the manuscript.

Carla Gianna Luppi: organized the project and the planning. Performed the analysis and interpretation of the data. Elaborated the draft and revised the content. Participated in the final approval of the manuscript.

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