

Hospital doors under pressure; policies and trends in the major tertiary care hospital in Albania

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SUMMARY: Hospital doors under pressure; policies and trends in the major tertiary care hospital in Albania.

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Objectives. Quantification of elective and emergency hospital admissions as a resultant of patients' diagnostic and therapeutic pathways (referral system) and patients' preferences to choose the health-care provider.

Design. Retrospective analysis of routine hospital discharge data. Findings were analyzed with descriptive statistical methods.

Setting. University Hospital Center, "Mother Teresa", Albania, a secondary and tertiary health care provider to the capital Tirana and tertiary health care provider for the rest of Albania.

Subjects. 692,284 hospital admissions during eleven years period, 2006-2016.

Main outcome measures. Hospital admission trends measured as Average Annual Percentage Change and standardized admissions by district per 100,000 inhabitants.

Results. Number of hospital admissions increased from 55,528 in the baseline year to 78,130 in the last year of our study. During eleven years ALOS changed from 7.60 to 5.80 days and BOR increased from 83.2% to 91.6%. AAPC total, Average Annual Percentage Change was 3.2% at the ending year, 2006 to 2016. Cramér's V between variables 'year of admission' and 'prefecture' was 0.024, $p < 0.001$ and between 'year of admission' and 'Tirana University Hospital Center administrative units' was 0.055, $p < 0.001$. Both relationships are weak but significant. Maps show the exaggerated flow from other districts towards Tirana.

Conclusions. Patient satisfaction, as a health care quality metric, is a driving force towards the choice of health provider. The satisfied patient chooses again or tells the next patient the preferred provider. The perceived professional difference among health care providers has built a competitive environment. The referral system puts strict rules over patient pathway which in his turn finds ways to bypass it if preferences are not taken in consideration. Commitment to such rules is accepted till forces considered as expression of free choice overcome them, jeopardizing the performance of the whole system. Patient's preferences deserve to be evaluated and incorporated in the patient pathway design.

KEY WORDS: Regionalism - Tertiary care - Elective admissions - Health Provider Competition - Patient satisfaction.

Background

The Albanian health care system provides three hospital levels for hospital health care delivery. Districts, regional and tertiary hospital care, in hierarchical order are the possible doors for the patient to get hospital care (1). In addition, a legal way to book a consultation "bypassing" the referral system is to pay a ticket of 21.5 Euro to the tertiary care institution. Otherwise the referral system is very strict in applying the rules that define patient's pathway into the system. The best response to what really happens is the finding that in inpatient settings informal payments reach 43.9 per cent in 2008 (2). The phenomenon is still present and the purpose is to bypass the system or to reward the health care provider, placing patient and doc-

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tor on the same side and creating a real force challenging the rules. The patient chooses the best health care provider, the tertiary care doctor, and finds the way to the tertiary hospital care instead of other hospital settings forced by the rules. The ticket doesn't cover the expenses; it merely serves as a weak barrier. Hospital budgets are based in historical data and if patient's number increases unexpectedly, no more funding can be added and shortage in medical goods supply adding pressure to an already meager budgeted.

Geographical coverage of health services is an essential intervention second to Sustainable Development Goals (SDGs), and it is not negotiable (3). In response to this intervention tertiary care must cover services not offered in other levels and must not offer services covered successfully in other levels. Bypassing the lower levels of health care in these settings seriously jeopardizes financing and quality of care even on the tertiary care. In this spirit administrative political intervention are applied continuously to support the referral system in controlling the patients flow to University Hospital Center (UHC), "Mother Teresa", Tirana, with subsequent results shown in our study. Shortly the history of disciplining patient flow to Tirana University Hospital Center, "Mother Teresa" started in year 2006 with internal regulations which after one year of coordination somewhat failed in front of patient/doctor compromises making necessary to design a new set of regulations, diagnostic and therapeutic pathways (referral system) formalized by the directive of November, 2009, nr. 558 of MOH (4).

Methods and statistical analysis

Information for the study was obtained from electronic patient data base of TUHC, responsible for all admissions at this institution. Time period covers data of 692,284 admissions during eleven year period, 2006 - 2016. Demographic profile of patient's population is retrieved considering the main goal of the study to describe the patients flow from districts to the tertiary care hospital. TUHC campus is divided in seven administrative units with current nomination: 1. Hospital 1, 2. Surgery, 3. Pediatrics, 4. Infectious disease, 5. Neurosciences, 6. Oncology, 7. Intermediary ward. Structures sometime overlap in services offered, but generally cover all possible secondary and tertiary health care services in Albania excluding respiratory diseases and obstetric-gynecologic services. Admission type, elective or emergency, by respective year is among variables in data base.

Calculation is based in standard traditional indicators by year: BOR, Bed Occupancy Rate; ALOS, Average Length of Stay; BTR, Bed Turnover Rate. E/E Rate represents Elective to Emergency Rate and is used as a trend indicator over time. AAPC, Average Annual Percentage Change formula is represented in the Abbreviations/Definitions section and is expected to be added in the near future to the traditional set of hospital activity indicators. Overall statistical significance was tested using chi-square test and Cramer's V.

The goal of statistical analysis was to represent the changes in patient's hospital admissions flow in standard indicators overtime. Average Annual Percentage Change is a standardized representation of admission trends by year, also supported by the geography of the admissions flow represented as admissions for each three year period by district per 100,000 inhabitants. The association between admissions and administrative policies as a possible explanatory factor was hypothesized. Analyses were conducted with IBM SPSS Statistics, version 20.

Results

Results are represented in three categories taking in consideration the trend by year, geography of admissions and the structure of administrative units of the campus.

Trend

Table 1 shows the resume of overall main indicators for all campus during period, 2006-2016. Three main indicators, BOR, ALOS and BTR are clearly impacted by the increasing number of admissions. E/E Rate has changed substantially ranging from 0.9 to 1.9. Total ALOS decreased from 7.6 to 5.8 days, while ALOS for appendicitis remained almost stable.

Average Annual Percentage Change is chosen to represent trend for all campus as the initial year, 2006 is the first year of standardized decisions to discipline patient flow.

AAPC of elective and emergency admissions seems paradoxical, but overall AAPC shows a continuous increase at the end of eleven year period (Figure 1).

TABLE 1 - OVERALL MAIN HOSPITAL INDICATORS, 2006-2016.

Year	Total	Elective	Emergency	E/E rate	AAPC Total	AAPC Elective	AAPC Emergency	ALOS	ALOS Ap.	BTR	BOR
2006	55,528	30,273	25,255	1.2	0.0	0.0	0.0	7.6	3.8	39.9	83.2
2007	58,786	38,656	20,130	1.9	27.7	-20.3	5.9	6.8	4.4	42.8	80.2
2008	55,978	33,962	22,016	1.5	-12.1	9.4	-4.8	6.9	4.1	40.2	75.8
2009	58,342	32,230	26,112	1.2	-5.1	18.6	4.2	6.9	3.8	43.5	81.6
2010	54,559	28,720	25,839	1.1	-10.9	-1.0	-6.5	6.9	3.9	43.6	82.0
2011	58,161	27,826	30,335	0.9	-3.1	17.4	6.6	6.9	4.0	41.7	78.6
2012	61,217	31,837	29,380	1.1	14.4	-3.1	5.3	6.7	4.3	44.6	81.6
2013	66,398	35,918	30,480	1.2	12.8	3.7	8.5	6.4	4.6	48.1	84.8
2014	72,333	43,863	28,470	1.5	22.1	-6.6	8.9	6.5	4.4	53.2	94.3
2015	72,852	45,587	27,265	1.7	3.9	-4.2	0.7	6.0	4.3	53.4	87.5
2016	78,130	49,045	29,085	1.7	7.6	6.7	7.2	5.8	4.2	58.2	91.6
Total	692,284	397,917	294,367	1.4	4.5	1.3	3.2				*

Calculations are based considering time segment by year.

Notes: BOR, Bed Occupancy Rate; ALOS, Average Length of Stay; BTR, Bed Turnover Rate; E/E Rate, Elective to Emergency Rate; AAPC, Average Annual Percentage Change. ALOS Ap. represents average length of stay for appendectomy.

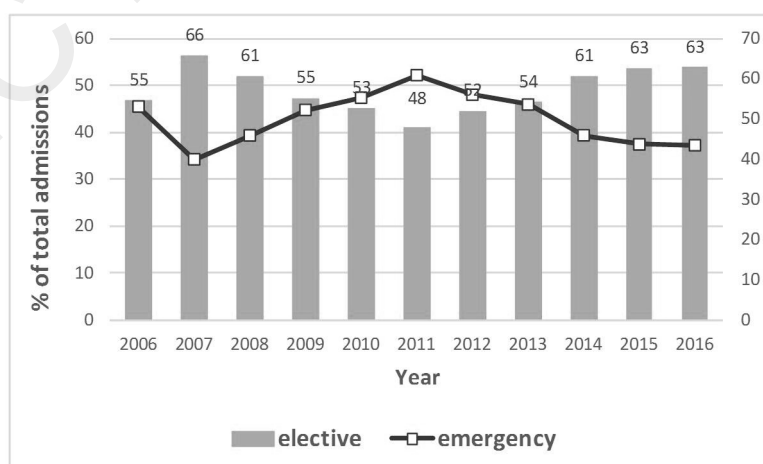


Figure 1 - Emergency and elective admissions as a percentage of totals, by year.

Geography of admissions

Representation of patients flow from districts to TUHC is based in division of the nine year period in three three-annual segments, I (2008-10), II (2011-13) and III (2014-16). Maps clearly show the continuous increase of patients flow from districts. Cramér's V between the variables, year of admission and prefecture was 0.024, $p < 0.001$ or discriminating between Tirana and other prefectures, it was 0.06, $p < 0.001$. The relationships are weak but significant. The national burden of specific diseases was considered stable during the study period except for oncology (Figure 2).

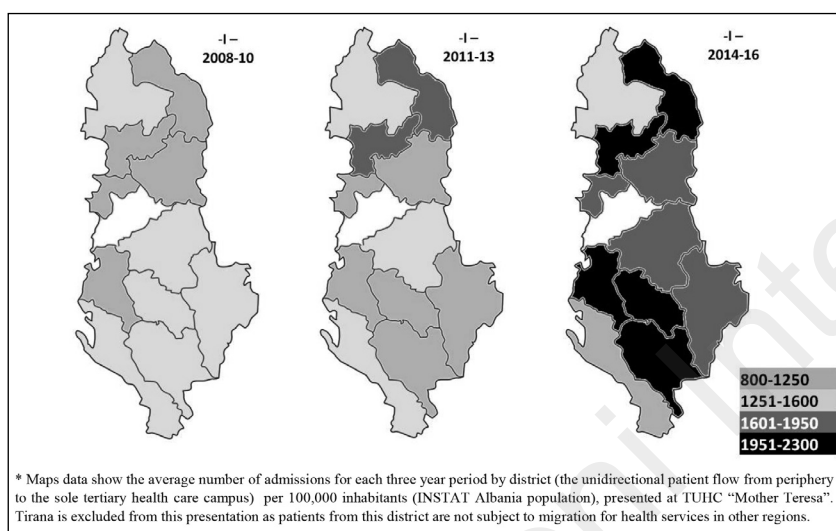


Figure 2 - Change in patients flow from respective district to TUHC I (2008-10), II (2011-13) and III (2014-16).

the relationship is weak but significant (Figure 3).

Hospital 1 and Surgery are the main units responsible for the relapse of increased admissions phenomenon.

Discussion

A hospital of 1,250 beds is large enough to administer even no other issues regards it. Institutions approaching 1,000 beds are considered as of a monster type (5). During the eleven years of study period national morbidity structure remained almost stable. Oncology admissions mainly increased because of new administrative procedures as readmissions. Infectious disease outbreaks are responsible for increase in the number of hospital admissions as it is the case of HIV-infected inpatients, phenomenon not noticed at TUHC (6, 7).

What really happened is demonstrated through indicator trends. ALOS decreased with 1.8 days in eleven years and it seems logical as a response to the continuous increase in patient flow. In most EU countries length of stay in hospitals has decreased and is regarded as an indicator of efficiency (8). Susceptibility of this conclusion in our situation is reasonable. In a crowded hospital environment doctors tend to dismiss patients as soon as possible to make place for new coming ones. An example could be appendectomy. ALOS for appendectomy patients ranges from 3.8 to 4.6 days and laparoscopic procedures are very rare. Our patient submitted to open appendectomy stay at hospital no more than laparoscopic appendectomies, 4.01 days found in literature, which presumably shorten the length of stay (9). This shortening of hospital stay is not caused as the result of improved technology but from pressure exercised from the next cohort of patients at the hospital doors.

Structural

Structural division of campus is necessary to identify functional units responsible for major variation in admission numbers. Some units are responsible for BOR values over 110%.

Cramér's V between the variables, 'year of admission' and 'TUHC administrative units' was 0.055, $p < 0.001$. Also here

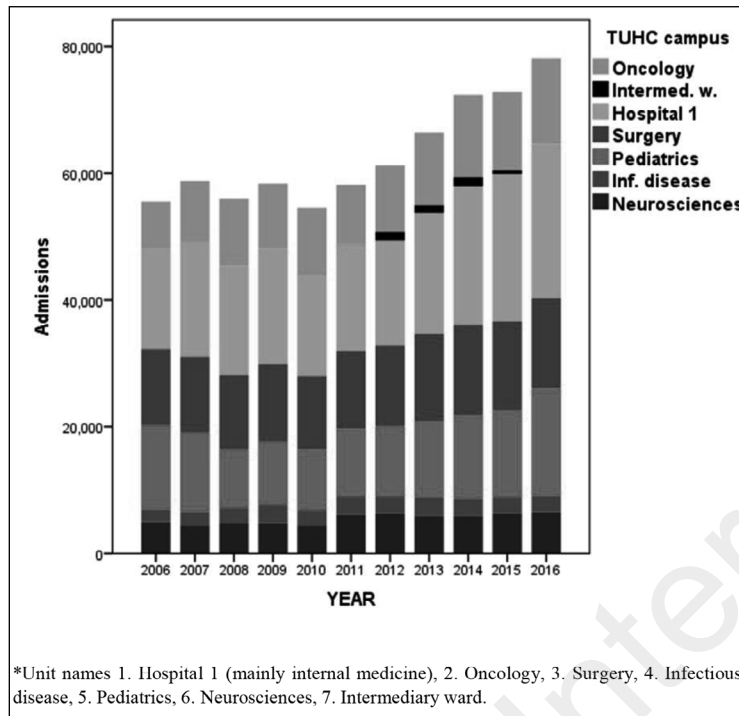


Figure 3 - Elective admissions by unit, TUHC, 2006-2016.

The patient himself tends to require longer stay and this is associated with more patient satisfaction but with elevated costs and other health effects (10). In the other side, techniques to control and suppress overuse of hospital care as waiting lists may influence treatment effects (11). Complete set of risks and benefits is impossible to calculate, leaving the situation always in precarious balance.

We identified two menacing competing forces opposing the referral system responsible for patient pathway, perceived better quality of care at TUHC from patients and acceptance of coming patients from medical staff. Elective to emergency rate ranges from 0.9 to 1.9 and it

is not a paradox. Patients tend to bypass the system presenting themselves as emergency cases if this is accepted from doctors. When the system understands this break they find something else to bypass it. Is it reasonable to continually oppose this force by closing the door to it or we have to deal with it? The first important question is – This quality of service difference is just a perception or a substantial measurable one? Patients' views about the health are important especially about equity, but are not enough (12). Equity, in our case is the pretention to overcome the referral system. The question of equity is one of the most pressing issues for health promotion (13).

In the other side of the barricade are situated the defendants of the referral system. Some of them product of political structures are not familiar with hospital management. Stewardship is considered only the application of referral system. Some countries similar to Albania have chosen to educate the class of health administrators, especially CEO's from government hospitals (14).

What the data show about the phenomenon of overflowing TUHC it is not a linear increase. From baseline year, 2006, emergency admissions as percent of total admissions (Figure 1) constantly increased till the end of 2011, and constant decrease of elective admissions and their subsequent increase till 2016. The phenomenon seems not a natural change in morbidity structure or gravity but of administrative issues. Blocking the flow of elective admissions from other districts induced the increment of emergency admissions. Later, the ticket policy and the right of the patient to choose the health care provider upturned the admissions structure, leading to an overall constant increase in admissions. The initial "victory" to stop patients flow wasn't only a question of pressure to apply the rules. At that time performance measurements started to apply and district hospitals were for the first time to report quality data. After these interventions Albanian health care finds itself in serious difficulty from doctor migration to EU countries and their albescence especially in district hospitals causes the unusual patient flow towards the capital. Although we can see the increase of emergency admissions as the new trend to get hospital care at TUHC it remains constant after satiating the force that created it. AAPC in eleven years reaches 1.3. The maps in Figure 2 show the constant increase of patients from other prefectures, especially from northeast Albania. Different administrative units contribute unequally as the Figure 3 shows although the rules are the same for all. Prevalence of cancer and hospital burden is expected to rise but the phenomenon would be typical of oncologic diagnoses and not generalized (15).

From the above data we can conclude the presence of an incongruity between system and preferences. The Albanian health care system has created a schema of regionalization taking in consideration the geography and patients tend to perceive another type of regionalization placing TUHC in center and other hospitals in periphery, a concentric one. The referral system tries to attenuate these differences with ineffective mechanisms as the ticket or iron hand administration policies. Meanwhile the patient generally resolves the incongruence informally getting the best service. At this point the definition of patient as patient/consumer is impossible to be negated (16).

Only two ways exist in this situation; recognition and integration of these preferences or remaining in the position of watchdog of the system. The best example of the second choice can be e-referrals or similar e-health interventions (17).

In any way those interventions are necessary and indispensable, but the goal is to be part of the development and not to serve as a policeman for the system. They cost, so we always are at risk to pay too much and in present case the cost is money and patient dissatisfaction. It's not reasonable to spend just for the sake of respecting rules that could have been wrongly conceived.

Recognition and integration of patients' preferences, taking always the doctor as the main determinant for health care demand, directs us toward the concept of health behavior, as the alternative of illness behavior in case of illness (18).

Migration for health purposes is equity right and can't be denied with excuses of impossibility to cover or even to calculate costs. Creating waiting lists could not be appropriate if the objective of their creation is lost from sight and they serve as a *non sense* barrier. A study finds Italian (84.4%) and UK respondents (45.9%) waiting lists to be a big problem (19).

The cost for the patient in this situation has to be his/her reconsideration from patient to patient/consumer. Satisfaction has costs (20). On the other hand doctors are not reluctant to use guidelines for elective admissions (21). Their contribution has to be evaluated as humanitarian and market value.

Conclusions

Quality of services exists as a notion only in comparison of results to other peers and is always improved by competition. The killing of competition would be a misfortune for quality indicators. Results of the best performers must be benchmarks for other health service providers and financial incentives are one of main forces that lead to these objectives.

We are not presuming that rewarding is the only force driving toward quality. Examples of technology advancement, improved management of clinicians' time and practice and patients self-management skills regarding their chronic conditions are some of concomitant interventions required for the paradigm shift (22-24).

These differences in quality of services as a driving factor to create the moving forces of competition first have to be acknowledged and measured. Standardization has to be finalized with DRG and quality metrics implementation. In this view regionalism can be saved if these differences are taken in consideration and regions are given new competences to strengthen their fiscal autonomy and new organizational powers (25). Spending power and tax revenues are measured and are part of indicators of the true possible health care interventions and their quality (26). The Albanian society is acquiring features of other EU countries about the traits of age structure. Our society is aging and accumulation of health risk as the result of chronic disease over time increases making sure health cost expenditure will be on the rise only (27).

Anyway, this is not just a local problem. Every health care system can find itself in difficulty if preferences as driving forces are not studied and seriously considered, while they change with time (28). Our data show two important moments; overflow in case of regulations failure or bypassing regulations in case they don't take in consideration patient's satisfaction and competitive forces.

In this paper we don't argue the existence of regionalism. We propose the reconsideration of regionalization concept as concentric regionalism, quality regionalism or geographic traditional regionalism as configurations of differences in quality of care and financial terms.

In no way Authors don't pretend to encompass the complexity of all challenges of the Albanian health care system which obviously can't be resumed in just a single observation study but must be object of further multidisciplinary investigation.

Abbreviations/Definitions

MOH - Ministry of Health

TUHC - Tirana University Hospital Center, "Mother Teresa", Albania

AAPC, Average Annual Percentage Change is calculated using the referenced formula (26).

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