

SURVEY ON THE LENGTH OF STAY FOR THE PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: AN APPLICATION ON ATATURK CHEST DISEASE HOSPITAL

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SUMMARY

This study has been made on the patients with Chronic Obstructive Pulmonary Disease (COPD) in Atatürk Chest Disease Hospital in order to put forth the factors prolonging the length of stay, decreasing the discharge time, preventing the nonessential staying and contributing to servicing more patients with the existing available conditions of the hospital. During the research, the files, service protocol books and outlet summaries of 113 patients staying in Non Tuberculosis (TB) clinics between 1-31 January 2001 were examined. It was researched that how the variables such as age, staying service, sex, domicile, staying status, educational level, number of COPD diagnosis had before, additional diseases, COPD age, complication and reasons for complication, effected the length of stay. According to the results of the research, there are meaningful relations between the average length of stay and educational level, number of COPD diagnosis, additional diseases, COPD age, existence of complication and reasons for complication. On the other hand, staying service, age of the patient, sex, domicile, staying status are not related meaningfully with the average length of stay statistically.

Key Words: Chronic Obstructive Pulmonary Disease (COPD), Length Of Stay, Average Length Of Stay.

ÖZET

Kronik Obstrüktif Akciğer Hastalıkları'nın Yatış Süreleri Yönünden İncelenmesi: Atatürk Göğüs Hastalıkları Hastanesi'nde Bir Uygulama

Tanımlayıcı nitelikte bir çalışma olan araştırma, Atatürk Göğüs Hastalıkları Hastanesi'nde yatan Kronik Obstrüktif Akciğer Hastalığı (KOAİ) tanılı hastaların, yatış sürelerini uzatan faktörleri ortaya koyarak, hasta devir hızının artırılması, dolayısıyla varolan yatak sayısı ile daha fazla sayıda hastaya hizmet verilmesini olanaklı kılmak ve hasta bekleme sürelerini en aza indirerek hasta yataklarını daha verimli kullanıp gereksiz yatışları önlemeye katkıda bulunmak amacıyla gerçekleştirilmiştir. Araştırmada, Atatürk Göğüs Hastalıkları Hastanesi Non TB kliniklerinde 1-31 Ocak 2001 tarihleri arasında KOAİ tanısı ile yatan 113 vakanın hasta dosyaları, servis protokol defterleri ve hasta çıkış özetleri incelenmiştir. Araştırmada hastalara ait yaş, yatırılan servis, cinsiyet, ikamet yeri, yatış statüsü, eğitim durumu, KOAİ tanısıyla hastaneye yatış sayısı, ek hastalık durumu, KOAİ yaşı, komplikasyon ve komplikasyon nedenleri gibi değişkenlerin yatış sürelerini nasıl etkilediği incelenmiştir. Araştırma sonuçlarına göre öğrenim düzeyi, KOAİ tanısıyla hastaneye yatış sayısı, ek hastalık bulunma durumu, KOAİ yaşı, komplikasyon bulunma durumu ve komplikasyon nedenleri ile ortalama yatış süresi arasında istatistiksel açıdan anlamlı ilişki bulunmuştur. Hastanın yatıştığı servis, yaş, cinsiyet, ikamet yeri, yatış statüsü ile yatış süresi arasında istatistiksel açıdan anlamlı ilişki bulunmamıştır.

Anahtar Kelimeler: Kronik Obstrüktif Akciğer Hastalığı (KOAİ), Yatış Süresi, Ortalama Yatış Süresi.

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In the assessment of hospital performance, several measurements related to the hospital facilities have been employed. One of these is the length of hospital stay (LOS), that is the number of the days of a patient's stay in hospital to get treatment in a certain period (1, 2). The term average length of stay (ALOS) has been used to express hospital stay related assessments more meaningfully. ALOS is calculated by dividing the total number of the days of the discharged patients' stay (including the ones who died) by the number of the patients discharged (2, 3).

LOS is an indicator showing the quality and effectiveness of the medical care in hospital. When the type of illness is taken into consideration LOS can give us a clear idea about inappropriate or unnecessary hospitalisation; appropriate care and cost (4, 5).

LOS varies according to which social security institution the hospital belongs to and the countries. These differences are based on the differences in medical facilities, the procedure used to offer medical care, different ways of organising and medical care organisations. In U.S.A. shorter than 30 days stay is classified as short term, while longer than 30 days is called long term. It has been mentioned that in U.S.A ALOS stay in 7 days throughout the county(6). However the duration varies from hospital to hospital. Unnecessary hospitalisation, days and procedures have been maintained because of applied management programmes (7). In Turkey the study carried out by Çelik et al (8), mentioned that 49 out of 221 patient day is unnecessary. In state hospitals in Turkey LOS sloped backwards from 5.7 to 5.5 (9).

It is obvious that reducing unnecessary hospitalisation by controlling the variables of LOS has numerous beneficial aspects in terms of hospital management and national economy. As a result of decrease in the cost of LOS, the increase in the number of in patients and the increase in the circulation positively affect the efficiency of the hospital. There fore hospital sources have been used more effectively and efficiently (10, 11). As a result of reducing unnecessary hospital stay; wasting money, labour and time can be prevented. Instead of building new hospitals it can be said that the number of the patients to be hospi-

talised can be increased using available beds. Several studies has been made to determine the factors affecting variables of LOS and to control them. As Morgan and Beech mention (12), reducing LOS depends on several factors enabling available beds to be used more effectively. Some of these are increasing the quality of treatment, improving the service given to the patients as well as increasing the number and availability of operating rooms and using the beds more effectively. In the study by WHO the factors influencing ALOS have been mentioned as follows: rapid increase in population, prolonged life expectancy, excessive number of bed in the area, prolonged diagnosis, increase in the hospital acquired infections, inappropriate clinical services, prolonged decisions on admissions and discharges, staff lacking in services training, lack of outside care opportunities, doctors paid in accordance with the ALOS (13).

Mawajdeh et al (11), have stated four categories –patient, physician, hospital and source and type of payment- determine the LOS. Çelik et al (8), mention that age, sex, residence, institution at which the patient admitted and insurance status determine unnecessary stay. In the study on factors affecting diagnosis and treatment in acute rheumatic fever and controllable variableities of these procedures carried out by Turkish Armed Forces in different power forces it has been found that the physicians attitude and behaviour have significant influence on ALOS (14). The type, severity, structure of illnesses were also found to be significant predictors of ALOS in the study of Mawajdeh (11).

In different departments of the same hospital, different LOS for the same illness has been observed. This leads to an increase in the cost of the illness. Differences in the treatment of the same illness is considered an important factor in terms of foresight of the result management and hospital planning and it is claimed that this causes considerable differences in the effective use of hospital beds (10, 15). There fore establishing the LOS according to the illnesses is one of the subjects to be studied in hospital management (4, 5). That LOS should be analysed on the basis of physicians and diagnostic groups seems another approach on which authors agree (10, 11),

Length of Stay in Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) is a slow but progressive disease which is characterised by obstructive air flow due to chronic bronchitis and emphysema. It is one of the common respiratory diseases in the world; it has become a favourite research topic because of its relatively increasing morbidity and mortality and expenditure on health. In U.S.A among the causes of death COPD appears in the fifth place (16, 17).

There has been 58 % increase in the number of COPD patients between 1975-1994 in Turkey. When examined ALOS owing to COPD in the last 20 years, it was observed that the mean was 8.8. It has also been observed that ALS has had stability in years and has never showed any decrease (18). In Table 1, the ALOS of COPD patients in 1995-2000 according to years in ACDH and generalised in Turkey is given. LOS for ACDH in USA is 5.7 days (19). The difference between these figures should be studied considering the loss in both country-scale and hospital-scale.

Atatürk Chest Disease Hospital (ACDH) is one of the 24 specialised hospitals offering services of chest diseases, run by Ministry of Health. There are 5 more chest disease hospitals run by other institutions in Turkey. According to Ministry of Health Data (9), in ACDH, average length of stay is 22.0 days. In Table 1 the figures of Ministry of Health and ACDH do not correlate with each other, which is due to the problems of recording system. In table 1, ALOS shows slight fluctuation from 1995 to 2000 but it tends to decrease in general. It is emphasising that ALOS due to COPD is twice as long as ALOS throughout Turkey.

The aim of this study is to identify the factors affecting hospital LOS for the patients with COPD

in ACDH. It is believed that it would provide managerial control in patient care and planning. The result of this study would also provide the health staff with the data to reduce and/or eliminate the factors affecting length of hospital stay for patients with COPD. Thus, hospital management would be able to determine estimated length of hospital stay due to certain illnesses and to plan bed need, manpower equipment expanses, laboratory and blood bank services.

Method

The coverage of the research consists of 114 patients who have been treated with the diagnosis of COPD (the disease which is listed with code A-93 in international diseases list with the title 150, and which coded 490-496 in the list number 999), in Non Tuberculosis B Clinics of Atatürk Chest Diseases Hospital (ACDH) from January 1 to January 30, 2001 and who were contacted by hospital registrations. In the research, exemplifying wasn't chosen and all of 114 patients were included in the research. Data of 113 patients were evaluated because one of the patients' file hasn't been found in archives. January 2001 has been chosen deliberately as the month of operation because of the increase in patients in winter months. Patient's files, hospital registrations, and summary of patients' discharge have been studied with a data collecting direction developed by the researchers with the retrospective record screening method.

Data were evaluated by using SPSS 9.05 package programme. In statistical analysis: correlation, the importance control of the difference between two averages (t test) and one sided variance analysis were used and meaningful differences between groups were explained by Least Significant Difference (LSD) test.

Table 1. ALOS of COPD patients according to years

Year	1995	1996	1997	1998	1999	2000
Türkiye ALOS (Day) *	7.7	7.9	7.7	7.6	7.3	7.2
ACDH ALOS (Day) **	19.1	18.0	18.9	18.3	18.3	17.9

Reference: * MOH, Disease Statistics , 1996b, 1997, 1998, 1999, 2000, 2001, **ACDH Annual Health Statistics.

Finding and Discussion

Table 2. Distribution of patients with COPD in ACDH according to their sociodemographic characteristics

Sociodemographic characteristics	N	(%)	Sociodemographic characteristics	N	(%)
Sex			Residence		
Male	80	70.8	From Ankara	64	56.6
Female	33	29.2	Out of Ankara	49	43.4
Age Groups			Stay Statutes		
30-39	3	2.7	Civil Servant	9	8.0
40-49	12	10.6	Private payment	2	1.8
50-59	21	18.6	SIO (SSK)*	17	15.0
60-69	52	46.0	SIAMASE (Bağkur)**	41	36.3
70-79	25	22.1	GERF (Emekli S.)***	17	15.0
Educational Status			Green Card****	18	15.9
Illiterate	33	29.2	Non Payment*****	9	8.0
Literate	10	8.8			
Primary School	34	30.1			
Junior High School	21	18.6			
High School and above	15	13.3			
Total	113	100.0	Total	113	100.0

* Social Insurance Organisation (SSK)

** Social Insurance Agency of Merchants Artisans and Self -Employed (Bağkur)

*** Government Employees Retirement Fund (Emekli Sandığı)

**** Green Card (The system that pays the treatment payments of patients who are not able to afford).

***** Non Payment (Social insurance that is given to people who need care at the age of 65 and above, with in the law 2022)

Distribution of sociodemographic status of the patients included in the research has been shown in Table 2. 70.8 % of patients were men, 46 % were between the age of 60-69, 30.1 % were pri-

mary school graduated, 56.6 % were living in Ankara, and 36.3 % were insured by Bağkur (The Social Insurance Agency of Merchants Artisans and Self-Employed)

Table 3. Distribution of patients with COPD in ACDH according to patients' characteristics

Patients' characteristics	N	(%)	Patients' characteristics	N	(%)
Clinic in Stay			Additional Illness Situation		
1 Non TB	43	38.1	Present	59	52.2
2 Non TB	45	39.8	Absent	54	47.8
3 Non TB	4	3.5	Age of COPD		
4 Non TB	8	7.1	1-11 month	13	11.5
5 Non TB	13	11.5	1-2 year	20	17.7
Number of Stay (Day)			3-4 year	23	20.4
1-7	13	11.5	5 year and above	57	50.4
8-15	41	36.3	Complication		
16-23	41	36.3	Present	48	42.5
24-31	11	9.7	Absent	65	57.5
32 and over	7	6.2	Reason of Complication		
Number of stay From COPD			Patient	35	72.9
1 time	51	45.1	Hospital	13	27.1
2 time	25	22.1			
3 time	23	20.4			
4 time and above	14	12.4			
Total	113	100.0	Total	113	100.0

Distribution of various characteristics of their disease of COPD patients included in the research in table 3. It has been established that 39.8 % of patients were those staying in Non TB Clinics, 36.3 % were those who were staying 8-15 days and 16-23 days, and 45.1 % were staying for the first time with diagnosis of COPD. In addition to this information, it has been found that 52.2% of patients had another contributing disease, 50.4 % had this disease over 5 years (COPD age). It has been also been found that 42.5 % of patients had complications, and 72.9 % of whom had the complication from patients, 27.1 % of whom had from the hospital. In the research knowledge about the existence of hospital infections evaluated as the course of complication have been gathered by studying the information in patient's files. The complications originated from the disease itself were systemic diseases developed with COPD.

Table 4. ALOS according to sex in patients of COPD in ACDH

Sex	N	ALOS (X)	Standard Deviation	Standard Error
Mail	80	17.6	9.16	1.02
Female	33	15.8	6.34	1.10

(t = 1.044; p>0.05)

When the distribution of ALOS of the patients according to their sex examined (Table 4), it has been observed that the ALOS of male patients (17.6), were higher than female patients (15.8). The difference in ALOS according to sex hasn't been found meaningful in the statistical aspect. In the studies carried by Varankesh (5), in patients with inguinal hernia in literature, by Özgen (20) in patients with diabetes, by Ersoy (21) in patients with appendicitis, by Şeref (22) in patients with ischemic hearth disease, by Mawajdeh and colleagues (11) in patients with appendectomy, bronchial asthma and caesarean sex of the patients haven't been found meaningful in the statistical aspect. However, there has been meaningful connection with sex and LOS in researches carried by Dinçer and colleagues in different groups of patients (10), by Çelik and colleagues (8) on inappropriate use of beds, and Dowd and colleagues (23) in researches dealing with LOS.

The relation between patient's age and ALOS has been examined by correlation analysis, and a negative relation has been found ($r = -0.115$). Although ALOS shows a decline trend in correlation with increasing age, the relation is not meaningful in statistical aspect ($t = 0.224$, $p>0.05$). The findings of research carried by Özgen (20), Farren (24), Toraman (13), Şeref (22), and Çelik and colleagues (8), are very similar to

Table 5. The ALOS of patients with COPD in ACDH according to their education level

Educational Level	N	ALOS (X)	Standard Deviation	Standard Error	ALOS at 95 % reliance limit		LSD				
					Down Level	High Level	1	2	3	4	5
Illiterate	33	18.7	7.58	1.32	16.0	21.4	1	*		*	*
Literate	10	31.0	11.45	3.62	22.8	39.1	2	*		*	*
Primary School	34	17.0	6.39	1.09	14.7	19.2	3		*		*
Junior High School	21	12.9	4.47	0.97	10.9	14.9	4	*	*	*	
High School and above	15	11.5	6.12	1.58	8.1	14.9	5	*	*	*	
Total	113	17.2	8.52	0.80	15.6	18.8					

(F=14.490; p< 0.001)

this research. However, it has been found that there is a positive relation between age and LOS (5, 10, 11, 25, 26,).

When ALOS according to the patients' education level studied, it has been found that the illiterates stayed 18.7 day, literate people stayed 31.0 days, primary school graduates 17.0 days, junior high school graduates were 12.9 days; and high school and above were 11.5 days (Table 5). As can be seen in the results of research ALOS tended to decline as the patients education level gradually went up. The difference between ALOS according to the patients' education level has been meaningful in the statistical aspect ($p < 0.001$). In the advanced statistical analysis, the groups of illiterate people and primary school level and junior high school group were not different from another meaningfully from the statistical point, but the average of all other groups were meaningfully different from another in the statistical aspect.

Table 6. ALOS of COPD patients in ACDH according to their residence

Residence	N	ALOS (X)	Standard Deviation	Standard Error
From Ankara	64	17.7	9.21	1.15
Out of Ankara	69	16.2	7.34	1.04

($t = 0.963$; $p > 0.05$)

ALOS of patients according to their residence is shown in table 6. Patients living in Ankara stay 17.7 days, and who live anywhere out of Ankara stay 16.2 days. The difference wasn't meaningful statistically. The related research findings of Ersoy (21), Özgen (20), Varankesh (5), and Mawajdeh et al (11), have all been well-adjusted to this result of research. In some other researches, LOS of people living in the city has increased (8, 23).

When the patients' ALOS compared in accordance with their staying departments, it has been found that ALOS was the longest in 1 Non TB department (18.6), and the ALOS was the shortest in no 4 Non TB department (14.6) (Table 7). It has been established that the other ALOS in departments were 15.9 days in 2 Non TB department, 16.7 days in 3 Non Tb department, 17.6 days in 5 Non Tb department. In the variability analysis there hasn't been found any meaningful difference statistically between ALOS in accordance with departments ($p > 0.05$).

Although there has been meaningful difference in LOS of different departments in Turkey (8, 10), it can be mentioned that the cause of in existence of difference between departments in aspect of ALOS in this research is that all departments are composed of Non TB departments. It can be considered that patients with different diseases stay in Non TB departments affect the results.

Table 7. ALOS of COPD patients in ACDH according to departments where they were hospitalised

Clinical Name	N	ALOS (X)	Standard Deviation	Standard Error	ALOS at 95 % reliance limit Down level	Upper level
1 Non TB	43	18.6	8.58	1.30	16.0	21.3
2 Non TB	45	15.9	7.54	1.12	13.6	18.2
3 Non TB	4	16.7	14.54	7.27	-6.4	39.9
4 Non TB	8	14.6	4.65	1.64	10.7	18.5
5 Non TB	13	17.6	10.77	2.98	11.1	24.1
Total	113	17.2	8.52	0.80	15.6	18.8

($F = 0.772$; $p > 0.05$)

Table 8. ALOS of COPD patients in ACDH according to their staying status

Stay Status	N	ALOS (X)	Standard Deviation	Standard Error	ALOS at 95 % reliance limit	
					Down level	Upper level
Civil Servant	9	19.5	12.12	4.04	10.2	28.9
Private payment	17	18.2	9.24	2.24	13.4	22.9
SIO (SSK)	41	16.0	7.14	1.11	13.7	18.2
SIAMASE (Bağkur)	17	18.6	9.49	2.30	13.7	23.5
GERF (Emekli S.)	18	16.3	7.80	1.83	12.4	20.1
Green Card	2	11.5	7.77	5.50	-58.4	81.4
Non Payment	9	19.5	9.50	3.16	12.2	26.8
Total	113	17.2	8.52	0.80	15.6	18.8

(F = 0.594 ; p>0.05)

In Table 8, ALOS is given in accordance with patients' payment status of hospital expenditure. It has been found that ALOS of patients staying as civil servants is 19.5 days, patients from Social Insurance Organisation (SSK), 18.3 days, from Social Insurance Agency of Merchants Artisans and Self -Employed (Bağkur) 16.0, members of Government Employees Retirement Fund (Emekli Sandığı) 17.3, those who has Green Card 16.3, those who pay expenditure themselves 11.5, those staying with free status 19.5. As shown in Table 8, ALOS of patients who pay their expenditure themselves is shorter than staying status of other patients. Nevertheless, ALOS of patients staying as civil servants and those who are stay-

ing with free status has been found longer, but there hasn't been found a meaningful difference statistically in the variability analysis (p> 0.05).

In the researches carried by Ersoy (21), Özgen (20), and Varankesh (5) in Turkey there hasn't been a meaningful relation between the patient's staying status and LOS, as hasn't been found this research. Çelik et al, (8), have found that there has been a meaningful relation between staying status and LOS and the inappropriate staying rate of patients who has insurance is longer than the others. In other researches carried on this subject, it has been stated that LOS of patients with health insurance is longer than those who don't have any insurance (4, 11, 27).

Table 9: ALOS of COPD Patients who were hospitalised with the diagnosis of COPD in ACDH according to their number

Number of stay with COPD diagnosis	N	ALOS (X)	Standard Deviation	Standard Error	ALOS at 95 % reliance limit		LSD			
					Down Level	High Level	1	2	3	4
1 time	51	15.1	8.69	1.21	12.6	17.5	1			*
2 time	25	16.7	6.12	1.22	14.2	19.2	2			*
3 time	23	18.7	7.78	1.62	15.4	22.1	3			
4 time and above	14	23.4	9.99	2.67	17.6	29.2	4	*	*	
Total	113	17.2	8.52	0.80	15.6	18.8				

(F= 4.082; p <0.01)

In table 9, we examined the relation between ALOS and staying frequency of patients with COPD diagnosis. ALOS of patients whose staying frequency is only one stay 15.1 days, those who were hospitalised, twice stayed 16.7 days, 3 times stayed 18.7, 4 times and above 23.4 days. ALOS of patients who were hospitalised with COPD diagnosis for the first time is shorter. The ALOS that is in relation with staying frequency of patients with COPD diagnosis is also meaningfully different in the statistical aspect ($p < 0.01$). The difference between ALOS of patients who were hospitalised 4 times and above with COLD diagnosis and those who were hospitalised once and twice has statistically been found meaningful, the difference in relation with each other in other groups has been found meaningless.

The distribution of patients' ALOS is shown in Table 10 in accordance with coexistence of additional diseases together with COPD. ALOS of patients with additional diseases is 19.1 days, ALOS of those who don't have any additional disease is 14.8 days. It has also been statistically found meaningful that ALOS of patients with an additional disease is longer.

Table 10. ALOS of patients with COPD in ACDH according to coexistence of additional disease.

Additional Disease	N	ALOS (X)	Standard Deviation	Standard Error
Present	59	19.1	8.11	1.05
Absent	54	14.8	8.33	1.13

($t = 2.734$; $p < 0.01$)

Distribution of ALOS of patients in accordance with COPD age is shown in Table 11. We have established that ALOS of patients whose COPD age is between 1 and 11 months is 9.9, those whose COPD age is 1-2 years is 15.3, 3-4 years is 19.6, 5 years and above is 18.6 days ($p < 0.001$). According to advanced statistical analysis, we have discovered that the difference originated from patients whose COPD age is between 1 and 11 months.

Status of the disease, its severity and age are important factors that affect the patients' LOS and support the result of the research (11, 28, 29). Özgen (20) has mentioned that there isn't any meaningful relation between their diabetes age and LOS.

Table 12. ALOS of COPD patients in ACDH according to existing complications

Complication	N	ALOS (X)	Standard Deviation	Standard Error
Present	48	20.1	8.16	1.17
Absent	65	14.9	8.03	0.99

($t = 3.369$; $p < 0.01$)

In Table 12, ALOS has been studied in accordance with existing complication in patients with COPD. Of the patients who were included in the research, it has been established that ALOS of those with complication is 20.1 days, those without complication is 14.9 days. ALOS of patients with complication is longer than the others. There

Table 11. ALOS of COPD patients in ACDH according to their COPD age

Number of stay with COPD diagnosis	N	ALOS (X)	Standard Deviation	Standard Error	ALOS at 95 % reliance limit		LSD			
					Down Level	High Level	1	2	3	4
1-11 month	13	9.9	5.58	1.55	6.5	13.3	1		*	*
1-2 year	20	15.3	4.77	1.06	13.1	17.5	2			
3-4 year	23	19.6	9.28	1.93	15.6	23.7	3	*		
5 year and over	57	18.6	8.88	1.17	16.2	20.9	4	*		
Total	113	17.2	8.52	0.80	15.6	18.8				

($F = 5.184$; $p < 0.01$)

has been a statistically meaningful difference in ALOS of COPD patients in accordance with coexisting complications ($p < 0.001$). Also, it has been established that there was meaningful difference between complications and ALOS.

Suggestions

1. An effective infection protection chain should be set to provide a sterilised environment during the patients stay at hospitals, since hospital originated infection is an important factor affecting ALOS. This kind of infection protection chain can be provided and checked by means of such committee.
2. An inspecting committee should be formed to check the quality and convenience of the treatment give of the patients and the rate of unnecessary and/or under hospitalisation.
3. The length of the in patients hospital stay related to the type of the disease should be standardises throughout the country. Therefore the length of could be taken under control and bed capacity, which is on important income of a hospital, could be used at more effectively and efficiently. In addition, such standardisation would make the bed planning based on scientific principles possible.
4. Standard methods of treatment based on the type of the disease should be developed to make the length of hospital stay controllable and to prevent unnecessary patient care.
5. In order to assess convenience of services the patients who are insured by the government use, it can be mentioned that forming an inspecting mechanism of usage of services at the insurance programmes would decrease the unnecessary staying period of such patients.
6. The length of hospital stay of the patients with another contributing disease is longer-Hence, before the patient is hospitalised, these contributing diseases should be examined and required treatment should be determined and taken under control.
7. In this study physicians are not taken in to consideration as on effecting factor since patients with COPD are not followed by the same physician from their admission to their discharge . Different physician's attitude is considered to be on influence on the length of hospital stay of the patients. Physicians should be trained on the importance of using the hospital sources effectively and efficiently.
8. According to A list of Turkish Health Statistics and Annual Hospitalised Care Institutions, the ALOS of the patients in all hospitals throughout Turkey can be calculated considering their diagnosis. However average length of stay ca not be obtained according to the level where the hospital stay, which results in not being able to make comparison among hospitals. It is recommended that a data base should be provided to make comparisons among hospitals.
9. Hospital management should examine the factors affecting the length of hospital stay and take measurements. This is only possible with the staff qualified with scientific health institution management skills and techniques. Each management post should be occupied by the ones who have such management skills and training.
- 10.No or inefficient system of data to provide objective researches on the length hospital stay is a curical problem which influences the kind and the, applicability of the studies. Hospital management should develop a reliable, accurate and current hospital information system to evaluate and inspect the length of hospital stay.

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