

Investigating Discharge Duration of Patients and Factors Affecting it in Be'sat Medical Center, Sanandaj in 2011

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Abstract: Hospital as a major provider of health services plays a major role in the health system. One of the major problems that the medical staff has to grapple with is the issue of discharging the patients from the health centers. Regarding the management of the hospital and enhancement of patient care, measuring patients' waiting times to be discharged from the hospital is an important issue. Patients' dissatisfaction and their complaint about long duration of discharge are reported. In this regard the present study investigates factors affecting discharge duration and it also tries to promote satisfaction level of clients who have been discharged and that of those who are awaiting admission.

Method: This study was descriptive – analytical. The subjects were composed of all patients admitted to Be'sat medical center in Sanandaj whose documents contained their doctor's discharge order. Simple sampling was applied and the sample size was 200 discharged patients' documents. After the interviewers were instructed and necessary coordination was made with the hospital management, wards which documented the timing of the documents were asked to provide data on timing in all phases from the patients' discharge by their doctors through their discharge by the related wards. Collected data were analyzed through Win SPSS software. Variance test and test of compared means were used to figure out the relation between patients' mean time of discharge and their demographic characteristics. **Results:** Based on discharge process of 200 patients, the findings of the study were presented in 30 tables. Results showed that the highest frequency was related to the men surgery ward and the lowest one to the women orthopedic and neurosurgery wards. Thirty-two percent of the subjects were discharged on Sunday and Wednesday had the lowest discharge percentage of 4. Moreover, the highest frequency distribution based on 37 percent of hospitalization days was 5 and more days. Regarding the gender of the wards' secretaries, the highest percentage was 89% which was related to females. And regarding their years of service was one year with the highest percentage of 31%. The results of the ANOVA showed that there was a significant difference between different wards of the hospital. **Discussion:** Discharging patients is accompanied with numerous problems which can affect patients' recovery process and promotion of their health. The process of discharging patients is a complex challenge faced by hospital management; and modifying this process is considered as a key strategy based on which all activities in a hospital can be defined, developed and executed in order to achieve harmony.

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Introduction

Hospital as a major provider of health services plays a major role in the health system (1). Discharging patients from medical centers is one of the major problems faced by medical staff (2). Regarding the management of the hospital and enhancement of patient care, measuring patients' waiting times to be discharged from the hospital is an important issue (3). The term hospital discharge refers to a situation when the patient has recovered enough to leave the hospital (4). Due to patients' dissatisfaction, their complaint about long duration of discharge, and bed occupancy by discharged patients for a long time, the more the patients stay in the

hospital, the more the expenses will be and there will be this possibility that the patients would not afford to pay the cost (2). Shortening discharge process will speed up the process of providing awaiting patients with medical service. Discharge process is the last time that patients and their companions have contact with the hospital staff and this phase can somehow reflect the results of all actions taken during hospitalization (1). Discharging patients from medical centers is fraught with numerous challenges which can influence recovery process and promotions of the patients' health. Shortening discharge duration and the time while the patient is waiting to be discharged, filling out the required forms in the patient's

document by the secretary, providing a summary of the patient's health state by the doctors, reducing the crowdedness in discharge and checkout sections, and the delay of the patient's relatives in paying the hospital expenses are all important factors that can affect the duration of the patient's discharge process starting from the related doctor and ending in the discharging ward. Ignoring such factor has led in incomplete provision of medical services and exertion of physical and mental pressure on the patients and consequently their dissatisfaction (5). Finally, this will question the process of provision medical services to the patients. The process of discharging patients is a complex challenge faced by hospital management; and modifying this process is considered as a key strategy based on which all activities in a hospital can be defined, developed and executed in order to achieve harmony (6). Having an extensive precise schedule is an important factor that has significant bearing on success of any system; and medical and health system is no exception. There are many goals in such system. One of these goals is carrying out constant care programs among which patients' discharge planning is considered as a key issue and it is one of the unique and main responsibilities in nursery (7). Therefore, providing valid, precise medical documents for all patients is an important undertaking in managing and running hospitals and medical centers. Information provided in patients' documents can be used as a communication channel making contact between the patients and all people who are involved in their recovery (8). Anyone who lives in a community should be provided with medical and health facilities; and this is the authorities' responsibility to provide such conditions where everyone can have the gift of healthiness and live a lively life (9). The process of discharging patients is a complex challenge faced by hospital management; and modifying this process is considered as a key strategy based on which all activities in a hospital can be defined, developed and executed in order to achieve harmony (10). The present study is aimed at identifying factors that affect the process of discharging patients, enhancing discharged and waiting-to-be-admitted patients' satisfaction with services, creating positive influence on the quality of services provided by the medical teams, and finally modifying the process of patients' discharge based on the proposed schedule.

Method

This study was descriptive – analytical. The subjects were composed of all patients admitted to Be'sat medical center in Sanandaj whose documents contained their doctor's discharge order. Simple sampling was applied. Based on the number of

discharged patients during a day, 200 patients' documents were included as the sample of the study. The following procedure was taken for data collection. First, interviewers were instructed and necessary coordination was made with the hospital management. Then, the interviewers attended the hospital wards from 7 a.m. to 1 p.m. and recorded receiving time of the documents and their delivery to other wards; and likewise information about timing of all of the discharged documents first by the related doctors and finally by the discharging ward was collected. After patient's discharge process form (a researcher-made questionnaire based on the process of discharging patients in Be'sat medical center) was filled out, the collected data were analyzed through Win SPSS software. Descriptive and inferential statistics, variance test and test of compared means were used to figure out the relation between patients' mean time of discharge and their demographic characteristics.

Findings

Based on discharge process of 200 patients, the findings of the study were presented in 30 tables. Results showed that the highest frequency was related to the men surgery ward and the lowest to the women orthopedic and neurosurgery wards. Thirty-two percent of the subjects were discharged on Sunday and Wednesday had the lowest discharge percentage of 4. Moreover, the highest frequency distribution based on 37 percent of hospitalization days was 5 and more days. Regarding the gender of the wards' secretaries, the highest percentage was 89% which was related to females. And regarding their years of service was one year with the highest percentage of 31%. The results of the variance analysis showed that there was a significant difference between different wards of the hospital.

According to the table 1, the interval between the document completion by the ward secretary and its referral to the insurance agent and the interval between the doctor's order of discharge and the patient's discharge by the head nurse are respectively the maximum and the minimum intervals.

Table 2 shows that according to variance analysis test, there was a significant statistical difference among the mean intervals between the patient's discharge order by the doctor and the document completion by the head nurse in different wards of the hospital. According to the variance analysis test (table 3), there was a significant statistical difference among the mean intervals between the document completion by the ward secretary in different wards of the hospital.

Discharge Process	Minimum	Maximum	Mean	SD
The interval between the doctor's order of discharge and the document completion by the head nurse	0	60	8.5	11.9
The interval between the document referral by the head nurse to the ward nurse	0	65	12.8	12.4
The interval between the document reception and completion by the ward secretary	1	90	13.2	19.4
The interval between the document completion by the ward secretary and its referral to the insurance agent	0	120	25.8	38.3
The interval between the document reception from the insurance agent and its referral to the ward secretary	2	60	12.6	10.7
The interval between transferring the documents from the ward secretary to handling section of the documents	0	170	19.2	29.6
The interval between transferring the documents from handling section of the documents to the ward secretary	0	90	16.5	14.5
The interval between the document reception from the ward secretary and its referral to the discharge and cost section	0	70	16.7	16.7
The interval between the document referral to the patient's relatives	1	94	23.7	20
The interval between payment and getting receipt by the patient's relatives and the discharging ward	0	88	19.7	18.8
The interval between reception of the discharge order by patient's relatives	0	60	14.8	9.6
The interval between the doctor's order of discharge and the patient's discharge	220	330	193	56.1

Table 2. Comparing the Means of Intervals between the Doctor's Discharge Order and the Document Completion by the Head Nurse based on Separate Wards of Be'sat Hospital

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	6.7 ± 2.8	5	1672.1	334.4	2.56	0.032
Women Orthopedics	20	6.3 ± 40.2					
Neurosurgery	20	19.7 ± 7.4					
Men Internist	42	7.1 ± 13					
Women Internist	28	5 ± 15.9					
Women Elective	34	10.6 ± 17.2					

Table 3. Comparing the Means of the Intervals between Reception and Completion of the Document by the Ward Secretary based on Separate Wards of Be'sat Hospital

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	25.3 ± 15.8	5	7830.3	1566.1	8.8	0.000
Women Orthopedics	20	6.5 ± 3.8					
Neurosurgery	20	31.2 ± 25.8					
Men Internist	42	12.3 ± 11.8					
Women Internist	28	5 ± 1.8					
Women Elective	34	12.6 ± 7.9					

Table 4. Comparing the Means of the Intervals between Document Completion by the Ward Secretary and its Referral to the Insurance Agent based on Separate Wards of Be'sat Hospital

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	32.4 ± 28.1	5	170025	3400.4	3.9	0.003
Women Orthopedics	20	61 ± 34.9					
Neurosurgery	20	39.7 ± 29.8					
Men Internist	42	34.1 ± 41.9					
Women Internist	28	9 ± 13.2					
Women Elective	34	26.6 ± 17.1					

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	8.4 ± 3.4	5	5157.7	1031.5	15.7	0.000
Women Orthopedics	20	7.8 ± 6.8					
Neurosurgery	20	7.1 ± 2.7					
Men Internist	42	18.1 ± 11.4					
Women Internist	28	5 ± 0.00					
Women Elective	34	12.6 ± 10.7					

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	7.7 ± 5.5	5	8317.5	1663.5	8.1	0.000
Women Orthopedics	20	34 ± 24.0					
Neurosurgery	20	10 ± 5.5					
Men Internist	42	15.3 ± 18.5					
Women Internist	28	30.2 ± 15.5					
Women Elective	34	15.9 ± 13.7					

Ward	Number	Mean and SD	df	Total Square	Mean Square	F	P
Men Surgery	56	173.1 ± 41.1	5	30788.4	1657.7	3.9	0.000
Women Orthopedics	20	257.5 ± 47.8					
Neurosurgery	20	229.4 ± 52.4					
Men Internist	42	194.4 ± 59.7					
Women Internist	28	166.8 ± 34.6					
Women Elective	34	192.3 ± 62.6					

Day of Week	Number	Mean and SD	df	Total Square	Mean Square	F	P
Saturday	40	27.7 ± 32.6	5	14585.18	2917.03	3.237	0.01
Sunday	64	43.3 ± 25.8					
Monday	18	31.4 ± 31.7					
Tuesday	12	53.8 ± 47.7					
Wednesday	8	43.7 ± 27.5					
Thursday	58	16.7 ± 28.2					

According to the variance analysis test (table 4), there was a significant statistical difference among the mean intervals between the document completion by the ward secretary and its referral to the insurance agent in different wards of the hospital.

According to the variance analysis test (table 5), there was a significant statistical difference among the mean intervals between the document reception from the insurance agent and its referral to the secretary in different wards of the hospital. According to the variance analysis test (table 6), there was a significant statistical difference among the mean intervals between the document reception from the ward secretary and its referral to the discharge and cost section in different wards of the hospital.

The longest and the shortest durations were related to neurosurgery and men internal, respectively. Moreover, the results gained from variance analysis test showed that there was a significant statistical difference among mean intervals in different wards of the hospital. Arranging the process of patients' discharge may contain modifying the written prescription so that treatment at home continues and talking to all doctors involved with the patients cure so as to guarantee accomplishing all instructions included in the discharge order. Sometimes making this arrangement takes several hours. Sometimes the patient's relatives have to go to the fund because the financial different wards of the hospital.

According to the variance analysis test (table 7), there was a significant statistical difference among the mean discharge durations in different wards of the hospital. According to the variance analysis test (table 8), there was a significant statistical difference among the mean interval between the document completion by the ward secretary and its referral to the insurance agent in weekdays.

Result and Discussion

The results of the study showed that the highest frequency was related to the men surgery ward and the lowest one to the women orthopedic and neurosurgery wards. Thirty-two percent of the subjects were discharged on Sunday and Wednesday had the lowest discharge percentage of 4. Moreover, the highest frequency distribution based on 37 percent of hospitalization days was 5 and more days. Regarding the gender of the wards' secretaries, the highest percentage was 89% which was related to females. And regarding their years of service was one year with the highest percentage of 31%. The process of a patient's discharge from Be'sat medical center starts with the doctor's written discharge order and ends with issuing discharge sheet by the fund. This process has the same routine in many hospitals such as Shahid Beheshti and Tennessee (6). The process of a patient's discharge starts with the doctor's written discharge order, then it is delivered to the nurse and the process will be carried out orderly. According to the results of the present study, the maximum duration is related to the interval between the document completion by the ward secretary and its referral to the insurance agent; and the minimum duration is related to the interval between the doctor's discharge order and the document completion by the head nurse. The results of the variance analysis test also showed that there was a significant statistical difference among the mean intervals between the patient's discharge order by the doctor and document completion by the head nurse in information is incomplete. After all necessary steps have been taken; the nurse will prepare the discharge instruction. Therefore, the process of patients' discharge may go through the same process. In her study, Ajami states that there lacks enough information about waiting duration before patients' discharge in hospitals of Iran (6). Variance analysis test showed that there is no statistical difference among mean intervals among the document referral to the ward secretary by the head nurse in different wards of the hospital. Undoubtedly, the hospital should try to enhance the quality of its care and health services so that it can satisfy the customers and clients (11). Discharge process is the last joint point

between the patients and their relatives and hospital system and also the most important factor affecting their satisfaction. Long duration of discharge not only results in financial, mental, medical, and health dissatisfaction but it is also not affordable for the hospital regarding the medical expenses in the government's point of view (12).

According to the variance analysis test, there was a significant statistical difference among the mean interval between the document completion and delivery by the ward secretary in different wards of the hospital. The shortest duration was related to the secretaries of women internal and men orthopedic wards and the longest duration was related to the secretary of neurosurgery ward. The results of a study conducted in Kashani hospital illustrated that mean waiting time for patients to be discharged from neurosurgery ward was the longest. It also showed that mean waiting time after discharge order in different wards of the hospital was calculated as 3 hours. This duration was about 2 hours and 4 and half hours for patients discharged in the morning and for those who were discharged in the afternoon, respectively (6). The results presented in Table 4, comparing the means of the intervals between reception and completion of the document by the ward secretary based on separate wards of Be'sat hospital, showed that there is a significant difference among different wards of the hospital regarding mean discharge duration. The shortest duration was 9 minutes which was related to women internal ward and the longest duration was 61 minutes which was related to women orthopedic ward.

Discharge planning is a process that doctors emphasize on its accomplishment; and it involves all members of medical team specialized in different fields (13). In other words, it can be stated that policymakers, hospital managers, and the third-party insurance payer (insurance agents) emphasize on reducing patients' length of stay in hospitals as a major policy to control hospital costs and to efficiently use limited supplies of hospitals. Reducing hospitalization duration; however, will be limited by other variables such as service quality and its efficiency. In other words, mean duration of hospitalization should be reduced if the quality of service does not drop and bad consequences are not resulted (14). Studies conducted in 1998 showed inappropriate accomplishment of discharge duration decrease (15). In this study, variance analysis test showed that there is a significant statistical difference among intervals between the document reception from the insurance agent and its referral to the secretaries of different wards. The shortest duration was 5 minutes which was related to women internal ward and the longest duration was 18 minutes which

was related to men internal ward. Main factors affecting discharge duration in Beheshti Hospital, Esfahan were reported to be financial issues and unavailability of interns to write the summary of the patients' documents. The longest duration in discharge process was 0/75 per minute which belonged to interns' work and the shortest was 0.002 second per minute which was related to the pharmacy (6). The results of variance analysis test showed that there is a significant difference between the mean interval between payment and the receipt delivery to the discharge ward by the patients companion in weekdays. Mean duration of 37.75 ± 30.9 minutes and 13.9 ± 12.75 minutes were reported for Wednesdays and Sundays, respectively. Variance analysis test; however, proved no significant statistical difference among mean interval between the discharge sheet delivery by the cost section to the patient's companion in weekdays. According to the variance analysis test, there was no significant statistical analysis among mean interval between the patient's discharge order by the doctor and the document completion by the head nurse in weekdays.

Discharge planning plays an important role in health system and in most countries and it is aimed at reducing the patients' stay duration at the hospital and hospitalizing new patients. Therefore, there should be a communication bridge between stations related to the discharge process. This bridge is the hospital's information system (6). The results of the variance analysis test showed that there was no significant statistical difference among the intervals between transferring the documents from the ward secretary to handling section of the documents and vice versa in different wards of the hospital.

Most reasons for discharging patients on time included: thirty-six percent (163 people) was related to the belief that the treatment was complete and there was no threat for the patient, twenty-three percent (106 people) was related to keeping honor and worry about the possibility that the patient's relatives would hear the news, and 15.01 percent (68 people) was pertain to financial problem in paying hospital costs (16). According to the variance analysis test, there was a significant statistical difference among the mean interval between the document delivery from the ward secretary and its referral to costing and discharging section in different wards of the hospital. It showed that 7.7 ± 5.5 minutes was related to the documents recorded in men surgery ward. The variance analysis test showed that there was no significant statistical difference among the mean interval between the patient's discharge order by the doctor and the document completion by the head nurse in weekdays. It also showed that there was no significant statistical

difference between the mean intervals between the document referral by the head nurse to the ward secretary in weekdays. According to the report on the financial state of the country provinces in 2004, the proportion of the number of beds per 1000 people has been reported to be 1.7 beds (17). There are no criteria to assess hospital treatment and service which all hospital service practitioners and specialists agree on while other non-hospital treatments have assessing standards such as compiled health criteria which are extensively accepted by World Health Organization (WHO). They are even applied as criteria of development (18). Regarding their number, quality, and level of service, hospital staff should be appropriate for different levels and their fields of specialty. According to the variance analysis test, there was no significant statistical difference among the mean interval between the document completion and delivery by the ward secretary in different wards of the hospital. However, there was a significant statistical difference among the interval between the document completion by the ward secretary and its referral to the insurance agent in the weekdays. Moreover, there was no significant statistical difference among the mean intervals between the document reception from the insurance agent and its referral to the secretary in the weekdays. In engaging planning staff, some factors can play a significant role in enhancing the quality of the medical service. These factors include require quantity, organizing duties according to the real need of the center, assigning methods of carrying out duties, training before work, and during-service education to give the staff promotion. The results of the variance analysis test showed that there was a significant statistical difference among the intervals between transferring the documents from the ward secretary to handling section of the documents in the weekdays. Mean duration of 5 ± 7 minutes and 41.1 ± 35.6 minutes were related to Wednesdays and Thursdays, respectively. Basic principles of efficient use of staff includes need to the require job, finding the qualified person or people without any bias, training before work, efficient supervision, understanding and commonality, and constant evaluation. The results of the variance analysis test showed that there was a significant statistical difference among the mean intervals between the document referral from the cost section to the patient's companion in different wards of the hospital. Documents of women orthopedic ward had a mean interval of 31.1 ± 40.8 minutes between the document transfer from the cost section to the patient's companion. This interval for women internal ward was the shortest duration which was 17.7 ± 11.3 minutes. Providing facilities without any bias and based on the needs of the center can enhance

the quality of the treatment. According to the variance analysis test, there was no significant statistical difference between the mean interval between payment and the receipt delivery by the patient's companion to the discharge ward in different wards of the hospital. In addition, the results of the variance analysis test showed no significant statistical difference between the mean interval between the delivery of the patient's discharge order by the costing section to the patient's companion in different wards of the hospital. Applying physical facilities according to the instruction, providing the patients' comfort and their companions, and preserving the hospital's cleanness can boost the quality of the treatment in the hospital (19). According to the variance analysis test, there was no significant statistical difference among the intervals between transferring the documents from the handling section of the documents to the ward secretary in the weekdays. And also, there was no significant statistical difference among the intervals between the document reception order by the ward secretary to the costing and discharging ward in the weekdays. The results of the variance analysis test proved that there was no significant statistical difference among the intervals between the document referral from the costing ward to the patient's companion in the weekdays. Mean duration of 34.8 ± 31 minutes and 13.75 ± 11.8 minutes were related to Mondays and Wednesdays, respectively. Moreover, there was a significant statistical difference among the mean intervals between the cost payment and receipt delivery by the patient's companion and the discharging section in the weekdays. Executing discharge planning can result in enhancing the quality of health and medical treatment, reducing the patient's stay at the hospital, safely transferring the patients to their homes or to other caring sections or centers, creating good and effective relationship between hospital managers and care provider (20) and heightening the coordination and cooperation among members of medical teams (21). Although using discharge planning has a lot of advantages and its regulations were assigned 20 years ago in Europe and North America, it is still a major challenge for many hospitals (22).

Suggestions

- More coordination and communication with charity centers and Imam Khomeini Relief committee in order to resolve patients' financial problem in paying hospital costs and reduce their waiting time,
- Cooperation with secretaries working in wards with huge loads of work by those working in

wards with less loads of work while discharging patients,

- Setting up a computer network among all wards involved with patients' discharge and using it in discharging patients,
- Instructing and urging interns to be punctually present in the wards,
- Instructing and forcing doctors and nurses to precisely complete the documents,
- Assigning a certain time to discharge the patients from the hospital,
- Coordination with the insurance agents and urging them to be present in the wards,
- Providing guide signs for wards involved with patients' discharge,
- Enhancing the patients' awareness and their companions about discharge phases,
- Training the personnel involved with patients' discharge and planning their duties,
- Locating wards and sections involved with patients' discharge in each other's vicinity,
- Supervising documents' summary completion by the interns, and
- Paying closer attention to documents completion and recording the included information.

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