Causes of Prolonged Hospitalization among General Internal Medicine Patients of a Tertiary Care Center

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Background: *Unnecessary days of prolonged hospitalization may lead to the increase in hospital-related complications and costs, especially in tertiary care center. Currently, there have not been many studies about the causes of prolonged hospitalization. Some identified causes could, however, be prevented and improved.*

Objective: *To identify the prevalence, causes, predictive factors, prognosis, and economic burden of prolonged hospitalization in patients who had been in general internal medicine wards of the tertiary care center for 7 days or more.*

Material and Method: *Retrospective chart review study was conducted among all patients who were admitted for 7 days or more in general internal medicine wards of Siriraj Hospital, the largest tertiary care center in Thailand. The period of this study was from 1 August 2012 to 30 September 2012. Demographic data, principle diagnosis, comorbid diseases, complications, discharge status, total costs of admission and percentage of reimbursement were collected. The causes of prolonged hospitalization at day 7, 14, 30, and 90 were assessed.*

Results: *Five hundred and sixty-two charts were reviewed. The average length of stay was 25.9 days. The two most common causes of prolonged admission at day 7 were treatment of main diagnosed disease with stable condition (27.6%) and waiting for completion of intravenous antibiotics administration with stable condition (19.5%). The causes of prolonged hospitalization at day 14 were unstable condition from complications (22.6%) and those waiting for completion of intravenous antibiotics administration with stable condition (15.8%). The causes of prolonged admission at day 30 were unstable conditions from complications (25.6%), difficulty weaning or ventilator dependence (17.6%), and caregiver problems (15.2%). The causes of prolonged hospitalization at day 90 were unstable condition from complications (30.0%), caregiver problems (30.0%), and palliative care (25.0%). Poor outcomes were shown in the patients admitted more than 90 days. Percentage of death, being bedridden, and re-admission were 55, 40, and 22, respectively. The goal of treatment was only palliative care in 80 percent of this patient group. Respiratory failure among the hospitalized was the strongest predictive factors of death (Odds ratio = 7.5, $p<0.001$). The average costs of admission per patient was 163,870 THB and the percentage of reimbursement was only 72%. For total costs of admission in these two months, Siriraj Hospital lost a large amount of money (about 26 million THB) for patients admitted for 7 days or more and almost 50% of this was spent on the patients admitted for 90 days or more. The average cost of admission per patient in the latter group was 1,073,004 THB.*

Conclusion: *Prolonged hospitalization had adverse outcomes for the patients and the hospital, such as high complications, poor outcomes, high costs of treatment and low reimbursement ratio that created an enormous economic burden for the hospital. Therefore possible preventable causes of prolonged admission must be identified, prevented and managed by improving quality of multidisciplinary health care system and ancillary services.*

Keywords: *Prolonged hospitalization, Length of stay, General internal medicine, Tertiary care center*

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Department of Medicine of Siriraj Hospital, the largest tertiary care center in Thailand with more than 2,000 hospital beds, had 15,891 in-patient in 2010. The average length of stay was 10 days, which was greater than the average length of stay of other tertiary care centers in Thailand and developed countries[1-3]. Patients with prolonged hospitalization were exposed to risk of complications including hospital acquired infections which result in morbidities and mortalities. Additionally, these unnecessary days of hospitalization result in economic burden[4,5], taking a large amount of in-patient care such as by doctors[6] as well as nursing care; it also contributes to the high costs of health care[7-9]. It is likely that these problems will be increased

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in the future. Identification and mitigation of the factors that affect an unnecessarily prolonged length of stay were important, because some factors could be prevented and managed by improving quality of health care system and ancillary services. There were, however, a few studies, which reported the reasons and predictive factors of inappropriate hospital days in a tertiary care center[3,10-15].

This retrospective study aimed to evaluate the prevalence, causes, predictive factors, prognosis, and cost of prolonged hospitalization for 7 days or more in the general internal medicine wards of Siriraj Hospital. This information may be useful in developing possible interventions to improve the caring system for hospitalized patients, which lead to a decrease in unnecessary days of hospitalization and reduce risks of in-patient complications.

Material and Method

Methods

Retrospective chart review study was conducted among patients who admitted for 7 days or more in general internal medicine wards of Siriraj Hospital. The period of this study was 1 August 2012 to 30 September 2012 and patients were followed until discharged. Patients transferred from other wards of Siriraj Hospital were excluded. The patient demographic, principle diagnosis, comorbid diseases, complications, discharge status, total cost of admission, percentage of reimbursement, and re-admission rate within 30 days were collected and the causes of prolonged hospitalization at day 7, 14, 30, and 90 were assessed.

Statistical analysis

Mean, standard deviation, median and range were used to summarize continuous variables, whereas categorical variables were expressed as numbers and percentage. Pearson Chi-square test was used for categorical variables. Independent sample t-test was used for continuous variables. All statistical analyses were performed with the use of PASW Statistics 18.0. For all analyses, a p-value of less than 0.05 was considered statistically significant.

Results

The total number of the patients discharged in general internal medicine wards of Siriraj Hospital during 1 August 2012 to 30 September 2012 was 832 patients. Five hundred and sixty-two patients (67.5 %) admitted for 7 days or more were enrolled. Their charts were retrospectively reviewed. Demographic data of these patients were evaluated. The patients admitted for 7 days or more had an average age of 62.9±18.5 years. Two hundred and sixty-six patients (47.3%) were male. The average length of stay was 25.9 days (ranging from 7-610 days). The percentage of respiratory failure was 29.2. The percentage of palliative care goal at admission was 27.6. The mortality rate was 21.2, 27.5, 38.5, and 55.0 percent in the patients admitted for 7, 14, 30, and 90 days or more, respectively, as shown in Table 1. The poorest outcome was shown in patients who admitted for 90 days or more. The percentage of death, bedridden, and readmission were 55.0, 40.0, and 22.0, respectively. Palliative care was the only goal of treatment in 80% in this group. Two hundred and sixty patients (46.3%) were admitted between 7 to 14 days and 183 patients (32.6%) were admitted between 15 to 30 days. A large number of the patients (21.1%) were hospitalized more than 30 days as shown in Table 2.

The common co-morbidities were hypertension, diabetes mellitus, chronic kidney disease, cerebrovascular disease, and coronary artery disease, as shown in Table 3. The most common hospital

Table 1. Comparison of the demographic data between the groups

Admission duration	≥7 days	≥14 days	≥30 days	≥90 days
N	562	327	130	20
% prolonged admission*	67.5	39.3	15.6	2.4
Gender: male (%)	266 (47.3)	160 (48.9)	66 (50.8)	12 (60.0)
Age (years) (mean ± SD)	62.9±18.5	64.1±18.3	70.2±16.4	77.2±10.5
Average length of stay (days) (mean ± SD)	25.9±36.9	37.5±44.9	65.1±61.5	159.9±113.9
Goal of palliative care at admission (%)	155 (27.6)	112 (34.3)	60 (46.2)	16 (80.0)
Respiratory failure (%)	164 (29.2)	127 (38.8)	76 (58.5)	14 (70.0)
Death (%)	119 (21.2)	90 (27.5)	50 (38.5)	11 (55.0)

* Total amount of the patients who discharged from 1 August 2012-30 September 2012 were 832 patients

acquired complications were pneumonia, sepsis, and urinary tract infection (20.5, 13.9, and 11.4 percent, respectively).

The causes of prolonged hospitalization for 7, 14, 30, and 90 days or more are reported in Table 4. The common causes of prolonged admission at day 7 were treatment of main diagnosed disease with stable condition (27.6%), waiting for completion of intravenous antibiotics administration with stable condition (19.5%), and unstable condition from principle disease (16.7%). The causes of prolonged hospitalization at day 14 days were unstable condition from complications (22.6%), waiting for completion of intravenous antibiotics administration with stable condition (15.8%), and waiting during treatment of main diagnosed disease with stable condition (12.9%). The causes of prolonged admission at day 30 were unstable condition from complications (25.6%), difficult weaning or ventilator dependence (17.6%), and caregiver problems (15.2%). The causes of prolonged hospitalization at day 90 were unstable condition from complications (30.0%), caregiver problems (30.0%), and palliative care (25.0%).

Discharge status of the patients admitted for 7 days or more, such as death, bedridden, improved with self-care, and referral were 21.2, 14.6, 61.4, and 2.8 percent, respectively. However, discharge status of the patients admitted for 90 days or more were improved with self-care at only 5 percent with high rate of death and being bedridden (55.0% and 40.0%) as shown in Table 5. The longer duration of admission had more complications (respiratory failure, hospital acquired infection), high mortality rate and poor outcomes. After exclusion of non-surviving patients, readmission rate within 30 days of discharge were 8.8, 9.7, 16.3, and 22.2 percent, respectively, in the patients admitted for 7, 14, 30, and 90 days or more, as shown in Table 6. Comparison between the survival and non-survival groups indicated the average age were 60.6 and 71.4 years, respectively ($p<0.001$). Average length of stay

Table 2. Length of stay

Length of stay (days)	n = 562 (%)
7-14	260 (46.3)
15-30	183 (32.6)
31-60	75 (13.3)
61-90	25 (4.4)
91-120	8 (1.4)
121-180	9 (1.6)
>180 (275, 610)	2 (0.4)

Table 3. Comorbid diseases

Comorbid diseases	n = 562
Hypertension (%)	308 (54.8)
Diabetes mellitus (%)	182 (32.4)
Chronic kidney disease (%)	115 (20.5)
Cerebrovascular disease (%)	94 (16.7)
Coronary artery disease (%)	79 (14.1)
Cirrhosis (%)	36 (6.4)
Chronic obstructive pulmonary disease (%)	33 (5.9)

Table 4. Comparison of the causes of prolonged hospitalization between the groups

Causes	Day 7 (n = 478)	Day 14 (n = 279)	Day 30 (n = 125)	Day 90 (n = 20)
Treatment of main diagnosed disease with stable condition (%)	132 (27.6)	36 (12.9)	3 (2.4)	0
Unstable condition from principle disease (%)	80 (16.7)	29 (10.4)	8 (6.4)	0
Unstable condition from complications (%)	40 (8.4)	63 (22.6)	32 (25.6)	6 (30.0)
Intravenous antibiotics (%)	93 (19.5)	44 (15.8)	7 (5.6)	0
Palliative/supportive care (%)	15 (3.1)	17 (6.1)	14 (11.2)	5 (25.0)
Weaning or ventilator dependence (%)	20 (4.2)	16 (5.7)	22 (17.6)	3 (15.0)
During work up/uncertain diagnosis (%)	10 (2.1)	4 (1.4)	1 (0.8)	0
Waiting for investigations (laboratory, pathology, imaging) (%)	53 (11.1)	16 (5.7)	1 (0.8)	0
Waiting for consultation (%)	9 (1.9)	21 (7.5)	9 (7.2)	0
Rehabilitation (%)	1 (0.2)	2 (0.7)	0	0
Caregiver problems (%)	11 (2.3)	16 (5.7)	19 (15.2)	6 (30.0)
Others (%)	14 (2.9)	15 (5.4)	9 (7.2)	0

were 21.4 and 42.6 days, respectively (p<0.001). Hypertension, chronic kidney disease, cerebrovascular disease, and chronic obstructive pulmonary disease were significant predictive factors in determining survival or death (Odds ratio = 1.6, 1.9, 2.0, and 3.0, respectively). Respiratory failure during hospitalization was the strongest predictive factor of death (Odds ratio = 7.5, p<0.001) as shown in Table 7.

The percentage of Medical welfare of these patients admitted for 7 days or more such as Civil Servants' Medical Benefit Scheme (CSMBS), Universal Coverage Scheme (UC), Social Security Scheme (SSS), payment by themselves, and others were 42.3, 42.3, 6.0, 4.8, and 4.4, respectively. Whereas the majority of the patients admitted for 30 days and 90 days or more were CSMBS. The data were described and compared between the groups by average age, length of stay, cost of admission, percentage of reimbursement, and mortality rate as shown in Table 8. In a comparison between the Medical welfare groups, the CSMBS group had longer duration of admission such as average length of stay for 32.5 days whereas UC group had an

Table 5. Comparison of discharge status between the groups

Discharge status	≥7 days (n = 562)	≥14 days (n = 327)	≥30 days (n = 130)	≥90 days (n = 20)
Death (%)	119 (21.2)	90 (27.5)	50 (38.5)	11 (55.0)
Bedridden (%)	82 (14.6)	66 (20.2)	41 (31.5)	8 (40.0)
Improved (%)	345 (61.4)	161 (49.2)	35 (26.9)	1 (5.0)
Refer (%)	16 (2.8)	10 (3.1)	4 (3.1)	0

Table 6. Comparison of readmission within 30 days after discharge between the groups

Readmission	≥7 days	Exclude death	≥14 days	Exclude death	≥30 days	Exclude death	≥90 days	Exclude death
Total n	562	443	327	237	130	80	20	9
Death (%)	119 (21.2)		90 (27.5)		50 (38.5)		11 (55.0)	
Readmission (%)	39 (6.9)	39 (8.8)	23 (7.0)	23 (9.7)	13 (10.0)	13 (16.3)	2 (10.0)	2 (22.2)
None (%)	404 (71.9)	404 (91.2)	214 (65.5)	214 (90.3)	67 (51.5)	67 (83.7)	7 (35)	7 (77.8)

Table 7. Predictive factors for survival

Factors	Survival	Death	p-value	Odds ratio	95% CI
N (%)	443 (78.8)	119 (21.2)			
Age (years)	60.6±18.4	71.4±16.2	<0.001**		
Male gender (%)	213 (48.1)	53 (44.5)	0.472	1.2	0.77-1.73
Length of stay (days)	21.4±20.9	42.6±66.9	<0.001**		
Diabetes mellitus (%)	141 (31.8)	41 (34.5)	0.295	1.1	0.73-1.73
Hypertension (%)	232 (52.4)	76 (63.9)	0.025*	1.6	1.06-2.44
Chronic kidney disease (%)	80 (18.1)	35 (29.4)	0.006*	1.9	1.19-3.00
Coronary artery disease (%)	56 (12.6)	23 (19.3)	0.062	1.7	0.97-2.83
Cerebrovascular disease (%)	64 (14.4)	30 (25.2)	0.005*	2.0	1.22-3.26
Chronic obstructive pulmonary disease (%)	19 (4.3)	14 (11.8)	0.002*	3.0	1.44-6.13
Cirrhosis (%)	29 (6.5)	7 (5.9)	0.069	0.9	0.38-2.09
Respiratory failure at admission (%)	65 (14.7)	45 (37.8)	<0.001*	3.5	2.25-5.57
Respiratory failure during hospitalization (%)	87 (19.6)	77 (64.7)	<0.001*	7.5	4.82-11.68

95% CI = 95% confidence interval; * Pearson Chi-square test; ** Independent sample t-test

Table 8. Comparison of average age, length of stay, mortality rate, cost, and the percentage of reimbursement between the medical welfare groups

Medical welfare	≥7 days (n = 562)	≥14 days (n = 327)	≥30 days (n = 130)	≥90 days (n = 20)	Age (years)	LOS (days)	Death (%)	Average cost (THB)	Reimbursement (%)
CSMBS n = 238 (42%)	238 (42.3)	154 (47.1)	75 (57.7)	15 (75.0)	73.2±13.4	32.5±50.7	70 (29.4)	219,206±358,631	85
SSS Siriraj n = 20 (3.6%) SSS other n = 14 (2.5%)	34 (6.0)	20 (6.1)	9 (6.9)	1 (5.0)	51.2±11.7	24.3±21.4	7 (20.6)	178,383± 204,340	92
UC Siriraj n = 78 (13.9%) UC refer n = 95 (16.9%) UC emergency n = 65 (11.6%)	238 (42.3)	126 (38.5)	36 (27.7)	2 (10.0)	55.7±18.4	19.7±17.6	34 (14.3)	114,240±149,183	53
Education n = 3 (0.5%) Disability n = 16 (2.8%) Social welfare n = 3 (0.5%) Others n = 3 (0.5%)	25 (4.4)	14 (4.3)	7 (5.4)	1 (5.0)	50.6±18.8	27.6±32.3	3 (12.0)	151,529±189,090	64
Payment n = 27 (4.8%)	27 (4.8)	13 (4.0)	3 (2.3)	1 (5.0)	61.7±20.4	22.0±28.9	5 (18.5)	108,768±116,001	82

CSMBS = civil servants' medical benefit scheme; SSS = social security scheme; UC = universal coverage scheme; LOS = length of stay

average length of stay of 19.7 days. The average cost of admission was highest in the CSMBS group; however, the percentage of reimbursement was lowest in UC group, only 53 percent. In a comparison among the Medical welfare groups, the mortality rate were highest in CSMBS group (29.4%). In Universal Coverage Scheme, UC Siriraj was lower in average length of stay and average cost per one patient and higher in percentage of reimbursement compared with UC refer and UC emergency of other hospitals as shown in Table 9.

The total cost of prolonged hospitalization for 7 days or more in general internal medicine wards of Siriraj Hospital from 1 August 2012-30 September 2012 was 92,094,700 THB with the average cost of admission per patient was 163,870 THB. The percentage of reimbursement was only 72. For total cost of admission in these two months, Siriraj Hospital lost about 26 million THB for the patients admitted for 7 days or more with nearly half of these cost spent on patients admitted for 90 days or more. The average cost of admission per patient in the latter group was 1,073,004 THB, as shown in Table 10.

Discussion

In 2005, there was a research conducted in an Urban tertiary care university-affiliated teaching hospital[11]. The present study showed that 13.5% of hospital days was unnecessary for acute inpatient care (which occurred because of delay in ancillary services). Sixty-three percent of these unnecessary days was due to non-medical service delay and 37% was due to medical service delays. Delay in the care of hospitalized patients may lead to increased length of stay, iatrogenic complications, and cost.

From the present study in general internal medicine wards of Siriraj Hospital, the largest tertiary care center and medical school in Thailand, the number of the patients admitted for 7 days or more was 67.5% of all the in-patient. The outcomes of treatment were poor in these patients. The mortality rate was 21.2 percent in the patients admitted for 7 days or more and the rate increased according to the length of stay as shown in Table 1. The majority of co-morbid diseases were cardiovascular and metabolic diseases such as hypertension, diabetes mellitus, chronic kidney disease, cerebrovascular disease, and coronary artery disease as shown in Table 3. These conditions were chronic diseases and might lead to multiple long-term complications. The most common causes of prolonged hospitalization at day 7 were treatment of main diagnosed disease with stable condition (27.6%) and waiting for completion of intravenous antibiotics administration with stable condition (19.5%), and unstable condition from principle disease (16.7%). The causes of prolonged admission at day 14, 30, and 90 were preventable, such as unstable condition from complications, difficult weaning or ventilator

Table 9. Comparison of average length of stay, cost, and the percentage of reimbursement between the universal coverage scheme groups

Universal coverage scheme	Average LOS (days)	Average cost per patient (THB)	Reimbursement (%)
UC Siriraj (n = 78)	18.2±14.2	99,239±113,155	59
UC refer (n = 65)	22.1±22.5	130,643±186,208	52
UC emergency (n = 95)	17.8±12.1	108,270±123,993	49

UC = universal coverage scheme; LOS = length of stay

Table 10. Total cost, percentage of reimbursement, and profit and loss of the patients admitted for 7 days or more

Duration of admission	n	Average cost per patient (THB)	Total cost (THB)	Reimbursement (%)	Profit and loss (THB)
≥7 days	562	163,870±265,962	92,094,700	72	-26,246,989
≥14 days	327	241,237±323,603	78,884,594	62	-29,976,146
≥30 days	130	436,042±432,707	56,685,395	59	-23,241,012
≥90 days	20	1,073,004±771,296	21,460,089	45	-11,803,049

dependence, waiting for completion of intravenous antibiotics administration with stable condition, caregiver problems, and palliative care, which could be better managed by improvement in the quality of the health care system, with the cooperation of a multidisciplinary team (Table 4).

Discharge status of the patients admitted for 90 days or more included a very high rate of death and remaining bedridden with poor quality of life (Table 5). The longer duration of admission had higher complications, mortality rate, poor outcomes, and re-admission rate (Table 6). Respiratory failure was the strongest predictive factor of death (Odds ratio = 7.5, $p<0.001$) as shown in Table 7. Thus, prevention of hospital acquired pneumonia and early intensive weaning were necessary.

Additionally, longer duration of admission led to lower rate of reimbursement. The average cost of admission were highest in the CSMBS group; however, the percentage of reimbursement was lowest in the UC group as shown in Table 8. In Universal Coverage Scheme, UC Siriraj was lower on average length of stay and average cost per patient and higher in percentage of reimbursement compared with UC referral and UC emergency of other hospitals, as shown in Table 9. Therefore, good admission processes and a referral system were necessary.

The total cost of prolonged hospitalization for 7 days or more within two months of the present study was 92,094,700 THB with the average cost of admission per patient being 163,870 THB. The percentage of reimbursement was only 72. Siriraj Hospital lost about 13 million THB per month for patients admitted for 7 days or more as shown in Table 10. Therefore, a better hospital system management for decreasing the length of stay could prevent the in-patient's complications, reduce the loss of money for the hospital, and improve the quality of life of the patients. The following information and procedures, which proved useful in developing interventions to improve the hospitalization process and avoid delay in discharge, is provided along with suggestions:

1) Prevent complications as early as possible because the most common causes of admission for 14 days or more was unstable condition from complications, especially from sepsis, ventilator associated or hospital acquired pneumonia, and urinary tract infection. Therefore, promotion of an infectious control system for all health care personnel was necessary.

2) Encourage the team for out-patient parenteral antimicrobial therapy (OPAT) system to decrease the length of stay for the reason of waiting for completion of intravenous antibiotics administration, which was the second most common problem that caused prolonged admission for 7 and 14 days or more (19.5% and 15.8%, respectively) as shown in Table 4.

3) Reconstruct intermediate wards for the patients who wait for caregivers or need only physical rehabilitation.

4) Educate proper antibiotic use for reducing drug resistance stains microorganisms.

5) Setting up a pulmonologist consultation team for preparing a weaning system for the patient who is on ventilator more than 3 days, with stable condition, to decrease duration using ventilator and reduce incidence of ventilator dependent patients; and improve the quality of life of the patients.

6) Improve the interdepartmental consultation system with other departments such as surgery or ENT for tracheostomy, radiology to decrease investigation waiting time (ultrasonography, computed tomography, and magnetic resonance imaging). This is because 11.1 percent of the patients admitted for 7 days or more had long hospital stay due to delay in medical care including test performance, test interpretation, procedures, and consultations, as shown in Table 4.

7) Improve referral system for continuity of care at primary or secondary care centers for the long term after the serious condition was treated until stable.

8) Improve the caregiver training system to empower them to care for the patients and decrease unnecessary inpatient-days.

9) Promote health education, prevention, and cost effectiveness analysis in both medical students and residency training programs.

10) Set up effective discharge planning system with multidisciplinary team.

11) Establish a palliative care team for the patients with end-stage diseases and encouraged residents and staffs to learn about the palliative care and end of life care programs.

Conclusion

Prolonged hospitalization and unnecessary inpatient-days may needlessly increase the exposure of patients to iatrogenic infections and other complications, as well as decrease economic efficiency by increasing high cost of treatment and achieving only a low reimbursement ratio. This caused the hospital to lose large amount of money. Many causes of

prolonged admission must be prevented and managed by improving quality of the multidisciplinary health care system and ancillary services. Future work is needed to develop and evaluate the effectiveness of these interventions to decrease delay in discharge and prolonged admission.

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Potential conflicts of interest

None.

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สาเหตุของการนอนโรงพยาบาลนานในหอผู้ป่วยสามัญอายุรศาสตร์ของโรงพยาบาลระดับตติยภูมิ

ดารัตน์ เรืองเกรียงสิน, พจมาน พิศาลประภา

ภูมิหลัง: การนอนโรงพยาบาลนานโดยไม่จำเป็นอาจจะนำไปสู่ภาวะแทรกซ้อนและค่าใช้จ่ายที่มากขึ้นโดยเฉพาะในโรงพยาบาลระดับตติยภูมิ การศึกษาเกี่ยวกับสาเหตุของการนอนโรงพยาบาลนานยังมีจำกัดและบางสาเหตุอาจป้องกันและทำให้ดีขึ้นได้

วัตถุประสงค์: เพื่อศึกษาความชุก, สาเหตุ, ปัจจัยเสี่ยง, การพยากรณ์โรคและผลกระทบทางเศรษฐศาสตร์ของผู้ป่วยที่นอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 7 วัน ในหอผู้ป่วยสามัญ แผนกอายุรศาสตร์ของโรงพยาบาลระดับตติยภูมิ

วัสดุและวิธีการ: เป็นการศึกษาแบบย้อนหลังโดยทบทวนเวชระเบียนของผู้ป่วยทุกคนที่นอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 7 วัน ในหอผู้ป่วยสามัญ ภาควิชาอายุรศาสตร์ โรงพยาบาลศิริราช ซึ่งเป็นโรงพยาบาลระดับตติยภูมิที่มีขนาดใหญ่ที่สุดในประเทศไทย ระหว่างวันที่ 1 สิงหาคม พ.ศ. 2555 ถึง 30 กันยายน พ.ศ. 2555 โดยเก็บข้อมูลพื้นฐาน, การวินิจฉัยหลัก, โรคร่วม, ภาวะแทรกซ้อน, สถานะการจำหน่ายผู้ป่วย, ต้นทุนค่าใช้จ่ายในการนอนโรงพยาบาลทั้งหมด และร้อยละของการเบิกเงินคืนจากกองทุนต้นสังกัดต่างๆ ตามสิทธิการรักษา รวมถึงวิเคราะห์สาเหตุของการนอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 7, 14, 30 และ 90 วัน

ผลการศึกษา: จากการศึกษาข้อมูลของผู้ป่วยทั้งหมด 562 ราย ระยะเวลานอนโรงพยาบาลเฉลี่ยเท่ากับ 25.9 วัน สาเหตุของการนอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 7 วัน ที่พบมากที่สุด 2 อันดับแรก ได้แก่ อยู่ระหว่างการรักษาโรคหลักโดยอาการทั่วไปคงที่ (ร้อยละ 27.6) และเพื่อรอฉีดยาปฏิชีวนะทางหลอดเลือดดำจนครบ (ร้อยละ 19.5) ในขณะที่สาเหตุของการนอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 14 วัน ได้แก่ ผู้ป่วยเกิดภาวะแทรกซ้อนในโรงพยาบาลโดยอาการยังไม่คงที่ (ร้อยละ 22.6) และเพื่อรอฉีดยาปฏิชีวนะทางหลอดเลือดดำจนครบ (ร้อยละ 15.8) ส่วนสาเหตุของการนอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 30 วัน ได้แก่ ผู้ป่วยเกิดภาวะแทรกซ้อนในโรงพยาบาลโดยอาการยังไม่คงที่ (ร้อยละ 25.6), ไม่สามารถถอดเครื่องช่วยหายใจได้ (ร้อยละ 17.6) และปัญหาญาติผู้ดูแลไม่พร้อม (ร้อยละ 15.2) สาเหตุของการนอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 90 วัน ได้แก่ ผู้ป่วยเกิดภาวะแทรกซ้อนในโรงพยาบาลโดยอาการยังไม่คงที่ (ร้อยละ 30.0), ปัญหาญาติผู้ดูแลไม่พร้อม (ร้อยละ 30.0) และเพื่อการรักษาแบบประคับประคองในผู้ป่วยระยะท้าย (ร้อยละ 25.0) และพบว่าผู้ป่วยที่นอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 90 วัน มีผลลัพท์ของการรักษาที่ไม่ดี โดยพบอัตราการเสียชีวิต, การช่วยเหลือตนเองไม่ได้ และการกลับมานอนโรงพยาบาลซ้ำสูงถึงร้อยละ 55, 40 และ 22 ตามลำดับ และเป้าหมายในการรักษาผู้ป่วยกลุ่มนี้ทำได้เพียงแค่การรักษาแบบประคับประคองถึงร้อยละ 80 การมีภาวะระบบหายใจล้มเหลวขณะนอนโรงพยาบาลเป็นปัจจัยที่สำคัญที่สุดในการทำนายการเสียชีวิต (Odds ratio = 7.5, $p<0.001$) ต้นทุนค่าใช้จ่ายเฉลี่ยของการนอนโรงพยาบาลเท่ากับ 163,870 บาทต่อคน แต่สามารถเบิกค่าใช้จ่ายคืนได้ตามสิทธิการรักษาเพียงร้อยละ 72 เท่านั้น เมื่อรวมต้นทุนค่าใช้จ่ายของการนอนโรงพยาบาลทั้งหมดในช่วง 2 เดือนที่ทำการศึกษา พบว่าโรงพยาบาลศิริราชขาดทุนประมาณ 26 ล้านบาท สำหรับผู้ป่วยที่นอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 7 วัน และเกือบครึ่งหนึ่งสูญเสียไปกับผู้ป่วยที่นอนโรงพยาบาลนานมากกว่าหรือเท่ากับ 90 วัน โดยค่าเฉลี่ยของต้นทุนค่าใช้จ่ายในการนอนโรงพยาบาลของผู้ป่วยกลุ่มนี้สูงถึง 1,073,004 บาทต่อคน

สรุป: เนื่องจากการนอนโรงพยาบาลนานก่อให้เกิดผลเสียทั้งต่อผู้ป่วยและโรงพยาบาล เช่น ภาวะแทรกซ้อนสูงขึ้น, ผลลัพท์ของการรักษาไม่ดี,

ต้นทุนค่าใช้จ่ายเพิ่มขึ้นและอัตราการเบิกเงินคืนได้ตามสิทธิเป็นสัดส่วนที่ลดลง ส่งผลให้เกิดปัญหาที่สำคัญมากทางเศรษฐศาสตร์ของโรงพยาบาล อีกทั้งยังมีหลายสาเหตุของการนอนโรงพยาบาลนานที่อาจป้องกันและบริหารจัดการโดยพัฒนาระบบสุขภาพให้ดีขึ้นได้ แต่ต้องอาศัยความร่วมมือจากสหสาขาวิชาชีพ