

表4.疾患別・期間別：1日あたり医療費(単位:千円)

疾患		死亡前の期間			
		3日間	4-7日	8-14日	15-30日
悪性腫瘍	N	5364	4987	4564	3814
	1日あたり医療費	38	37	36	35
心疾患	N	783	346	273	201
	1日あたり医療費	170	147	114	98
感染症	N	750	602	510	415
	1日あたり医療費	89	76	71	65
肺炎	N	1754	1534	1308	1048
	1日あたり医療費	46	44	41	38
糖尿病・代謝異常	N	155	130	120	105
	1日あたり医療費	48	35	34	32
脳卒中	N	1163	765	563	410
	1日あたり医療費	72	57	53	46
大血管疾患	N	228	149	128	94
	1日あたり医療費	286	154	118	105
肝疾患	N	362	323	283	231
	1日あたり医療費	45	39	37	37
急性腹症	N	349	261	229	181
	1日あたり医療費	93	66	65	52
心不全†	N	635	549	474	384
	1日あたり医療費	63	52	50	47
慢性腎不全	N	270	243	220	179
	1日あたり医療費	56	50	48	49
DIC‡	N	227	200	167	123
	1日あたり医療費	93	94	89	68
外傷	N	260	165	129	93
	1日あたり医療費	127	77	57	52

1日あたり医療費は各期間における医療費の合計を患者・日で除した値である。

†心疾患：心不全をのぞく

‡DIC：播種性血管内凝固症候群

表5. 疾患別：死亡前1日あたり医療費(単位:千円)の推移

疾患名	死亡前3日間	死亡前4-7日		死亡前8-14日		死亡前15-30日		O/E比		
		参照値	実測値	参照値	実測値	参照値	実測値	死亡前4-7日	死亡前8-14日	死亡前15-30日
悪性腫瘍	N 5364	4950	38	4456	38	3649	36	1.05	1.06	1.06
1日あたり医療費	38	36	38	35	38	36	36	1.05	1.06	1.06
心疾患†	N 783	339	182	264	137	188	93	1.42	1.27	1.72
1日あたり医療費	170	128	182	108	137	170	93	1.42	1.27	1.72
感染症	N 750	600	80	501	81	400	63	1.08	1.20	1.16
1日あたり医療費	89	74	80	67	81	89	63	1.08	1.20	1.16
肺炎	N 1754	1524	47	1288	45	1017	37	1.12	1.14	1.14
1日あたり医療費	46	42	47	39	45	46	37	1.12	1.14	1.14
糖尿病・代謝異常	N 155	130	37	119	36	101	28	1.18	1.21	1.22
1日あたり医療費	48	32	37	30	36	48	28	1.18	1.21	1.22
脳卒中	N 1163	757	70	552	75	401	37	1.45	1.79	2.24
1日あたり医療費	72	48	70	42	75	72	37	1.45	1.79	2.24
大血管疾患	N 228	148	166	126	178	91	93	1.00	1.31	2.04
1日あたり医療費	286	166	166	136	178	286	93	1.00	1.31	2.04
肝疾患	N 362	319	41	272	41	214	35	1.09	1.16	1.25
1日あたり医療費	45	37	41	35	41	45	35	1.09	1.16	1.25
急性腹症	N 349	257	74	224	79	169	46	1.23	1.51	1.54
1日あたり医療費	93	60	74	52	79	93	46	1.23	1.51	1.54
心不全	N 635	541	55	465	55	365	42	1.11	1.20	1.25
1日あたり医療費	63	50	55	46	55	63	42	1.11	1.20	1.25
慢性腎不全	N 270	243	50	220	50	177	46	1.02	1.06	1.26
1日あたり医療費	56	49	50	47	50	56	46	1.02	1.06	1.26
DIC‡	N 227	200	108	165	99	119	63	1.37	1.36	1.27
1日あたり医療費	93	79	108	73	99	93	63	1.37	1.36	1.27
外傷	N 260	165	99	128	67	92	42	1.50	1.45	1.57
1日あたり医療費	127	66	99	46	67	127	42	1.50	1.45	1.57

†心疾患：心不全をのぞく
‡DIC：播種性血管内凝固症候群

表6. 疾患別：死亡前の集中治療(ICU)・人工呼吸・心肺蘇生の実施状況

疾患	死亡当日			死亡前2-3日			死亡前4-7日			死亡前8-14日			死亡前15-30日		
	ICU	人工呼吸	心肺蘇生	ICU	人工呼吸	心肺蘇生	ICU	人工呼吸	心肺蘇生	ICU	人工呼吸	心肺蘇生	ICU	人工呼吸	心肺蘇生
悪性腫瘍	0.9%	6.6%	4.5%	0.7%	3.5%	0.5%	0.8%	2.3%	0.1%	0.9%	2.3%	0.1%	1.3%	2.3%	0.9%
心疾患†	17%	57%	42%	18%	44%	16%	18%	35%	7.2%	18%	35%	6.9%	22%	36%	17%
感染症	8.1%	29%	12%	7.7%	23%	3.0%	7.7%	18%	0.7%	11%	18%	1.4%	13%	19%	8.1%
肺炎	2.4%	23%	9.3%	2.5%	17.1%	1.1%	2.3%	16%	0.5%	3.1%	15%	0.8%	3.7%	13%	2.4%
糖尿病・代謝異常	2.0%	17%	15%	2.1%	6.2%	0.7%	1.6%	3.9%	0.8%	1.7%	3.4%	0.8%	4.9%	3.9%	2.0%
脳卒中	5.0%	28%	8.6%	5.4%	23%	2.9%	6.1%	18%	0.9%	5.4%	14%	0.8%	5.8%	12%	5.0%
大血管疾患	20%	40%	22%	21%	26%	3.3%	14%	22%	0.0%	16.4%	21%	0.8%	20%	23%	20%
肝疾患	2.0%	12%	6.5%	2.4%	8.0%	0.9%	1.9%	5.4%	0.6%	2.5%	5.4%	0.7%	3.6%	5.8%	2.0%
急性腹症	7.1%	28%	13%	6.7%	16%	1.0%	6.8%	16%	0.8%	7.8%	17%	0.9%	7.0%	14%	7.1%
心不全	6.8%	25%	17%	4.9%	15%	3.0%	4.8%	12%	0.8%	6.7%	14%	0.9%	8.0%	15%	6.8%
慢性腎不全	5.7%	25%	19%	3.6%	15%	2.0%	3.8%	11%	0.8%	5.6%	11%	2.3%	5.2%	9.8%	5.7%
DIC‡	8.2%	26%	8.7%	8.8%	21%	1.0%	9.9%	19%	0.5%	12.7%	17%	0.7%	15%	15%	8.2%
外傷	6.6%	30%	14%	5.1%	21%	2.3%	3.9%	17%	0.6%	5.0%	15%	0.0%	4.5%	16%	6.6%
全症例	4.3%	20%	11%	3.7%	13%	2.3%	3.2%	10%	0.7%	3.6%	9.4%	0.7%	4.2%	8.8%	4.3%

†心疾患：心不全をのぞく
‡DIC：播種性血管内凝固症候群

表7. 疾患別：死亡前の集中治療(ICU)利用・人工呼吸実施の推移

疾患	入院期間	症例数	ICU 利用				人工呼吸実施							
			死亡当日 利用率(%)	死亡前 2～3日	死亡前 4～7日	死亡前 8～14日	死亡前 15～30日	死亡当日 実施率(%)	死亡前 2～3日	死亡前 4～7日	死亡前 8～14日	死亡前 15～30日		
全症例	3日以内	1,408	10%	0.99						29%	0.84†			
	4～7日	1,346	5.9%	1.08	1.05					22%	0.68†	0.55†		
	8～14日	1,734	5.8%	0.96	1.07	1.09				17%	0.76	0.68†	0.59†	
	15日以上	7,403	1.4%	1.10	1.41†	2.08†	2.99†			14%	0.69†	0.61†	0.60†	0.58†
悪性腫瘍	3日以内	272	5.1%	0.60						7.5%	0.62†			
	4～7日	202	5.4%	1.00	0.50					4.7%	0.60†	0.10†		
	8～14日	153	6.5%	1.00	1.43†	0.57†				5.1%	0.34†	0.26†	0.16†	
	15日以上	411	1.5%	0.86	0.86	1.31	1.79†			6.6%	0.56†	0.40†	0.38†	0.34†
心血管疾患	3日以内	242	24%	0.97						46%	0.96			
	4～7日	167	16%	1.04	1.00					37%	0.59†	0.39†		
	8～14日	193	18%	0.91	1.00	0.83				33%	0.83	0.72†	0.61†	
	15日以上	664	4.8%	1.19	1.41†	2.03†	2.75†			27%	0.80†	0.75†	0.76†	0.77†
脳卒中	3日以内	272	5.1%	1.43						27%	1.03			
	4～7日	202	5.4%	1.09	2.09†					30%	0.82	0.84		
	8～14日	153	6.5%	1.30	1.40	1.90†				27%	0.86	0.81	0.71†	
	15～30日	411	1.5%	1.00	1.00	2.00†	4.17†			20%	0.67†	0.53†	0.54†	0.58†
肺炎	3日以内	171	7.0%	0.92						26%	0.68†			
	4～7日	226	2.7%	1.33	1.33					24%	0.71†	0.55†		
	8～14日	260	4.6%	1.08	1.17	1.42				22%	0.86	0.81	0.84	
	15～30日	1,048	1.0%	1.09	1.64†	2.55†	3.55†			20%	0.75†	0.71†	0.65†	0.61†

数値は、死亡当日のICU利用・人工呼吸実施を1とした場合の他の期間における利用率(実施率)と比較したときの統計学的有意確率<0.05

表8. 死亡前1入院医療費に関連する因子

疾患	非標準化 係数 (B)	標準化 係数 (β)	t	有意確率
悪性腫瘍				
在院日数	27	0.57	96.2	<0.001
年齢				
65~74 歳	-65	-0.02	-2.6	0.01
75 歳以上	-70	-0.02	-3.1	0.002
手術費	0.018	0.56	93.3	<0.001
ICU 入室	89	0.01	0.9	0.37
人工呼吸	548	0.08	12.5	<0.001
心肺蘇生	-210	-0.03	-4.1	<0.001
(定数)	100		4.8	<0.001
R2		0.84		
肺炎				
在院日数	32	0.78	64.9	<0.001
年齢				
65~74 歳	-210	-0.06	-2.7	0.01
75 歳以上	-305	-0.09	-4.4	<0.001
手術費	0.023	0.26	21.7	<0.001
ICU 入室	222	0.03	2.2	0.03
人工呼吸	346	0.12	9.1	<0.001
心肺蘇生	-226	-0.05	-4.0	<0.001
(定数)	521		7.4	<0.001
R2		0.77		
脳卒中				
在院日数	36	0.71	46.5	<0.001
年齢				
65~74 歳	17	0.00	0.1	0.89
75 歳以上	-172	-0.05	-2.8	0.005
手術費	0.011	0.46	30.4	<0.001
ICU 入室	253	0.03	2.2	0.03
人工呼吸	96	0.03	1.6	0.12
心肺蘇生	-95	-0.02	-1.2	0.22
(定数)	482		8.1	<0.001
R2		0.78		
心大血管疾患				
在院日数	31	0.40	28.8	<0.001
年齢				
65~74 歳	-42	-0.01	-0.4	0.69
75 歳以上	-269	-0.06	-3.0	0.002
手術費	0.011	0.67	49.1	<0.001
ICU 入室	-367	-0.06	-4.2	<0.001
人工呼吸	357	0.08	5.4	<0.001
心肺蘇生	-305	-0.06	-4.3	<0.001
(定数)	337		3.6	<0.001
R2		0.74		

従属変数: 診断群分類で調整した1入院あたり医療費(単位: 千円)

† 年齢： 参照値を 64 歳未満とした

‡ 病院： 診断群分類・年齢で調整した平均 1 入院医療費の O/E 比により、病院を 3 群(調整 1 入院医療費が高い病院群・中程度の病院群・低い病院群)に分けた。中程度の病院を参照値として、「調整 1 入院医療費が高い低い病院」・「高い病院」の 2 つのダミー変数を作成した。

医療費(中程度の病院)： 診断群分類と年齢で調整した平均 1 入院医療費の O/E 比の 95%信頼区間が 1 をまたぐ病院。
参照値は、平均 1 入院医療費の O/E 比の 95%信頼区間が 1 未満の病院

医療費(高い病院)： 診断群分類と年齢で調整した平均 1 入院医療費の O/E 比の 95%信頼区間が 1 を超える病院。
参照値は、平均 1 入院医療費の O/E 比の 95%信頼区間が 1 未満の病院

表9. 平均1入院医療費(診断群分類・年齢で調整)による病院のグループ分けと、各グループにおける医療費・平均在院日数・終末期診療内容の比較

項目	診断群分類と年齢で調整した平均1入院医療費				P 値
	低い病院の患者群	平均的な病院の患者群	高い病院の患者群	全症例	
悪性腫瘍					
症例数	1293 (25%)	3166 (61%)	699 (14%)	5158 (100%)	
平均在院日数(日)	32.5	38.0	48.4	38.0	<0.001
平均1入院医療費(千円)	1119	1307	1905	1339	<0.001
手術費	172	197	292	203	<0.001
薬剤費	235	319	449	316	<0.001
検査費	56	70	100	71	<0.001
死亡時のICU入室(%)	1.2%	0.6%	1.6%	0.9%	0.32
死亡時の人工呼吸(%)	7.6%	6.5%	3.9%	6.4%	0.02
心肺蘇生(%)	4.0%	5.3%	1.1%	4.4%	<0.001
肺炎					
症例数	69 (4%)	1559 (94%)	30 (2%)	1658 (100%)	
平均在院日数(日)	22.7	30.5	49.0	30.5	0.001
平均1入院医療費(千円)	693	1134	1687	1126	0.000
手術費	91	129	183	129	0.23
薬剤費	176	231	425	232	0.002
検査費	45	77	140	77	0.000
死亡時のICU入室(%)	0%	2.5%	0%	2.4%	0.28
死亡時の人工呼吸(%)	61%	52%	20%	52%	0.17
心肺蘇生(%)	12%	9.0%	20%	9.3%	0.10
脳卒中					
症例数	154 (13%)	945 (81%)	65 (6%)	1164 (100%)	
平均在院日数(日)	13.8	21.2	36.0	21.0	0.000
平均1入院医療費(千円)	698	1097	1473	1062	0.000
手術費	171	266	204	249	0.25
薬剤費	114	156	302	159	0.00
検査費	51	45	71	47	0.004
死亡時のICU入室(%)	3.0%	5.3%	6.2%	5.0%	0.32
死亡時の人工呼吸(%)	13%	32%	20%	28%	0.00
心肺蘇生(%)	5.8%	8.6%	14%	8.6%	0.15
心大血管疾患					
症例数	141 (9%)	1427 (91%)		1568 (100%)	
平均在院日数(日)	23.5	20.2		20.5	0.19
平均1入院医療費(千円)	985	1718		1652	0.00
手術費(千円)	311	761		720	0.00
薬剤費(千円)	207	260		255	0.24
検査費(千円)	67	75		74	0.45
死亡時のICU入室(%)	2%	15%		14%	0.00
死亡時の人工呼吸(%)	33%	44%		43%	0.01
心肺蘇生(%)	24%	31%		30%	0.098

診断群分類・年齢で調整した平均1入院医療費のO/E比により、病院を3群(調整1入院医療費が高い病院群・中程度の病院群・低い病院群)に分けた。

Institutional Structures and Process of Care Associated with The Length of Hospital Stay in Elderly Patients with Hip Fractures.

—Analysis of Diagnosis Procedure Combination(DPC) Data—

Introduction: Hip fractures are the most feared complication of falls. Up to 20% of people sustaining a hip fractures become nonambulatory, and only 14-21% recover their ability to carry out instrumental activities of daily living. In Japan, the incidence of hip fracture is estimated as 120,000 persons per year, and the number of elder patients with hip fractures is still increasing. The length of hospital stay (LOS) in elderly patients with hip fractures is generally long. While many studies have revealed that patient characteristics are strongly associated with longer hospitalization, little has been known about hospital structures and process of care associated with LOS. The objective of this study is to identify institutional factors and process of care associated with LOS in elderly patients with hip fractures.

Methods: We analyzed administrative data provided by 67 hospitals participating QIP (Quality Indicator / Improvement Project). The study subjects were 2,134 patients with hip fractures who were 60 years or older, underwent surgical treatment, and were discharged from the hospitals between April 2007 and March 2008. We excluded patients whose lengths of stay are over 150days. First, we conducted multiple linear regression to identify patients risk factors associated with LOS in patient level. Using this model, we calculated risk-adjusted mean LOS in each hospital. Secondly, we categorized patients into two groups according to discharge destination: home or other facilities. A multiple linear regression analysis was conducted to identify institutional factors and process of care associated with risk-adjusted mean LOS in each subgroup (discharge to home / other facilities). In this analysis, dependent variable was the risk-adjusted mean LOS of hip fracture in each hospital, and explanatory variables was surgical procedure(hip replacement / internal fixation), timing of operation(within 48 hours or later), timing of rehabilitation (within 2 days after operation or later) , frequency of rehabilitation (rehabilitation was provided in more than 80% of total LOS or less than 80%) , number of acute care beds (>400 / ≤ 400) , in-hospital patients volume per physician per year (>150 / ≤ 150) , annual case volume of physical therapist (>2000 / ≤ 2000) , number of medical social worker (MSW) per bed (more than 1 or less than) , hospital ownership (a local government hospital / private hospital / public hospital) , and presence of sub-acute care beds in the hospital.

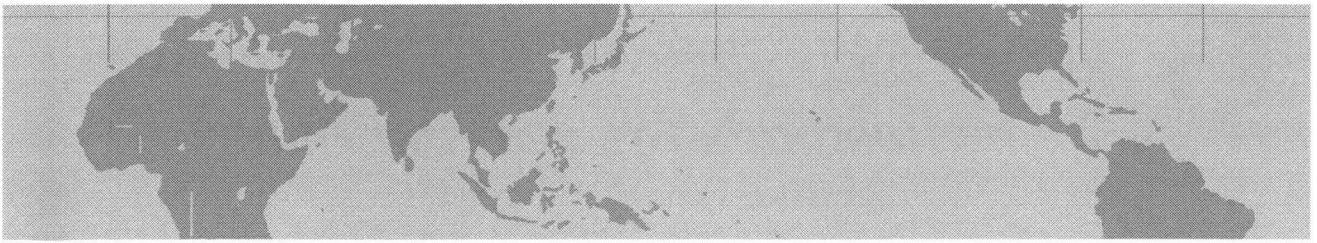
Results: In patient level analysis, age, complication, and previous hospitalization were significantly associated with LOS. The results of hospital level regression analysis are shown in table 1. In both groups (discharge to home / discharge to other facilities), timing of rehabilitation were significantly associated with LOS. On the other hand, timing of operation and frequency of rehabilitation were significant predictors of longer LOS only among patient discharged to home. In both groups, number of beds, case volume per physician and PT, hospital ownership, and the presence of sub-acute care beds in the hospital were significantly associated with LOS. Number of MSW per bed were significant predictors of shorter LOS only among patient discharge to other facilities.

Conclusion: In this study we examined institutional structures and process of care associated with LOS in elderly patients with hip fractures. It was suggested that early and intensive rehabilitation can decrease LOS of patients who were discharged to home through a rapid recovery of activity of daily life (ADL). Institutional structures, such as hospital bed size, case volume per physician / PT, number of MSW, were strong predictors of

shorter LOS. In conclusion, LOS in elderly patients with hip fractures was significantly affected by institutional structures and process of care, in addition to patient characteristics.

Table 1

Explanatory variable	Reference	Discharge to home		To other facilities	
		R2=0.426		R2=0.465	
		Estimate	P value	Estimate	P value
Intercept		39.8	<0.001	42.2	<0.001
Surgical procedure	Hip replacement	-1.4	0.01	+1.4	0.001
Timing of operation	Within 48 hours	+1.6	0.02	-0.3	0.581
Timing of rehabilitation	Within 2 days after operation	+1.6	0.009	+1.5	0.001
Frequency of rehabilitation	< 80% of total LOS	-5	<0.001		0.944
Number of bed	< 400 beds	-1.8	0.008	-4.2	<0.001
Annual inpatient volume per physician	< 150 cases	-3	<0.001	-4.6	<0.001
Annual volume per PT	< 2000 cases	-4	<0.001	-2.3	<0.001
Number of MSW per bed	< 1	-0.805	0.296	-4.5	<0.001
Hospital ownership					
Private hospital	Local government hospital	-8.4	<0.001	-2.8	<0.001
Public hospital	Local government hospital	-10.5	<0.001	-7.5	<0.001
Presence of sub-acute care wards		+9.7	<0.001	+5.2	<0.001



PCSI 25th

Institutional Structures and Process of Care Associated with the Length of Hospital Stay in Elderly Patients with Hip Fractures

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Background

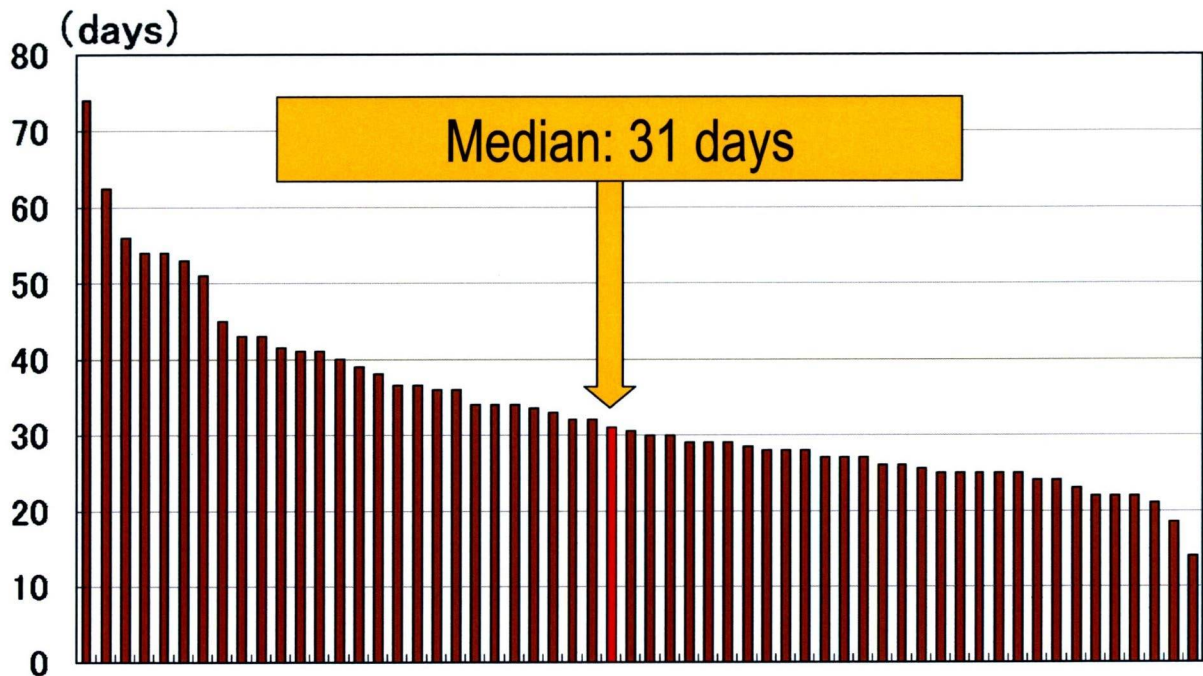
- ⊕ The length of hospital stay (LOS) of Japan is long
 - ❑ 20.2 days (Japan) vs. 5.6 days (USA)
 - ※Acute care beds; OECD Health Data (2007)

- ⊕ LOS in Japan has been reduced, but still remains long
 - ❑ Japan average 47.3 days (1987) ⇔ 39.2 days (2004)
 - ❑ 65 years or older 88.6 days (1987) ⇔ 52.1 days (2004)
 - ※OECD Health Data (2007)

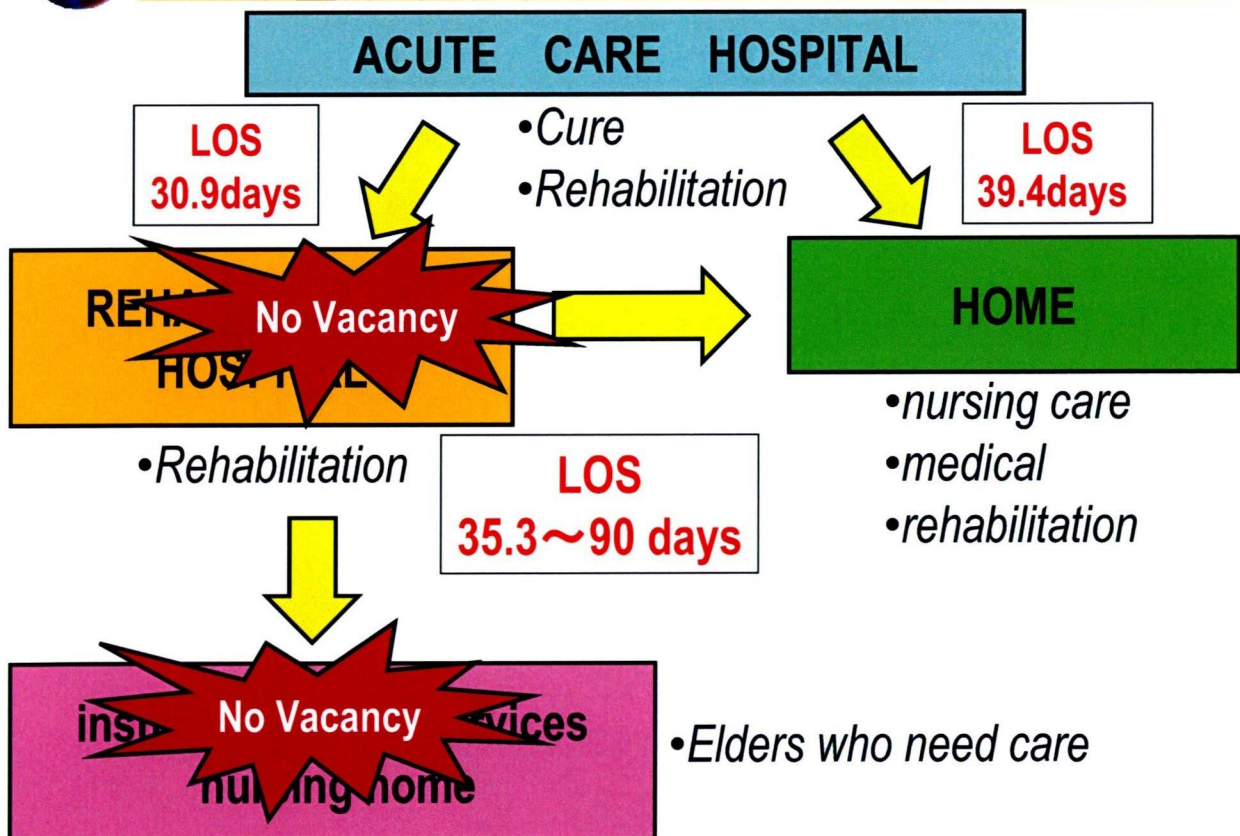
- ⊕ The incidence of hip fractures
 - ❑ About 120,000 people per year
 - ❑ About 270,000 persons in 2043 .

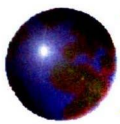


Variations in the LOS of Hip Fractures by hospitals (65 years or older)

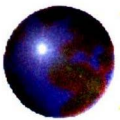
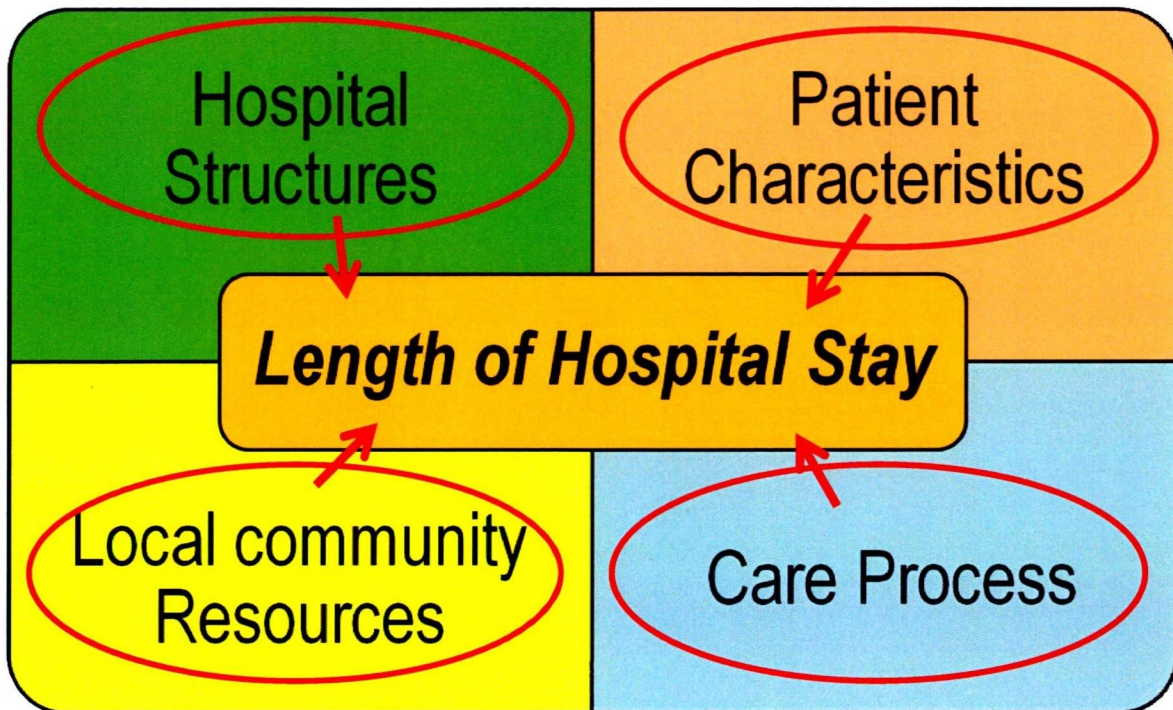


Hip Fracture Care in Japan



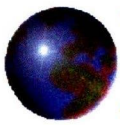


Factors associated with the length of hospital stay with hip fractures.



Study Objectives

- ✚ Identify factors associated with LOS for patients discharged to home and patients discharged to other facilities.
 - ✚ Patient characteristics
 - ✚ Care process
 - ✚ Hospital structure
- ✚ Estimate contributions of each factor by using multiple linear regression models



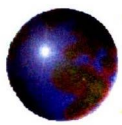
Methods



Data Sources

Database of Quality Indicator/Improvement Project (QIP) at Kyoto University Graduate School of Medicine, Department of Healthcare Economics and Quality Management.

- QIP: administrative (DPC) data submitted voluntarily by participant hospitals in Japan
- This study was approved by the institutional review board of faculty of Medicine, Kyoto University Graduate School of Medicine.



Participants

- ✚ Subjects : 2,134 patients from 67 hospitals
- ✚ Study period : From April 2007 to March 2008
- ✚ Selection criteria:
 - ① ICD-10 disease code: S72.0 (hip fracture)
 - ② Surgical code (hip replacement / internal fixation)
 - ③ Emergency admission to the hospital
 - ④ 60 years or older
 - ⑤ LOS <150 days
 - ⑥ Records of rehabilitation



Study Measures

Dependent variable	<ul style="list-style-type: none"> ▪ Total LOS (discharge to home / other facilities)
Patient characteristics	<ul style="list-style-type: none"> ▪ Age ▪ Comorbidity ▪ Dementia ▪ Previous hospitalization
Care process	<ul style="list-style-type: none"> ▪ Duration to Surgery ▪ Duration to Rehabilitation ▪ Intensity of rehabilitation
Hospital structures	<ul style="list-style-type: none"> ▪ Number of acute care beds ▪ Hospital ownership ▪ Provision of sub-acute care in the same hospital
Hospital structures (manpower)	<ul style="list-style-type: none"> ▪ Annual volume of patients per physician ▪ Annual volume of rehabilitations per physical therapist ▪ Number of medical social worker (MSW) ▪ Nurse manpower (7:1 or 10:1 for investment)



Statistical analysis

Analysis

- A multiple linear regression analysis to identify Patient characteristics , care process and hospital structure associated with LOS in each sub-group.

Model 1

*Dependent variable: LOS
(discharge to home)*

Model 2

*Dependent variable: LOS
(discharge to other facilities)*

Independent Variables : Patient characteristics variables
Care process variables
Hospital structure (manpower) variables



Results



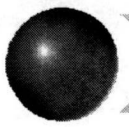
Patient characteristics and Care process

	Discharge		P value
	Home n = 1086	Other facilities n = 1048	
<i>Patient characteristics</i>			
Age	81.1 ± 8.2	82.5 ± 7.7	<0.001
Comorbidity	0.47 ± 0.9	0.56 ± 0.9	0.012
Dementia	0.04 ± 0.2	0.07 ± 0.3	0.008
Previous hospitalization	0.24 ± 0.4	0.24 ± 0.4	0.806
<i>Care process</i>			
Duration to Surgery	5.2 ± 2.9	5.4 ± 3.1	0.204
Duration to Rehabilitation	3.2 ± 6.2	2.5 ± 3.9	0.005
Intensity of rehabilitation	57.6 ± 15.8	49.8 ± 15.3	<0.001



Determinate of LOS (1/4)

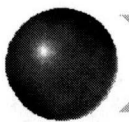
Explanatory variable	Reference	Home		Other facilities	
		B	P value	B	P value
<i>(Patient characteristics)</i>					
Age (70 ≤)	70 >	4.8	0.001	-	-
Sex (female)	man	-	-	-2.3	0.056
Comorbidity (3 <)	less than 3	15.6	<0.001	-	-
Previous hospitalization	None	-	-	2.2	0.046



Determinate of LOS (2/4)

		Home		Other facilities	
<i>(Care process)</i>					
Surgical procedure (internal fixation)	Hip replacement	-5.3	<0.001	0.0	0.977
Timing of surgery (48 hours <)	Within 48 hours	0.6	0.712	0.7	0.577
Timing of rehabilitation (2days <)	Within 2 days after operation	1.9	0.174	3.3	0.001
Intensity of rehabilitation (80% ≤)	Less than 80% of total LOS	-6.4	0.006	4.5	0.139

(continued)



Determinate of LOS (3/4)

		Home		Other facilities	
<i>(Hospital structures)</i>					
Number of acute beds (400beds ≤)	400 beds <	-5.1	<0.001	-0.00	0.993
Hospital ownership Public hospital	Private hospital	8.9	<0.001	2.3	0.109
Provision of sub-acute care beds	None	11.2	<0.001	3.5	0.006

(continued)

Determinate of LOS (4/4)

		Home		Other facilities	
<i>(Hospital structures : manpower)</i>					
Annual volume of patients per physician (150 cases \leq)	less than 150 cases	-1.4	0.363	-7.2	<0.001
Annual volume of rehabilitations per PT (200 cases \leq)	less than 200 cases	-4.3	0.003	-1.1	0.387
Number of MSW (FTE) (1 or more)	less than 1	-1.3	0.406	-5.0	<0.001
Nurse manpower (10:1)	7:1	0.8	0.093	-0.4	0.229

(continued)

R-squared

Model 1 Discharge to home	R-squared	Incremental R-squared
Patient Characteristics	.026	-
+ Care process	.079	.053
+ Hospital Structures	.200	.121

Model 2 Discharge to other facilities	R-squared	Incremental R-squared
Patient Characteristics	.008	-
+ Care process	.031	.023
+ Hospital Structures	.162	.131



Discussion



Care Process and LOS

- ⊕ Factors of care process were significantly related with the length of stay among patient discharge to home.
 - ⊠ Early surgery and early rehabilitations
 - Fast recovery of patient .
 - Prevention of functional decline and post-surgical complications.
 - ⊠ Intensive rehabilitations
 - A greater need for more ADL independence in patients discharged to home.
 - The intensiveness of rehabilitations has very importance in patients discharged to home.

Hospital structures and LOS

- ⊕ The bed numbers of the hospital was associated with LOS among patients discharged to home.
 - ⊠ Large Hospitals(5.1 days shorter) vs. Small Hospitals
 - Larger hospitals tend to concentrate on acute care
 - Smaller hospitals may have more sub-acute and chronic care patients which results in longer LOS
- ⊕ Hospital ownership was associated with LOS
 - ⊠ Private hospitals (8.9 days shorter) vs. Public hospitals
 - Private hospitals tend to be members of healthcare networks.
 - Public hospitals tend to have fewer local community resources.

Hospital structures (manpower) and LOS

- ⊕ More MSWs was associated with shorter LOS among patient discharge to other facilities.
 - ⊠ MSWs make arrangement of discharge to nursing home and rehabilitation services.
 - ⊠ Lack of nursing care facilities and rehabilitation services in the community
- ⊕ LOS was shorter for doctors and physical therapists who had more cases per year.
 - ⊠ the more cases that doctors and physical therapists had, the higher efficiency with which they work.