

# A Study on the Establishment & Functional Characteristics of Health Facilities for the Aged in Japan\*

Tae Il Kim and Tomo Hiko Yoshida

Professor, Faculty of Architecture, Cheju National University, Jeju, Korea

Assistant Professor, Institute of Policy and Planning Sciences, University of Tsukuba, Tsukuba, Japan

## Abstract

Various housing measures are needed for the rapidly aging society of Korea. In particular, the welfare policy for the elderly has changed towards the community care. Taking this fact into consideration, it is necessary to have the establishment of a system that offers the elderly appropriate welfare services at their appropriate residence (ageing in place) for the effectiveness of the community care. In this aspect, there are a number of implications to Korea to study merits and demerits of the Health Facilities for the Aged (HFA) in Japan. The society of Japan has been rapidly aging since 1970, and Korea is to face the same situation. As for the data of this study, a total of 2,393 facilities (as of November 1999) mentioned in the annual report of the Japanese Ministry of Health, Labor and Welfare were classified based on types of their establishment: (1) free-standing structures (603 facilities); (2) annexes to hospitals (981 facilities); (3) annexes to welfare facilities (511 facilities); and (4) annexes to clinics (298 facilities). Next, 239 facilities were selected through taking a sample of 10 percent from each type of the HFA mentioned above. This was done through the random sampling method with the computer program of MS EXCEL. The Implications of the results of analyses are as follows. First, most of the health facilities were planned with the scale that was larger than the scale of standard special nursing homes in terms of the total floor area. Precise equations that were to obtain precise results of the scale of the HFA and the appropriate number of residents were obtained through the method of the regression analysis. Korea and Japan have similarities in terms of culture, society and family relations; however, the two countries also have differences in terms of the application of laws on the establishment of houses, hospitals, and welfare facilities. As for planning the scale of the HFA, the realities of Korea should be considered. Second, as for the functional aspect of the HFA with a condition of returning home, the place before and after the HFA showed the pattern of 'from a residential place to a residential place' and 'from a hospital to a hospital.' This reveals a close correlation with the types of the HFAs and operational ways of the facilities. Its cause is considered to be the aspect of the operation and management of the HFA rather than the aspect of its function of providing services in association with medical and health facilities. Therefore, when intermediate welfare facilities are considered in Korea, it is strongly advised to consider the problem of annexes to other facilities and efficiency of sharing of the facilities in terms of its operation and management.

*Keywords: Health Facilities for the Aged (HFA), Community Care, Ageing in Place, Interim Annexes for the Elderly*

## 1. BACKGROUND AND PURPOSE OF STUDY

Various housing measures are needed for the rapidly aging society of Korea. In particular, the welfare policy for the elderly has changed towards the community care. Taking this fact into consideration, it is necessary to have the establishment of a system that offers the elderly appropriate welfare services at their appropriate residence for the effectiveness of the community care. There are two basic types of welfare services for the elderly. The services can be offered to the elderly at their own residence or at nursing homes.

However, because the welfare services are offered only at two types of residence, the need for intermediate facilities has been emphasized to solve the problem. In other words, Korea lacks various types of residence and has the limited number of facilities for the elderly when both health and welfare services are to be offered to them. Although elderly people who can live at their own residence want to keep staying at home, they are transferred to

nursing homes or hospitals against their will. This is called the "societal internment."

Thus, the significance has been placed on intermediate facilities with a short-term stay function that help the elderly live at their own residence and receive the services. The facilities are for elderly people who cannot be admitted to welfare facilities because of their physical and economic conditions and the availability of family nursing; the facilities are also for those who cannot live at home or who are discharged from the other facilities and have difficulties with living at home.

The purpose of this study is to collect fundamental data for the plan of the Korea's intermediate facilities through the analysis of establishment and functional characteristics of health facilities for the aged (HFA) in Japan.

Japan has been the most rapidly aging society in the world, and facilities with a new function were requested to deal with the situation. In the 'Advisable Course of Welfare for the Aged' that was officially released by the Social Security Council in 1985, a plan of care facilities for the elderly was suggested as the pivot of the facilities protection measure for the elderly to deal with problems of the aging society in the future.

As its main objective, improvements on the facilities

\* This Work was supported by a grant from the Overseas Academic Research Fund of the Cheju National University Development Foundation in 2003

were recommended to accommodate the elderly and their families. Sanatoriums and hospitals for the elderly were integrated, and a new type of welfare facilities for the elderly in the 21st century was formed and has been consistently supplied as intermediate facilities with combined merits of them.

For this reason, it is a characteristic that intermediate facilities have basically both a function of the day care and short-term service and a function of the long-term care such as special nursing homes.

As for social changes and welfare policies for the elderly, Korea and Japan are difficult to be analyzed with pluralism of the West because the two countries were based upon Confucianism and late in terms of forming civil societies and democracy.

In this aspect, there are a number of implications to Korea to study merits and demerits of the Japanese HFAs. The society of Japan has been rapidly aging since 1970, and Korea is to face the same situation.

## 2. METHOD OF STUDY

The HFA can be established through various ways. Existing hospital beds for the elderly can be converted to HFA beds. A separate annex can be built to a hospital. A nursing home or a separate single-use structure can be built as the HFA.

The operation of the HFA also varies according to types of care. These variations of the physical and operational characteristics provide the elderly with comprehensive care within the community.

It is necessary and important to examine functional and architectural characteristics of the Japanese HFAs and give Korea guidelines on intermediate facilities because no such intermediate facilities exist in Korea. The Japanese HFAs were sampled based on several characteristics so that the guidelines on the sampling of facilities could be well grounded and not predetermined by one particular type of facilities or services. Researched facilities were selected based on the annual report of the 『Health Facilities for the Aged』 published by the Japanese Ministry of Health, Labor and Welfare.

First, a total of 2,393 facilities (as of November 1999) mentioned in the annual report were classified based on types of their establishment: (1) free-standing structures (603 facilities); (2) annexes to hospitals (981 facilities); (3) annexes to welfare facilities (511 facilities); and (4) annexes to clinics (298 facilities). Next, 239 facilities were selected through taking a sample of 10 percent from each type of the facilities mentioned above. This was done through the random sampling method with the computer program of MS EXCEL.

Survey questionnaires were mailed to the selected facilities. The questions were on the number of staff; accommodations capacity for different types of users including daytime users; the scale and space composition of the HFA; and its main function. The period of the survey was 20 days starting from March 30, 2002 and

ending on April 19, 2002. Responses were received from 118 facilities giving the 49.4% response rate. The data were analyzed using the SPSS for Windows.

## 3. SCALE OF THE HFA

### 3.1 Analysis of the Scale

Usually, the range of the HFA building area was from 1,000 m<sup>2</sup> to 2,000 m<sup>2</sup>, and its site tended to be less than 5,000 m<sup>2</sup>. The building-to-site rate was approximately 20 to 40% (Fig. 1).

Figure 1 releases coefficients of the regression analysis; the site area with a high B (Beta) coefficient has a strong influence; the value of R<sup>2</sup> is 0.286, that is, 28.6% meaning that it is suitable to the typical regression line and relatively high. The regression equation of the 「building area = 0.154 x (its site area) + 1029.18」 was set by the regression analysis that was conducted to calculate the

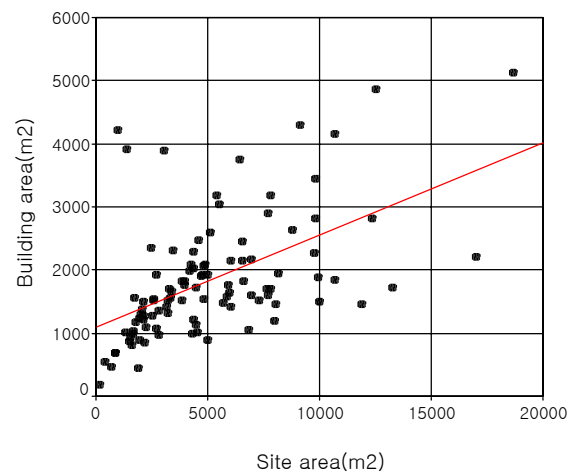


Figure 1. Distribution of building area and site area (R<sup>2</sup> = 0.286, DF = 100, Tilt : standard error = 0.023, t = 6.329, P < 0.00, Constant : standard error = 142.465, t = 7.716, P < 0.00)

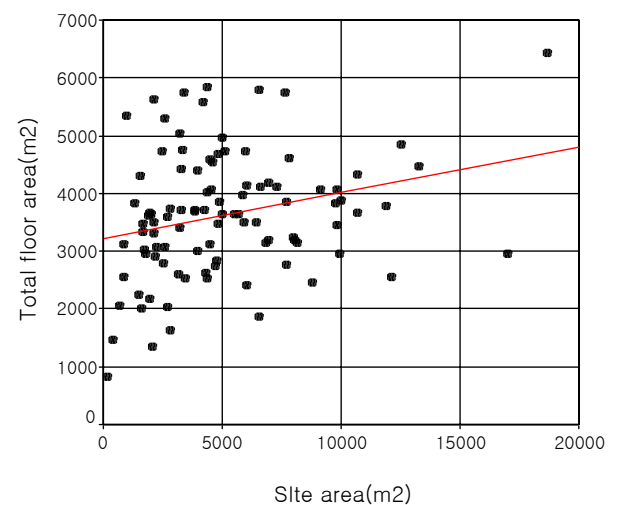


Figure 2. Distribution of total floor area and site area (R<sup>2</sup> = 0.067, DF = 97, Tilt : standard error = 0.030, t = 2.637, P < 0.01, Constant : standard error = 185.151, t = 17.423, P < 0.00)

suitable building area to its site based upon the coefficients. The range of the total floor area was usually from 3000 m<sup>2</sup> to 4000 m<sup>2</sup>. Considering both the range of its building area and the range of its total floor area, it is assumed that the majority of the facilities have two to four stories (Fig. 2).

With the same regression analysis as mentioned above, the equation for the suitable total floor area to site was set as the 「total floor area = 0.075 x (its site area) + 3240.59」 and the value of R<sup>2</sup> is 0.067, that is, 7% meaning that it is suitable to the typical regression line and relatively low as shown in Figure 2. It was found that the building area and total floor area are not so large compared to the size of its site because of the special functional requirement of facilities for the aged. It is assumed that small buildings are more suitable than large ones in terms of the operation and maintenance.

### 3.2 Analysis on the Number of Entrants and Its Staff

The capacity of facilities usually consists of both the number of full-time residents and daytime users. As shown in Figure 3, the range of its capacity was from 50 to 200 persons. The number of full-time residents who stayed at the facilities for a week or up to 3 months depended on their health conditions and varied between approximately 50 and 100 persons (Fig.3). Regression analysis techniques were used to set an equation.

The result is as follows: the 「number of residents = 0.53 x (the number of its full capacity) + 25.12」.

To offer residents or daytime users better service within these facilities, it is essential to have the appropriate number of staff. Figure 4 shows the distribution of the number of staff that is required for its full capacity of residents and daytime users. The number of staff was between 20 and 100, and the ratio of its residents and staff were at 50% of its full capacity. An equation is set to find out the appropriate number of its staff as a function of the number at its full capacity, and it is as follows: the 「appropriate number of staff = 0.36 x (the number of its capacity) + 17.45」.

## 4. ANALYSIS OF THE SCALE AND MAIN FUNCTIONS

The elderly are given a wide range of choice. The HFAs provide them with main functions of a long-term stay, short-term stay, and support at their own homes. Thus, various ways of its operation is possible. Table 1 shows the classification in terms of the main functions of the HFAs.

According to Table 2, the HFAs for a long-term stay are in a large number, but their scale is similar with the basic type that is for a long-term stay and daytime care.

As for the HFAs for a short-term stay, they are on a large scale with a number of residents. In particular, its proportion of daytime users is much higher than other

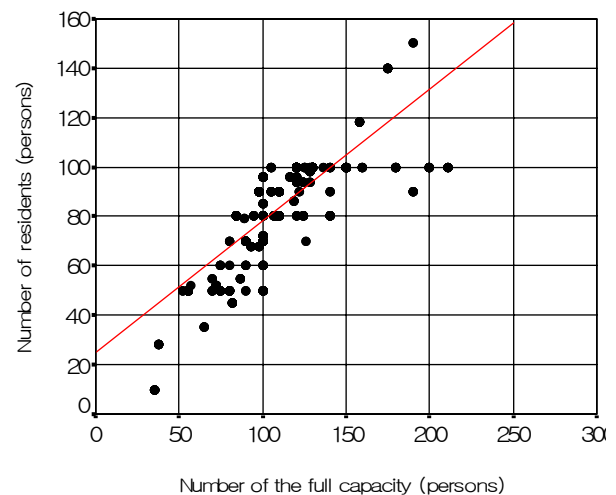


Figure 3. Distribution of the number of residents and its full capacity (R<sup>2</sup>=0.658, DF=114, Tilt: standard error=0.037, t=14.808, P<0.00, Constant: standard error=4.415, t=4.634, P<0.00)

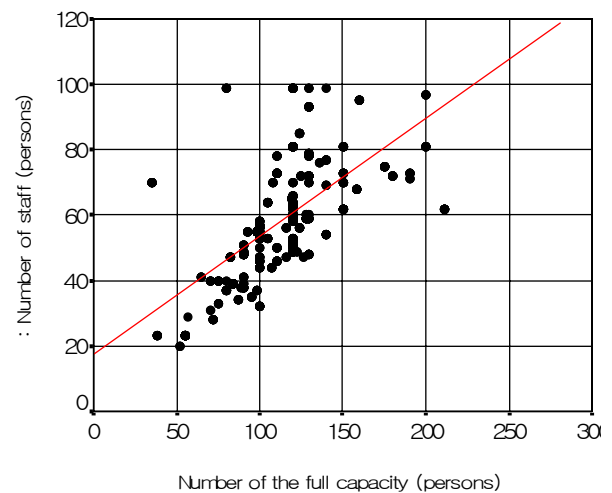


Figure 4. Distribution of the number of its staff and full capacity (R<sup>2</sup>=0.405, DF=114, Tilt: standard error=0.041, t=8.815, P<0.00, Constant: standard error=4.864, t=3.472, P<0.01)

types. The average of the site area was 5,200 m<sup>2</sup> the average of the building area was 1,880 m<sup>2</sup> and the total floor area was 3,800 m<sup>2</sup> (the building-to-site ratio: 36%, the total floor-to-site ratio: 73%).

One of the unique characteristics of the HFA is a recuperation room. The room is for a short-term stay that may vary from one week to three months. There are no guidelines on the scale of the room as well as the area of a general building and special building. According to Table 3, the space in the recuperation room of a general building is an average of 18 m<sup>2</sup> per person while a special building has an average of 50 m<sup>2</sup> per person that is more than two times the area of the general building.

This single occupancy trend of a recuperation room provides an opportunity for social interaction among residents in common spaces while protecting their privacy within their private rooms. An amendment in the

Table 1. Classification by Function of Health Facilities

	Basic Type	Type of Entrance for Short term	Type of Entrance for Long term
Function for Long term	•		•
Function for Short term		•	•
Function of Day care(Residence Supporting )	•	•	

Table 2. Number of the Full capacity and scale by type of facilities (Mean Value)

	Number of staff (persons)	Number of residents (persons)	Number of daytime users (persons)	Site area(m <sup>2</sup> )	Building area(m <sup>2</sup> )	Total floor area(m <sup>2</sup> )
Basic Type (N=22)	59	88	30	5542	1829	3649
Type of admission for Short term (N=10)	63	84	130	5495	1930	4121
Type of admission for Long term (N=64)	60	83	31	4983	1923	3650

Japanese Welfare Law for the Aged resulted in the change of the room occupancy of a recuperation room from four persons to one person.

## 5. CHARACTERISTICS OF AN ANNEX & ITS SPACE COMPOSITION

### 5.1 Characteristics of an Annex

As mentioned in Section 2, there are several ways of establishing the HFAs in Japan. Existing hospital beds for annex can be built to the hospital. A nursing home or a separate single-use structure can be built as a HFA. These types may influence the function, service and management of the HFAs.

Figure 5 displays the types of the facilities. The number of single-use facilities is the highest followed by care-supporting facilities, hospitals, daycare centers, and clinics.

Although the single-use facilities and annexes are similarly influenced by physical factors of the site and scale of the structure, annexes are more likely built to existing hospitals, daycare centers, and clinics because of administrative and operational factors.

Figure 6 shows the types of shared space of a HFA and its annex. The most shared room is a kitchen followed by a nursing classroom for family; however, other rooms are not frequently shared by the HFA and its annex. This proves that functional merits of an annex are not fully utilized.

### 5.2 Characteristic of space composition.

One annex to a hospital and two single-use facilities were chosen for the in-depth analysis of the space composition. Figure 7 and Figure 8 illustrate the space composition of these two types of facilities. In both types of facilities, the recuperation room is mainly located on the

Table 3. Average area per person (recuperation room)

General building (m <sup>2</sup> )	Special building for dementia care (m <sup>2</sup> )
18.56	50.43

second floor or above. However, common space and clinic rooms are usually concentrated on the first floor.

In the case of annexes to hospitals and other facilities such as welfare facilities, they are usually connected with corridors because the scale is small (Fig. 7).

As for the HFA with four stories or more, the functional rooms such as the rehabilitation rooms and bathrooms are located on the upper floors (Fig. 8) to avoid the congestion and to enable the effective utilization of space. The scale of the rooms is small, and they are dispersed on each floor. And each floor has a service station with a

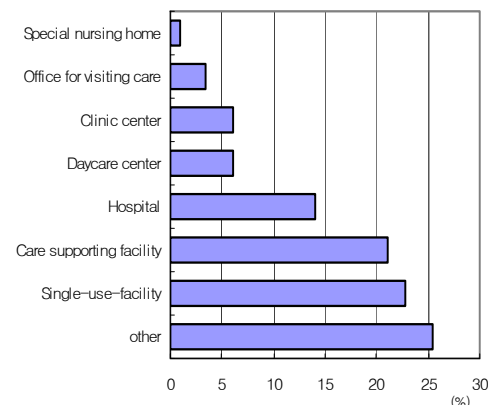


Figure 5. Types of the facilities with an annex (N=114)

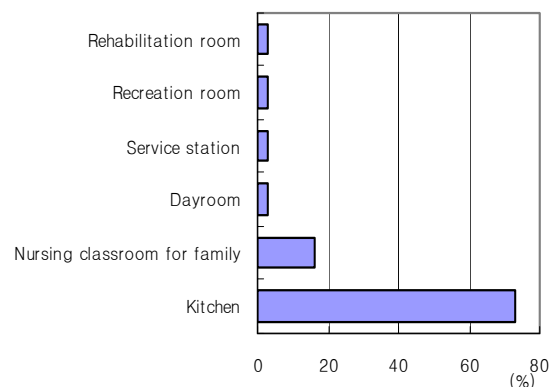


Figure 6. Shared rooms with the facilities established as an annex (N=37)

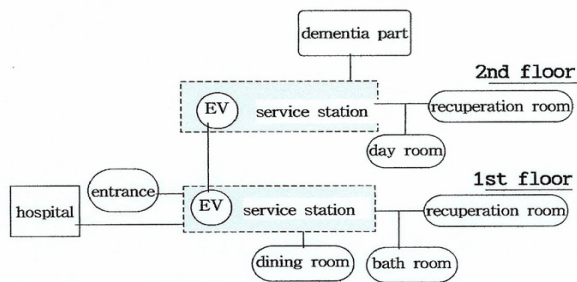


Figure 7. Space composition in type of establishment as an annex in hospital

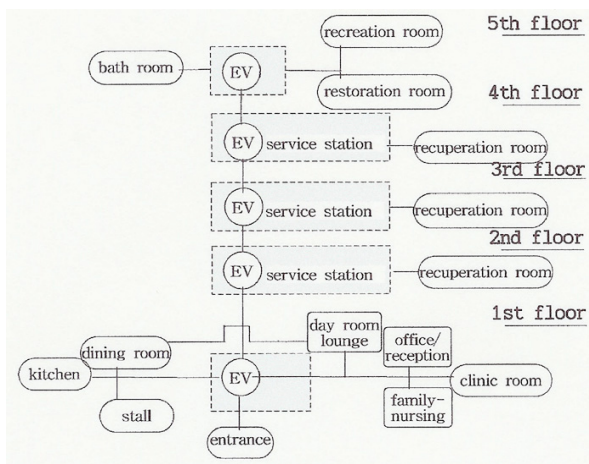


Figure 8. Space composition in type of single-use facility

recuperation room and nursing room. There is no ramp on each floor, but there is an elevator instead.

## 6. ANALYSIS OF RELATIVE FACTORS BY TYPES OF THE HFA

A partial correlation analysis was conducted to find out if there was any relation between types of the HFA and other relative factors such as the place before and after the HFA, duration of the stay, scale of the HFA, and activities of daily living (ADL).

Table 4 presents results before and after controlling the types of the HFAs. Although some changes are shown in each factor, the types of the HFAs do not have an effect on the transitional facilities in terms of the place before and after the HFA, duration of the stay, total floor area and ADL.

The transitional place after the HFA, duration of the stay and ADL are correlated at a significant level of 0.05. However, no correlation is demonstrated for the total floor area; therefore, on one hand, it is assumed that the scale of the HFA does not have any correlation with the transitional place after the HFA. On the other hand, because the duration of the stay and ADL are correlated to each other, it is assumed that the ADL has greater effect on the duration of the stay and not on the types of the HFAs.

Table 4. Changes in the result before controlling types of the HFA by the partial correlation analysis(right, white area) and after controlling (left, gray area)

	Place after the HFA	Term of the stay	Total of floor area	ADL	Type of HFA
Place after the HFA	-	0.2877*	-0.1900**	0.3564*	0.0446
Term of the stay	0.2861*	-	-0.0110	0.1772**	0.0506
Total of floor area	-0.1897**	-0.0105	-	0.0209	-0.0115
ADL	0.3540*	0.1729	0.024	-	0.1127
Type of HFA					-

\* P<0.05 \*\* P<0.10

## 7. CHANGE OF THE PLACE BEFORE AND AFTER THE HFA

Table 5 reveals the time series analysis of the change of the place before and after the HFA. There is no significant change in terms of the place before and after the HFA. Most of the elderly returned to the same place before the HFA.

The transferring pattern shows two types that are transferred from a residential place to a residential place and transferred from a hospital to a hospital before and after the HFA<sup>1</sup>.

As for the elderly who entered the HFA from their own homes, most of them returned to their own homes after leaving the HFA. Because the elderly from their own homes are more likely healthy, in general, they return home or enter social welfare facilities. However, in reality, more of them were transferred to hospitals that were supposed to be the final place.

There seems to be a correlation between the fact mentioned above and the types of the HFAs. As Table 6 shows, the proportion of the aged who are transferred to hospitals is relatively high in the type of an annex to medical facilities whereas the transfer to welfare facilities is higher than the transfer to hospitals in the type of single-use facilities.

According to Table 6, the cause of this pattern is surmised to be the significant correlation with the ADL before the HFA and duration of the stay rather than the types and functions of the HFAs. In addition, there could be other factors such as the availability of family nursing, lack of social welfare facilities, and system in connection

1 Types of the HFA were classified by facilities established as an annex referred in 「5.1 Characteristics of an Annex」 and not by types of the HFA selected for the research that was referred in 「2. METHOD OF STUDY」. They are the type of singleness facilities, type of an annex to only medical facilities (hospitals and clinics) and type of an annex to medical and welfare facilities.

Table 5. Comparison of between residential places before &amp; after the HFA (1989,1999,2002) (Unit: %)

Residential place before the HFA	Residential place after the HFA			
		Year 1989 (N=1,039)	Year 1999 (N=20,262)	Year 2002 (N=969)
Home	Home	69.5	59.1	67.7
	Welfare facility	4.8	8.5	6.3
	Medical facility	23.5	28.0	21.7
	Other	2.3	4.5	4.3
Welfare facility	Home	25.0	15.5	12.8
	Welfare facility	45.0	47.2	33.3
	Medical facility	30.0	30.5	46.2
	Other	-	6.8	7.7
Medical facility	Home	28.9	22.9	13.2
	Welfare facility	12.2	14.9	13.6
	Medical facility	54.8	54.5	67.5
	Other	3.1	7.7	5.7
Other	Home	-	19.2	13.6
	Welfare facility	5.9	21.0	27.3
	Medical facility	47.1	35.0	50.0
	Other	47.1	24.7	9.1

Notice 1) Data of 1989 and 1999 belong to the 「Report in Welfare Facilities for the Aged」 researched by the Dept. of Statistics Intelligence, the Ministry of Health and Welfare. Data of 2002 are researched in this study.

2) The number of other in data of 1989 and 1999 include the number of deceased persons. In case of 2002, the number of medical facilities includes the number of clinic centers.

Table 6. Tendency of entering and leaving the HFA by type of facilities established as an annex

Type of single-use-facilities (N=205)			
Residential place before the HFA	%	Residential place after the HFA	%
Home	54.0	Home	40.0
Welfare facility	3.5	Welfare facility	13.7
Hospital	38.1	Hospital	40.0
Clinic center	-	Clinic center	-
Other	4.5	Other	6.3
Type of an annex to only medical facilities (hospitals and clinic centers) (N=65)			
Residential place before the HFA	%	Residential place after the HFA	%
Home	62.5	Home	47.7
Welfare facility	4.7	Welfare facility	9.2
Hospital	31.3	Hospital	41.5
Clinic center	-	Clinic center	-
Other	1.6	Other	1.5
Type of an annex to medical facilities & welfare facilities (N=660)			
Residential place before the HFA	%	Residential place after the HFA	%
Home	56.6	Home	45.8
Welfare facility	4.2	Welfare facility	9.6
Hospital	34.6	Hospital	36.4
Clinic center	2.9	Clinic center	3.0
Other	1.7	Other	5.2

with families, welfare facilities and hospitals.

As illustrated in Table 5, although most of the aged from hospitals were transferred back to hospitals after the HFA, there were still some of them who were transferred to their homes or social welfare facilities after the HFA. And this could be one of positive functions.

## 8. CONCLUSION

In this study, analyses were conducted on the Japanese HFAs as intermediate facilities. Through the analyses, fundamental data for the Korea's intermediate facilities were collected to provide Korea with guidelines on the

community care, scale of the HFAs and function as intermediate facilities.

As for the scale, most of the HFAs were planned with the scale that was larger than the scale of standard special nursing homes. The number of residents and number of daytime users were related to factors such as the building area and total floor area. The scale of the site for the most HFAs was concentrated on the area of 5,000 m<sup>2</sup> and below; the area of the building was between 1,000 m<sup>2</sup> and 2,000 m<sup>2</sup> with the building-to-land ratio of 20% to 40%; and the total floor area was between 3,000 m<sup>2</sup> and 4,000 m<sup>2</sup>. And the regression analysis was performed using precise equations to obtain precise results of the scale of the HFAs and appropriate number of residents.

As for the functional aspect of the HFA with a condition of returning home, there was no significant change in terms of the place before and after the HFA. Most of the elderly returned to the same place before the HFA.

The transferring pattern showed two types that were transfer from a residential place to a residential place and transfer from a hospital to a hospital before and after the HFA.

This reveals a close correlation with the types of an annex as the HFA. As for guidelines on the establishment of these types of facilities, existing facilities are allowed to have a partial renovation for the exclusive use as the HFA. Its cause is considered to be the aspect of the operation and management of the facilities rather than the aspect of its function of providing services in association with medical and health facilities.

Although the HFA has a positive function, its function does not seem to operate effectively. Along with the problem of annexes mentioned above, other problems are the problem of the ADL and duration of the stay; the lack of the availability of family nursing; the limited number of social welfare facilities; and finally, the lack of a network system in connection with the HFA, social welfare facilities, hospitals, and homes.

Korea and Japan have similarities in terms of culture, society and family relations; however, the two countries also have differences in terms of the application of laws on the establishment of houses, hospitals, and welfare facilities. When considering intermediate welfare facilities such as the HFA, it is strongly advised to consider differences of the two nations and problems that are mentioned so far along with the factors that are associated with the scale and space composition of the facilities.

## REFERENCES

- Kim, T.I.(1994) *A Study on plan of mail community care facility with utilizing existing facilities*, Federation of Korean Gerontological Societies proceeding, 197-208  
 Ministry of Health & Welfare, Korea.(1994) *A welfare statute book of The aged*  
 City of Seoul.(1997) *A study on standard model of residence supporting welfare facilities for the aged and administration program development*, 185-228  
 The Korea Gerontological Society.(2000) *Understanding of gerontology*, Daeyoung munhwa press  
 Utsumi, Y.I. (1992) *Social policy of the aged - For happy guarantee of old age -mineruba press*  
 Ministry of Health, Labor and Welfare, Japan (1999), *Health Facilities for the Aged*  
 Ministry of Health, Labor and Welfare, Japan (1995), *Facilities regulations on the HFA in the Japanese Welfare Law for the Aged*  
 (Data of Submission : 2005. 4.27)