

Willingness to Pay for Hospice Care Using the Contingent Valuation Method

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Purpose: It is necessary to develop a proper payment system for more health care facilities to provide hospice and palliative cares. In deciding the proper level of payment for hospice per diem fee, willingness to pay (WTP) may provide one of the critical information. This study was conducted to determine WTP for hospice care and to analyze those factors affecting WTP. **Materials and Methods:** A contingent valuation method with a double-bounded dichotomous-choice model was used. Interview survey was organized and conducted by a survey company from April 4 to 18, 2008. The mean WTP was calculated through an infinite integration of survival functions. **Results:** The average willingness to pay was found to be 42,240 Korean won (KRW) (USD 35), with the amount becoming higher as hospice services were deemed more necessary or where average monthly household income was higher. The amount was also higher among male respondents than females. **Conclusion:** To compare this WTP with actual cost (32,500 KRW) (USD 27) for hospice care. To facilitate hospice service, hospice specific payment system should be developed. This study provides information regarding the general public's preference of hospice service and their WTP for hospice care, and it may be useful in the decision-making process.

Key Words: Hospice, willingness to pay, Per diem payment

INTRODUCTION

Cancer is the leading cause of death in South Korea. According to the most recent data, the number of cancer-related death has been increasing gradually. The cancer mortality increased from 108.6 persons per 100,000 in 1998 to 139.5 in 2008. 68,912 persons, indicating that 28% of total death in 2008 died of cancer.¹

Five year survival rate of cancer treatment has been improving. Government reported the 5 year survival rate of cancer treatment in 1998-2002 was 46.3%, and it was improved compared to 41.7%² of the period 1993-1997.

Still, many cancer patients have to face inevitable cancer death. During their terminal stage, they encounter a variety of physical and mental problems. Unfortunately, many terminal cancer patients may not receive appropriate hospice care,

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even though they use more resources than hospice care: They receive the traditional acute care in acute hospitals and died there, and medical costs are 45% more during the last year of life compared with that of hospice care patients.³ Another study found that 16.7% of terminal cancer patients were using emergency rooms while some cancer patients were even being left at home alone.⁴ Many patients in acute hospital setting may receive intensive care and life-sustaining procedures (e.g., mechanical ventilator and resuscitation) in the last week of life. A study showed that patient-physician discussions about the end of life could reduce unnecessary intensive interventions and costs and increase the quality of death,⁵ and another study found that 60.7% of total length of stay of the terminal cancer patients is inappropriate in tertiary hospitals.⁶ These kinds of unnecessary treatments might not only add a pain to terminal patients, but also increases their and their families' financial burdens.

Even though hospice care in South Korea started first in the Galbari Clinic in 1965, hospice care system did not develop well, and some religious hospitals and clinics provided hospice care in Korea. There was a shortage of hospice care providers: Only 42 secondary and tertiary hospitals, 11 general hospitals, and 9 clinics had been providing hospice. Even worse, hospice care services showed a great variance, depending on the facilities.⁷

In the point of view of hospice care service, the goal of hospice care, personnel with appropriate training, educational programs, standard for care, and consulting service to patients' family members are neither clearly defined nor organized in Korea, compared to the international hospice care standards.⁸

Stronger financial support for hospice and palliative care through the government and insurance programs would help increase the availability and use of services, especially in Korea.⁹ Thus, Korean government has developed a variety of programs to increase the provision of hospice cares, and Korean National Cancer Center prepared the guideline, 'The Hospice and Palliative Care Standard and Provisions provide more systematic hospice and palliative care. Korean government started a pilot project to support hospice institutions for terminal cancer patients in 2003. Through this project, the South Korean government provided a total of 1.2 billion KRW (Korean Won) (USD 1 million) to 30 institutions in 2008; however, despite such efforts, only a few hospice institutions have received financial support, since there were 78 hospice medical institutions, as of 2007.

It is, therefore, necessary to develop proper payment sys-

tem for more health care facilities to provide hospice and palliative cares. Any hospital or clinic can provide hospice care under current fee-for-service system. Hospice cares should be a multidisciplinary team approach. It requires additional services and other personnels such as social workers, program coordinators, patients' care-givers, and it requires more time for emotional care and counseling for patients and their family. Furthermore, some programs such as play therapy and art therapy are necessary for patients and counseling for bereaved family. However, these kinds of cares are not paid by Health Insurance Benefit, because current payment system didn't permit such cares and program. Most hospice medical institutions have been operating without proper compensation.¹⁰

Since 2007, therefore, the Health Insurance Review and Assessment Service (HIRA) has developed a new hospice payment system, per diem payment system. Tertiary hospital might be paid 184,000 KRW (USD 154) per day, general hospital 86,000 KRW (USD 72), and clinic 76,000 KRW (USD 64).¹¹ Demonstration project started to assess the proper level of payment and to evaluate patients care quality in 2009. In deciding the proper level of payment for hospice per diem fee, several aspects such as needs, costs, cost-effectiveness, and budget impact should be considered. In this decision, social acceptance of hospice care and willingness to pay might be one of the critical considerations.

This study aimed to identify the perception and willingness to pay (WTP) for hospice care among the general public. Some WTP studies have been conducted when some new services and programs were considered for public program or health insurance benefit decision. When the U.S. adopted a program to decrease childhood obesity, a study of WTP confirmed that citizens of New York were willing to pay an additional USD 690 million per year to reduce childhood obesity by 50%.¹² WTP increased as household income increased, as well as when there was an increase in the perception of childhood obesity as a growing problem in this study. In Taiwan, a study was performed on WTP for screening for diabetic retinopathy against patients with Type 2 diabetes.¹³ In Vietnam, a study was done with regards to WTP and the adoption of a local health insurance system.¹⁴ Before deciding health insurance benefit and reimbursement level, this kind of WTP study can be helpful for decision-makers. It is, therefore, important to identify the public's WTP for hospice care services and its preferences, and this study is expected to provide important information for the decision of reimbursement level of hospice care.

MATERIALS AND METHODS

For the WTP survey, we followed the guideline and steps which NOAA recommended.¹⁵ We developed hypothetical scenario in which terminal cancer patients suffer from both physical and mental pain. In the WTP study, the “payment vehicle” refers to the means of payment by a patient. The payment vehicle is assumed as total cost of both copayment for health insurance scheme (10% of cost sharing for cancer patients) and out-of-pocket money which is not covered by health insurance benefit. Respondents were encouraged to provide honest answers, in regards with their income and financial status.

A double-bounded dichotomous-choice model was used in this study. If a respondent accepts first bid, then interviewer asks double the price of the first bid, or if he (she) doesn't accept it, then interviewer asks half the price of the first bid. It may still be prone to a starting point bias like single bounded model. However, a double-bounded dichotomous-choice model allows for easy response, and provides a high response rate, consequently enhancing statistical efficiency.

Several bids were determined through a pilot survey of 44 random subjects. We set the number of bid price to nine based on the pre-test, and collected the WTP with open-question in the pre-test and used 10-90 percentiles of distribution of answers as nice. Among them, a bid was randomly selected and suggested to the respondent. Alberni recommended that four to six or fewer bids should be maintained, since the provision of too many bids could reduce the coupling of the model.¹⁶ In South Korea, where the response of “No-No” is relatively high, eight to 10 bids have been recommended. Therefore, this study set the number of bid prices to nine: 10,000 (USD 8), 20,000 (USD 17), 30,000 (USD 25), 40,000 (USD 34), 50,000 (USD 42), 70,000 (USD 59), 90,000 (USD 75), 110,000 (USD 92), and 140,000 KRW (USD 117).

A total of 500 people (age \geq 20 years) were sampled randomly from Seoul, five other metropolitan cities, seven small and mid-sized cities, and three counties. Preliminary studies were conducted on March 31 and April 1, 2008. Education and training were provided to interviewers for a better understanding of both study design and hospice service. Interview survey was organized and conducted by a survey company from April 4 to 18, 2008.

A survival analysis was performed to analyze interval censored data using a double-bounded dichotomous choice questionnaire.¹⁷ To calculate mean WTP, a parametric mod-

el in survival analysis, a Weibull distribution, was assumed. The Weibull distribution provides most frequently the best fit of life data. This is due in part to the broad range of distribution shapes, such as the normal, the exponential, the Rayleigh, and sometimes the Poisson and the Binomial, that are included in the Weibull family.¹⁸ The mean WTP was calculated through an infinite integration of survival functions (Equation 1), and the expectation was estimated in Equation 2. As price, rather than time, was established in this study, “mean price” would refer to mean survival in the survival analysis. SAS LIFEREG procedure was used.

$$\text{Mean WTP} = \int_0^{\infty} \exp\left(-\left(\frac{t}{e}\right)^{\gamma}\right) dt \quad \text{(Equation 1)}$$

$$E(T) = \Gamma\left(1 + \frac{1}{\gamma}\right) \Theta \quad \text{(Equation 2)}$$

RESULTS

Socio-demographic characteristics

Distribution of socio-demographic characteristics is shown in Table 1. 65.8% of the respondents were female and 34.2% were male. The mean age at the time of the survey was 42 years, with 65% of them in their 30s and 40s. Their main residential areas were small and mid-sized cities (40.2%), bigger metropolitan areas (26%) and Seoul, the Capital (21.4%). Only 12.4% lived in the rural areas. Most of the respondents were married (83.2%) and the rest answered in single, windowed, or divorced status (13.4%, 1.8%, 1.6%, respectively). 91% of them were found well-educated, having more than 10 years' education, and only 7.8% received less. More than half of them answered that they were religious, and about 50% reported their monthly household income between 2.5-4 million KRW (USD 2,000-3,350).

Recognition of hospice care

One-quarter (24.8%) of the respondents said that they had one of their family members who had died of cancer. And 8.1% of them said that their family member had received hospice care. When asked what they thought of hospice care, 61.2% of the respondents replied that they had heard of and considered receiving hospice benefits. Although about 90% of the respondents agreed that hospice was necessary, only 63.4% said “Yes” when asked if they were willing to receive it (Table 2).

Table 1. Demographic and Social Distribution of Respondents

Category	Classification	No. of Respondents	%
Gender	Male	171	34.2
	Female	329	65.8
Age	20 yrs	56	11.2
	30 yrs	137	27.4
	40 yrs	190	38.0
	50 yrs	83	16.6
	60 yrs or older	34	6.8
	Mean±standard deviation: 42.69±10.67		
Region	Small and mid-sized city	201	40.2
	Metropolitan area	130	26.0
	Seoul	107	21.4
	County resident	62	12.4
Marital status	Married	416	83.2
	Single	67	13.4
	Widowed	9	1.8
	Divorced	8	1.6
Education	Elementary school or less	13	2.6
	Middle school	26	5.2
	High school	232	46.4
	Undergraduate school	216	43.2
	Graduate school or higher	13	2.6
Religion	Christian	130	26.0
	Buddhist	117	23.4
	Roman catholic	52	10.4
	No religion	201	40.2
Gross monthly household income	Less than 1 million KRW (USD 836)	20	4.0
	1-1.49 million KRW (USD 836-1,253)	11	2.2
	1.5-1.99 million KRW (USD 1,254-1,671)	37	7.4
	2.0-2.49 million KRW (USD 1,672-2,088)	48	9.6
	2.5-2.99 million KRW (USD 2,089-2,506)	81	16.2
	3.0-3.49 million KRW (USD 2,507-2,924)	57	11.4
	3.5-3.99 million KRW (USD 2,925-3,342)	100	20.0
	4.0-4.49 million KRW (USD 3,343-3,760)	47	9.4
	4.5-4.99 million KRW (USD 3,761-4,178)	48	9.6
	5.0 million or more KRW (USD 4,179-)	51	10.2
Total		500	100.0

Table 2. General Recognition of Hospice Care

Category	Answer	No. of Respondents	%
A family member had died of cancer	Yes	124	24.8
	No	376	75.2
I have received hospice care before (among those whose family member had died of cancer)	Yes	10	8.1
	No	114	91.9
I've heard of or have thought about hospice benefits	Yes	306	61.2
	No	194	38.8
Awareness of the necessity of hospice care	Very necessary	157	31.4
	Slightly necessary	290	58.0
	Slightly unnecessary	53	10.6
	Very unnecessary	0	0.0
Willingness to receive hospice care	Yes	317	63.4
	No	70	14.0
	I'm not sure	113	22.6
Total		500	100.0

Distribution of WTP responses

The distribution of WTP responses on nine bid prices is shown in Table 3. The range of WTP (maximum and minimum) was collected from the answer to the two bids. The minimum value alone existed among those who were willing to pay both bid prices, while the maximum value was found only among those respondents who had no intention to pay them.

As the bid increased, the number of respondents with no WTP increased as well. Among 171 respondents who had

no WTP for either of the bid prices, 42 people responded “0 KRW” for WTP, while 129 respondents indicated willingness to pay some price, however, they refused to pay because of two bid price were higher than they expected.

In Table 3, the figure in the parentheses in the “No. of Respondents” column refers to the number of respondents who never had a WTP, and refused to pay both bids. Among a total of 500 subjects, 42 respondents (8.4%) who had zero WTP were distributed regardless of response to the first bid, and some such respondents were found in every group.

Table 3. Distribution of WTP Responses

1st Bid (Unit: KRW)	2nd Bid (Unit: KRW)	Answer	Min.	Max.	No. of respondents
10,000	5,000	No, No		5,000	6 (4)
		No, Yes	5,000	10,000	0
	20,000	Yes, No	10,000	20,000	15
		Yes, Yes	20,000		36
20,000	10,000	No, No		10,000	7 (4)
		No, Yes	10,000	20,000	8
	40,000	Yes, No	20,000	40,000	25
		Yes, Yes	40,000		14
30,000	15,000	No, No		15,000	10 (5)
		No, Yes	15,000	30,000	6
	60,000	Yes, No	30,000	60,000	47
		Yes, Yes	60,000		6
40,000	20,000	No, No		20,000	9 (6)
		No, Yes	20,000	40,000	18
	80,000	Yes, No	40,000	80,000	34
		Yes, Yes	80,000		4
50,000	25,000	No, No		25,000	19 (3)
		No, Yes	25,000	50,000	22
	100,000	Yes, No	50,000	100,000	22
		Yes, Yes	100,000		1
70,000	35,000	No, No		35,000	24 (8)
		No, Yes	35,000	70,000	19
	140,000	Yes, No	70,000	140,000	7
		Yes, Yes	140,000		2
90,000	45,000	No, No		45,000	27 (4)
		No, Yes	45,000	90,000	17
	180,000	Yes, No	90,000	180,000	6
		Yes, Yes	180,000		0
110,000	55,000	No, No		55,000	36 (4)
		No, Yes	55,000	110,000	8
	220,000	Yes, No	110,000	220,000	2
		Yes, Yes	220,000		1
140,000	70,000	No, No		70,000	33 (4)
		No, Yes	70,000	140,000	9
	280,000	Yes, No	140,000	280,000	0
		Yes, Yes	280,000		0
Total					500 (42)

The figure in parenthesis refers to the number of respondents who never had a WTP, among those who had answered “No-No”.

When asked why they had no intention to pay, the major reason was “to spend time with family at home” (31.0%), followed by “due to financial burden” (21.4%) and “I don’t think hospice care is necessary” (16.7%). The 10 respondents who said that the “government should pay all hospice costs” or “I dislike this kind of hypothetical question” were excluded from this analysis, as they had failed to properly express a preference regarding hospice service.

Analysis of estimated WTP and determinant factors

To avoid the influences of covariance, we used an estimated value from a basic model that is free of the influence of covariance. When a survival analysis (no covariates) was conducted, the scale parameter (θ) and shape parameter (γ) were 50,588 and 1.6704, respectively, with statistical significance (Table 4). By applying these figures to Equation 2, a mean WTP (45,193 KRW) (USD 38) was acquired. This mean WTP (45,193 KRW) (USD 38) was calculated from 458 respondents who expressed the preference. When we included 32 respondents among 42 ones who had zero WTP, the estimated WTP for hospice service was found to be 42,240 KRW (USD 35) [45,193×(458/490)]. As described above, 10 respondents were excluded because they had failed to express their preferences. To identify the factors that influence WTP, an analysis was conducted with covariance. The results are shown in Table 5. Among the independent variables, “gender,” “awareness of the necessity of hospice care,” and “gross monthly household income” were statistically significant. When asked about “the necessity of hospice care,” those who had stronger need for hospice service appeared to have larger WTP. In the relation with gross monthly household income, the WTP of the “4.0 million KRW (USD 3,350) or above” group was higher than that of the “2.0 million KRW (USD 1,672) or below” group ($p=0.004$). In the “2.0-3.99 million KRW (USD 1,672-3,349)” group, results were significant at a level of 10% ($p=0.074$). In gender, male respondents showed greater WTP than females ($p=0.043$). In other parameters (e.g., age, a family member had died of cancer, awareness of hospice care, self-related health, marital status, education, religion, cancer insurance, etc.), did not show statistically significant influence on WTP.

DISCUSSION

Hospice in other countries

Japan and Taiwan, which have cultural background similar

to Korea, introduced the hospice care since 1990 and 1995, respectively. The Japanese Ministry of Health, Labor, and Welfare has strongly supported the provision of specialized palliative care services, and palliative care units have been covered by National Medical Insurance since 1990. Provided that the relevant palliative care units are certified, the hospital is reimbursed at the rate of 37,800 yen (US \$344) per patient per day by the health insurance system.¹⁹

The Department of Health in Taiwan has taken a proactive role in the development of hospice care programs since 1995. The feasibility of a hospice home care program was pilot-tested in the reimbursement scheme from July 1996. Even though the coverage and payment for this program were limited, it was the Taiwanese government’s first initiative that directed health care resources toward end-of-life care for cancer patients. Hospice home care is paid at a fixed rate per visit (from US \$42 to US \$48, depending on the amount of time spent on the single home visit) in 2004. Inpatient hospice care is reimbursed at a per diem rate of US \$142.²⁰

Representative and recognition of hospice

Compared with the national statistics, the distribution of subject’s age, gender, education, religion was different. The age distribution of general population of age 20s group, 30s, 40s, 50s, and above 60 in 2005 were 21.0%, 23.5%, 23.0%, 14.7% and 17.9%, respectively.²¹ The age distribution of our subjects of 20s, 30s, 40s, 50s, and above 60s were 11.2%, 27.4%, 38.0%, 16.6%, 6.8%, respectively. Relatively, more 30s and 40s age groups were recruited in the sample. In the distribution of gender, the ratio of male and female in 2005 in Korea was 49.9% and 50.1%, respectively. The ratio of male and female in our study was 34.2% and 65.8%, respectively. The distribution of elementary and middle school in 2005 National data was 30.3%, however, data of our sample was 7.8%. We recruited more educated people.

In this study, male comprised 34.2%, and gender was significantly associated with WTP. Male had more WTP than female. The education level is the important proxy of social economic status, and the education level might be related with economic status. The higher income group showed more WTP in this study. In this case, the level of WTP might be overestimated because the subjects with higher education level were sampled than the general population. While interpreting the results, it should be careful not to generalize this result.

However, the sample subjects knew well what the hos-

Table 4. Estimation Result of Survival Analysis, without Covariance

Parameter	Estimate	95% confidence limits		Chi-square	Pr>Chi Sq
Intercept	10.8315	10.7656	10.8673	10.3848	<0.0001
Scale	0.5987	0.0278	0.5466	0.6556	
Weibull scale	50,588	1,700	47,362	54,032	
Weibull shape	1.6704	0.0775	1.5252	1.8294	

Log Likelihood: -483.211.

Table 5. Result of Survival Analysis, with Covariance

	Parameter	Estimate	95% Confidence Limits		Chi-square	Pr>Chi Sq
	Intercept	9.363	8.202	10.523	250.06	<0.0001
Gender	Male [†]	0.151	0.005	0.297	4.10	0.043
	Female	Ref.				
Age		0.000	-0.009	0.009	0.00	0.952
A family member had died of cancer	Yes	0.088	-0.056	0.231	1.44	0.230
	No	Ref.				
I've heard or thought about hospice care	Yes	-0.041	-0.180	0.098	0.34	0.562
	No	Ref.				
Recognition of the necessity of hospice care	Very necessary [†]	0.512	0.222	0.803	11.94	0.001
	Slightly necessary [†]	0.432	0.152	0.712	9.15	0.003
	Very unnecessary	Ref.				
Self-related Health	Very healthy	-0.326	-0.752	0.099	2.26	0.133
	Healthy	-0.290	-0.697	0.117	1.95	0.163
	Fair	-0.236	-0.659	0.187	1.20	0.274
	Unhealthy	Ref.				
Marital status	Married	0.149	-0.107	0.406	1.30	0.254
	Divorced/Widowed	0.265	-0.194	0.725	1.28	0.257
	Single	Ref.				
Education	Junior college or higher	0.082	-0.067	0.230	1.16	0.281
	High school or less	Ref.				
Religion	Christian	0.093	-0.064	0.250	1.36	0.244
	Buddhist	-0.076	-0.241	0.089	0.82	0.367
	Roman catholic	0.092	-0.123	0.307	0.70	0.403
	Atheist	Ref.				
Gross monthly household income	4.0 million KRW or above [†]	0.341	0.109	0.574	8.26	0.004
	2.0-3.99 million KRW*	0.202	-0.020	0.424	3.19	0.074
	2.0 million KWO or below	Ref.				
Family type	With spouse	0.360	-0.098	0.818	2.37	0.124
	2 generations	0.154	-0.212	0.521	0.68	0.409
	3 generations	0.056	-0.401	0.513	0.06	0.811
	Living alone	Ref.				
Health insurance	Health insurance Coverage	0.617	-0.315	1.550	1.68	0.194
		Ref.				
Cancer insurance	Yes	0.079	-0.113	0.270	0.65	0.420
	No	Ref.				

*Significant at a significance level of 10%.

†Significant at a significance level of 5%.

Log Likelihood: -457.263.

pice care was, and they thought that hospice care was necessary for terminal cancer patients. This awareness and positive attitude were prerequisite for the WTP survey. While only 8.1% of the respondents had experienced hospice care, they had positive attitude on the hospice. 61.2% of respondents knew the benefit of hospice care and 89.4% of respondents had said that hospice care was necessary. Furthermore, 63.4% responded that they were willing to use hospice services in the future. Although the survey sample did not represent national demographic features and hospice services were not commonly provided in the hospitals, they recognized hospice care, and had positive attitudes and intentions to use hospice care, suggesting that the study subjects were apt for the WTP survey.

On the validity of WTP method

To test the validity, especially construction, of WTP study, an income elasticity test and scope test are often used.²² In WTP studies, except for some inferior goods, most of goods have positive income elasticity. Since a significant increase in WTP was observed as income was increased in this study, it can be said that this study had positive income elasticity. These kinds of validity were done in other WTP studies. When a social insurance was introduced in China, the elasticity was evaluated based on the income elasticity for WTP.²³ WTP was high among the groups with the highest incomes in the WTP study for the introduction of a childhood obesity control program.¹²

The scope test assesses whether WTP increases as more goods are supplied.²¹ The scope test can be positive if respondents' WTP is higher when the more services or benefits are made available. In our study, however, the scope test was not conducted, because the benefit of hospice care has not yet been recognized. Therefore, expanding the scope of hospice care is difficult to respond.

Determinants and WTP

In the analysis of related factors on the WTP, as more patients felt that they were in need of hospice service and the gross monthly household income increased, men were found to be more willing to pay for hospice service. Because we could not find any articles for the WTP studies for hospice care, we can compare other factors. However, we could identify that the economic status was commonly important factor in WTP studies. In the study for the WTP for a new therapy for menopausal women, the level of copayment was predicted to have a negative impact on WTP compared with

other factors. Income level is an important factor in WTP.²⁴ In other WTP study on the treatment of MI, WTP was found to be significantly high in high-income group.²⁵ In a study to specify treatment location preferences and willingness to pay to obtain treatment in patients' preferred locations. There was a tendency towards respondents with lower incomes being willing to pay slightly less for their preferred treatment location than those with the highest incomes.²⁶

Surveyed WTP can predict actual value in market. The mean WTP was 42,240 KRW (USD 35) per day in our study. We compared the WTP with actual cost for hospice care, and Health Insurance Review & Assessment Service (HIRA) conducted a survey to collect the costs of hospice care.¹¹ The average daily cost hospice (i.e., legal benefit) was 112,433 KRW (USD 10) under the fee-for-service system. There were differences among hospital levels. The average daily cost at a third level hospital was 174,553 KRW (USD 146), 132,789 KRW (USD 111) at a general hospital, 72,320 KRW (USD 60) at a hospital, 74,895 KRW (USD 63) at a long-term care hospital, and 71,944 KRW (USD 60) at a clinic. The average daily cost that insurance benefit did not cover was 21,260 KRW (USD 18) (range, 0-77,231 KRW). If patients have to pay legal copayment (10% of average daily cost, 11,243 KRW (USD 9) and cost uncovered by health insurance beyond (21,260 KRW) (USD 18), then the sum of both costs is approximately 32,500 KRW (USD 27).

According to an another study that examined medical costs (include third party charges and copayment) for patients who died in 2003, the hospice per diem cost was 151,000 KRW (USD 126).³ If the insurance coverage excluding co-payment for coverage exclusion is set at 150,000 KRW (USD 125), the out-of-pocket payment (20%) would be 35,000 KRW (USD 29) based on these results. And if the per-diem co-payment for coverage exclusion was assumed to be 20,000 KRW (USD 17), the out-of-pocket payment would be 55,000 KRW (USD 46).

Since hospice patients' medical costs, as found in the aforementioned studies, did not match the payment vehicle of this study, it is difficult to make direct comparisons. According to a study by Lee,¹¹ the combination of the co-payment (10,000-20,000 KRW) (USD 8-17) and co-payment for coverage exclusion (20,000-40,000 KRW) (USD 17-34) was similar to the out-of-pocket payment (30,000-60,000 KRW) (USD 25-50), considering 10% of the out-of-pocket payment.

This study has some strengths. First, we used methods that can overcome limitations in the WTP methodology. In

terms of research subjects, this study conducted a sample survey across the entire nation, and subjects were the general public, not patients or their families. Instead of telephone surveys, a face-to-face survey was conducted. Also, to reduce WTP bid bias, we followed the recommendation of the NOAA panel.

Second, this study had timely been conducted. Korean government started pilot-project for the per diem payment system for hospice and set the standard of a hospice facility. Therefore, it can be readily applied in the implementation of government policy.

Third, this study is expected to provide important information on the decision for the level of reimbursement and copayment for the hospice care. In deciding the reimbursement level for health insurance benefit services, the resource level should better be based on the resources used. However, it will not be possible for every health insurance benefit care to analyze the resources based relative value. There was a little difference between actual payment from patients, which was the sum of copayment and not covered by out-of-pocket payment, and the level of WTP which this study showed.

This study has also some limitations. First, when the research subjects were compared to the national mean in terms of age, gender, education, religion, and other data, there were difference in the distribution between study subjects and general population. The sample in this study could not adequately represent the whole of the population, therefore, close attention should be paid when analyzing the results.

Second, some subjects didn't show any WTP response (8.4%). Even they were only small fraction of study subjects, they may have negative attitudes for the WTP for the hospice. This study didn't estimate how these people may impact on the WTP.

Third, people may have different preference for a hospital; they usually prefer tertiary, university hospitals. The levels of payment which are under demonstration project differ among the types of hospitals. We could not reflect this different preference to identify the WTP.

Fourth, there will be difference between WTP and real situation. In the present study, we could identify the preference and willingness to payment for the hospice care, however, many patients and their families still tend not to choose hospice care, and they usually treat cancer in an acute care setting in the last minutes. It may not be easy for hospice care to be the replacement of the acute cancer treatment in large hospitals, and there may be the gap between the WTP and real situation. People may act differently against their will-

ingness at the close end of life.

Fifth, this study has also limitation on the methodology. The method of WTP, such as a scenario, sample design, and process of interview, may affect the result of study. And assessing the value of unfamiliar product may reduce the reliability. We tried to avoid the bias in designing the study. However, hospice care was still not familiar to the respondents. Some of them might have difficulty to understand the product (hospice care), thus making bias to address their willingness to pay.

Policy implications

This study has some significant implication for hospice care. First, although hospice care is currently available in the present fee-for-service system, there are no hospice specific fee scheme. To facilitate hospice service, hospice specific payment system should be developed. In this study, we found that general populations had high awareness, necessity, and WTP for hospice care. Therefore, it is reasonable to develop hospice specific fee scheme.

Second, this study can be useful in determining a payment level for hospice services. Although hospice care is currently available in the present fee-for-service system, there are great differences in quantities, quality, and program. The level of WTP can be acceptable for health insurer, because the level of WTP is close to that of inpatients cancer costs and the results of survey.¹¹

Conclusion

The need for Hospice care has increased gradually. However, under the current fee-for-service system, there are many obstacles in providing hospice services. Hospital managers are reluctant to provide hospice care because of low payment and high costs. Payment system for hospice should be changed, and the fee level should be adjusted according to the resource and efforts. Timely and proper information is essential for policy-makers to make decisions. The critical information should give answers to the questions on effectiveness, cost-effectiveness, and taxpayers' willingness to pay for the program.¹³

This study will, therefore, provide useful information on the decision for hospice care. Some criteria for health insurance benefit, such as necessity of that benefit, clinical effectiveness, cost-effectiveness, other alternative cares, budget impact and political and social issues, should be considered. Suppliers, patients, and the general public, as well as the government and insurers are all important key stake-

holders in the decision-making process for health insurance benefit. Since this study provides information regarding the general public's preference of hospice service and their WTP for hospice care, it may be useful in that decision-making process.

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APPENDIX

A Part of WTP Questionnaire for Hospice service

C. Willingness to pay for hospice service

Let me describe a hypothetical situation. After carefully listening, please, answer the question.

Now, you are suffering from terminal cancer. You had tried chemotherapy and radiation therapy, but they were not effective. Even, cancer cells are metastasized to bones. A doctor tells you that the chemotherapy is no use any more and you could live several more months, at most.

Now, you experience repetitive and severe pain, swelling of body parts, nausea, vomiting, and respiratory difficulty. Also, anxiety for death makes you depressed and difficult to have sleep.

Hospice service helps you be relieved from pain and various symptoms, and gives solutions for mental and spiritual problems through team approach by physicians, nurses, social workers, the clergy, and volunteers. Since in the hospice wards, nurses as many as in intensive care units, and full-time physicians work together, which condition is distinct from that of general wards. You and your family could get counseling and participate in various programs such as music therapy, art therapy, and tea party.

If you are in financial problems, you could get various information from social workers or be introduced to community resources. In addition, you get religious service as you want. These services are also available to your family, and will help them recover from sorrow and loss after your death.

Hospice is not an additional service to the conventional hospital treatment, but an alternative medicine.

When you use hospice service, how much are you willing to pay for a day? (You should decide the amount of money within your income or asset limits).

Q6. Then, are you willing to pay (first suggested amount) won per day for such service?

- 1) Yes → (go to Q7) 2) No → (go to Q8)

Interviewer	First suggested amount	Won/day
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Q7. Then, are you willing to pay (second suggested amount) won per day for such service?

- 1) Yes → (go to Q11) 2) No → (go to Q11))

Interviewer	Second suggested amount	Won/day
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Q8. Then, are you willing to pay (secondarily suggested amount) per day for such service?

- 1) Yes → (go to Q11) 2) No → (go to Q9)

Interviewer	Second suggested amount	Won/day
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Q9. Then, are you never willing to pay even 1 won for such service?

- 1) No, never willing to pay → (go to Q10) 2) Yes, willing to pay → (go to Q11)

Q10. What is the most important reason why you are never willing to pay? Please, choose the most appropriate one out of the following options → (go to Q12)

- 1) I cannot afford such service
 2) I want to get treatment by the time of death
 3) I want to stay at home with my family
 4) I think that hospice service is unnecessary
 5) All the costs should be paid by the government
 6) I don't like to assume such hypothetical conditions.
 7) others ()

Q11. Then, what is the maximum amount of money per day you are willing to pay for hospice?

(won /day)