

Policy Report 2018-05

Korean Health Panel

– Present and Future



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Korean Health Panel: Present and Future

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I

Korean Health Panel: Overview

1. Background and Objectives
2. Surveys: Operation and Management
3. Sample Design
4. Survey Method



Korean Health Panel: << Overview

1. Background and Objectives

A. Background

- As the rising cost of healthcare is exerting an increasing impact on households and public finance in South Korea, policymakers are now placing top priority on finding measures to increase the efficiency, effectiveness, and equity of healthcare.
- To achieve these goals, it is critical for policymakers to first identify and understand the complex and diverse correlations involved in the healthcare-related behaviors of Koreans—which directly influence health expenditure—as well as their states of health and health-related behaviors.
- It is thus necessary to gather basic data to identify the macro- and micro-level factors and causal relations involved in the development of long-term policy measures.
 - There has been a growing demand for up-to-date data on Koreans' out-of-pocket (OOP) expenses and private health insurance costs.

4 Korean Health Panel: Present and Future

- There is also a rising need to establish a database capable of both supporting cross-sectoral studies and monitoring the dynamic changes in Koreans' use of healthcare resources, medical expenditures and their allocation, and the insurance and healthcare delivery systems.

- The Korea Institute for Health and Social Affairs (KIHASA) and the National Health Insurance Service (NHIS) thus jointly launched a consortium to establish the Korean Health Panel (KHP) and conduct its first-wave survey in 2008, with the aim of producing, in a scientific and systematic manner, data and information on utilization of healthcare services and related spending.¹⁾

B. Objectives

- The overarching purpose of the KHP is to gather and provide basic information necessary for the development of policy measures in order to enhance the responsiveness, accessibility, and efficiency of the national healthcare system in Korea by gathering statistical data on morbidities, utilization of medical services and pharmaceutical products,

1) The KHP is the official statistics generated and approved by the state, pursuant to Article 18 of the Statistics Act (Law No. 92012).

causes of medical spending of households, and perceived health status and health behaviors of individuals.

○ Mid- to long-term objectives:

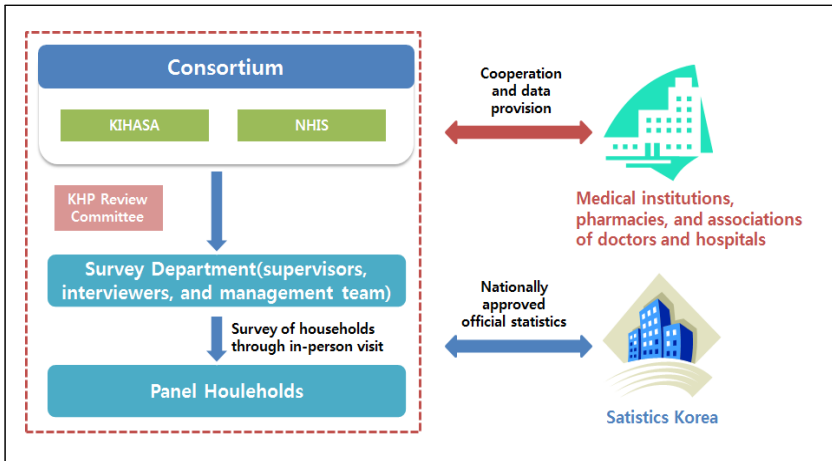
- Identify the amounts of medical spending at the personal and household levels
- Analyze the sources of medical spending
- Analyze utilization of healthcare services and provides characteristics
- Produce statistics and indicators necessary for establishing and evaluating healthcare policy measures
- Estimate and identify changes in national medical spending
- Identify dynamic relations between the utilization of healthcare services, the state of health, and personal and national wealth
- Produce and track dynamic indicators, including those of healthcare security, health equity, and healthcare service quality, necessary to establish and evaluate healthcare policy measures
- Ensure the continuous monitoring of medical spending and related patterns.

2. Surveys: Operation and Management

A. Operation

- The KHP was devised by a consortium of KIHASA and the NHIS. The consortium's review committee ensures the monitoring and supervision of the operation of the Korean Health Panel Surveys (KHPS) (Figure 1-1).
- KIHASA's KHP Survey Management Team assembles teams of trained interviewers to conduct the surveys and manage the collected data.
- This NHIS links the KHP data to its database and provides technical support for the surveys and use and application of the data.
- The KHP Review Committee convenes every quarter to review the allocation and execution of the KHPS budget of the surveys.

[Figure 2-1] KHP Operation System



B. Management

- The KHP provides official, nationally approved healthcare statistics to Statistics Korea so that they can be published digitally on the National Statistics Portal.
- For quality assurance, the consortium assesses the quality of the panel data every year and receives a periodical assessment from Statistics Korea every five years.
- The interviewers are given intensive practical training for one week before the launch of each annual survey. The policy is to have the same researchers visit the same panel households every year.
- The consortium has developed a system of employing

local interviewers in order to ensure the consistency and standardization of the survey results.

- As the KHPS mainly focuses on gathering data on Koreans' utilization of healthcare resources, the cooperation of medical institutions and pharmacies is crucial.
 - Researchers are trained to bring official letters requesting cooperation when they visit medical institutions and pharmacies.
- To ensure the efficiency of receipt collection, the NHIS has been mailing the details of medical services utilized by households as a means of targeting households in advance of each annual survey since 2011.

3. Sample Design

A. Original Sampling in 2007

- With the goal of sampling 8,000 households nationwide, the KHP researchers established the original sample in 2007 and launched the first survey in 2008.
 - Sampling framework: 90 percent of the total data of the 2005 Population and Housing Census

- Stratification variables: region (16 metropolises and provinces) and neighborhoods (dong, eup, and myeon)
 - Sampling method: probability-proportional, two-stage, stratified cluster sampling
 - Total of 350 survey areas and 8,000 units (households) of the sample
- Trend of the participation of sample units in annual surveys
- In the first KHPS, conducted in 2008, 24,616 members of 7,866 households participated. In the most recent (11th) KHPS, conducted in 2016, 13,863 members of 5,025 households participated.

<Table 1-1> Numbers of Households and Household Members Participating in Annual Surveys¹⁾

Wave	1	2	3	4	5	6	7	8	9	10	11
	First half of 2008	Second half of 2008	2009	First half of 2010	Second half of 2010	2011	2012	2013	2014	2015	2016
Survey period	Apr. - Oct. 2008	Nov. 2008 - Apr. 2009	May - Oct. 2009	Jan. - Aug. 2010	Oct. 2010 - Feb. 2011	May - Dec. 2011	Feb. - Jul. 2012	Feb. - Oct. 2013	Mar. - Sept. 2014	Mar. - Sept. 2015	Feb. - Jun. 2016
Households	7,866	7,201	6,798	6,433	6,283	6,041	5,850	5,521	5,284	5,098	5,025
Members	24,616	22,546	21,125	19,842	19,163	18,257	17,417	16,247	15,263	14,344	13,863

Source: 1) Out of the original sample employed in the first survey of 2008.

B. Additional Sampling in 2012

□ Purpose

- In an effort to ensure the reliability of KHP statistics amid the continuous decrease in the number of households included in the original sample and participating in subsequent surveys, the consortium added more households to the panel.

□ Sampling

- The goal was to add 2,500 new households to the original sample so as to keep the sample size at 8,000 households nationwide.
- The original sampling method was applied again, but this time to the total inspection data of the 2010 Population and Housing Census.
 - Sampling framework: 90 percent of the total data of the 2010 Population and Housing Census
 - Stratification variables: region (16 metropolises and provinces) and neighborhoods (dong, eup, and myeon)
 - Sampling method: probability-proportional, two-stage, stratified cluster sampling

(Table 1-2) Numbers of Households and Household Members Participating in Annual Surveys¹⁾

Wave	7	8	9	10	11
	2012*	2013	2014	2015	2016
Survey period	Sept-Oct	Feb-Oct	Mar-Sept	Mar-Sept	Feb-June
Households	2,520	2,222	2,055	1,885	1,796
Members	7,387	6,454	5,955	5,376	5,007

Source: 1) Out of the additional sample established in 2012. *Survey for recurring panel households

4. Survey Method

- KIHASA conduct the KHPS themselves by employing interviewers who visit panel households in person and collecting answers to a series of questions through face-to-face interviews of household members.
- KIHASA's Survey Management team manages the survey process and outcomes, from the assembly of interviewer team to the confirmation of the survey results.
- KIHASA provides a wide range of support measures to facilitate the surveys and retain panel households.
- The KHPS requires all panel households to keep detailed books, complete with receipts, on the amounts of money their members spend on healthcare.
- In principle, panel households are to keep the books and receipts on their healthcare spending, while

interviewers are to enter the information gathered from these books and receipts into CAPI.

- For missing receipts, KIHASA researchers visit the medical institutions involved, with documents from households authorizing them to do so, and obtain newly issued receipts so that they can enter the information into CAPI.

□ When the receipts collected state the morbidities according to the Korean Classification of Diseases (KCD), interviewers enter the stated codes into CAPI. In the absence of such codes, researchers have to convert the diseases into codes later.

○ In other words, interviewers are required to gather as much information as possible on the symptoms and diseases for which the members of panel households sought and obtained healthcare services, and convert the descriptions of such symptoms and diseases into proper KCD codes, in consultation with the Korean Medical Record Association, after the conclusion of the survey.

III

Questionnaire and Medical Spending

1. Composition of Questionnaire
2. Medical Spending and Weight

II

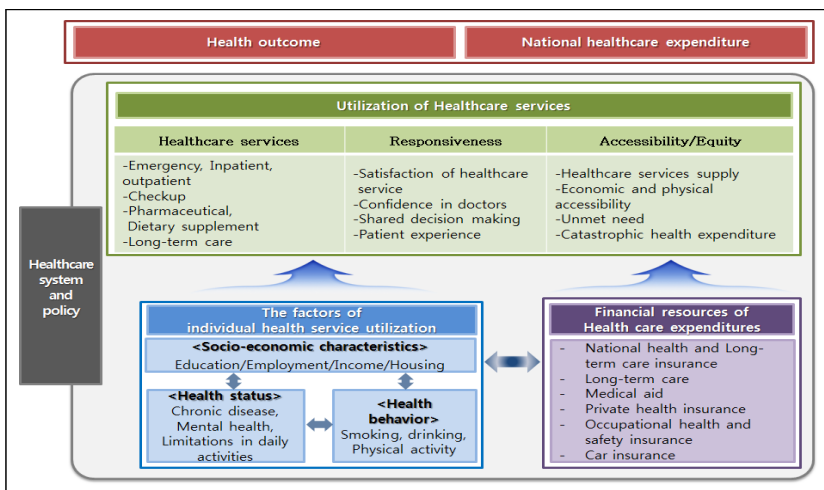
Questionnaire and Medical Spending <<

1. Composition of Questionnaire

A. Framework

- Figure 2-1 shows the framework of the KHPS, which is designed to support the purpose and content of the survey.
- Koreans' utilization of healthcare resources and related matters (particularly their spending) form the main component of the survey, which also examines socioeconomic factors and health behaviours- influencing the main components.

[Figure 2-1] KHPS: Framework



B. Composition of Questionnaire

- The contents of the KHPS can be divided between the section on households and the section on household members.
- The household section consists of questions concerning household type, income, spending, employment status, utilization of medical services (including inpatient, outpatient, and emergency services), and private insurances.
- The household member section consists of questions about individuals' health status and lifestyle habits, limits on (instrumental) activities of daily living (ADL and IADL), quality of life, and experiences as patients.

(Table 2-1) Composition of the KHPS Questionnaire

Section	Category	Subcategory	Subject of questions
Households	General attributes of households and members	Changes in household composition	New, deceased, and separated household members
		Household general	Number of members, generational makeup, and household head
			Whether receiving benefits from the National Basic Livelihood Security Program (NBLSP), other tailored welfare policy programs,
		Household members general	Whether eligible for Medicare or other type(s) of healthcare security
Disability type and grade Membership in social security insurances or personal pension and life insurance policies			
		Employment status	Whether currently working, type of job, industry category, occupational category, whether employing other people and how many, status

II. Questionnaire and Medical Spending 17

Section	Category	Subcategory	Subject of questions
			on the job, work hour arrangement, employment relations, and labor contract period
		Income and spending	Earned income, income from real estate properties, financial income, income from social security insurances, income from private insurances, cash transfers from the government, private transfers, and other income Amount of savings, cost of living, and non-consumption spending
		Debts and assets	Total debt and interest on debt Real estate assets and financial assets
	State of health	Chronic morbidities	Whether suffering from chronic morbidities, whether diagnosed, whether seeking medical care, whether taking medications, whether complying with given prescriptions and dosages, and whether experienced side effects Satisfaction with medications Average monthly cost of drugs and OOP expenses for drugs
	Use of medical services	Healthcare services	Emergency, outpatient, and/or inpatient care (including costs) Checkups and vaccinations
		Pregnancy and childbirth	Prenatal care, labor, and/or postnatal care
		Medical spending	On general pharmaceuticals, sanitary and medical aid, nutraceuticals, medical devices, etc.
	LTCIS	n/a	Care eligibility grade Current residence type Details of healthcare services received OOP expenses and other expenses
	Private insurance	n/a	Whether holding private insurance policies, amounts of premiums paid, and benefits received or amounts reimbursed
	Household members	Members	f health status
Health and lifestyle habits			Smoking, drinking, and exercise Compliance with prescriptions Mental health
Limits on ADL			Bedridden and impairments of vision, hearing, cognitive skills, etc. (aged 18+) ADL and IADL (concerning members aged 55 or older)

Section	Category	Subcategory	Subject of questions
		Quality of life	EQ 5D
		Experiences as patients	Time spared for detailed explanations, questions, etc.
		Access to healthcare	Unsatisfied medical needs, physical access, and financial access
		Most frequently used source of healthcare	Frequency of visiting doctors, hospitals, and clinics
		LTCIS	

**LTCIS: Long-Term Care Insurance for Seniors (LTCIS)*

C. Features

- By providing information that is unavailable from other healthcare-related surveys and administration data, the KHPS effectively supports assessments of healthcare policy measures.
- Unlike other surveys, the KHPS surveys the current status of OOP expenses for healthcare resources, private insurance-related behavior, and spending in relation to diseases (identified by KCD codes), pharmaceuticals, sanitary and medical aids.
- The KHPS supports assessments of healthcare policy measures with indicators.
- By examining households' spending on medical care as well as general income and expenditure, the survey supports projections of the additional costs that households would

likely have to pay in cases of medical emergencies.

- The OOP expenses and sources of finance for healthcare surveyed by the KHPS help policymakers estimate the extensiveness of public healthcare.

2. Medical Spending and Weight

A. Medical Spending

- The KHP includes diverse types of medical spending, including the costs of emergency/outpatient/inpatient care, indirect expenses involved in receiving healthcare services (transportation expenses, etc.), and cost of hiring personal caregivers.

B. Individual and Household Medical Spending

- The medical spending variables are divided into individual spending and household spending variables.
- Individual spending is subdivided into Types 1 and 2, while household spending is subdivided into Types 1 through 5.
 - See Table 2-2 for a list of the items making up the subtypes of individual and household medical spending.

<Table 2-2> Medical Spending Variables

Category	Item	Medical spending						
		Individual (L_MEDICALEXP)		Household (H_MEDICALEXP)				
		1	2	1	2	3	4	5
Healthcare services	Emergency care	○	○	○	○	○	○	○
	Inpatient care	○	○	○	○	○	○	○
	Outpatient care	○	○	○	○	○	○	○
	Emergency care transportation (ambulance)		○		○	○	○	○
	Inpatient care transportation		○		○	○	○	○
	Outpatient care transportation		○		○	○	○	○
	Cost of personal caregiver for inpatient		○		○	○	○	○
	Postnatal care center					○	○	○
	caregiver for mother					○	○	○
	Long-term care personal caregiver for long-term care							○
	Accommodation at assisted-living facility							○
	Meals at assisted-living facility							○
	Professional care at assisted-living facility							○
	Pharmaceuticals	Emergency prescription drugs	○	○	○	○	○	○
Inpatient prescription drugs		○	○	○	○	○	○	○
Outpatient prescription drugs		○	○	○	○	○	○	○
Over-the-counter (OTC) drugs						○	○	○

Category	Item	Medical spending						
		Individual (I_MEDICALEXP)		Household (H_MEDICALEXP)				
		1	2	1	2	3	4	5
	Traditional Korean medicine (drugstores)					○	○	○
	Traditional Korean medicine (traditional clinics)						○	○
	Traditional herbal medicine/ingredients (markets)						○	○
	Nutraceuticals						○	○
	Traditional nutraceuticals						○	○
	Long-term medication (3 months+)					○	○	○
Medical and health aids	Sanitary/medical aids (drugstores)					○	○	○
	Eyeglasses/contact lenses					○	○	○
	Purchase, rental, or repair of medical devices					○	○	○

C. Weighted Variables

- The KHPS is a longitudinal study that surveys both households and household members and provides diverse weighted variables (Table 2-3).
- Household and individual weights
 - Household weights: cross-sectional weights of annual data spanning the years 2008 through 2015

- Individual weights: cross-sectional weights of annual data spanning the years 2008 through 2015 and longitudinal weights spanning the years 2009 through 2015
- Weights on the additional sample are also provided.

○ Population- and sample-specific weights

- Population-specific weights: based upon the numbers of households and household members included in the population
- Sample-specific weights: based upon the numbers of households and household members included in the final sample

(Table 2-3) Weighted Variables

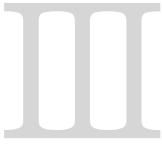
Years	Weight type	Households		Household members	
		Population	Sample	Population	Sample
2008	CS	H_WGC	H_WSC	I_WGC	I_WSC
2009-2013	CS	H_WGC	H_WSC	I_WGC	I_WSC
	Long.	-	-	I_WGL	I_WSL
2014-2015 (original sample)	CS	H_WGC_08	H_WSC_08	I_WGC_08	I_WSC_08
	Long.	-	-	I_WGL_08	I_WSL_08
2014-2015 (integrated sample)	CS	H_WGC_TO T	H_WSC_TO T	I_WGC_TO T	I_WSC_TOT
	Long.	-	-	-	-

Note: The months indicated with slanted lines represent the months in which Koreans' use of healthcare resources occurred and which were included in the given year's survey. Data from these months form the wave data.



Management and Operation

1. KHP Reports, Conference and Data Applications
2. Discussions on KHP Reform



1. KHP Reports, Conference and Data Applications

(1) Reports

- Together, KIHASA and the NHIS publish reports every year that provide basic analyses of the findings of the annual KHP surveys. In-depth analyses, focusing upon specific themes and subjects, are also published as reports on a regular basis. A report on measures for the development and management of the KHP has also been published.
- KHP Basic Analysis Reports
 - The KHP Basic Analysis Reports discuss the findings of each year's survey. The Basic Analysis Report published in 2017 provided an analysis of the KHP statistics that were gathered in 2015.
 - KIHASA and the NHIS provide analyses for different sections of these reports. Whereas KIHASA concentrates upon analyzing health status, chronic morbidities, health behaviors and related medical spendings, the NHIS focuses on analyzing the financial burden of medical spending on households, and private insurance data.

(2) Conferences and Data Applications

- The KHP Conference is held in the latter half of each year, with scholars giving presentations on the given topics. The conference features sessions open to general academics and graduate students, receives research proposals, and presents some works selected from among the entries.
- Topics that have been discussed at the KHP Conferences so far include: (1) anticipated changes in Koreans' use of healthcare resources due to population aging; (2) extensiveness of public healthcare and roles of private health insurances; (3) changing composition of national medical spending; (4) sustainability of chronic morbidity management; and (5) accessibility and equity of medical services, among others.
- As of 2018, 10 KHP Conferences have been held.
- KIHASA regularly organizes briefing sessions for users of KHP data to introduce the KHP, hold discussions on the characteristics of the collected data, and provide training on statistical methods.
- From 2008 to 2017, 526 independent studies that used the KHP data were published.²⁾

2) The number of KHP-based studies cited here includes studies that apply the

<Table 3-1> Independent Studies Making Use of KHP Data

Year	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	Total
Number of studies	9	2	17	55	62	86	81	72	82	60	526

2. Discussions on KHP Reform

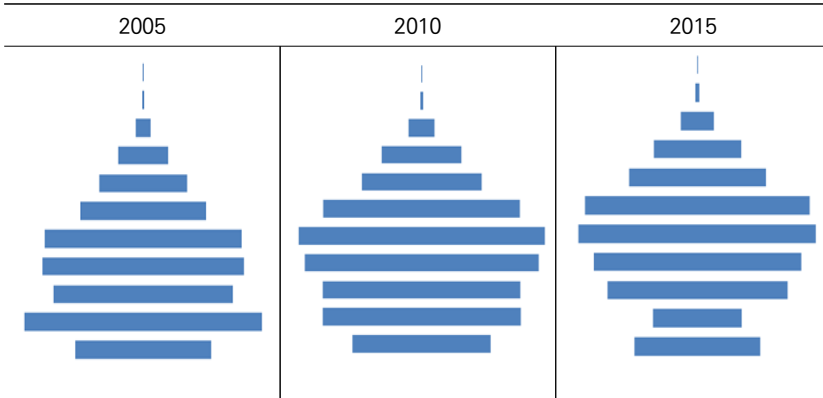
□ Need for Reform

○ Representative data on Koreans’ utilization of healthcare

- The representativeness of the cross-sectional KHP data is being increasingly questioned due to the limitations of the basic sampling survey of 2005 and the growing number of households leaving the original panel sample.
- It is also important to reflect the changes that are occurring in Korean society at large, including population aging.
- The sample should be updated with the latest (2015) census data in order to ensure the representativeness of the cross sections.

data as recommended by the In-Depth KHP Analysis Reports, studies presented at the KHP Conferences, degree theses, articles published in academic journals, and policy reports.

(Table 3-2) Changing Demographic Structure of Korea



□ Planing of the Second KHP

○ Finite-period fixed panel

- The entire panel should be redesigned (with 8,500 or so households) based on the 2015 census.
- The new panel should be used for the subsequent six to eight surveys (until the rate of household participation falls to 70 percent).
- In 2015, discussions on redesigning the KHP began, and a reform plan was subsequently established.
- Reform measures include revisiting not only the survey design but also the entire system of organizing and conducting the surveys.

○ Schedule of the second KHP

- The new sample is to be completed in 2018, complete

with a sampling survey, so that the first survey based upon the second KHP can be launched in 2020.

〈Table 3-3〉 KHP Reform Plan

Time	Description
2015-2017	<ul style="list-style-type: none"> - Measures for improvement and reform discussed. - Measures for establishing the second KHP and a new operation and management system discussed and decided.
2018	<ul style="list-style-type: none"> - Sample design and sampling conducted in accordance with survey objectives. - Survey content and schedule developed in accordance with survey objectives. - Sampling survey conducted to select panel households for the second KHP
2019	<ul style="list-style-type: none"> - Last surveys based on the first KHP to be conducted. - Preliminary survey for the second KHP to be launched.
2020	<ul style="list-style-type: none"> - First surveys based on the second KHP to be conducted.

IV

Main Indicators and Survey Findings

1. Main Indicators
2. Households' Utilization of Healthcare Services and Healthcare Spending
3. Prevalence of Chronic Diseases and Healthcare Spending
4. Chronic Diseases and Medications
5. Private Health Insurances

IV

Main Indicators and Survey Findings

1. Main Indicators

- Table 4-1 lists the main indicators according to which the KHP data were collected. The Basic Analysis Reports discuss the survey findings in relation to the categories encompassing these indicators, such as the health status, health and lifestyle habits, utilization of healthcare resources and healthcare expenses, private insurances, and accessibility.

〈Table 4-1〉 Categories and Indicators of the KHPS

Category	Indicators
State of health	<ul style="list-style-type: none">• Prevalence rates of major chronic diseases• Proportions of individuals who report health status to be not good or bad• Restrictions on ADL/IADL
Health and lifestyle habits	<ul style="list-style-type: none">• Current smoking rate and frequencies• Monthly drinking rate and high-risk drinking rate• Exercise of medium intensity or higher• Walking rate
Use of healthcare services and healthcare spending	<ul style="list-style-type: none">• Rates of household members who utilized emergency, inpatient, and outpatient services per year• Number of times household members who utilized emergency, inpatient, and outpatient services per year• Percentage of households with catastrophic health expenditures• Average annual OOP expenses per capita among patients diagnosed with major chronic diseases• Average annual OOP expenses per capita among patients diagnosed with major severe diseases• Medication utilization rate and drug compliance rate among patients diagnosed with major diseases

Category	Indicators
	<ul style="list-style-type: none"> • drug compliance rate among patients diagnosed with major chronic diseases • Average annual OOP expenses per capita and number of drugs taken per capita among users of OTC drugs
Use of private health insurances	<ul style="list-style-type: none"> • Private health insurance rates of households and number of private health insurances held by households • Average monthly amount of private health insurance premiums paid by households • Rate and number of households benefitting from private health insurances and amount of benefits households received
Medical accessibility	<ul style="list-style-type: none"> • Percentages of who report experiencing unmet needs

2. Households’ Utilization of Healthcare Services and Healthcare Spending

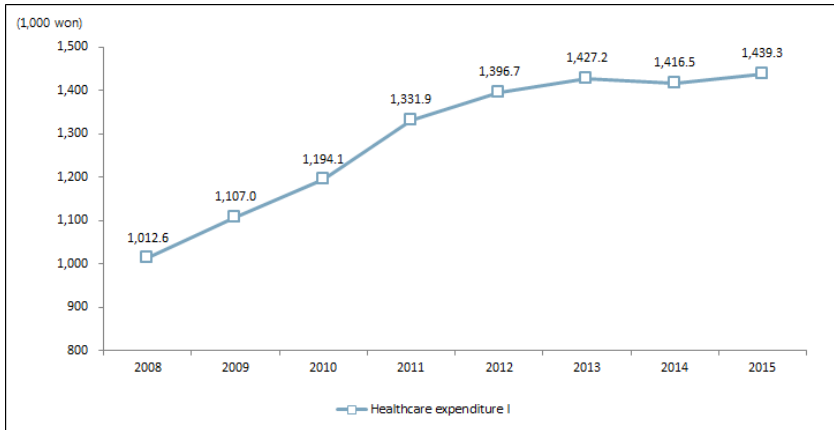
A. Annual Household Healthcare Spending³⁾

□ Household Medical Expenditure (HME) I and II rose steadily from 2008. The pace of their increase slowed in 2011, but picked up again in 2015.

○ In 2015, HME I and II amounted to KRW 1.439 million and KRW 1.491 million, respectively.

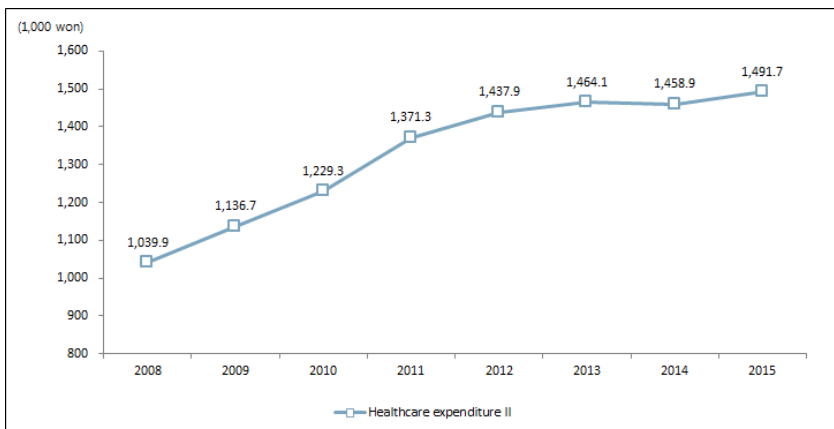
3) HME I: costs of emergency, inpatient, and outpatient services and prescription drugs
 HME II: HME I + cost of transportation + cost of hiring 1 personal caregivers for hospitalized patients

[Figure 4-1] Trends of Household Healthcare Expenditure (Household Medical Expenditure I, 2008-2015)



Note: Cross-sectional sampling weights were applied in the analysis. Missing values were excluded.

[Figure 4-2] Trends of Household Healthcare Expenditure (Household Medical Expenditure II, 2008-2015)

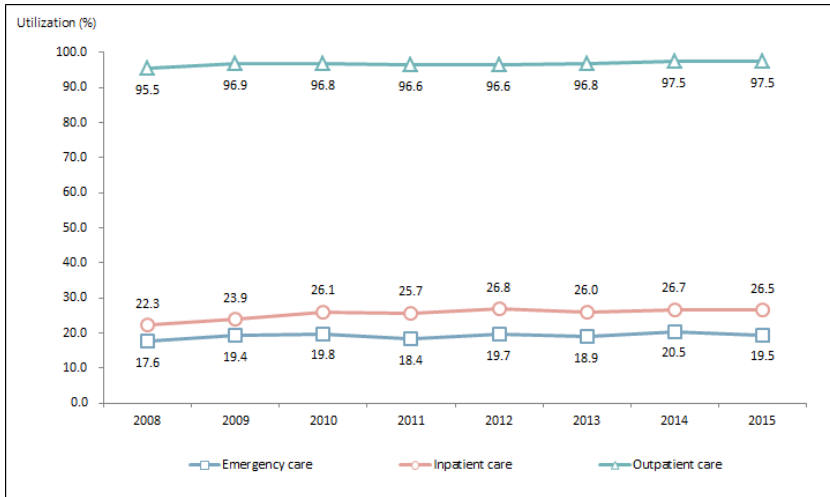


Note: Cross-sectional sampling weights were applied in the analysis. Missing values were excluded.

B. Households' Utilization of Healthcare Services

- The rate of healthcare service use is measured in terms of the percentage of households with experiences of receiving different types of healthcare services (emergency, outpatient, and inpatient).
- The rate of outpatient service use hovered consistently above 95 percent throughout all the surveyed years. The utilization rate of inpatient service was the next highest, followed by the utilization rate of emergency service.
- The utilization rates of healthcare service remained more or less steady throughout the surveyed years. In 2015, the utilization rates of emergency, inpatient, and outpatient service reached 19.5 percent, 26.5 percent, and 97.5 percent, respectively, which are similar to the rates observed the previous year.

[Figure 4-3] Trends of Household Healthcare Utilization for Emergency, Inpatient, and Outpatient Care (2008-2015)

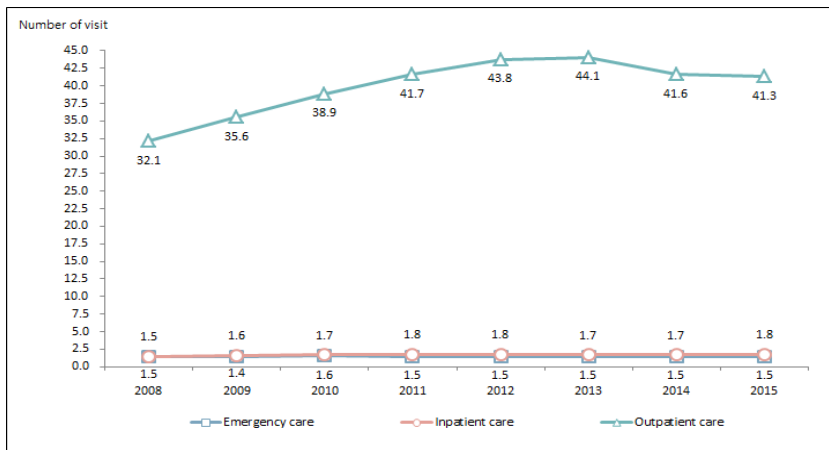


Note: Cross-sectional sampling weights were applied in the analysis.

- The frequencies of households’ use of healthcare services were also measured by the type of care involved. Figure 4-4 shows the annual trends in these frequencies.
- The average number of visits made by households to hospitals for emergency and inpatient care remained nearly constant throughout the years, ranging from 1.4 times to 1.8 times.
- The frequency of visits made by households to hospitals for outpatient care far exceeded the frequency of visits for other types of care. The number of visits made by households to hospitals for outpatient care grew continuously from 2008 before declining in 2014. As of 2015, households

made an average of 41.3 visits per year to hospitals for outpatient care.

[Figure 4-4] Trends of Visits Made by Households for Emergency, Outpatient, and Inpatient Care (2008–2015)



Note: Cross-sectional sampling weights were applied in the analysis.

C. Percentage of Households Incurring Catastrophic Health Expenditures

- Catastrophic health expenditures refer to amounts of OOP medical expenses that households incur but cannot afford to pay, given their ability to pay (ATP).
- The threshold levels of households' medical spending relative to their ATP was broken up into intervals of five percent, ranging from five percent to 40 percent. At all levels, the percentages of households incurring catastrophic

health expenditures grew from 2010 to 2015.

- Households for which health expenses make up 40 percent or more of their entire spending—defined by the WHO as “households with catastrophic health expenditures”—made up 4.38 percent of all panel households in 2015.

(Table 4-2) Proportion of Households Experiencing Catastrophic Health Expenditures (2010–2015)

(unit: %)

Year		Threshold level							
		5%	10%	15%	20%	25%	30%	35%	40%
2010	H	40.62	22.32	14.10	10.20	7.37	5.91	4.60	3.68
	SE	0.64	0.54	0.45	0.40	0.34	0.31	0.27	0.25
2011	H	41.41	23.76	15.08	10.74	8.42	6.41	5.00	4.23
	SE	0.65	0.56	0.47	0.41	0.37	0.32	0.29	0.27
2012	H	42.75	23.92	15.80	11.37	8.41	6.49	5.23	4.21
	SE	0.67	0.58	0.50	0.43	0.38	0.34	0.30	0.27
2013	H	42.83	23.92	16.11	11.14	8.21	6.79	5.33	4.39
	SE	0.69	0.59	0.51	0.44	0.38	0.35	0.31	0.28
2014	H	43.03	24.74	16.01	11.29	8.51	6.61	5.19	4.28
	SE	0.60	0.52	0.44	0.38	0.34	0.30	0.27	0.24
2015	H	43.16	24.68	16.51	11.61	8.80	6.93	5.24	4.38
	SE	0.61	0.53	0.46	0.39	0.35	0.31	0.27	0.25

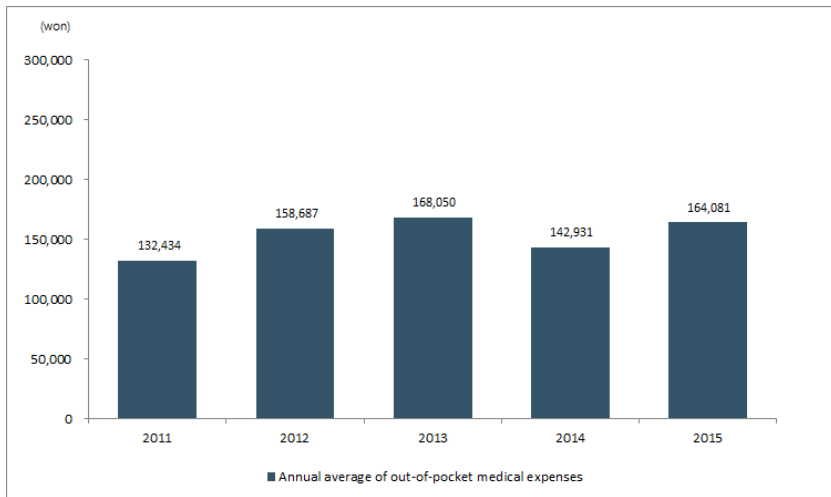
Note: “H” means “head count,” and “SE” means “standard error.”

Source: Namgyu Seo et al. (2017), *In-Depth Analysis Report on Korean Health Panel Survey 2017*, p. 86.

D. Average Annual OOP Spending Per Capita Among Users of OTC Drugs (Taken for Three Consecutive Months or Longer)

- See Figure 4-5 for the trend of this annual average expenditure.
- The average annual OOP spending per capita among users who took OTC drugs for three consecutive months or longer rose continuously before falling briefly in 2014 and rising again (by 14.8 percent) in 2015, reaching KRW 164,081.

[Figure 4-5] Average Annual Spending Per Capita on OTC Drugs Taken for Three Months or Longer

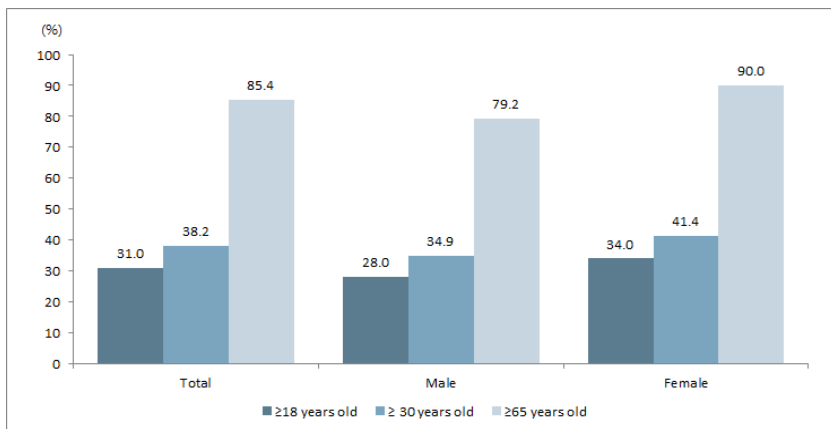


3. Prevalence of Chronic Diseases and Healthcare Spending

A. Prevalence Rates of Major Chronic Diseases among Adult Household Members

- The major chronic diseases of adult household members (aged 18 or older) surveyed were: hypertension (I10), diabetes (E10-E14), hyperlipidemia (E78), arthritis (M00-M19), heart diseases, cerebrovascular diseases, malignant neoplasms (C00-D09), and tuberculosis (A15-A19).
- The combined prevalence rates of these eight major chronic diseases were 28.0 percent among men and 34.0 percent among women.

[Figure 4-6] Prevalence of Eight Major Chronic Diseases by Gender and Age among Adults Aged 18 or Older (2015)



Note: Cross-sectional sampling weights were applied in the analysis.

B. Average Annual OOP Expenditure Per Capita among Patients with Major Chronic Diseases

- The OOP expenditures per capita were measured in terms of payments made for outpatient services, costs of prescription drugs, and sums of the two.

(1) Hypertension

- The OOP spending of patients with hypertension aged 18 or older has been increasing steadily since 2008. While spending on prescription drugs started dropping somewhat in 2011, it rose again in 2015.
- In 2015, the average annual OOP spending per capita among adult patients with hypertension (outpatient care + prescription drugs) reached KRW 219,760, of which KRW 64,080 was paid for outpatient services and KRW 155,681 for prescription drugs.
 - The cost of prescription drugs, in other words, accounted for 70.8 percent of the per-capital spending on treatment for hypertension.

(Table 4-3) Average Annual OOP Expenditure Per Capita for Treatment of Hypertension in an Ambulatory Setting (2008-2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
OOP spending for outpatient services	48,391	50,780	52,241	55,205	55,220	55,515	57,821	64,080
OOP spending for prescription drugs	150,963	156,495	161,454	164,698	150,750	147,604	148,961	155,681
Total OOP expenditure ¹⁾	199,354	207,275	213,694	219,903	205,970	203,119	206,782	219,760

Note: Cross-sectional sampling weights were applied in the analysis.

1) Total OOP expenditure: OOP expenditure for outpatient services and prescription drugs

(2) Diabetes

- Per-capita OOP spending among adult patients with diabetes has been on the rise since 2013.
 - It rose by 20.0 percent from 2014 to 2015. Spending on outpatient services rose by 23.3 percent, while spending on prescription drugs rose by 18.3 percent.
 - In 2015, the average annual OOP spending per capita among adult patients with diabetes amounted to KRW 317,940, of which KRW 105,781 was paid for outpatient services and KRW 212,160 for prescription drugs.
 - The cost of prescription drugs made up 66.7 percent of the total cost of outpatient treatments for diabetes patients.

(Table 4-4) Average Annual OOP Expenditure Per Capita for Treatment of Diabetes in an Ambulatory Setting (2008-2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
OOP spending for outpatient services	77,972	74,066	88,243	82,239	90,932	69,534	81,122	105,781
OOP spending for prescription drugs	210,415	207,508	220,185	207,629	195,834	140,784	173,340	212,160
Total OOP expenditure ¹⁾	288,387	281,574	308,428	289,867	286,766	210,317	254,462	317,940

Note: Cross-sectional sampling weights were applied in the analysis.

1) Total OOP expenditure : OOP expenditure for outpatient services and prescription drugs

C. Annual OOP Spending Per Capita Among Patients with Severe Diseases

(1) Heart Diseases

(a) Average Annual OOP Expenditure Per Capita among Inpatients

□ The average annual OOP expenditure per capita among adult inpatients with heart diseases began decreasing in 2011 but rose significantly in 2014. It then dropped again by a large margin in 2015.

○ The average annual OOP expenditure per capita dropped by 34.6 percent from 2014 to 2015, reaching KRW 1,282,496.

(Table 4-5) Average Annual OOP Expenditure Per Capita for Treatment of Heart Diseases in an Inpatient Setting (2008–2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
Out-of-pocket medical expenses	1,269,578	1,411,239	1,584,415	1,683,282	1,129,243	1,197,118	1,725,706	1,282,496

Note: Cross-sectional sampling weights were applied in the analysis.

(b) Average Annual OOP Expenditure Per Capita among Outpatients

- The average annual OOP expenditure per capita among adult outpatients with heart diseases began declining in 2011 before rising again in 2015. The outpatient service charges have been varying somewhat, but not at dramatic rates.
- In 2015, the average annual OOP expenditure per capita among adult outpatients with heart diseases reached KRW 298,435, of which KRW 114,896 was spent on outpatient services and KRW 183,539 on prescription drugs.
 - Prescription drugs claimed 61.5 percent of the total annual per-capita cost of treating outpatients with heart diseases.
- OOP expenditure per capita rose by 6.3 percent from 2014 to 2015. Spending on outpatient services grew more significantly at 12.1 percent, while spending on prescription drugs rose by 2.7 percent.

(Table 4-6) Average Annual OOP Expenditure Per Capita for Treatment of Heart Diseases in an Ambulatory Setting (2008-2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
OOP spending for outpatient services	104,929	111,470	104,073	114,757	123,803	113,891	101,045	114,896
OOP spending for prescription drugs	222,330	231,566	214,141	223,545	186,301	183,008	178,548	183,539
Total OOP expenditure ¹⁾	327,259	343,036	318,214	338,302	310,104	296,899	279,593	298,435

Note: Cross-sectional sampling weights were applied in the analysis.

1) Total OOP expenditure: OOP expenditure for outpatient services and prescription drugs

(2) Cancer

(a) Average Annual OOP Expenditure Per Capita among Inpatients

- The average annual OOP expenditure per capita among adult inpatients with cancer has been fluctuating since 2011.
- In 2015, the OOP expenditure per capita among inpatients, based upon the integrated sample of 2015, was down by 10.1 percent from the previous year, amounting to a total of KRW 2,432,436.

(Table 4-7) Average Annual OOP Expenditure Per Capita for Cancer Treatment in an Inpatient Setting (2008–2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
Out-of-pocket medical expenses	3,018,273	3,066,273	2,908,802	2,938,980	2,455,982	2,724,452	2,677,105	2,432,436

Note: Cross-sectional sampling weights were applied in the analysis.

(b) Average Annual OOP Expenditure Per Capita among Outpatients

- The average annual OOP expenditure per capita among outpatients with cancer started falling in 2008 before rising again in 2015.
- It amounted to a total of KRW 373,254 per outpatient, of which KRW 310,827 was spent on outpatient services and KRW 62,426 on prescription drugs.
 - Contrary to heart and cerebrovascular diseases, prescription drugs for cancer made up a relatively small (16.7 percent) portion of the total cost of outpatient treatment.
- Nonetheless, OOP expenditure per capita rose by 20.2 percent from 2014 to 2015, with outpatient expenditure growing by 20.0 percent and prescription drug expenditure by 21.5 percent.

(Table 4-8) Average Annual OOP Expenditure Per Capita for Cancer Treatment in an Ambulatory Setting (2008-2015)

(unit: KRW)

	2008	2009	2010	2011	2012	2013	2014	2015
OOP spending for outpatient services	514,711	356,996	334,268	354,541	351,126	305,385	248,736	310,827
OOP spending for prescription drugs	81,213	61,283	95,697	93,522	45,973	56,294	48,977	62,428
Total OOP expenditure 1)	595,924	418,279	429,965	448,063	397,099	361,679	297,713	373,254

Note: Cross-sectional sampling weights were applied in the analysis.

1) Total OOP expenditure: OOP expenditure for outpatient services and prescription drugs

4. Chronic Diseases and Medications

- The drug utilization rate refers to the percentage of surveyed household members aged 18 or older who answered that they had taken prescription drugs (including injections and ointments) over the previous year as treatment for their chronic diseases.
- The drug compliance rate refers to the percentage of surveyed household members aged 18 or older who answered that they tended to comply with their prescribed medication regimens.

(1) Hypertension

□ The drug utilization rate among adult patients with hypertension has been decreasing since 2009. The drug compliance rate rose significantly from 2011 to 2012, after which it fell before rising again in 2015.

○ In 2015, the drug utilization rate among hypertension patients was 93.4 percent, and the drug compliance rate was 93.7 percent, with the latter showing an increase of 2.8 percent from the previous year.

(Table 4-9) The proportion of people utilizing prescription drugs and complying with medication regimen among patients with hypertension, 2008~2015

(unit: %)

	2008	2009	2011	2012	2013	2014	2015
Prescription drug utilization	96.0	99.7	95.8	95.4	94.4	94.3	93.4
Medication compliance	86.6	86.8	85.3	93.0	92.1	90.9	93.7

Note: Cross-sectional sampling weights were applied in the analysis.

(2) Diabetes

□ The drug utilization rate among adult patients with diabetes has been dwindling since 2009, falling as low as 92 percent in 2015.

○ The drug compliance rate rose significantly in 2012 and has remained steady ever since, recording 93.7 percent

in 2015.

(Table 4-10) Proportion of Diabetes Patients Using Prescription Drugs and Complying with Their Medication Regimens (2008-2015)

(unit: %)

	2008	2009	2011	2012	2013	2014	2015
Prescription drug utilization	94.1	97.9	95.5	93.7	93.3	95.0	92.7
Medication compliance	84.6	87.9	86.2	92.6	92.6	92.4	93.7

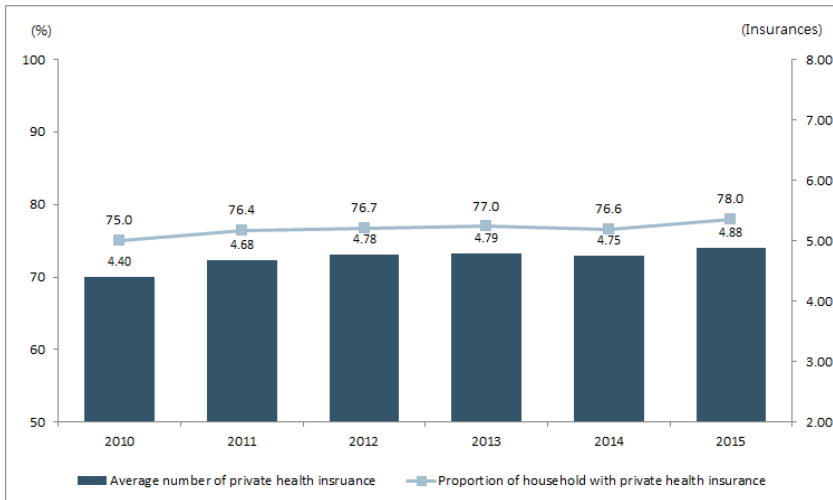
Note: Cross-sectional sampling weights were applied in the analysis.

5. Private Health Insurances

A. Households Holding Private Health Insurance Policies

- As of 2015, 78.0 percent of surveyed households held private health insurance (PHI) policies, and each of these households held an average of 4.88 policies.
- The percentage of households with PHI policies grew from 75.0 percent in 2010 to 78.0 percent in 2015, while the average number of PHI policies per household also rose from 4.40 in 2010 to 4.88 in 2015.

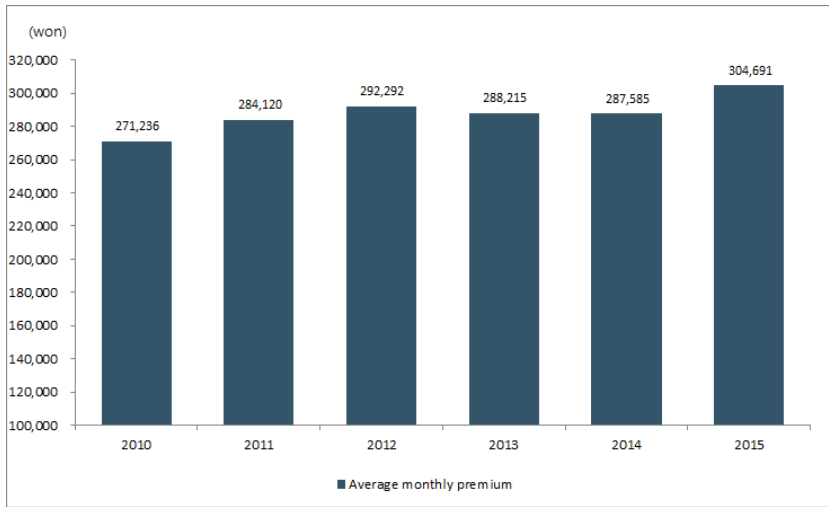
[Figure 4-7] Proportions of Households with PHIs and Average Number of PHIs Purchased Per Household



B. Average Monthly Amount of PHI Premiums Per Household

□ The average monthly amount of PHI premiums per household rose from KRW 271,236 in 2010 to KRW 304,691 in 2015.

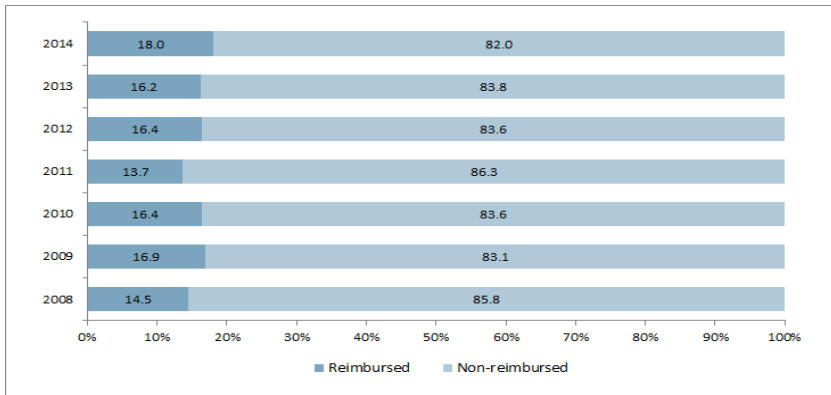
[Figure 4-8] Average Monthly Premiums for PHIs Per Household



C. Households Benefitting from PHIs

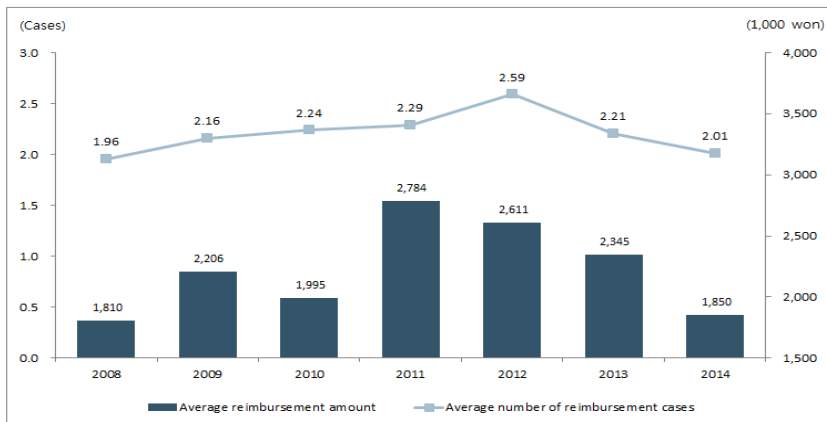
- The percentage of households receiving benefits under their PHI policies fluctuated from 2008 to 2014, reaching 18.0 percent in 2014.

[Figure 4-9] Proportions of Households Receiving PHI Benefits



in 2014, households claimed benefits under their PHI policies in an average of 2.01 cases and received an average of KRW 1,850,000 in benefits.

[Figure 4-10] Average Number of PHI Reimbursement Cases and Average Amount of PHI Benefits Per Household



V

KHP: Achievements and Future Tasks

1. Achievements and Tasks of the KHP
2. Suggestions for Future Improvement
3. Conclusion



KHP: Achievements and Future Tasks

1. Achievements and Tasks of the KHP

A. Achievements

- The KHP is a major instrument with which representative statistics on Koreans' use of healthcare resources and services are gathered. The KHP data are used widely at national and official levels to assess policy measures for enhancing the health equity and effectiveness of healthcare system in Korea.
- Since the first KHPS was conducted in 2008, the survey has been the sole official source of statistical information on the use of healthcare resources and services in Korea from the perspective of patients.
- The strengths and achievements of the KHP can be summarized as follows.
 - First, while the KHP data are focused on the amounts of medical expenses paid by households, they also provide a wide range of information on the diverse attributes of panel households.
 - Unlike administrative data, the KHP data enable

researchers to identify the correlation between households' socioeconomic characteristics and health behaviors, on the one hand, and their use of healthcare resources, on the other.

- Second, the KHP gathers information on the attributes of households and the health behaviors of household members via surveys, and also amasses data on their utilization of healthcare resources by collecting medical bills and receipts.
 - This system of information gathering enables researchers to determine the total amounts of OOP expenses that households pay for healthcare, including services not covered by National Health Insurance .
- Since the first KHPS was conducted in 2008, the KHP researchers have collected and accumulated longitudinal data over the past 10 years, providing information with which researchers can assess the impacts of significant policy changes that took place during this period.
 - For example, researchers can use the KHP data to verify whether the policy to lower OOP expenses has affected Koreans' utilization of healthcare services.
- Fourth, the KHPS can be difficult for participating households to keep up with, as they are required to

collect and keep the receipts of the healthcare resources they have used. As of 2018, however, over 6,000 households are still participating in the survey.⁴⁾

- The KHP data are official and nationally approved statistics that represent Koreans' utilization of healthcare resources and services.

B. Future Tasks

- A full decade has passed since the KHP was first introduced. It is thus now time to revisit the panel design in light of the rapid demographic and socioeconomic changes taking place in Korea and in the interest of ushering in a new and better future.
 - The KHP faces two major tasks that must be completed in order for the panel to remain effective in the future.
 - First, the panel should be redesigned so as to gather additional information on the use of healthcare resources by different subsets of the Korean population and/or in specific areas of healthcare.
 - The survey should be redesigned and elaborated upon in order to survey the health conditions and utilization of healthcare resources among seniors.

⁴⁾ As the number of households abandoning the survey continued to increase, 2,500 or so additional households were included in the sample in 2013.

- For example, the survey should be designed to gather data on the prevention and management of aging-related frailty, costs of personal caregiving for seniors, poly-pharmacy, and the seniors' utilization pathway from general hospital to skilled nursing facilities or assisted-living facilities.
 - As demands change over time, greater emphasis should be placed on respecting the diversity of values among patients and families. It is thus important to survey the difficulties and issues they encounter while using healthcare services.
 - Efforts to enrich the range of information available from the surveys, such as consultations with policymakers and researchers on what they need from the KHP data, should be made.
- Second, the survey process should be made easier and simpler in order to ensure the representativeness of the resulting KHP statistics.
- Most importantly, measures should be devised to encourage panel households to collect and keep their medical bills and receipts as much as possible.
 - At present, interviewers are required to visit medical institutions and pharmacies to find and secure missing bills and receipts. This places a significant

burden on interviewers .

- The high turnover rate among researchers could also cause more and more households to leave the panel, compromising the consistency of the resulting data.

2. Suggestions for Future Improvements

A. Panel Reform

- As described in previous chapter, KIHASA and the NHIS have agreed to stop conducting the surveys based upon the first KHP as of 2019 and establish the second KHP in order to ensure the continued evolution and progress of the panel surveys and their findings.
- A sampling survey will be launched in 2019 with the aim of providing an entirely new panel for surveys beginning in 2020. The researchers involved are currently designing the new sample and improving the survey questionnaire.
- The following objectives should guide the process of developing the second panel in order to ensure the quality of the resulting data.
 - First, the relevance of the KHP data to healthcare policy should be enhanced.

- The survey should be structured and designed so that comprehensive and relevant information on household factors and households' utilization of healthcare resources can be provided for policymaking purposes.
- Second, the available range of information should be enriched.
 - The KHP surveys should be capable of providing core information on the use of healthcare resources as well as information on the use of healthcare resources by demographic subsets and/or in specific areas of medicine. The richness of information can be ensured by separating the annual surveys from additional and periodical surveys.
- Third, the KHP data should be sufficiently representative of utilization of healthcare resources.
 - The sample should be designed in light of the current demographic structure, and new measures should be devised to prevent households from leaving the panel.
- Fourth, the accuracy of the KHP data should be increased.
 - The KHP data are divided into three components: socioeconomic attributes of households, households' health behaviors, and households' utilization of

healthcare resources and services. The survey and data management system should be improved to increase the reliability of the data of all three components.

- Fifth, the timeliness and comparability of data should be improved.
 - The time it takes to process data and perform basic analysis should be minimized, and the specific survey items should be revised to make them comparable to those of other health surveys and facilitate international comparison.
 - Longitudinal data should also be collected and provided in a manner that makes time series comparison possible.

B. Improving KHP Governance

- The governance of the KHP should also be improved to enhance the value and quality of the resulting data.
 - First, a team specializing in research methods and responsible for designing the sample, deciding the weights, and selecting the methods of analysis should be established for full-time operation.
 - Second, the scope of the roles and responsibilities of the data management team should be extended beyond the

management of data to include making improvements to the applicability of data.

- Third, the survey management team should focus on training interviewers for strengthening their communication with panel households.
- Fourth, working groups should be established for the different sections of the survey and tasked with analyzing basic information and identifying necessary improvements.
- Fifth, a public relations team should be created to coordinate and strengthen cooperation with medical institutions, organizations, and conferences to support the KHP surveys.
- Finally, a committee is needed to audit the efficiency of the KHP survey budgets and review the ethical implications of the surveys and their analysis. The existing review committee could be restructured to perform these roles.

3. Conclusion

- A decade has passed since the KHP was first introduced in Korea. Now, in 2018, numerous attempts are being made to introduce changes into the sample management system, survey structure, and survey process.

- The parties involved are making their best efforts to design a new sample (the second KHP) and improve the survey structure so as to achieve the underlying objectives of the KHP.
- Efforts are also being made to establish a better organized system of governance in order to improve the quality of the panel data and reform the way the KHP surveys and data are managed.
- These efforts will soon bear fruit, allowing the KHP to continue fulfilling its role in healthcare policymaking and providing reliable data that can be used to shape and lead policy evaluations nationwide.