Health Insurance
Review & Assessment Service

Health Insurance
Review & Assessment Service
267 Hyoryeong-ro, Seocho-gu, Seoul, Korea.137-706
http://www.hira.or.kr

DESIGNED BY BEE COMMUNICATION

Health Insurance
Review & Assessment Service

http://www.hira.or.kr

Health Insurance Review & Assessment Service

MISSION STATEMENT

The Health Insurance Review
and Assessment Service is dedicated
to ensuring the quality and cost effectiveness
of national healthcare.

CONTENTS

President's Message 04

National Health Insurance and HIRA 06

Major Activities 10

*Part I: Review & Assessment

[Review]

Fee Claims Review 12

Healthcare Review & Assessment Committee 16

Comprehensive Management (CM) for Appropriate Medical Services 17

Drug Utilization Review (DUR) 21

On-site Investigation 23

Appeal & Restitution Procedures for the Violation of Private Rights 26

[Assessment]

Quality Assessment 30

Value Incentives Program (VIP) 35

*Part II: Healthcare Benefits Management

Medical Fees Management 39

Drug Pricing, Listing & Adjustment 43

Medical Material Price Management 47

Management of Healthcare Workforces, Facilities and Device 49

Evidence-Based Healthcare (EBH) 52

Management of New Health Technology and RBRV Scores 55

Diagnosis-Related Group (DRG) Payment System 58

*Part III: Information Technology & Other Activities

Electronic Billing System 61

National Healthcare Data Warehouse (DW) System 63

Korea Pharmaceutical Information System (KPIS) 66

Research 69

PRESIDENT'S MESSAGE

It has been more than thirty years since the national health insurance program was implemented in Korea, and the program has become deeply rooted in our society as a public healthcare service, the envy of the world. This accomplishment has resulted from the efforts of government, medical society and the people of Korea.

The Health Insurance Review and Assessment Service (HIRA) reviews and assesses healthcare costs and healthcare service quality, as well as supporting the national health insurance policy in determining medical fee schedules and drug prices. In performing these activities, we listen carefully to the voices of various stakeholders in order to incorporate their diverse interests in the promotion of appropriate use of healthcare services and a trustworthy healthcare service environment.

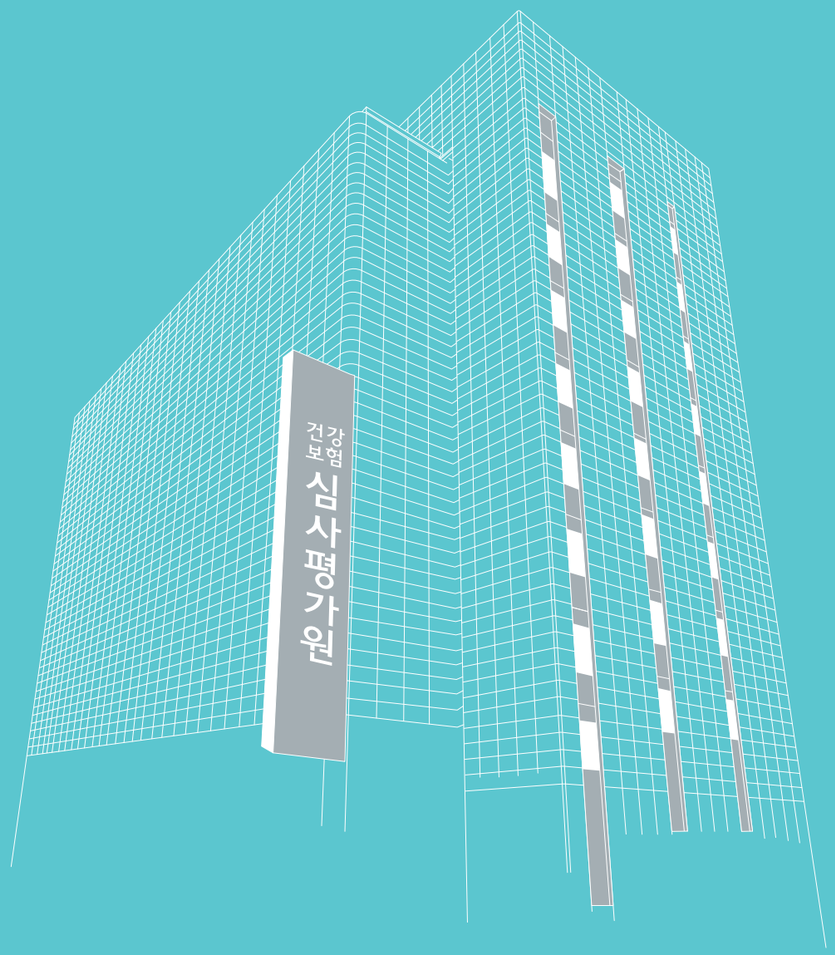
As globalization is developed in every aspect of our lives, the exchange of information with various health and medical related organizations, and the building of firm, cooperative relationships are more important than ever before. We hope this booklet will enhance understanding of the Korean healthcare system as well as the role of HIRA in a globalized world.

Thank you.

Dec. 2011

President
Kang, Yoon Koo

NATIONAL HEALTH INSURANCE AND HIRA

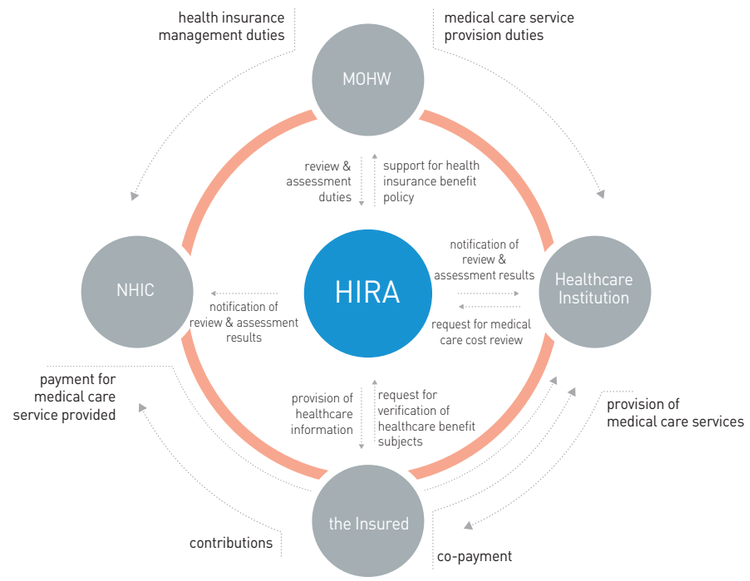


The healthcare system in Korea has two components; national health insurance and medical aid. The national health insurance program provides coverage to nearly 97% of all citizens. It is managed comprehensively in a form of social insurance and financed by beneficiaries' (the insured) contribution. The medical aid component provides support to lower income groups and it is financed by the government.

The Ministry of Health and Welfare (MOHW) oversees the national health insurance system. Two other institutions also contribute; the National Health Insurance Corporation (NHIC) serves as the insurer and the Health Insurance Review and Assessment Service (HIRA) conducts reviews and assessments of healthcare service fees.

"Fee-for-Service" (FFS) has been the traditional reimbursement system used. Given that the FFS payment is based on individual visit or procedure, it encourages use of more services. In order to reduce unnecessary service usage, the Diagnosis-Related Group (DRG) system was introduced in 2002 and is being expanded. For certain illnesses, the DRG system pays a lump sum based on the patient's diagnosis. The reimbursement process starts with the health institution filing a claim for medical fees to HIRA. After HIRA reviews the claim, it notifies NHIC and the health institution with the result.

[Figure 1] Operation of the National Health Insurance Program



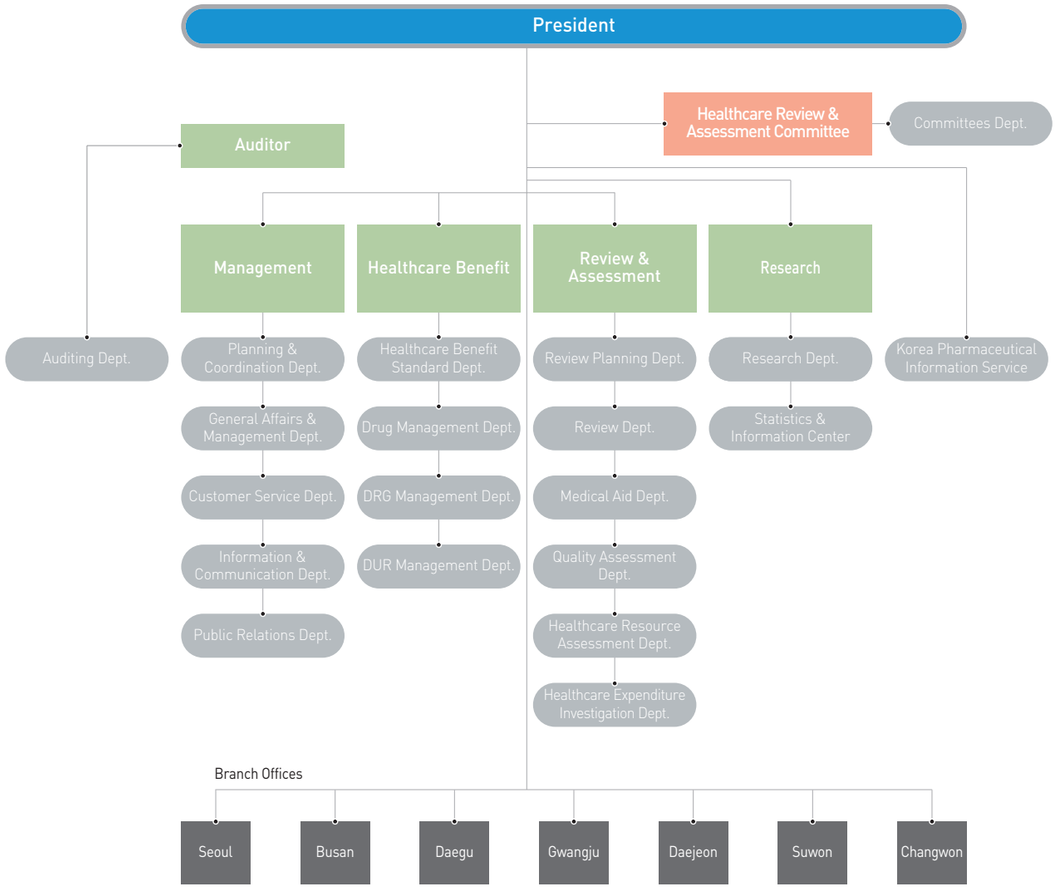
In the past, multiple insurers managed medical insurance and an insurer's union called the National Federation of Medical Insurance (NFMI) conducted the review of medical costs. As part of the medical insurance reform on July 1, 2001, hundreds of existing insurers were unified into one single insurer. The reform also proposed a plan for an independent agency to conduct medical fee reviews.

Before the reform, reviews by the NFMI only considered the insurance budget. The reviews were not conducted with objective standards and there were criticisms that the reviews favored the insurers. There was a concern that the medical fee review process mainly focused on preventing overuse of treatment and illegitimate claims, without considering the quality of healthcare delivery. Review standards also did not reflect the changing healthcare environment. These concerns culminated in a consensus that the review standards lacked expertise and objectivity.

To perform an objective and impartial review of medical costs as well as to prevent potential conflict between the insurer and healthcare service providers, the Health Insurance Review Agency (currently the Health Insurance Review and Assessment Service) was created. The establishment of HIRA not only provided an opportunity to conduct objective and expert reviews, but also ensured the delivery of appropriate and quality healthcare services to citizens. In addition, HIRA contributed to the stability of the national health insurance budget by implementing a provision for cost-efficient healthcare services.

[Figure 2] Organization of HIRA

(As of end of December, 2011)



MAJOR ACTIVITIES

Part I

Review & Assessment

Review

Fee Claims Review

Healthcare Review & Assessment Committee

Comprehensive Management (CM) for Appropriate Medical Services

Drug Utilization Review (DUR)

On-site Investigation

Appeal & Restitution Procedures for the Violation of Private Rights

FEE CLAIMS REVIEW

The purpose of the medical service fee review is to maintain quality standards and an appropriate level of medical fees. This is achieved by determining whether the payments claimed by healthcare institutions are clinically valid, formulated in a cost-effective manner, and calculated according to the Benefit Coverage Standards stipulated in the National Health Insurance Act.

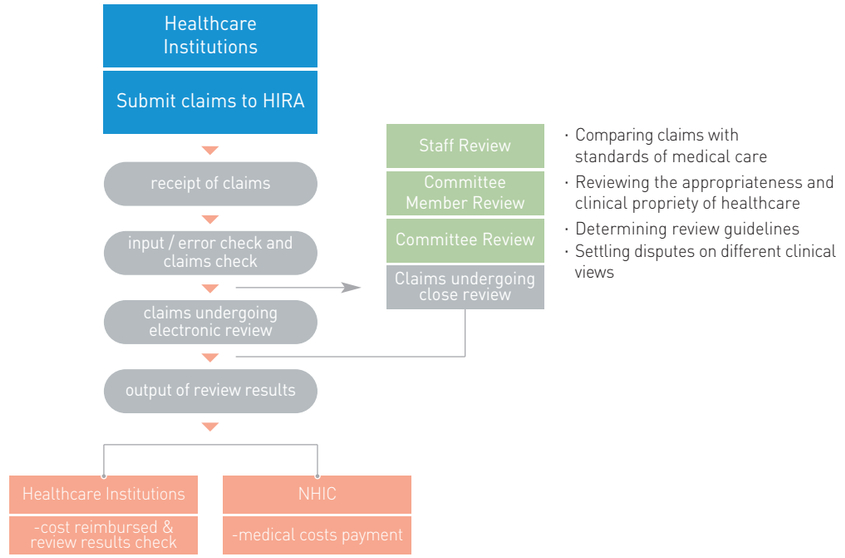
From its introduction, the Korean health insurance system has chosen "fee-for-service" (FFS) as the reimbursement system. The FFS enables quality healthcare services to be provided but also poses the risk that additional, unnecessary medical services will be claimed for. The review process can minimize this risk.

Since January 1979, medical fee review services were conducted by insurer(s), until the establishment of HIRA in July 2000. Subsequently, HIRA has provided objective and expert medical fee review services and healthcare quality assessment services to citizens.

Overall Review Process

The review processes are as follows:
- Receive and process healthcare service claims submitted by service providers.
- Review and check whether the claim details have been duly submitted within the scope allowed under the relevant statutes.
- Determine the amount to be reimbursed to the provider, after adjusting the claim if it has exceeded the scope criteria or includes items with the wrong criteria.

[Figure 3] Review Process



1. Claim and Receipt
The healthcare institutions prepare their claims for services under the following categories: monthly/weekly, in-and out-patient, clinic, (hospital) in-house preparation or prescription only, as stated in the "Methods for Claiming Healthcare Benefits and Instructions for Filling Review Request and Statement Forms". The provider may claim payment of their bills either by HIRA's web portal, Electronic Data Interchange (EDI), electronic media, or written documents. The Headquarters or branch offices of HIRA receive and review the claims.

2. Computer Program Check-Ups
All claim details received from the providers are screened, utilizing computer programs to: check the essential description items for review and reimbursement, identify mistakes in the unit pricing of drugs and clinical services, as well as any possible errors in applying the review standards by item and disease group. Provider institutions that have joined the web portal service may correct or supplement minor errors in their claim details, including typographical errors, after HIRA has conducted the initial computerized screening of the claim.

3. Two Types of Main Review Process

1) Electronic Review

The computerized check-up process includes basic indicators that review unit prices, and usage/indications of the provided services by item and disease group. When claim details show appropriate claim patterns, the entire claim review process for the case is completed without additional review steps.

2) Close Review

Close review refers to an additional review process after the computerized checks. The close review is applied only to claims demonstrating problematic claim patterns, such as relatively high medical costs, longer inpatient stays, longer periods of medication, etc. The close review has three steps as follows:

Review by Staff

The claim details are reviewed by nurses or pharmacists to check whether they have been prepared properly according to the given claim methods and calculation guidelines. This review occurs after assessing the provider institution's claim tendencies. Cases that require the clinical judgment of a specialist doctor or that involve highly expensive healthcare service fees are referred to the members of the review committee, together with primary review opinions.

Review by Committee Members

The committee members review the medical adequacy or appropriateness of the services referred to them, by analyzing the claim tendency of the provider institution. The committee consists of medical specialists who are currently in practice and work part-time for HIRA. If deemed necessary, the members of the committee can request additional data for the verification of medical records, such as interviews with the doctors who have seen the patient, a site survey or an investigation.

Review by Review Committee

Cases that require new standards for a specialty area, the settlement of disputes on different clinical views, or that involve other matters which require determination through agreement, are reviewed by the Healthcare Review and Assessment Committee at the Headquarters or regional branch offices.

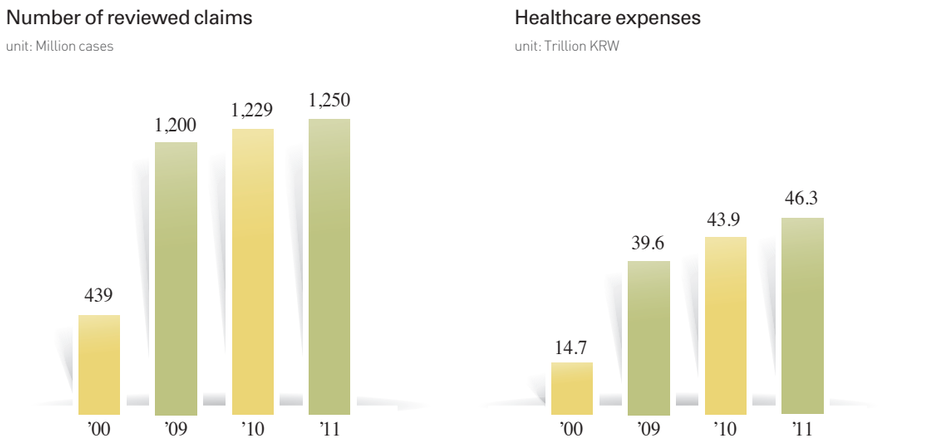
Although not every claim under close review requires the final step of review by the Review Committee, on average, about 15% of total claims are reviewed under the close review process.

4. Notice of Review Results

A "Notice of the Review Results of a Healthcare Service Claim" is transmitted to NHIC and the provider institution upon completion of the review. The notice indicates the details of the review, including the amount payable by the insurer determined through the review, and the amounts adjusted per patient along with the reasons for such adjustments. Based on the notice, NHIC pays service fees to the provider institution. The review results are available through EDI files or HIRA's web portal.

When additional clarification or explanation is required of the review or the adjustment details indicated in "Notice of the Review Results of a Healthcare Service Claim," a "Notice of the Review Details" is transmitted to the provider institution. "Notice of the Review Details" explains the specific grounds for the adjustments so that the provider institution may use it as a reference for future healthcare claims.

[Figure 4] Increase of the Number and Amount of Fee Claims



(KRW: Korean Won, 1,200KRW≒US$1)

Verification of Healthcare Benefit Coverage

HIRA's "Verification of Healthcare Benefit Coverage" service is designed to provide confirmation to the recipients of medical services as to whether the costs they have incurred are covered under the National Health Insurance Act (or Medical Fee Cost Coverage Act).

When an applicant requests verification by HIRA, the latter reviews the medical records and details of uncovered costs provided by the pertinent hospital, and then notifies the results to the applicant, the pertinent hospital and NHIC; when there is evidence that excessive charges have been made, the difference must be resettled.

HEALTHCARE REVIEW & ASSESSMENT COMMITTEE

The Healthcare Review & Assessment Committee (referred to as the "Review Committee" below) is a review organization that makes HIRA's service more effective and is based on the National Health Insurance Act. It is situated within HIRA and performs reviews of healthcare claims, and assessments of rendered healthcare services. The committee consists of up to fifty full time committee members, including the chair; and up to a thousand part time committee members. It can have subcommittees by medical specialty.

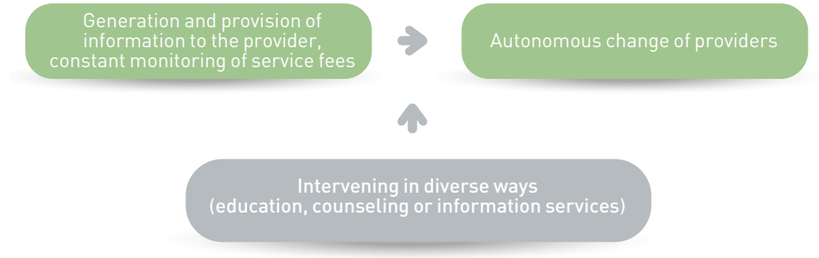
Selection and Operation of Peer Reviewers and Advisory Panels

- Review of medical specialties: Part-time reviewers who are practicing in a clinical profession are appointed as peer reviewers to increase the expertise of the review and assessment service and to enhance the credibility and acceptability of the organization. In cases where there is no or insufficient peer reviewers in a special area, an adviser is appointed who is equally qualified with the reviewers. The term peer reviewers and advisers serve is two years and can be extended.
- Peer review areas: endovascular stent, RFCA, cancer and tumor, cochlear implant surgery, interventional radiation, radiation tumor, liver and biliary tract, infectious disease, oral and maxillofacial surgery, psychiatry, anesthesiology, spinal surgery, etc.

COMPREHENSIVE MANAGEMENT (CM) FOR APPROPRIATE MEDICAL SERVICES

The voluntary improvement system aims to encourage healthcare institutions to produce appropriate medical fee costs. The system provides customized information (including medical service, assessment, resources, and fact-finding information) and review criteria to healthcare institutions to encourage them to voluntarily improve any improper practices within their medical services. This guarantees the safe provision of necessary medical activities while preventing unnecessary medical activities, thereby improving the quality of national medical services and rationalizing costs.

[Figure 5] Overview of the CM System



Classification of Healthcare Institutions

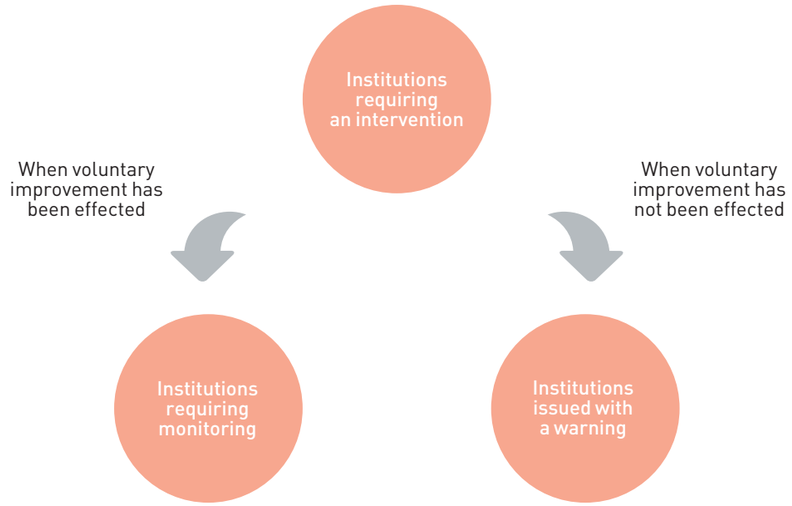
Based on a range of medical indicators and review & evaluation results, healthcare institutions are classified into three types for the purpose of management.

1. I (Institutions requiring intervention)
- Institutions that have a high risk indicator or other problems based on the review results.

2. W (Institutions issued with a warning)
- Institutions that need to undergo an expert review.

3. M (Institutions requiring monitoring)
- Institutions other than those under categories I and W.
- Institutions that need to be continuously monitored with regard to the pertinent indicators, etc.

[Figure 6] Operation of the CM System



Major indices used for selecting targets

1) Absolute Indicators: Average charge per case (per patient) and number of inpatient days.
2) Relative Indicators: Relative value given to a healthcare institution based on the average
- Episodes-Costliness Index (CI): Expected charges per case (per patient) when the patient composition of a given healthcare institution is taken into consideration (including prescription drug bills for outpatients).
- Days-Costliness Index (DCI): Expected daily charges of inpatient medical care when the patient composition of a given healthcare institution is taken into consideration.
- Per Case Inpatient Treatment Lengthiness Index (LI): Expected average number of inpatient treatment days when the patient composition of a given healthcare institution is taken into consideration.
- Visit Index (VI): VI calculated based on the number of outpatient treatment days per patient for a given healthcare institution.
- Case-Mix Index (CMI): Index for monitoring the patient composition of a given healthcare institution.
- Clinical Items (CI – Items No.1 - No.10, CT, MRI, PET): Prescription drug charges for outpatients.

Management of Healthcare Institutions Requiring Intervention

1. Selection of institutions requiring intervention

On the basis of an analysis of monthly or quarterly indicators, the results of assessment, and any problems disclosed during review, healthcare institutions are classified into either targets of comprehensive management or targets of management by subject.

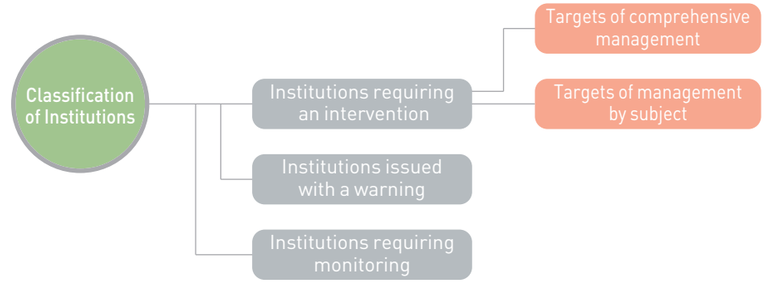
Targets of comprehensive management

Those institutions which demonstrate high medical fees, including high costliness index, or which have problematic results from review, assessment and on-site investigation, are targeted for customized management by institution.

Targets of management by subject

The management of items by subject are divided into items characterized by enhanced benefit coverage, by the possibility of overuse, and by the seriousness of problems; the targets under these categories need to be managed.

[Figure 7] Classification of Healthcare Institutions



2. Management methods

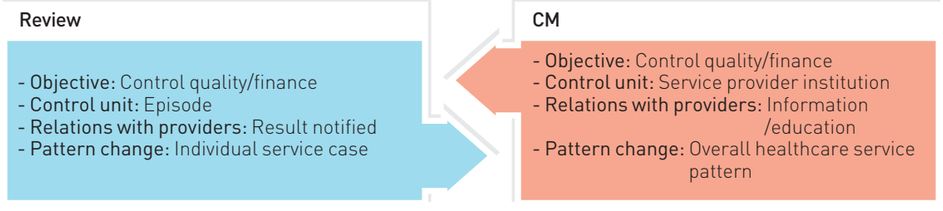
Targets requiring intervention are advised to improve their medical fee costs via phone, official letters, visits, group sessions, and education. Improvements are monitored via post-factum management indicators[1]. The targets are then classified into the improved group, the deferred group, and the unimproved group to facilitate their systematic management.

1. The post-factum management indicators are the medical cost fee per patient per case and the estimated medical cost per case (CMA: Case-Mix Adjusted); by comparing the two indicators, the targets are classified into the improved group, the unimproved group, etc. The estimated medical cost per case is calculated by comparing the patient-composition-corrected medical fee cost with a change in the medical fee cost in the identical departments of institutions in identical regions in which intervention is not required.

Relationship between Claims Review and CM

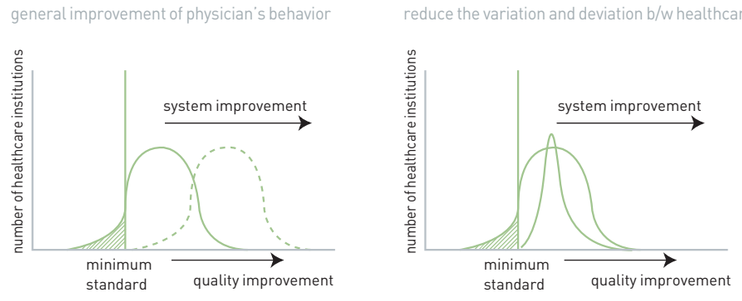
The CM system has the function of managing individual providers, whereas the claims review system has the function of controlling individual episodes. Therefore, the two systems are complementary to each other.

[Figure 8] Relationship between Claims Review and CM



The purpose of the CM system is to help physicians in low-quality groups to make improvements in behavior through consultancy, etc. The focus of physician behavior improvement is to enhance service quality, as well as reduce the variation of and deviation from, accepted treatment practices.

[Figure 9] Directions of the CM System



DRUG UTILIZATION REVIEW (DUR)

The Drug Utilization Review (DUR) program gives real-time information on drug safety, such as screening for contraindications or the use of prohibited drugs for children and pregnant women, to doctors and pharmacists whose computers are linked to HIRA's system. After the implementation of a pilot program (April 2008 ~ November 2010), an extended DUR program was launched in December 2010.

Basic Information about DUR

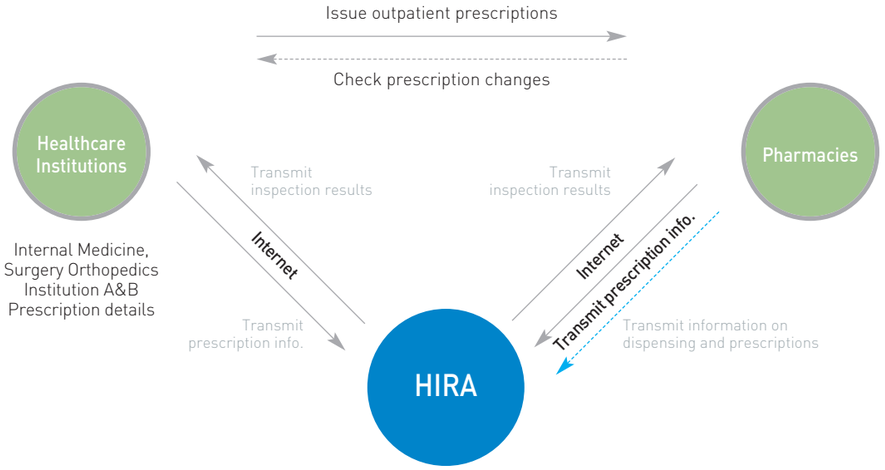
- Target Institutions: All healthcare institutions (excluding traditional healthcare institutions).
- Target Patients: Those insured through national health insurance, the recipients of the medical aid program, and recipients of the veterans' welfare program.
- Target Drugs: All prescribed and dispensed drugs (covered, non-covered). Drugs are inspected before the intake expiry day per patient.
- Items for Inspection
  1) Within prescription: Drugs prohibited for simultaneous use, drugs with age limitations, drugs prohibited for use by pregnant women and drugs no longer covered by insurance for safety purposes.
  2) Between prescriptions: Drugs prohibited for simultaneous use, duplicated prescriptions.

Method

[Figure 10] Double Checking by Healthcare Institutions and Pharmacies

Item	Inspection Procedure
Healthcare institutions	· Drug information for a patient is sent to HIRA at the prescription stage · HIRA notifies the inspection results to the healthcare institution after checking that the drug dispensed meets DB and DUR criteria · If the prescription needs to be changed due to a safety warning, the institution should send a statement of the reason for exception to HIRA
Pharmacies	· Drug information specified on the patient's prescription is sent to HIRA · After reviewing the patient's information, the result and reason for exclusion is prepared by a physician and provided to the pharmacist · Prescription changed after advance discussion with physician based on the review result and the prescription exclusion. When necessary, the reason is specified and the final prescription statement is sent to HIRA

[Figure 11] Process for Inspection



ON-SITE INVESTIGATION

The Meaning of On-Site Investigation

An on-site investigation is a type of administrative investigation in which a visit is paid to a target provider to verify the lawfulness of its healthcare service claims. Depending on the outcome of the investigation, action may be taken against the provider to retrieve unfair service charges, and punitive administrative measures such as business suspension or a fine may be imposed. On-site investigation is executed under the National Health Insurance Act, enabling the Minister for Health and Welfare to exercise his authority for supervisory and administrative actions. HIRA provides all the necessary support to the on-site investigation team.

The Purpose of On-Site Investigation

On-site investigation is designed to: 1) protect people's rights to benefit from the national health insurance program; 2) prevent the leakage of insurance funds; and 3) improve the national health insurance program by establishing a sound climate for the claiming of service fees, thus inducing providers to charge optimum service rates.

The Legal Grounds of On-Site Investigation

On-site investigations are performed in accordance with Article 84 (Report and Inspection) of the National Health Insurance Act. Administrative actions are imposed based on Article 85 (Penalty Surcharges, etc) of the same Act and Article 61 (Criteria of Administrative Actions such as Penalty Surcharges) of the Act's Enforcement Decree. Criminal punishment may be imposed based on Articles 94 and 95 (Punishments).

Major Tasks

An on-site investigation is carried out to; 1) ascertain whether a provider's claim is legitimate and proper; 2) verify that the claimed services and drugs are actually being provided; 3) verify whether a provider has complied with statutes, and collected legitimate co-payment from patients.

Selection of Target Providers

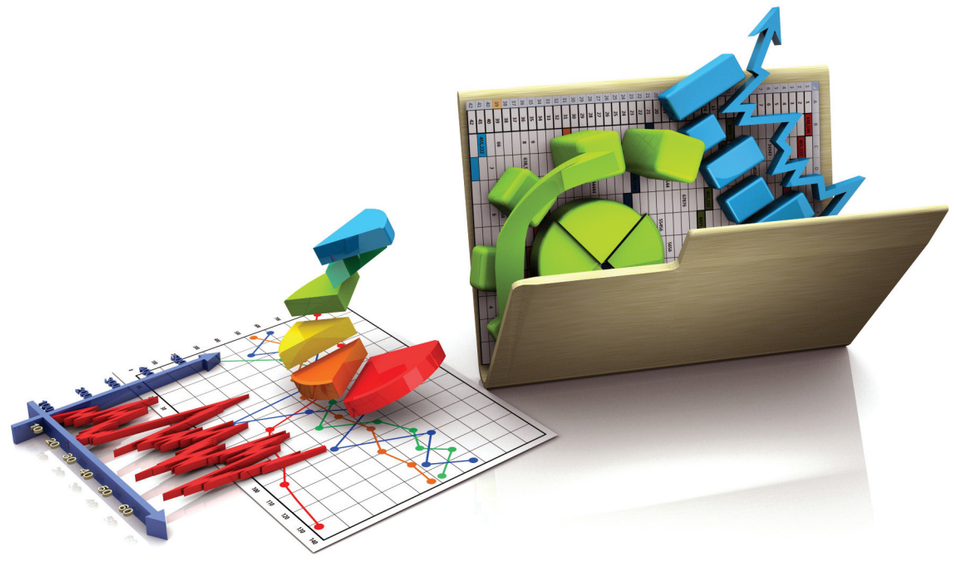
- The Minister for Health and Welfare selects an optimum number of providers, and considers the effectiveness and urgency of their on-site investigation according to the annual investigation plan and the prevailing circumstances among those whose investigation has been requested by HIRA and NHIC.
- HIRA requests an investigation of the providers who are likely to claim unfair charges, or who refuse to comply with rectification of issues, in regards to claim legitimacy and service propriety that have been identified during the review and assessment procedure.
- NHIC requests an investigation of the providers who are likely to claim unfair charges as deduced from their notification of service details, or when inquiries are launched by patients, or when someone employed inside the provider reports illegal practices or errors in treatment.
- Targeted provider institutions may also include those which have refused to take autonomous corrective action based on the service notice, those which have made unfair claims as found by the Permanent Monitoring System for Unfair Claims, and those against which the Anti-Corruption Commission or the public prosecutors' office request an investigation or about which consumer complaints are received.

The Process of On-Site Investigation

- The Minister draws up a reasonable investigation plan to carry out the investigation efficiently while minimizing disruption of the provider's service operations.
- The Minister obtains the support of expert personnel from HIRA in carrying out the on-site investigation, including: the drawing up of the plan, selection of targets, implementation of the plan, review for adjustment, and any subsequent administrative action.
- As a rule, in cases where service fees have been paid from the start of the investigation, the healthcare claim details of the past six months are investigated. However, it is possible to investigate claim details for the preceding three years in cases where an investigation is requested by other agencies, where complaints have been filed, or where the degree of fraudulent activity is severe.
- The facts related to the claim are ascertained by checking data that is subject to statutory archiving, including ledgers on services rendered and co-payments collected from patients. When unfair or illegal claims are identified, the provider is requested to provide confirmation papers that verify their unfair actions.
- HIRA also reports any recommendations made by the providers.

Implementation of On-Site Investigation Findings

- A recalculation process for adjustment is implemented with regard to payments made during the period subject to the investigation, based on the provider's statement. Based on the recalculation process, details of the appropriate course of administrative action are determined.
- HIRA notifies the provider of the administrative action to be taken in advance, providing an opportunity for the provider to lodge an appeal. The appeal submitted by the provider is reviewed.
- Once details of the relevant course of administrative action (amount to be reimbursed, service suspension or fine) have been finalized, the provider is notified. The provider's compliance with any recommendations is followed up thereafter.
- The provider is referred to the public prosecutor's office for criminal punishment if it is found to be in violation of an order to submit documents, has made false reports, or has refused, interrupted or avoided inspection or questions.
- Providers who are discovered through on-site investigation to have made no false or unfair claims are exempted for three years from on-site investigation or self-reporting.



APPEAL AND RESTITUTION PROCEDURES FOR THE VIOLATION OF PRIVATE RIGHTS

There are two levels of restitution procedures for the violation of private rights: initially, an appeal can be made against actions of review or assessment by HIRA. When a healthcare institution or NHIC is dissatisfied with the action taken by HIRA, it can request an 'appeal' against HIRA. If the institution or NHIC remains dissatisfied with HIRA's decision on appeal, it can file a 'request for adjudication' to the Ministry of Health and Welfare to reverse the decision made by HIRA.

Scope and Action of Appeals

Healthcare Institutions
When a claim is rejected by HIRA, healthcare institutions can request that the healthcare services that they have already provided be accepted as a claim, by presenting supporting data and making an appeal to HIRA.

NHIC
NHIC (the insurer) can request that HIRA review its actions, including the acceptance or approval of costs for healthcare services which healthcare institutions have claimed benefit coverage for, by submitting supporting data.

Deadline for Filing an Appeal
Anyone who wants to make an appeal against actions taken by HIRA should send their appeal in writing within 90 days from the date of acknowledgement of the action, pursuant to Article 76, paragraph 3 of the National Health Insurance Act. The Act also prohibits making an appeal after 180 days from when the action was taken.

Procedure for Filing an Appeal

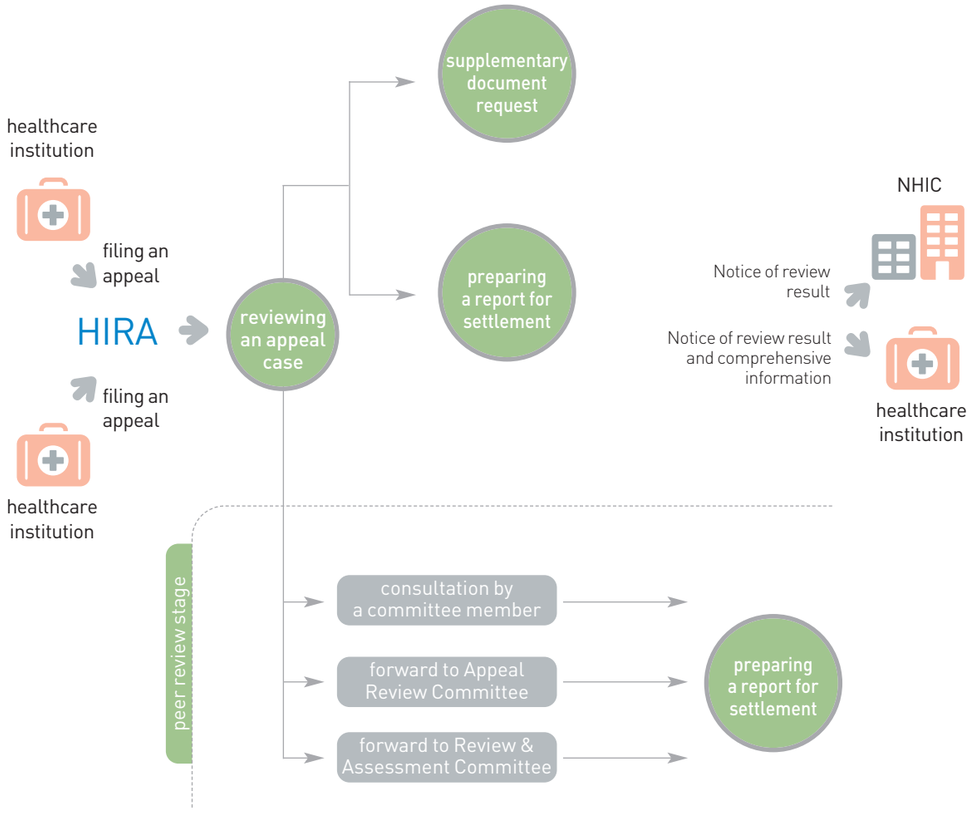
Filing an Appeal
Healthcare institutions appealing against an action taken by HIRA concerning benefit coverage must fill out an Appeal Form and submit it together with the relevant supporting documents pursuant to Article 76, paragraph 2 of the National Health Insurance Act. As of August 16, 2007, appeals may be filed on the Internet.

Appeal Handling Period
HIRA should make its decision on an appeal within 60 days of appeal submittal.
The period may be extended by up to 30 days when the decision is delayed, or needs a referral to the Healthcare Review and Assessment Committee, the Appeals Review Committee, or relevant academic societies.

Appeals Review Committee

The Appeals Review Committee consists of one chairperson (the President of HIRA) and 24 members. The committee chairperson convenes and facilitates the meeting by appointing a maximum of six members depending on the appeal case. The members will include: one member recommended by the insured organizations, one lawyer or person well-versed or experienced in social insurance, three persons from among those recommended by medical and pharmaceutical organizations, and one officer of HIRA.

[Figure 12] Appeal Procedure



[Table 1] Appeals and Handling

(Unit: million KRW, 1,000 cases, %)

Year	Total handling		Accepted		Not accepted	
	Application	Amount	Application	Amount	Application	Amount
2009	547	75,975	252	13,792	295	62,183
			(46.1)	(18.2)	(53.9)	(81.8)
2010	391	46,778	172	11,043	219	35,735
			(44.0)	(23.6)	(56.0)	(76.4)

* 1,200KRW ≒ US$1

Request for Adjudication

In the case of administrative litigation proceedings by an individual who is dissatisfied with HIRA's decision on their appeal, requests are made by the Health Insurance Dispute Arbitration Committee subordinate to the Minister for Health and Welfare.

Procedure for Adjudication Request

NHIC or the healthcare institution that is not satisfied with the HIRA decision issued on appeal, can file a request for adjudication.

Deadline for Filing a Request for Adjudication

Requests for adjudication should be filed within 90 days from the date when the original appeal decision was received.

Adjudication Period

The Health Insurance Dispute Arbitration Committee should decide on appeals within 60 days of their submittal. The period may be extended by up to 30 days when the decision is delayed, or needs a referral to the Healthcare Review and Assessment Committee, the Appeals Review Committee, or relevant academic societies

Assessment

Quality Assessment

Value Incentives Program (VIP)

QUALITY ASSESSMENT

Given that the reimbursement system is 'fee-for-service' in Korea, there is a risk of providing more healthcare services than needed, or there being unacceptable variation of healthcare services between institutions/surgeons. The Quality Assessment Service is a systematic method of assessing the clinical validity and cost efficiency of medical and pharmaceutical services, including examination of diagnosis, treatments and drugs, covered by healthcare benefits. Therefore, the purpose of the assessment service is to minimize the variance of treatment between medical institutions and surgeons, and to improve the quality of healthcare services.

Yearly Assessment History

From 2000 to 2011, a total of 29 items including acute diseases, chronic diseases and degree of service utilization have been assessed.

[Table 2] Assessment Status for the Last Five Years

	2007	2008	2009	2010	2011
New Assessment	- Use of preventive antibiotics for operations - Volume index for medical services	- Long-term care hospitals	- Hemodialysis - Psychiatry hospitals (Medical Aid)	- Hypertension	- Diabetes - Colon cancer - Stomach and liver cancer mortality
On-going Assessment	- Pharmaceutical cost - C-section delivery - Acute Myocardial infraction (AMI) - CT - Blood transfusion - Total knee arthroplasty - Acute stroke	- Pharmaceutical cost - C-section delivery - AMI - CT - Blood transfusion - Total knee arthroplasty - Volume index for medical services - Stroke - Coronary artery bypass grafting(CABG) - Use of preventive antibiotics for operations	- Pharmaceutical cost - C-section delivery - AMI - Blood transfusion - Volume index for medical services - Acute stroke - CABG - Long-term care hospitals - Use of preventive antibiotics for operations	- Pharmaceutical cost - C-section delivery - AMI - Volume index for medical services - Acute stroke - CABG - Long-term care hospitals - Use of preventive antibiotics for operations - Hemodialysis - Psychiatry hospitals (Medical Aid)	- Pharmaceutical cost - C-section delivery - AMI - Volume index for medical services - Acute stroke - CABG - Long-term care hospitals - Use of preventive antibiotics for operations - Hemodialysis - Psychiatry hospitals (Medical Aid) - Hypertension

Scope

- All providers are subject to assessment (82,948 institutions, as of Dec. 2011); and all patients who receive healthcare services under national health insurance.
- The objects of assessment encompass general healthcare services, including medicines, curative materials and medical treatment.

Assessment Procedure

Data Collection

- Data used for assessment includes healthcare benefit cost claims, status of healthcare institutions, separate investigation data based on medical records and information on death registration by the Ministry of Public Administration & Security.
- Due to the unified health insurance program and the assignment of a national identification (ID) number at birth, assessment results can be produced linking the ID number with healthcare data under the national insurance system.
- The healthcare claims data and the status of healthcare institutions data are retrieved from the in-house data warehouse system within HIRA.
- All healthcare services rendered under national health insurance are claimed for reimbursement on a weekly or monthly basis. The establishment of healthcare institutions, or changes in the status of healthcare institutions, including facilities and manpower, are reported to HIRA and stored in HIRA's in-house data warehouse.

Reliability Check

- In order to ensure the validity and accuracy of the collected data, a reliability check is conducted.
- Part of the collected data is randomly sampled in order to compare the medical records from the pertinent healthcare institutions. HIRA staff may visit the institutions in person to check medical records.

Analysis

- Outcome values for each institution are calculated to ascertain the degree of quality improvement and variation between institutions.
- The indices of patients' outcomes (i.e. mortality) are adjusted in consideration of the degree of severity of illness when comparing assessment outcomes between institutions.
- Assessment items that have multiple indices are calculated into one single score for each assessment item, with weights assigned in accordance with the importance of each index.
- Each institution is graded based on the overall assessment scores.

Utilization of Assessment Results

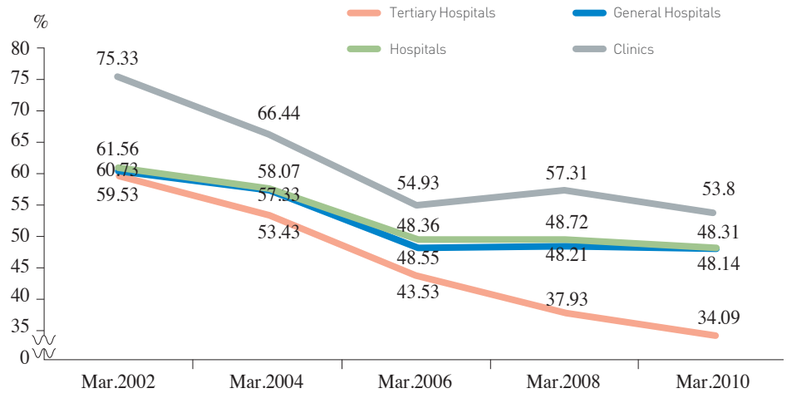
- If institutions receive low scores in comparison with the assessment results of same-size/same-region healthcare institutions, they receive support (i.e. on-site consultation) from HIRA in order to find the problems and improve service quality.
- As part of the quality assessment service, financial incentives are granted to providers who have superior ratings (Pay for Performance; P4P)[2]. However, reimbursed amounts can be reassessed and lowered for providers who receive low ratings. Such a penalty can expedite the improvement of healthcare service quality as provided under National Health Insurance.
- The assessment results are published via HIRA's website (www.hira.or.kr) to help guide the general public on health choices.
- The Ministry of Health and Welfare are also notified about important matters to be used as policy reference data.
- Healthcare service fees reimbursed by NHIC are adjusted based on the assessment results in the form of P4P.
- The assessment results are shared with HIRA in order to improve review and on-site investigation processes.

Assessment Results

The Antibiotic Prescription Rate for Upper Respiratory Infection (URI) Patients - Outpatient

The prescription rate dropped to 53.8% in 2010 from 75.33% in 2002 for clinics; and to 34.09% in 2010 from 59.53% in 2002 for tertiary hospitals as [Figure 13] indicates.

[Figure 13] Changes of Antibiotic Prescription Rates for URI Patients

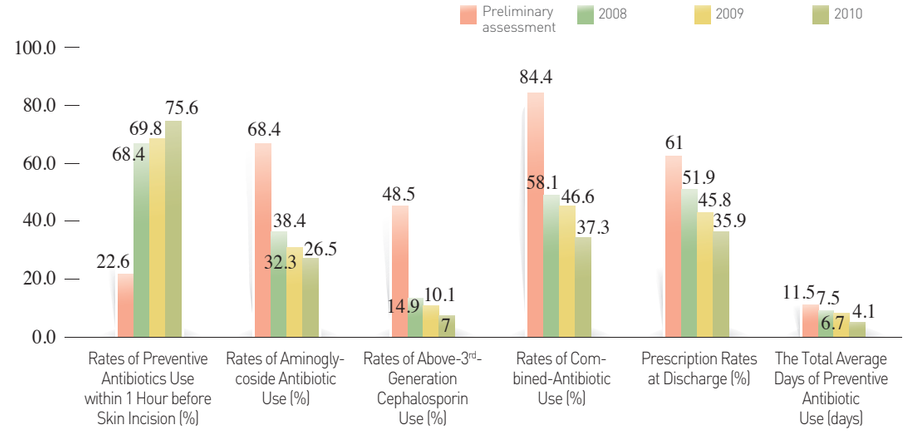


2. Following the successful pilot of a P4P program between 2007 and 2010, an expanded P4P program was implemented in 2011.

Use of Preventive Antibiotics for Surgeries

- The assessment of preventive antibiotics for surgeries led to significant quality improvement in their use; the rate of antibiotics utilization within one hour before skin incision was greatly improved from 22.6% to 75.6% in 2010. [Figure 14]
- The average administration days of preventive antibiotics decreased to 4.1 in 2010 from 11.5 at pre-assessment. [Figure 14]

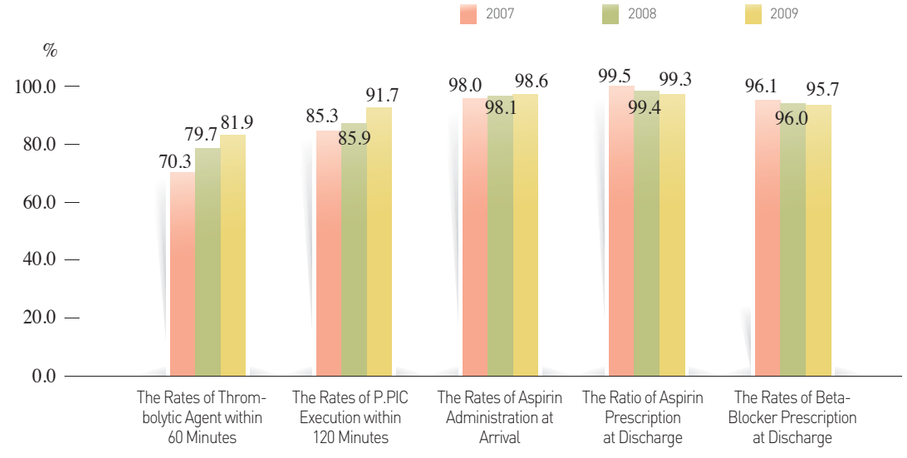
[Figure 14] Changes of the Average Administration Days of Preventive Antibiotics



Acute Myocardial Infarction (AMI)

- The assessment result of AMI is a target of P4P; as [Figure 15] indicates, the outcomes in 2009 were relatively higher (81.9~99.3%) than in previous years.

[Figure 15] AMI



Quality Improvement (QI) Support Program

- In order to link the assessment results to the quality improvement of healthcare institutions, a support program was needed to provide assessment information for benchmarking and to educate the relevant staff members of healthcare institutions.
- Therefore, HIRA has offered a comprehensive support program which includes: publishing a QI newsletter; running QI communities; providing education programs; inviting exemplary QI cases; awarding excellent cases with presentations; and implementing a pilot consulting program.
- More than 90% of survey respondents agreed that the support program played a positive role.

VALUE INCENTIVES PROGRAM (VIP)

As part of the quality assessment service, financial incentives are granted to providers who have superior ratings. However, reimbursed amounts can be reassessed and lowered for providers who receive low ratings. Such a penalty can expedite the improvement of healthcare service quality as provided under National Health Insurance. From July 2007 to December 2010, a pilot project of pay for performance (P4P) was implemented with tertiary hospitals, targeting AMI and Caesarean section delivery. The analysis of the pilot program confirmed its effectiveness in quality improvement (i.e. all assessed tertiary hospitals exceeded the subtraction baseline) and this led to the program's expansion to acute stroke from October 2011, as well as to general hospitals from 2011.

Assessment Items and Incentive/Disincentive Rates

- For the two items of AMI and Caesarean Section Delivery, an additional payment of 2% is made for Grade 1 and 1% for Grade 2; or is subtracted by 1% for Grade 8 and 2% for Grade 9, which are below the subtraction baseline to/from the total reimbursed amount.

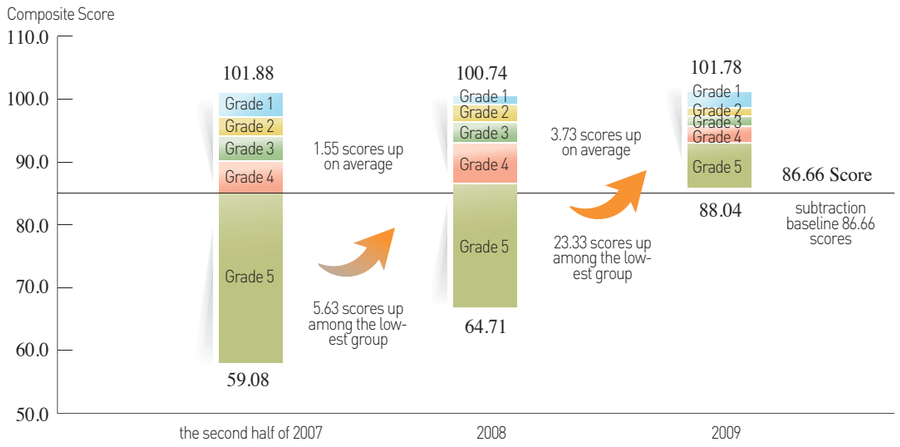
[Table 3] Summary of the Pilot P4P Program and Its Expanded Version

Pilot P4P Program	Extended P4P Program
• **Period:** July 2007~December 2010 • **Subjects:** Tertiary Hospitals • **Items:** AMI, C- section • **Grades:** 1-5 • **Adjustment Rate:** addition 1 %, deduction 1 %	• **Period:** January 2011~ • **Subjects:** Tertiary Hospitals, General Hospitals • **Items:** AMI, C- section • **Grades:** 1-9 • **Adjustment Rate** - Addition: 2 % for Grade 1, 1% for Grade 2 - Deduction: 1% for Grade 8, 2% for Grade 9 (under the subtraction baseline)

[Table 4] The Achievements of the P4P Pilot Program: AMI & C-Section Delivery

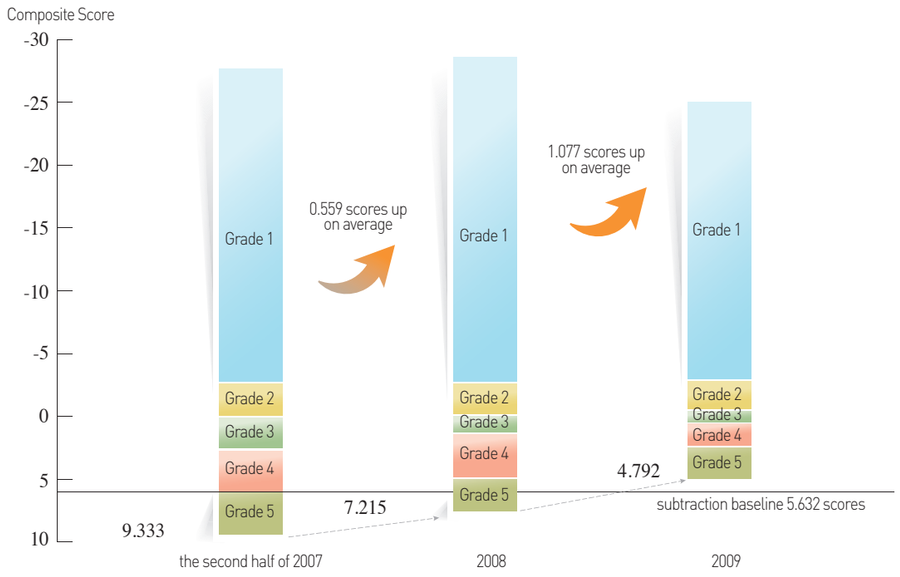
Assessment Item	Economic Effects
AMI	165 patients survived due to the decrease in in-hospital mortality rate (7.4 % in 2009 → 5.6 % in 2010)
C-section Delivery	276 more natural childbirths due to the reduced rate of C-section (36.3 % → 36.0 %) despite an increased number of older patients

[Figure 16] Pilot Assessment Result: AMI



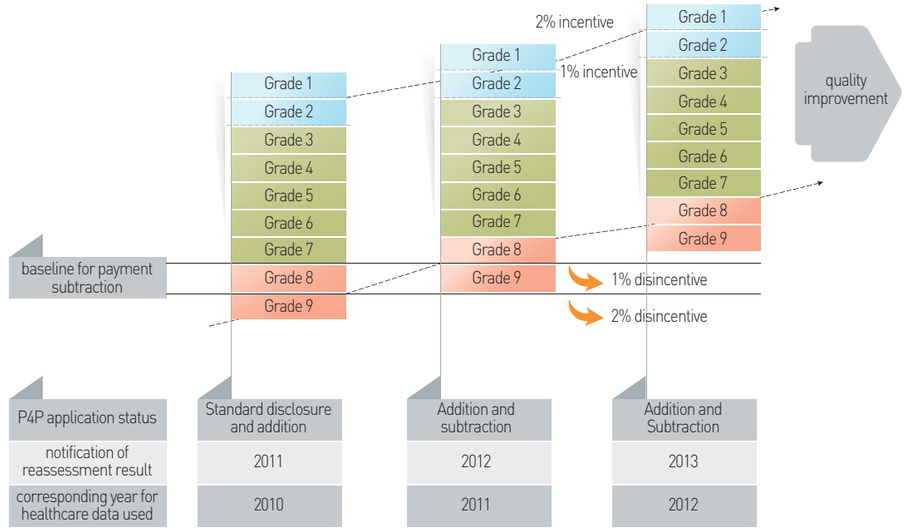
- The average composite score increased 5.28 points (92.1 → 93.65 → 97.38).
- The composite scores of the lowest group increased by 29.96 points (59.08 → 64.71 → 88.04).
- The increase in the AMI index indicates quality improvement.

[Figure 17] Pilot Assessment Result: Caesarean Section Delivery



- The average standard scores decreased by 1.636 points (-1.983 → -0.906 → -0.347).
- The standard scores of the lowest group decreased by 4.541 points.
- The decrease in the C-Section index indicates quality improvement.

[Figure 18] Expanded P4P Program Scenario for 2011 : AMI & C-Section



- The subtraction baseline for payment to be applied in 2013 was made known in 2011, and incentives will be granted for healthcare institutions with excellent performance (Grades 1 & 2).

MAJOR ACTIVITIES

Part II

Healthcare Benefits Management

MEDICAL FEES MANAGEMENT

The Ministry of Health and Welfare ("the Ministry" hereinafter) determines which medical services are provided under the National Healthcare Insurance Act. There are two categories of services: "covered services" which require patients to pay only part of the cost and "uncovered services" which require patients to pay for the entire cost. This service coverage information is listed in a guide book produced by HIRA, called the "Lists of Services Covered and Uncovered by the National Health Insurance and Resource-Based Relative Value (RBRV) Scores of Services."

Furthermore, the Minister is also responsible for adding or modifying coverage for "new health technologies" under separate application procedures. The new coverage could include medical services that have emerged from the development of health technologies or for existing services that are already being practiced, but are not yet covered under the national health insurance system. The methods and procedures for expanding coverage follow the "National Health Insurance Rules on Healthcare Benefit Standards" and the "Standards for Determining or Adjusting to New Health Technologies".

The "Expert Assessment Committee on Medical Services" is maintained under HIRA, and assesses the cost-effectiveness of new health technologies (see page 51) and the appropriateness of the cost. The Minister makes public final decisions, which are determined by the National Health Insurance Supreme Committee ("NHI Supreme Committee" hereinafter)" within the Ministry of Health and Welfare, based on the Expert Assessment Committee's decisions.

National health insurance is supervised by the government, and all other review and assessment-related duties are taken care of by HIRA. Furthermore, the insurance benefit standards for the insurers are drawn up based on the National Health Insurance Act, and details are drafted and observed according to the relevant Notices or Guidelines. The reimbursement amount is calculated based on case-specific behavioral characteristics and other detailed cost calculation or application standards.

HIRA is an independent agency specializing in the review and assessment of healthcare benefit costs. It develops the benefit standards and review guidelines based on the accumulated healthcare database and beneficiaries' interests. HIRA's duties also consist of providing support to the government's policy making by communicating with related parties. HIRA's responsibility lies in helping both individuals and providers to benefit from the national health insurance program at a reasonable cost.

Fee Setup Based on the RBRV Score

1. Resource-Based Relative Value (RBRV) Score

The medical fee schedule is determined by multiplying each treatment's RBRV score by the unit price[3] of medical cost. The RBRV score, made public by the Minister, is calculated by considering the amount of resources the medical treatment entails, including time, effort, work amount, manpower, equipment and facilities, as well as risks.

2. Method of Calculating Medical Fees

Healthcare institutions should claim an amount derived by multiplying the RBRV score per medical service by the unit price, which is the amount agreed upon between the head of NHIC and the representatives of each group of healthcare providers. The final fee schedule may vary for identical services in different institutions because different unit prices and additional rates (see the box below) are applied according to the size of the relevant healthcare institutions.

Medical Fee = RBRV score of each service X Unit Price

Additional Rates by Institution Type

An additional fee schedule with set rates based on the size of the institutions ("additional rates by institution type") was implemented to induce effective performance, ensure smooth operation of medical service delivery, and encourage investment in research for the development of health technology. The additional rates by institution types as of January 2011 are 30% for tertiary hospitals, 25% for general hospitals, 20% for hospitals, and 15% for clinics.

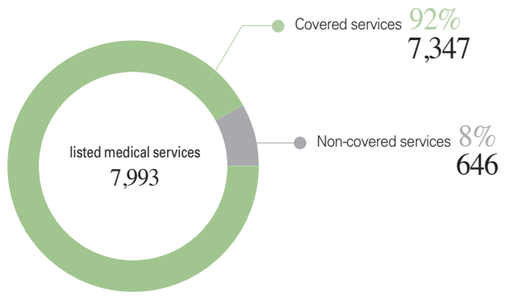
64.9 KRW	tertiary hospitals/hospitals/long-term care hospitals
70.1 KRW	dental hospitals/dental clinics
67.1 KRW	pharmacies/Korean Orphan Drug Center
66.4 KRW	health centers/health clinics
66.6 KRW	clinics
68.8 KRW	oriental hospitals/oriental clinics
100 KRW	midwifery centers

* 1,200KRW ≒ US$1

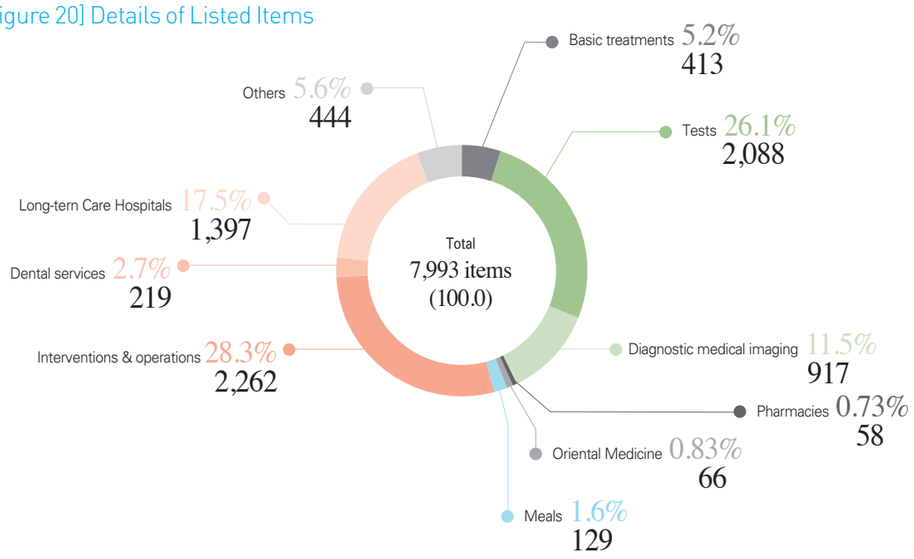
3. Unit Price is determined pursuant to the National Health Insurance Act (Article 42, para 3 and the Act's Enforcement Decree, Article 24, para 1).

- Basic Structure of Listed Medical Services
  As of May 2011, there are 7,993 items consisting of: basic treatments (413 items), medical interventions or operations (2,262 items),tests (2,088 items), long-tern hospitals (1,397 items), diagnostic medical imaging services (917 items), dental services (219 items), meals (129 items), oriental medicine (66 items) and pharmacies (58 items) [Figure 20]. Among the total 7,993 items, 7,347 items (92%) are covered by national health insurance [Figure 19].

[Figure 19] Covered vs. Non-Covered Items



[Figure 20] Details of Listed Items



Revision of RBRV Scores

In general, the revision of the RBRV scores takes place every five years. However, partial adjustment, which possibly affects other RBRV scores of medical services, can be made and announced by the Minister for Health and Welfare after review by the "RBRV Management & Planning Panel" and the "NHI Supreme Committee".

DRUG PRICING, LISTING & ADJUSTMENT

The Drug Management Department of HIRA carries out drug management duties stipulated in Article 39 (1) 2 of the National Health Insurance Act. The duties include drug listing, setting the upper price limit and scope of benefits, and post-factum management, to achieve adequate drug benefits.

- Drug Pricing System in Korea
  Since December 2006, the Korean government has employed the "positive list system[4]."

[Figure 21] Negative List System vs. Positive List System

Negative

· All medical services, drugs, medical materials and so forth (new health technologies) are divided into two categories: targeted healthcare benefits and targeted non-healthcare benefits.

· All items that are not listed as the targets of non-healthcare benefits are the targets of healthcare benefits.

Positive

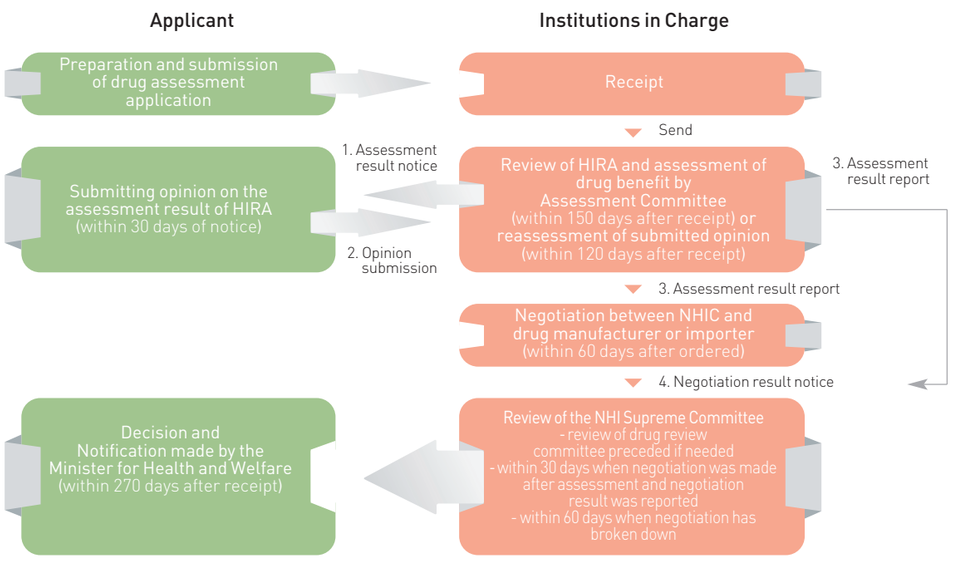
Grant benefits selectively to products offering excellent treatment and high economic value

· Separate the process of evaluating benefits or non-benefits and determining prices
- Enhance professionalism in assessing treatments and their economic values
- Ensure autonomy of filing for listing; however, list essential pharmaceuticals discretionally
- Regarding drugs for which the price negotiations failed, the Drug Benefit Adjustment Committee reviews and lists them as essential drugs

4. The Korean government introduced the positive list system in December 2006, which mandates insurance cover only for drugs with proven efficacy and cost-effectiveness. Prior to this, insurance had covered most drugs regardless of their prices, so long as they were approved by the Korea Food and Drug Administration, and consequently, drugs were widely prescribed by doctors. However, under the new system, the government determines the list of drugs to be covered by insurance, based on their cost-effectiveness.

Not every drug that is approved by KFDA as being safe can be listed for reimbursement. Pharmaceutical companies submit their product list to be reimbursed by NHIC on a voluntary basis. When a pharmaceutical company submits an application for a new drug or new molecular entity to HIRA, HIRA performs an economic evaluation and assesses the appropriateness of benefit inclusion of the drug. Upon HIRA's assessment results, the NHIC negotiates with the pharmaceutical company on pricing. Finally, the Ministry of Health and Welfare publishes the final price to the public after review by the NHI Supreme Committee within the Ministry. For generic drugs, the price is determined by a ratio of the new drug price, and then grade-based deduction is applied after listing of the first generics.
The President of HIRA reports the assessment result to the Minister for Health and Welfare. Then, the Minister determines whether the medicines are covered or uncovered along with the upper limit amount, and makes the results public, after review by the NHI Supreme Committee.

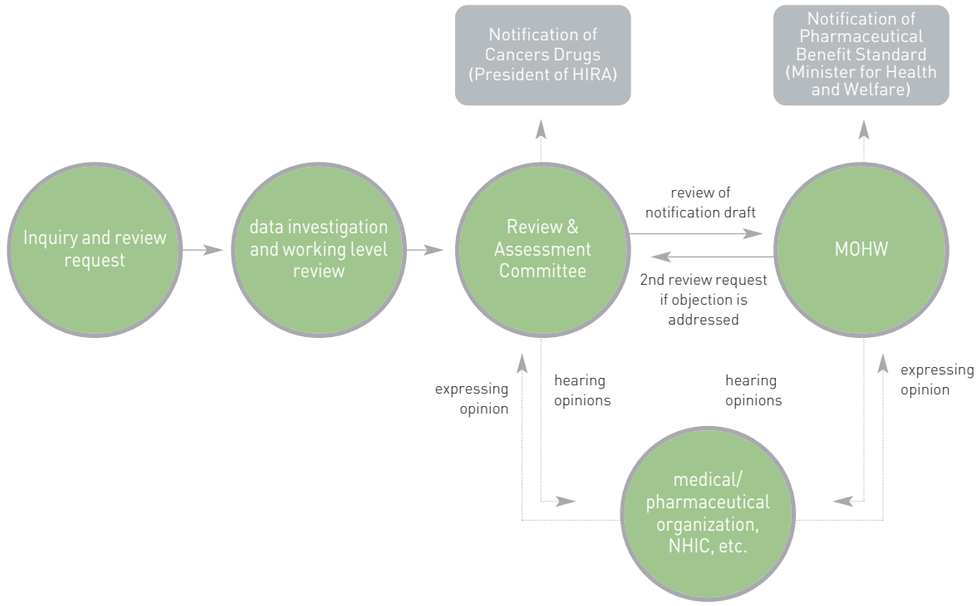
[Figure 22] Application and Procedure



Pharmaceutical Benefit Standard

- On the basis of evidence-based healthcare (EBH) methods, HIRA reviews and manages the guidelines of essential drugs registered in the 'Pharmaceutical Benefits List,' focusing on new molecular entities, relatively expensive drugs and drugs allowed to be prescribed at higher dosage than the approved indication by KFDA when necessary for treatment. In cases of prescription or medication beyond the range of approval or declaration stipulated by the Pharmaceutical Affairs Act, they can be allowed to be used as 'non-covered benefits' after review by HIRA.
- The benefit guidelines for cancer drugs are developed and made known by the President of HIRA. In cases of excessive dosages required for treatment, healthcare institutions may submit a chemotherapy protocol for the specific case and HIRA may give permission depending on the evidence-based review result.
- Benefit guidelines for drugs are established upon request after the deliberation of the Healthcare Review and Assessment Committee, based on the results of cost-effectiveness and substitutability of the drugs. Then HIRA delivers the benefit decision to the Minister for Health and Welfare for announcement. For cancer drugs, the President of HIRA announces the benefit guidelines after the deliberation of the Review Committee for Cancer Diseases, under the Review and Assessment Committee within HIRA.

[Figure 23] Flow Chart of Setting Up the Pharmaceutical Benefit Guidelines



Follow-Up Management of Listed Drugs

- Adjustment: In an effort to select listed drugs offering superior treatment and economic value in line with the implementation of the positive listing system, HIRA re-assesses the clinical efficacy and cost-effectiveness of drugs.
- Reimbursement System: Since October 2010, the 'Market-Complementary Actual Transaction Price Reimbursement System' has been introduced to encourage healthcare institutions to purchase at a lower price, by compensating for 70% of the gap between the actual transaction price and the notified upper price limit of the drug.
- The Shortage Prevention Program: The system is designed to stabilize insurance funds, and to establish the practice of using cost-effective drugs. Under the program, incentives (compensation for production costs) are provided to those low-priced and essential drugs that should not be withdrawn from the market.

MEDICAL MATERIAL PRICE MANAGEMENT

In principle, medical materials (such as bandages, needles, etc.), required for prevention, health promotion, diagnosis, treatment of diseases or injuries, rehabilitation, or at birth and funeral services, are reimbursed based on the healthcare institution's actual transaction price, within the limits of items provided under the "Medical Material Benefits and Price List."

The service providers should use only those medical materials that are approved, or announced by the Minister as deemed necessary according to medical judgment within the scope of licensed medical materials, and/or approved by the Korean Food and Drug Administration (KFDA).

Application for Healthcare Benefits

- Application is to be made within 30 days of approval of medical materials by KFDA. In cases where medical materials require a new health technology assessment, applications should be made within 30 days from the date of the first use with the approval of KFDA.
- Manufacturers, importers of medical materials or the insured may submit a request to adjust price (upper) limits of listed materials or change benefit coverage status.

Procedures of Determination

- The Expert Committee of Medical Materials Assessment reviews the appropriateness of applied items as a healthcare benefit, as well as their upper price limits, taking into consideration the principles of healthcare benefits and financial sustainability. The review focuses on safety, effectiveness, substitutability and cost-effectiveness of the items based on the approval information of KFDA.

Upper Price Limits - Exchange Rates Adjustment

- Since April 2009, the upper limit of imported medical material prices has been adjusted depending on changes in foreign exchange rates, to ensure the stable supply of essential medical materials to patients.
- Every April and October, upper limit prices are adjusted according to classified foreign exchange rates.

On-Site Investigation of Actual Transaction Prices

- The aim of the investigation is to maintain the optimum price, enhance transparency of transactions and ensure the target items are selected in accordance with "the Guide on Price Decision of Pharmaceuticals and Medical Materials."
- After the on-site investigation, HIRA recalculates the differences between the actual transaction and reported prices and adjusts the upper limit prices based on the investigation results.

Reassessment of Medical Materials

- The reassessment of medical materials was introduced in 2010 to reflect possible price changes after the first registration of medical materials on the healthcare benefit list.
- Reassessment occurs every three years and the targets of reassessment are all the items registered in the "Medical Material Benefits and Price List".
- In consideration of cost-effectiveness and adequacy of healthcare benefit listing, item groups with similar cost/effectiveness are reclassified at an identical upper price limit (basic price).
- Based on the reassessment results, items may be priced higher than the items in the same group or be delisted from healthcare benefits.
- The preliminary working-level reassessment results are available to the relevant manufacturers or importers in advance, before the meeting of the "Expert Committee of Medical Materials Assessment" is held. The pertinent manufacturers or importers may submit their written opinions on the preliminary reassessment results within 20 days from the last day of the assessment results opening period.

MANAGEMENT OF HEALTHCARE WORKFORCES, FACILITIES AND DEVICE

'Healthcare Institutions' collectively refers to medical service providers under the 'Medical Service Act,' pharmacies registered under the Pharmaceutical Affairs Act and public health centers and their branch offices under the Regional Public Health Act.
The monitoring of healthcare institutions refers to the range of field activities that are conducted to check an institution's computer system for registration and management, as well as an accurate declaration of its general conditions, workforces, facilities, and equipment, based on the "Healthcare Institution Status Notice" submitted by the healthcare institution. The monitoring provides the basic data for healthcare institutions' current status, which is required for the review and assessment of any covered benefits claimed through HIRA.

Management Items

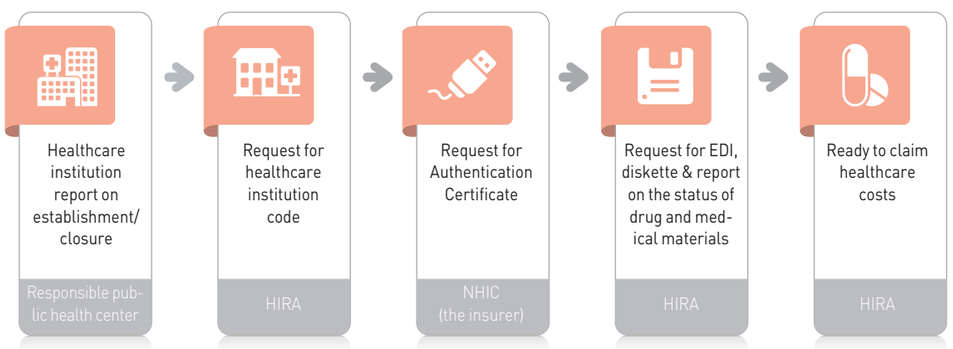
1) General Details
Healthcare institution code, institution's name, establishment date and number, business registration number/corporate registration number, institution's location and phone number, etc.

2) Workforces
Management of detailed demographic information on medical doctors, dentists, oriental doctors, pharmacists, nurses, medical assistants, nutritionists, etc.

3) Establishment
Management of provider institution facilities, including; in-patient rooms, special clinics (aseptic treatment rooms, intensive care units, etc.) and other subsidiary facilities.

4) Equipment
Management of equipment information such as service start (purchase) date, model name, manufactured country/date/company/number, purchase amount, introduction type, purchased from, new or used, license number, classification number, latest inspection date, inspection rejected date, re-inspection pass date, transfer date, abandoned date, formal specification, registration number of special medical equipment, etc., in accordance with the classification guidelines for medical equipment.

[Figure 24] Flow Chart of Facility Registration



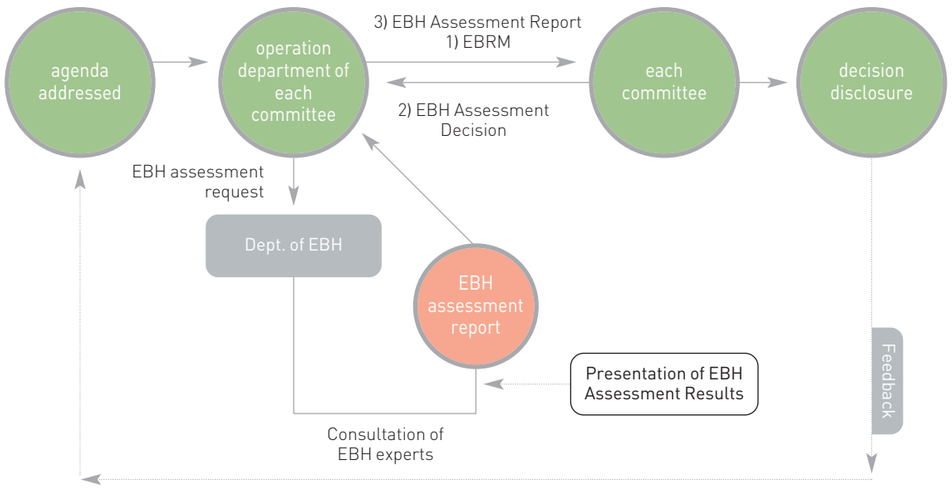
[Table 5] Number of Healthcare Institutions

Item	2005	2006	2007	2008	2009	2010	2011.6	Change from 2005(%)
Total	72,921	75,108	76,803	78,461	80,270	81,681	82,688	13.4
Tertiary Hospitals	42	43	43	43	44	44	44	4.8
General Hospitals	249	253	261	269	269	274	274	10.0
Hospitals	909	961	1,048	1,193	1,262	1,315	1,362	49.8
Long term Care Hospitals	203	361	591	690	777	867	929	357.6
Clinics	25,166	25,789	26,141	26,528	27,027	27,469	27,784	10.4
Dental Hospitals	124	136	153	168	183	191	199	60.5
Dental Clinics	12,548	13,002	13,339	13,750	14,242	14,681	14,933	19.0
Delivery Centers	52	51	51	51	49	46	44	-15.4
Public Health Centers	3,422	3,437	3,445	3,456	3,462	3,469	3,468	1.3
Traditional Medicine Hospitals	149	145	142	146	158	168	180	20.8
Traditional Medicine Clinics	9,761	10,297	10,859	11,334	11,782	12,061	12,279	25.8
Pharmacies	20,296	20,633	20,730	20,833	21,015	21,096	21,192	4.4

EVIDENCE-BASED HEALTHCARE (EBH)

Decision making based on Evidence-Based Healthcare (EBH), is an extended concept of evidence based medicine (EBM), and has already been introduced as public policy in a number of advanced countries. EBH has demonstrated that it supports the provision of safe and effective medical services and efficient distribution of medical resources.
HIRA is conducting an EBH assessment, focused on safety and effectiveness, in order to provide evidence based scientific information for reasonable decision making by each committee within HIRA. HIRA has laid the groundwork for exclusive application guidelines based on a literature review, titled the 'Evidence Based Review Manual (EBRM).'

[Figure 25] Flowchart of Evidence-Based Decision Making System in HIRA

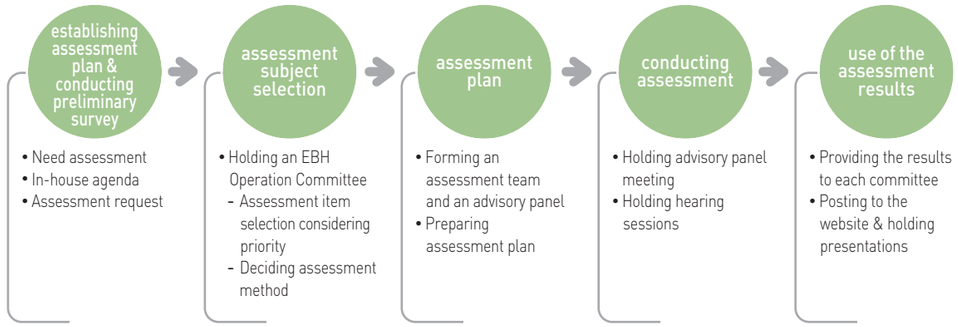


EBH Assessment

Definition
The EBH assessment is performed by systematic review (SR) to produce medical and scientific evidence. In the EBH assessment, literature is selected and analyzed in a systematic, clear and reproducible way. Evidence is produced by incorporating the outcomes extracted from each literature source: 1) selecting core questions related to the subject; 2) retrieving literature in a comprehensive and unbiased way; and 3) assessing the level of evidence through a risk of bias test. In addition to this, an advisory group is utilized, consisting of clinical and EBH experts to ensure as much objectivity and expertise as possible is brought to bear on the assessment.

EBH Assessment Procedure
The subject of the EBH assessment is selected by the EBH Assessment Operation Committee after a preliminary survey. To assess the safety and effectiveness of the selected subject, an advisory panel is formed with internal assessment team members and external experts. The internal assessment team consists of two or more persons performing the systematic review. Three or more expert consulting meetings are held during the assessment, which act to reflect the expertise of the external consultants in the final assessment. When the EBH assessment is completed, the result is sent to each committee to provide clinical grounds for evidence-based decision making.

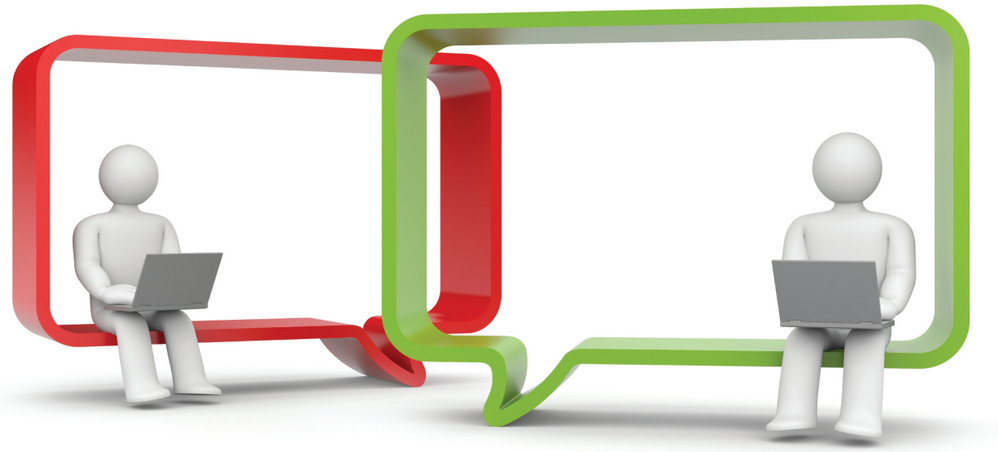
[Figure 26] EBH Assessment Procedure



Evidence-Based Review Manual (EBRM)

The EBRM is HIRA's exclusive literature review manual that standardizes:1) the literature search methodology; 2) literature classification; and 3) the presentation method of the literature summary to support evidence-based decision making by each committee.
The decisions made by each HIRA committee impact on the work of healthcare fee review & assessment, healthcare service providers, patients and their healthcare choices. Therefore, objective and reasonable decision making by HIRA is crucial to promote the population health in Korea. EBRM was developed to overcome the significant time and effort spent on systematic reviews, by providing good quality information for objective and reasonable decision making by HIRA.

[Figure 27] Cover Pages of EBRM



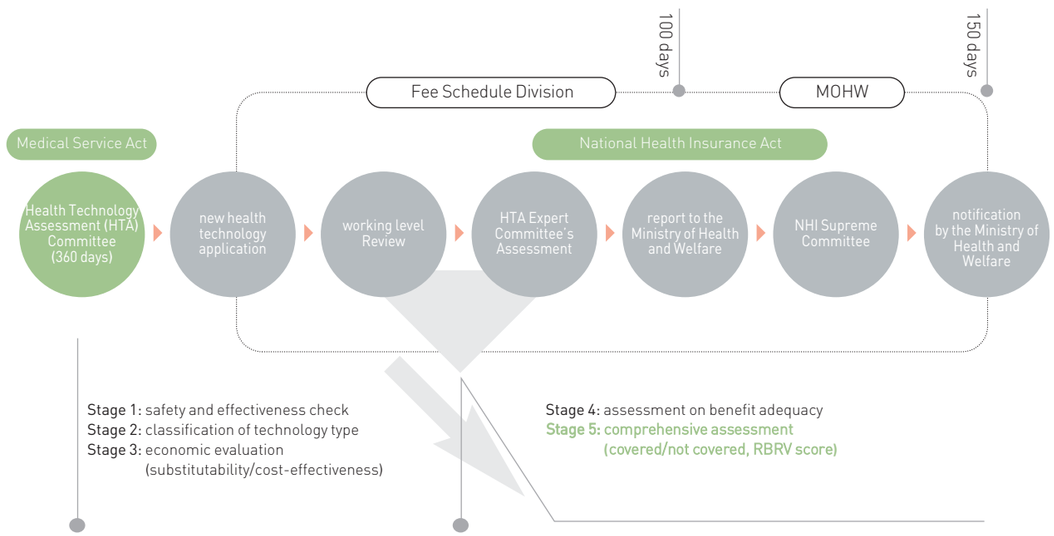
MANAGEMENT OF NEW HEALTH TECHNOLOGY AND RBRV SCORES

New health technology means medical services, pharmaceuticals, and medical materials which are not eligible as covered items or are not covered items as healthcare benefits. Therefore, it is necessary to determine whether the new medical services, pharmaceuticals or medical materials are suitable to be listed as covered or non-covered items in the "List of Services Covered and Uncovered by the National Health Insurance and Resource-Based Relative Value (RBRV) Scores of Services."

Application of New Health technologies and RBRV Scores

- Healthcare institutions, medical and pharmaceutical organizations, and manufacturers/importers of medical materials should apply to the Minister for Health and Welfare or the president of HIRA for healthcare benefit coverage determination of new medical technologies.
- When the application for a decision is made, medical services are examined to see if their safety and effectiveness are acceptable, according to the results of a new medical technology assessment under the Medical Service Act. In cases of medical materials, it is necessary to examine whether the items are approved or reported in accordance with the 'Pharmaceutical Affairs Act' or the 'Medical Equipment Act.'
- The relevant expert committees review the results of cost-effectiveness and adequacy of new medical technologies, and determine the eligibility of benefit coverage. The cases determined to be eligible are given a RBRV score for reimbursement, or upper price limits for drugs or medical materials.
- Healthcare institutions, medical and pharmaceutical organizations, manufacturers/importers of medical materials, and the insured can apply for adjustment of RBRV scores, upper limit prices, and healthcare coverage decisions already made.
- The Minister for Health and Welfare can determine and announce the eligibility of healthcare coverage based on the results of review committees even without a prior application for healthcare coverage. The technologies determined to be covered should be announced together with RBRV scores and upper price limits.

[Figure 28] Listing Process of New Health Technology



The task of health technology assessment under the Medical Service Act is now being conducted by the National Evidence-based Healthcare Collaborating Agency (NECA) (Transferred from HIRA to NECA in June 2010).

HTA Expert Committees

The members of expert assessment committees are appointed or commissioned by the Minister for Health and Welfare and the period they serve is normally two years. The decisions of the committees are reached when there is approval by the majority of the attending members. When it is necessary for a joint assessment to be carried out by the committees, the president of HIRA can arrange a meeting which includes seven committee members from each expert assessment committee. The final decision on new health technology is made by the expert assessment committee after a working level review, and the result is made public by the Minister following the review of the "NHI Supreme Committee" within the Ministry.

[Table 6] Composition of HTA Expert Assessment Committees

(unit: person)

Classification	Total	Representatives from consumers	Representatives from public interest	Representatives from medical and pharmaceutical provider organizations	HIRA	NHIC
medical service	20	2	5	9	2	2
traditional medical service	16	2	5	5	2	2
medical material	18	2	6	6	2	2
human tissue	18	2	6	6	2	2
DRG	20	2	5	9	2	2

DIAGNOSIS-RELATED GROUP (DRG) PAYMENT SYSTEM

The DRG payment system reimburses inpatient care fees using a DRG classification system. In this system, all hospitalized patients are classified by DRG. In order to categorize patients, attention is paid to their consumption of medical resources, clinical symptoms, diagnosis, surgery, age, etc. When a patient is hospitalized, a fixed amount of medical fee is reimbursed depending on which disease the patient has. This fee is reimbursed regardless of the type or amount of medical services, such as examination, surgery or medication, which are provided during hospitalization.
As the reimbursed amount is fixed in advance, it is likely that healthcare input will be reduced, in order to increase the profit of the healthcare institution. This may lead to more efficient provision of services.
The DRG system contrasts with the traditional "Fee-for-Service" payment system, in that the cost of the service provided is not part of the fee calculation, as the medical fee is reimbursed regardless of the medical services provided.

Brief History

- A pilot program of the DRG payment system was implemented from February 1997 to December 2001. The expanded main program was implemented from January 2002, on a voluntary basis.

[Table 7] Number of Healthcare Institutions Participating in the DRG Payment System

Classification		Total	Hospitals	Tertiary Hospitals	General Hospitals	Clinics
2002	number of institutions	1,839	4	109	153	1,573
	participation rate, %	57.5	9.5	45.2	49.0	60.5
2010	number of institutions	2,325	-	75	174	2,076
	participation rate, %	69.9	-	27.4	39.2	80.9
March, 2011	number of institutions	2,337	-	74	177	2,086
	participation rate, %	70.7	-	27.2	40.7	81.6

Diagnosis-Related Groups

The DRG payment system is applied to the inpatients classified into seven disease groups, within four medical departments. The system also applies in outpatient surgery such as crystalline lens surgery inguinal and femoral hernia surgery and simple anal surgery.

[Table 8] Seven Diagnosis-Related Groups

Classification	Ophthalmology	ENT	General Surgery	OB/GYN
DRGs	- Crystalline Lens surgery	- Tonsil and Adenoid exeresis	- Anal surgery - Inguinal and Femoral Hernia surgery - Appendectomy	- Uterus and Adneelomy - C-section

- Fee schedule and Scope: Taking into account diagnosis and institution type, the average amount paid under the fee-for-service system and part of the amount paid by patients for non-covered services are included in the DRG fee schedule as an incentive.
- Therefore, most costs of medical services, medical materials and drugs needed in treatment are covered under the DRG system. The DRG system also covers the costs caused by complications due to surgery or pre-existing conditions.
- However, some designated items are excluded from DRG coverage. These items include costs for which the patient takes full responsibility (e.g. transportation expenses, patient controlled analgesia after surgery) and uncovered items (e.g. the cost difference for choosing better hospital rooms, selective medical service fees, aesthetic plastic surgery, ultrasonography, etc.).

Monitoring

Monitoring is conducted to ensure appropriate quality of medical services and to minimize the negative aspects of the DRG payment system, such as misuses of diagnosis classification information and claim fraud (e.g. DRG upcoding/splitting claim, premature discharge from hospital).

MAJOR ACTIVITIES

Part III

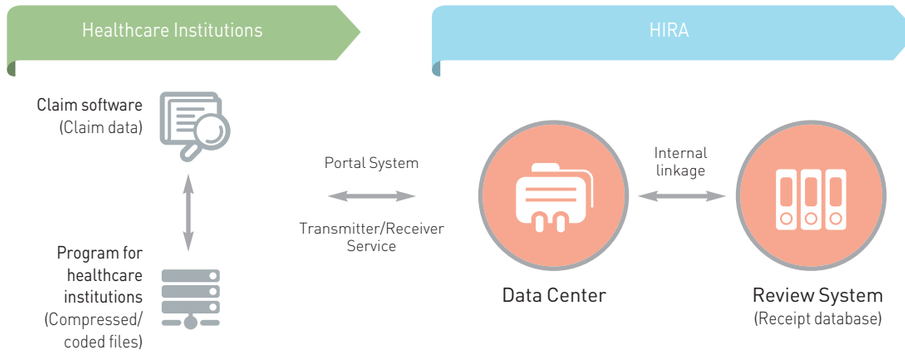
Information Technology & Other Activities

ELECTRONIC BILLING SYSTEM

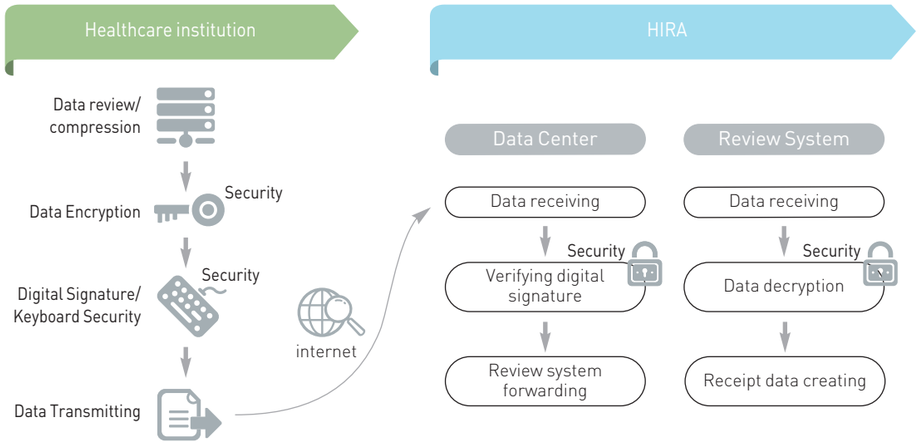
HIRA's portal service system for healthcare billing enables healthcare institutions to directly claim reimbursement for their rendered services via an internet based program. Using this portal service, healthcare institutions are notified of the review results in a convenient and prompt manner.

Structure of Claim Portal Service

[Figure 29] System Structure



[Figure 30] Security System for Healthcare Claims Data



- Claims data is encrypted to prevent data leakage from the communication network between HIRA and healthcare institutions.
- Integrity of data is secured by applying digital signatures through certification.
- Security technology is used to prevent PC hacking during claims data transmission.

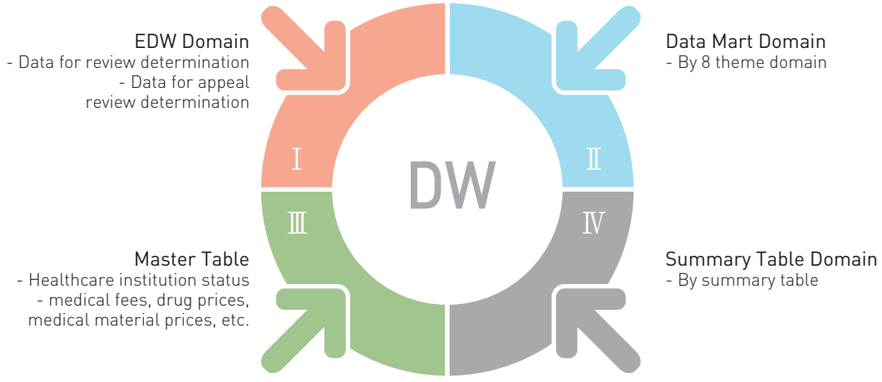
NATIONAL HEALTHCARE DATA WAREHOUSE (DW) SYSTEM

HIRA created a data warehouse in July 2003 in order to effectively manage digital information between the Headquarters and branch offices. This system enables the management of the nation's healthcare information, and integrates data from all healthcare services covered by the national health insurance system. This data system has been effectively utilized to perform review and assessment services.
In particular, analysis of the data has provided diverse statistical information concerning public healthcare to the government, National Assembly, research institutes, universities, press and other related institutions. It has also helped to enhance the value of public health data as a source for establishing, implementing and assessing public health policies, preventing diseases, and providing health education.

Data Warehouse?

The data warehouse ("DW" hereinafter) consists of a large data depository that enables the integrated management of data. Data are converted into a uniform format through a series of processes including data extraction, conversion, and refinement.

[Figure 31] DW System Configuration



1)Enterprise Data Warehouse (EDW) Domain

EDW refers to an enterprise data collection that constitutes the foundation for the Data Mart and Summary Tables domains. The EDW consists of claims data submitted by healthcare institutions, and is used by HIRA to develop various review and assessment indicators.

2)Data Mart Domain

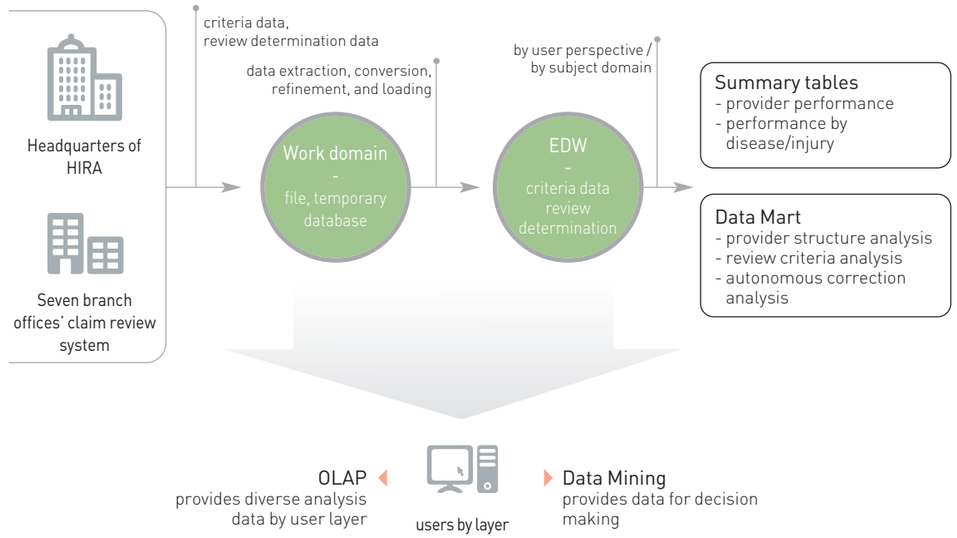
Data Mart, a part of the EDW system, is a smaller data warehouse consisting of data that are valuable to specific users or targets. Data Mart is configured by subject domain, based on an analysis of user requirements, user convenience and system performance. HIRA is thus able to conduct cost-effective analyses by organizing and providing detailed data by service categories such as: review criteria, assessment of healthcare service adequacy, and comprehensive management system.

3)Summary Tables Domain

Summary tables consist of statistical data summed up by theme or subject with the goal of supporting decisions on the development or improvement of service operations. These summary tables are generally created as and when required, according to the users' needs while minimizing their expenses. HIRA organizes and presents data on providers' performance by claim, claim amount range, and service performance by unit of the healthcare service.

DW Data Deployment

[Figure 32] DW Data Deployment Flow Diagram



[Table 9] Annual Data Construction Status

Item		Total	2006	2007	2008	2009	2010
Basic	Number (million)	5,729	901	1,036	1,200	1,283	1,309
healthcare data	Rate (%)	100	15.73	18.08	20.95	22.39	22.85
Detailed	Number (million)	37,518	6,589	7,046	7,545	8,067	8,271
healthcare data	Rate (%)	100	17.56	18.78	20.11	21.50	22.05

KOREA PHARMACEUTICAL INFORMATION SERVICE (KPIS)

In accordance with the government's policy to effectively manage the distribution of information, HIRA operates the Total Drug Distribution Information Management Center, otherwise referred to as the "Korea Pharmaceutical Information Center(KPIS)."
KPIS aims to manage the distribution of drug-related information (production → distribution → consumption) rapidly and accurately, and to standardize drug codes, in an effort to advance the country's drug distribution system and to create a proper drug statistics system.

Standardization of Drug Codes

The Korea Drug Code system is used to standardize the country's drug codes. The system is a composite coding system of the drug distribution bar-code system and the EDI code system for claims for covered drug costs. The code consists of 13 digits, namely: the country identification code, the manufacturer's code, the production item code, and the verification number.

[Table 10] Standard Drug Code Configuration System

Digit(13)	3	4	5		1
Details	Country identification code	Manufacturer's code	Product item code		Verification number
			Product code including dosages	Packaging unit code	
Example	880	6400-6999	0000-9999	1-9	0-9

* The Korea Drug Code is shown as a barcode and is displayed on drug packaging.
* The code is also used as the EDI code from January 2010.

Collection and Management of Drug Distribution Information

Management of the Performance of Drug Production and Imports

Drug manufacturers and importers report their respective quarterly production and import results to pharmaceutical and import/export associations, which in turn submit a comprehensive report to KPIS.

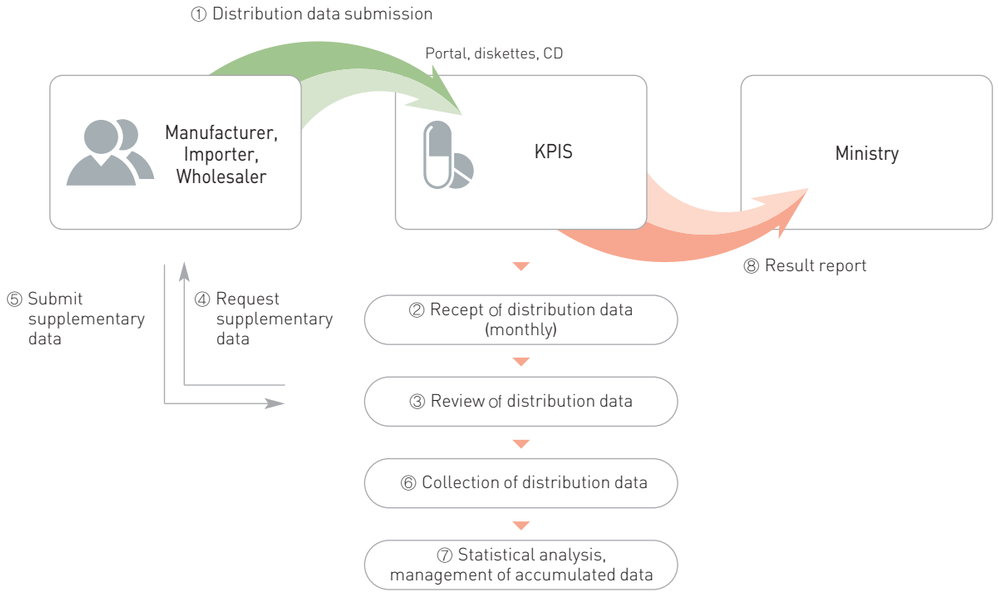
[Figure 33] Reporting System for Results of Drug Production and Imports

* Items to be reported: Production month, product name, standard code, output, production unit price, production volume, business registration number, etc.

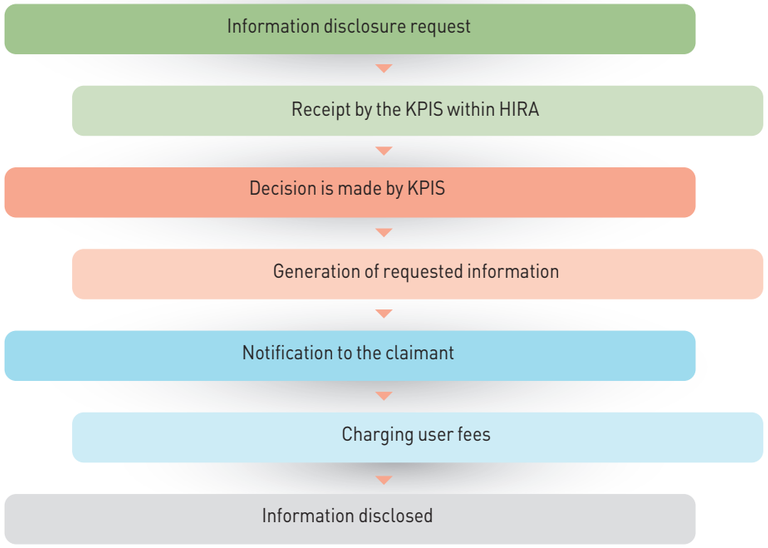
Drug Supply Details

Drug manufacturers, importers and wholesalers report the monthly results of their supply of drugs to healthcare institutions, pharmacies, and wholesalers, to KPIS by the end of the subsequent month.

[Figure 34] Management of Drug Supply Data



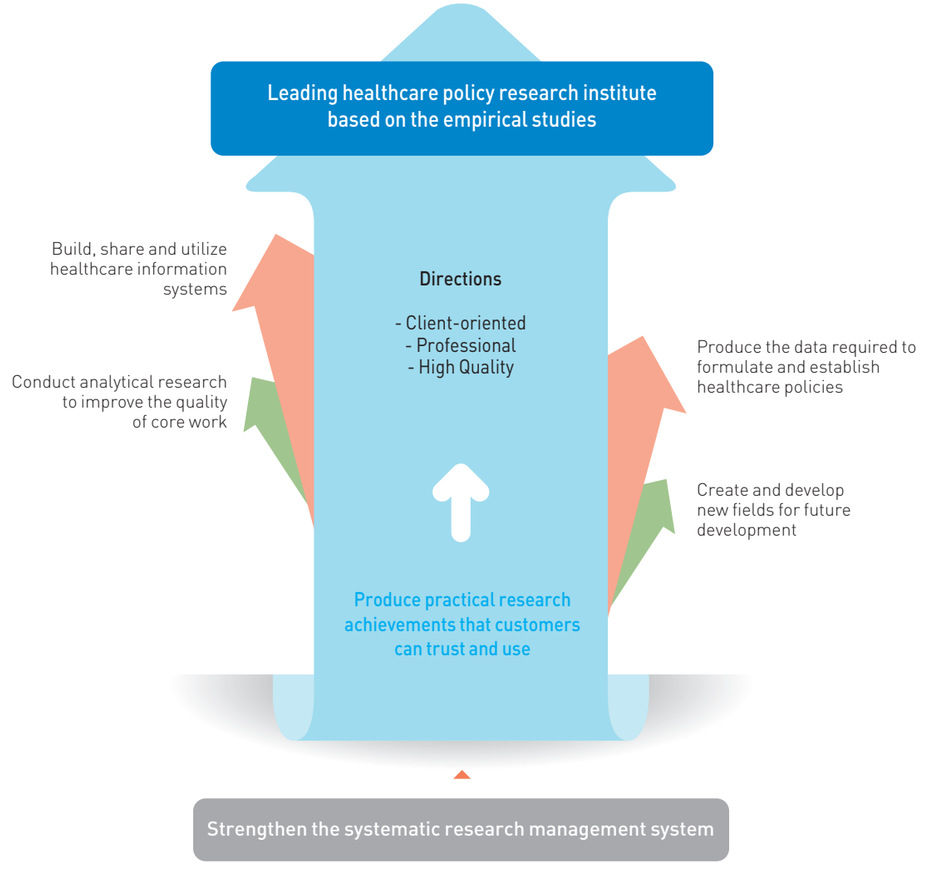
In accordance with the Pharmaceutical Affairs Act, KPIS provides information on drug distribution in order to advance pharmaceutical industry as well as ensure people's right to know. The disclosure procedure of pharmaceutical information is as follows:



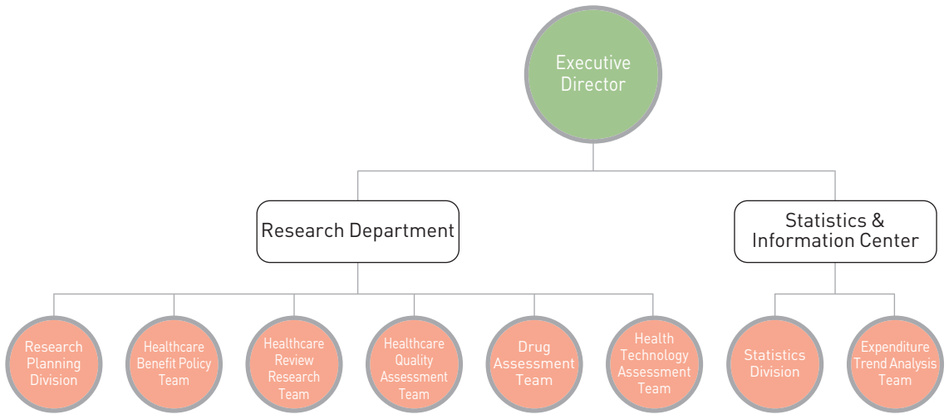
RESEARCH

HIRA carries out high quality research duties. By utilizing the findings of research on the cost and utilization of medical services by patients, HIRA promotes improvement in the quality of review and assessment duties, and contributes to scientific and logical policy decision making. In addition, international cooperation activities help to promote globalization through the mutual exchange of healthcare information, and support the advancement of management processes.

[Figure 35] Vision and Goals of the Institute



[Figure 36] Structure of the Research Directorate



Research Areas

- Perform research and analysis in order to improve the quality of HIRA's core activities such as review & assessment.
- Produce necessary evidence to form healthcare policies.
- Construct and utilize the healthcare information knowledge system.
- Conduct highly reliable client-centered research.
- Achieve globalization of activities through international cooperation in the healthcare research field.

Enhancing healthcare service quality, guaranteeing the appropriateness of costs, and building the trust of both the public and healthcare institution : the HIRA aims to improve the quality, efficiency and effectiveness of healthcare through reliable and fair health insurance review & assessment.