



Total Solution for
Value-based Healthcare Purchasing

HIRA System

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HIRA SYSTEM

Total Solution for Value-based Healthcare Purchasing

HIRA system is a value-based purchasing system which guarantees medical service quality improvement and cost appropriateness through efficient resource distribution.



Rule-making

- Medical treatment management
- Medical material management
- Drug management
- Diagnosis Related Group management

Monitoring & Feedback

- Medical claims portal service
- Medical claims review
- Quality assessment
- Diagnosis Related Group monitoring
- Drug Utilization Review (DUR)
- On-site investigation
- Medical fee verification

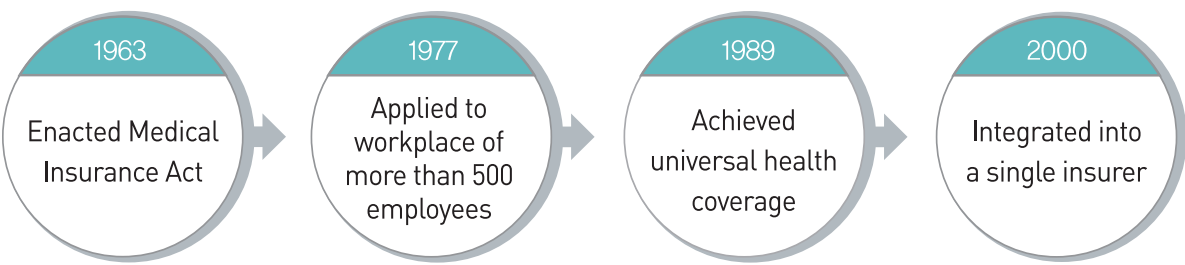
Infrastructure Management

- Healthcare resources management
- Korea Pharmaceutical Information Service (KPIS)
- Code system development
- Patient classification system
- Health insurance system education
- Healthcare big data analysis



South Korea's Health Insurance System

- ▶ Health Insurance System was first legislated in 1963. From 1977, all workplaces with more than 500 employees were required to mandatorily participate in the system. In 1989, 12 years after the first implementation, universal health insurance coverage was achieved.
- ▶ In 2000, National Health Insurance Act was enacted and all insurers were integrated into a single insurer. National Health Insurance Service (NHIS) and Health Insurance Review & Assessment Service (HIRA) were established.

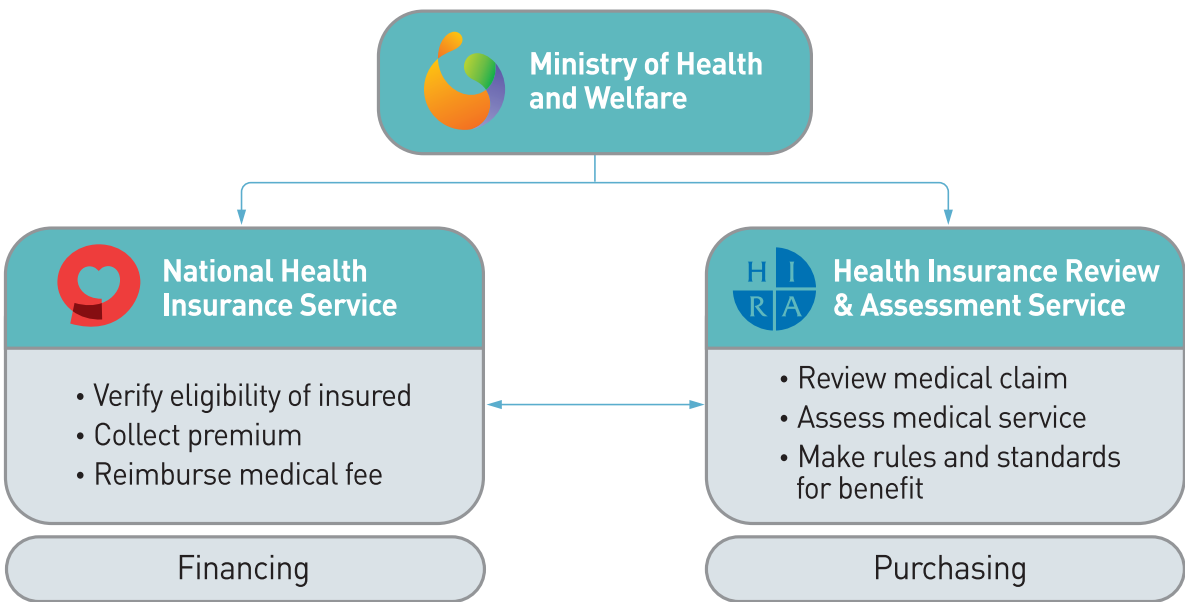


- ▶ South Korea's Health Insurance system is a public and single payer system. Healthcare providers are automatically eligible and obliged to treat patients for services covered under the system. Investment comes from private sector but the system is controlled by the government.

[Unique characteristics of South Korea's National Health Insurance]



- ▶ There are three organizations of Health Insurance System. The Ministry of Health and Welfare (MoHW) legislates related laws and supervises and manages NHI organizations. National Health Insurance Service (NHIS) and Health Insurance Review and Assessment Service (HIRA) are entrusted by the government to operate the system.



HIRA (Health Insurance Review & Assessment Service)

- ▶ Since health insurance system was introduced in 1977, a government entity, HIRA put its utmost efforts to improve medical quality and guarantee appropriate level of medical fee. About 2,300 employees (Over 70% are medical personnel) are fulfilling a role as a healthcare purchaser for rational distribution of limited medical resources.
- ▶ HIRA purchases about 56 trillion KRW worth of healthcare service annually. Through systematic management and rational healthcare purchasing activities, annually, about 17 trillion KRW of social value is created by HIRA. (as of 2013)
- ▶ Based on the transparent management and high-tech IT 'HIRA system,' HIRA is creating the world's best Health Insurance System where citizens can receive high quality medical service with affordable cost.
- ▶ HIRA protects and improves the health of Korean citizens by analyzing and monitoring 1.4 billion cases of medical service provided by 85,000 providers annually.

HIRA System

- ▶ HIRA system is a value-based purchasing system which guarantees medical service quality improvement and cost appropriateness through efficient resource distribution.
- ▶ Korea's National Health Insurance program has been implemented and managed efficiently with the rapid economic growth and finite resources, thanks to the faithful efforts of HIRA from 1977, serving as the healthcare service purchaser in Korea. HIRA manages "healthcare service standards setting" for benefit criteria management and reasonable purchasing activities, conducts "monitoring and feedback" by benefit claim review, and acts as the "infrastructure manager" by overseeing healthcare data and resource information.

HIRA system creates synergistic effects by combining various healthcare purchasing activities and roles. The main functions are as follows :

Rule Making

- **Benefit standard (Treatment, Drug, Medical material) management** : Medical fee schedule determination using RBRVS (Fee-for-service), drug and medical material pricing, and code management.

Monitoring & Feedback

- **Medical claims** : Receives medical service claims submitted by providers and sends review results to providers.
- **Medical claims review** : Reviews and checks whether the claim details have been duly submitted within the scope allowed under the relevant statutes (Rational management of healthcare finance).
- **Quality assessment** : Assesses the clinical validity and cost efficiency of medical and pharmaceutical services (Medical service quality improvement and patient choice protection).
- **Drug Utilization Review(DUR)** : Gives real-time information on drug safety to physicians and pharmacists whose PCs are linked to HIRA's system (screening for contraindications or the use of prohibited drugs).
- **On-site investigation** : A type of administrative investigation in which a visit is paid to a target provider to verify the lawfulness of its healthcare service claims.
- **Medical fee verification** : checks medical fee paid by patients whether the amount is within the scope allowed under the relevant statutes and refunds excessive medical fees collected from patients.

Infrastructure Management

Rule Making

Monitoring & Feedback

IT Support

Infrastructure Management

- **Healthcare resources management** : Collects information about providers' workforce, facility, and equipment which is required for the review and assessment of any covered benefits claimed to HIRA.
- **Korea Pharmaceutical Information Service (KPIS)** : Manages the distribution of drug-related information (production, import, supply) to create a proper drug distribution system.
- **Patient classification system** : Classifies patients into related groups in terms of diseases, procedures, medical resources, and clinical meanings.
- **Health Insurance System education** : Provides education program to countries with interest to learn about Korea's Health Insurance system, claims review and quality assessment.
- **Healthcare big data analysis** : Supports policy-making and national statistical service by combining and analyzing medical information, benefit standard, medical resources and etc.

Strengths of HIRA system

1. To support healthcare policy making process, HIRA fulfills a role of healthcare purchaser using the optimized public system

- ▶ Benefit standard set-up, healthcare resources management, claims review, quality assessment, and etc.

2. Provide information to various stakeholders (public, government, and etc.) by collecting and managing information on medical fee

- ▶ Calculate appropriate level of medical fee and select providers with high quality of service.
- ▶ Support national statistics service and manage medical resources efficiently.
- ▶ Reimburse medical fee swiftly and promote R&D using healthcare data.

[Collected data]

- Collected data: Medical bill and prescription/dispensing information of patients. Provider's status including workforce, facility, and equipment. Approval information for drugs, medical equipment, medical material. KPIS (production, import, supply) and etc.

3. The world-class ICT system creates standardized and optimized process

- ▶ Flexible and open operational system which can utilize state of the art ICT
- Utilization of Internet of Things (IoT) including Drug distribution management utilizing RFIDtag and mobile devices (Hospital location, drug information, civil affairs)
- ▶ Certified by ISO 9001, ISO 20000 and obtained international patent for electronic claim system.
- ▶ Based on international coding standard, HIRA developed single coding system (Treatment, Drug, Medical material).
- Benefit standard database management (approx. medical fee: 84,000, drug fee: 50,000, medical material: 20,000).
- ▶ Creates synergistic effects by combining various healthcare purchasing activities (review, assessment, DUR, and etc.).
- 99% of claims are submitted electronically. Maximized productivity by electronically review claims using Artificial Intelligence (AI).

4. Contribute to improve global healthcare by promoting UHC

- ▶ Increased interest of countries to adopt HIRA system based on ICT (ODA request and etc.)
- ▶ High interest of OECD, WB and WHO. Benchmarking case for developing nations.

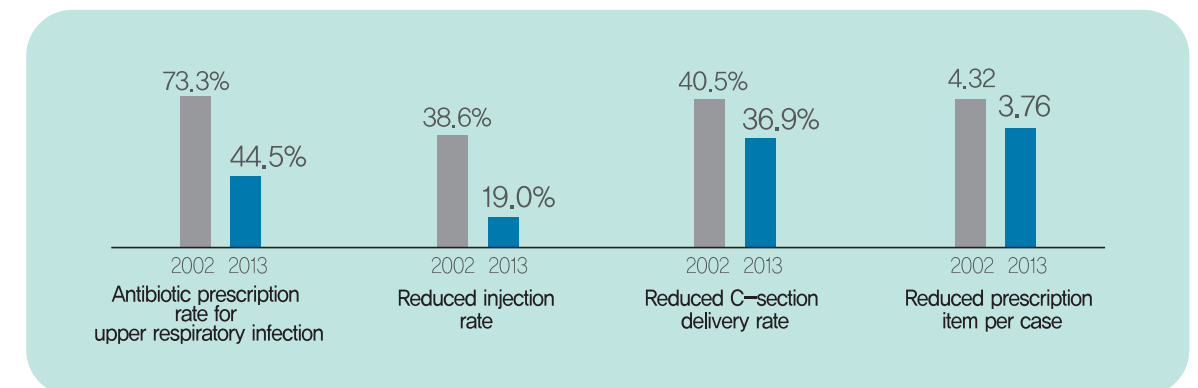
Outcome of HIRA System

1. Increased efficiency on medical spending by fulfilling a role as a value-based healthcare purchaser

- ▶ Create about 17 trillion KRW social value through systematic management and rational healthcare purchasing activities. (Rule making, Monitoring & Feedback, Infrastructure Management)

2. Improved medical service through quality assessment

- ▶ Assess the clinical validity and cost efficiency of medical and pharmaceutical services
- ▶ Provide information to the government, local government, consumers and etc. to protect patient choice.



3. Improved patient safety and efficient use of medical resources

- ▶ Through integrated management of healthcare resources (workforce, facilities, equipment, and etc.), prevent resource waste and support rational distribution.
- ▶ Safe and appropriate use of drugs using DUR system (prevent 540 million cases of prescription error as of 2013).

4. Calculate national healthcare statistics swiftly and accurately to support policy making process. Calculate reliable international healthcare statistics

- ▶ Support national healthcare policy making process by producing real-time statistics (Over 770,000 times as of 2013).
- ▶ Support healthcare R&D of medical and pharmaceutical industry (Over 2,300 times as of 2013)
- ▶ Develop 196 indicators of 5 Groups including medical quality, medical resources, and pharmaceutical consumption (as of 2013).



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Infrastructure Management

Creating world-class healthcare system through accurate and fair diagnosis of medical resources

Medical treatment management

The NHI coverage decision for about 84,000 medical treatments are made based on scientific method and transparent procedure. The selected services are classified and managed with national standard code.

The medical treatment management classifies doctors' treatment, assigns national standard code to each treatment, and sets service price and benefit standards.

Coverage decision and price determination

- Economics assessment (replaceability, cost-effectiveness)
- Assessment on benefit adequacy (NHI benefit principle/condition of health insurance fund)
- Calculation of resource based relative value score (RBRV score)
- Assessment of Medical Service Benefits Committee

* Relative value score = workload + medical fee + degree of risk

Benefit standard determination

- Fundamental data investigation
- Collection of expert's opinion
- Estimation of required fund

Re-review of RBRV score

- Improvement of definition and classification of medical treatment
- Development of relative value of medical treatment components
- Calculation of relative value of treatments

Utilization

- Benefit claim review
- Healthcare service quality assessment

Medical treatment management procedure

- The healthcare provider applies for NHI coverage of treatment which has obtained safety and efficacy approval. HIRA assesses its replaceability and cost-effectiveness to determine whether to include the service into the benefit package, and decide the reimbursement price of the service
- In order to review the target and range of reimbursement, HIRA researches national and international clinical studies, literature, basic data, and opinions of professionals Standards for reimbursement (for example how many times it will be covered under NHI) are determined in consideration of service necessity, clinical effectiveness, cost-effectiveness, etc.
- The relative value score is revised when there are changes in the components of relative value.

Code assignment

- Medical treatment is classified by joint research with health-related organizations. Standardized codes (5~8 digits) are assigned to each treatment. (Codes are classified as Medicine, Dentist, and Oriental medicine and given in consideration of the medical treatment and healthcare providers (managing 8,400 codes of 5-digits and 84,275 codes of 8-digits))
- The diagnosis related group (DRG) codes are 6-digits, based on K-DRG classification (main diagnosis, disease group, age, complication)

Operational Performance

- Data used as the basis material for medical fee payment unit, healthcare statistics and health studies
- Saved national healthcare expenditure by selecting covered services and setting prices in consideration of economic condition
- Unified standard codes make it easier to calculate statistics for disease prediction and public health services across the nation
- Enhanced understanding and acceptability of the program through the coordinating efforts with stakeholders in the healthcare industry
- Operation of national standard treatment code
- Ensure the procedure of introducing new medical technologies
- Facilitate links between computer systems via a standardized code

Medical material management

Medical material management procedure

- The manufacturer or importer applies for NHI coverage of the medical material which has obtained safety and efficacy approval. HIRA assesses its replaceability and cost-effectiveness to determine whether to include the service into the benefit package, and decide the upper-limit price of the material. Some of the items are reimbursed with limitation in terms of applicable disease, number of materials used, and other conditions.
- The listed medical material shall be re-assessed periodically (once in 3 years) in order to improve management efficiency
- Manufacturers and importers may ask for a re-assessment if there is disagreement about the result. The request will be reviewed by an independent body

Code assignment

- Standardized codes (8 digits) are assigned to each medical material in consideration of the purpose, function, shape, material, and etc.
- Currently HIRA manages codes of 20,000 items (17,000 covered item and 3,000 uncovered items)

National standard codes are assigned to 20,000 medical materials for cost-effective use

Medical material management classifies the materials (stents, artificial joints, implants, etc) to give codes in consideration of the purpose and feature, and sets the price and benefit standards.

Coverage decision and price determination

- Economics assessment (replaceability, cost-effectiveness)
- Assessment on benefit adequacy (NHI benefit principle/condition of health insurance fund)
- Determine of upper limit price

Benefit standard determination

- Fundamental data investigation
- Collection of expert's opinion
- Coverage condition setting
- Estimation of required fund

Re-review of medical materials

- Re-classification of all the items
- Re-assessment on the coverage decision
- Adjustment of upper limit price

Utilization

- Benefit claim review
- Healthcare service quality assessment

Drug management

About 50,000 drugs are managed by national standard code to ensure public safety and fair price

Pharmaceutical management sets prices and benefit standards for drugs that hold high clinical value.

Coverage decision and price determination

- Check the safety and efficacy approval
- Economics evaluation (clinical efficacy/ cost-effectiveness)
- Drug price setting
- Pharmaceutical benefits committee

* Generic drug price is set at 53.55% of original drug price.

Benefit standard determination

- Review by working staff (literature, expert opinion)
- Review of Healthcare review and assessment committee

* If there is no substitutions in NHI package, the permission range could be expanded

Re-review of drugs

- Value assessment of drug groups by efficacy
- Price adjustment
- Economics evaluation
- Benefit adjustment

Utilization

- Benefit claim review
- Healthcare service quality assessment

Pharmaceutical management procedure

- The manufacturer or importer applies for NHI coverage of the drug which has obtained safety and efficacy approval. The Pharmaceutical Benefit Assessment Committee of HIRA assesses the drug's clinical efficacy and cost-effectiveness to determine whether to include the drug into the benefit package
- The price of newly listed drug is determined by the negotiation between pharmaceutical company and NHIS. The price of a generic drug is determined based on a formula in proportion to the original drug's price
- The benefit standards for a listed drug (ingredient) are set either for the whole permitted range or part of range with conditions
- To raise the coverage rate for new drugs, listed drugs are regularly re-reviewed for their value. Listed drugs' status can be adjusted or eliminated from the benefit package if the clinical efficacy turns out to be insignificant

Code assignment

- The KD code (13 digits) is assigned to all drugs which have obtained the approval from the Ministry of Food and Drug Safety. (There are 50,000 KD codes in total based on the item and package unit.)
- When providers send benefit claim, they use 9 digit codes which is a shorter version of KD code, excluding national identification code (3 digits) and the last verification qualifying code.

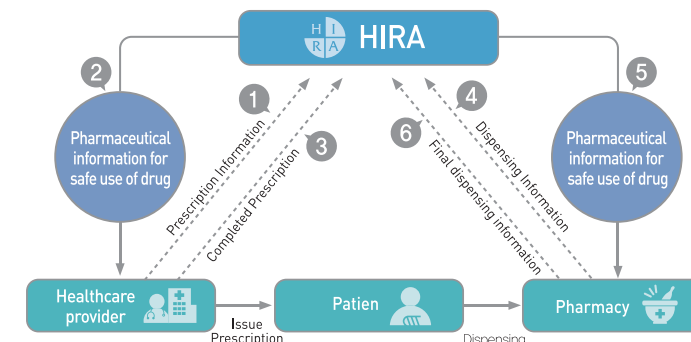
Operational Performance

- High-quality drugs are provided at reasonable price
- Save healthcare expenditure by price determination and selective coverage in consideration of economic evaluation
- Unified standard codes make it easier to produce statistics related to nationwide drug consumption and other healthcare services.
- Enhanced understanding and acceptability of the program through the coordinating efforts with stakeholders in the healthcare industry

Drug Utilization Review (DUR)

DUR Service procedure

- The doctor sends the details of prescription to HIRA DUR service before issuing the prescription to the patient. HIRA sends a warning message in a pop-up window on the doctor's computer screen within 0.5 seconds, in case there is a risk factor in the prescription when compared to the patient's medication history, suspended drug list, and DUR standards. The doctor could choose to change the prescription or to proceed with the original prescription with a memo, explaining why the drug should be used exceptionally. The final prescription information is sent to and stored in the DUR system of HIRA
- Pharmacists undergo the same process at the pharmacy when dispensing. For a warning message, the pharmacist could choose to change, or go ahead with the original prescription after checking with the doctor. The final dispensing detail information is sent to and stored in the DUR system of HIRA



Operational Performance

- The only system in the world which checks patients' medication history on a real-time basis
- Prevention of drug misuse and abuse and reduction of pharmaceutical expenditure by preventing inappropriate use of drugs in advance (Saved over 20 billion KRW a year)
- Support safe prescription and dispensing practice by the real-time response (Prevented 5.4 million cases of unsafe use of drugs in prescription)
- Guaranteed fast response and 24/7 uninterrupted service
- A nationwide pharmaceutical monitoring system
- Support safe use of drug
- Healthcare providers' EMR and HIRA system are directly linked, expanding the information transmission channel
- Safe blood transfusion based on the patient medication history
- Based on the real-time drug monitoring, national level supervision is possible (epidemic, narcotic drugs, and etc.)
- Information sharing of drug adverse effect on a real-time basis, which ensures safe prescription and dispensing

The world's only real-time drug safety inspection program which checks the patient's medication history

Drug Utilization Review (DUR) checks prescriptions and sends warning messages about risk factors at the point of prescribing and dispensing on a real time basis. DUR prevents unsafe use of drug in advance.

Medical claims portal service

Annually, 1.4 billion cases of benefit claims are transmitted 24/7 on a real time basis.

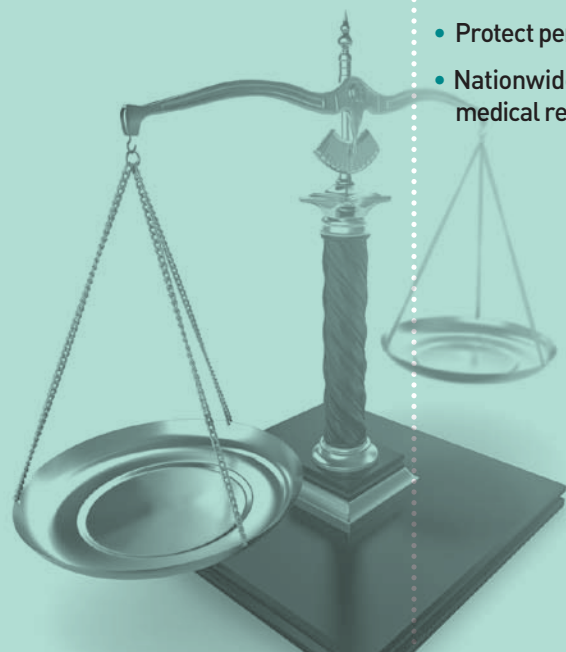
Medical Claims Portal Service is an easy and convenient service that enables healthcare providers to inspect benefit claims before submission using a checkup program, and to submit the benefit claims directly through HIRA's website.

Benefit claim submission and result notice procedure

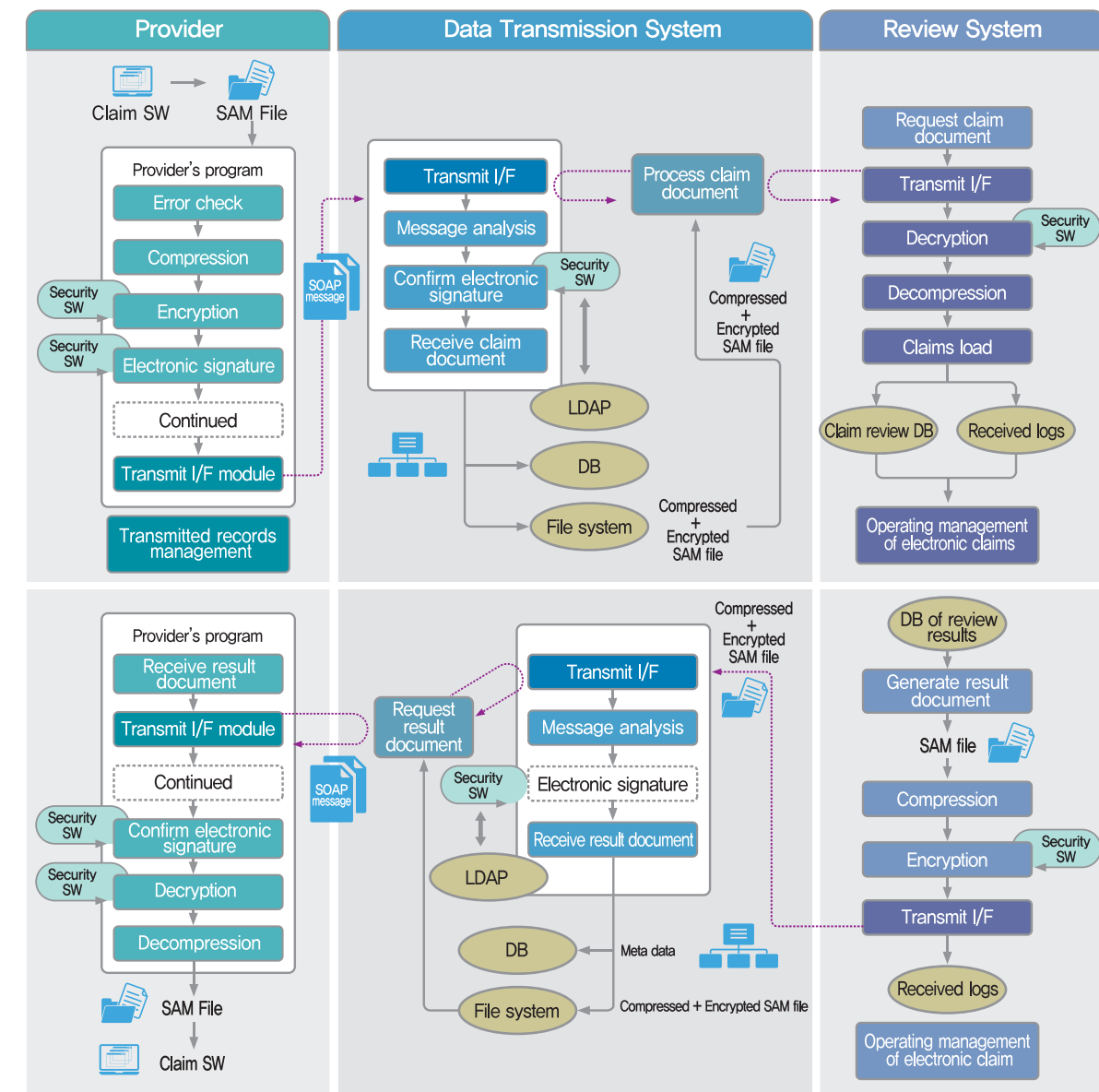
- Healthcare providers fill in benefit claim file using Claim Software accredited by HIRA. The file is inspected by benefit claim portal program before submission
- If the claim file passes the checkup process, it is compressed and encrypted to be sent directly to HIRA via the Internet with digital signature
- The claim file is verified by the digital signature, and transmitted to the review linkage system where the data set is decompressed, decrypted, and sent to the review system
- When the review is completed, a review result notification is produced, compressed, encrypted, and sent to the data center
- Healthcare providers receive and check the review result through the Benefit Claims Portal

Operational Performance

- Enhance national competitiveness by reducing social cost such as paper document resubmission costs, logistics costs, and etc. (Replaced 1.4 billion paper documents with electronic documents in 2013)
- Support providers' management efficiency by streamlining claims submission and reimbursement process (Claims review period: paper 40 days → electronic 15 days)
- Protect personal information and privacy by encrypting claims data
- Nationwide healthcare data supports policy-making process by collecting medical records swiftly and accurately



Medical claims portal service



Medical claims review

Electronic review based on about 40 years of knowhow and experience that combines artificial intelligence techniques

Review process is to check whether the benefit claim was submitted in accordance with the benefit standards under the National Health Insurance act, considering cost-effectiveness and the medical and pharmaceutical appropriateness.

Review procedure and types

- Claims review process starts with the submission of “benefit claim statement” by providers, which contains details of provided medical services and the cost
- [Electronic checkup] All statements go through electronic checkup to see the accuracy of basic information such as disease code, claim code, and the service price
- [AI electronic review] By combining IT technology and review staff’s knowhow, logical electronic review of seven steps is conducted with artificial intelligence
- [Close Review] Claims that have high probability of error, or requires professional medical judgment are referred to review staff for a manual review. More complex cases are once again referred to committee member review, and to the review committee where experts gather to discuss the case
- [Post-management] For the cases that had unchecked items passed, HIRA operates post management of additional review to claw the misjudged benefits back. If providers or the insurer object to HIRA’s decision, they can file an appeal with supporting materials.

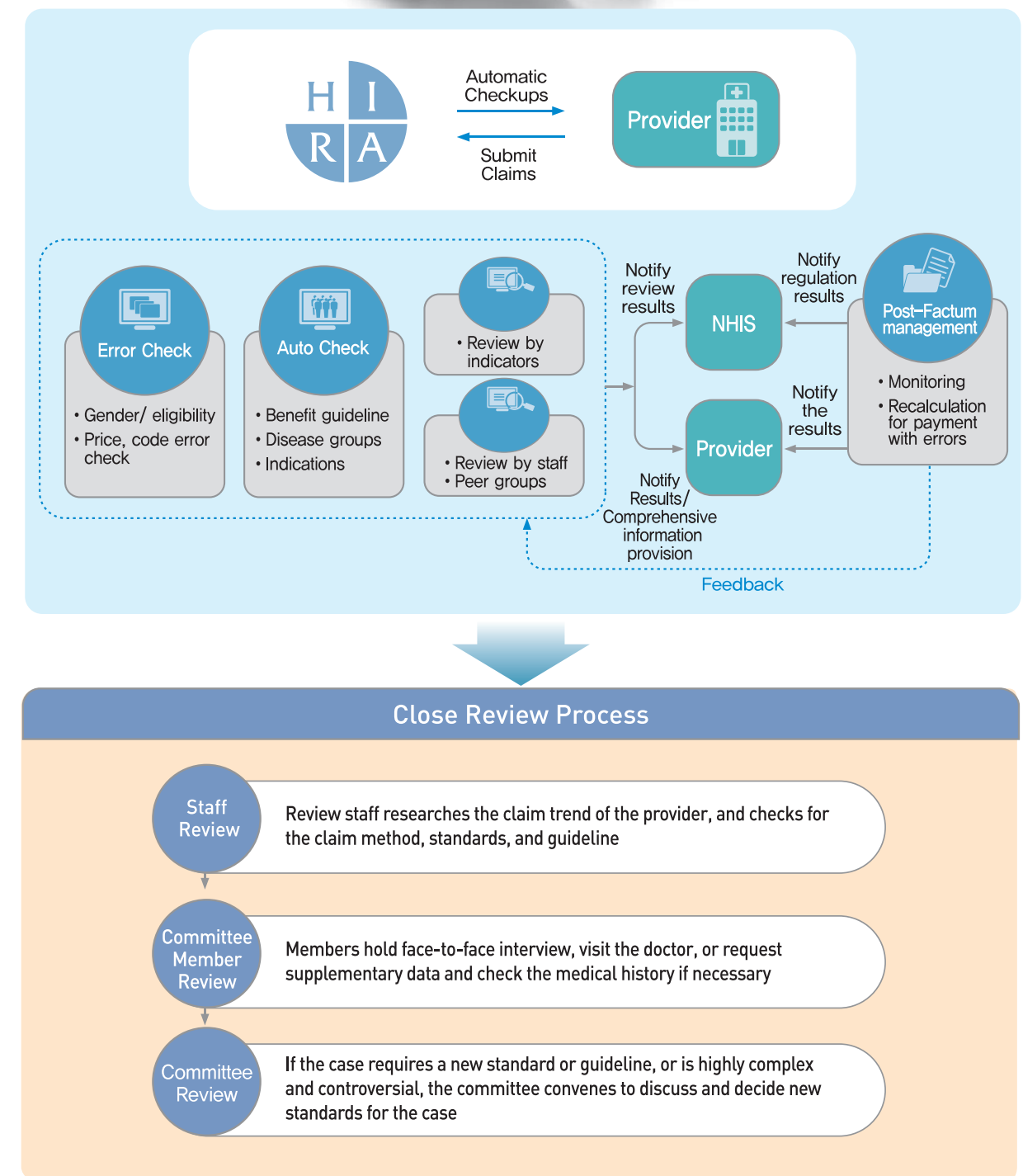
Operational Performance

- Saving health insurance fund by preventing unnecessary expenditure
- Support providers' administration efficiency by processing the review quickly
- Secure improved productivity, payroll cost reduction, and consistency in review result by utilizing AI
- Information management which enables real-time monitoring of review standard, review records, claim and review tendency
- Improve review quality by using knowledge utilized for review process (Review Knowledge Bank)

Diagnosis Related Group Monitoring

- The full reimbursement is given after reviewing only the required fields. (field check and automatic check in electronic checkup procedure)
- In order to check whether the claims are duly submitted, sample review is conducted on the selected cases
 - Accuracy of disease grouping, false claim, claim separation, claim duplication, etc.
 - Adequacy of cost calculation for outliers
 - Overcharged copayment, etc.

Medical claims review



Quality assessment

**Is the expensive hospital better?
Are hospitals with good reputation meet up expectations?**

Quality assessment evaluates the treatment, surgery, and use of pharmaceuticals in terms of medical and pharmaceutical aspects and cost-effectiveness.

Quality assessment procedure

- In accordance with the priority, items are selected, and preliminary assessments are conducted. The Ministry of Health and Welfare makes the final decision on the item selection, and the assessment plan is released on the HIRA website and media two months prior to the actual assessment
- For the assessment, necessary data are collected, which include medical records, healthcare providers' resources information (workforce, facility, equipment), and death data
- Credibility check is done on the collected data to check the data quality. And treatment trend, risk-adjusted indicator results, and composite score are produced from the data. The Central Assessment Committee and expert advisory body make final decision on the target provider, assessment indicators and standards, composite score standardization, weighted value, released section, etc.
- Assessment results are released through HIRA website. The public can use the information when choosing providers, and the results are also used for the Pay for Performance program

Operational Performance

- Overall service quality improvement of all healthcare providers
 - * Decrease the number of drugs per prescription (4.32 in 2002 → 3.76 in 2013), decrease the outpatient prescribed injection rate (38.6% in 2002 → 19.0% in 2013)
- Reasonable spending of health insurance fund by using assessment review results for Pay for Performance program
- Help the public choose healthcare provider reasonably, based on the assessment results
- Use the review result for the operation of healthcare system (selection of regional hub hospital, regional emergency medical center designation, comprehensive management of antibiotic resistance)

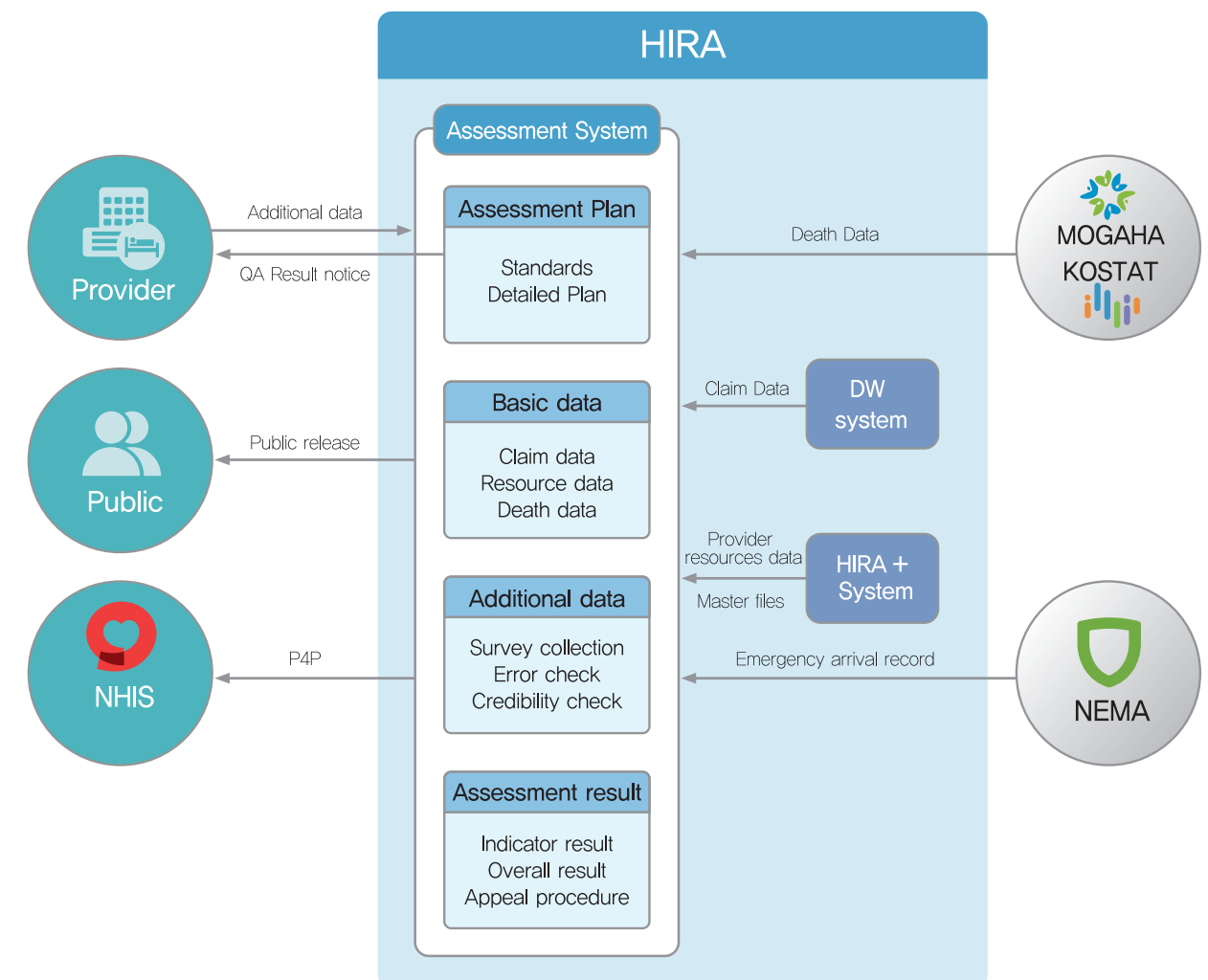
Quality Improvement Support

Utilizing the quality assessment results, HIRA visits healthcare providers to encourage quality improvement. The supporting activities include counseling, QI training, QI consulting, QI best practice award and presentation, QI news letter, and QI community operation

Pay for Performance program (Value Incentive Program, VIP)

According to assessment results, bonus payments are given to high-performing providers. (disincentive to low-performing providers) The basic model for VIP is to improve the quality of care and to reduce the quality gap between healthcare providers. In the first year, the results of individual providers and the punishment threshold are disclosed, encouraging voluntary quality improvement. In the second year, the incentive payment is provided to high-performing and much-improved institutions. From the third year, disincentives are applied to the providers under the punishment threshold

Quality assessment



*MOGAHA: Ministry of Government Administration and Home Affairs

*NEMA: National Emergency Management Agency

*KOSTAT: Statistics Korea

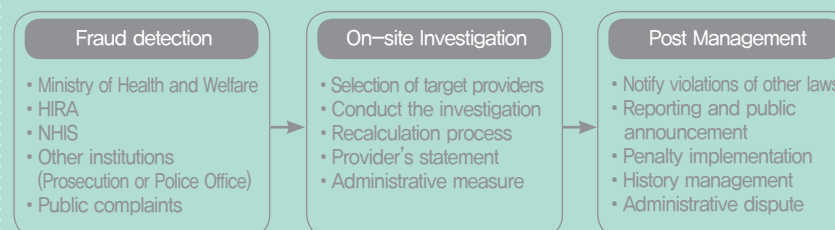
On-site investigation

Creating a healthy medical claims culture and preventing unnecessary healthcare spending

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.

On-site Investigation procedure

- During the review and assessment procedure, HIRA may request an investigation of the providers who are likely to claim unfair charges. Also, Other institutions (Anti- Corruption & Civil Rights Commission, Public Prosecutor's Office) may request an investigation of the providers who are likely to claim unfair charges or who have made unfair claims
- A reasonable investigation plan is established while considering urgency and efficiency. 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 also announces the list of providers with unfair or illegal claims if they meet certain criteria.
- Post-management of the providers' compliance of administrative measures such as service suspension is followed



Operational Performance

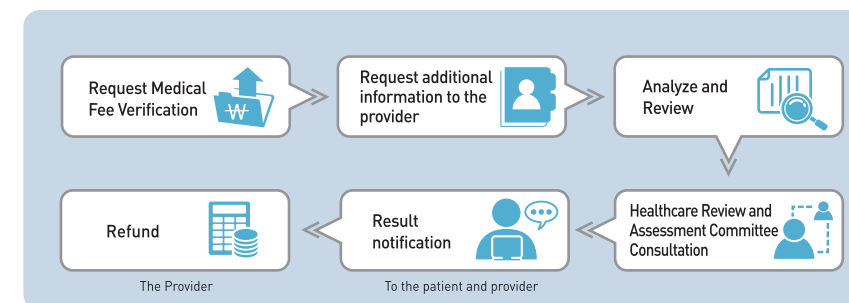
- Prevention of false claims and reduction of health insurance spending (Saving of about 20 billion KRW annually, indirect medical costs savings are very high)
- Create a healthy healthcare environment through investigation and monitoring for fraudulent medical activities
- Improve healthcare system (police effect) by investigating social issues (Increase in specific surgery numbers, excessive drug use, and etc.)
- Creating a healthy medical claims culture and preventing unnecessary healthcare spending

Medical fee verification

Medical fee verification procedure

- Patients may request HIRA to verify medical fee charged by providers for non covered services are covered by National Health Insurance
- When patients request medical verification, HIRA may obtain related material from the provider and proceed with analysis and review (If necessary, Healthcare Review and Assessment Committee deliberation takes place). The results will be notified to the patient and provider
- The provider checks the result and refunds extra charge to the patient

[Medical Fee Verification Procedure]



If you have any questions about your medical bill, go to Medical Fee Verification Service!

Medical fee verification procedure checks whether the medical fee paid by patients for non covered services complies with statutes. The procedure protects the patient's rights by refunding extra fee charged

Operational Performance

- Checks whether co-payment of non covered services were charged while complying with statutes (3 billion KRW reimbursement to patients annually)
- Protect the rights of patient by detecting false claims activities of providers
- Build trust process between providers and patients (provider – patient relationship)

Korea Pharmaceutical Information Service (KPIS)

Check the information on 50,000 pharmaceutical products and 2,500 pharmaceutical manufacturers, importers, and wholesalers!

Korea Pharmaceutical Information Service manages the distribution of drug-related information (production, import, distribution, consumption) swiftly and accurately, and standardizes drug codes to advance Korean drug distribution system

Korea Pharmaceutical Information Service procedure

1. Drug Informatization Management (Standardization of drug codes)

- Drug manufacturers and importers apply for standardized code of KPIS after obtaining MFDS approval. KPIS notifies the applicant the code within 30 days of receiving application (Standardization , full declaration, and ATC code linkage of all drugs distributed in Korea)

2. Manage and disclose information on drug production, import, supply, and consumption

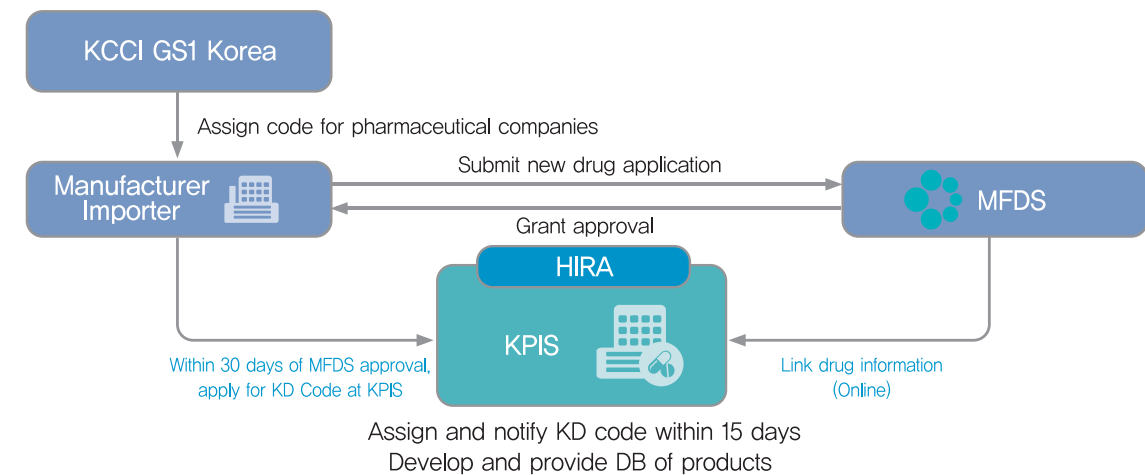
- Collects and manages distribution information of drug suppliers. Information about unsafe drugs which are suspended from sales by KFDA are sent to KPIS real-time. Then the information is provided to drug suppliers (manufacturer, importer, and wholesaler)
- Produce national statistics of drug distribution information for the government, public, and institutions using DW of collected information through portal system

Operational Performance

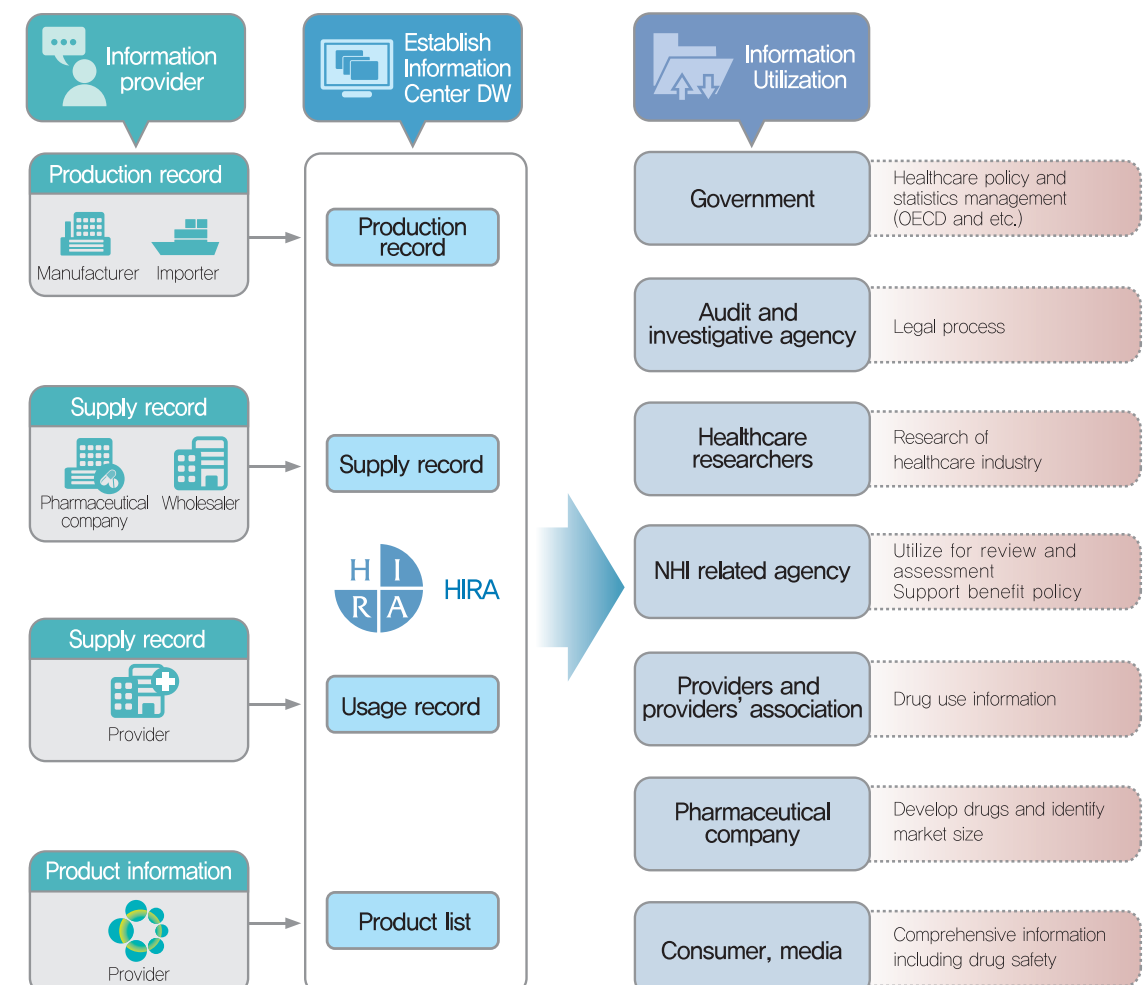
- Ensure transparency of drug distribution by managing national standardized drug code
- Foster healthy development of drug industry by providing drug distribution information
- Save health insurance expenditure by analyzing drug distribution and usage information (2013: 22.8 billion won)
- Protect public health by managing pharmaceutical distribution information real-time. Using the state of the art ICT technologies such as Internet of Things (IoT)
- *Harmful drug use will be prevented by linking the information to RFID Tag.
- Generate national statistics based on drug distribution information (production, profit, and etc.)

Korea Pharmaceutical Information Service (KPIS)

[Procedure of standardization of drug codes]



[Procedure of managing distribution information and information disclosure]



Health insurance system education

HIRA shares and utilizes its experience and best practices of Korea's NHI to the fullest!

The education program of Korea's NHI helps countries with interest in learning about NHI of Korea or adopting NHI in their country (or institution). Experts cover various areas such as HIRA system operations and outcome, possibilities of successful adoption of HIRA system and etc.

HIRA HRD program

[Health Insurance Review & Assessment Service HRD program procedure]

Countries that have expressed interests about HIRA system by visiting HIRA or sending E-mail are provided with detailed consultation. The consultation is provided by HIRA experts who will develop and provide tailor-made HRD program



Operational Performance

- Learn how to operate limited healthcare finance rationally
 - Learn how to manage the cost and quality efficiently
 - Learn how to utilize the medical resources for assessment with efficient management
 - Learn how to manage price, prescription, usage, and distribution perfectly
 - Learn about knowhow of operation when system condition changes
 - Learn about operating cases in various countries by participating in a training course
- ▶ HIRA is offering international training session on NHI with WHO, UNESCAP, and MoHW (one week program/ Every May or June)

Health insurance system education



[HRD Program]

Course	Purpose	Details
Understanding Korea's insurance system	To understand South Korea's health insurance system to achieve UHC and learn about types of various health insurance system	History of South Korea's health insurance, details and outcomes of each system, current status
Medical claim review	To understand the efficient monitoring of health insurance finance	Set the standards of evaluation, electronic evaluation, expertise evaluation method, committee's operation knowhow
Efficient medical resources management	To understand efficient management and utilization of medical resources (Workforce, Facility, Equipment)	Understand significance of medical resources management, link with review and assessment data, manage licensing, registration, and current status of providers
Detect healthcare providers' false claims	To understand ways to identify and manage false claims	Identify false activities of providers, false indicator calculation, on-site investigation (checked items and method), punitive measures
Management of national healthcare service quality assessment	To understand the efficient management and utilization of healthcare service quality information	Select quality assessment area (prioritize), develop assessment indicators, collect assessment data, utilize assessment result
Pharmaceutical management of health insurance system	Proper pricing and management of drugs, monitoring method of safe drug use	Pharmaceutical code, insurance coverage, drug distribution details, DUR and general operation condition

Healthcare big data analysis

Information becomes knowledge! Knowledge becomes policy!

Healthcare big data analysis uses the data of medical treatment records, benefit standards, medical resources (workforce, facility, equipment) in order to provide critical information for operation of health insurance system and policy making

HIRA goes beyond Health Insurance Review & Assessment and continues to innovate for Health Intelligence (Information) Research Analysis.

Healthcare Information Analysis procedure

Healthcare information analysis system is linked to related systems which collects necessary data in order to generate national healthcare statistics and indicators of medical claim review and assessment. The system also analyzes series of data

- ① ETL (Extraction, Transformation, Load) : Completed claims review data is automatically sent to DW system. The data is then converted and cleansed and managed as EDW(Enterprise Data Warehouse), Data Mart, and Summary Tables
- ② Inspection error in data: Loaded data in DW system secures accuracy and reliability by inspecting errors
- ③ End-users analysis: A large amount of reports of various topics are directly produced and utilized by using OLAP (on-line Analytical Processing) tool

* Every user can utilize necessary information such as records of medical claim, a trend of drug uses, pharmacy's overlapped prescription

Operational Performance

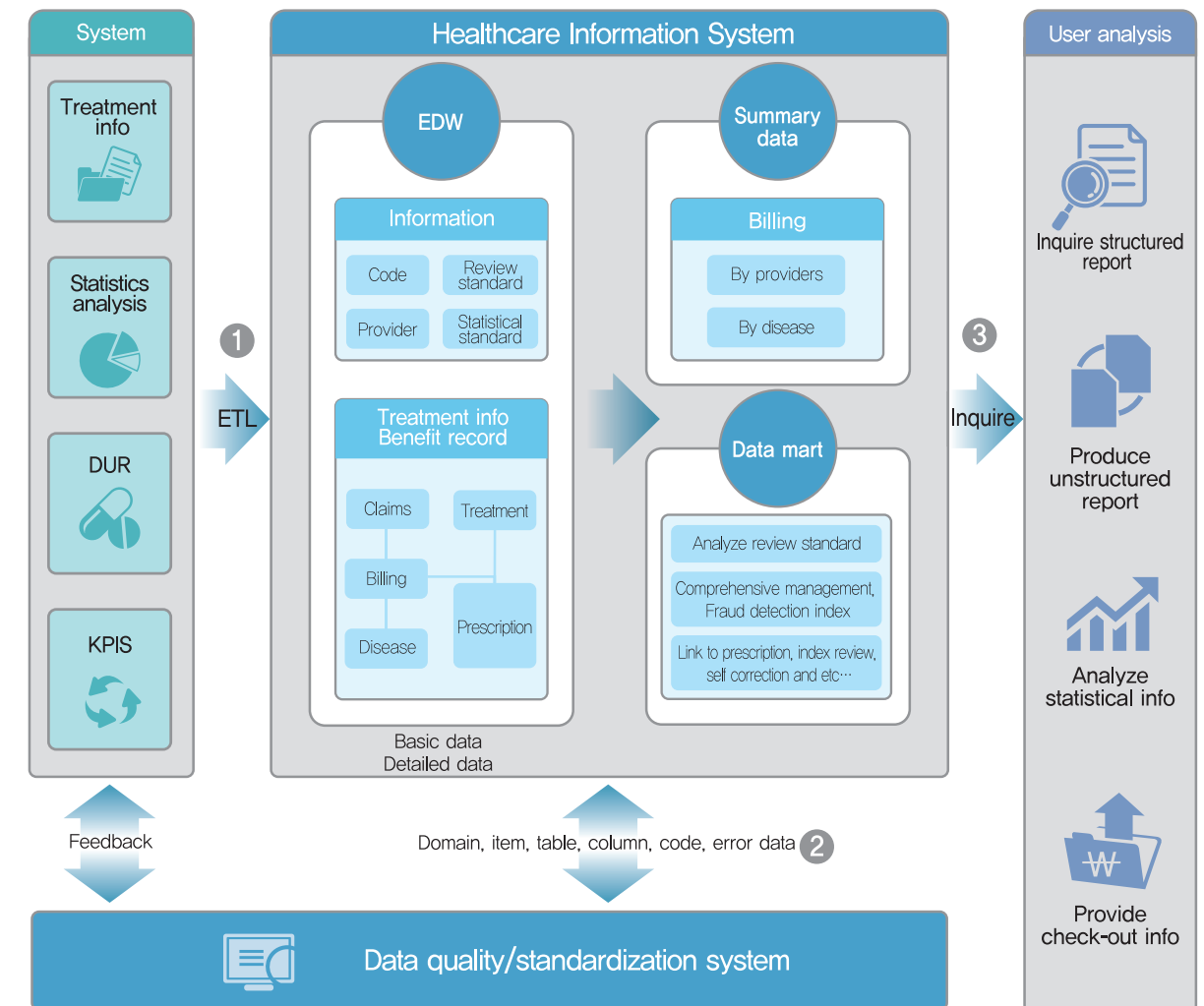
- Produce and provide international healthcare statistics (WHO, OECD)
- * Support policy-making through swift/accurate production of national statistics
- Reduce workforce for review and assessment standard and indicator development by using automation and science
- Support healthcare research in related organizations and the academia
- R&D support of medical & pharmaceutical industries
- Various data analysis by analyzing medical records of all citizens
- Continuous monitoring of changes in medical spending for efficient management of medical resources
- Operate disease prevention program based on accumulated data on provided services

Rule Making

Monitoring & Feedback

Infrastructure Management

Healthcare big data analysis



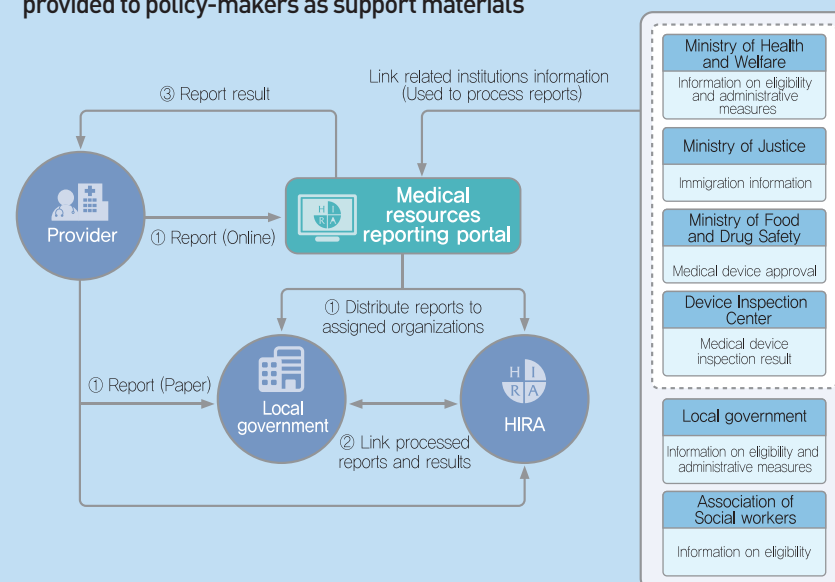
Healthcare resources management

Rational allocation and utilization of medical resources through integrated management of limited medical resources (workforce, facilities, equipment)

Providers' Resources Management system electronically records and manages providers' current status of workforce, facility, equipment and other medical resources. The information is used for medical claims review and assessment.

Healthcare resources management procedure

- Providers report their status such as establishment, closure, temporary closure, changes in equipment and/or facility. HIRA gives provider code (eight digits) to providers which is used for claims process
- Medical resources information that is managed by HIRA has been utilized for various purposes such as review and assessment. If claims are made without reporting accurate information on resources, reimbursement may be adjusted automatically during claims review process. In addition, collected data is used for assessment process
- Reported medical resources information is reviewed by various method and provided to policy-makers as support materials



Operational Performance

- Rational allocation and utilization of limited healthcare resources through integrated management of medical resources nationwide
- * Medical resources information of HIRA is utilized for the national health statistics of government and international organizations (OECD, etc.)
- Tracking distribution records of major medical equipments prevents false or recurring report – Bar code system (old equipment management)
- Reduce medical spending by linking medical resources information with review and assessment data

Patient classification system



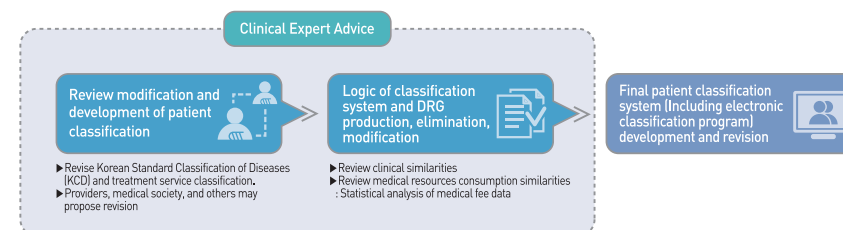
Types of patient classification system

The types of patient classification system includes inpatient (KDRG), outpatient (KOPG), and Korean traditional medicine outpatient (KOPG-KM)

Types	classification	Purpose	No. of DRG	Current version	Registration of Patent
KDRG	Inpatient	General medical purpose	1,951	Ver 3.5	2004, 2014
		New grouped medical payment	1,951	Ver 1.1	
KOPG	Outpatient	Medical	504	Ver 1.2	2007, 2014
KOPG-KM	Outpatient	Oriental medicine	249	Ver 2.0	2008, 2014

*Grouper (electronic classification software) has registered copyright to Korea Software Copyright Protection Committee

[Development and Revision procedures of patient classification system]



Operational Performance

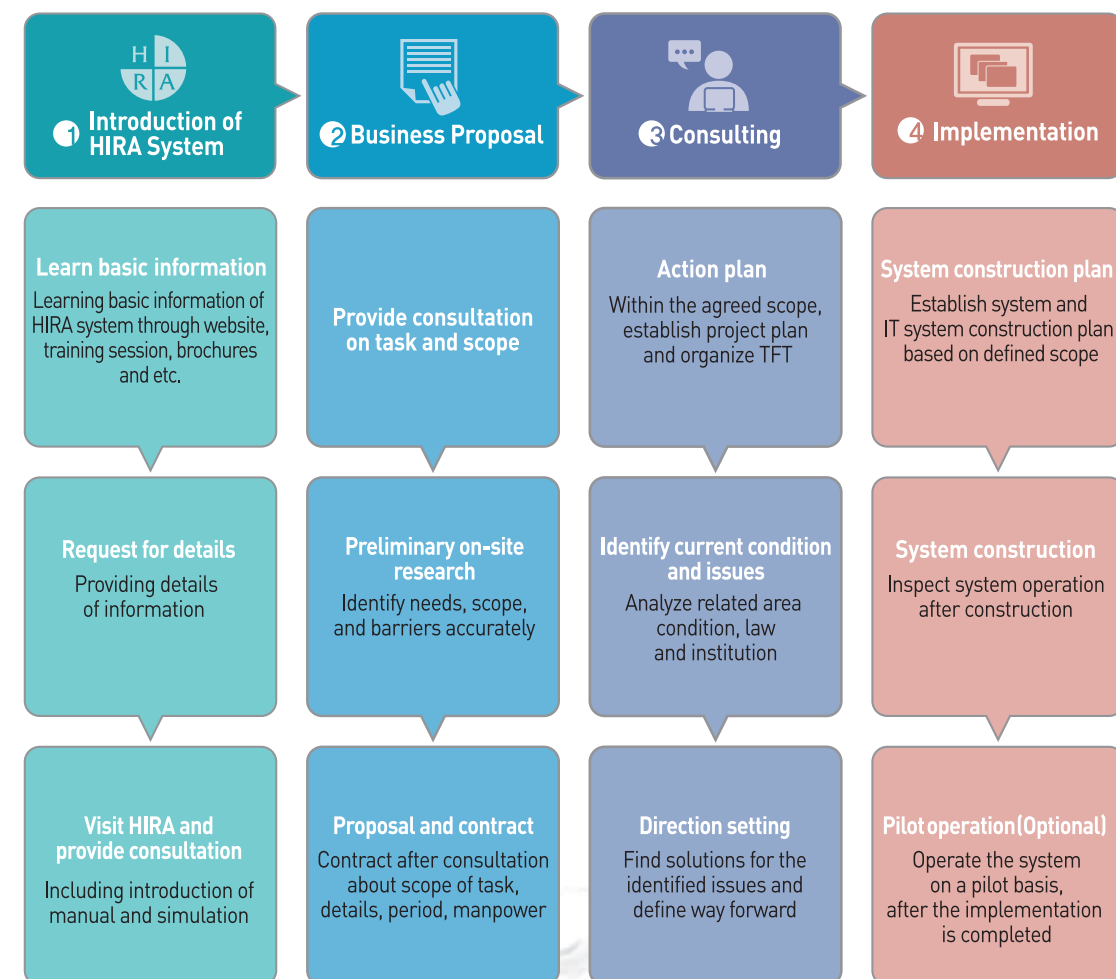
- Contribute to create efficient and advanced medical claims review and quality assessment
 - Relative value given to a healthcare provider based on the average (eg. CI)
- Define appropriate payment unit of medical payment system (DRG)
- Possess Korea's only patient classification system and electronic classification program (Grouper)
- Efficient management by using automated electronic classification program

The cornerstone of Korea's healthcare policy (payment system, quality assessment and etc.)

- Patient classification system (Patient Classification System, PCS) classifies groups of outpatients or inpatients by clinical and resource consumption (eg: DRG).
- When comparing levels of medical fee and quality among providers, the composition of patients must be at the same level. Patient classification system is a tool to adjust the differences among providers

Process of introducing HIRA system is as below. The most appropriate project scope and the best performance are planned through consultation and preliminary research.

Process of introducing HIRA system



► HIRA system is also provided to developing countries through ODA program.



Total solution for Value-based
Healthcare Purchasing

HIRA System





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