

# ITが基盤となっている韓国の健康保険制度

健康保険審査評価院

崔 東鎮

東京工業大学

李 中淳(通訳)

NHI OF KOREA  
AND  
ICT of HIRA



NOV. 2014

Health Insurance Review and Assessment service of Korea

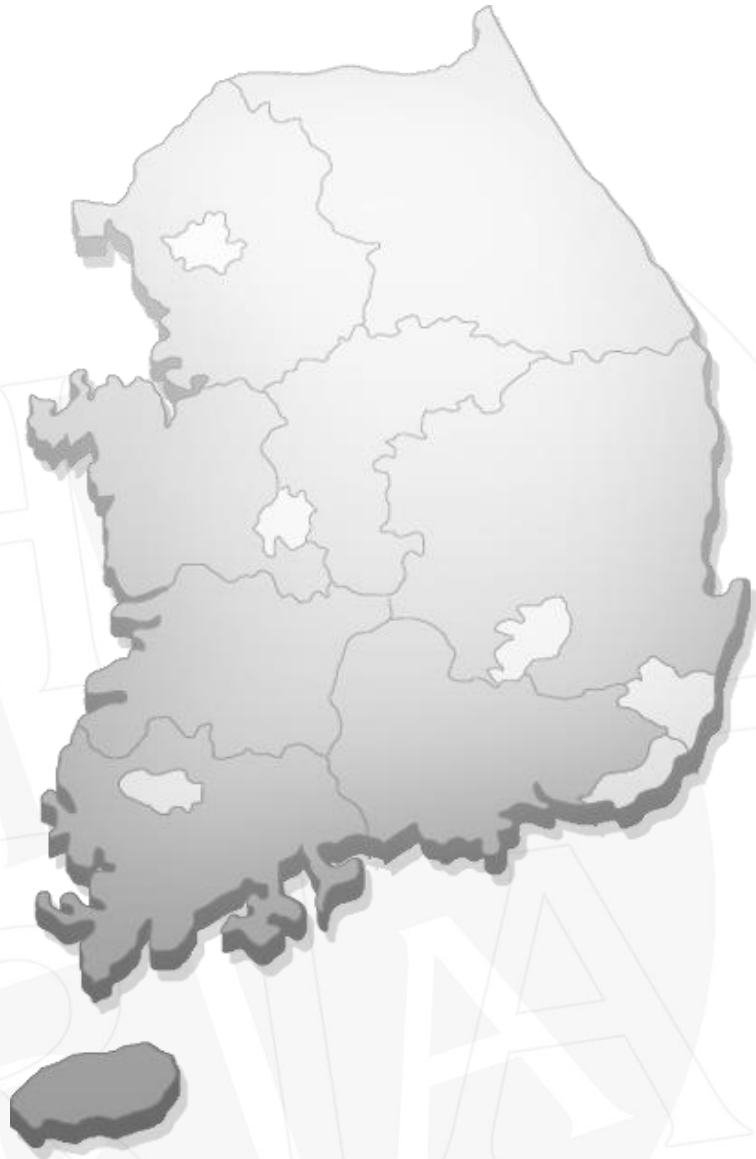


# NHI OF KOREA

Health Insurance Review & Assessment Service



# REPUBLIC OF KOREA



- Population : **50 million** (9th)
- Per capita GDP : **23,679 USD** (24th)
- Pop. over 65 : **11.8%** (30th)
- NHE in GDP : **7.6%** (OECD average: 9.3%)

*as of 2012, in OECD countries*

# HISTORY OF NATIONAL HEALTH INSURANCE IN KOREA

**1963**

Enacted Medical Insurance Act

**1977**

Started Medical Insurance Program for employees of large companies

**1988**

Started Local Medical Insurance in rural areas

**1989**

Started Local Medical Insurance in urban areas

**1999**

Enacted National Health Insurance Act

**2000**

Integrated to Single Payer System  
(Established NHIS and HIRA)

12 years



# INCREASE OF ANNUAL PURCHASING OF NHI

(Unit: billion KRW)



1980	1989	2001	2005	2010	2013
1980	1989	2001	2005	2010	2013
Stage of evolution	Stage of universal coverage	Stage of separation	Stage of growth	Stage of stabilization	Stage of expansion
183	1,989	17,843	24,861	48,915	56,384

# GOVERNANCE OF NHI OF KOREA

保健福祉部

Ministry of Health  
and Welfare

国民保険公団

NHIS

(National Health Insurance Service)

- > Collect contribution
- > Negotiate with providers for fee level
- > Promote health and prevent disease

Collecting and Pooling

Legislation,  
NHI organization supervision

健康保険審査評価院

HIRA

(Health Insurance Review & Assessment Service)

- > Make rules for benefit
  - List, price, coverage
- > Monitor
  - Cost and quality
- > Manage health system infrastructure

Purchasing



# FUNCTION OF HIRA

Health Insurance Review & Assessment Service



# HIRA ORGANIZATION

1 Headquarters

24 Departments

7 Branch Offices

1 Research institute

## Headquarters



1 Research  
institute



24 Departments  
(100 divisions)



1,679 Workers

- > Tertiary and general Hospitals claims review
- > Quality assessment
- > Guidelines development

## Branch offices



7 Branch offices  
(18 divisions)



538 Workers

- > Claims review for small hospitals, clinic and pharmacies

2,217 staffs are working in total(June 2014)

- > 70% are doctors, pharmacists, nurses, physical therapist, medical record administrator
- > 10% IT specialist
- > 20% administrative personnel
- > 76.5% are female (1,917 workers)



# HIRA'S HEALTH CARE PURCHASING ACTIVITIES

## Rule making for benefit

- 医療資源管理システム
- 患者、診療行為、薬剤、医療材料分類システム
- マスター管理システム
- 有効性判定システム

## Monitoring

- 保険請求ポータル・サービス(MCPoS)
- 請求審査システム (Hira+)
- 保険請求判定システム
- 保険請求知識バンク
- 品質指標システム
- 品質データ収集システム
- 薬剤安全管理システム (DUR)

## Infrastructure Management

- 資源管理システム
- 韓国医薬品流通情報システム(KPIS)
- Data Warehouse

# NUMBER OF HEALTHCARE PROVIDERS

Type	Healthcare Providers	No.
<b>Total</b>		<b>85,427</b>
<b>Hospitals</b>	Total ( Hospitals+Clinics)	64,456
	Tertiary	43
	General	284
	Hospitals (including Dental and Oriental)	1,862
	Long-term care hospitals	1,276
<b>Clinics</b>	Medical	28,484
	Dental clinics Public health centers Oriental medicine clinics etc	32,507
	<b>Pharmacy</b>	<b>20,971</b>
	<b>Total</b>	

上級総合病院  
 総合病院  
 病院、歯科病院  
 漢方病院  
 療養病院  
 医科診療所  
 歯科診療所  
 保健所  
 漢方医院  
 薬局

• Private hospitals : 93.5% / Public hospitals : 6.5%

# NUMBER OF BENEFIT LIST BY HIRA (AS OF 2014)

## 給付項目数

Benefit type	No of items
Medical procedure 診療行為	7,389
Drug 薬剤	16,223
Medical devices 医療材料	18,641
Total	42,253

# 基本点数を5桁、加算点数を追加3桁で表示した診療行為コード例

初診料  
(病院級医科)

加算名称

数値コード	項目名	算定コード名称	相対価値 点数	医院	病院級以上	歯科病院	保健機関	助産院	漢方病院
				ウオン	ウオン	ウオン	ウオン	ウオン	ウオン
AA155	初診料-病院級医科		208.86	0	13780	15020	0	0	14750
AA155003	初診料-病院級医科	一般健康検診当日診察	104.43	0	6890	7510	0	0	7370
AA155004	初診料-病院級医科	生涯転機健康検診当日診察	104.43	0	6890	7510	0	0	7370
AA155005	初診料-病院級医科	がん検診当日診察	104.43	0	6890	7510	0	0	7370
AA155010	初診料-病院級医科	夜間	255.53	0	16860	18370	0	0	18040
AA155013	初診料-病院級医科	夜間、一般健康検診当日診察	127.77	0	8430	9190	0	0	9020
AA155014	初診料-病院級医科	夜間、生涯転機健康検診当日診察	127.77	0	8430	9190	0	0	9020
AA155015	初診料-病院級医科	夜間、がん検診当日診察	127.77	0	8430	9190	0	0	9020
AA155050	初診料-病院級医科	祝日	255.53	0	16860	18370	0	0	18040
AA155053	初診料-病院級医科	祝日、一般健康検診当日診察	127.77	0	8430	9190	0	0	9020
AA155054	初診料-病院級医科	祝日、生涯転機健康検診当日診察	127.77	0	8430	9190	0	0	9020
AA155055	初診料-病院級医科	祝日、がん検診当日診察	127.77	0	8430	9190	0	0	9020
AA155600	初診料-病院級医科	満6歳未満	217.89	0	14380	15670	0	0	15380
AA155602	初診料-病院級医科	満6歳未満、幼児健康検診当日診察	113.47	0	7490	8160	0	0	8010
AA155610	初診料-病院級医科	満6歳未満、夜間	264.56	0	17460	19020	0	0	18680
AA155612	初診料-病院級医科	満6歳未満、夜間、幼児健康検診当日診察	136.8	0	9030	9840	0	0	9660
AA155650	初診料-病院級医科	満6歳未満、祝日	264.56	0	17460	19020	0	0	18680
AA155652	初診料-病院級医科	満6歳未満、祝日、幼児健康検診当日診察	136.8	0	9030	9840	0	0	9660
AA155900	初診料-病院級医科	脳性マヒ,知的障害者	217.89	0	14380	15670	0	0	15380
AA155910	初診料-病院級医科	脳性マヒ,知的障害者、夜間	264.56	0	17460	19020	0	0	18680
AA155950	初診料-病院級医科	脳性マヒ,知的障害者、祝日	264.56	0	17460	19020	0	0	18680

基本点数項目:7,389件、加算を含む全項目:約52,000件

# BENEFIT CRITERIA DEVELOPED BY HIRA (AS OF 2014)

## 給付基準

Benefit type	No of Criteria
Medical procedure 診療行為	772
Drug 薬剤	513
Medical devices 医療材料	333
Total	1,618

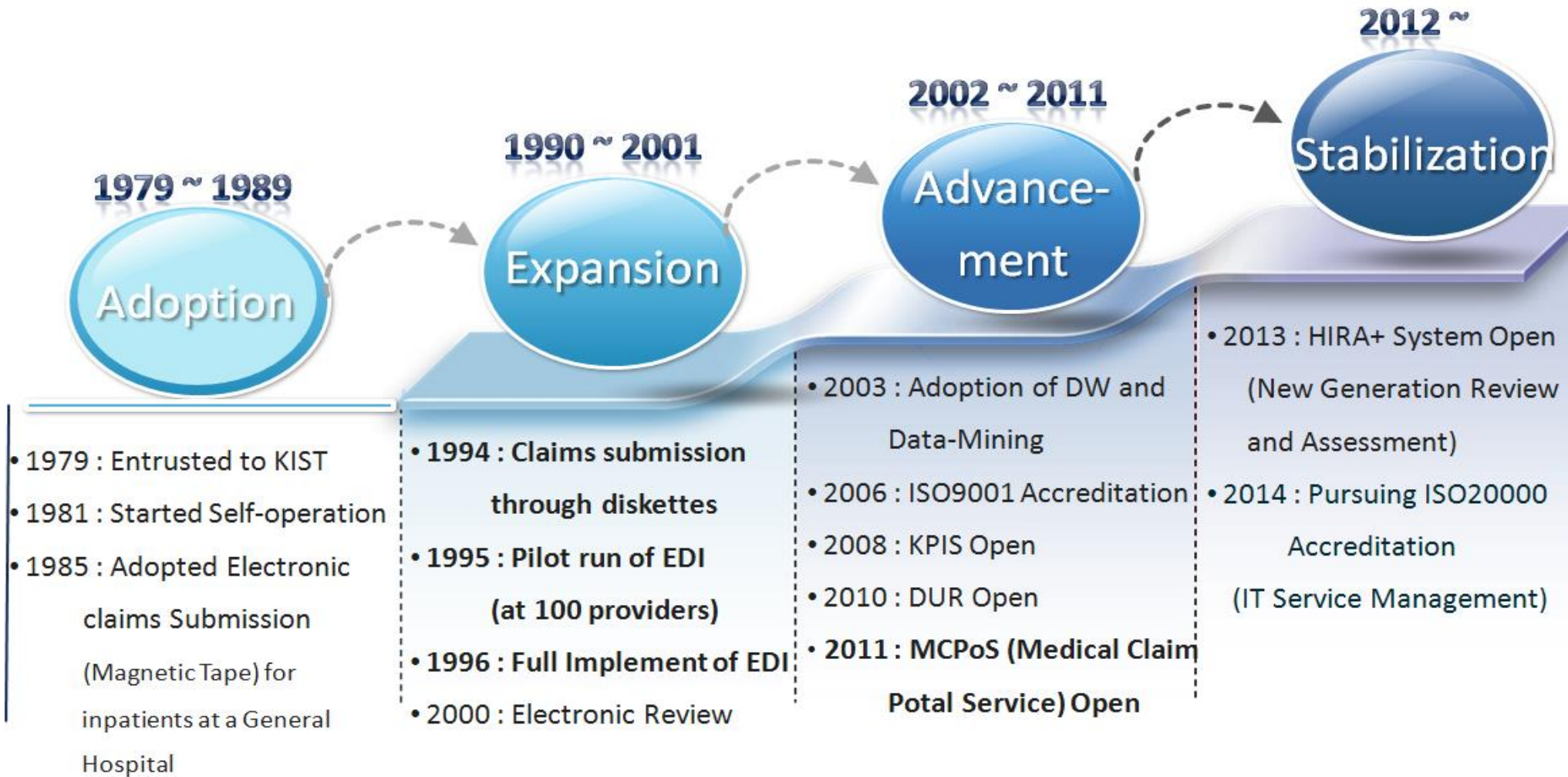


# ICT OF HIRA

Health Insurance Review & Assessment Service



# HISTORY OF HIRA ICT



- KIST : Korea Institute of Science and Technology
- KPIS : Korea Pharmaceutical Information System
- DUR : Drug Utilization Review

# BUSINESS ENVIRONMENT

## Indexes



About 85,000  
medical care  
institutions



1.4 billion claims  
annually



53.7 billion  
dollars

## Requirements

- Fast and accurate processing of large bulks of data is required
- Expansion of DUR and other real time services
- Reinforcement of personal information security, guarantee IT system stability

## Stable management of massive data system

Number of servers

UNIX servers: 105  
x86 servers: 157

Data volume

848 TB

Number of programs

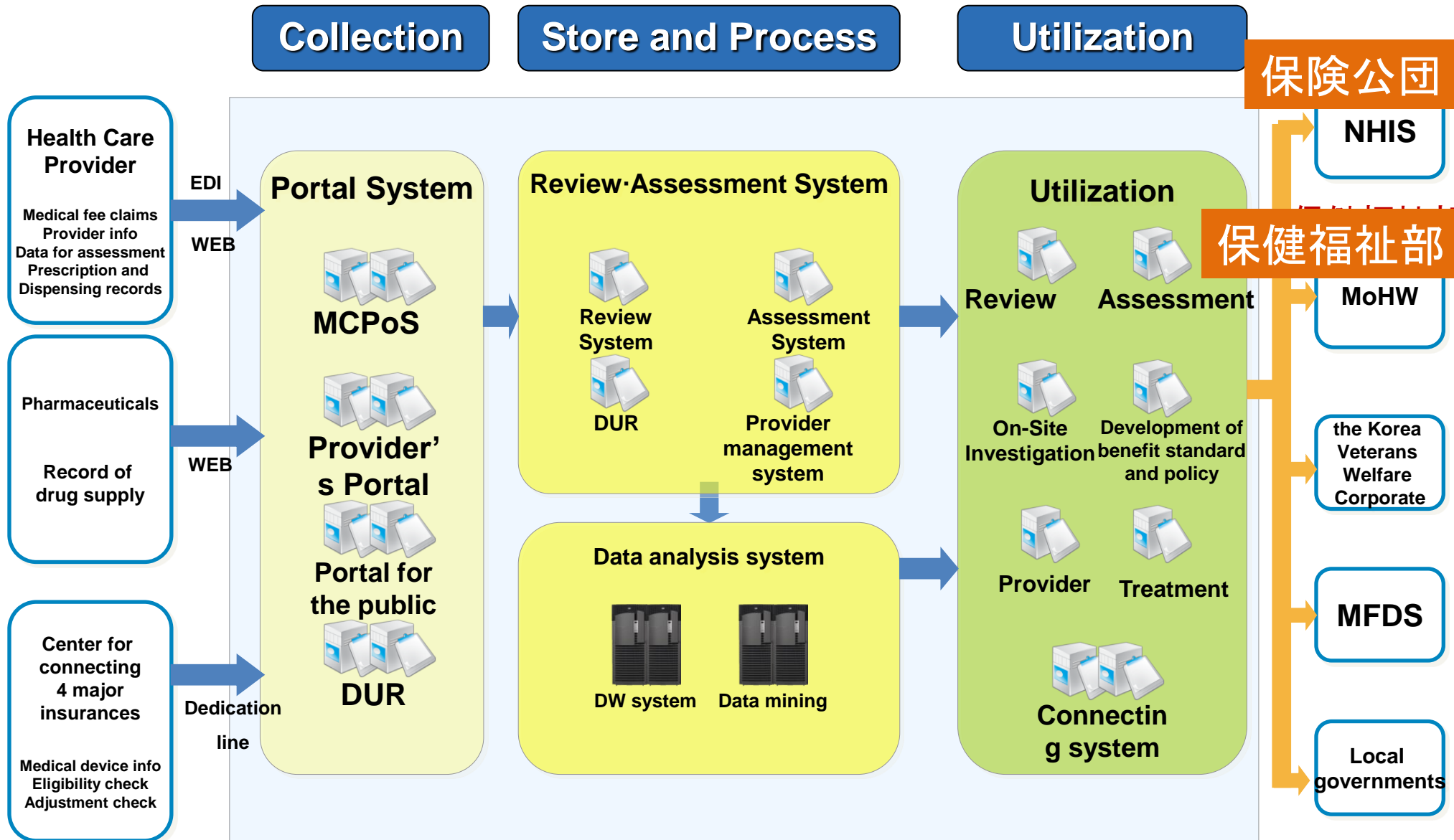
40,000

ICT employees

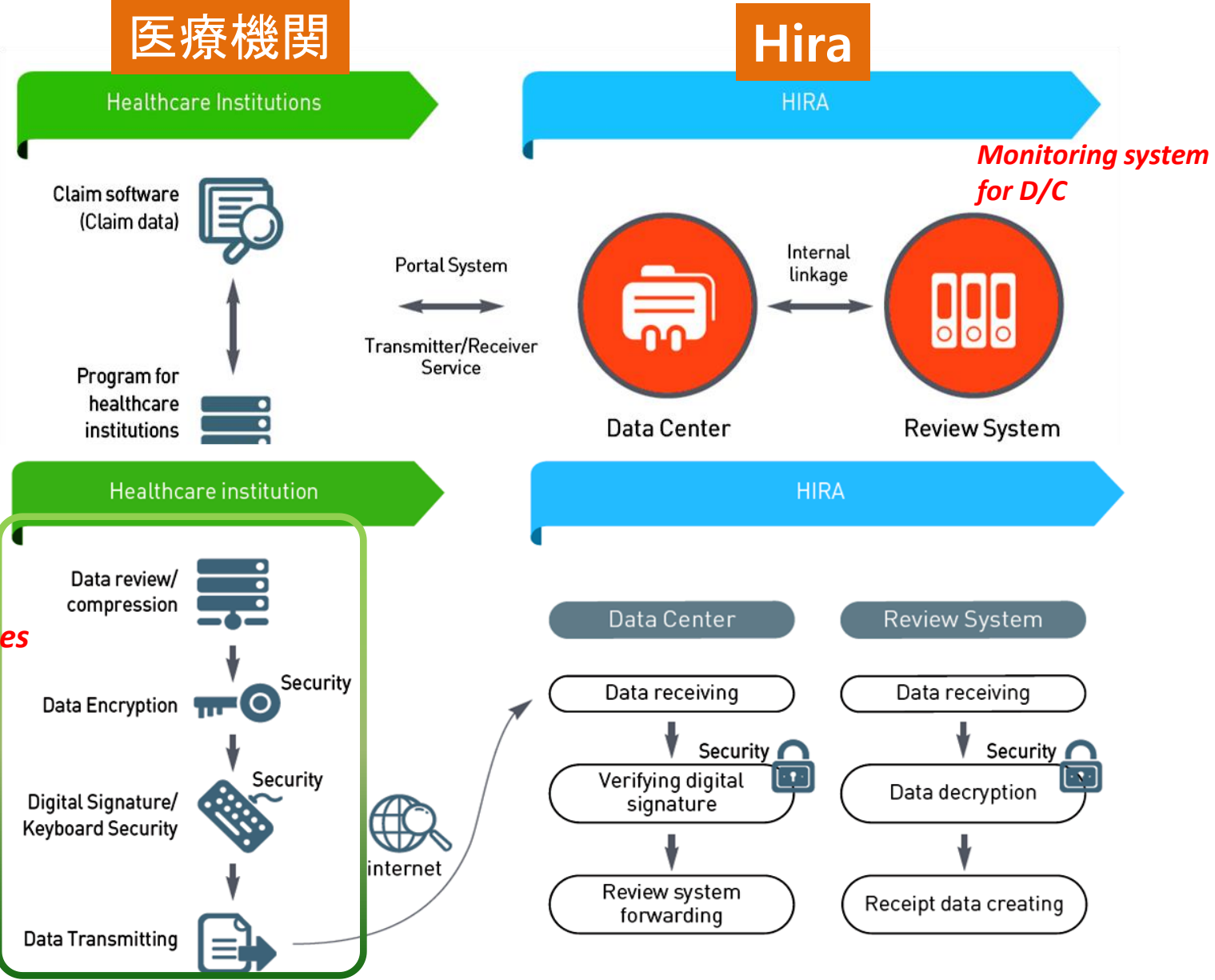
174 people



# Information System Structure

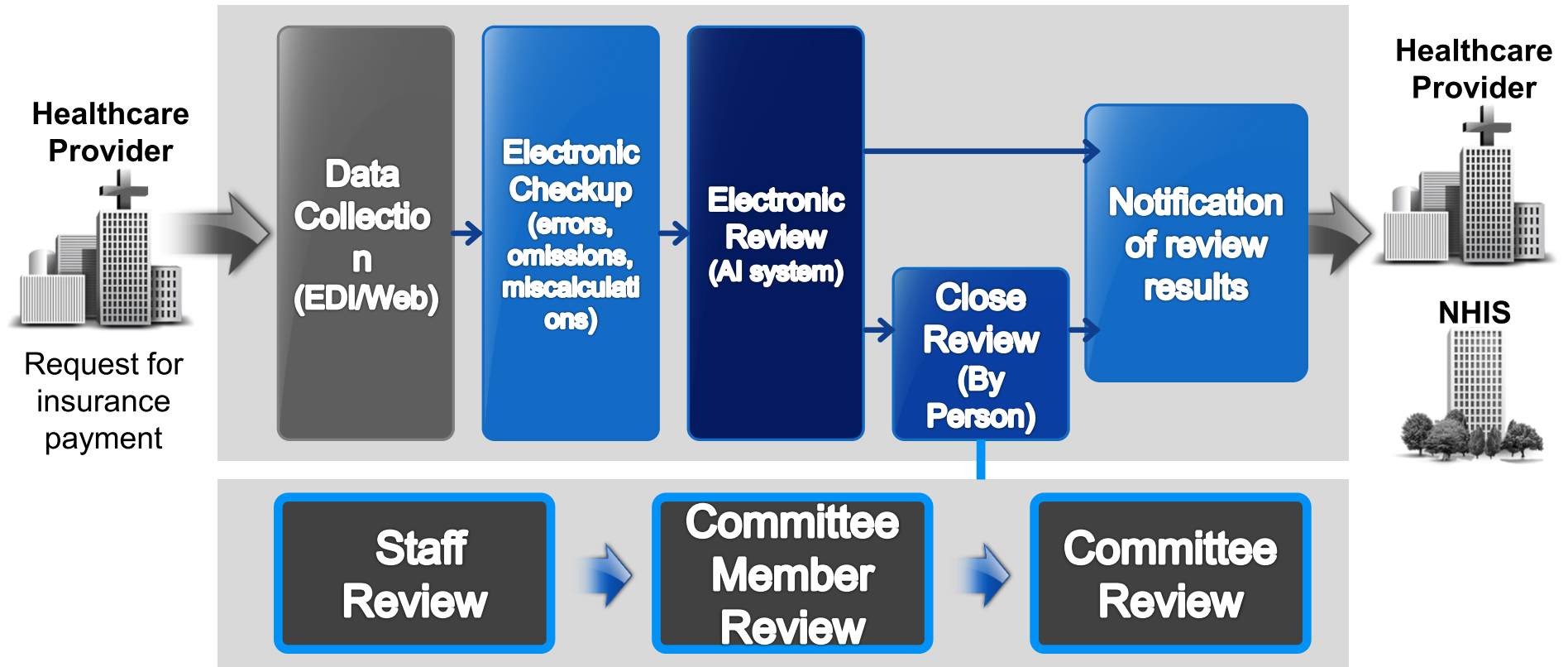


# Claim system based on Web Portal



# Claim Review System (process)

- Review the appropriateness of the cost compared to the current review guidelines

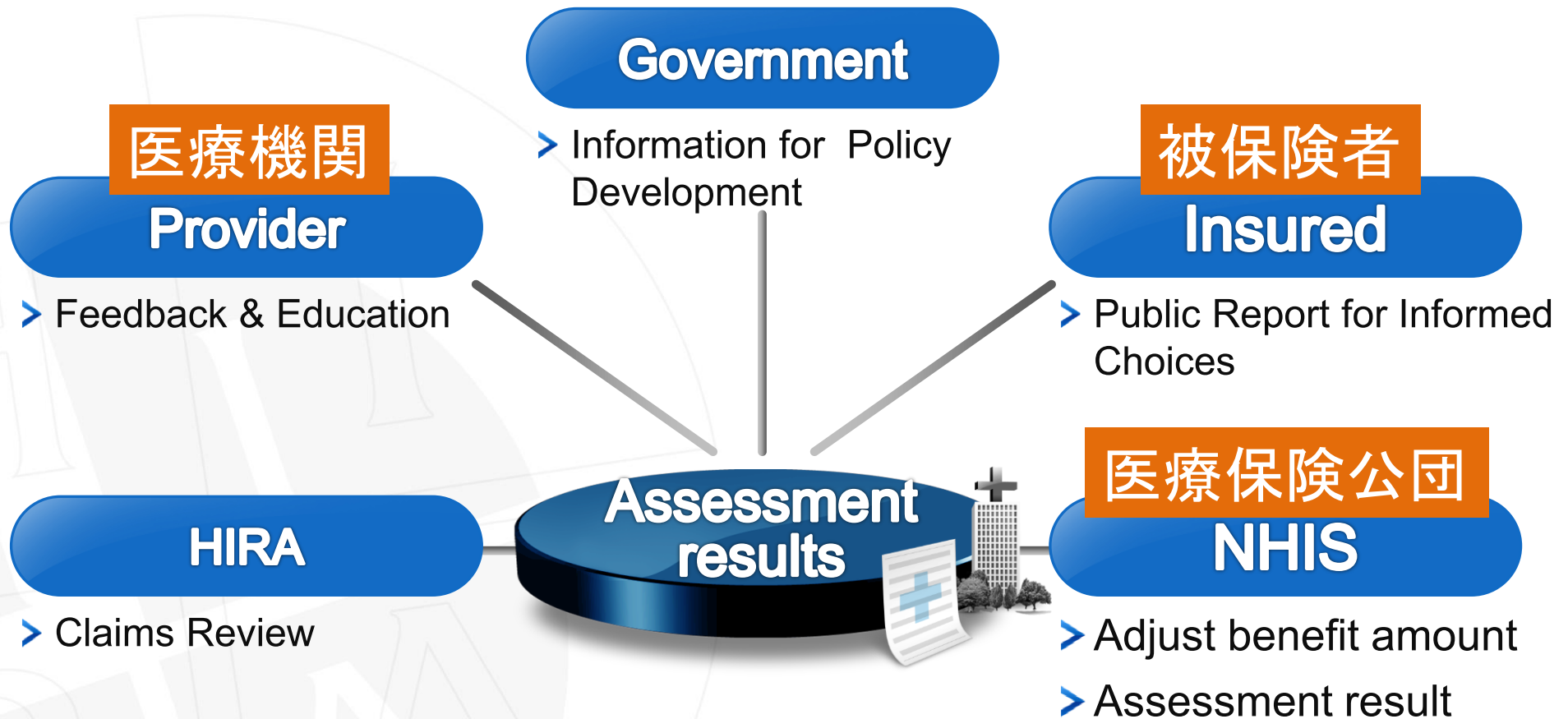


- As of 2013, 1.4 billion claims were filed
- 99.5 % of claims are electronically processed (web portal & EDI)
- 86 % of claims are finalized after electronic checkup and automated review

# 2012年の質評価項目

		評価項目
入院	急性期疾患	急性心筋梗塞(AMI)、急性脳卒中、冠状動脈バイパス術(CABG)
	がん疾患	大腸がん、乳がん、がん手術の死亡率
	外科	手術のための予防抗生剤投与、帝王切開、手術件数
外来	慢性疾患	高血圧、糖尿病
	薬剤効果	注射処方率、抗生剤処方率、処方当たり薬剤数、高価薬処方率、1日当たりの薬剤費、Nsaids重複投与、急性中耳炎に対する抗生剤投与
全般のレベル		長期療養病院、精神疾患(Medicaid)、血液透析

# UTILIZING QUALITY ASSESSMENT RESULTS





온국민이  
건강하고 행복하게

바른심사 바른평가, 신뢰받는 심사평가원

### 간편 병원 약국 찾기

내 주변에 위치한 병원·약국 정보를 알려드립니다

가까운 병원 약국 찾기

병원·약국명

### 알려드립니다

공지사항 | 보도자료 | 입찰공고 | 채용공고

- (보험급여과-3460, 3461호)희귀... **N**
- [재공지]의료급여 혈액무식 청구방법... **N**
- (행위,치료재료) 제2014-174호... **N**
- 의치 과한방 수가파일(2014.10.1... **N**



병원·약국찾기



병원평가 정보



급여기준



병원진료비 정보



진료비 확인



비급여 진료비정보





# 病院評価項目選択画面

☰
항목검색

👤
테마검색

全体表示

● 평가항목

질병

수술

약

요양병원

전체보기

항목설명

疾病

● 질병

고혈압  
 당뇨병

급성기 뇌졸중  
 의료급여 정신과

항목에 마우스를 대면  
상세한 설명을 보실  
수 있습니다.

手術

● 수술

관상동맥우회술  
 유방암  
 진료결과(암수술사망률)

수술별 진료량  
 수술의 예방적 항생제 사용기관

항목에 마우스를 대면  
상세한 설명을 보실  
수 있습니다.

藥

● 약

항생제처방률  
 처방약품비

주사제처방률  
 유소아중이염항생제

항목에 마우스를 대면  
상세한 설명을 보실  
수 있습니다.

療養機關

● 요양병원

요양병원

● 지역

시/도 ▼

시/군/구 ▼

읍/면/동/로 ▼

내가 찾은 지역: , ,

高血圧、急性期脳卒中、急性心筋梗塞症、  
糖尿病、医療給与精神科、血液透析

冠狀動脈迂回術、大腸がん手術 診療費  
乳房がん手術、手術の予防的抗生剤、  
帝王切開分娩 診療結果(がん手術死亡率)

抗生剤処方率、注射剤処方率、薬品目数  
処方薬品費、乳小児中耳炎への抗生剤

23

# 急性心筋梗塞症の評価等級表示画面

상급종합(42)

종합병원(141)

上級綜合病院(42) 綜合病院(141)

표시를 클릭하시면 병원비교 목록에 추가하실 수 있습니다.

10개씩 보기

조회

병원명	急性心筋梗塞症	급성심근경색증	위치	병원 진료비
충남대학교병원		① 등급	대전 대전중구	診療費
충북대학교병원		① 등급	충북 청주서원구	-
학교법인동은학원순천향대학교부속부천병원		① 등급	경기 부천원미구	-
한림대학교성심병원		① 등급	경기 안양동안구	-
한양대학교병원	病院名	① 등급	서울 성동구	-
단국대의과대학부속병원		② 등급	충남 천안동남구	-
대구가톨릭대학교병원		② 등급	대구 대구남구	-
인제대부속상계백병원		② 등급	서울 노원구	-
인제대학교부속부산백병원		② 등급	부산 부산진구	-
조선대학교병원		② 등급	광주 광주동구	-

所在地

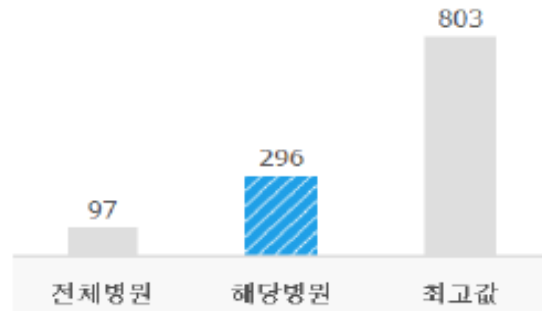
等級



# 急性心筋梗塞症評価の詳細

## 評価対象項目

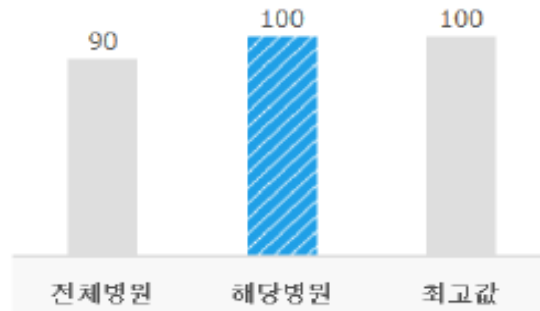
- 평가대상 항목



全体病院 当該病院 最高値

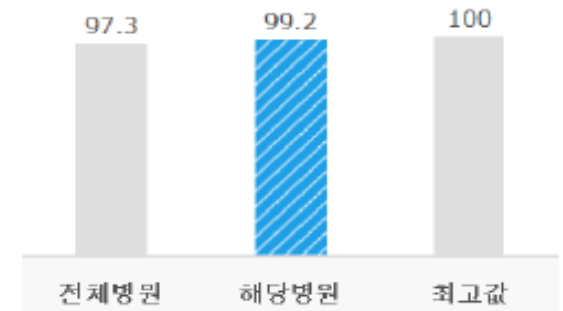
## 病院到着時30分以内 血栓溶解剤投与率

- 병원 도착 30분 이내 혈전용해제 투여율

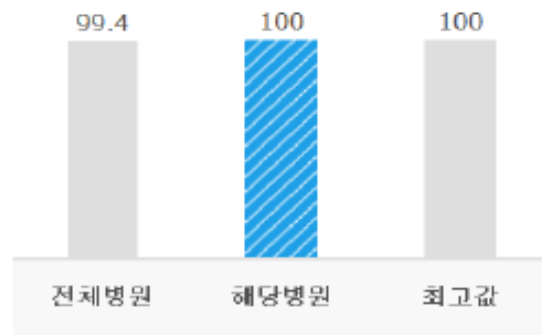


## 病院到着時90分以内 血管拡張手術実施率

- 병원 도착 90분 이내 혈관확장수술 (Primary PCI) 실시율

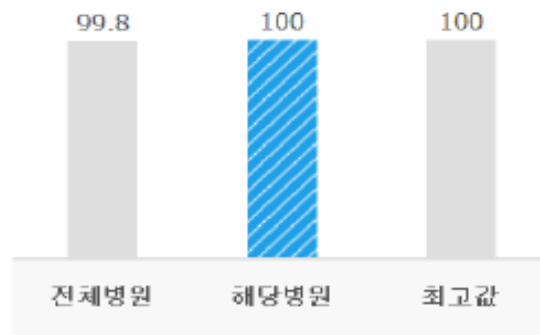


- 병원 도착 시 아스피린 투여율



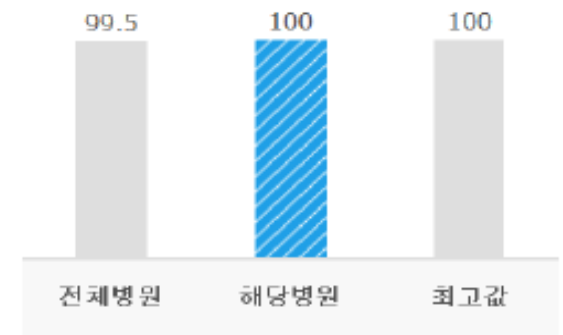
病院到着時アスピリン投与率

- 퇴원 시 아스피린 투여율



退院時アスピリン投与率

- 퇴원 시 베타차단제 처방율



退院時β遮断剂処方率

# 冠狀動脈迂回術評価の詳細

## 手術総件数

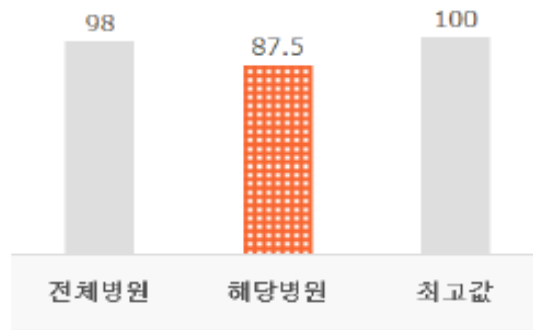
- 관상동맥우회술 수술 총 건수 ?



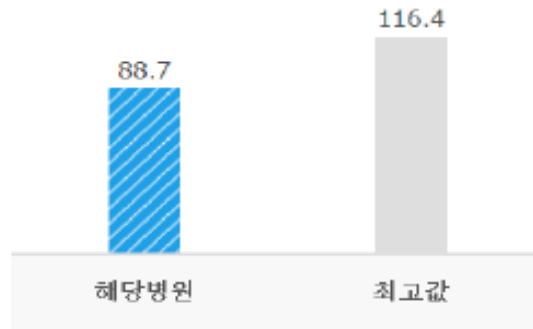
全体病院 当該病院 最高値

## 内胸動脈を利用した冠狀動脈迂回術率

- 내흉동맥을 이용한 관상동맥우회술률 ?



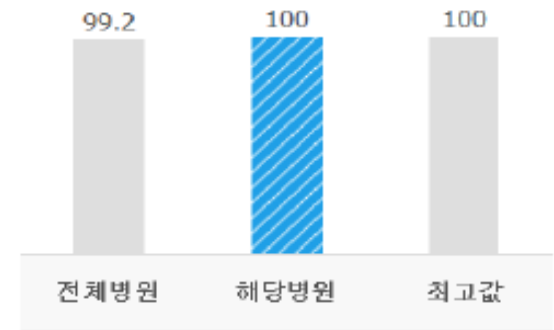
- 수술 후 입원일수 지수 ?



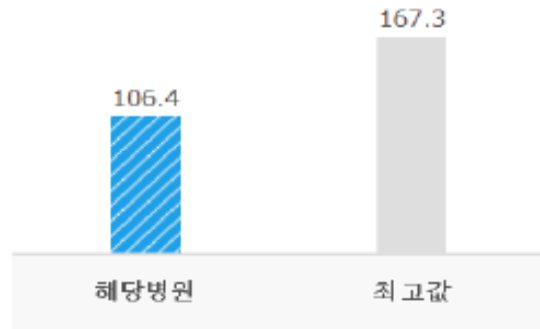
手術後入院日数指数

## 退院時アスピリン処方率

- 퇴원 시 아스피린 처방률 ?



- 생존지수 ?



生存指数

# がん手術の死亡率

위암수술	간암수술
① 등급	① 등급

● 결과값이 낮을수록 우수한 항목

▪ 위암수술 [?]

## 胃がん手術



▪ 간암수술 [?]

## 肝がん手術



# 手術別診療費表示画面

한림대학교성심병원

선택 진료비 항목 보기

목록

질환명	수술명	진료비(만원)		입원일수(일)	
		해당기관	동일규모	해당기관	동일규모
<b>胃癌</b> 위암	위절제술(전체) <b>胃切除術(全体)</b>	747	616	17.2*	14.0
	위절제술(부분) <b>(部分)</b>	693	519	16.6	12.9
	위절제술(부분, 복강경 이용) <b>(部分、腹腔鏡利用)</b>	689	575	12.7	10.6
<b>肝癌</b> 간암	간절제술(간엽) <b>肝切除術(肝葉)</b>	-	-	-	-
	간절제술(부분) <b>(部分)</b>	-	-	-	-
	혈관색전술 <b>血管塞栓術</b>	315	311	6.2	5.6

該当機關 同一規模

# 療養病院評価：構造部門（基本施設）

? 표시를 클릭하시면 평가지표에 대한 상세설명을 보실 수 있습니다.

\* 결과값이 평균값보다 우수할 경우 그래프가 **파란색 빛살무늬**로, 평균값보다 우수하지 않을 경우 그래프가 **주황색 DOT무늬**로 표시됩니다.

구조부문	<input checked="" type="radio"/> 기본시설	<input type="radio"/> 환자안전	<input type="radio"/> 의료인력	<input type="radio"/> 필요인력	<input type="radio"/> 의료장비
진료부문	<input type="radio"/> 신체영역	<input type="radio"/> 인지영역	<input type="radio"/> 배뇨영역	<input type="radio"/> 피부영역	<input type="radio"/> 진환영역

**構造部門: 基本施設、患者安全、医療人力、必要人力、医療裝備**  
**診療部門: 身体領域、認知領域、排尿領域、皮膚領域、疾患領域**

결과값이 높을수록 우수한 항목

• 병실의 병상 당 적정면적 충족률(%) ?

## 病室の病床等適正面積充足率



全体病院 当該病院 最高値

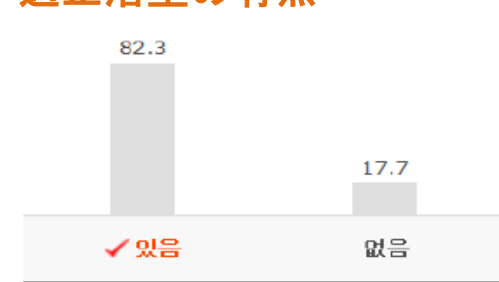
• 화장실이 있는 병상의 비율(%) ?

## トイレ付病床の比率



• 적정욕실의 유무 ?

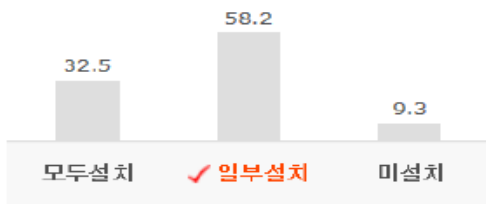
## 適正浴室の有無



✓ 해당병원 결과

• 환자용 편의시설(식당, 휴게실) 구비율 ?

## 患者用便宜施設(食堂、休憩室)具備率



✓ 해당병원 결과

# 療養病院評価：診療部門（泌尿領域）



\* 결과값이 평균값보다 우수할 경우 그래프가 **파란색 빛살무늬**로, 평균값보다 우수하지 않을 경우 그래프가 **주황색 DOT무늬**로 표시됩니다.

구조부문	<input type="radio"/> 기본시설	<input type="radio"/> 환자안전	<input type="radio"/> 의료인력	<input type="radio"/> 필요인력	<input type="radio"/> 의료장비
진료부문	<input type="radio"/> 신체영역	<input type="radio"/> 인지영역	<input checked="" type="radio"/> 배뇨영역	<input type="radio"/> 피부영역	<input type="radio"/> 질함영역

소변줄은 의식불명 등으로 스스로 소변을 볼 수 없을 때 사용을 하게 됩니다. 병원의 편의를 위해 소변줄 사용이 증가할 수 있습니다.

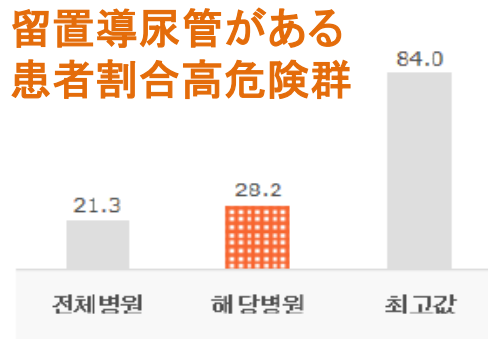
결과값이 낮을수록 우수한 항목

• 요실금 환자분율\_저위험군(%) ?



全体病院 当該病院 最高値

• 유치도뇨관이 있는 환자분율\_고위험군(%) ?



• 유치도뇨관이 있는 환자분율\_저위험군(%) ?



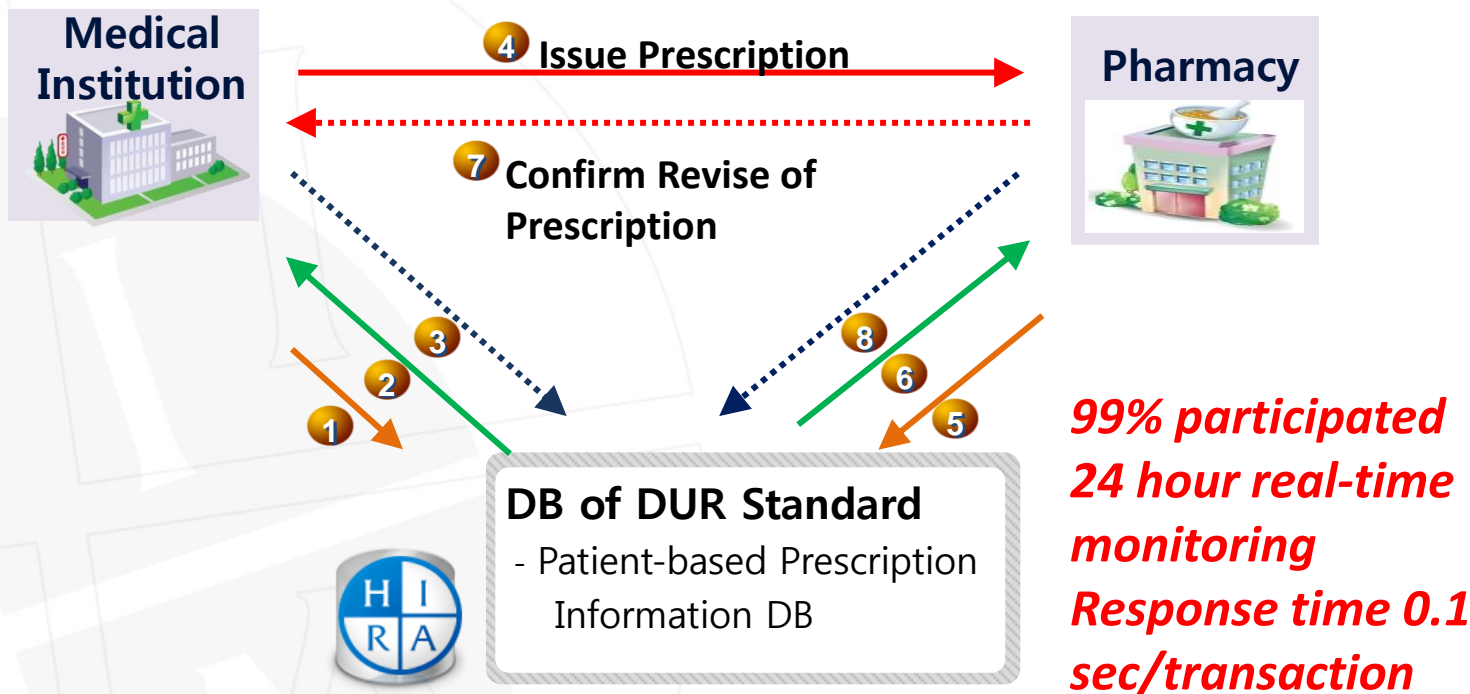
평가안내문

평가보고서

# DRUG UTILIZATION REVIEW(DUR) SYSTEM

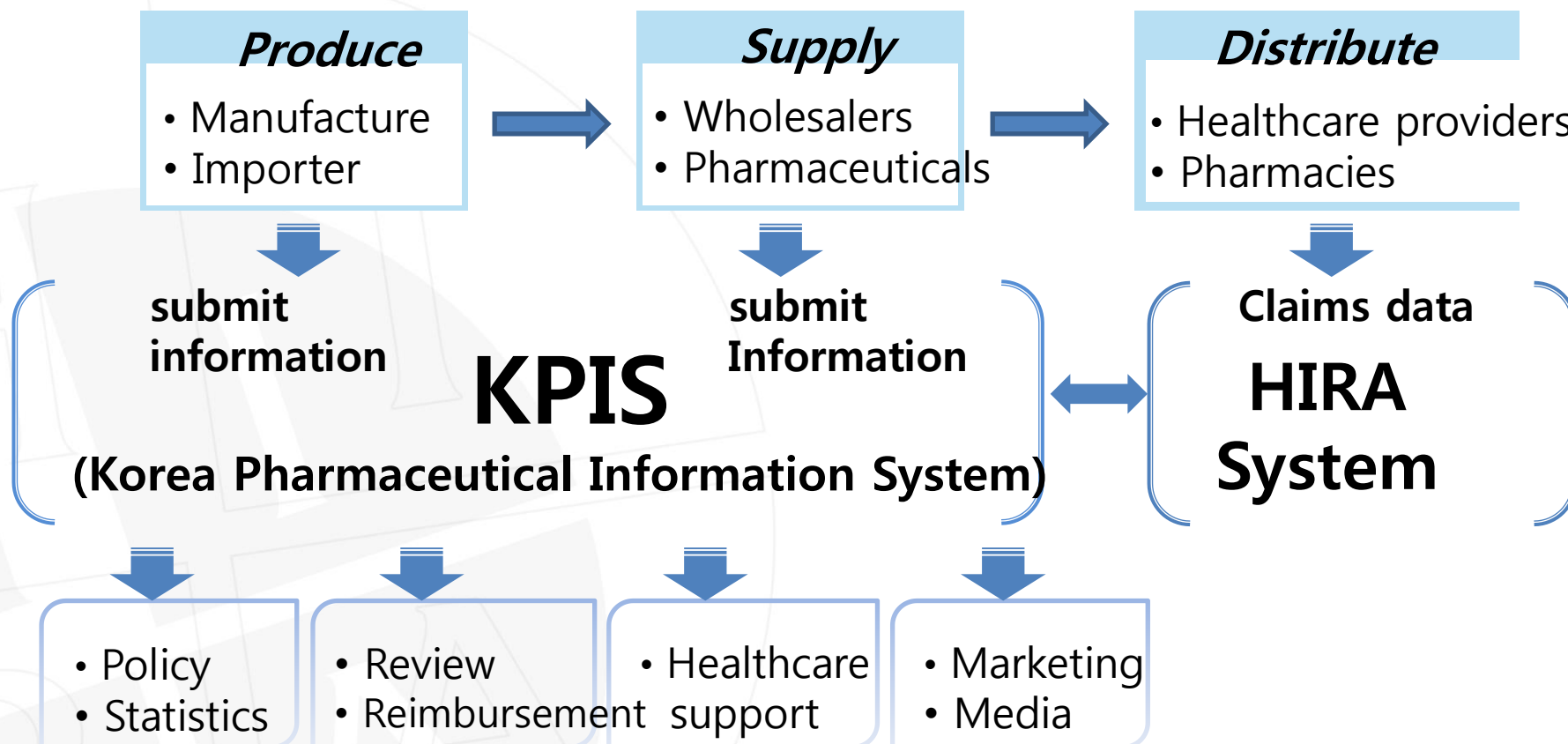
## 医薬品安全サービス

- > Detecting possible harmful effect of drugs and alarming to individual providers
- > Real time cross-checking with previous and other provider's prescriptions
- > 24/7 DUR system of HIRA



1 5 Prescription Information Transmission    2 6 Review Results Transmission    3 8 Completed Prescription Transmission

- Foster impartial and transparent drug distribution environment by standardizing and advancing drug distribution information system





# HEALTHCARE RESOURCES MANAGEMENT SYSTEM

## 医療資源管理システム

> Bed/Room numbers and types

> License number, type, date of hire and resignation of doctors, nurses, pharmacists

> Name, lot number, price, certification information

**Facility**

**Human Resource**

**Equipment**

**Information**

**HIRA**

Fee setting

Claim review

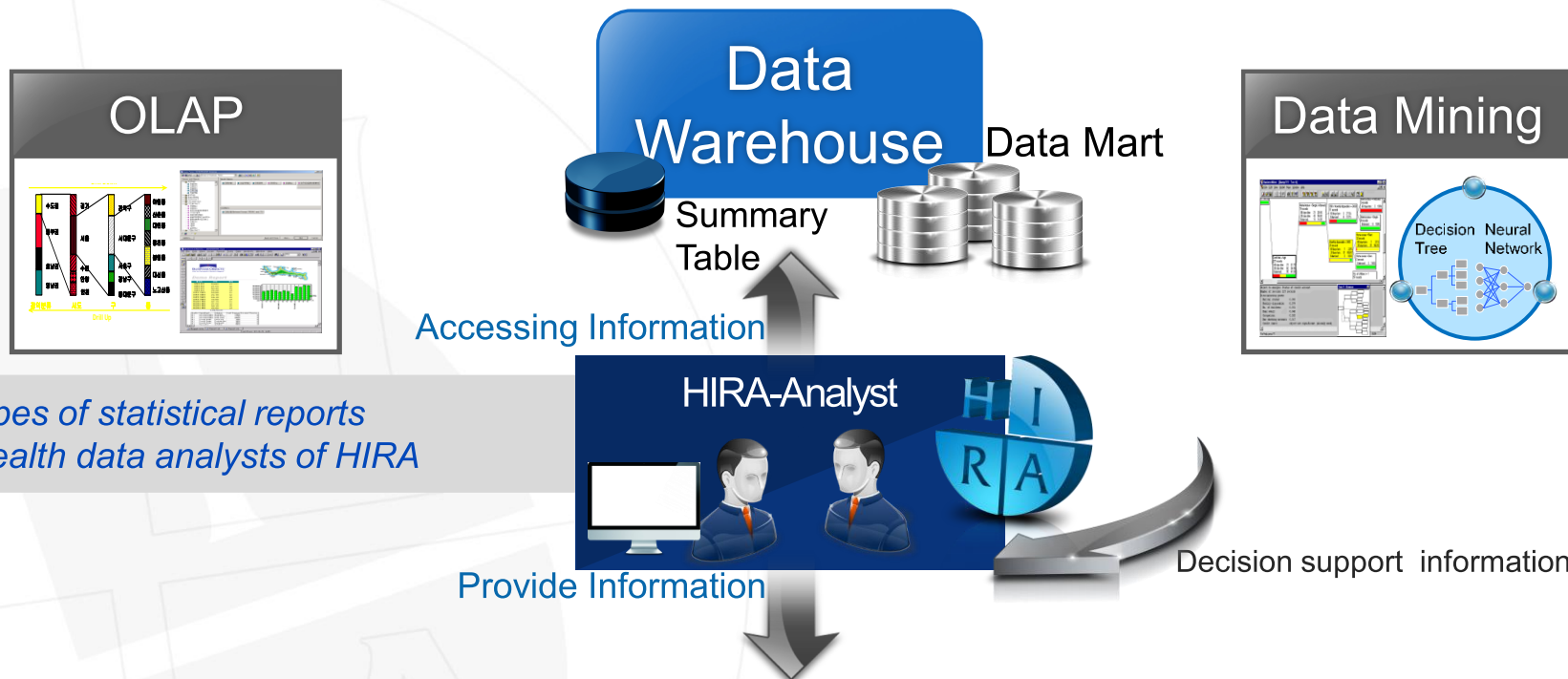
quality  
assessment

Fraud  
detection

Policy  
development

# DATA WAREHOUSE(DW) SYSTEM

Reviewed claims are stored in Data Warehouse. HIRA-Analyst can access DW anywhere in HIRA to produce designed statistics for policy development.



230 types of statistical reports  
304 Health data analysts of HIRA

Information requestors

Government

People

Healthcare provider

NHIS

Healthcare Research Association

Media companies, consumer groups

- > Currently the accumulated data volume are **150 billion records of 210 Terabyte**
- > OLAP : On-Line Analytical Processing

# UTILIZATION OF DW

↗ National quality indicator

↗ Quality assessment

↗ Policy supporting

↗ Disease trends monitoring

↗ Fraud detection

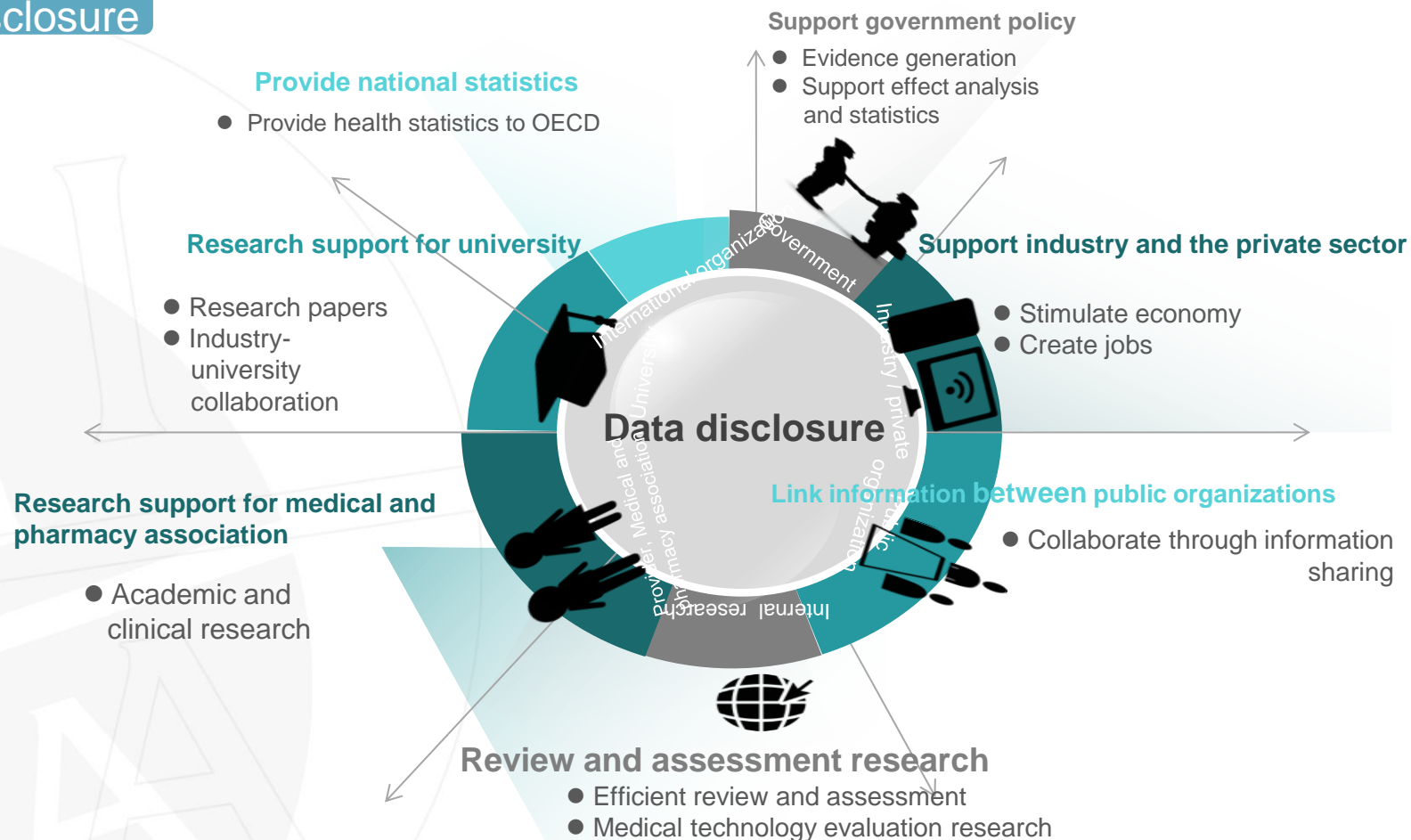


# Data Disclosure

## データ開示

- Encourage the development of the industry and satisfaction by disclosure, sharing, communication and collaboration

### Information Disclosure



# Data Disclosure

# 保健医療ビッグデータセンター

Medical Information Support Center



- Establish ICT environment by preparing 40 spaces for analysis and 60 virtual PCs for remote access for the public

- Visit HIRA

- 20 information analysis rooms to analyze research data from related organizations and academic groups
- 20 R&D support rooms for R&D development of medical and industrial organizations

- Remote service

- Users who wish to analyze remote data
- Provide analysis support by using remote access PC at a place of the user's choice

- Disclosed data

Medical Claims Details

Treatment history  
Disease history  
Prescription history

Assessment results

hypertension,  
diabetes, AMI, etc.

Data disclosure

Provider status

Healthcare resources  
(Personnel, facility,  
equipment, etc.)

Review criteria

Code master of fee  
information for medical  
services, drugs, and  
devices



# Future plans of HIRA ICT

- HIRA Next generation system (2014)
  - ▣ Server Integration (Virtual Environment) Architecture
  - ▣ Enhanced quality assessment system
- To strength information security
- Certification system – ISO9001 and patent
  - ▣ '05 EDI review system
  - ▣ '06 DW system
  - ▣ '07 IT system (including web portal service)
  - ▣ '10 KPIS and DUR system
  - ▣ **'14 IC Center (ISO2000)**
- KPIS project
  - ▣ bar code 2013
  - ▣ RFIDtag for drug distribution and management (2013)



THANK YOU

[djchoi@hiramail.net](mailto:djchoi@hiramail.net)



[djchoi@hiramail.net](mailto:djchoi@hiramail.net)



Health Insurance  
Review & Assessment Service

