NHI Medical Review and Medi-Cloud System in Taiwan

Medical Review and Pharmaceutical Benefits Division

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National Health Insurance Administration
Ministry of Health and Welfare, Taiwan

Outline

- NHI Characteristics of Taiwan

- Medical Review Organization and Mechanism
  - Adjudication Check

  - Profile Analysis

  - Peer Review

- NHI Medi-Cloud System

Profile of Taiwan (2015)

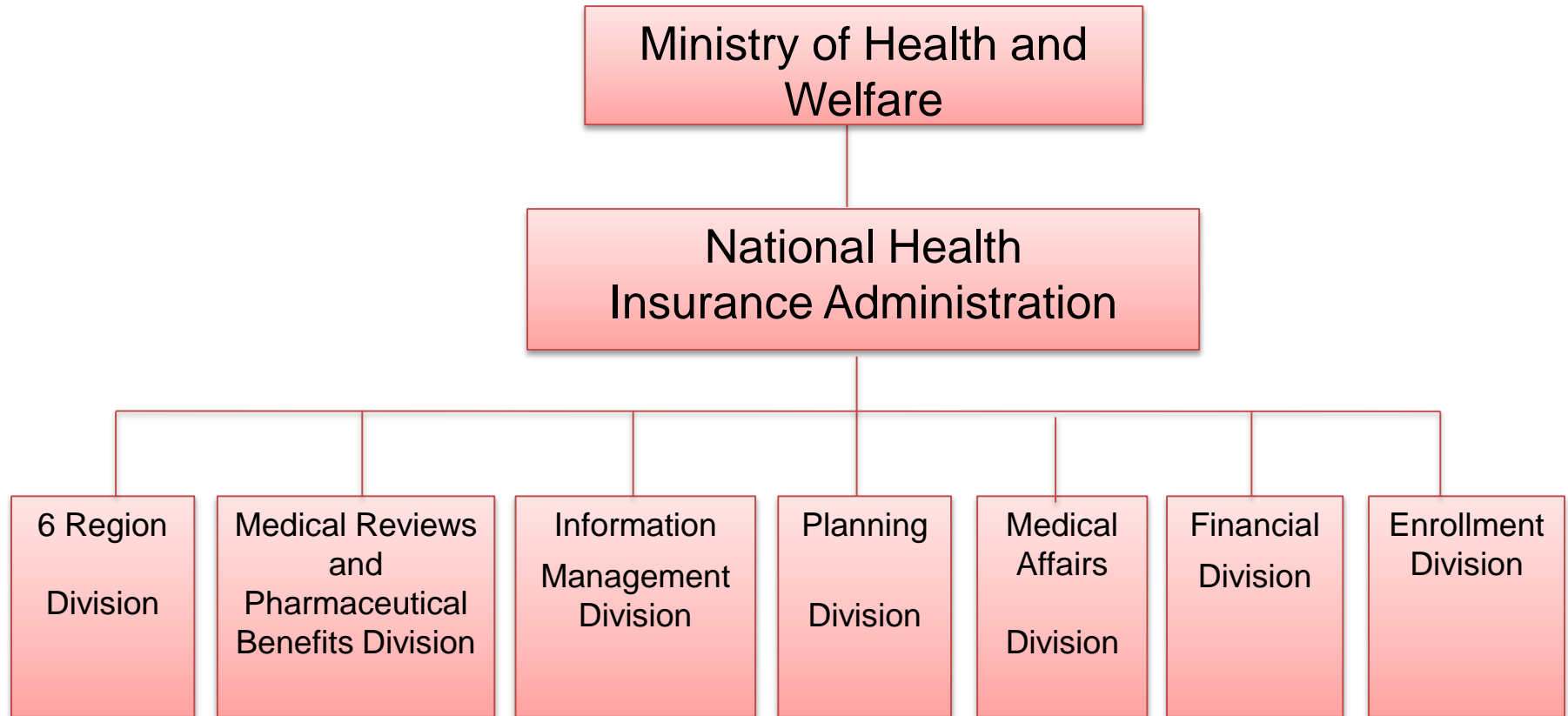|	
Population	23.49 million
Land area	36,193km^2
Ageing (Over 65)	12.5%
GDP per capita	US$ 22,294 (nominal) US$ 46,800 (PPP, est. from CIA)
Crude birth rate (2014) Crude death rate (2014)	9.00 ‰ 7.00‰
Infant mortality Maternal mortality	4.1 ‰ 11.7 0/0000
NHE to GDP (2014)	6.2%
Life expectancy(2014)	83.2 (F) / 76.7(M)

NHI Characteristics

Coverage	Compulsory enrollment for all citizens and legal residents (99.9% of the population is covered by the NHI)
Administration	Single-payer system run by the government
Financing	Premiums
Benefits	Uniform package, copayment required
Providers	Contract-based 93.03% of healthcare providers contracted with NHI
Payment	Plural payment programs under the global budget payment systems
Privileges	Premium subsidies and copayment waivers for the disadvantaged

National Health Insurance Organizational Chart

```
                    ┌─────────────────────────┐
                    │  Ministry of Health and │
                    │         Welfare         │
                    └─────────────────────────┘
                                 │
                    ┌─────────────────────────┐
                    │     National Health     │
                    │ Insurance Administration│
                    └─────────────────────────┘
                                 │
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6 Region Division	Medical Reviews and Pharmaceutical Benefits Division	Information Management Division	Planning Division	Medical Affairs Division	Financial Division	Enrollment Division

Medical Review Organization and Mechanism
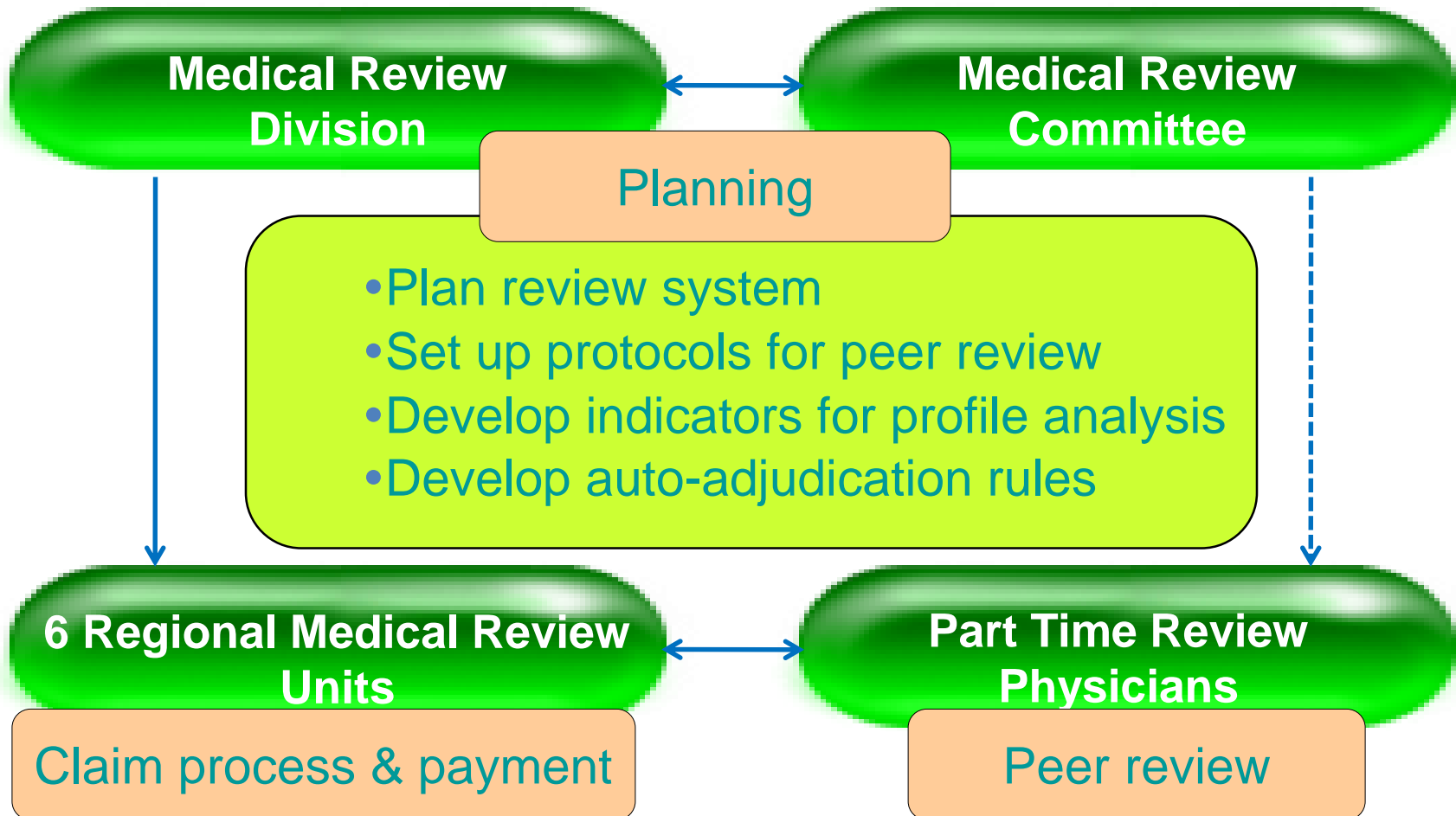
Purpose of Medical Review

To ensure
- the right services are provided by the contracted medical institutions
- the right amount is paid by the insurer
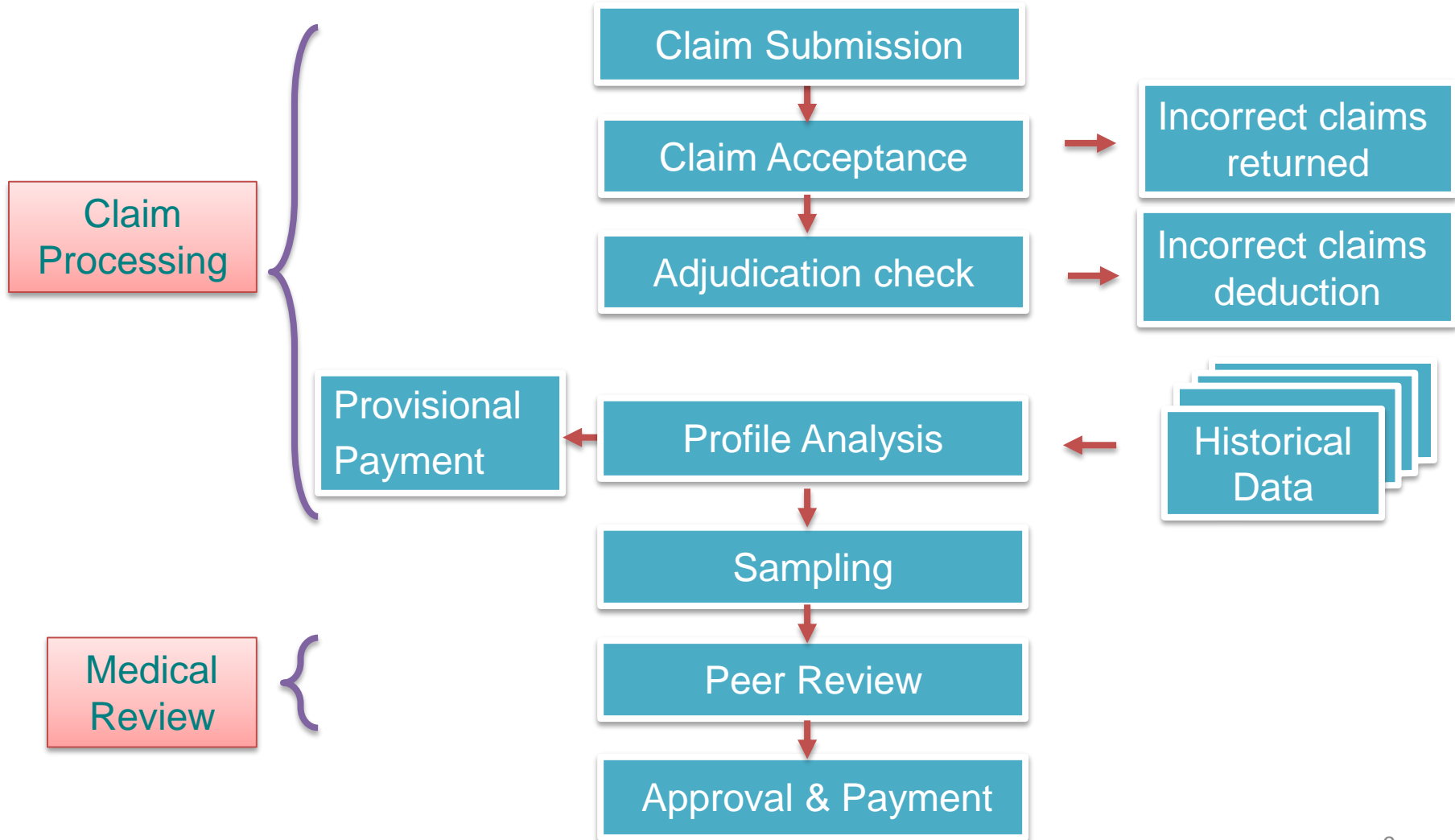- the medical services provided is good quality

(Article 63,NHI Law)

Medical Review Organizations

Medical Review Division ↔ **Medical Review Committee**

Planning

- Plan review system
- Set up protocols for peer review
- Develop indicators for profile analysis
- Develop auto-adjudication rules

6 Regional Medical Review Units ↔ **Part Time Review Physicians**

Claim process & payment

Peer review

Flow Chart of Medical Claims Processing & Review

NHI

Claim Processing

- Claim Submission
  - ↓
- Claim Acceptance → Incorrect claims returned
  - ↓
- Adjudication check → Incorrect claims deduction
  - ↓
- Provisional Payment ← Profile Analysis ← Historical Data
  - ↓
- Sampling

Medical Review

- Peer Review
  - ↓
- Approval & Payment

Adjudication Check

- Eligibility of the insured

- NHI Benefit Scope

- Fee Schedule and Pharmaceutical Benefit Scheme adjudication rules
  - Price check
  - Physician Specialty check
  - gender-age check

- Number of adjudication rules：2082

Profile Analysis

- Promote the efficiency of professional review and medical quality

  – Detect outlier providers for further review

  – Provide reference information to aid peer review

- Feedback information to contracted medical institutions

- Publicly disclose information of medical quality indicators

Data-Analysis system (DA system)

-Build a clearinghouse of medical utilization and quality indicators from claims data-

Clearinghouse of medical utilization and quality indicators

(around 760 indicators so far)

➢ Medical quality monitoring indicators under 5 global budget sectors

➢ Disease-specific quality indicators

➢ Indicators of P4P pilot program

➢ Other monitoring indicators

- Drug safety and utilization indicators
- DRG related indicators
- NHI-MediCloud indicators

Indicators of Profile Analysis

Division of GB	Examples of indicators
Hospital	1.14-day readmission rates 2.Antibiotics usage of ambulatory services
Clinic	1.Duplication rate of antacid per visit 2.Injection medicine usage for ambulatory services
Dental care	1.Endodontic treatment complete rate within 90 days 2. Full mouth scaling rate for 13 years up
Chinese medicine	1.Duplication visit in the same day 2.Duplication rate of Chinese medicine drugs in the same day
Dialysis	1.Peritoneal infection rate 2.A-V shunt reconstruction rate 3. Hct

Disease-specific Indicators

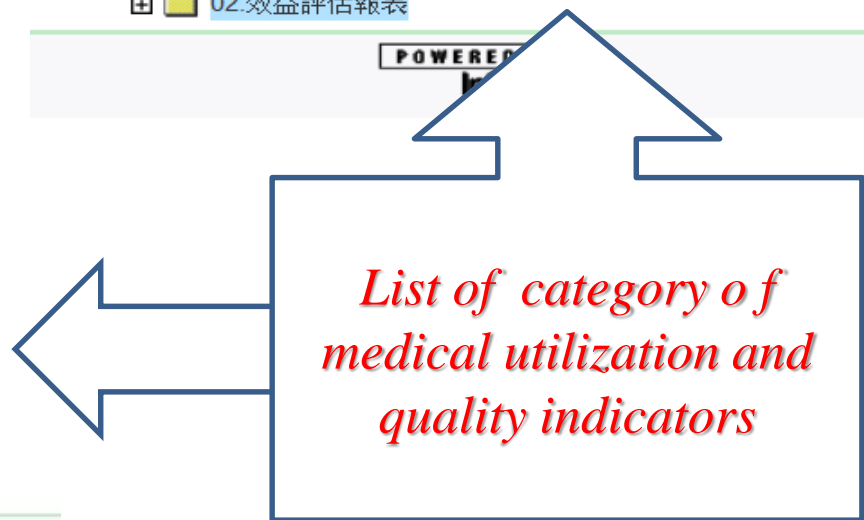| Disease	Examples of indicators
Total knee replacement	Infection rate of surgery
Hypertension	1. Duplication rate of hypertensive drugs in the same day 2. Thiazide diuretics usage of hypertensive patients with gout
Asthma	1. Readmission rate of Asthma patient 2. Admission rate of Asthma patient under 6 years
Mental illness	1. Ambulatory follow-up of mental illness patient within 30 days of discharge 2. Duplication rate of Anti-schizophrenia drugs in the same day

網域樹狀結構

- □ 01_醫療服務指標
  - □ 標準報表
    - ⊞ 01.各總額別
    - ⊞ 02.品質確保方案
    - ⊞ 03.院所別醫療品質資訊公開
    - ⊞ 04.疾病別
    - ⊞ 05.醫療給付試辦方案
    - ⊞ 06.TWDRGS指標
    - ⊞ 07.OECD指標
    - ⊞ 08.監理會支出情形報告監測指標
    - ⊞ 09.績效衡量指標
    - ⊞ 10.季報(品保方案專業醫療服務品質指標)
    - ⊞ 11.年報(品保方案專業醫療服務品質指標)
    - ⊞ 12.其他醫療品質監控管理指標
    - ⊞ 13.急診品質提升方案
    - ⊞ 14.品質保證保留款
    - ⊞ 15.明細報表查詢
    - ⊞ 16.醫療服務指標查詢作業(PHET8000)
    - ⊞ 17.慢性透析病人歸人檔
    - ⊞ 18.健保會業務執行報告
    - ⊞ 97.指標警示報表
    - ⊞ 98.彙算進度查詢
    - ⊞ 99.暫停產製區(退場指標)

- □ 02_藥品監測報表
  - □ 標準報表
    - ⊞ 01.藥品監測報表-月
    - ⊞ 02.藥品監測報表-季
    - ⊞ 03.藥品監測報表-半年
    - ⊞ 04.藥品監測報表-年
    - ⊞ 05.三大案件用藥
- □ 03_特材監測報表
  - □ 標準報表
    - ⊞ 01.整體監控
    - ⊞ 02.醫令監控
- □ 05_雲端藥歷效益評估報表
  - □ 標準報表
    - ⊞ 01.系統查詢使用率報表
    - ⊞ 02.效益評估報表

POWERED

List of category of f medical utilization and quality indicators

網域樹狀結構

歡迎使用，NHIUSER2　　　　　　　　　　　　　登出 | 樹狀結

- 網域
  - 01_醫療服務指標
    - 標準報表

List of indicators
In specific category

      - 01.各總額別
        - 01.醫院總額

中央健康保險署
National Health Insurance Administration

          - 0001_上呼吸道感染病人複診率(一)
          - 0002_上呼吸道感染病人複診率(二)
          - 0003_西醫重複就診率(一)

報表檢視　指標查詢　DA最新公告

          - 0006_平均每張處方箋開藥天數

參數

          - 0007_一般處方每張處方用藥品項數
          - 0008_慢性病每張處方用藥品項數
          - 0009_平均每張處方用藥品項數

維度(0001)	請輸入費用年季（起）(YYQN　例如：99Q1)	請輸入費用年季（迄）	輸出格式
分區 ▼			HTML格式 ▼

Branch division

HTML格式
EXCEL格式
HTML進階

          - 0010_注射劑使用率

執行　重設　清除輸出　　☐ 在新的視窗中執行

Enter statistical duration that want to inquire

Select output data format

          - 0012_整體 用藥日數重複率
          - 0013_同一院所 用藥日數重複率
          - 0014_開立慢性病連續處方箋百分比(一)
          - 0015_慢性病 開立慢性病連續處方箋百分比(一)
          - 0016.01_處方箋釋出率

Enter the parameter and get report

          - 0016_處方箋釋出率
          - 0017_上呼吸道感染抗生素使用率
          - 0018_十四日內再住院率、三日內再急診率
          - 0020.01_使用ESWL病人平均利用人次

Screenshot of DA system (3/3)

Rate of hospital readmission within 14 days after hospital discharge

Rate of ER visits within 3 days after hospital discharge

18 筆記錄 (共 18 筆記錄)，第 1 頁 (共 1 頁)

編號：DA0180200

衛生福利部中央健康保險署 醫療服務指標

十四日內再住院率、三日內再急診率

[分區]

參數：

年季（起）：103Q1

Case No. of ER visit

readmission rate within 14 days

Branch division

Case No. of 14-day re-admission

Case No. of discharge

Rate of ER visits within 3 days

十四日內 再住院率 By 業務組名稱

π chart

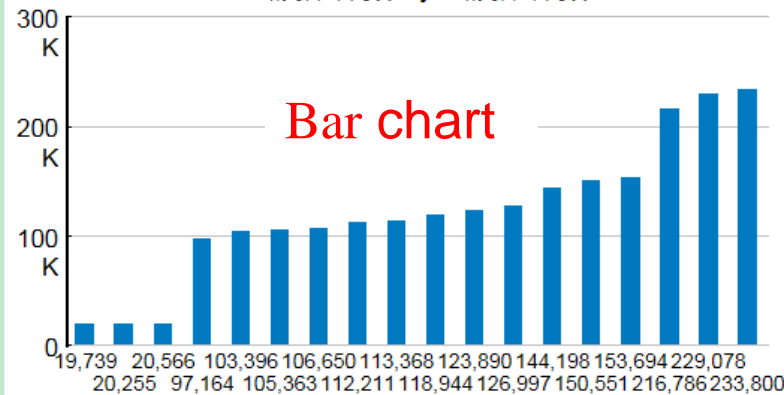| 業務組名稱 ▼	年季 ▼	十四日內 再住院案件數 ▼	三日內 再急診案件數 ▼	出院案件數 ▼	十四日內 再住院率 ▼	三日內 再急診率 ▼
臺北業務組	103Q1	26,766	7,833	216,786	12.35%	3.61%
	103Q2	29,182	8,366	229,078	12.74%	3.65%
	103Q3	29,414	8,610	233,800	12.58%	3.68%
北區業務組	103Q1	8,892	2,971	97,164	9.15%	3.06%
	103Q2	9,714	3,355	103,396	9.39%	3.24%
	103Q3	9,863	3,774	105,363	9.36%	3.58%
中區業務組	103Q1	17,411	5,937	144,198	12.07%	4.12%
	103Q2	17,890	6,043	150,551	11.88%	4.01%
	103Q3	18,384	6,213	153,694	11.96%	4.04%
南區業務組	103Q1	12,785	3,349	106,650	11.99%	3.14%
	103Q2	13,867	3,549	112,211	12.36%	3.16%
	103Q3	13,767	3,438	113,368	12.14%	3.03%
高屏業務組	103Q1	11,242	3,321	118,944	9.45%	2.79%
	103Q2	11,965	3,498	123,890	9.66%	2.82%
	103Q3	12,527	3,541	126,997	9.86%	2.79%
東區業務組	103Q1	2,484	878	19,739	12.58%	4.45%
	103Q2	2,448	988	20,566	11.90%	4.80%
	103Q3	2,451	997	20,255	12.10%	4.92%

■ 中區業務組 17.6%　■ 北區業務組 13.7%　■ 南區業務組 17.9%
■ 東區業務組 18%　■ 臺北業務組 18.5%　■ 高屏業務組 14.2%

出院案件數 By 出院案件數

出院案件數 By 出院案件數

Bar chart

300 K
200 K
100 K

19,739　20,566　103,396 106,650 113,368 123,890 144,198 153,694 229,078 233,800
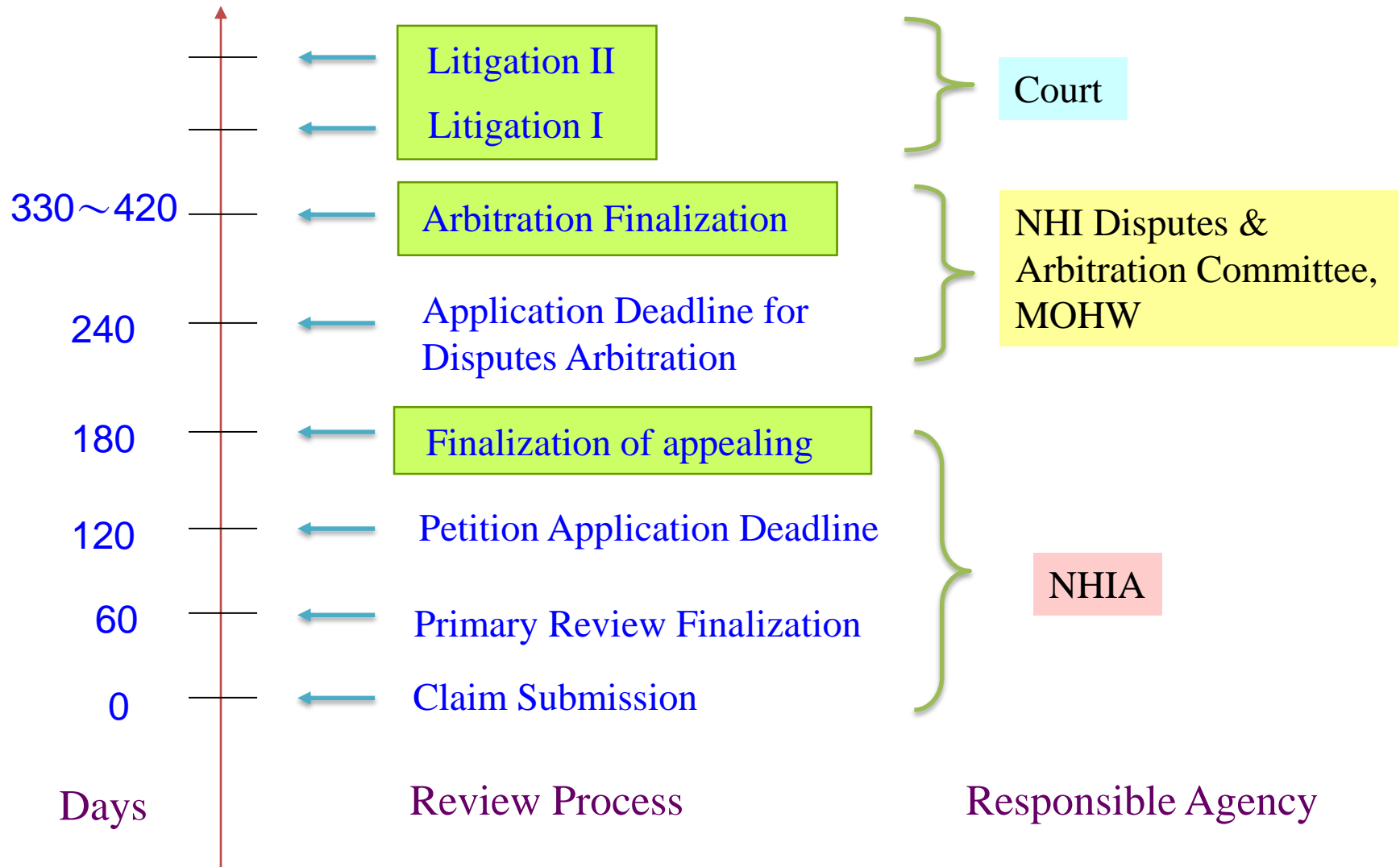20,255　97,164　105,363 112,211 118,944 126,997 150,551 216,786 233,800

Peer Review

- Mechanism
  Sampling review
- Reason
  Number of claims is too huge to review each case：
  30 million outpatient claims/ 0.26 million inpatient claims per month
- Purpose
  Save manpower, time, costs, and increase efficiency
- Method
  Random sampling deduction rate will be extrapolated to the denominator at the same ratio

Principle of Random Sampling

	No. of Claims	Sampling Rate
Western Medicine Chinese Medicine		1/100
Dental Care	1-1000	1/10
	1001 above	1/20
Inpatient		1/15

Medical Claim, Review and Appeal Process

Days	Review Process	Responsible Agency
	Litigation II	Court
	Litigation I	
330～420	Arbitration Finalization	NHI Disputes & Arbitration Committee, MOHW
240	Application Deadline for Disputes Arbitration	
180	Finalization of appealing	NHIA
120	Petition Application Deadline	
60	Primary Review Finalization	
0	Claim Submission	

NHI Medi-Cloud System

Feature of NHI-MediCloud, Taiwan(1)

1. Established in July 2013
2. A patient-centered health insurance medical record information system
3. With minimal cost of establishment
4. Updates the information on a rolling daily basis
5. Takes about 10-15 seconds to display the information

Feature of NHI-MediCloud, Taiwan(2)

6. Allows authorized medical practitioners to request and receive up-to-date medical records of patient

7. Subject to strict privacy and security measures designed to prevent unauthorized access

8. Health professionals can only view the information but can not extract the data

9. Keeps log files to track and evaluate the outcomes

NHI Medi-Cloud System

source | active ingredient | drug code | drug name | date of prescribing | date of dispensing | drug days

diagnosis | constituent | Usage method | drug quantity | surplus
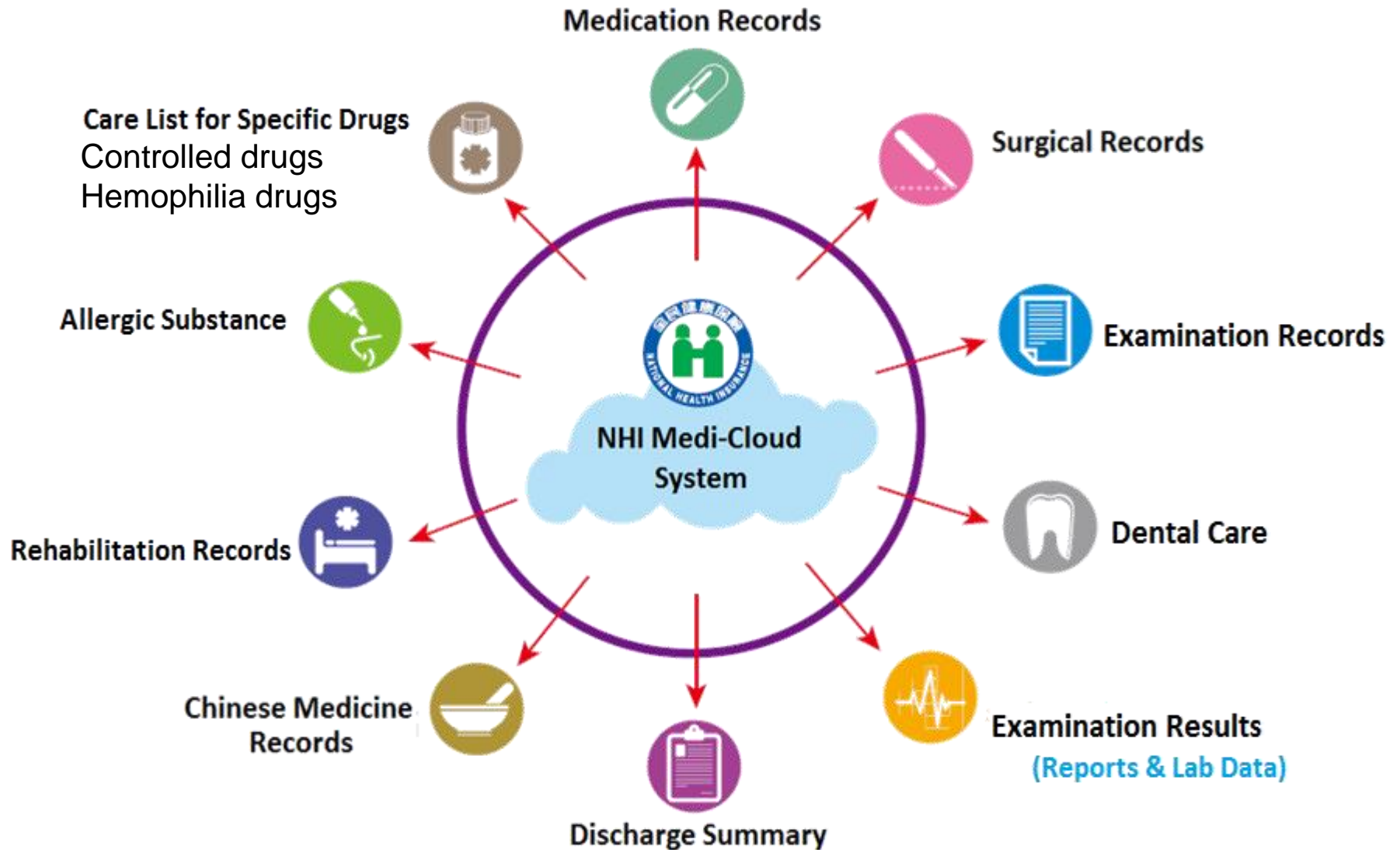
健保雲端藥歷系統查詢結果　回首頁

1、本系統資料不含自費藥品且簡表藥品可能低報；資料傳輸會有24~48小時之時間落差。2、建議須向病人詢問藥品服用情形，方能掌握病人所有用藥品項。
3、本系統呈現之「主診斷」欄位係特約醫事服務機構醫療費用申報資料，僅供參考，確實診斷應以病歷記載為主。

身分證號：　Z299***965

查詢其他保險對象健保卡資料：　請換卡再按我　　顯示欄位設定　　查詢　　清除

ATC5名稱
全部　▼

成份名稱
全部　▼

就醫區間
全部　▼

餘藥
全部　▼

藥品名稱
全部　▼

來源
☑ 本院　☑ 他院　☑ 藥局

項次	來源	主診斷	ATC5名稱	成分名稱	藥品健保代碼	藥品名稱	藥品規格量	用法用量	就醫日期（住院用藥起日）	慢連箋領藥日（住院用藥迄日）	藥品用量	給藥日數	單筆餘藥日數試算
1	他院門診	SECONDARY SYPHILIS OF SKIN OR MUCOUS MEMBRANES	Solutions Affecting The Electrolyte Balance	Sodium Chloride	AC48699209	Ktolac Injection 30mg/Ml (Ketorolac)	1ML		102/01/10		12	8	0
2	他院門診	第二期(續發性)皮膚或粘膜梅毒	Solutions Affecting The Electrolyte Balance	Sodium Chloride	AC48699209	Ktolac Injection 30mg/Ml (Ketorolac)	1ML		102/01/10		12	8	0
3	他院門診	PRIMARY TUBERCULOUS COMPLEX. TUBERCLE BACILLI NOT FOUND BY BACTERIOLOGICAL EXAMINATION. BUT TUBERCULOSIS CONFIRMED HISTOLOGICALLY	Fluoroquinolones	Moxifloxacin	A019799212	Pyridoxal Phosphate Injection "Tai Yu"	2ML	IV	102/07/01	102/07/01	56	4	0
4	他院門診	細菌學檢查未發現結核菌但組織學確認為結核病之原發性結核複合症	Fluoroquinolones	Moxifloxacin	A019799212	Pyridoxal Phosphate Injection "Tai Yu"	2ML	IV	102/07/01	102/07/01	56	4	0
5	他院門診	細菌學檢查未發現結核菌但組織學確認結核病之原發性結核複合症	Fluoroquinolones	Moxifloxacin	A019799212	Pyridoxal Phosphate Injection "Tai Yu"	2ML	IV	102/07/01	102/07/01	56	4	0
6	他院門診	SECONDARY SYPHILIS OF SKIN OR MUCOUS MEMBRANES	Fluoroquinolones	Moxifloxacin	B023712265	Avelox Infusion Solution 400mg/250ml	250ML		102/01/01		56	4	0

Time-Line Graph and Pi Chart Display of Medication Record

Medical Examination Record

Source
Diagnosis
Checkup list
Order name
Order code
Date of Checkup
Date of report
Position

| | 身分證號： | H22　　201 | | | | | | | | | | |

| 查詢其他保險對象健保卡資料： | |
| 摘要： | 下列頁籤表示此健保對象有該項目資料。 |

雲端藥歷　　檢查檢驗　　牙科處置及手術

| 檢查項目 | | 醫令名稱 | | | | 就醫區間 | 來源 | | | | 請移動滑鼠至診療部位代碼即可顯示名稱 |
| 全部　　　▼ | | 全部 | | | | ▼ 全部　▼ | ☑本院 ☑他院 ☑藥局 | 顯示欄位設定 | 查詢 | 清除 | |

項次	來源	費用年月	就醫科別	主診斷名稱	檢查項目	醫令代碼	醫令名稱	診療部位	執行時間-起（收件日期）	執行時間-迄（檢驗報告日期）▼	醫令總量
1	他院門診 153　　.108	105/08	婦產科	急性膀胱炎未伴有血尿	尿液檢查	06012C	General urine examination		105/08/21	105/08/21	1
2	他院門診 153　　)049	105/08	內分泌科	第一型糖尿病，未伴有併發症	生化學檢查	09005C	Glucose		105/07/01	105/08/14	1
3	他院門診 153　　)049	105/08	內分泌科	第一型糖尿病，未伴有併發症	生化學檢查	09006C	HbA1c (Hemoglobin A1c)		105/07/01	105/08/14	1
4	他院門診 153　　.108	105/07	婦產科	急性膀胱炎未伴有血尿	尿液檢查	06012C	General urine examination		105/07/27	105/07/27	1
5	他院門診 153　　.108	105/07	婦產科	急性膀胱炎未伴有血尿	尿液檢查	06012C	General urine examination		105/07/23	105/07/23	1

28

衛生福利部中央健康保險署 - Windows Internet Explorer 是由下列提供: [衛生福利部中央健康保險署]
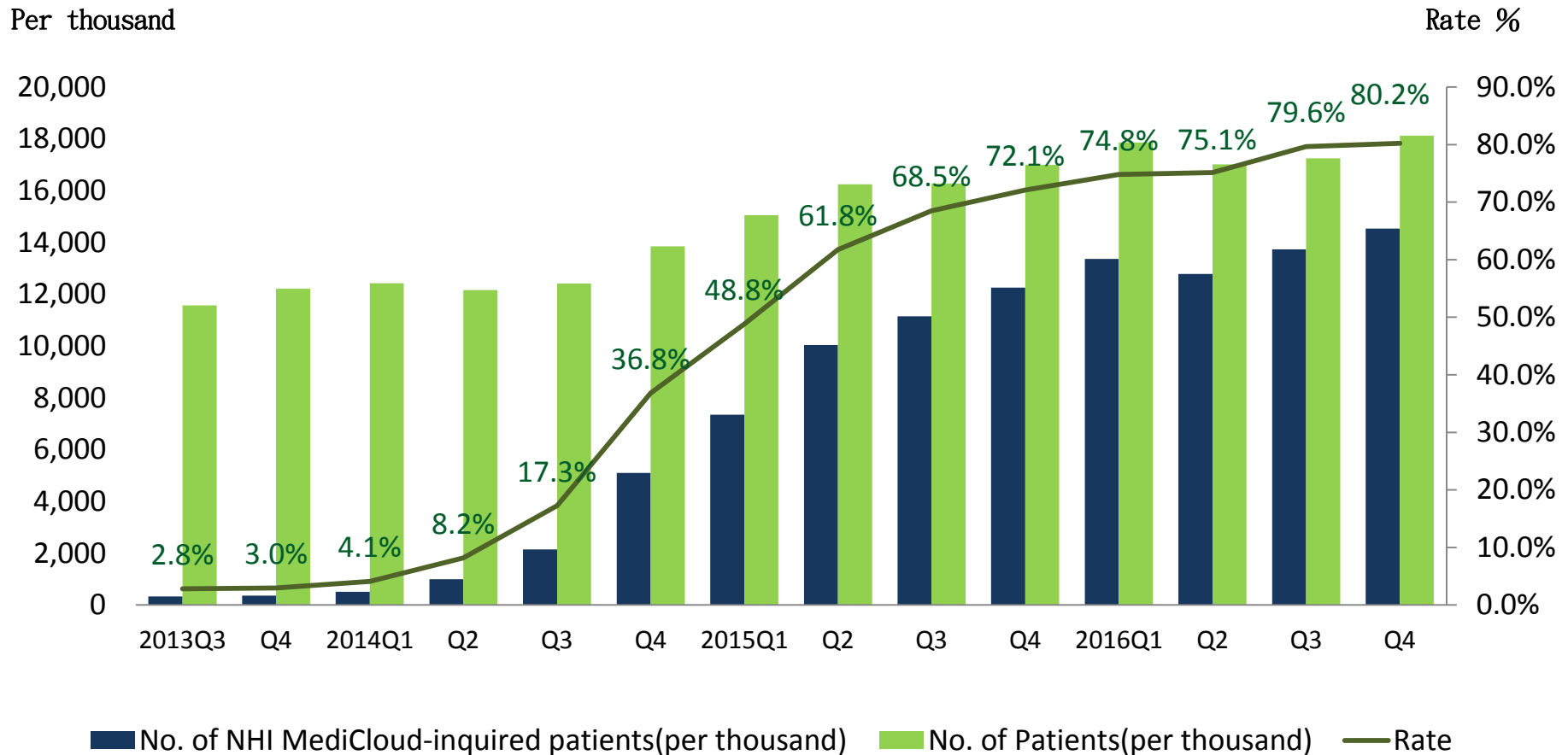
醫令名稱 全部

Order code
Date of examination
Result
Order name
Reference value

醫令代碼	醫令名稱	採檢日期	105/09/19				
09001C	總膽固醇	結果值	150.000 mg/dl				
		參考值	2.000- 200.000				

醫令代碼	醫令名稱	採檢日期	105/10/14	105/10/11	105/10/05	105/10/05	105/09/30
09002C	血中尿素氮	結果值	40.100 mg/dl	39.600 mg/dl	35.200 mg/dl	56.900 mg/dl	40.300 mg/dl
		參考值	5.000- 20.000	5.000- 20.000	5.000- 20.000	5.000- 20.000	5.000- 20.000

醫令代碼	醫令名稱	採檢日期	105/09/28	105/09/19	105/09/19	105/09/11	105/09/11
09002C	血中尿素氮	結果值	43.800 mg/dl	22.600 mg/dl	44.200 mg/dl	68.1 mg/dL	92.9 mg/dL
		參考值	5.000- 20.000	5.000- 20.000	5.000- 20.000	6-21	6-21

醫令代碼	醫令名稱	採檢日期	105/09/11	105/09/09	105/09/05	105/08/29	105/08/26
09002C	血中尿素氮	結果值	92.9 mg/dL	94 mg/dL	114 mg/dL	115 mg/dL	95 mg/dL
		參考值	6-21	5- 23 *	5- 23 *	5- 23 *	5- 23 *

醫令代碼	醫令名稱	採檢日期	105/08/21	105/08/19	105/07/26	105/07/22	
09002C	血中尿素氮	結果值	112 mg/dL	64 mg/dL	38 mg/dL	78 mg/dL	
		參考值	5- 23 *	5- 23 *	5- 23 *	5- 23 *	

醫令代碼	醫令名稱	採檢日期	105/09/19				
09004C	三酸甘油脂	結果值	268.000 mg/dl				
		參考值	2.000- 200.000				

醫令代碼	醫令名稱	採檢日期	105/10/16	105/10/05	105/09/19	105/07/22	105/09/12
09005C	血液及體液葡萄糖	結果值	666.000 mg/dl	195.000 mg/dl	350.000 mg/dl	316 mg/dL	F/S213mg/dL mg/dL
		參考值	70.000- 100.000	70.000- 100.000	70.000- 100.000	< 200 *	70-100

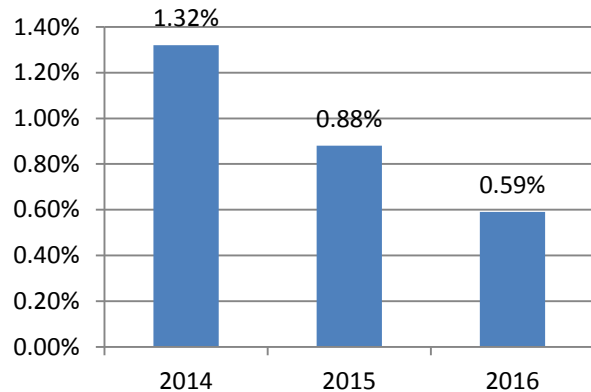| 醫令代碼	醫令名稱	採檢日期	105/09/12	105/09/12	105/09/12	105/09/12	105/09/12
		結果值	F/S : 121mg/dL mg/dL	F/S : 130mg/dL mg/dL	F/S : 184mg/dL mg/dL	F/S : 197mg/dL mg/dL	F/S : 197mg/dL mg/dL

Impacts of NHI Medi-cloud system (1/2)

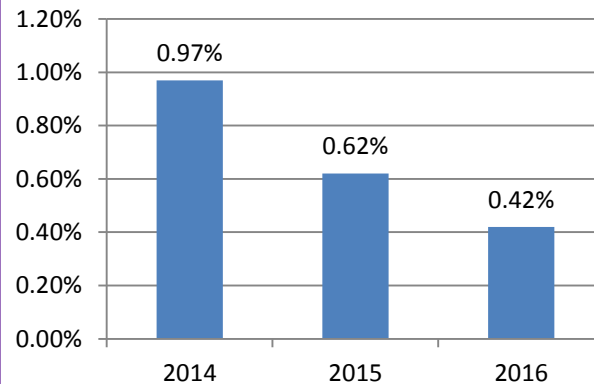■the Rate of NHI Medicloud-inquired patients grow up quarterly

Per thousand / Rate %

Chart data:
- 2013Q3: 2.8%
- Q4: 3.0%
- 2014Q1: 4.1%
- Q2: 8.2%
- Q3: 17.3%
- Q4: 36.8%
- 2015Q1: 48.8%
- Q2: 61.8%
- Q3: 68.5%
- Q4: 72.1%
- 2016Q1: 74.8%
- Q2: 75.1%
- Q3: 79.6%
- Q4: 80.2%

Legend:
- No. of NHI MediCloud-inquired patients(per thousand)
- No. of Patients(per thousand)
- Rate

Impacts of NHI Medi-cloud system (2/2)

■ Percentage changes in overlapping days of drugs of identical pharmacodynamics for six chronic diseases
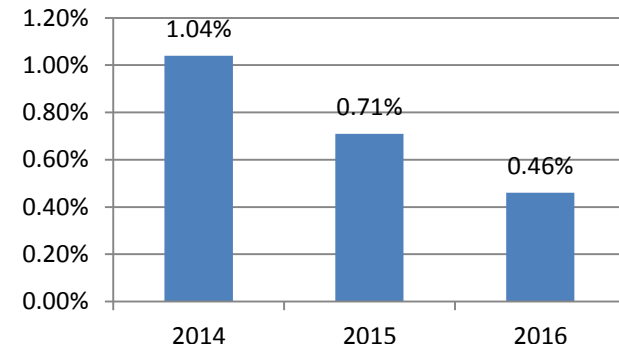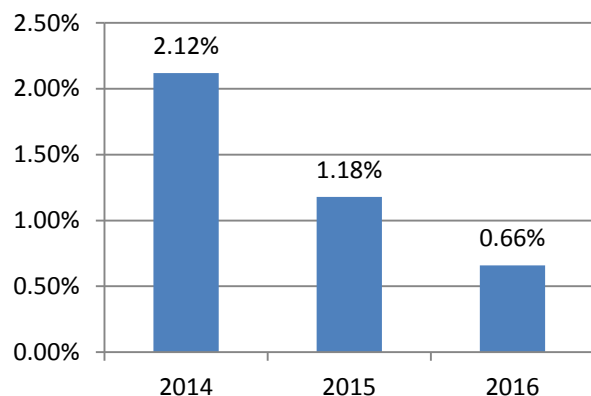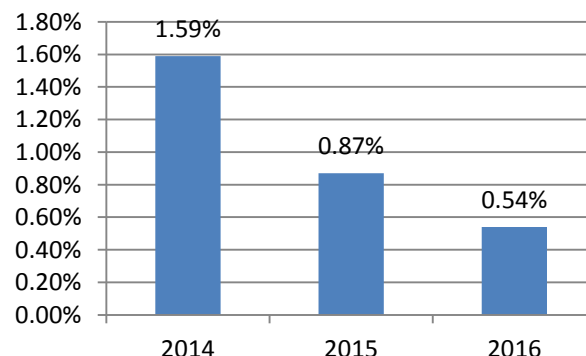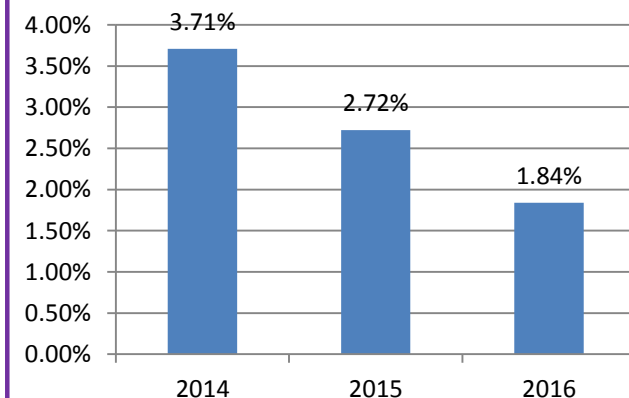
These are we have done and are doing

**Thank you
for your kind attention!**