出國報告（出國類別：開會）

# 赴菲律賓進行健保暨醫療資訊交流

服務機關：衛生福利部中央健康保險署
姓名職稱：李伯璋 署長
張鈺旋 組長
吳淑慧 參議
張溫溫 副組長
黃珮珊 專門委員
陳孜瑜 副研究員
高以琳 助理研究員
派赴國家/地區：菲律賓
出國期間：108 年 10 月 16 日至 19 日
報告日期：108 年 12 月 19 日

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**一、目的：**

為配合政府新南向五大旗艦計畫，將藉由我國醫療衛生軟實力，推動與新南向國家之醫衛合作，而臺灣全民健康保險制度自 1995 年開辦至今，已邁入第 24 年，並以「普及、方便、經濟、滿意度高」的成就，在全球建立聲望，不僅獲得許多國際上之讚揚，也成為各國建立或改革健保制度的研究對象，每年吸引多國外賓慕名而訪。為能與更多新南向國家人員分享臺灣全民健保制度之相關建置經驗，本署赴新南向國家辦理健保會議，近距離與新南向國家人員交流，拓展國際人脈，以期建立互助互惠合作契機。

為積極參與全球衛生事務，致力於增進全民健康。我駐菲律賓代表處與馬尼拉經濟文化辦事處於 101 年簽定「臺菲雙方全民健康保險合作瞭解備忘錄」，從此奠定臺灣與菲律賓醫衛及健保領域長期合作交流基礎。為了延續雙方互動交流及配合政府之新南向政策，本署人員於 108 年 10 月 16 日赴菲律賓，並於 108 年 10 月 17 日於菲律賓馬尼拉舉辦「臺菲全民健保與智慧醫療應用交流會議」(Workshop on Universal Health Coverage: National Health Insurance System, Smart Hospital and Taiwan Experience)，透過會議的實質討論交流，與菲國各界分享臺灣健保經驗，尤其是雲端科技導入健保管理的成果，並與我方代表就專業及實務面熱烈討論與交流。

另為加強與菲國之瞭解及互動，本署也至衛生相關單位及醫院進行參訪及會談，以期促進雙方間的交流與合作。

## 二、行程安排

| 日期 | 行程內容 |
| --- | --- |
| 10 月 16 日(星期三) | 去程 臺北-馬尼拉<br>下午 拜會國家腎臟移植研究院(NKTI)<br>晚上 研討會準備，場佈確認、設備測試等事宜 |
| 10 月 17 日(星期四) | 舉辦「臺菲全民健保與智慧醫療應用交流會議」(Workshop on Universal Health Coverage: National Health Insurance System, Smart Hospital and Taiwan Experience) |
| 10 月 18 日(星期五) | 上午 拜會菲律賓健康保險公司 (PhilHealth)<br>下午 參訪 The Medical City、中華崇仁醫院 |
| 10 月 19 日(星期六) | 返臺 |

## 三、臺菲全民健保與智慧醫療應用交流會議(Workshop on Universal Health Coverage: National Health Insurance System, Smart Hospital and Taiwan Experience)

本署於 108 年 10 月 17 日假菲律賓馬尼拉普利米亞探索酒店舉辦「全民健保暨醫療資訊交流會議」(Workshop on Universal Health Coverage: National Health Insurance System, Smart Hospital and Taiwan Experience)，分享全民健保及醫院資訊之相關應用，參與者來自菲律賓產官學界，從中央到地方，包括菲律賓衛生部、菲律賓健康保險局公司(PhilHealth)、菲律賓國家腎臟移植研究院、中華崇仁醫院及 The Medical City 等多家醫院、大學及衛生相關單位，現場近百位與會者。本次會議獲外交部駐菲律賓代表處大力支持，並協助與菲律賓衛生部及相關衛生單位洽談聯繫，菲國衛生部對本次前去辦理研討會至表歡迎，其轄下菲律賓健康保險公司也大力參與交流會議，並分享菲國健康保險制度。會議現場更邀請華碩及東洋公司設攤宣傳及產品展示，落實新南向政策之醫衛產業鏈結目標，許多與會者對設攤之產品感到興趣，並進一步洽談。研討會由李伯璋署長致開幕詞，另邀請徐佩勇大使、菲律賓衛生部國際合作處主任 Dr. Bello、菲律賓健康保險公司總裁 Ricardo Morales 及馬尼拉經濟文化辦事處主任 Cesar Drilon 致詞。

- 研討會主要由本署張鈺旋組長介紹臺灣全民健康保險制度、吳淑慧參議介紹健保資訊系統、陳孜瑜副研究員介紹健保醫療雲端查詢系統之建置、張溫溫副組長介紹健康資訊技術應用於醫院，以及花蓮慈濟醫院林俊龍執行長介紹智慧社區療模式等五個主題，並邀請菲律賓健康保險公司副總裁 Dr. Shirley Domingo 介紹菲律國家健康保險計劃及菲律賓健康保險公司資訊長 Ms. Jovita V. Aragona 介紹資訊系統之企業架構、使用技術和健康系統，來實現全民健康覆蓋，全場使用英文交流，李伯璋署長、邱弘毅教授與菲律賓健康保險公司資訊長 Dr. Jovita V. Aragona 一起擔任圓桌綜合討論座長，現場參與人員於綜合討論提出之問題主要為：菲律賓如何克服資訊技術以實現全民健保、實施資訊技

術的預算控制、支付系統及如何防止醫療詐騙等，講者均一一回答現場相關提問，提問重點如下：

- 臺灣成功實施 UHC 是由於資訊系統的快速發展，臺灣如何看待雙方的合作，協助菲律賓克服即將遇到的困難及阻礙?
- 如果菲律賓想要建置資訊系統，請問臺灣的經驗，當初在建置時所需的時間及費用?
- 請問健保署會提出什麼建議，以便菲律賓能更快展開一樣的旅程(建置資訊系統)?
- 如果病患遺失健保卡，是否還能看診?
- 臺灣是如何防止醫療詐騙?
- 在支付制度的部分，菲律賓(PhilHealth)考慮規劃實施總額預算(Global Budget)及診斷關聯群(Diagnosis Related Groups, DRGS)，請問健保署是如何開始規劃及執行，以及 IT 部分是如何支援醫療費用申報?
- 私人醫療保險或醫療保健組織（health maintenance organization，HMO）在健保的系統中扮演什麼的角色？

# 臺菲全民健保與智慧醫療應用交流會議議程

| Time | Content | Speakers/Moderator |
|---|---|---|
| 9:00-9:20 | Registration | |
| 9:20-9:25 | Opening Remarks | **李伯璋署長 Dr. Po-Chang Lee**<br>Director-General, National Health Insurance Administration, Ministry of Health and Welfare |
| 9:25-9:40 | Remarks from Distinguished Guests | Representative from DOH, PhilHealth, MECO and TECO |
| 9:40-10:00 | Taiwan's NHI System & Perspectives | **張鈺旋組長 Dr. Yu-Hsuan Chang**<br>Director, National Health Insurance Administration, Ministry of Health and Welfare |
| 10:00-10:30 | Overview of the National Health Insurance Program (NHIP) in the Philippines | **Dr. Shirley Domingo**<br>Vice President, Corporate Affairs Group, PhilHealth |
| 10:30-10:50 | Q&A | **李伯璋署長 Dr. Po-Chang Lee**<br>Director-General, National Health Insurance Administration, Ministry of Health and Welfare<br>**Dr. Shirley B. Domingo**<br>Vice President, Corporate Affairs Group, PhilHealth<br>**邱弘毅教授 Prof. Hung-Yi Chiou**<br>Director, Health and Clinical Research Data Center, Taipei Medical University |
| 10:50-11:20 | Break | |
| 11:20-11:50 | PhilHealth IT System-Enterprise Architecture and Using Technology and Health System to Achieve UHC | **Ms. Jovita V. Aragona**<br>Senior Vice President/Chief Information Officer, Information Management Sector, PhilHealth |
| 11:50-12:50 | Lunch Break | |
| 12:50-13:10 | NHI Medical Information& Data Warehouse System | **吳淑慧參議 Ms. Shwu-Huey Wu**<br>Senior Executive Officer, National Health Insurance Administration, Ministry of Health and Welfare |
| 13:10-13:30 | NHI MediCloud | **陳孜瑜副研究員 Ms. Tzu-Yu Chen**<br>Associate Researcher, National Health Insurance Administration, Ministry of Health and Welfare |
| 13:30-14:00 | Break | |
| 14:00-14:20 | Health Information Technology Applied in the Hospital | **張溫溫副組長 Ms. Wen-Wen Chang**<br>Deputy Director, National Health Insurance Administration, Ministry of Health and Welfare |
| 14:20-14:40 | Smart Community Healthcare Model | **林俊龍執行長 Dr. Chin-Lon Lin**<br>Chief Executive Officer, Buddhist Tzu Chi Medical Foundation |
| 14:40-15:20 | Overall Discussion | **李伯璋署長 Dr. Po-Chang Lee**,<br>Director-General, National Health Insurance Administration, Ministry of Health and Welfare<br>**Dr. Shirley Domingo**<br>Vice President, Corporate Affairs Group, PhilHealth<br>**邱弘毅教授 Prof. Hung-Yi Chiou**<br>Director, Health and Clinical Research Data Center, Taipei Medical University |
| 15:20-15:30 | Adjournment | |

## 四、機構參訪

### (一)參訪國家腎臟移植研究院(National Kidney and Transplant Institute，NKTI)

會議摘要：

(1) 由國家腎臟移植研究院院長 Dr. Rose Marie Rosete-Liquete 全程接待，Dr. Rose 介紹醫院的歷史、未來發展項目及改善醫療服務措施等。

(2) 國家腎臟移植研究院創立於 1983 年，是一家三級醫學專科中心並且與菲律賓的醫學專業發展有顯著的歷史淵源。它是全國各地區醫院的腎臟病人轉診中心，設有 382 張病床、62 台血液透析機及先進的手術室及內視鏡檢查中心。醫院的基礎設施項目中，有腹膜透析倉庫，未來將設立門診服務大樓，醫院希望針對不同類型的病患進行分區，轉移後，再由醫院提供門診服務。醫院的頂樓設有停機坪，可處理緊急及嚴重的病患。

(3) 醫院嘗試與私人企業合作,向私人企業取得融資,並控制各項成本，包括人事費。對於腹膜透析倉庫、洗衣成本及各項處理程序的成本，有些透過與供應商合作或免費提供等方式，以節省醫院的支出，同時，供應商的代表也是醫院委員會的成員之一，可以提高執行之績效，包括重複使用率與透析達標率，醫院會進行監控。每次血液透析會向病患收取 3,000 披索，使用新的血液透析儀，則增收 1,500 披索。

(4) 洗腎費用佔菲律賓醫療總支出的 10%-11%，屬於第二大醫療支出項目。醫院都會提交醫療費用支出給菲律賓健康保險公司(PhilHealth)，包括一般門診及住院，住院的檔案處理大約需要 45 天，PhilHealth 將會在 60 天內付款給醫院。醫院也將血液透析人員外包，同時由醫院的護理師進行監督及管理，但病情較嚴重的病人仍由醫院的護理師負責照護。醫院認為，透過人員外包能以較低的成本提供同質量的服務，也為病患節省更多的醫療費用。由於菲律賓護理師的短缺情況嚴重，醫院正努力培訓相關專業人員，以補充人力不足。

## (二)拜會菲律賓健康保險公司 (The Philippine Health Insurance Corporation，PhilHealth)

會議摘要：

(1) 菲律賓之健康保險收入主要來自個人負擔、雇主及稅收。基本上保費為薪資之 2.5%，由雇主與勞工各半負擔；原住民的保費由政府稅收支出；而低收入戶的保費則由地方政府支出。

(2) PhilHealth 是隸屬於衛生部的免稅政府公司，負責政策協調和指導。主要為菲律賓所有公民提供健康保險，並確保可負擔、可接受、可用和可獲得的醫療保健服務，包括管理國家健康保險計劃、制定和頒布有關該計劃健全管理的政策、監督提供健康福利並制定必要的規則和條例、與醫療保健機構與專業人員進行代理，支付機制，行政和操作系統和程序的設計和實施、建立及維護其所有成員的電子數據資料庫，並確保其安全性等。

(3) 本次會議由總裁暨執行長 Ricardo Caballero Morales 主持，總裁表示因總統 Rodrigo Duterte 在今(2019)年 2 月 20 日簽署了《全民醫療保健(UHC)法案》，要讓所有菲律賓人都能獲得優質和負擔起的醫療服務，因此 PhilHealth 現在需努力達成其目標。

(4) 會中對於健保制度的執行及作法深入討論，討論議題如下：

- 如何針對各個支付項目定價?比如血液透析?
- 如果要建立總額預算制度，請問健保署建議可以如何開始?
- 請問健保署是如何開始建立資訊系統?
- 是否與其它政府機構共享民眾就醫資料?
- 健保署的行政費用多少?
- 請問民眾就醫時如何識別每個人?有使用生物識別技術嗎？
- 如何發現及處理醫療欺詐?

(4) 本署特別針對如何開始建立資訊系統與 PhilHealth 分享，包括 PhilHealth 必須加強基礎建設，像是醫院的資訊系統也必須建置，以便讓醫院的系統可以與 PhilHealth 相容，而在這之間，二者必須有

可靠的網路系統，以便醫院可以每個月或每天上傳資料，因此在建置資訊系統時也需和其他公司像是 HIS 公司及電信公司一起合作。我們非常歡迎總裁 Ricardo Caballero Morales 來臺灣參訪，本署可以協助建立一支諮詢團隊，包含醫院、產業人員，共同提供與健保合作執行之經驗。

(5) 另外如果 PhilHealth 要實行總額預算支付制度(global budget)和數位化個人資料，本署也建議要邀請醫學協會代表或醫院/診所代表共同合作，一起討論以準備必要的基礎架構以及收集數據，如此才能做進一步的評估和改善。

**(三) 參訪醫療城市醫院(The Medical City)**

會議摘要：

(1) 由董事會成員 Dr. Norma Ajoin 及醫院首席營運長 Dr. Martin P. Samson 接待，向本署介紹醫院理念及架構，並由其同仁逐層帶領本署人員參訪，介紹醫院設施。

(2) The Medical City（TMC）成立於 1967 年，由 Professional Services, Inc. 經營，其醫療照護網中心主要位於菲律賓馬尼拉，並由多家省級醫院及診所形成其醫療網路。TMC 為第三級醫療中心，病床數 800 床、含 1,500 位醫師、共有 4,000 位醫療人員，每年約有 5 萬名住院病患以及 50 萬門診病人。

(3) TMC 於 2006 年、2009 年接受 JCI 認證，提供先進醫療設備與技術，並設有健康與美學（Wellness and Aesthetics）、心血管、癌症、再生醫學等醫學中心，而其中再生醫學方面客製化分子醫學機構 (Institute of Personalized Molecular Medicine, IPMM)於 2012 年成立，2014 年 11 月獲得菲律賓衛生部認證，提供菲律賓國內以及國際病患幹細胞等治療。此外，TMC 之業務亦拓展至海外，如經營位於關島第一家且唯一一家私人醫院 Guam Regional Medical City 等。

**(四)參訪中華崇仁醫院（Chinese General Hospital and Medical Center, CGHMC）**

會議摘要：

(1) 由董事會主席暨菲華善舉總會(PCCAI)主席 Dr. Benito Goyokpin 接待，中華崇仁醫院為菲律賓歷史最悠久的醫院之一，在西班牙佔領期間在中國移民的慈善捐款下成立。

(2) 崇仁醫院於 2018 年 11 月成為第一家全面採用 web 技術和雲端架構營運之大型醫院，可節省和減少資本支出，同時符合病患隱私和安全協議。醫院共有 700 張病床以及 100 張慈善病床，使用慈善病床的病患通常都是享有健康保險但無法負擔醫療費用的民眾，因此醫院會免收醫師診療費，其它費用則提供折扣價，並向菲律賓慈善辦公室尋求協助。

(3) 本署建議醫院需要朝醫療數據與健保連結的目標邁進，包括醫療數據的標準化，提高蒐集醫療數據的效率，將能有效的向 PhilHealth 申請醫療費用。但醫院表示與 PhilHealth 的電子資料連結僅限於有健保的病患，即有能力付費的病患，醫院無法蒐集未納入健保的病患醫療數據。

## 五、心得與建議

(1) 本次為我駐菲律賓代表處與馬尼拉經濟文化辦事處於 2012 年簽定「臺菲雙方全民健康保險合作瞭解備忘錄」後，本署首次前往菲律賓辦理交流會議及參訪，除能與更多菲國醫療衛生人員交流，也能實際瞭解菲方機構之運作及建置。

(2) 本次在菲律賓辦理研討會能順利及成功，非常感謝我國駐菲律賓代表處大力支持，對於研討會之議程、場地及人員邀請，均提供建議及協助。另本次研討會也邀請負責衛生福利部「一國一中心」之花蓮慈濟團隊一同參與，共同分享我國醫療衛生成就。

(3) 臺灣全民健保為單一保險人制度，民眾就醫資料所累積之巨量資料庫，成為臺灣發展智慧醫療之最大優勢，國際上許多國家對於臺灣在智慧醫療領域的發展均相當有興趣，希望能與本署交流相關經驗，建議未來本署可持續規劃赴新南向國家辦理健保交流會議，展現我國醫療衛生軟實力，促進醫療衛生領域之實質交流。

(4) 菲律賓健康保險，在醫療資訊及數據朝電子化邁進的過程中，仍然面臨很多挑戰及限制，包括法律的制定、政策的調整及人民的接受度等，同時在軟體及硬體技術方面，也急需提升，菲方為達成 UHC 的目標，希望能從提升醫療資訊系統著手，並也向本署提出協助其建置資訊系統之需求，本署與我駐菲律賓代表處刻正就此進行研議，以期建立互利雙贏之合作模式。

## 六、附錄：活動照片及簡報資料

【臺菲全民健保與智慧醫療應用交流會議全體人員合影】

【與會貴賓合影】

【與 NKTI 院長 Dr. Rose 及同仁合影】

【與 TMC 首席營運長 Dr. Martin P. Samson 合影】

【李署長與總裁 Mr. Ricardo Morales】

【會議討論】

【與 PHilHealth 總裁及同仁合影】

【與 PCCAI 董事長 Dr. Benito Goyokpin 及同仁合照】

Workshop on Universal Health Coverage
National Health Insurance System
Smart Hospital and Taiwan Experience

# Best Practice of National Health Insurance System in Taiwan

## Po-Chang Lee, M.D.,M.T.L.

Director General, National Health Insurance Administration
Professor of Surgery, National Cheng Kung University
Chairman, Taiwan Organ Registry and Sharing Center


October 17, 2019

# The best health care systems in the world 2019 edition of the CEOWORLD-Taiwan

National Health Insurance Administration

## Revealed: Countries With The Best Health Care Systems, 2019

Sophie Ireland C-Suite Advisory August 5, 2019

**Taiwan has the best health care systems in the world**, that's according to the 2019 edition of the CEOWORLD magazine Health Care Index, which ranks 89 countries according to factors that contribute to overall health.
Three additional Asian nations were among the top 10 in 2019: South Korea (second place), Japan (third), and Thailand (sixth). As for European countries, they occupy five of the top ten spots in this year's ranking: Austria (4th place), Denmark (5th), Spain (7th), France (8th), and Belgium (9th). Australia rounded out the top 10 at 10th place.

Reference: https://ceoworld.biz/2019/08/05/revealed-countries-with-the-best-health-care-systems-2019/

**Of the 89 countries surveyed, Taiwan's healthcare comes in 1st place on the list scoring a 78.72 out of 100 on the Index.**

Top 10 health care systems in 2019

| Rank | Country | Health Care Index(Overall) |
|---|---|---|
| 1 | Taiwan | 78.7 |
| 2 | South Korea | 77.7 |
| 3 | Japan | 74.1 |
| 4 | Austria | 71.3 |
| 5 | Denmark | 70.7 |
| 6 | Thailand | 68.0 |
| 7 | Spain | 65.4 |
| 8 | France | 64.7 |
| 9 | Belgium | 64.6 |
| 10 | Australia | 61.7 |

Note. Health Care Index is a statistical analysis of the overall quality of the health care system, including health care infrastructure, health care professionals competencies, cost, quality medicine availability and government readiness.

COLUMBIA | MAILMAN SCHOOL OF PUBLIC HEALTH
HEALTH POLICY & MANAGEMENT

## "Medicare-for-All" Debate: Lessons from the Taiwanese Single-Payer System

*A dialogue between*

**Dr. Michael Sparer**
*Chair and Professor of Health Policy and Management, Columbia University Mailman School of Public Health*

*and*

**Dr. Po-Chang Lee**
*Director General of the National Health Insurance Administration, Ministry of Health and Welfare of the Republic of China (Taiwan)*

According to the 2019 edition of the CEOWORLD Magazine Health Care Index, Taiwan ranks as having the best healthcare system in the world. The Index is a statistical analysis of the overall quality of the health care system, which for Taiwan, is the National Health Insurance program. The National Health Insurance has been an affordable and comprehensive system that improved the livelihoods of the Taiwanese people.

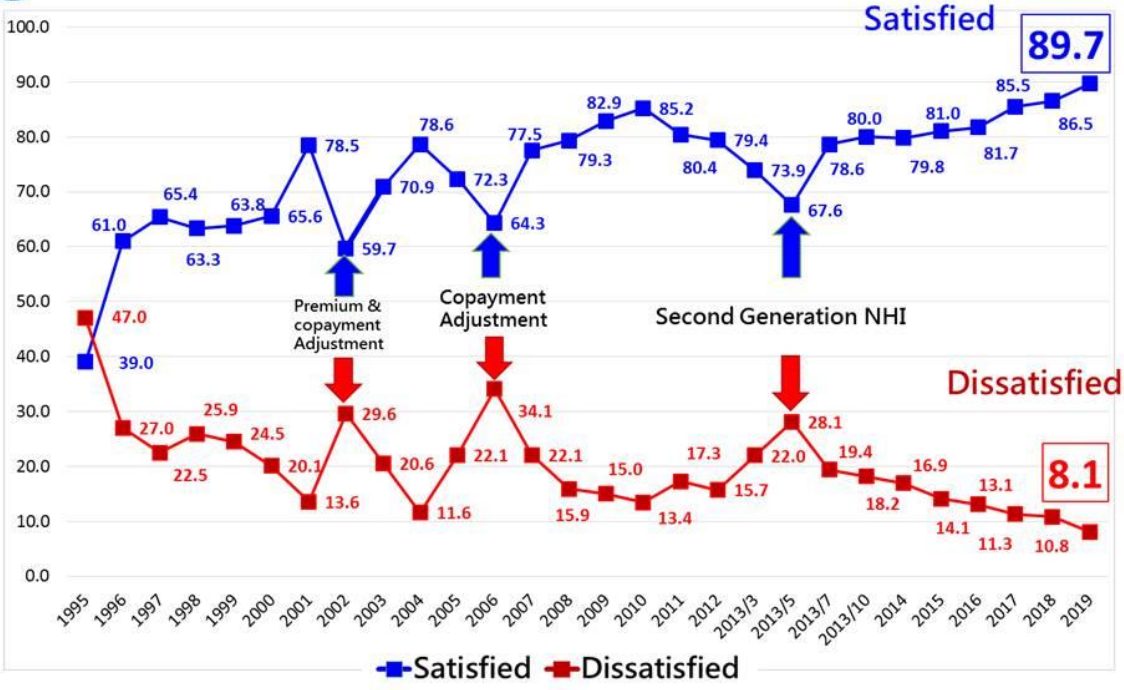
Co-sponsored by TECONY

**THURSDAY, SEPTEMBER 19, 2019 | 1:00-2:00 PM**
Columbia University, Faculty House Garden Room 1
**Registration required**
https://bit.ly/2IFSbEI
**Refreshments** will be provided
Scan to Register

3

# High Public Satisfaction

National Health Insurance Administration

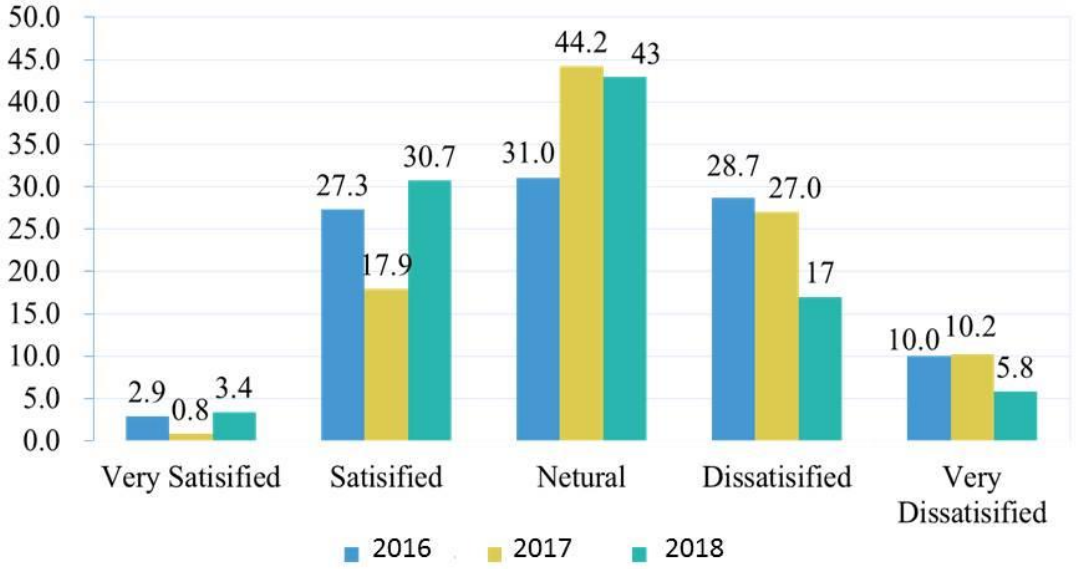



4

# Medical Doctors Satisfaction to NHI

National Health Insurance Administration

- Satisfaction rate increases from 30.2% to 34.1%
- Dissatisfaction rate decreases from 38.7% to 22.8%

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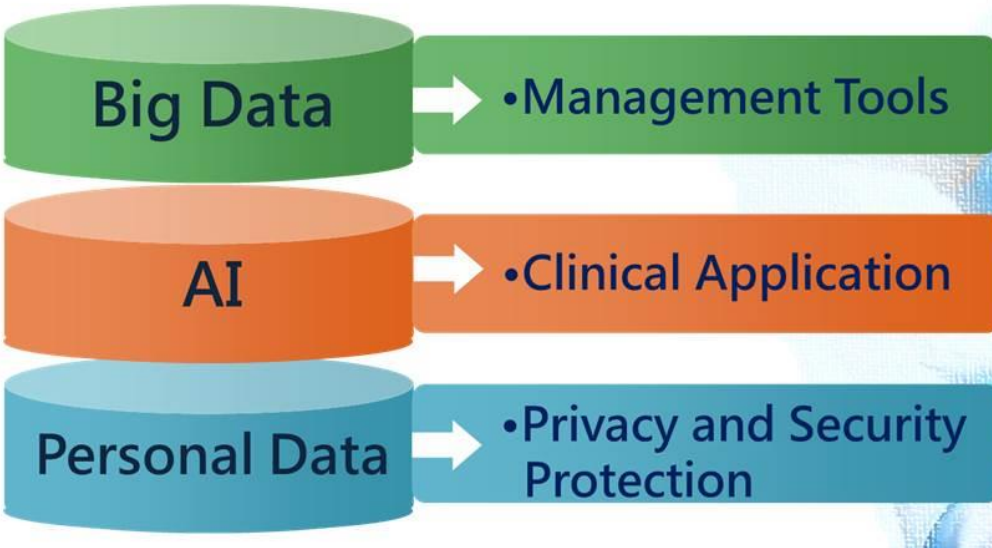
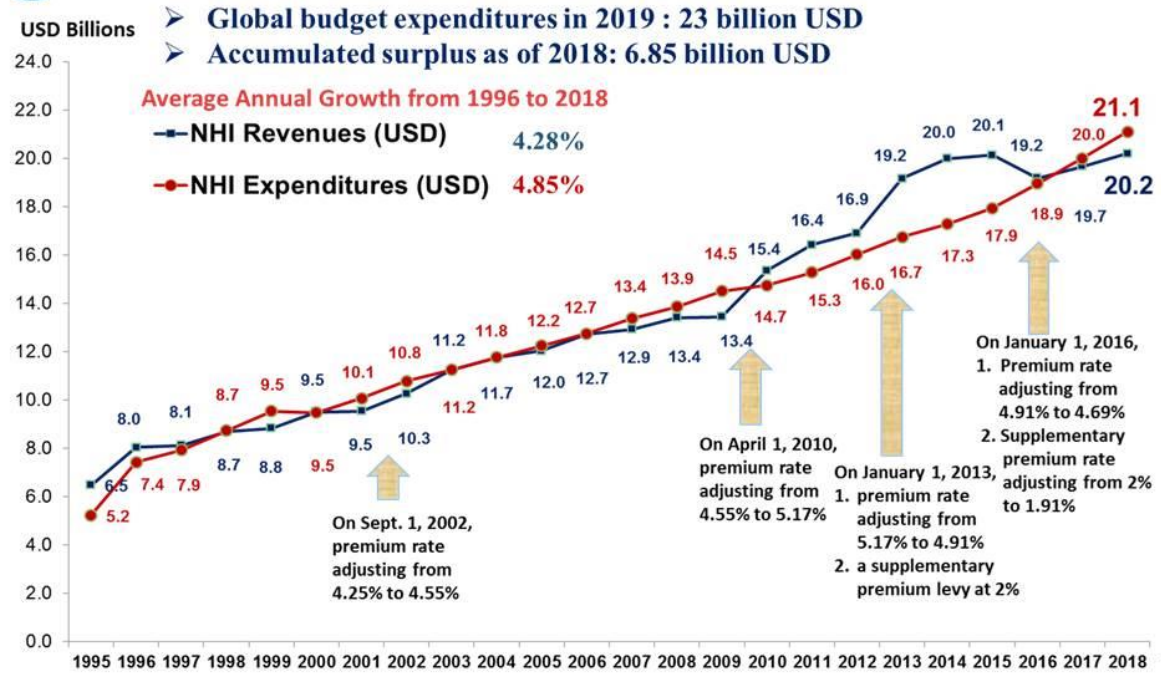
# NHI Main Ideas

National Health Insurance Administration



# Trend of NHI Financial Status

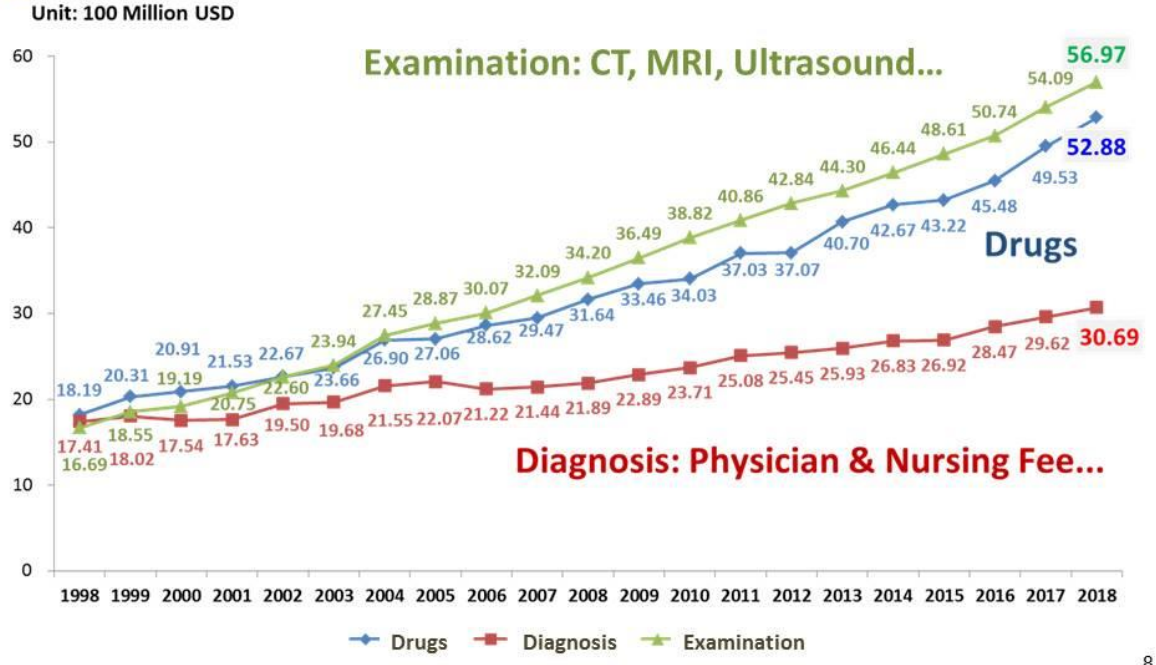
National Health Insurance Administration




7

# Overview of Outpatient Expenditures

National Health Insurance Administration

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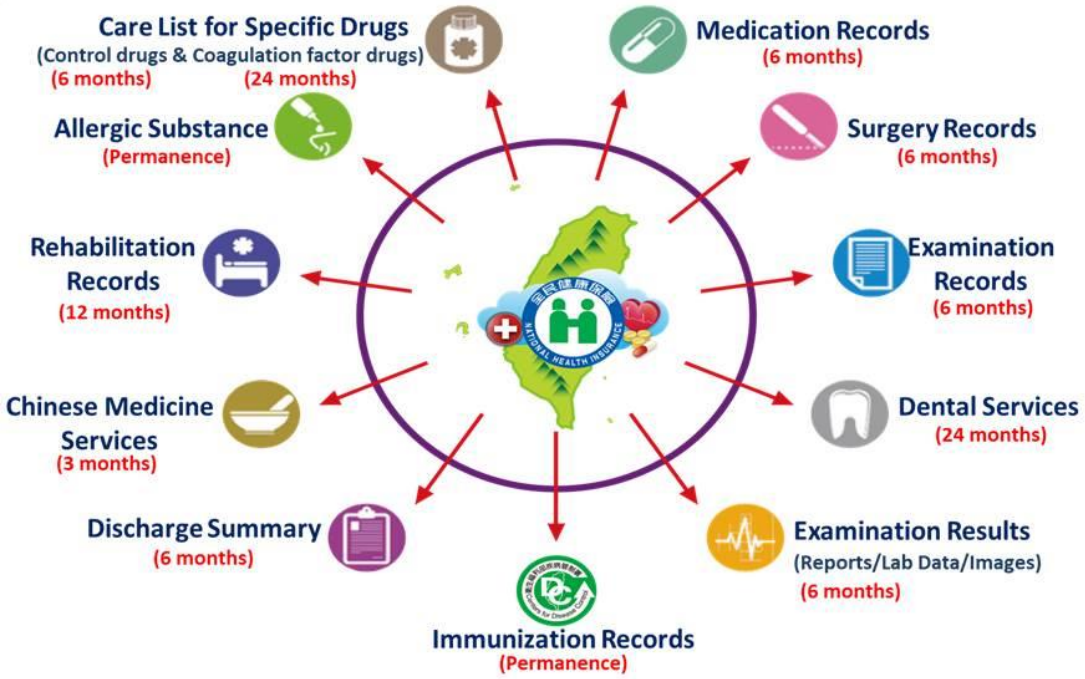
# Contents of NHI MediCloud

National Health Insurance Administration

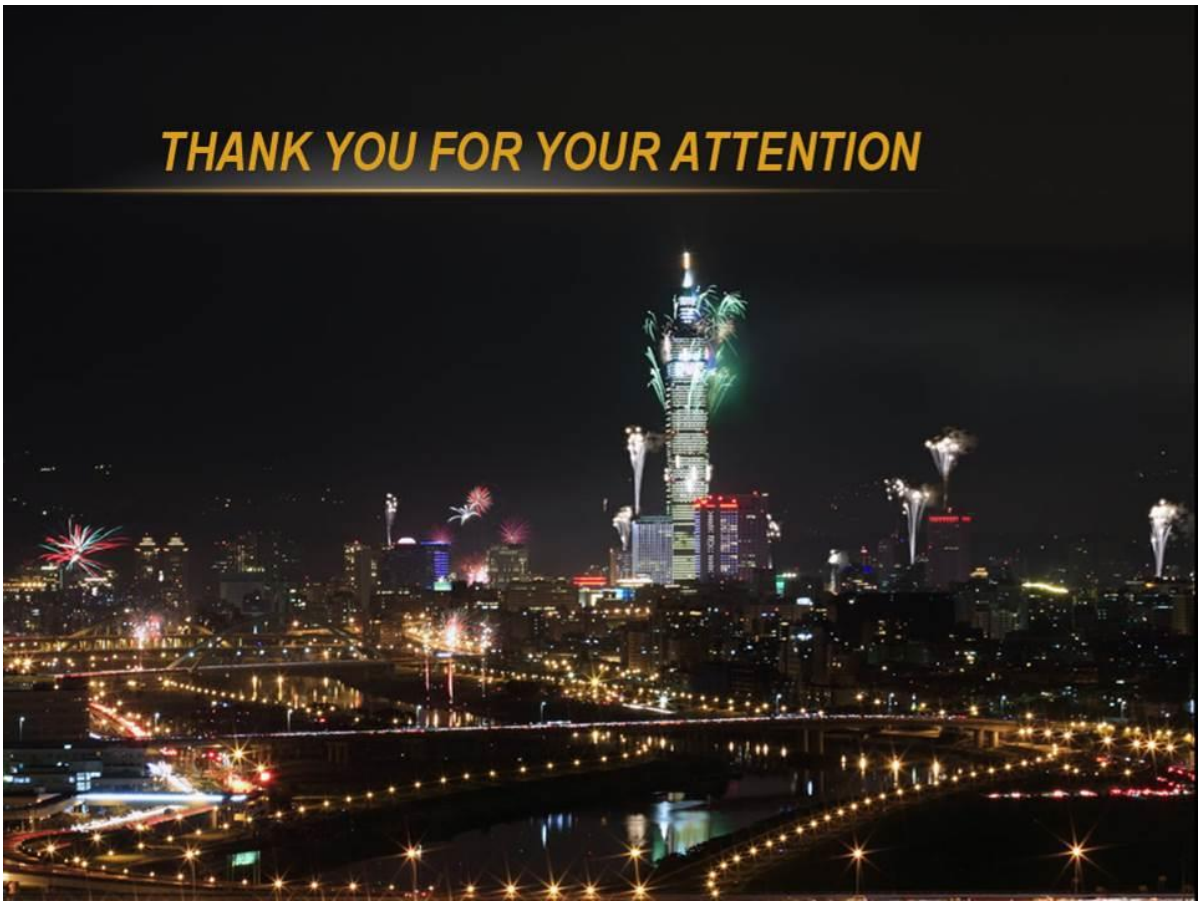



9

# Progressive Medicine is based on the Cooperation in the Multiple Fields of Expertise

National Health Insurance Administration

10


THANK YOU FOR YOUR ATTENTION

# Taiwan's NHI System & Perspectives

**CHANG, YU-HSUAN, Ph.D.**

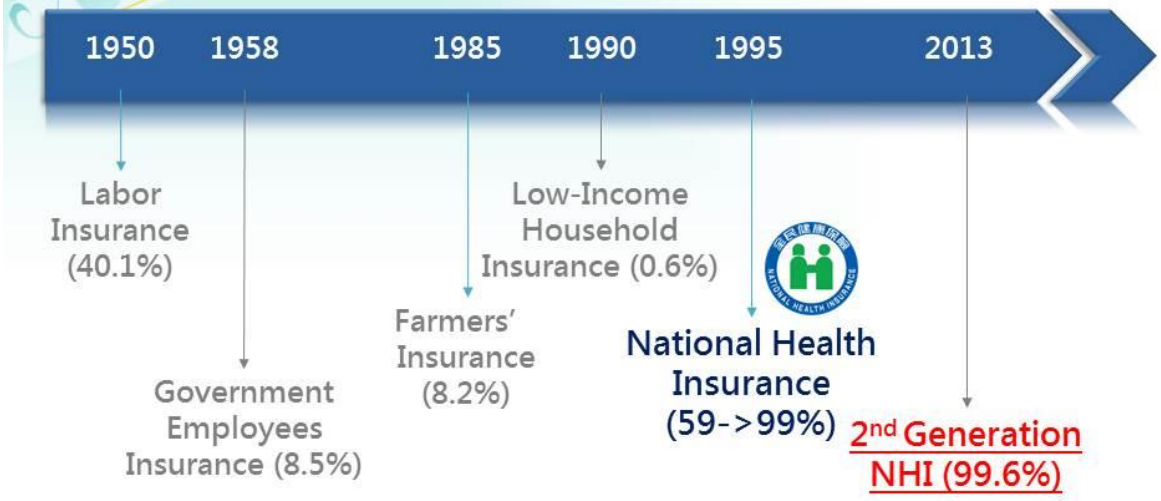
National Health Insurance Administration,
Ministry of Health and Welfare
TAIWAN
2019.10.17

## Outline

- A Snapshot of Taiwan's Health Insurance System
- Core Value & Achievements
- Challenges
- Reform & Innovations
- Looking into the Future

- Population (2017)
  23.57 million
- Land area
  36,197km$^2$
- Ageing (over 65)
  13.86%
- GDP per capita (2017)
  US$ 24,331 (nominal)
  US$ 49,800 (PPP by CIA)
- Crude birth rate (2017)
  8.23 ‰
- Crude death rate (2017)
  7.27‰
- Infant mortality (2016)
  3.9 ‰
- Maternal mortality (2016)
  11.6 0/0000
- CHE to GDP (2017)
  6.1%
- Life expectancy(2016)
  83.4 (F) / 76.8(M)

# History of Taiwan's Social Insurance Program



# 3H = Help + Health + Happiness

5

## NHIA Organization

6

Overview

# A Snapshot of Taiwan's Health Insurance System

7

## NHI Framework

Other revenues

1. Lottery revenues
2. Tobacco excise tax

NHIA

Premiums

NHI Cards

Payments

Claims

Insured

Copayments

Health Care

Healthcare Providers

8

# NHI Key Features

## Single-payer system run by the government

### Universal Coverage

Population: **23 million**
Coverage rate: **99.9%**

1. Citizens
2. New immigrant residents
3. Foreign white collar workers
4. Overseas Chinese & foreign students

### Contracted Medical Institutions

Contracted Medical institutions: 21,358
Contract rate: **93%** (July 2019)

1. Medical Centers：**25**
2. Regional Hospitals：**82**
3. District Hospitals：**365**
4. Clinics：**20,886**

### Medical Records

850 million/yr.

1. OPT/ Inpatient: 350 million/yr.
2. Medical images/lab tests: 500 million /yr.

### Medical Expenditures

Total: 23.8 billion USD (2018)
1. Hospital GB: 16 billion USD
2. Primary care GB: 3.8 billion USD
3. Dental care GB: 1.5 billion USD
4. Chinese medicine GB: 0.9 billion USD
5. Dialysis GB: 1.4 billion USD
6. Others: 0.2 billion USD (rare diseases, hemophilia, hepatitis C)

9

# NHI Financing

**General Premium** & **Supplementary Premium**

**Main Revenues**

Calculated on payroll-related income

Imposed on non-payroll incomes

**Financial Self-sufficiency**

**NHI Fund**

**Pay-As-You-Go**

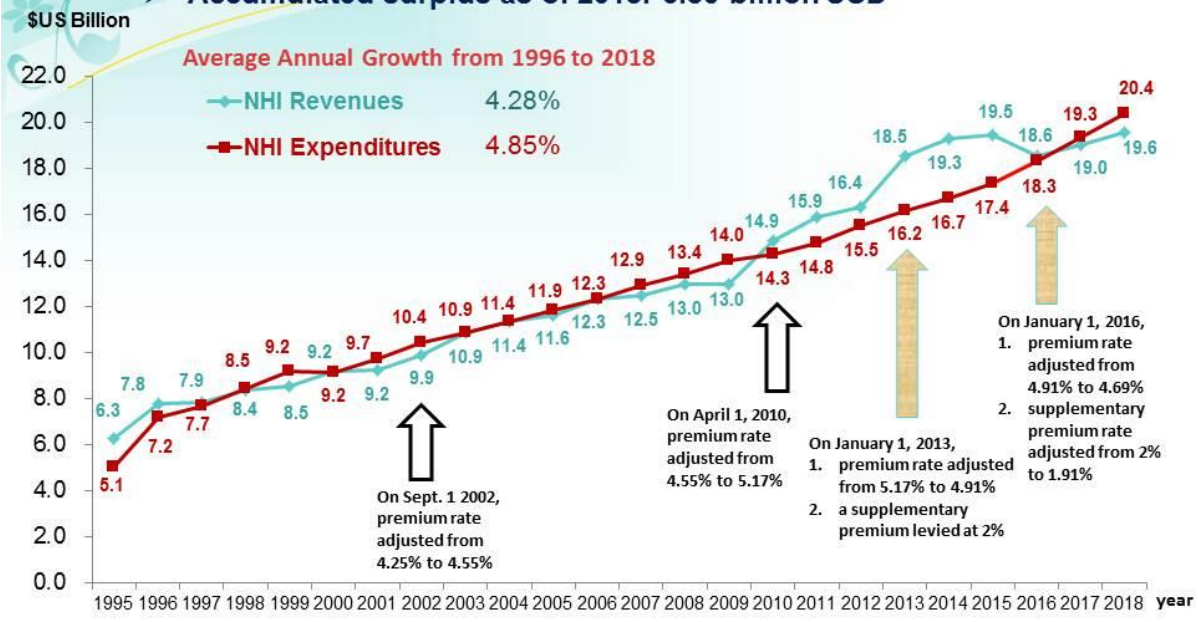
**Other Revenues**

**Lottery revenues, Tobacco excise tax**

10

# Trend of NHI Financial Status

- Global budget expenditures in 2019 : 23 billion USD
- Accumulated surplus as of 2018: 6.85 billion USD




(USD 1=TWD 31)

# Taiwan's Healthcare Delivery System

- Dominated by the private sector
- A closed-staff medical structure for hospitals
- No gate-keeper system
- High volume of hospital OPD services
- No waiting list as defined in western countries

Data:2017 NHIA Statistics, Taiwan

12

# Benefits

**Disease** | **Injury** | **Maternity care**

- Inpatient care
- Outpatient care
- Prescription drugs
- Dental services
- Traditional Chinese medicine
- Day care for the mentally ill
- Home health care

13

# NHI Copayment

Unit: USD *(1 USD = 30 NTD)*

| | With Referral | Direct Visit | Exemptions/Ceiling |
|---|---|---|---|
| **Outpatient Care** | 1.7 ~ 5.7 | 2.7 ~ 14 | • Catastrophic diseases and child delivery.<br>• Medical services offered in mountain areas or on offshore islands.<br>• Low-income households, veterans, and children under the age of 3.<br>• Insured in areas with inadequate medical resources. |
| **Inpatient Care** | Within 30 days: 10%<br>31 ~ 60 days: 20%<br>Above 61 days: 30% | | • 1,300 per stay for the same disease.<br>• A total of 2,167 accumulated in the entire calendar year. (2019) |
| **Emergency Care** | 5 ~ 18.3 | | |
| **Dental Care/ Chinese Medicine** | 1.7 | | |
| **Pharmaceuticals** | 0 ~ 6.7 | | |

14

# Assistance for the Disadvantaged

## Full unlocking of NHI card Policy

**Statutory premium subsidies**

- Low-income households
- Disabled persons
- The elderly
- The temporarily unemployed

**Financial assistance for the near poor**

- Interest-free Loans
- Payment by installments
- Referrals to charity organizations

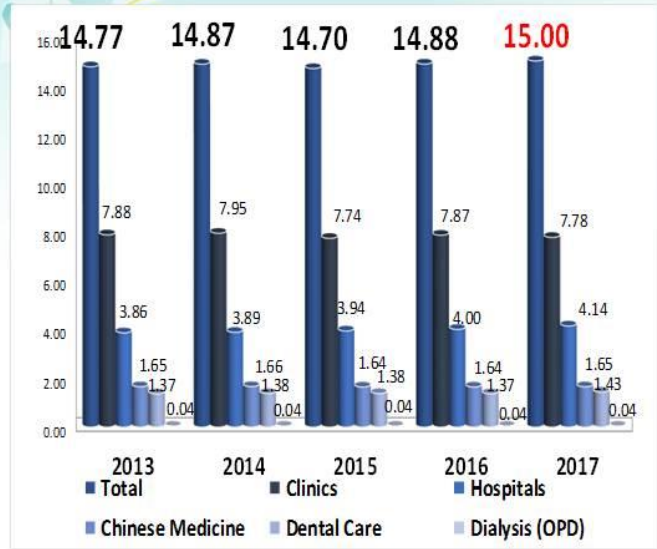
**Medical assistance for the disadvantaged**

- Guaranteed emergency services
- Copayment subsidies and exemptions

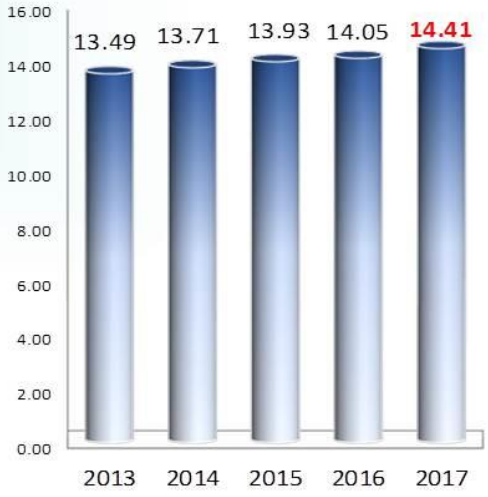
15

# NHI Medical Utilization

**Outpatient visits per person from 2013 to 2017**




**No. of hospital admissions per 100 persons**




16

# NHI Payment Reform

| 1995 | 1998~2002 | 2001 | 2010 | 2011 |
|---|---|---|---|---|
| FFS + Case Payment | Global Budget | P4P | Tw-DRGs | Capitation Pilot Programs |

- Dental care (1998)
- Chinese Medicine (1999)
- Clinics (2001)
- Hospitals (2002)
- OPD Dialysis (2003)

- Diabetes, Asthma, Breast cancer(2001)
- Hypertension (2006)
- Schizophrenia, Hepatitis B carriers and Hepatitis C infectious (2010)
- Chronic Kidney Diseases (2011)
- Pilot Project of Post Acute Care(2014)
- Integrated Services for House Calls(2016)

RBRVS( 2004)

17

# NHI Cards

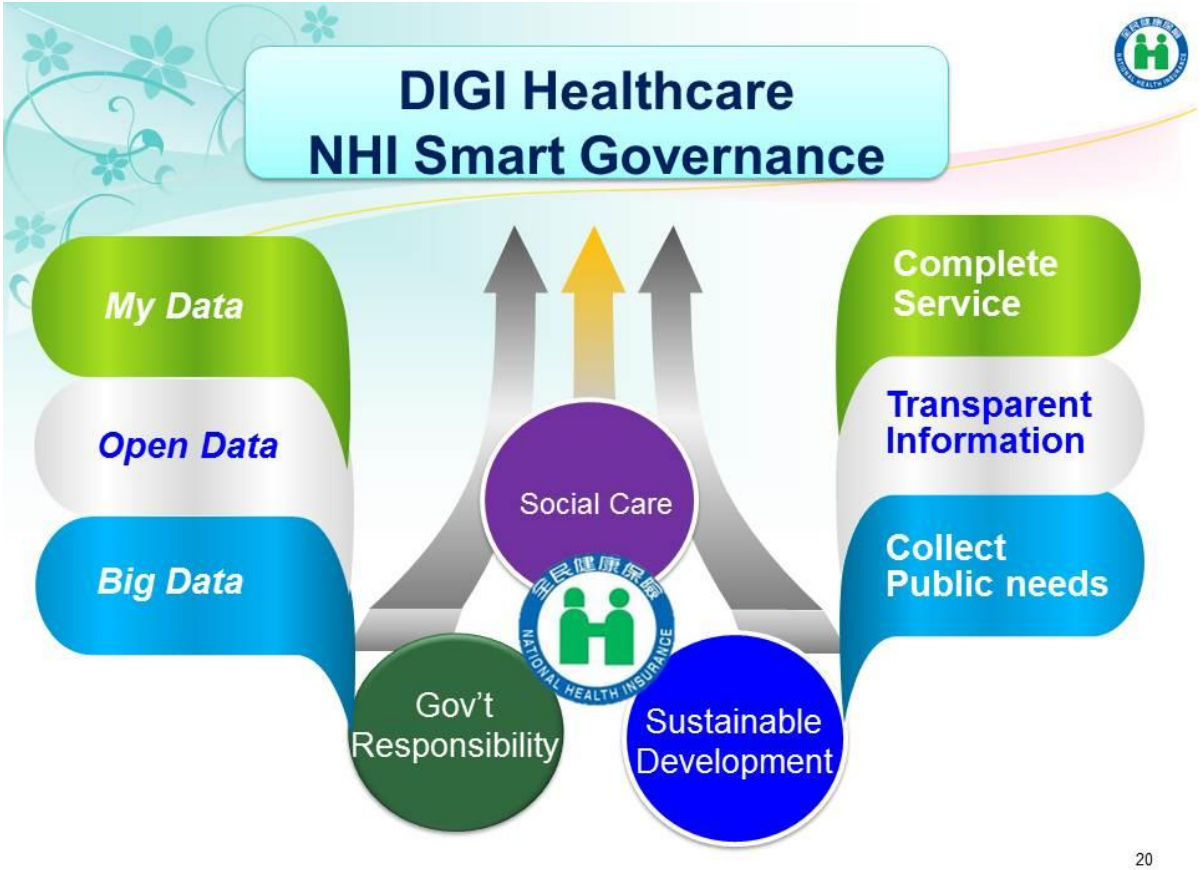
- Daily update of medical visit data
- Heavy-user detection & management
- Infectious disease tracing & monitoring
- Simplification of management process

1. Last Six Medical Visits
2. Drug Prescriptions, Drug Allergies
3. Catastrophic Diseases
4. Organ Donation Consent
5. Palliative Care

18

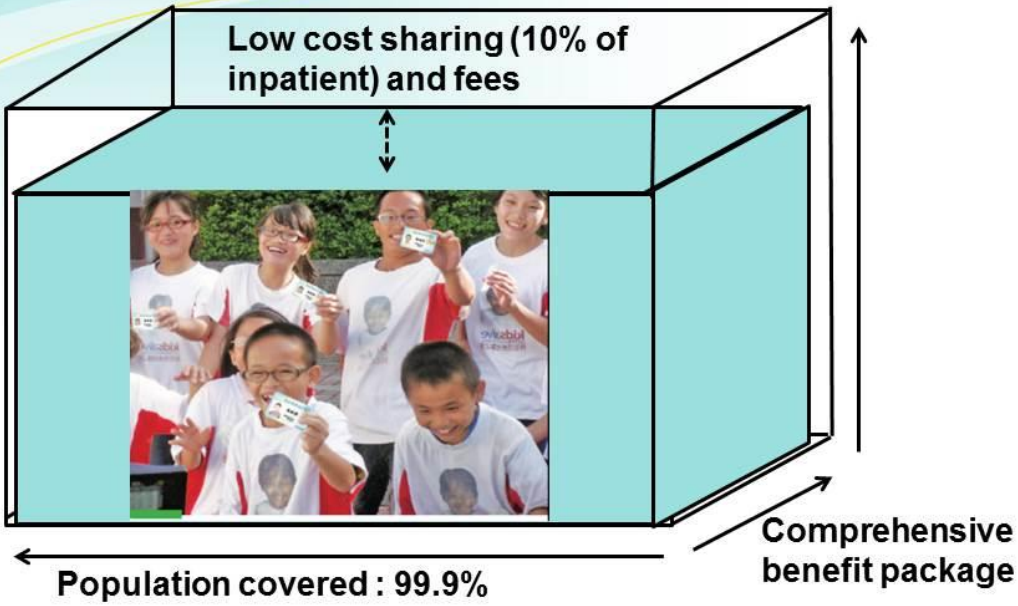
Core Value & Achievements

19


DIGI Healthcare
NHI Smart Governance
My Data
Open Data
Big Data
Social Care
Gov't Responsibility
Sustainable Development
Complete Service
Transparent Information
Collect Public needs

20

# 3 Dimensions to Consider When Moving Towards UHC – Taiwan's Status Quo




21

# Alleviating Financial Burdens

**Patients with catastrophic diseases represent 3.99% of population, who used 27.33% of NHI health expenditures.**

| Type of User | Medical Expenses (2017) | Equivalency |
|---|---|---|
| Per capita | US$941 | 1 .0 |
| Per catastrophic disease | US$6,352 | 6.7 |
| Per cancer patient | US$5,183 | 5.5 |
| Per rare diseases patient | US$21,196 | 22.5 |
| Per dialysis patient | US$18,979 | 20.2 |
| Per patient on respirator | US$23,041 | 24.5 |
| Per hemophilia patient | US$94,164 | 100.1 |

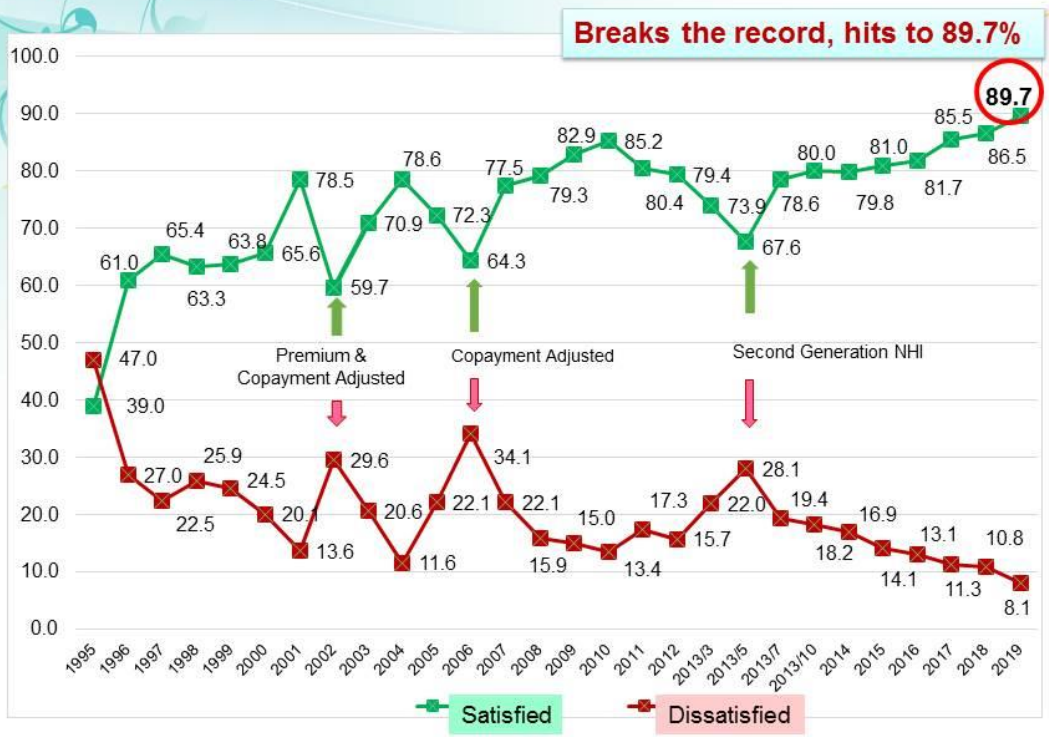
22

# NHI Established a Secured Health Care Network

- Ensure heath care reaches out to every corner
- 50 IDS plans to improve services in remote mountainous areas and offshore islands
- Telemedicine & helicopter service in virtually every islet

23

# High Public Satisfaction

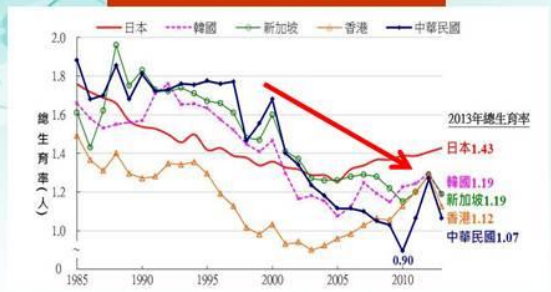


# Challenges

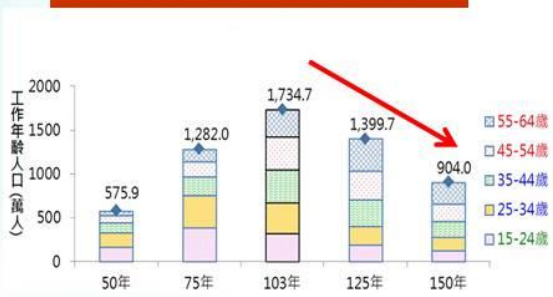
25

# Social Environmental Change and Prediction

## Low Birth Rate

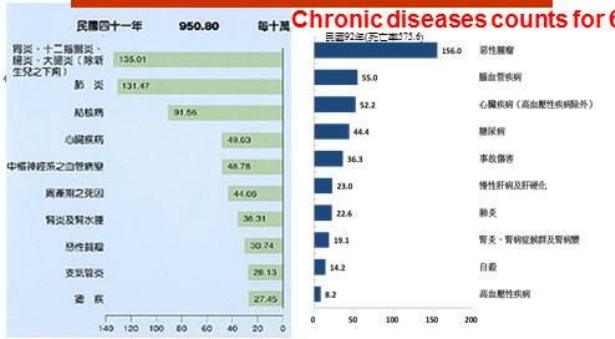



## Decrease of Labor Force

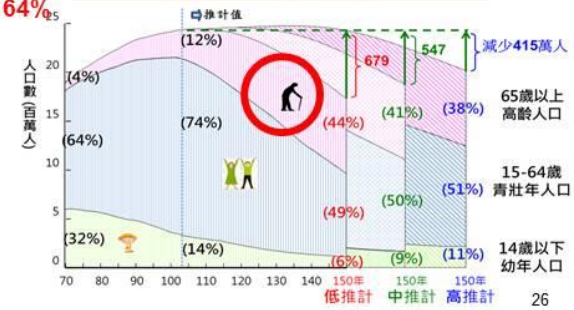



## Increase of Chronic Disease

Chronic diseases counts for 64%

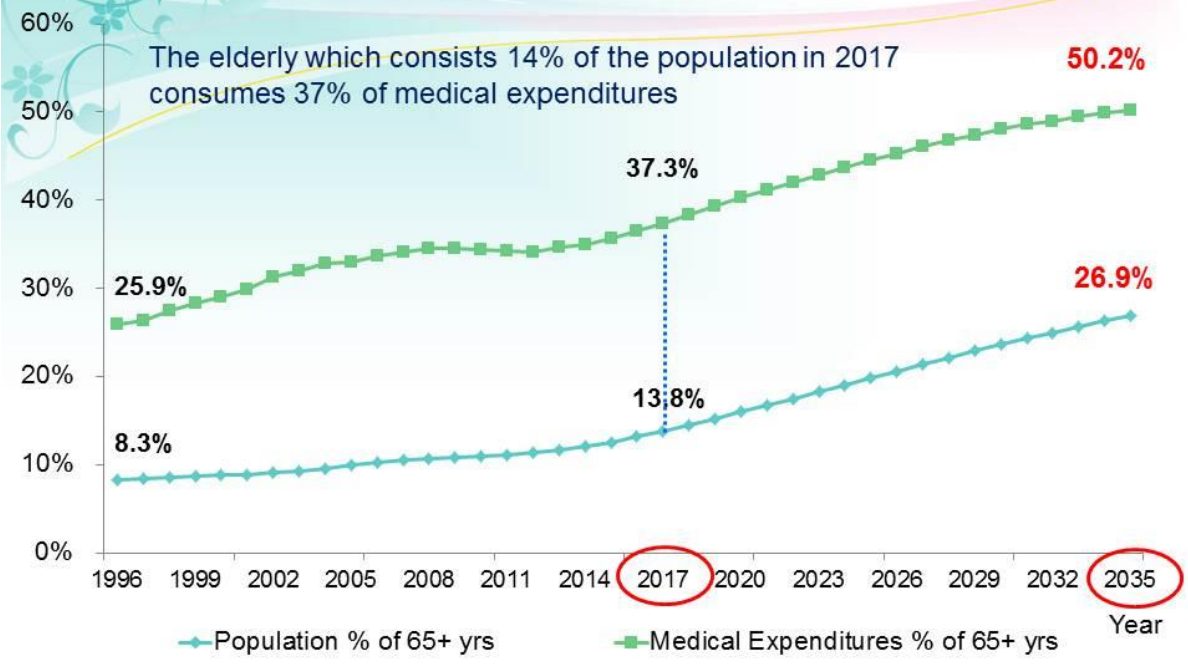



## Aging Society




26

# Impact of Aging on Medical Expenditure




27

# Inclusion of New Technology and New Drugs

Sovaldi

28

29

## Reform & Innovation Strategies

**CHALLENGES**

1. Aging population with multiple chronic diseases
2. new medical technology and drugs
3. limited health budget and resources
4. Lack of personal health awareness and responsibility
5. Fragmented health care system

**Setback to NHI system**

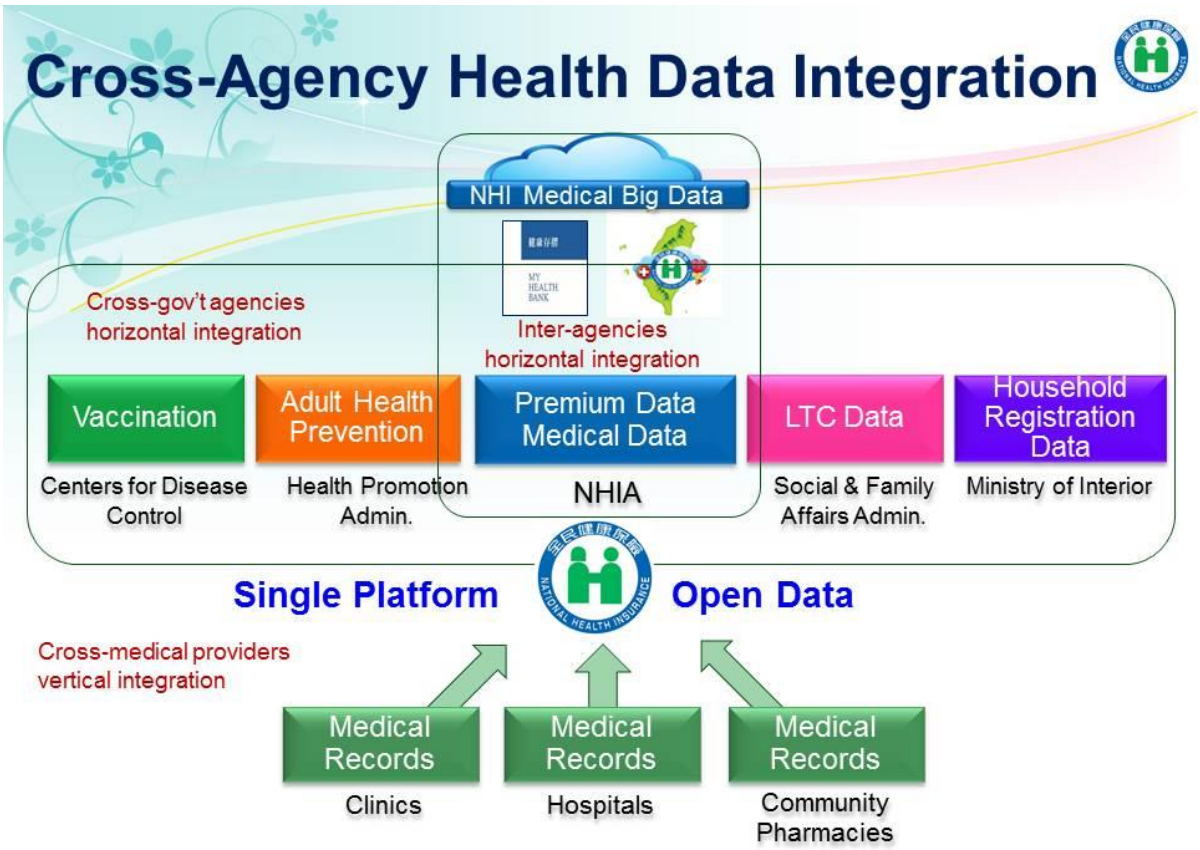
1. Abuse medical resources
2. Soaring medical expenditure

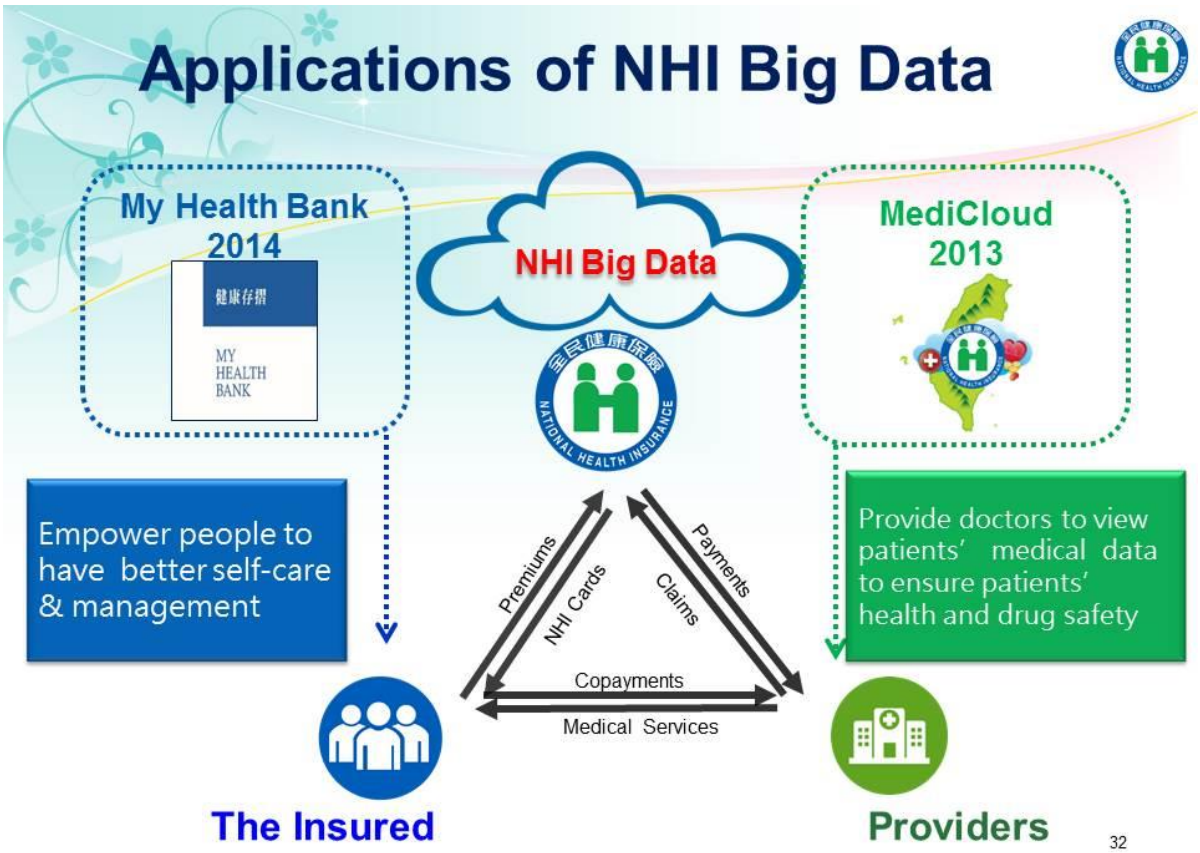
**PATIENT-CENTERED**

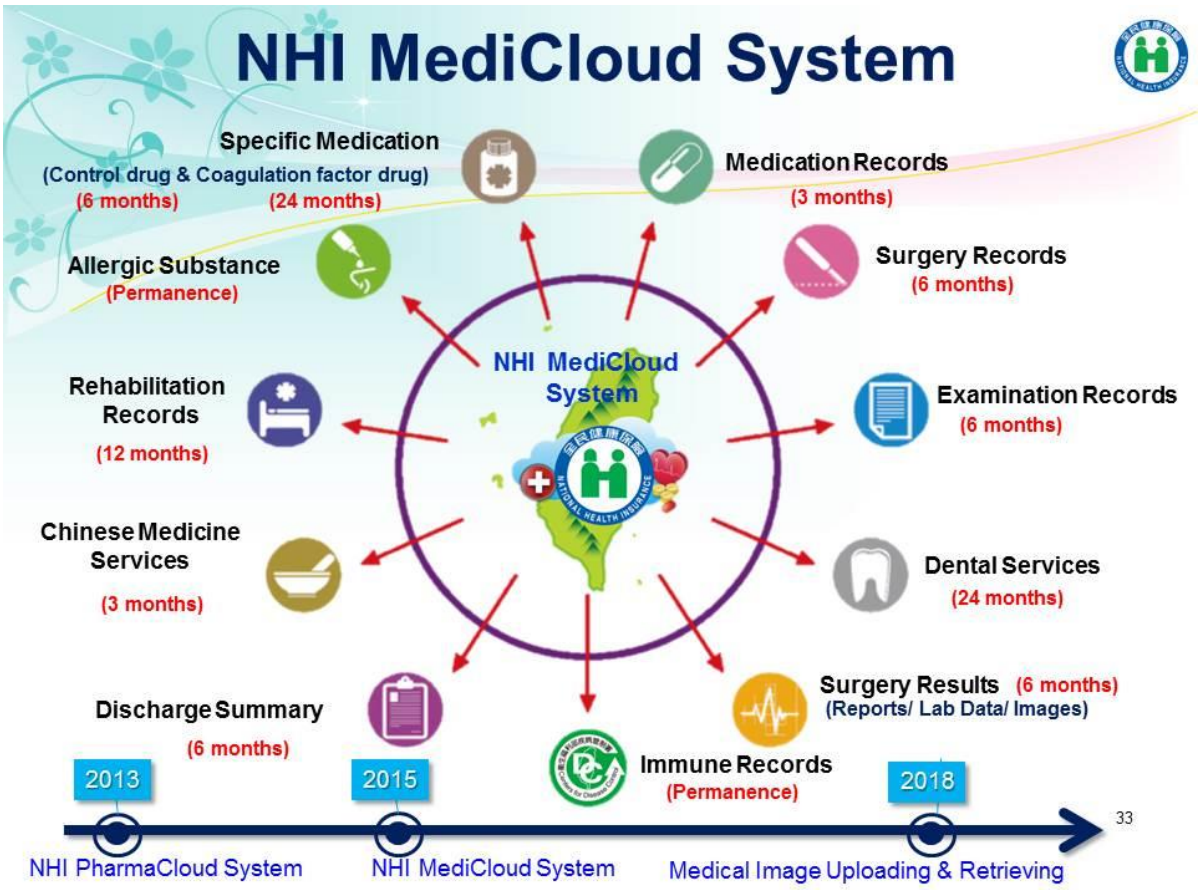
1. My Health Bank
2. Medi-Cloud system
3. Other health care system reform

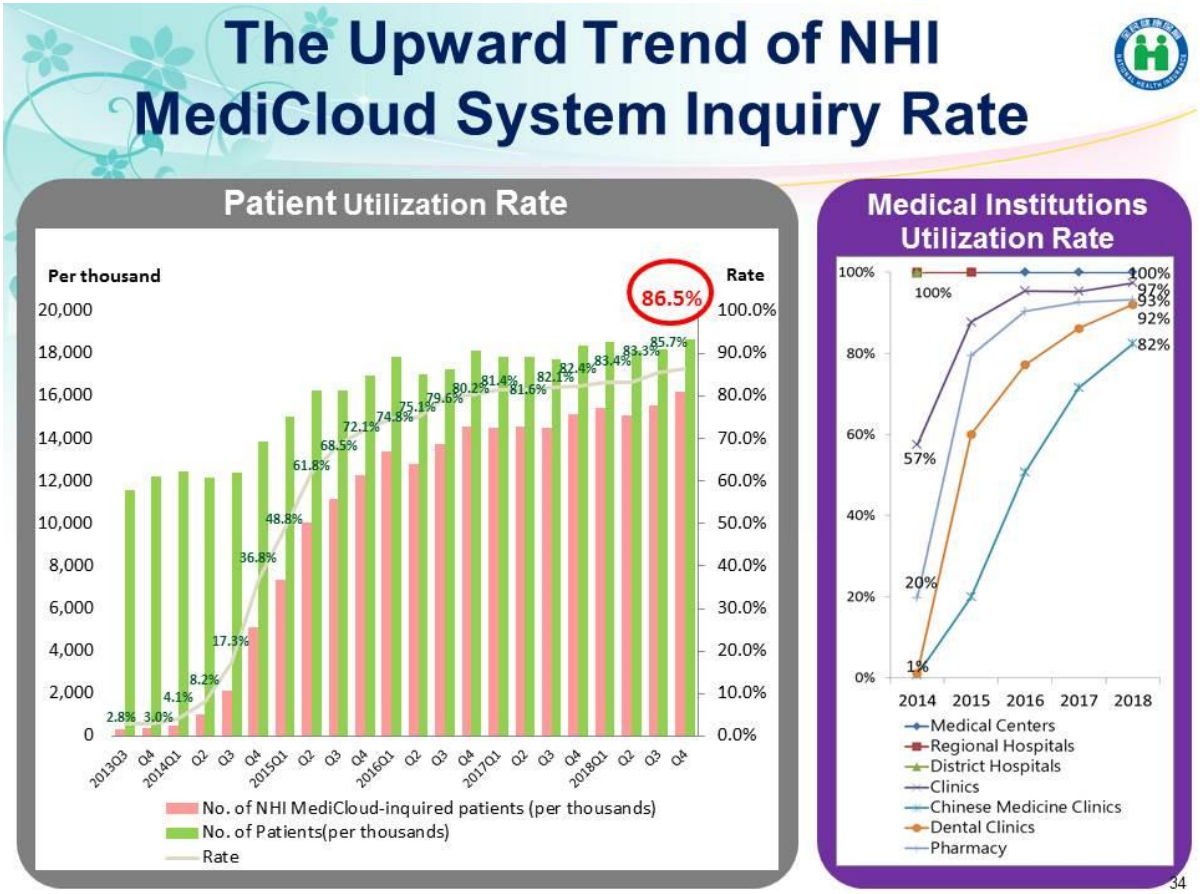
**ICT+AI**

30


Cross-Agency Health Data Integration
NHI Medical Big Data
Cross-gov't agencies horizontal integration
Inter-agencies horizontal integration
Vaccination
Adult Health Prevention
Premium Data Medical Data
LTC Data
Household Registration Data
Centers for Disease Control
Health Promotion Admin.
NHIA
Social & Family Affairs Admin.
Ministry of Interior
Single Platform
Open Data
Cross-medical providers vertical integration
Medical Records
Medical Records
Medical Records
Clinics
Hospitals
Community Pharmacies
31

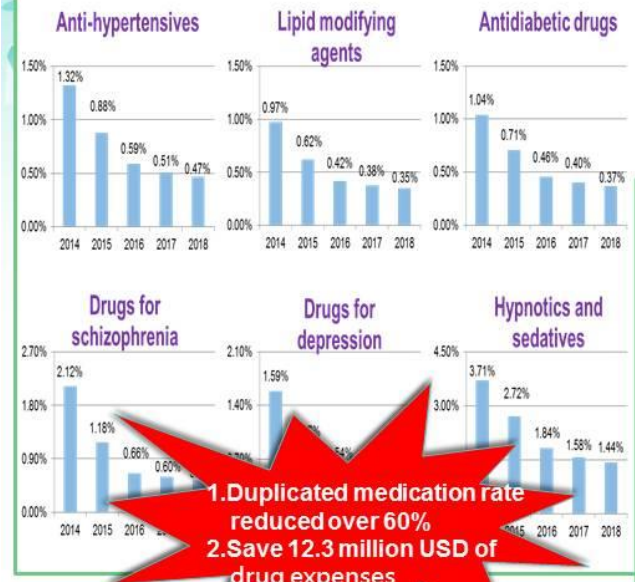

Applications of NHI Big Data
My Health Bank 2014
健康存摺
MY HEALTH BANK
NHI Big Data
MediCloud 2013
Empower people to have better self-care & management
Provide doctors to view patients' medical data to ensure patients' health and drug safety
Premiums
NHI Cards
Payments
Claims
Copayments
Medical Services
The Insured
Providers
32


NHI MediCloud System
Specific Medication
(Control drug & Coagulation factor drug)
(6 months) (24 months)
Medication Records
(3 months)
Allergic Substance
(Permanence)
Surgery Records
(6 months)
NHI MediCloud System
Rehabilitation Records
(12 months)
Examination Records
(6 months)
Chinese Medicine Services
(3 months)
Dental Services
(24 months)
Discharge Summary
(6 months)
Surgery Results (6 months)
(Reports/ Lab Data/ Images)
Immune Records
(Permanence)
2013
2015
2018
NHI PharmaCloud System
NHI MediCloud System
Medical Image Uploading & Retrieving
33


The Upward Trend of NHI MediCloud System Inquiry Rate
Patient Utilization Rate
Per thousand
Rate
86.5%
No. of NHI MediCloud-inquired patients (per thousands)
No. of Patients(per thousands)
Rate
Medical Institutions Utilization Rate
Medical Centers
Regional Hospitals
District Hospitals
Clinics
Chinese Medicine Clinics
Dental Clinics
Pharmacy
34

# Reduce Duplicated Medications & Save Medical Expenditures

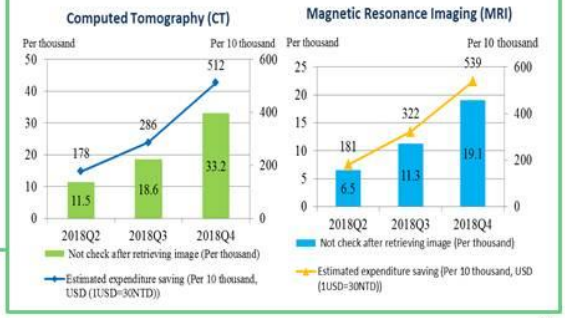
**Overlapping rate of medications reduced by year**




**1.Duplicated medication rate reduced over 60%**
**2.Save 12.3 million USD of drug expenses**

**Save 32 million USD examination expenditures in 2018**

**Rate of retrieving medical images and reports cross medical institutions has raised to 66% and an estimated 32 million USD expenditures have been saved in 2018.**

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# My Health Bank

## My Data, My Decision

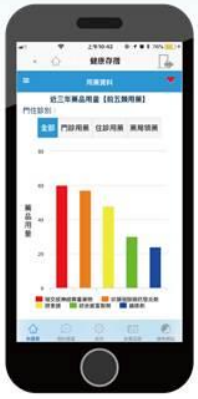
**2014**
**MHB 1.0**
Initiation

**2015**
**MHB 2.0**
Advancement

**2018**
Add new function of mobile device quick authentication

**2019**
- Add medical imaging query function
- Add SDK & family dependents health management function

## Apps



## Rank of top 10 leading causes of death (2015~2017)

(1)Malignant neoplasms (Cancer)
(2)Diseases of heart
(3)Pneumonia
(4)Cerebrovascular diseases
(5)Diabetes mellitus
(6)Accidents and adverse effects
(7)Chronic lower respiratory diseases
(8)Hypertensive diseases
(9)Nephritis, nephrotic syndrome and nephrosis
(10)Chronic liver disease and cirrhosis

## Objectives of My Health Bank

- Better self-care and healthier lifestyle
- 3 Years of medical data (healthcare providers' names, dates of visits, diagnoses, medical orders etc.)

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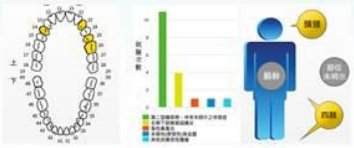
# Benefits of My Health Bank

Easy Access of Health Data

- **Single entry platform for acquiring cross-agency health data**
  - NHI data
  - Adult Health Promotion Cancer screening
  - Vaccine
  - Organ donation/ hospice care
- **Multiple channels for data accessing**
  - Web
  - APP

Better Self-care & Management

- **Visualization of medical data**



- **Reminders**
  - ✓ Dental scaling
  - ✓ Doctor visits/allergies
  - ✓ Health Exams
  - ✓ Cancer screening
- **Disease risk prediction**

- **Physiological measurement records**
  - ✓ Blood pressure
  - ✓ Glucose
  - ✓ Heartbeat/Height/Weight

Improve Medical Safety & Quality

- Shorten the asymmetry of medical information between patients & doctors for the enhancement of medical safety and quality.

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# Interface Health Data with Industries for Value-Added Applications

- The NHIA develops software development kit (SDK) in 2019 for users to authorize their own health data to trusted third parties for further value-added services.
- 62 organizations/companies apply for SDK and 16 out of them have successfully interfaced with My Health Bank system for workplace health management, chronic disease management and health community network.

| Workplace Health Management | Chronic Disease Management | Health Community Network |
|---|---|---|
| H2U CLUB<br>職場健康解決方案<br>第一品牌 | Health 2 Sync<br>智抗糖<br>陪你聰明管理糖尿病 | 哩賀！WaCare！<br>健康社群・線上問答 |

# Looking into the future

39

# Enhancing Medical Information Sharing

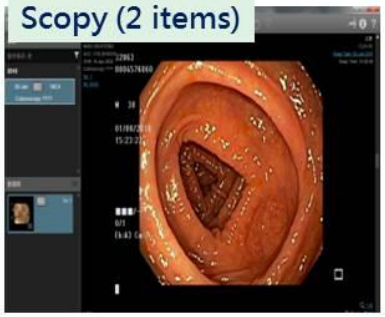
## 36 Medical Images for Access in 2018

In 2018, the Medi-Cloud system allowed healthcare providers to upload medical images

CT(3 items)

MRI(2 items)

Scopy (2 items)



X-Ray (3 items)

Ultrasound(25 items)

X-Ray for Dentist (1 item)

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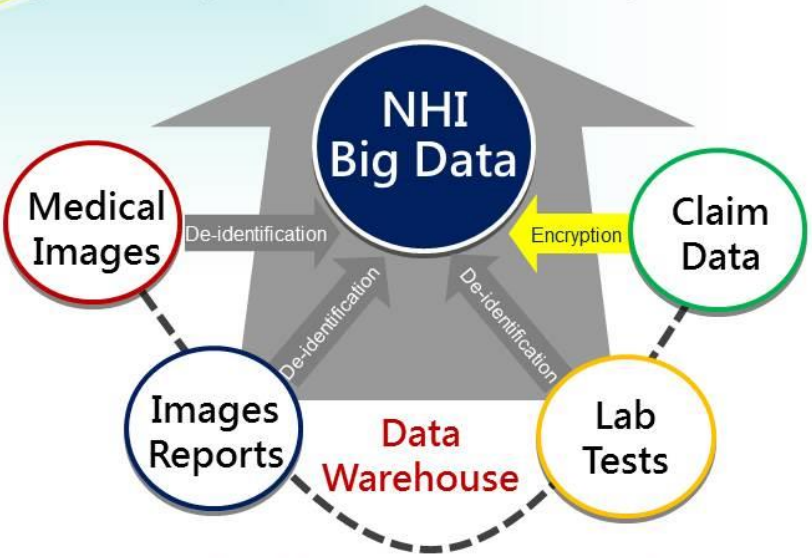
# NHI * AI

## Apply AI to NHI big data

Development of precision medicine and precise claim review




**All the data was de-identified to protect personal privacy for application**

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# Benefits of Applying AI on NHI Data Warehouse

### NHI data AI application pilot project

Open for medical image application starting from June 2019

Applicants

Gov't agencies

Research institutions/industries

### Value-added studies on medical and NHI data warehouse

**Enhance the precision of AI models**

- Performance Evaluation of AI prediction models on brain tumor, cardiovascular calcification, liver cancer etc.
- Multi-organ (head, neck, brain, abdominal) segmentation & lesion identification by AI
- AI application on medical imaging and the development of imaging AI auxiliary tools

**Develop prognosis precision model**

Developing diagnosis and prognosis prediction model of cardiovascular diseases by applying AI

### Overall Benefits

- Enhancing medical precision.
- Decreasing the workload of medical professionals
- Improving healthcare quality

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# NHI * AI (2019)

## 3 Important Things

### Cultivating AI skilled manpower

**Cultivating AI application skilled manpower** in health field.

### Initiating AI projects

1. To establish **Taiwan's clinical practice knowledge warehouse.**
2. To establish a de-identified **medical imaging data warehouse** for AI application.

### Regulations modified

**NHI regulations would be modified** in the near future to cope with the EU GDPR.

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# Perspectives

Care coordination
by Electronic Health Information

HOLISTIC HEALTH CARE

WOMB — TOMB

- Vaccine
- Health Prevention
- Medical Record
- PAC & Long Term Care
- Hospice Palliative Care

Innovative Healthcare Platform

| Healthcare Platform | NHI Medi-Cloud | My Health Bank |
|---|---|---|
| Health Promotion & Prevention | Medical and Medicine Records | Health and Medical Information |

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Thank you
for your kind attention!

# National Health Insurance Medical Information & Data Warehouse System

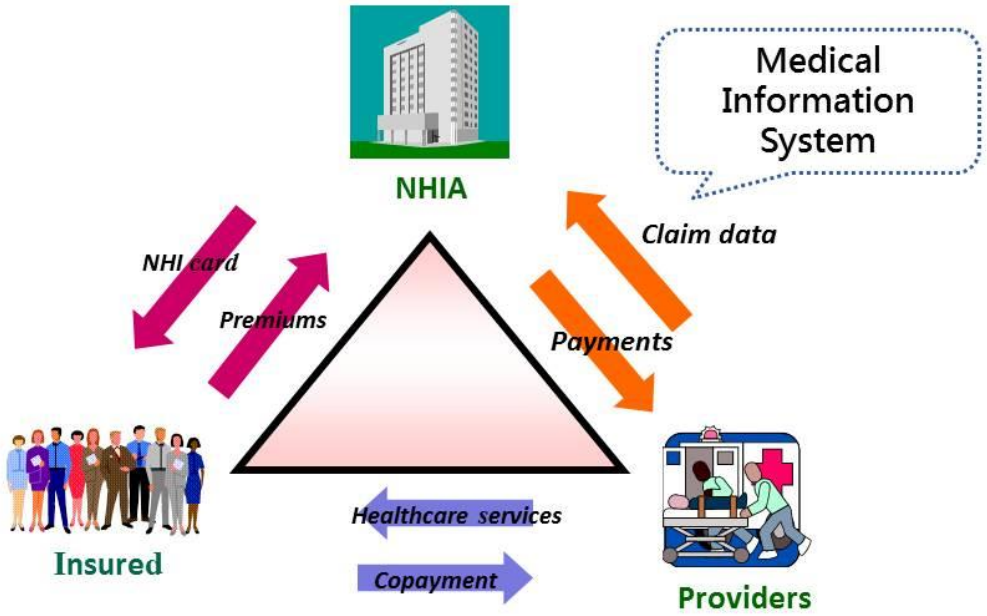
**Shwu-Huey Wu**

Senior Executive Officer
Information Management Division
National Health Insurance Administration
Ministry of Health and Welfare, Taiwan

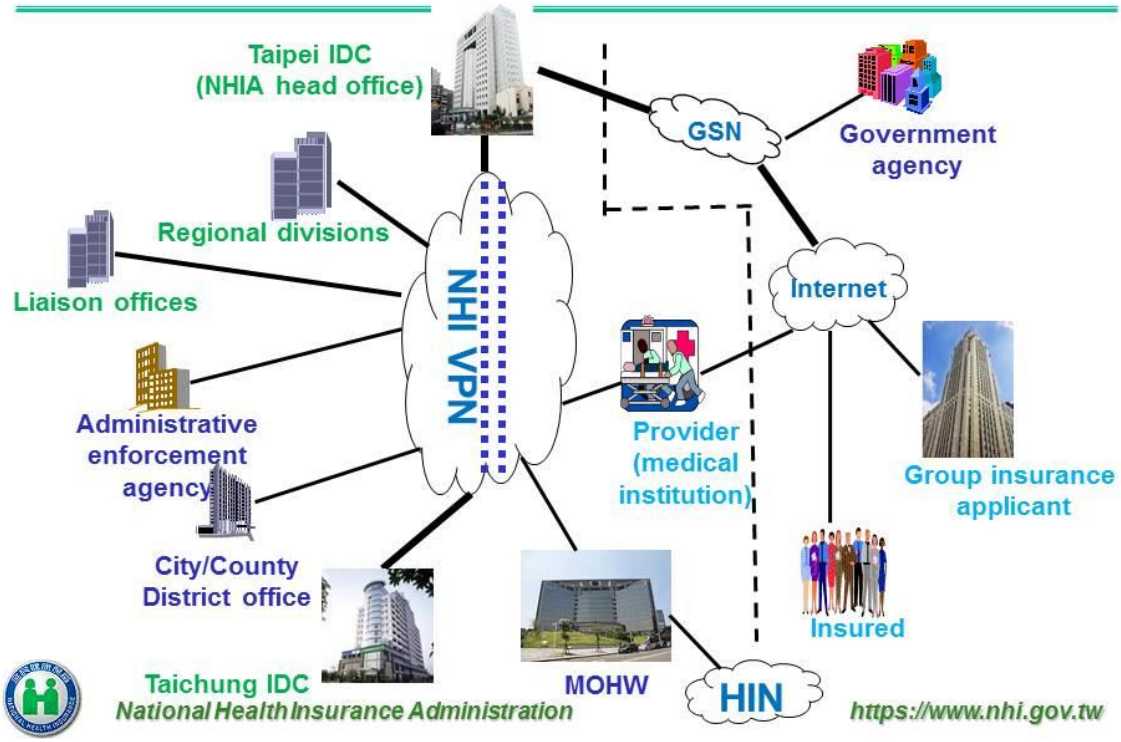
*October 17, 2019*



## NHI System Framework

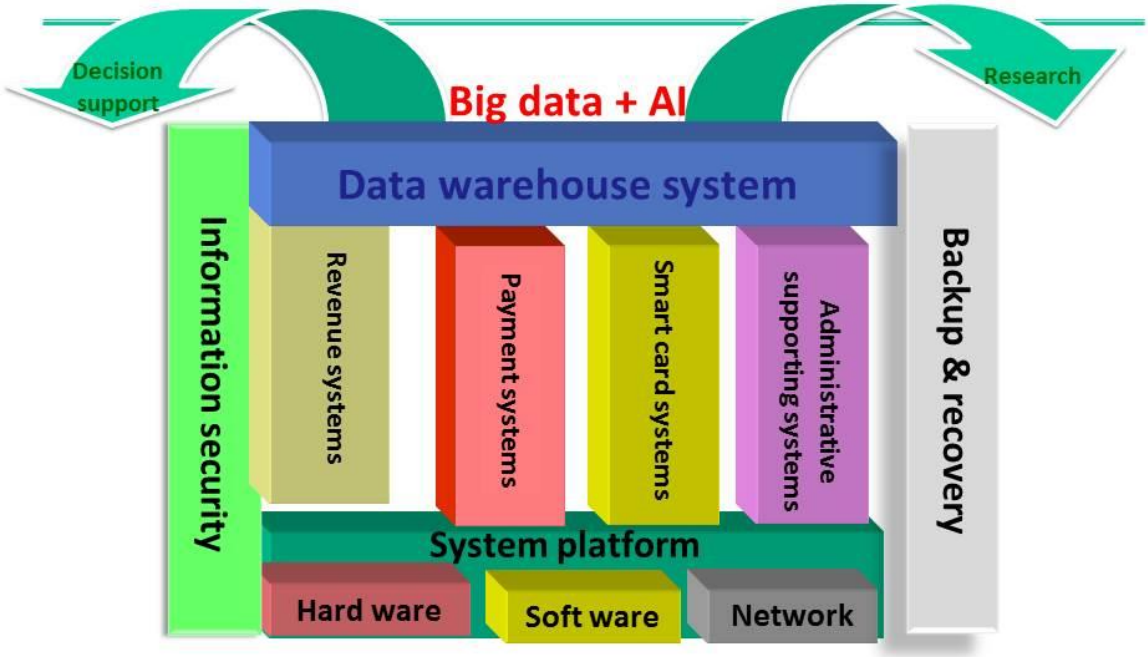


# Network Architecture

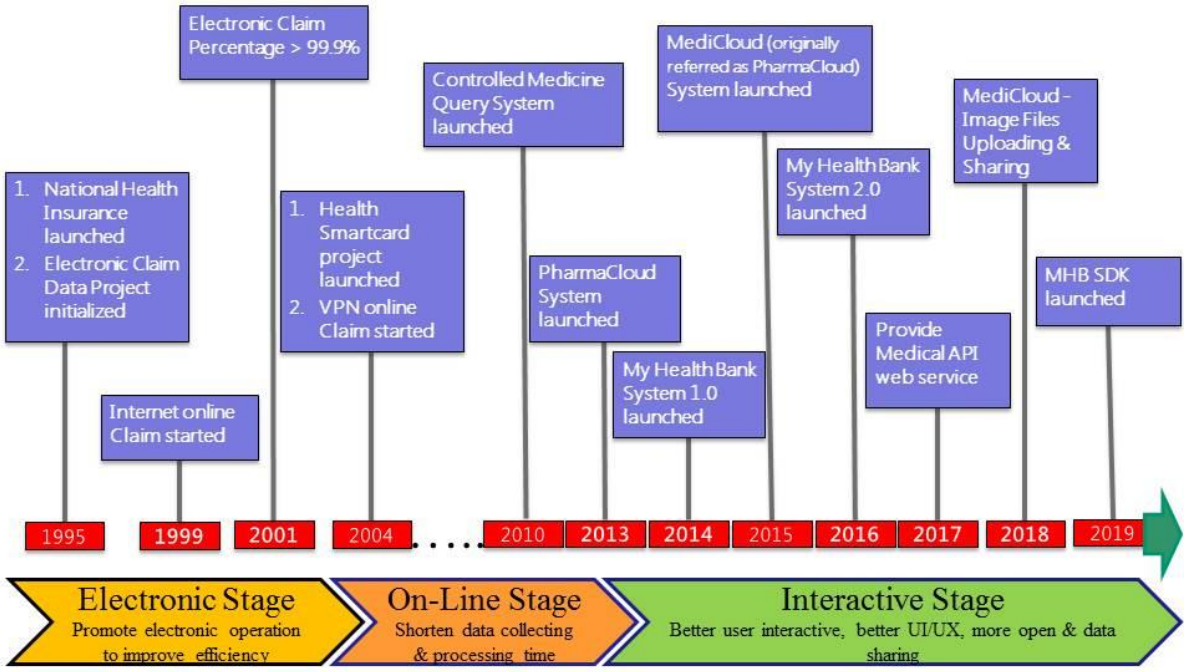




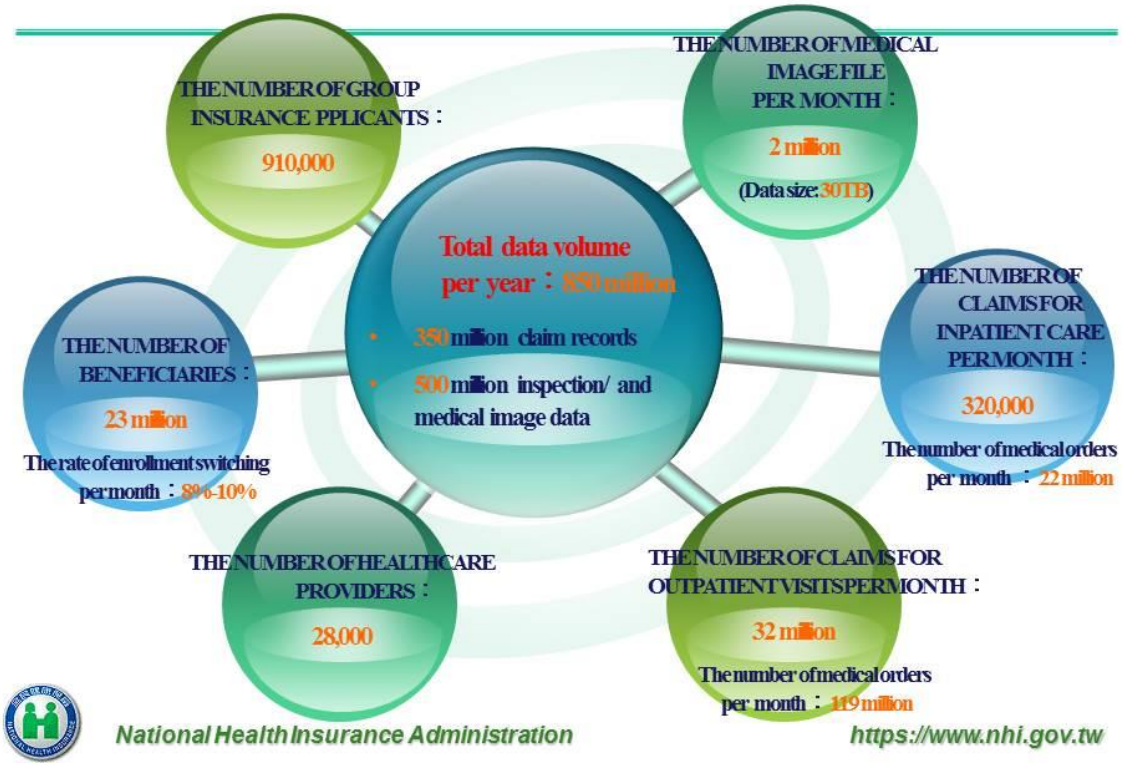

# NHI Information Systems



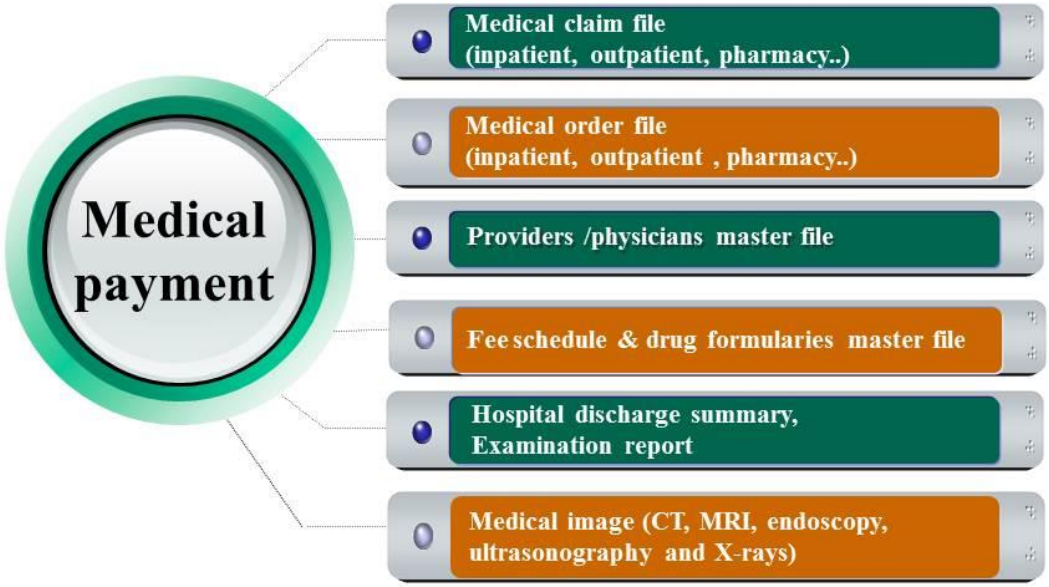
# Medical Information System Milestones




# Data Profile

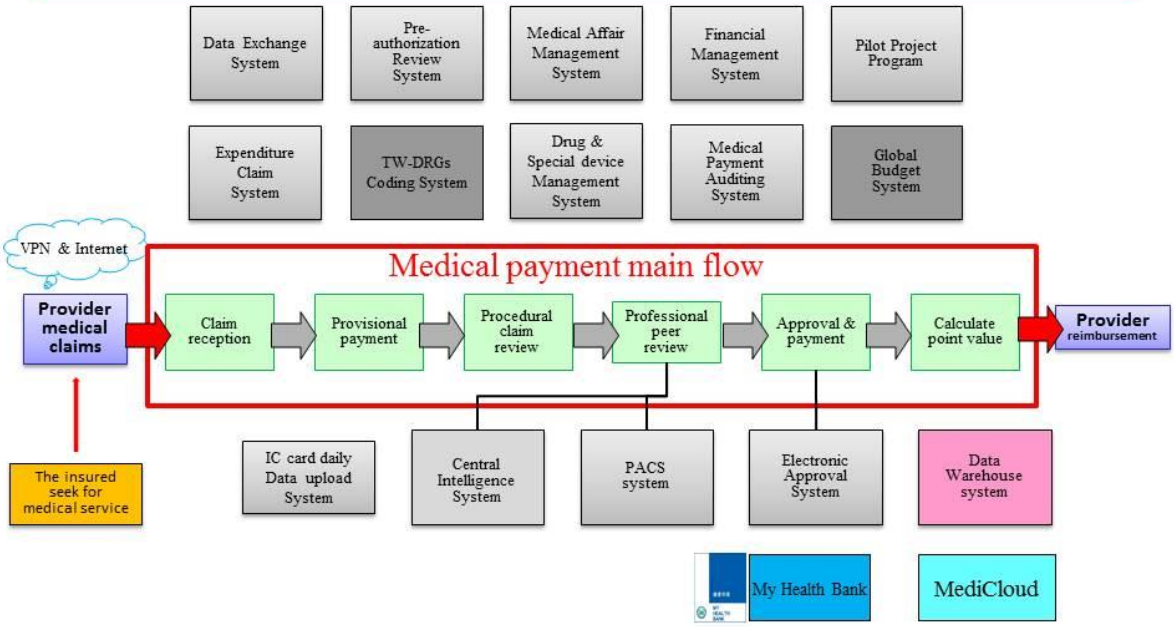


# Medical Information System Database

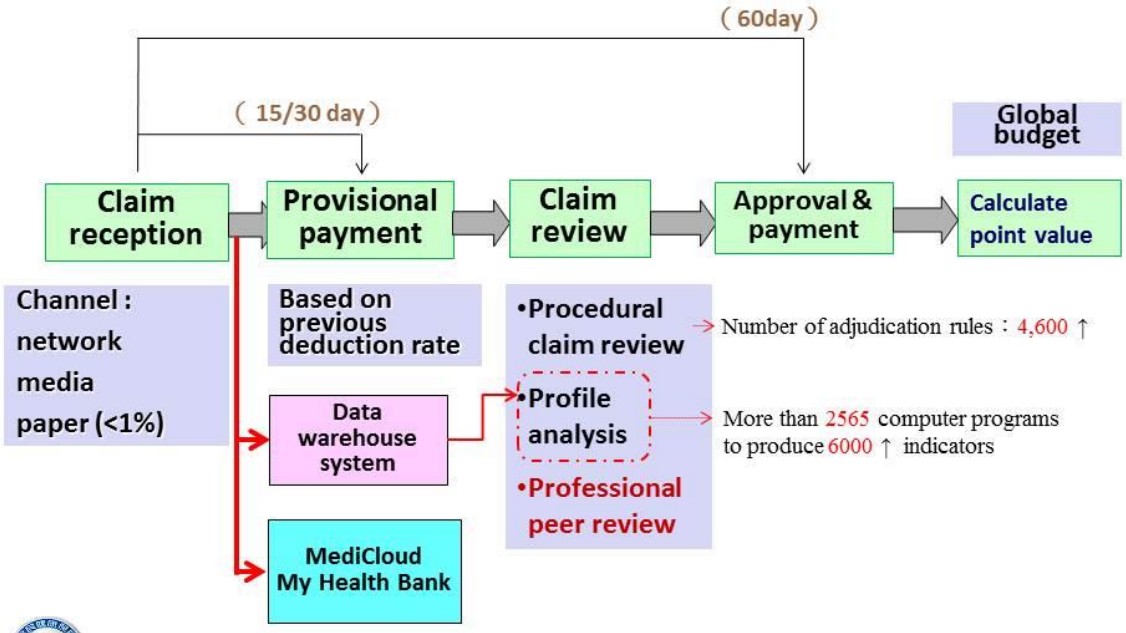





# Medical Information System Overview



# Claim Data Flow






# Key Factor：Standard

- Single-payer payment system
- Unified claim form (data format)
- National standard coding table
  - Diagnosis Code(ICD-9-CM ) -> change to ICD-10-CM in 2016
  - Hospital No.
  - Treatment code, Procedure code, Drug Code, etc.
- Set time table for hospitals to move to electronic claim

# Fast Payment Remittance for Electronic Claim

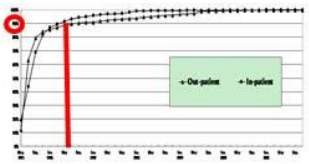
- Provisional Payment Rate ：
  - Electronic claim: up to 95%(Before Global Budget 100%)
  - Paper claim: at most 85% (Before Global Budget 90%)
- Provisional Payment Pay Date：
  - Electronic claim: within 15 days
  - Paper claim: within 30 days
- Paper Claim Data Processing Fee:
  (A minus fee item listed in the fee schedule)
  - 5~10 points for each outpatient claim
  - 50 points for each inpatient claim



# Provide Incentives to Promote Clinics Computerization

- Offer free & simple outpatient medical claim computer software
- Provide various data exchange e-services
  - Offer table down load function（ code table, drug approval price… ）
  - Provide NHIA internal claim processing status information

✓ The rate of electronic medical claims is over 99.9% after 2001



# Methods to Improve Claim Data Quality

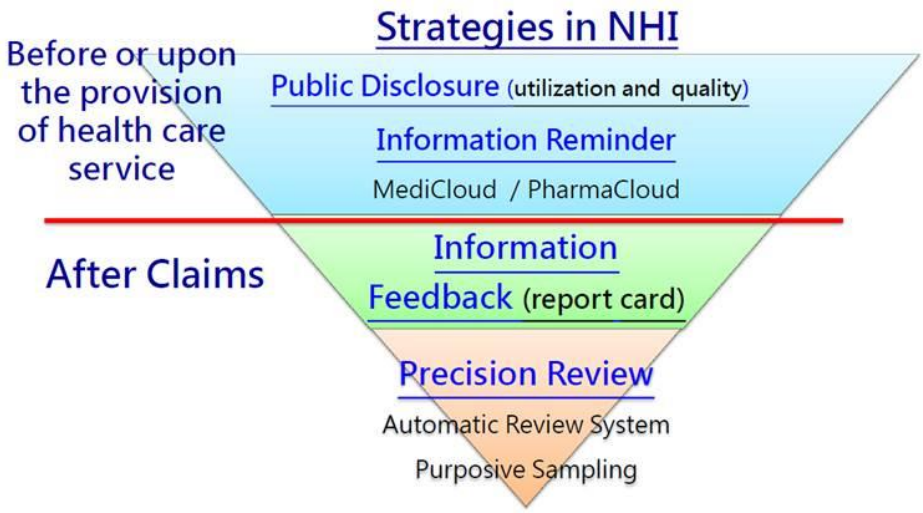
- Provide data pre-check services
  - Early error reported, providers can re-check and modify data before claim submission.
  - Help hospital information system to detect possible system malfunction.
- Phased-in policy to **accept only 100% correct** claim data to proceed the following payment procedure



# Reform of Review Mechanism

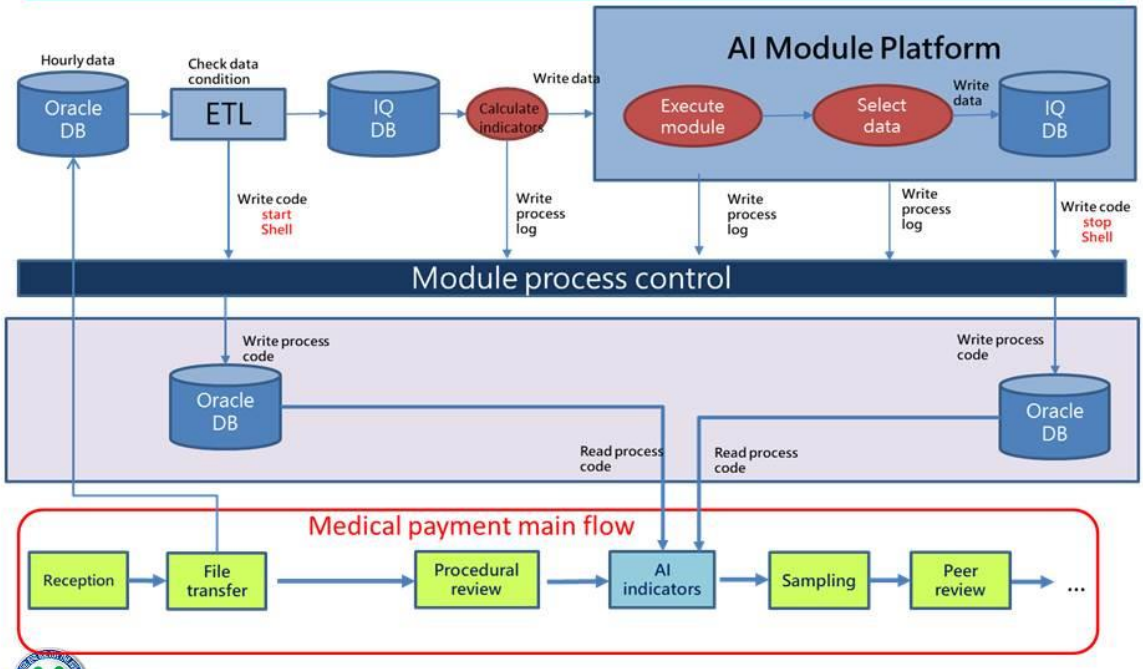
- Promote precision review(Big data + AI)
- Let review information more transparent
- Revise review rules periodically
- Discriminate abnormal cases for further peer review
- Reduce duplicate examinations and prescribed drugs
- Refine reasonable payment scheme

# Reduce Duplicate Examinations & Prescribed Drugs

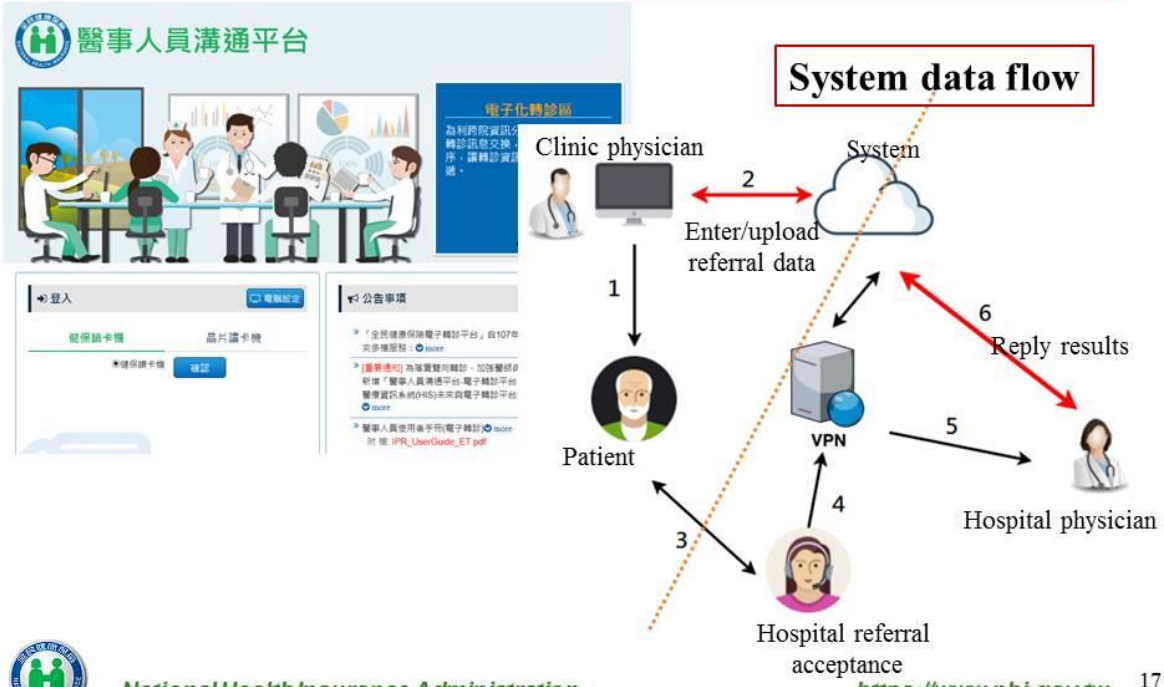





# Abnormal Medical Claim Screening AI Model Data Flow Chart



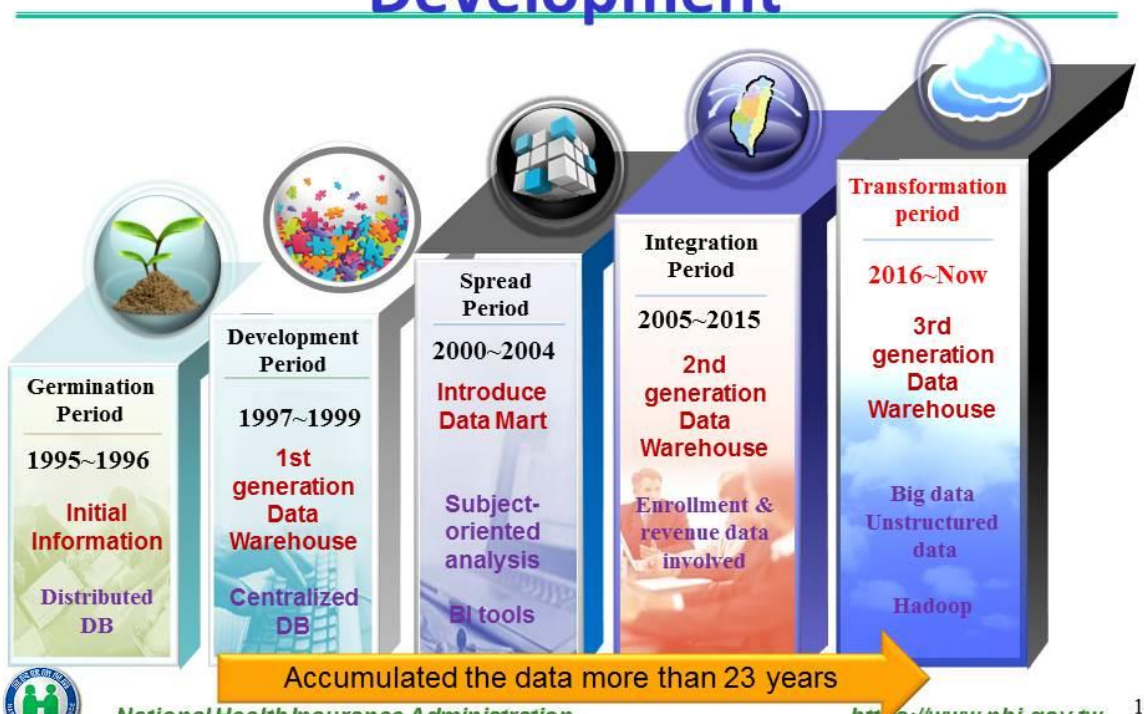
# Physicians Communication Platform-Medical Referral System





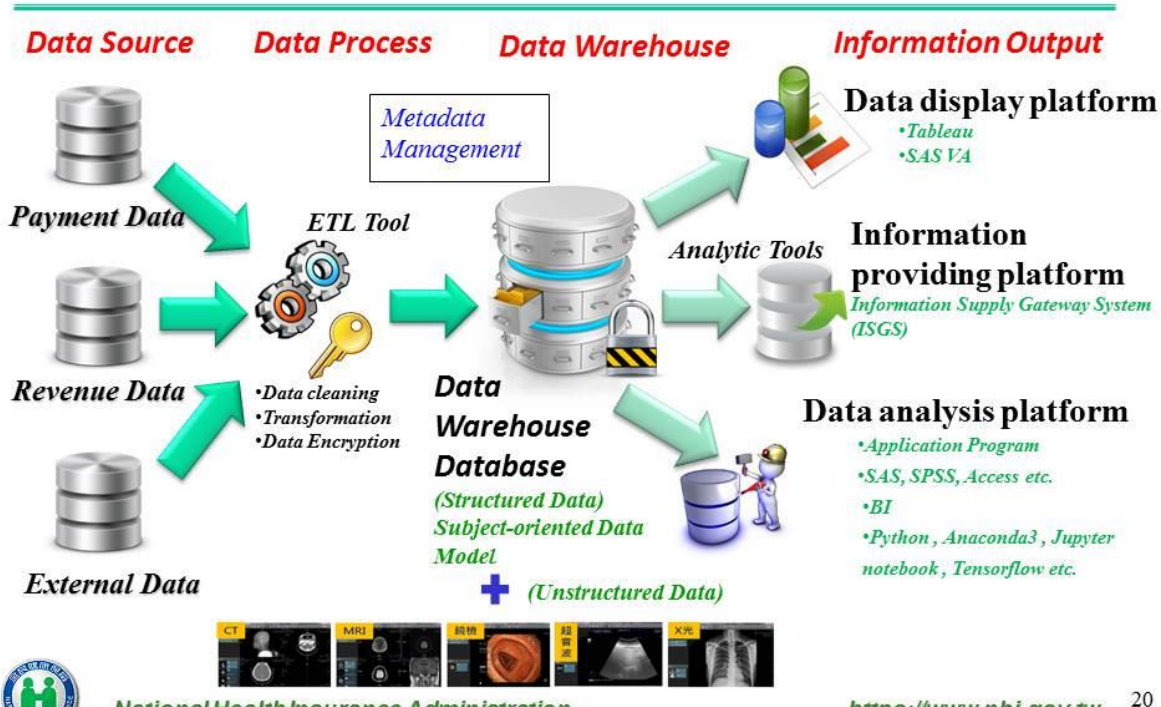

# Data Warehouse System

# Data Warehouse System Development






# Data Warehouse System Overview



# Features

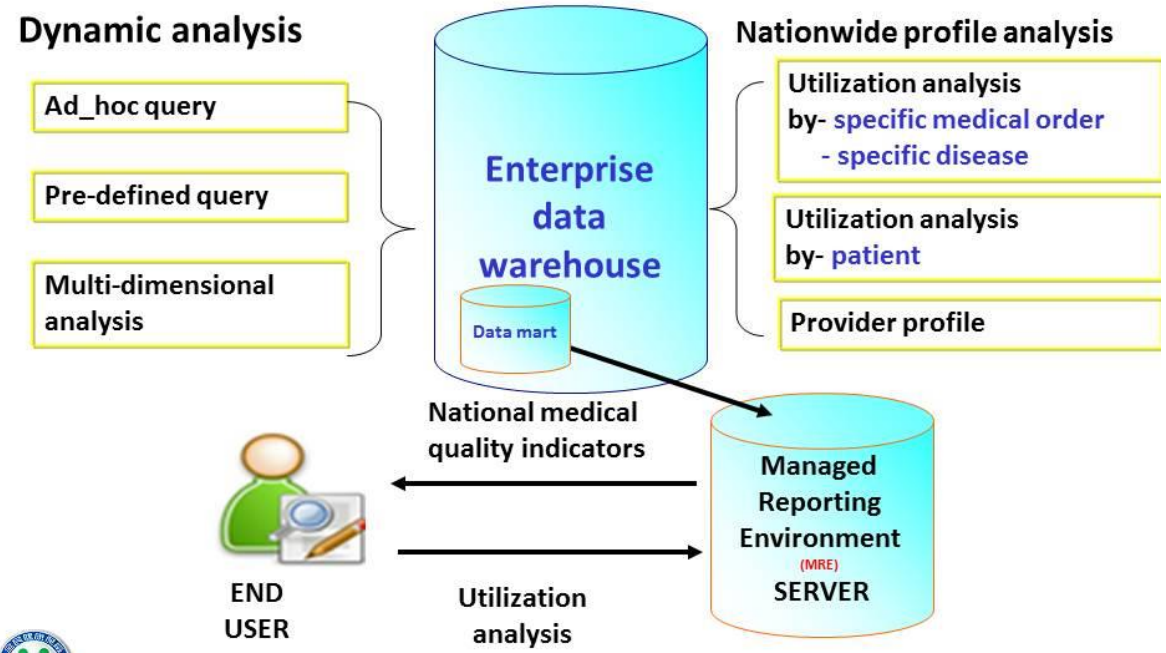
**Capacity**
- Phases: payment, revenue, and external data
- Duration: 30 years
- Data size: 24 TB (Structured data)

**Flexibility**
- Parallel processing and high expansion
- Hadoop structure: store unstructured data (image)

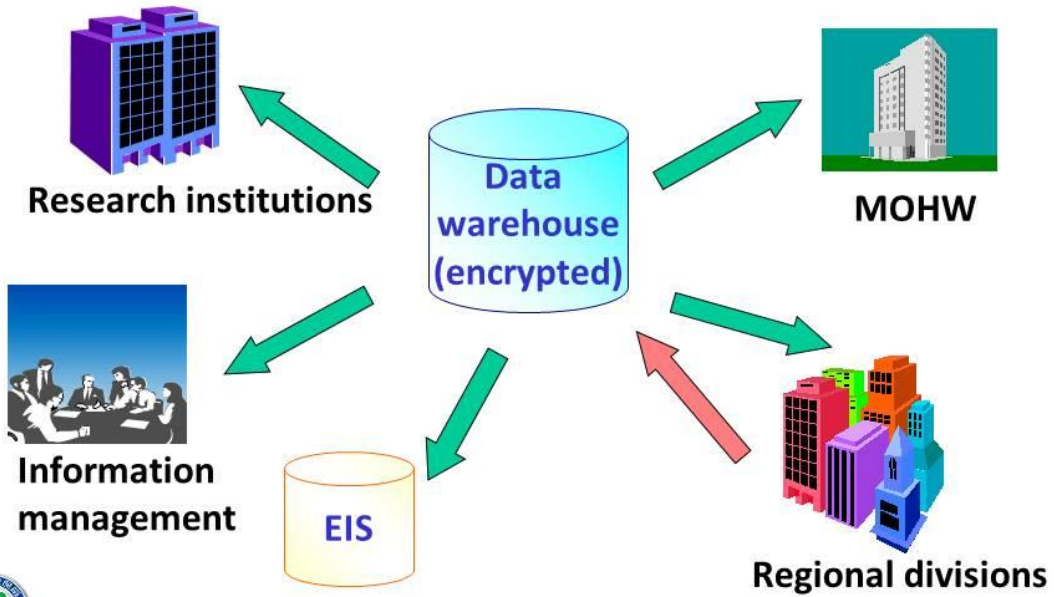
**Security**
- Raw data are all encrypted and keys are under strong protection.
- All usage records are stored in LOG file.

**Management**
- Great metadata management system
- Various analysis tools
- Intelligent monitor

# Information Delivery



# Provide Consistent Information

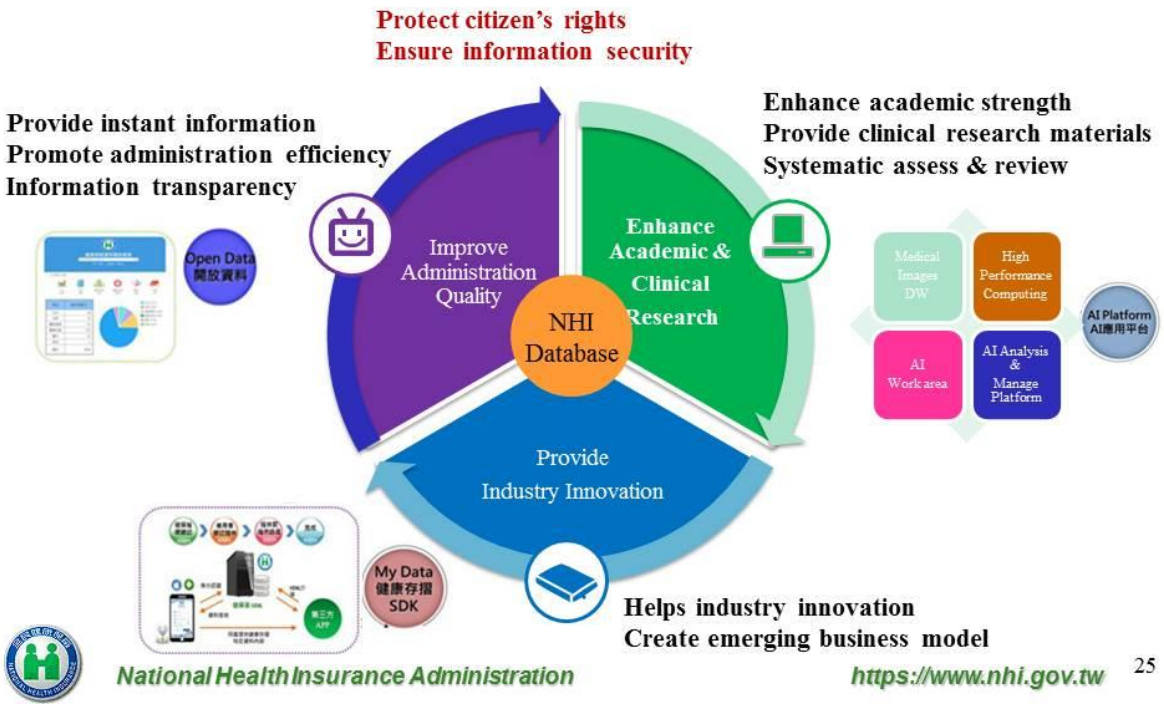





# NHIA APP

- **No.1 download** in Taiwan's ios/android free apps ranking – medical category (2018/8)
- Provide multiple on-line services for insured

# NHI Database Provides Valuable Applications




National Health Insurance Administration https://www.nhi.gov.tw

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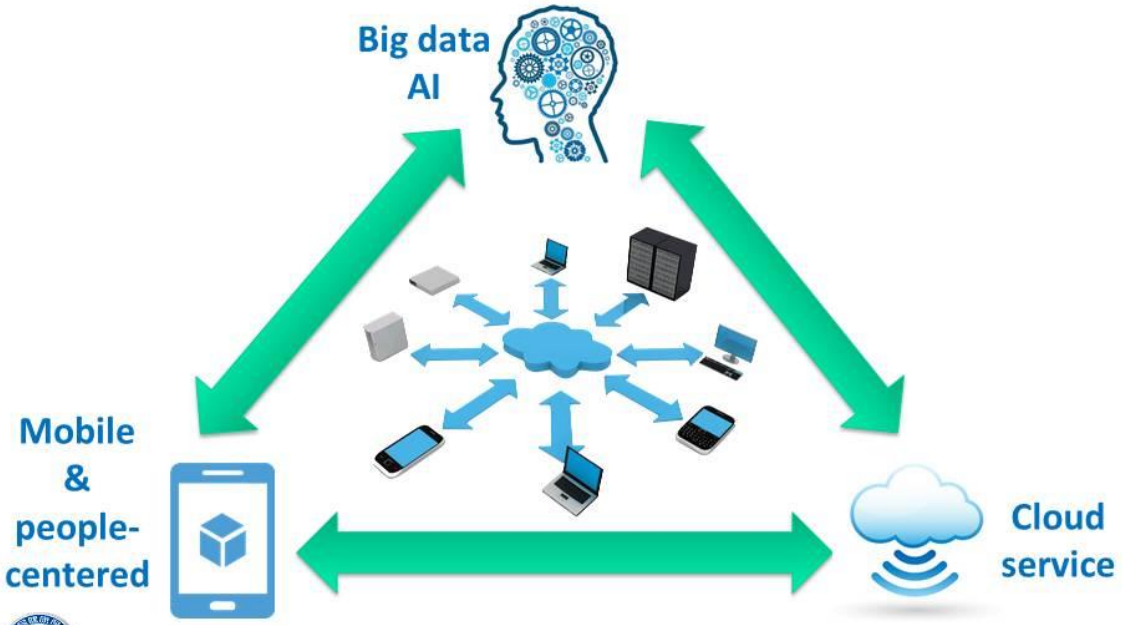
# Future Perspectives




National Health Insurance Administration https://www.nhi.gov.tw

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Thank You!

## Workshop on Universal Health Coverage

National Health Insurance System

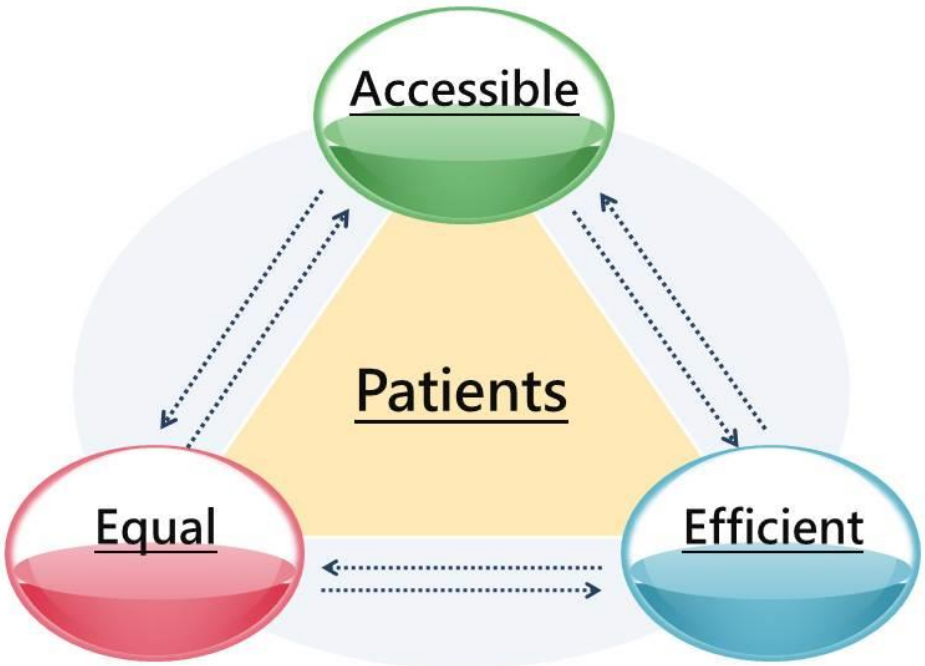
Smart Hospital and Taiwan Experience

# NHI MediCloud System

**Tzu-Yu Chen**
Associate Researcher
Information Management Division
National Health Insurance Administration
Ministry of Health and Welfare, Taiwan
*October 17, 2019*

## Core Value of National Health Insurance

National Health Insurance Administration

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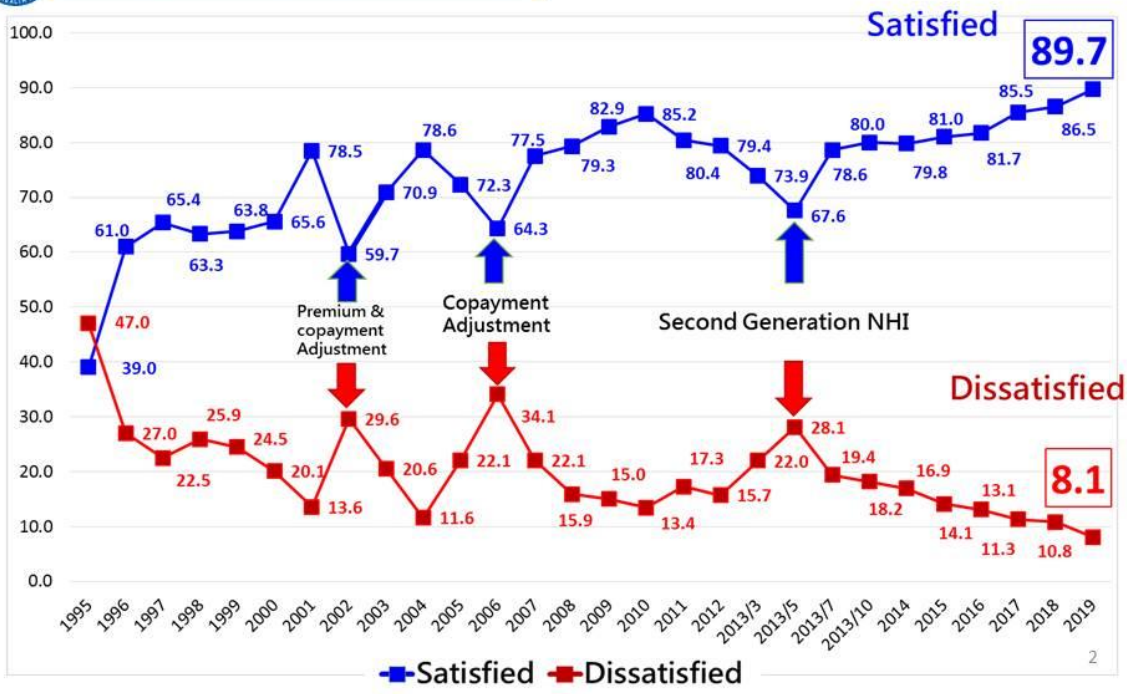
# High Public Satisfaction

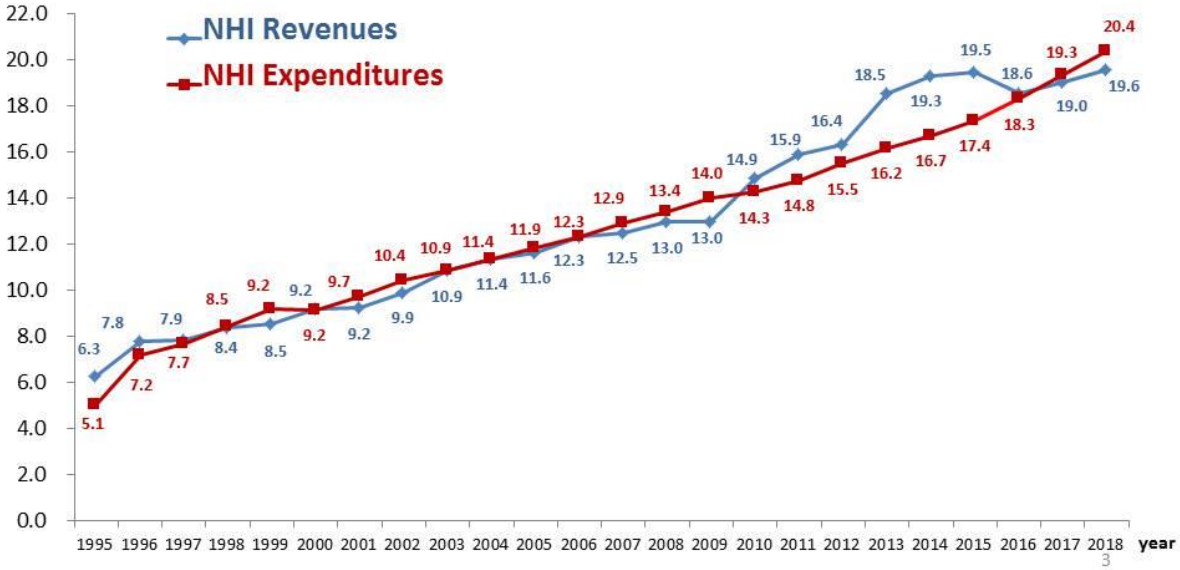
National Health Insurance Administration




# Trend of NHI Financial Status

National Health Insurance Administration

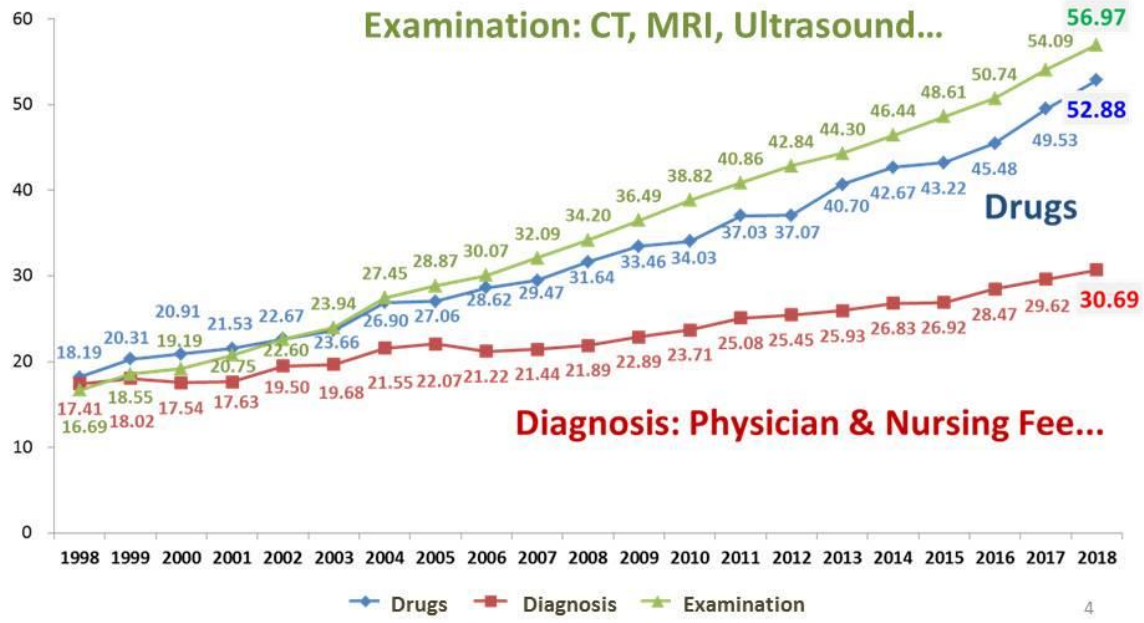
Accumulated surplus as of 2018: USD 6.85bn



# Overview of Outpatient Expenditures

National Health Insurance Administration

Unit: 100 Million USD

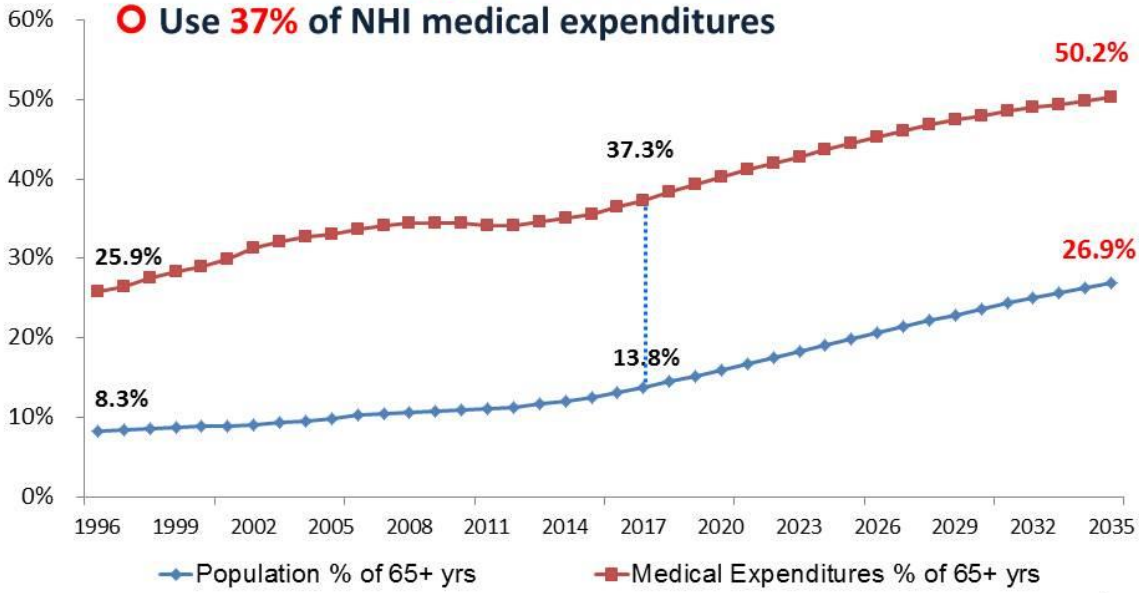



4

# Ageing Trends and Impact to Healthcare

National Health Insurance Administration

- Take up about 14% of the population
- Use 37% of NHI medical expenditures

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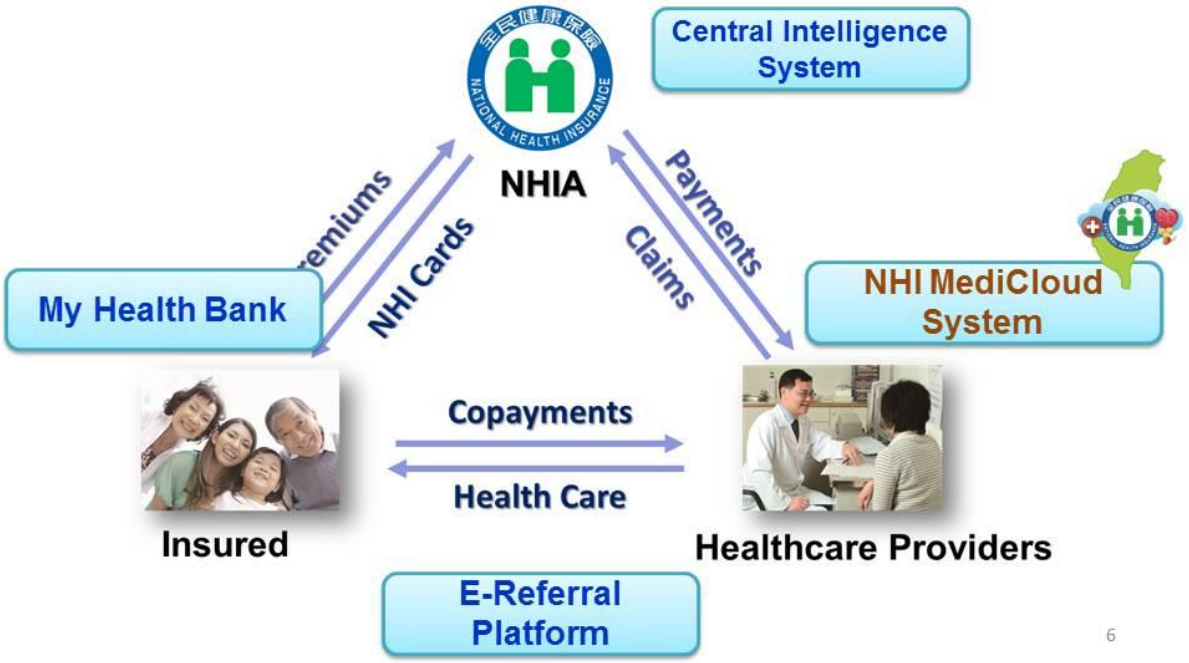
# Healthcare Innovation

National Health Insurance Administration

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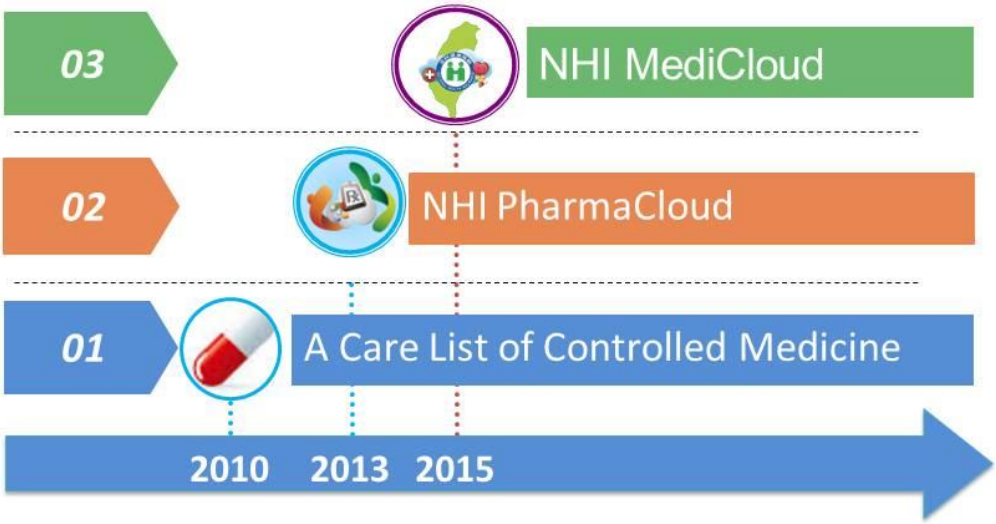
# Development of NHI MediCloud System

National Health Insurance Administration

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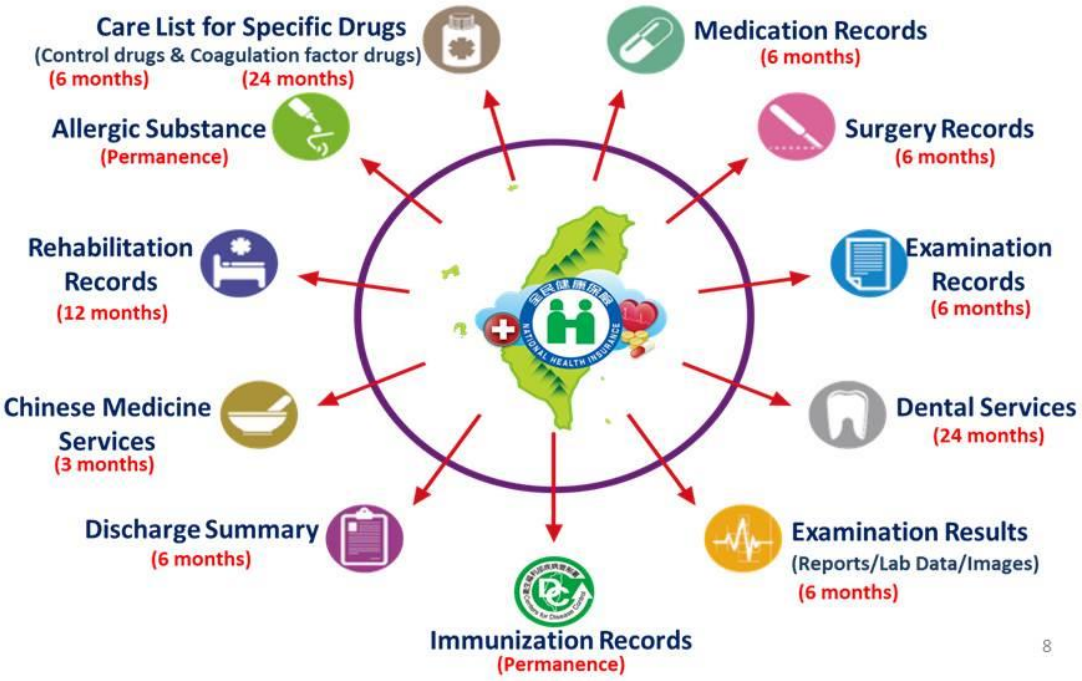
# Contents of NHI MediCloud

National Health Insurance Administration




8

# Features of NHI MediCloud System

National Health Insurance Administration

**Capacity**
- Update the information on daily basis
- Process huge volume data
- Dual data centers

**Efficiency**
- Response time
- Interaction with HIS (Hospital Information System)

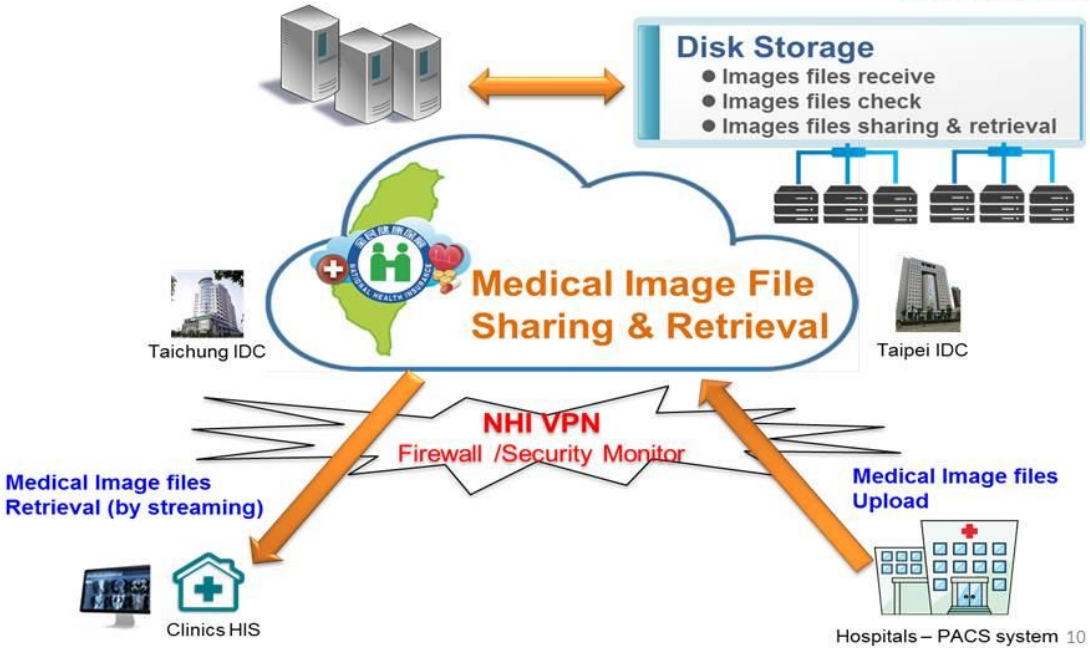
**Security**
- Three card authentications: sim card (hospital or clinic), physician's card, patient's IC card
- Defense Mechanism

**Management**
- Keep log files to track and evaluate the outcomes
- Yearly progress plans

# Overall Architecture Diagram of Medical Image Sharing and Retrieval Subsystem

National Health Insurance Administration

*Since 2018*

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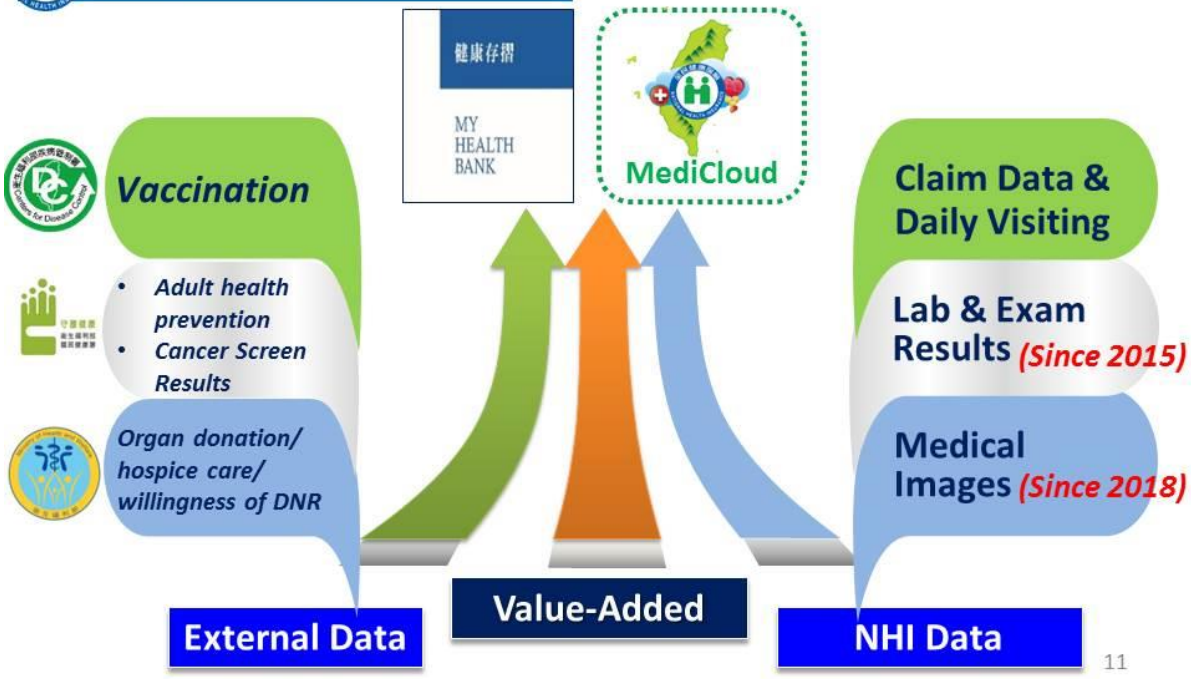
# Cross-Agency Health Data Integration

National Health Insurance Administration

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# Medication Record Query

National Health Insurance Administration

身分證號：Z299999483

查詢其他保險對象健保卡資料：

摘要：

此健保對象有特定藥血因子用藥資訊。

該病患於檢查檢驗結果資訊有影像上傳資料。

該病患於牙科處置及手術資訊有影像上傳資料。

下列資訊表示此健保對象有該項目資料。

雲端藥歷 | 檢查檢驗記錄 | 檢查檢驗結果 | 手術明細記錄 | 牙科處置及手術 | 過敏藥 | 特定凝血因子用藥 | 出院病歷摘要 | 復健醫療 | 牙醫用藥 | 代謝用藥

1、本系統資料不含自費藥品且醫療藥品可能低報，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」視位係將於醫院層報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。
4、持慢性病連續處方箋調劑，須於給藥期間屆滿前十日內，始得再次調劑。
5、藥物藥理已建置疑似藥品療效不得過敏功能，藥品療效不得完善，指更換不同劑型之同成分、同劑型、同劑量藥品後，出現藥效改變或不良反應。

ATC3名稱 全部 | ATC5名稱 全部 | 成分名稱 全部 | 就醫區間 全部 | 給藥 全部

date of prescribing　　date of dispensing

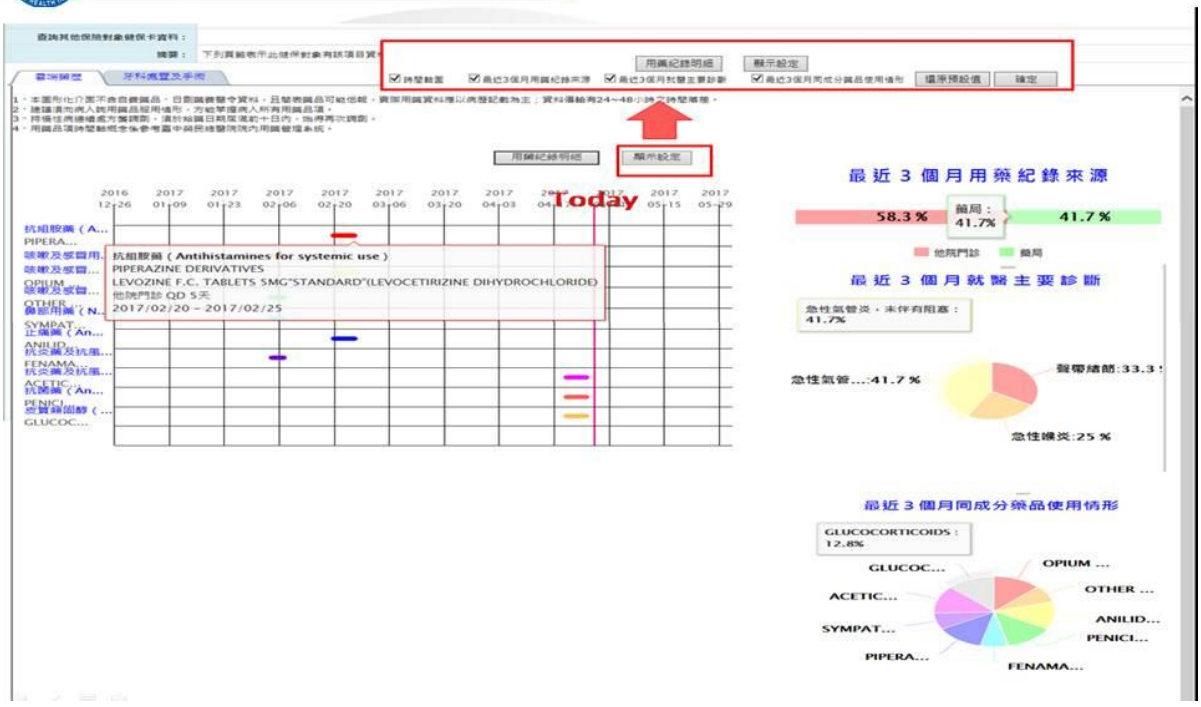
| 項次 | 來源 | 主診斷 | ATC5名稱 | 成分名稱 | 藥品健保代碼 | 藥品名稱 | 劑型 | 給藥日數 | 藥品用量 | 就醫(調劑)日期(住院用藥起日) | 領藥日(住院用藥迄日) | 領藥日數 | 醫序號 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 臺北市聯醫門診 0101090517 | 慢性病毒性C型肝炎 B182 | Other Drugs For Functional Bowel Disorders | Dimethicone (=Dimethylpolysiloxane=Polymethyl Siloxane) | A029828100 ( R003 ) | KASCOAL TABLETS 40MG (DIMETHYLPOLYSILOXANE) | TIDPC | 90 | 84 | 108/05/22 | | 83 | 0011 |
| 2 | 臺北市聯醫門診 0101090517 | 慢性病毒性C型肝炎 B182 | Contact Laxatives | Sennoside A+B(Calcium) | A037697100 ( R003 ) | THROUGH F.C. TABLETS "C.M."(SENNOSIDES) | QDHS | 90 | 56 | 108/05/22 | | 83 | 0011 |
| 3 | 臺北市聯醫門診 0101090517 | 慢性病毒性C型肝炎 B182 | Propulsives | Mosapride (Citrate Dihydrate) | AB55990100 ( R003 ) | MOSA F.C. TABLETS 5MG | TIDPC | 90 | 84 | 108/05/22 | | 83 | 0011 |

source　diagnosis　active ingredient　constituent　drug name　drug quantity　drug days　surplus



# Time-Line Graph & Summary of Medication Usage

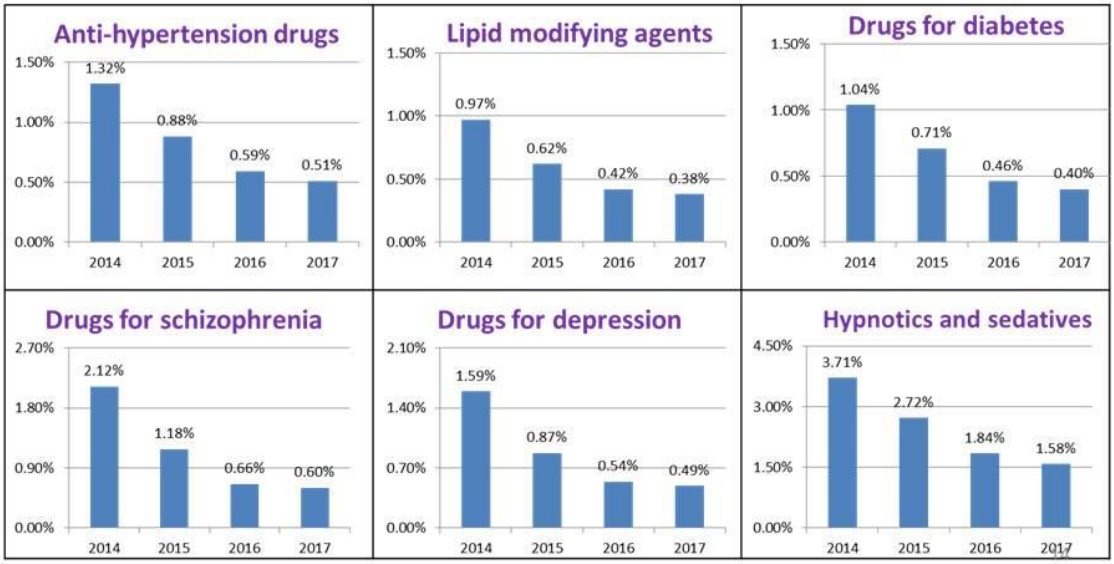
National Health Insurance Administration



# Effectiveness of Medication

National Health Insurance Administration

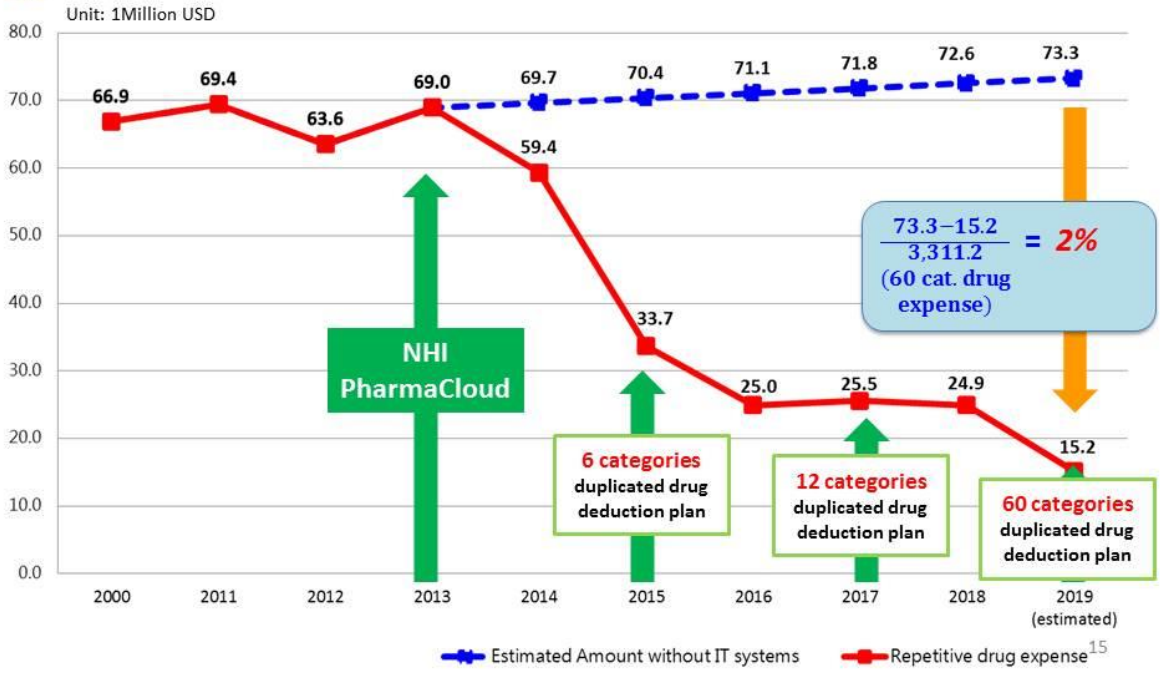
- Percentages in overlapping days of six chronic diseases
- Reducing 10 million USD medication expenditure




Data source：Index of NHI Medi-Cloud system from Data analysis from NHIA

# Effectiveness of Cost Reduction due to Duplicated Prescription Remain by Application Programming Interface (API)

National Health Insurance Administration

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# Dental Care

National Health Insurance Administration

Source | Diagnosis | Order code | Order name | Position | Date of Checkup | Link to images

| 項次 | 來源 | 費用年月 | 主診斷名稱 | 牙醫處置代碼 | 牙醫處置名稱 | 診療部位 | 執行時間-起 | 執行時間-迄 | 醫令總量 | 院所上傳影像查詢 | 上傳影像品質通報 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 臺北虛擬診門診 3501200000 | 107/11 | | 34004C | Panoramic radiography | FM | 107/11/15 | | | X光 | 影像品質通報 |
| 2 | 臺北虛擬診門診 3501200000 | 106/1 | | | | | | | | | 影像品質通報 |
| 3 | 文心牙醫診門診 3731041396 | 106/9 | | | | | | 06/09/15 | 1 | | |
| 4 | 文心牙醫診門診 3731041396 | 106/9 | | | | | | 06/09/15 | 1 | | |
| 5 | 文心牙醫診門診 3731041396 | 106/9 | | | | | | 06/09/04 | 1 | | |
| | 文心牙醫診 | | | | | | | | | | |

# Medical Examination Results

National Health Insurance Administration

Since 2015

雲端藥歷 | 特定管制藥品用藥資訊 | 檢查檢驗 | 手術明細記錄 | 牙科處置及手術 | 過敏藥 | 特定凝血因子用藥 | 回首頁

檢查檢驗類別: 全部 | 特殊檢查檢驗分類項目: 全部 | 檢查檢驗項目: 全部 | CT/MRI/PET專區 | DM/血脂專區 | 慢性腎臟病專區 | 腫瘤標記專區

醫令名稱 | 就醫區間 | 來源: 院 ☑ 他院 ☑ 藥局 | 顯示欄位設定 | 查詢

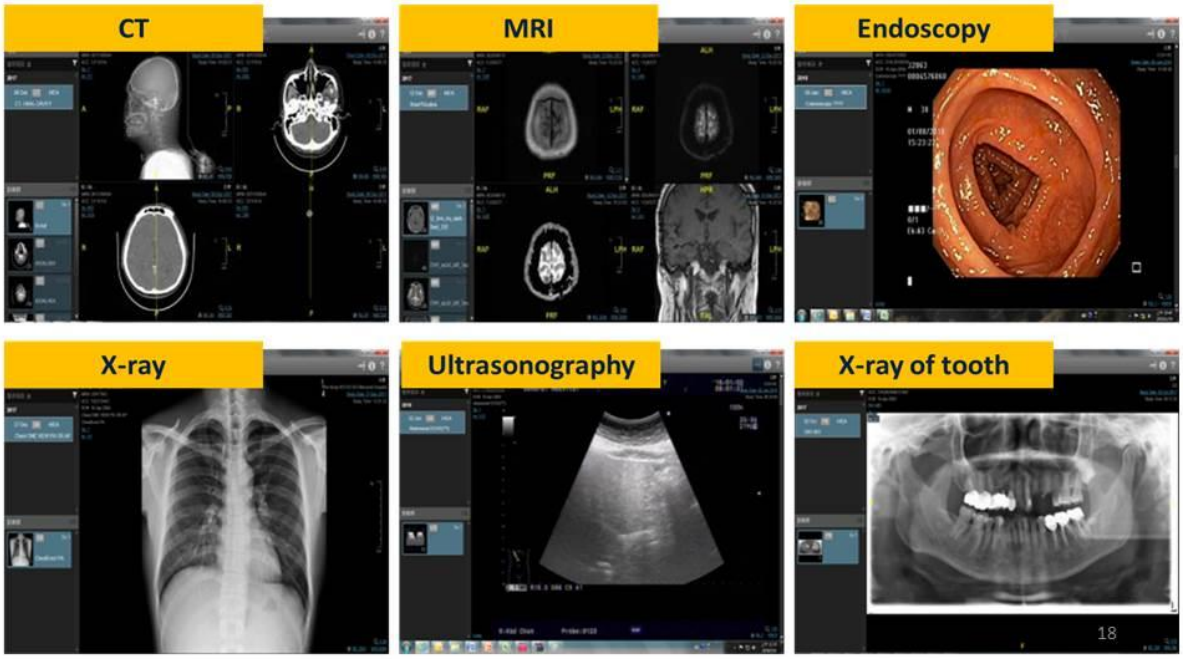
Source | Diagnosis | Order name | Checkup List & Method | Lab Data & Report | Reference range | Report Date

| 項次 | 來源 | 費用年月 | 就醫科別 | 主診斷 | 診療部位 | 檢查檢驗類別 | 醫令代碼 | 醫令名稱 | 檢查檢驗項目 | 檢查檢驗方法 | 檢查檢驗結果/報告結果/病理發現及診斷 | 參考值 | 檢體採檢方法/來源/類別 | 開立醫令日期 | 採驗/實際檢查日期 | 報告日期 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 他院門診 1535031041 | 105/07 | 消化內科 | 胃食道逆流性疾病併食道炎 | | 糞便檢查 | 07009C | 糞便一般檢查（包括外觀、鏡檢、潛血反應、硬度、顏色、消化能力、虹、白血球、粘液等）(Stool routine) | WBC | N/A | -/HPF | (-) | N/A | 105/07/14 | 105/07/15 | 105/07/15 |
| 2 | 他院門診 1535031041 | 105/07 | 消化內科 | 胃食道逆流性疾病併食道炎 | | 血液學檢查 | 08003C | 血色素檢查 (Hemoglobin (Hb)) | Hb | N/A | 13.0 g/dl | 14-18 | N/A | 105/07/14 | 105/07/14 | 105/07/14 |
| 3 | 他院門診 | 105/ | 消化內 | 胃食道逆流性疾病 | | 超音波 | 1900 | 腹部超音波（包括肝liver, 膽囊gall bladder, 胰pancreas, 脾spleen, 下腔靜脈inferior vena cava, 腹主動脈abdominal | | | 病情摘要：pes：1. EV f1，multiple gastric varices with oozing acute esophageal ulcer EIS is made with histoecryl injection 2. multiple acute GU 105/03/24 GPT 10 U/L; GOT 23 U/L; 105/03/29 HBsAg (RIA) Negative；105-4-14: PES; one tumor mass at lower part of body s/p Bx, RE LA-APathologic diagnosis: Stomach, body, endoscopic biopsy --- Chronic gastritis with focal intestinal metaplasia. CT scan 2015-7-31 Imp: > Small amount ascites in the right abdomen and bilateral pelvis noted, nature to be determined. > Active bleeding at the gastic fundus, body and antrum should be suspected. 105/ 5/12 | | | 105/05/1 | 105/05/1 | |

# Screenshots of Sharing Medical Images

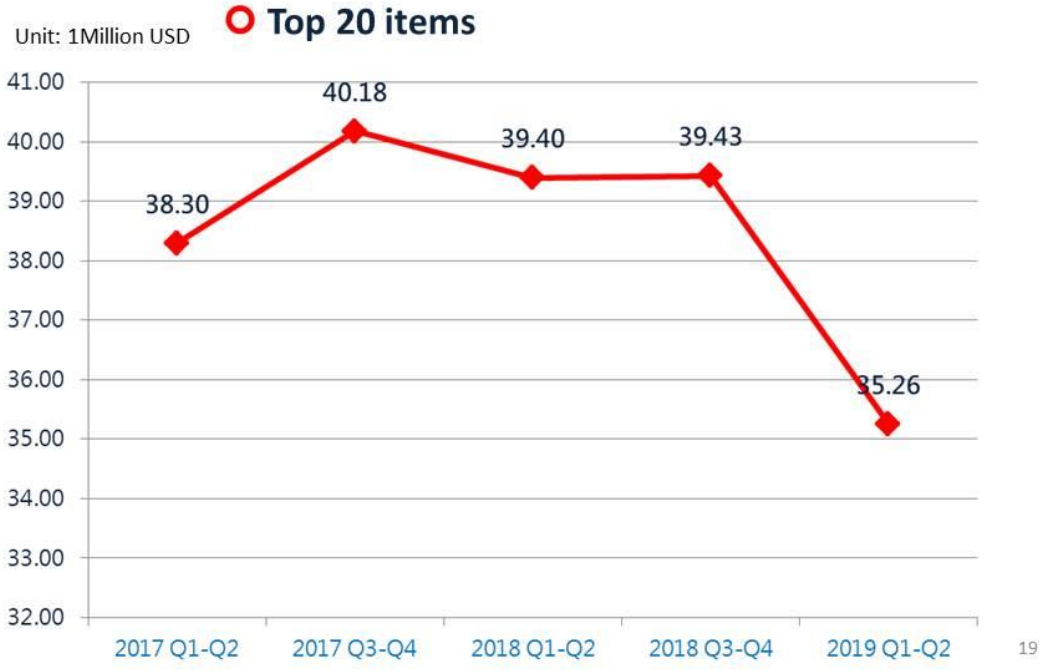
National Health Insurance Administration

*Since 2018*



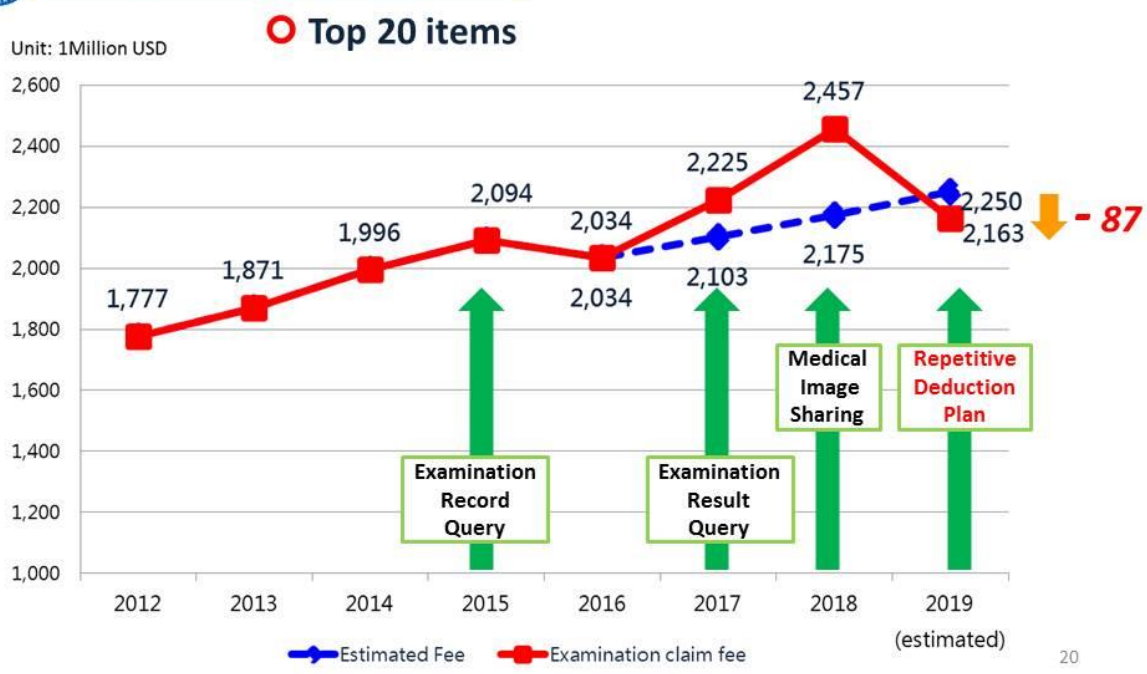

# Effectiveness of Cost Reduction due to Repeated Examination after Medical Images Sharing System within 28 days

National Health Insurance Administration



# Effectiveness of Cost Reduction due to Repeated Examination after Medical Images Sharing

National Health Insurance Administration

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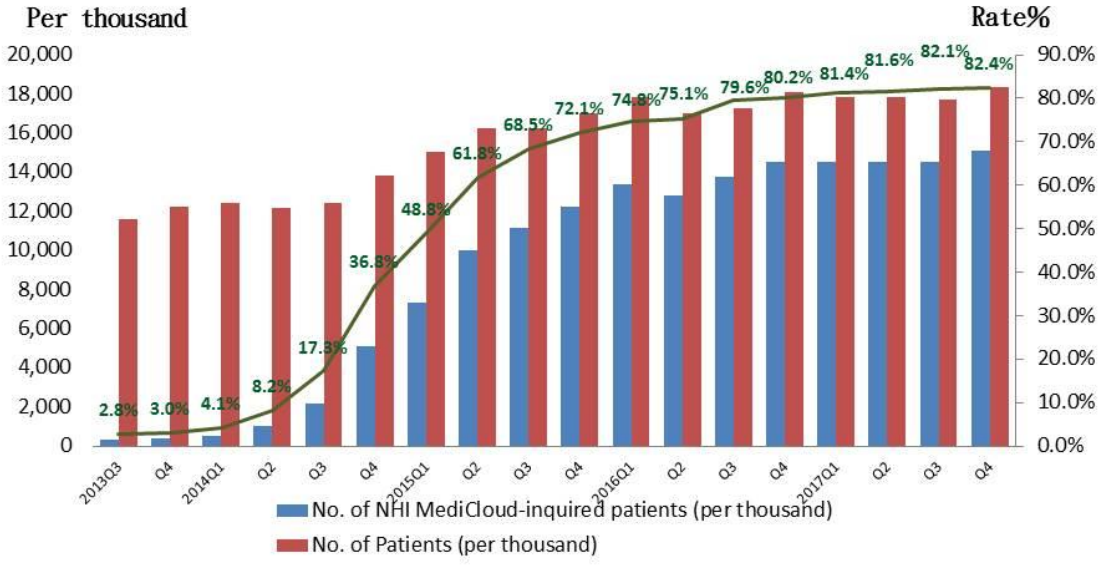
# The Upward Trend of NHI MediCloud System Inquiry rate

National Health Insurance Administration

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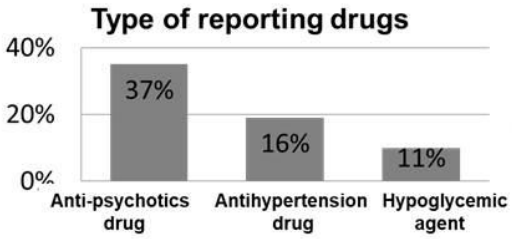
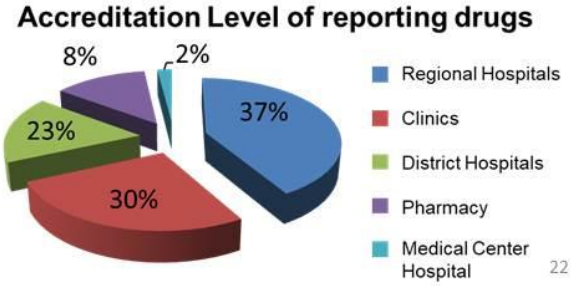
# Reporting function for Therapeutic inequivalence of medicine

National Health Insurance Administration



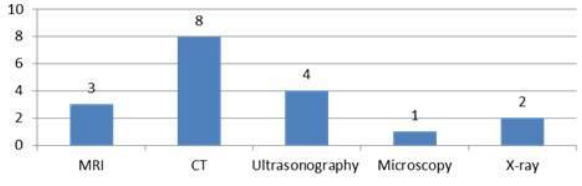



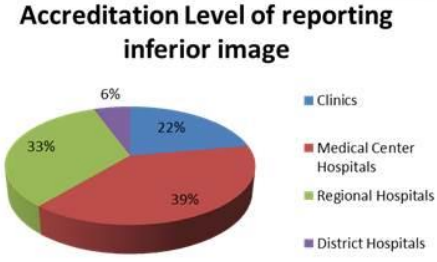

*Data range：2018.05.17-2018.06.30



# Reporting function for Inferior quality of medical image

National Health Insurance Administration




*Data range：2018.07.31-2018.08.05

# NHI MediCloud System
# User Experience Sharing

National Health Insurance Administration

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# Healthcare IT Vendor Seminar

National Health Insurance Administration

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# Challenges

National Health Insurance Administration

**Patient Caring**

- Great Medical Service
- Cost Growth Management

**Management**

- Increase Revenue
- Reduce Unnecessary Expenditure

**Perspectives**

- NHIA Policy
- Digital Transformation

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# Health Information Technology applied in the Hospital

**WEN-WEN CHANG**

Northern Division,
National Health Insurance Administration,
Ministry of Health and Welfare, Taiwan
20191017



# Outline

- Background
- MediCloud Value-Added Application
- Referral system and MediCloud
- Future Perspectives

# Background
## -Problems in different stakeholders

### Population Aging & Multiple Chronic Disease patients

**The Insured**

- Not easy to manage personal NHI medical data.
- Spending more time to apply for personal Medical Records.
- Medical information is asymmetrical.

**NHIA**

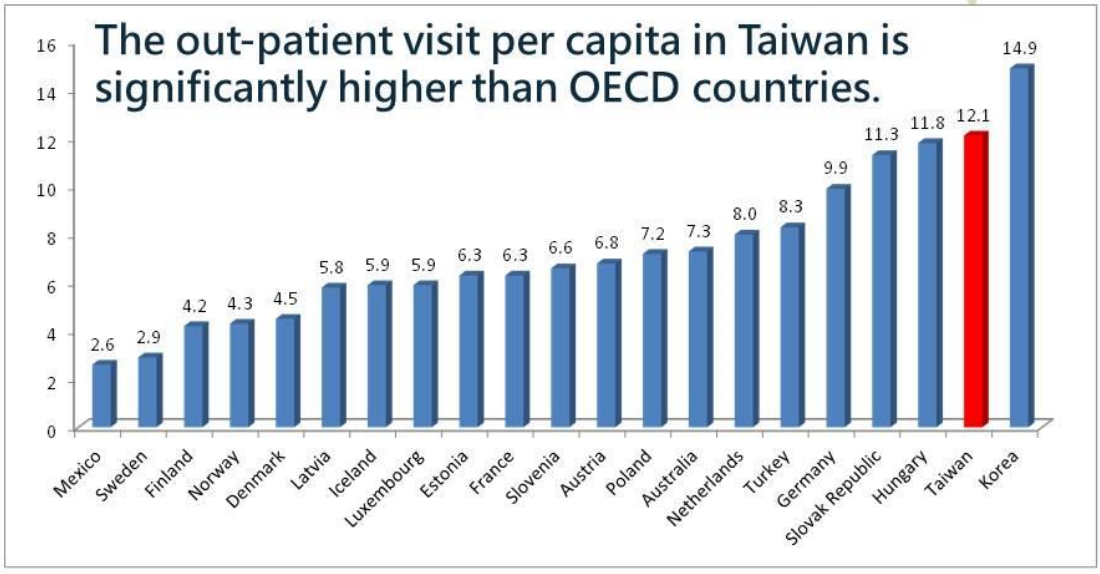
- Medical expenses are rising.
- Medical resource limitation.
- Need to improve medical quality and efficiency.

**Healthcare Provider**

- Lack of medical record transferability between hospitals and clinics
- Insufficient information to assist prescribing.



# Background
## - High Outpatient visits




Sources:
1. OECD statistics 2016 (Doctors consultations in all settings, exclude telephone and email contacts, visits to dentists, visits to nurses etc.)
2. Taiwan NHIA 2016 (exclude visits to dentists, visits to Chinese Medicine)

# MediCloud
# Value-Added Application

5

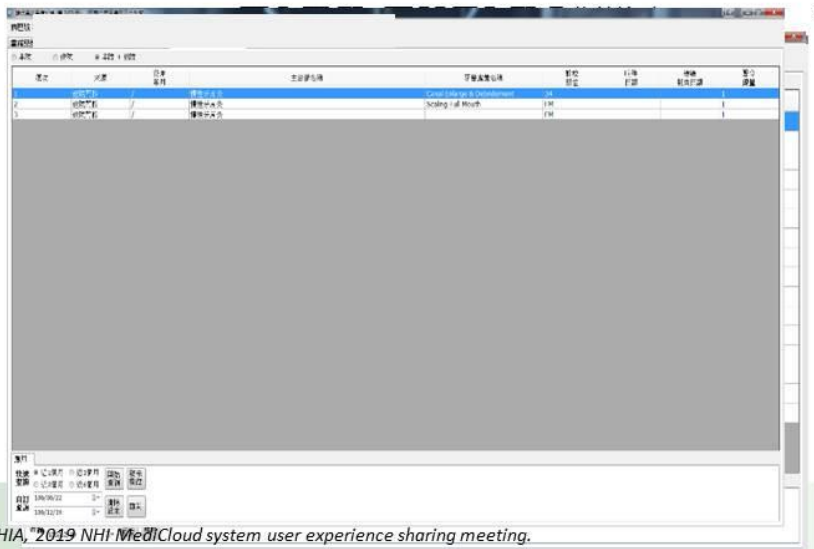
## NHI MediCloud use in CGMH

(*Chung Gung Memorial Hospital)*

■**Used in outpatient, emergency, and inpatient medical systems**

■Table item ：

✓**Dental treatment and op**



*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

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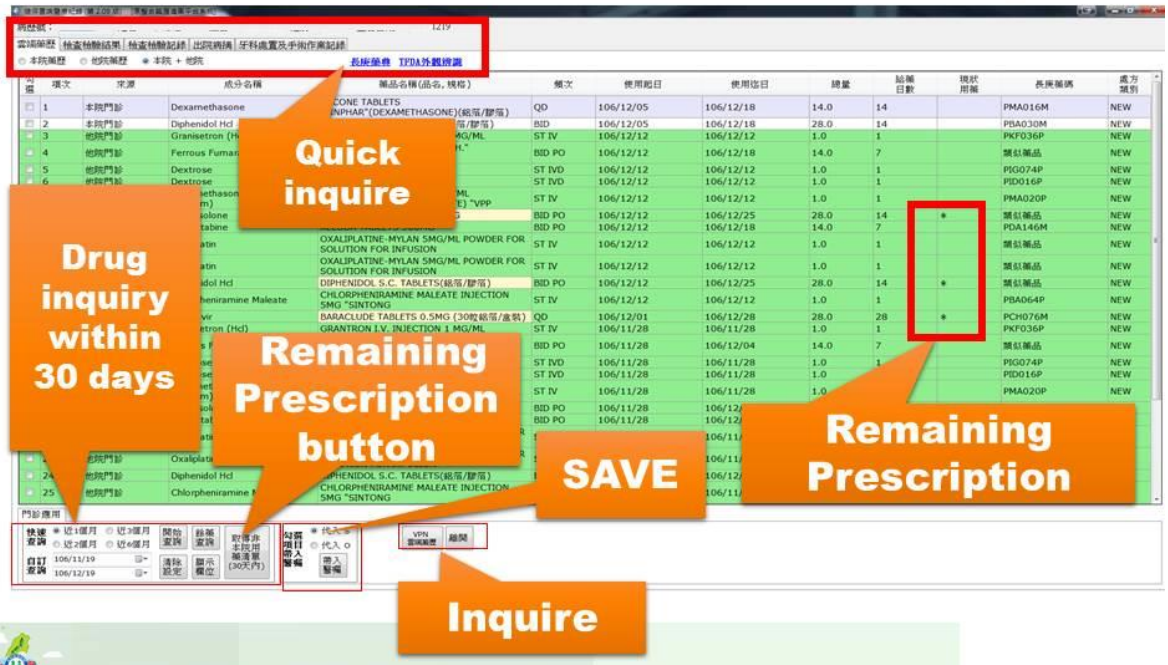
# NHI MediCloud use in CGMH

- Integrated prescription information into HIS (Hospital Information System)




Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.



# NHI MediCloud use in CGMH

- list the similar drug items and their appearance in this query

| 項次 | 來源 | 成分名稱 | 藥品名稱(品名, 規格) | 頻次 | 使用起日 | 使用迄日 | 總量 | 給藥日數 | 長庚藥碼 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 2 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 3 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 4 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 5 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 24 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 25 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |
| 26 | 他院門診 | AMLODIPINE (BESYLATE) | NORVASC TABLETS 5MG | QD | 103/11/07 | | 28.0 | 28 | PFA008M |

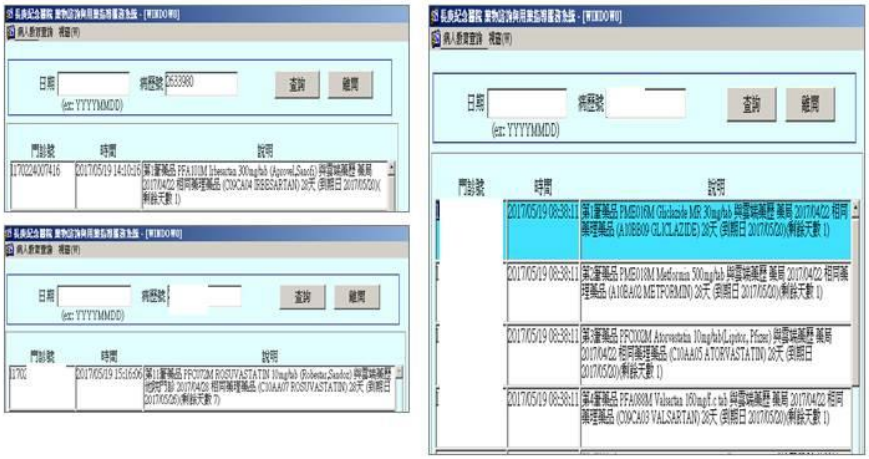
**CGMHdrug code vs Similar items**
**長庚藥碼VS類似品項**

Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.

# NHI MediCloud use in CGMH

## ■ Establish a pharmacist evaluation platform

- ✓ Review pharmacist suggestions
- ✓ Contact physician for confirmation and modify



*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

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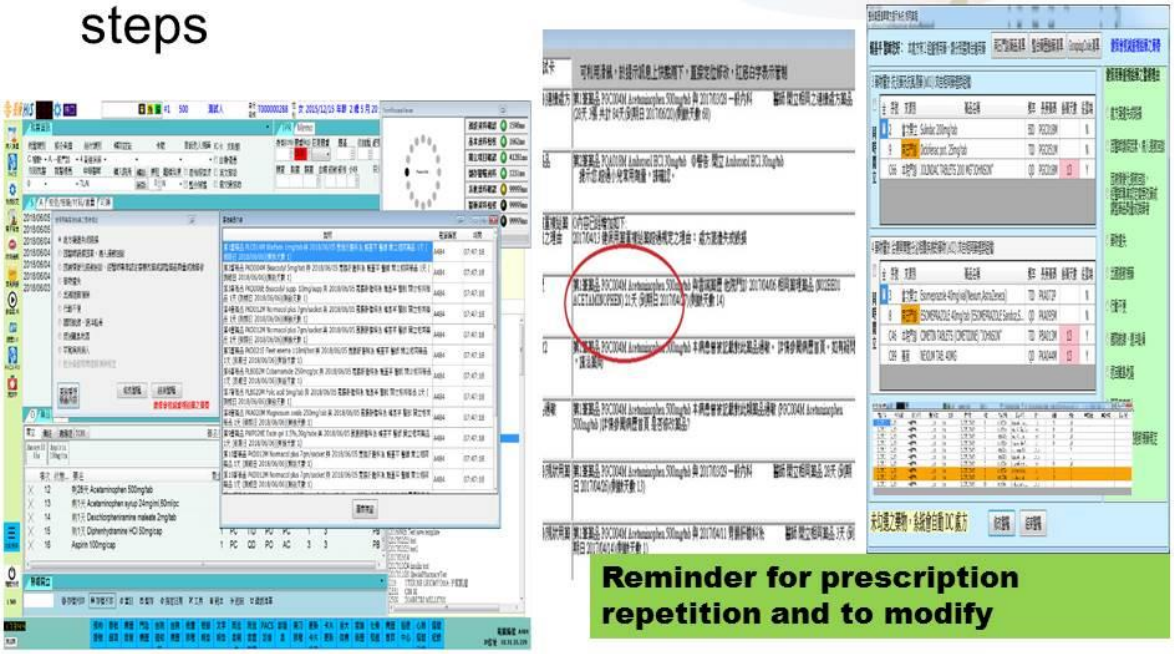
# NHI MediCloud use in CGMH

## ■ Simplify prescription modification steps



**Reminder for prescription repetition and to modify**

*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

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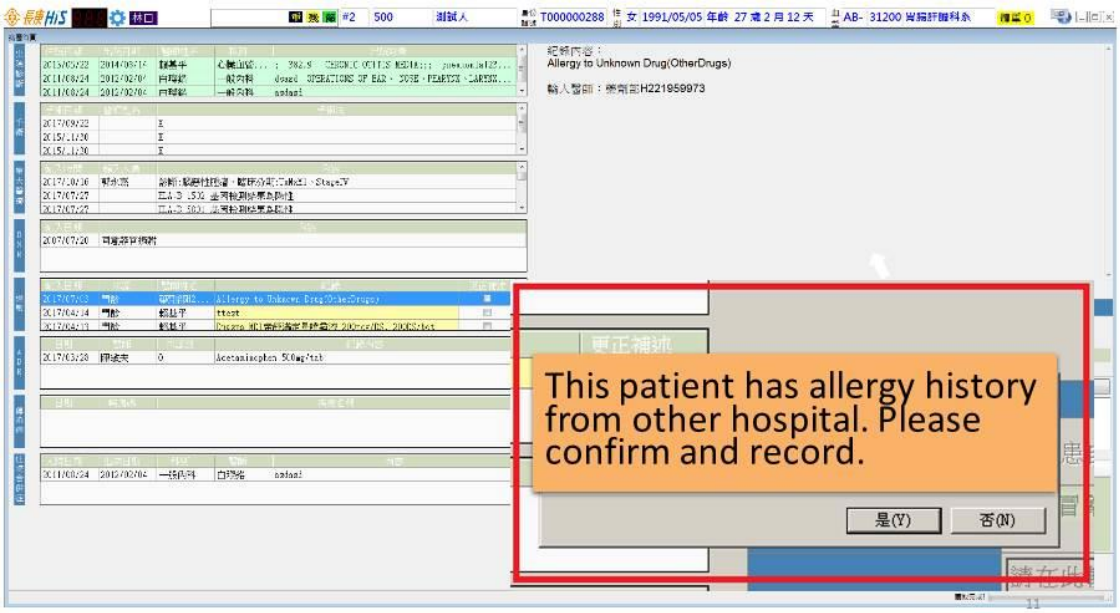
# NHI MediCloud use in CGMH

■ Allergy History warning




Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.

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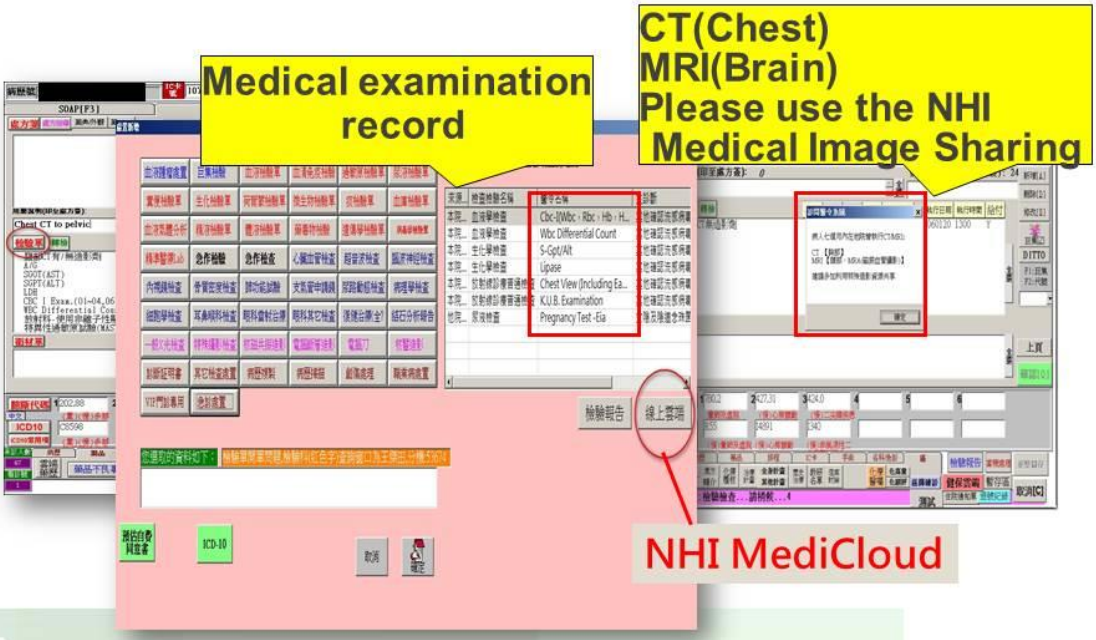
# Reduce Duplication on Laboratory and Medical Testings *(Chi Mei Medical Center)*




Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.

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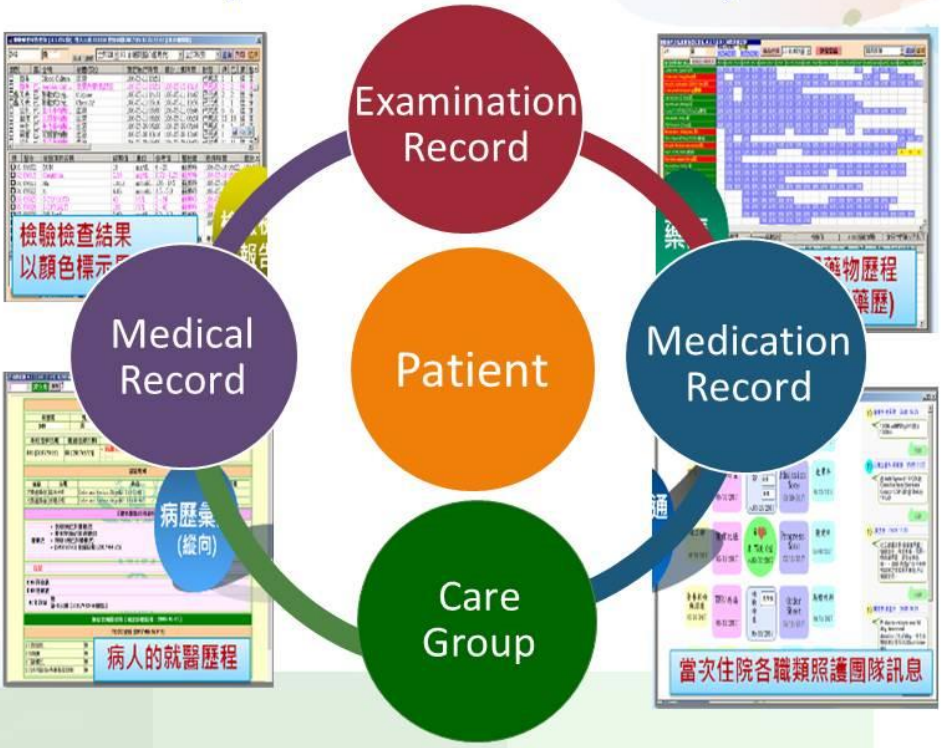
# Continuity of Care Record

*(Chi Mei Medical Center)*

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# Referral system and MediCloud

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# Flying Geese Paradigm

- By flying in a V-formation, the whole flock achieves a 70% greater flying range than if each bird flew alone.
- All the other geese learned from following the example of leading goose.
- In order to reinforce NHI medical referral system, we imitate the flying geese paradigm
- We encourage the medical center or region hospital to be the leader of integration.

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# Reinforcing Referral System Policy

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# Flying Geese Medical Care Group

- More than 500 hospitals, clinics, nursing home and home care in this group.

*Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.*

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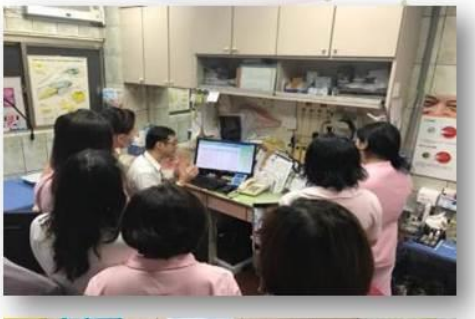
# Communication APP：LINE

*Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.*

18

# Case Manager: to facilitate effective teamwork



Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.

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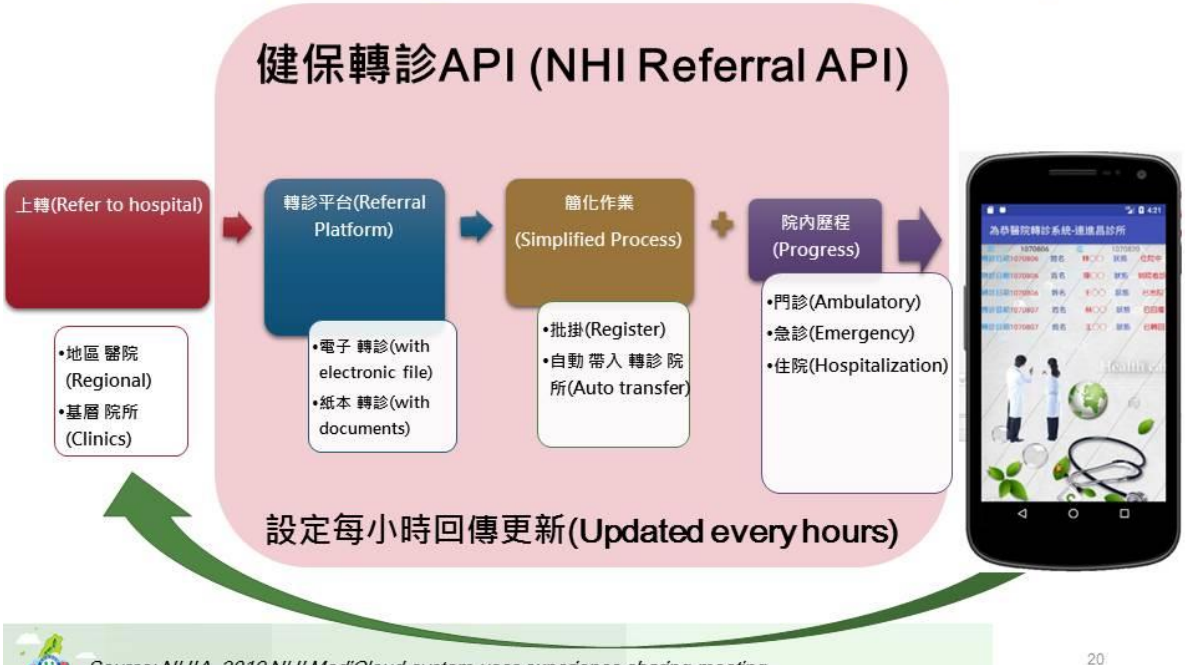
# Two-way communication

*(Wei-Gong Memorial General Hospital)*




Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.

20

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# Shared-care app

## *(Wei-Gong Memorial General Hospital)*

shared-care physician account and validation

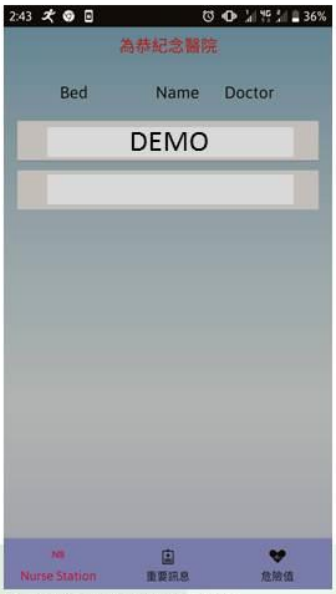
*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

21

# Shared-care app

## *(Wei-Gong Memorial General Hospital)*

Medication, Examination Record and Results (Reports / Lab Data / Image),…



*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

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# Shared-care app

## *(Wei-Gong Memorial General Hospital)*

Medication, Examination Record and Results (Reports / Lab Data / Image),…

*Source: NHIA, 2019 NHI MediCloud system user experience sharing meeting.*

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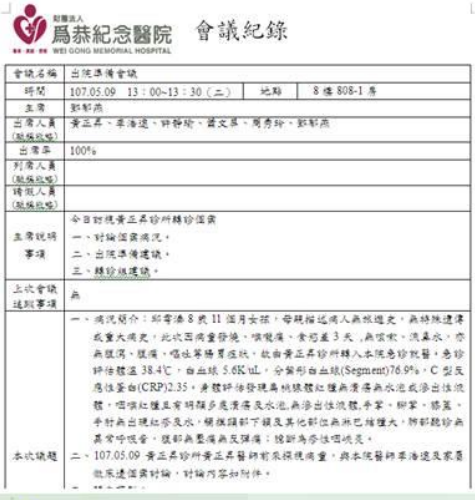
# E-care with clinics physicians during hospitalization

- Clinics physician ward visit
- To Hold Preparation meeting for referral patients and organize hospital, clinic physician and patients relatives before discharge.



財團法人 爲恭紀念醫院 WEI GONG MEMORIAL HOSPITAL 會議紀錄

| | | | |
|---|---|---|---|
| 會議名稱 | 出院準備會議 | | |
| 時間 | 107.05.09 13：00~13：30（二） | 地點 | 8樓 808-1 房 |
| 主席 | 郭郁燕 | | |
| 出席人員（職務批准） | 黃正昇、李海逵、許發琥、黃文昇、周秀玲、郭郁燕 | | |
| 出席率 | 100% | | |
| 列席人員（職務批准） | | | |
| 請假人員（職務批准） | | | |
| 主席說明事項 | 今日討視黃正昇診所轉診個案<br>一、討論個案病況。<br>二、出院準備建議。<br>三、轉診後建議。 | | |
| 上次會議延期事項 | 無 | | |
| 本次議題 | 一、病況簡介：郭寄藩 8 歲 11 個月女孩，發現描述病人無依據史，無特殊遺傳或重大病史，此次因病重發燒，喉嚨痛，食物差 3 天，無咳嗽，流鼻水，亦無腹瀉，腹痛，嘔吐等腸胃症狀，故由黃正昇診所轉入本院急診就醫，急診評估體溫 38.4℃，白血球 5.6K/uL，分餐形白血球(Segment)76.9%，C 型反應性蛋白(CRP)2.35，身體評估發現鼻梳狀體紅腫無潰瘍無水泡或滲出性液體，咽喉紅腫且有明顯多處潰瘍及水泡,無滲出性液體,手掌，腳掌，膝蓋，手肘無出現紅疹及水，頸根頭部下頷及其他部位無淋巴結腫大，肺部聽診無異常呼吸音，腹部無壓痛無反彈痛；臨斷為疹性咽喉炎。<br>二、107.05.09 黃正昇診所黃正昇醫師前來探視病童，與本院醫師李海逵及家屬做床邊個案討論，討論內容如附件。 | | |

*Source: NHIA, 2018 NHI MediCloud system user experience sharing meeting.*

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# Future Perspectives

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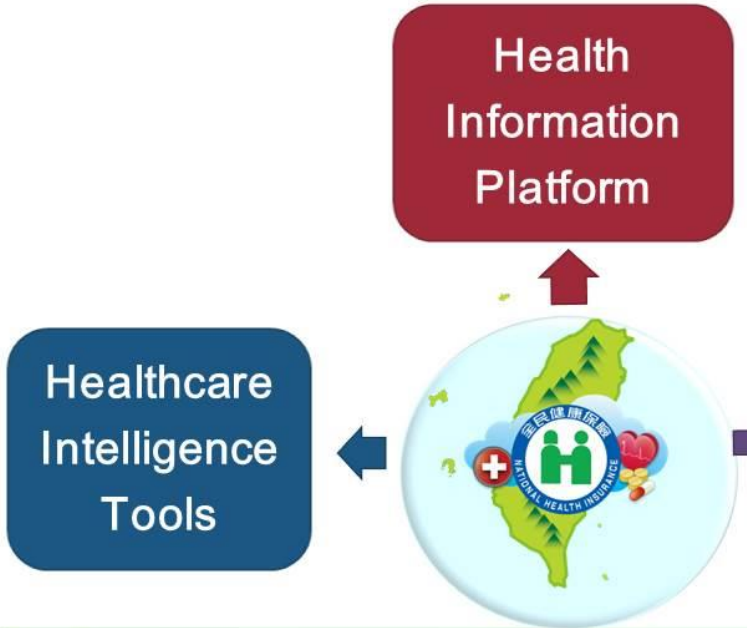
# Future Perspectives

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***Thank you***
***for your attention!***