

臺灣競爭力的尋索與創發

第八講 醫療、健保與國家競爭力

授課教師：私立慈濟大學 公共衛生學系 葉金川 教授
時間：2014 年 11 月 5 日（星期三）下午 15:30-17:20
地點：臺灣大學博雅教學館 101 室



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[「姓名標示—非商業性—相同方式分享」臺灣3.0](#)
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Public health and medical care in Taiwan

1895-1945 Basic Infrastructure

1945-1970 Public health

1971-1984 Hospital development

1985-1994 Medical care Network

1995-2012 National Health Insurance

2013- Health and Welfare

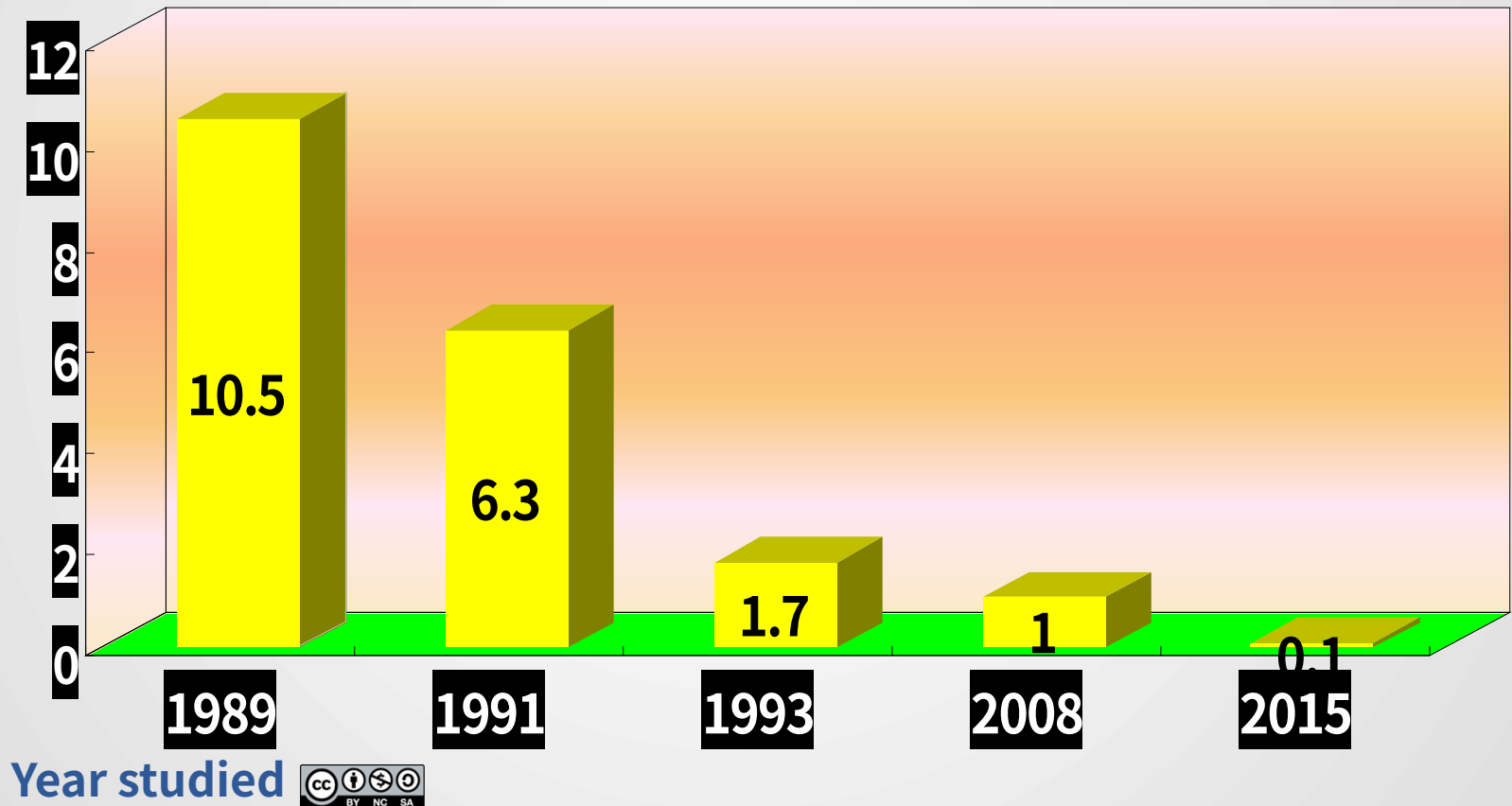


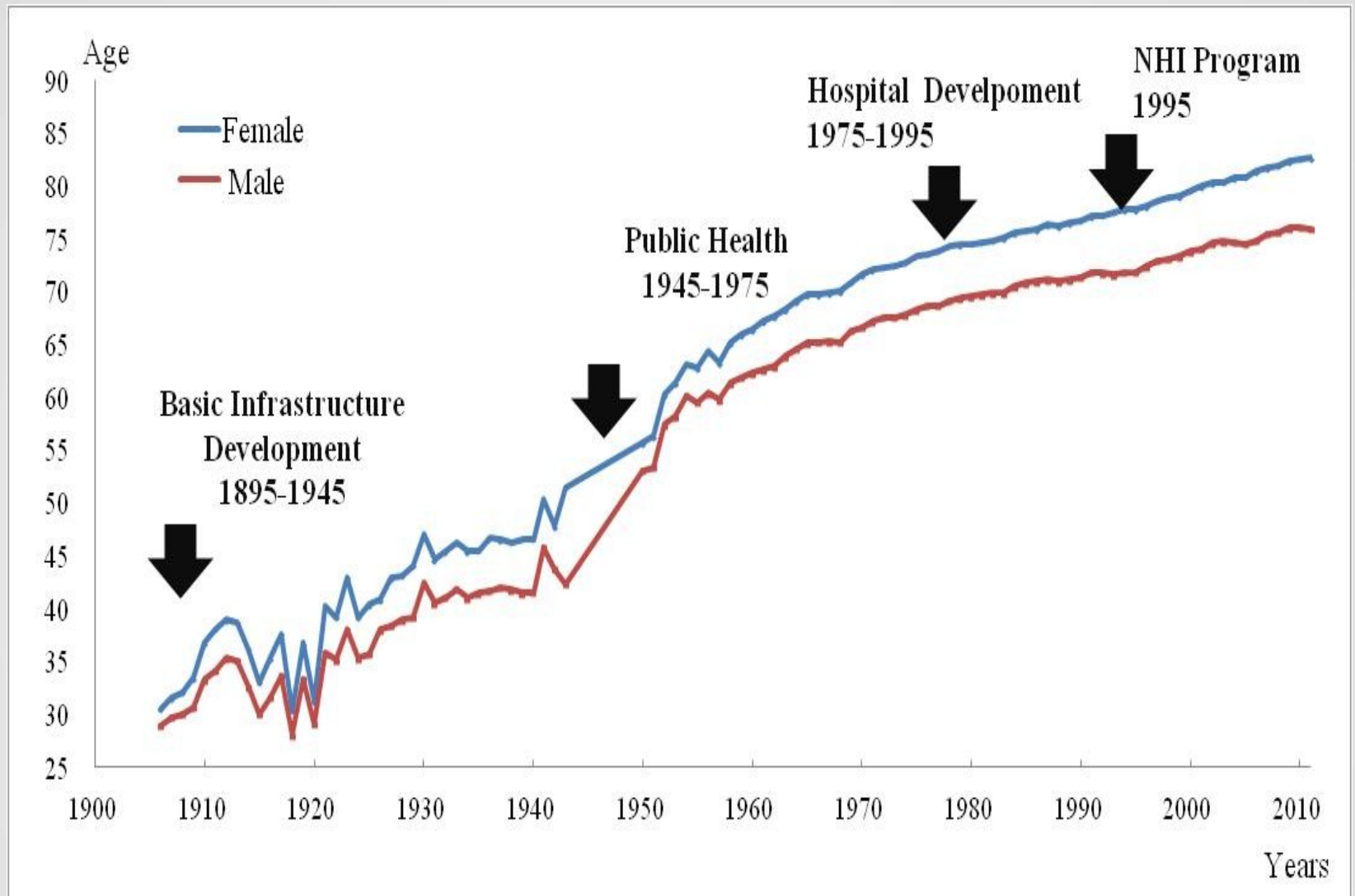
後藤新平

- 土地、戶口、風俗調查
- 鴉片成癮、留辮、纏足
- 天花、鼠疫、狂犬病



HBsAg Positive Rates at Age of Six



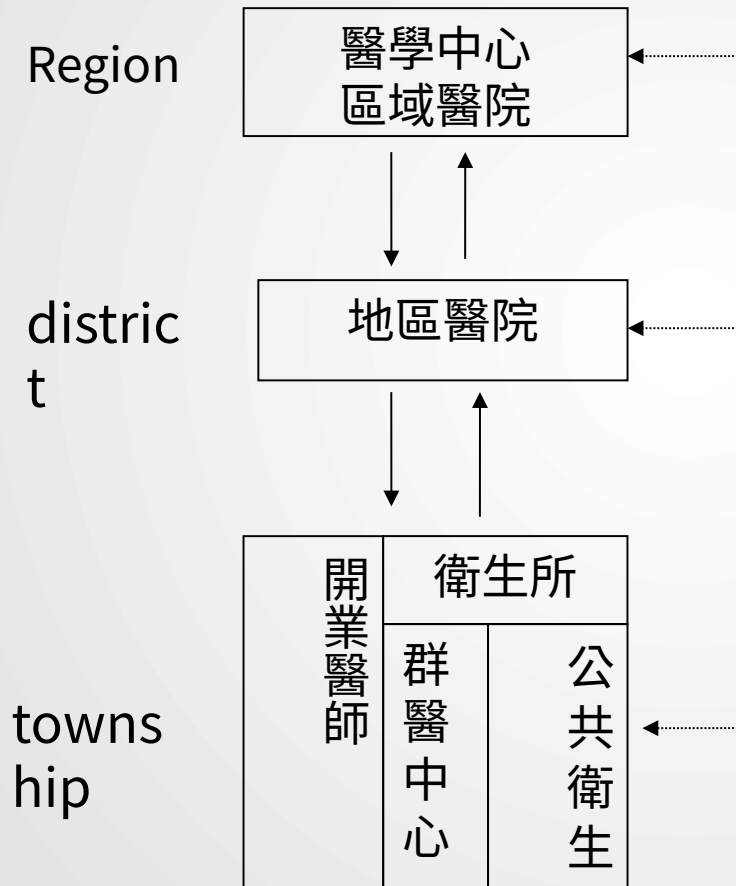


Medical care Network, 1985-2000

	計畫前 (1984 年 底)	第一期目標 (1990 年 底)	第二期 (1996 年 底)	全程目標 (2000 年 底)
每一醫師服務人口數 (每萬人口醫師數) (1)	1,470 (6.8)	1,000 (10.0)	860 (11.6)	750 (13.3)
每萬人口急性病床數 (每萬人口一般病床數) (2)	23.9 (18.9)	31.6 (26.6)	37.0 (32.0)	40.0 (35.0)
每萬人口精神病 床數	5.8	7.5	9	10
每萬人口護理之家 床數 (每萬老	-	-	0.6	3.0



of Medical Care Services



● 每區域至少一區域醫院

服務人口 40~100 萬

功能：教學、研究、訓練
及高度醫療作業服務

● 服務人口：10 萬人

功能：一般住院、專科門
診、支援基層醫療服務

● 服務人口：2000 人以上

功能：第一基層醫療保健

● 2000 人以下，偏遠社區 設衛生室或基層保健服務 中心

病人正常轉診途徑

-----> 醫護人員支援或病人急診出院轉診途徑



Rural health station 連江縣東引鄉



Rural District Hospitals



National Taiwan University Hospital



From National Health Insurance

- 1950 Labor Insurance**
- 1958 Government Employee Insurance**
- 1985 Farmer Insurance**
- 1990 Low-income Household Insurance**
- 1995 National Health Insurance**

***Health insurance coverage rate before 1995 was 59%**



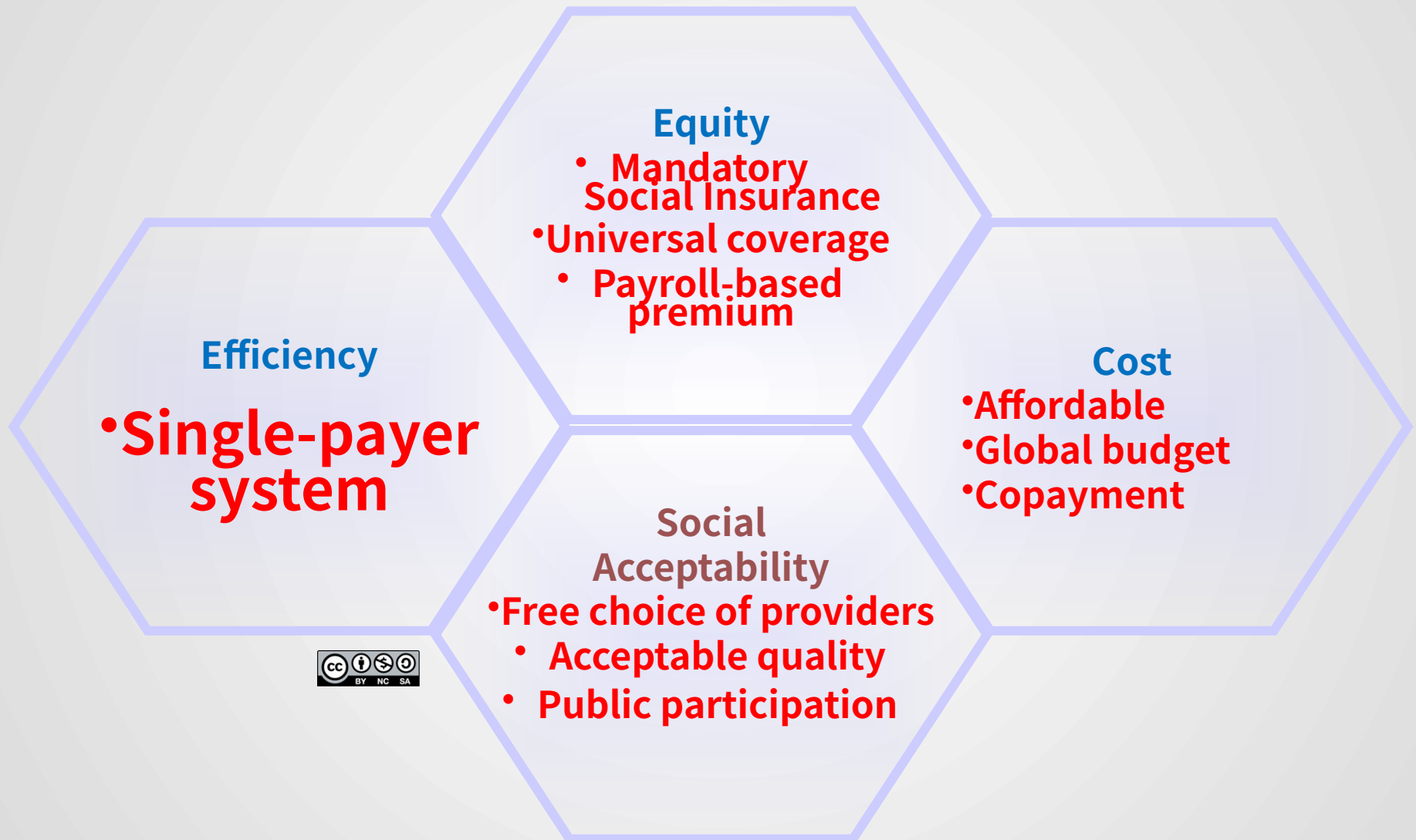
Life expectancy gained in different development stages

	Life expectancy	
1905	30 years	
1945 Infrastructure stage	40 years	50 years
1975 Public health stage	30 years	70 years
1995 Hospital stage	20 years	75 years
2013 Health Insurance stage	18 Years	80 years

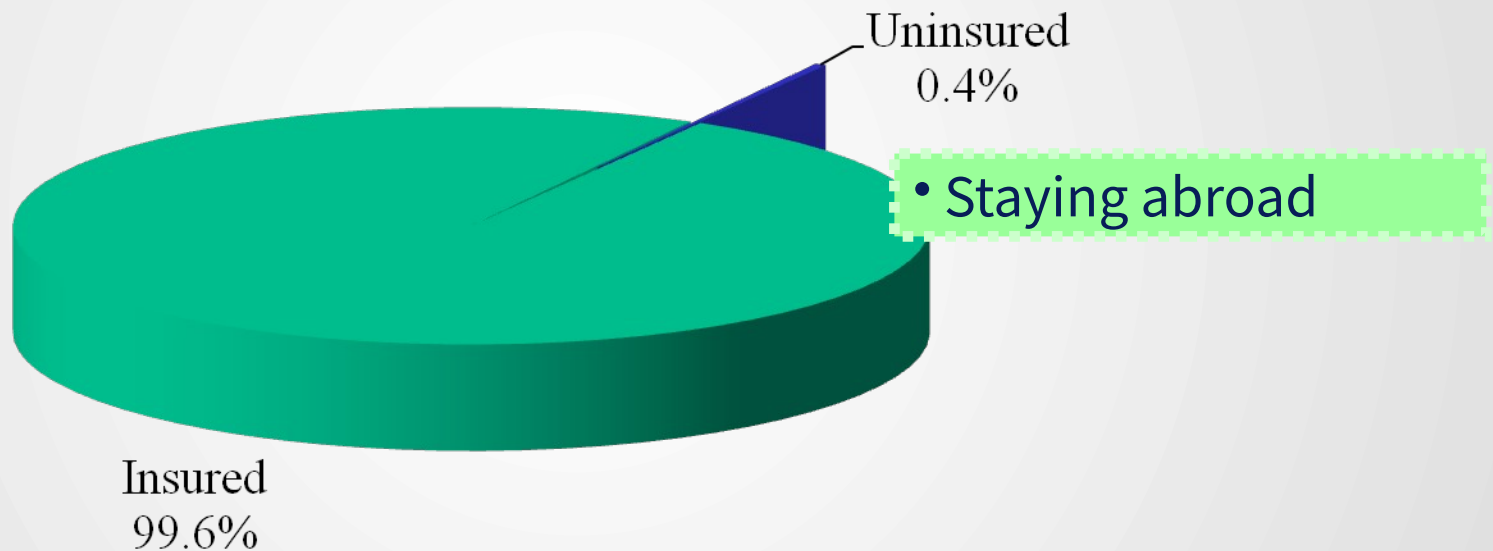




Characteristics of NHI



Universal Coverage



Population Covered : 23 million (99.6%), 2013



Comprehensive Health Benefits of NHI

- Ambulatory care
- Hospital care
- Pharmaceuticals
- Chinese Medicine
- Dental care
- Preventive Health care



Contribution

WHO 財務負擔公

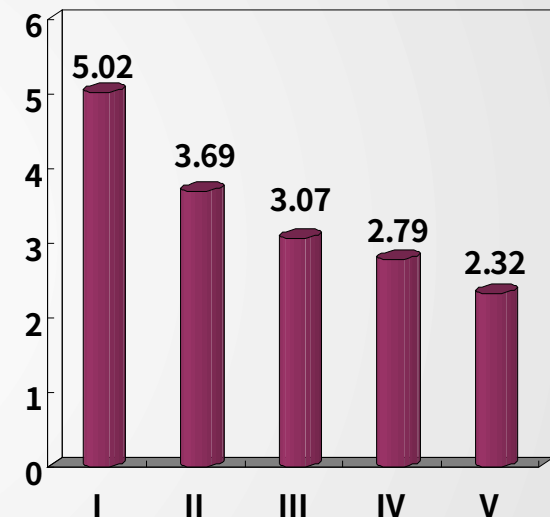
排名	國家	指數
1	哥倫比亞	0.992
		0.992
*	台灣	(1994 : 0.881)
6-7	德國	0.978
8-11	日本	0.977
8-11	英國	0.977
12-15	瑞典	0.976
17-19	加拿大	0.974
20-22	荷蘭	0.973
38-40	瑞士	0.964
53	南韓	0.955
54-55	美國	0.954

* 台灣指數 : Health affairs, 2003

● 臺灣競爭力的尋索與創發 08

每人健保受益比

(醫療給付受益 ÷ 繳交之保險費)



可支配所得按戶數五等分位組

所得最低

所得最高



- Financial fairness after the introduction of NHI improved much, it provides financial protection for the lower and lower-middle income groups.

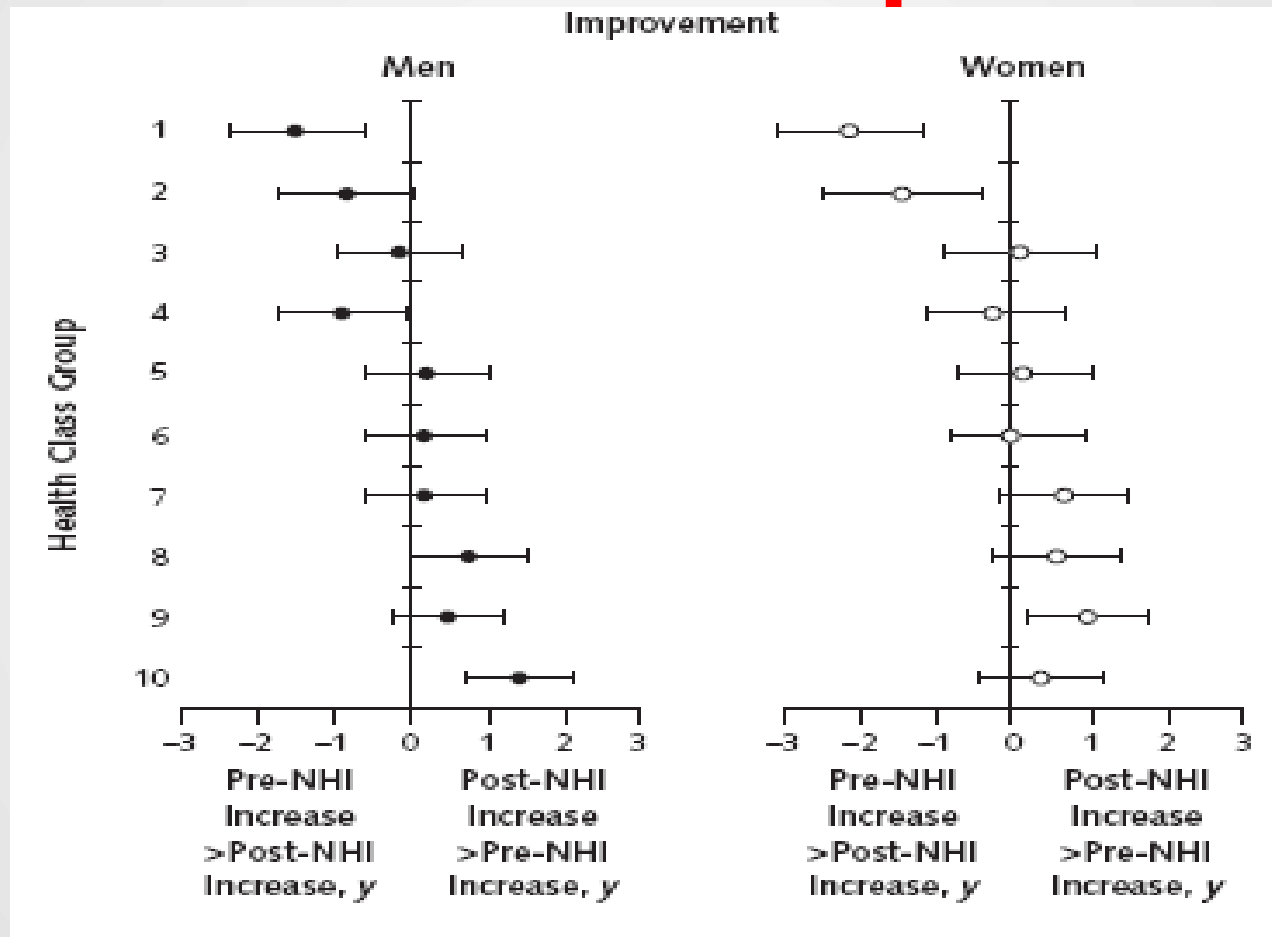


Increase of Life expectancy

• 年代	男	女	合計	增加
• 1986	71.0	75.9	73.5	
• 1991	71.8	77.1	74.5	1.0
• 1996	72.4	78.1	75.3	0.8
• 2001	74.1	79.9	77.0	1.7
• 2006	74.9	81.4	78.2	1.2
• 2011	76.0	82.6	79.2	1.0



Pre NHI and Post NHI Increase of Life Expectancy



Pre-NHI was 1982–1984 to 1992–1994, and post-NHI was 1992–1994 to 2002–2004. Error bars represent 95% CIs.



- Life expectancy after the introduction of NHI improved more for lower-ranked health classes

Chi Pang Wen et. al, 2008. A 10-Year Experience with Universal Health Insurance in Taiwan: Measuring Changes in Health and Health Disparity, *Annals of Internal Medicine*



NHE/GDP, 2011

- USA 17.7%
- Canada 11.2%
- Germany 11.0%
- Japan 9.6%
- UK 9.4%
- **Taiwan 6.6%**

Data source: OECD Health data 2011



Per capita Health Care Expenditure, 2011, ppp adjusted

Unit: US dollars

• US	8508
• Germany	4495
• Canada	4522
• UK	3406
• Japan	3213
• Taiwan	2186

Data source: OECD Health data 2011



Infant Mortality Rate, 2012

- USA 6.05(2011)
- Canada 4.85(2012)
- New Zealand 4.60(2012)
- UK 4.10(2012)
- Switzerland 3.70(2012)
- Taiwan 3.67(2012)
- Australia 3.30(2012)



Cancer 5 year Survival

	Colon cancer		Lung cancer		Breast cancer
	Male	Female	Male	Female	Female
Taiwan (2007-2011)	62	63	14	24	87
USA (2001-2007)	66	66	14	19	90
Canada (2004-2006)	63	64	13	19	88

Note: 1. Taiwan data from HPA Cancer Registry.

2. USA data from SEER (Surveillance Epidemiology and End Results).

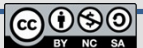
3. Canada data from Canadian Cancer Society/National Cancer Institute of Canada.

4. UK (England and Wales) data from Cancer Research UK.



Organ transplantation survival rate 2003 - 2012

Organ	Case	One year survival	There year survival
		Taiwan	Taiwan
Renal	2728	96	94
Liver	3017	86	82
Heart	864	78	70
Lung	76	57	48



Data source : Bureau of NHI, Taiwan



Taiwan spend **one quarter of** the expenses of U.S.(PPP adjusted) , and reach a **same or even better** health outcome.



Health Resources

	US	Canada	UK	Taiwan
Physician	2.5	2.4	2.8	2.5
Nurse	11.1	9.3	8.6	5.8
Acute beds	3.1	2.8	3.0	4.3
MRI	31.5	8.5	5.9	7.2
CT	40.9	14.6	8.9	15.0
Doctor Visit	4.1	7.4	5.0	15.3

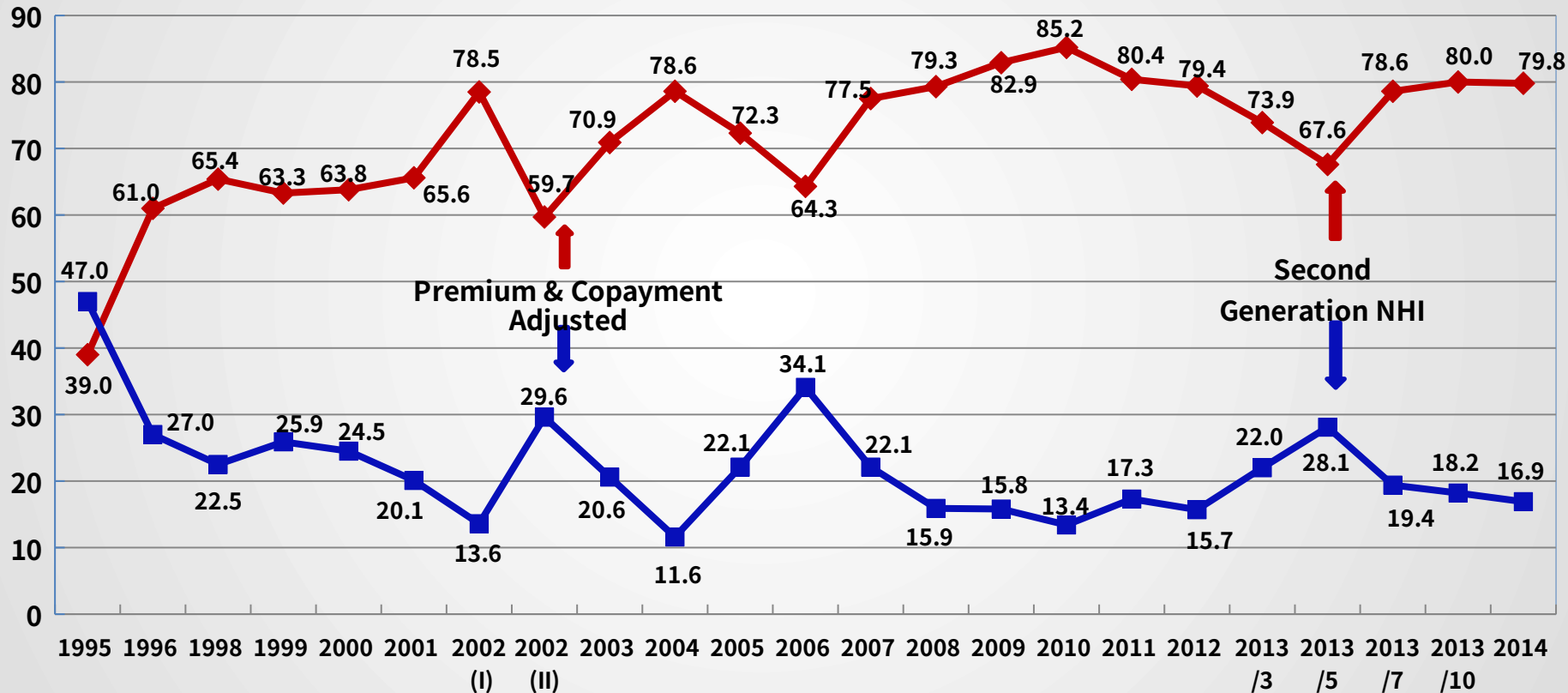


Taiwan has **less health resources** , but doctor's **productivity** is much **higher** than their U.S. colleagues.



High Public Satisfaction

(1995~2014)



◆ Satisfied ◆ Dissatisfied



Single Public Insurer, Private Delivery

- Free choice of providers
- Highly competitive providers
- Easy access
- Efficient services
- Acceptable, may not be good enough, quality of care



2014	The United States Senate Subcommittee Hearing - Access and Cost: What the US Health Care System Can Learn from Other Countries 美國參議院聽證會
2012	Taiwan's Progress on Health Care by Uwe E. Reinhardt 紐約時報
	NGC Documentary featuring "Taiwan's Medical Miracle" to premiere 國家地理頻道
	Health Insurance Is for Everyone by Fareed Zakaria 時代雜誌
	GPS Special: Global Lessons-The GPS Road Map for Saving Health Care 美國有線電視新聞網
2009	5 Myths About Health Care Around the World by T.R. Reid 華盛頓郵報
2008	Taiwan featured in one of the U.S. Public Broadcasting Service's (PBS)Frontline series called "Sick around the world" 美國公共電視
2005	"Pride, Prejudice, Insurance" by Paul Krugman 紐約時報



Health Affairs

Vol 28, No. 4, 2009

- Because we are a single payer, we can save a tremendous amount of administrative  cost.

Lessons from Taiwan's universal health insurance

: A conversation with Taiwan's Health
Minister **Ching-chuan Yeh** by Tsung-Mei Cheng



Preventive services /Quality of care

- More investment shall be made in **preventive health** services
 - To strengthen **cancer screening** services
- Organizing the **integrated** health care system
- Emphasizing patient-oriented quality-based health care
- **Pay for performance/ pay for quality**



Long-term Care

- 10-year plan for creating a long-term care system
 - Building a sound and complete long-term care system
 - Combining private resources to provide long-term care services
 - Established a family-support caregiver system
- Initiate long-term care insurance to meet the aging trend of population before 2016?

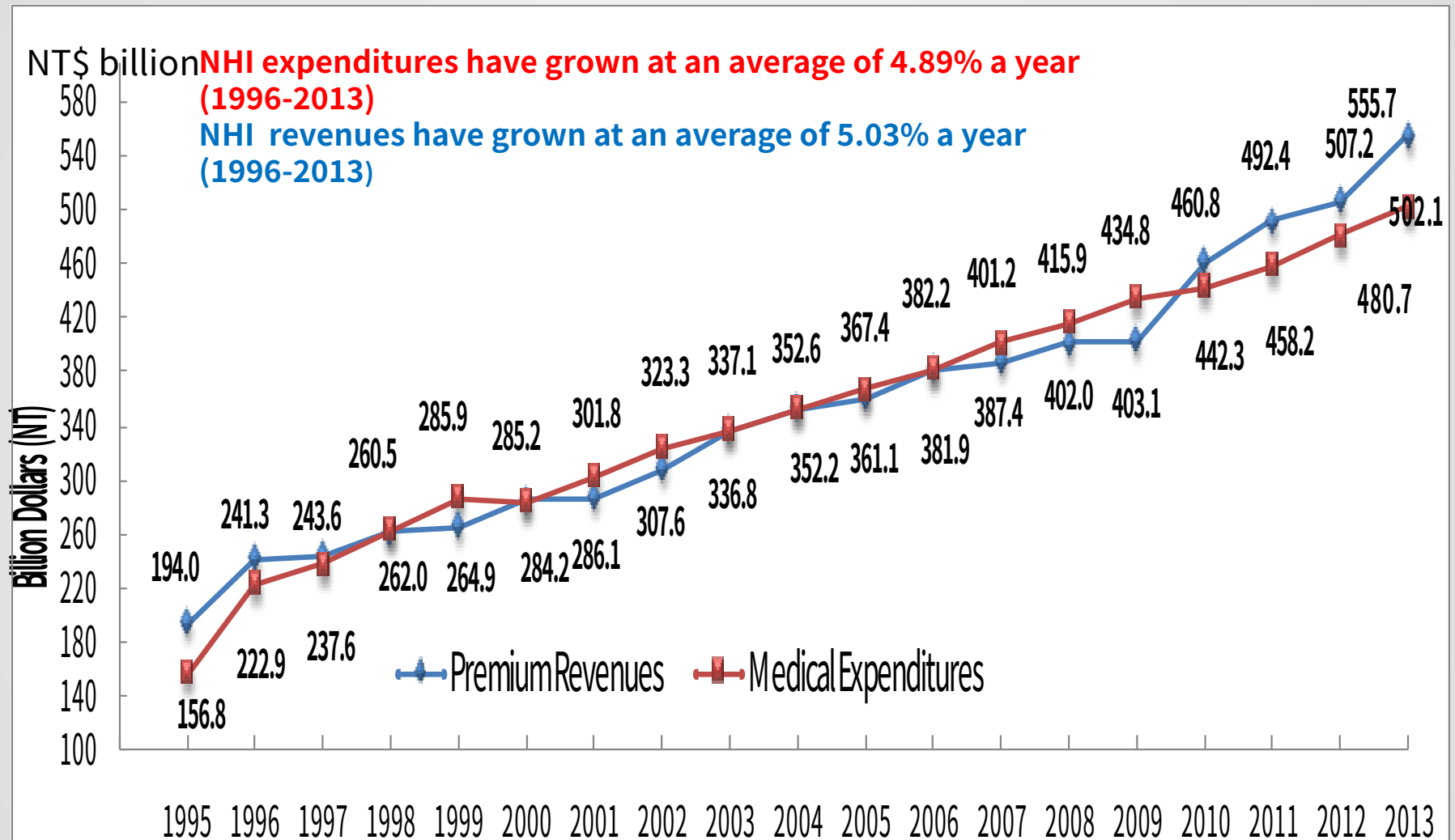


Financial Stability

- NHI expenditure growth rate(5.5%) > NHI revenue growth rate(4.4%)
- Politically difficult to raise payroll premium
- Payroll-based premium always fall short of economic growth
- Raise from 4.25% in 1995 up to 4.97% in 2013, and 2% non-payroll income



NHI Revenues and Costs Since 1995



Private Health Insurer and the Insured

Selection of insured
Patient Dumping
Price Increasing



Patient Protection?
Not insured
Price escalation



Health care utilization

Year 2011	US	Taiwan
MRI per million	31.5	7.2
CT per million	40.9	15.0
MRI exams per 1,000	108.2	25.6
CT exams per 1,000	273.8	72.9
Visit Doctor per person	4.1	15.3
Coronary Bypass USD	67,583	10,000
Hip Replacement USD	38,017	6,000



Obamacare, ACA

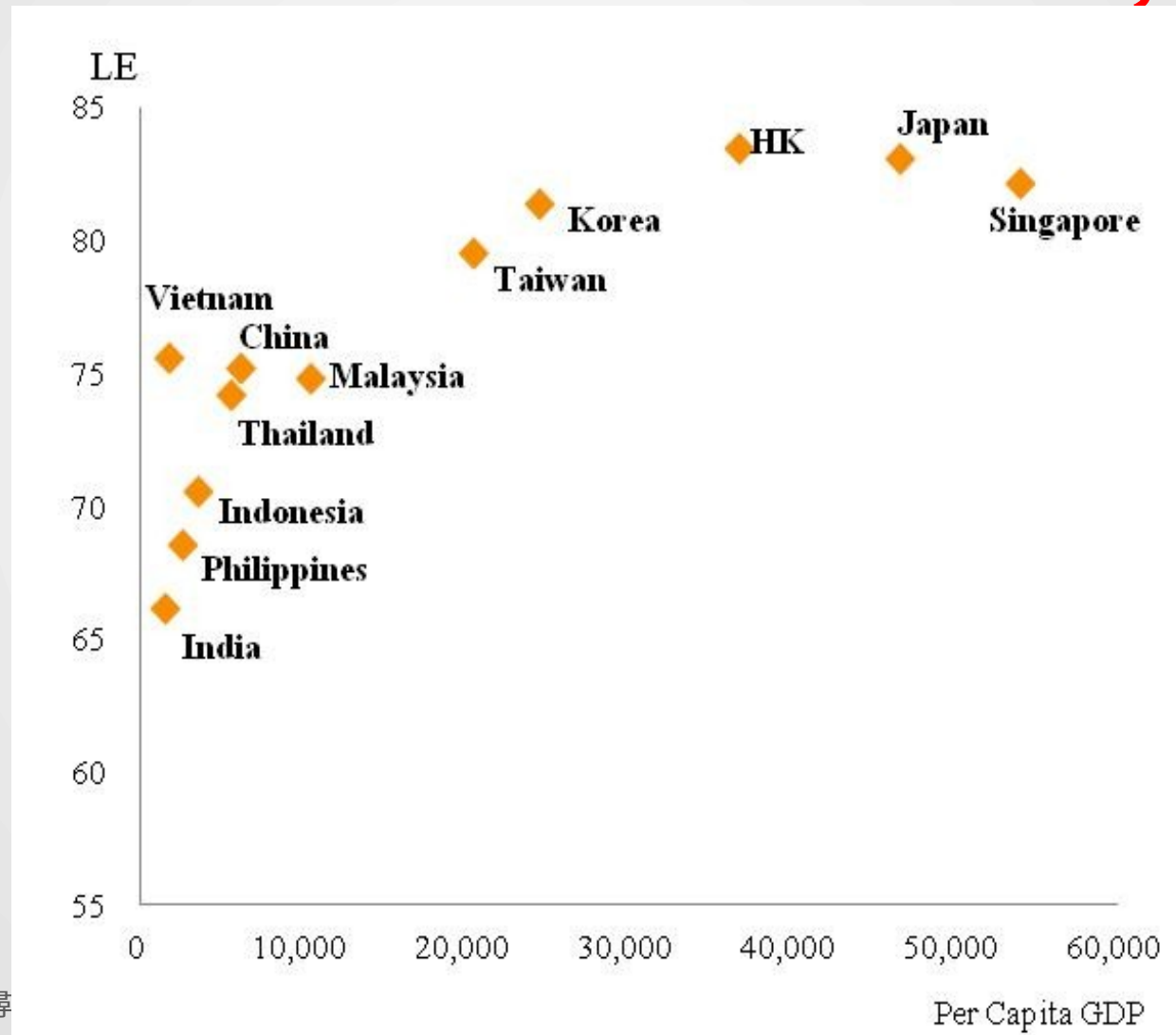
Patient Protection and Affordable Care Act (2010)

- Effective Jan 1st, 2014
- 7 million enrolled
- Before March 31st, 2014

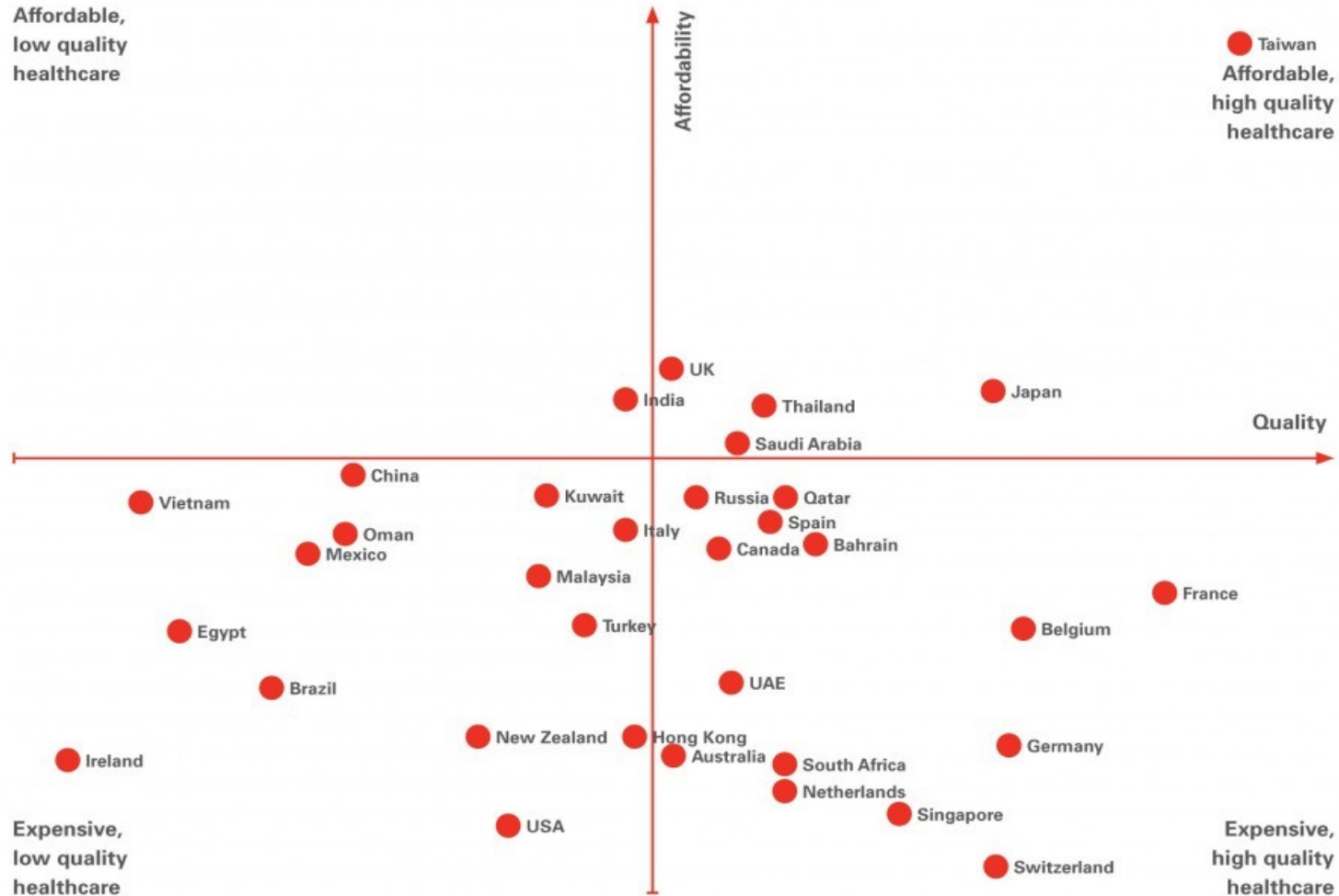
Kathleen Sebelius resigned April 14, 2014
Because of Web-site Bug?
Sylvia Mathews Burwell Replaced



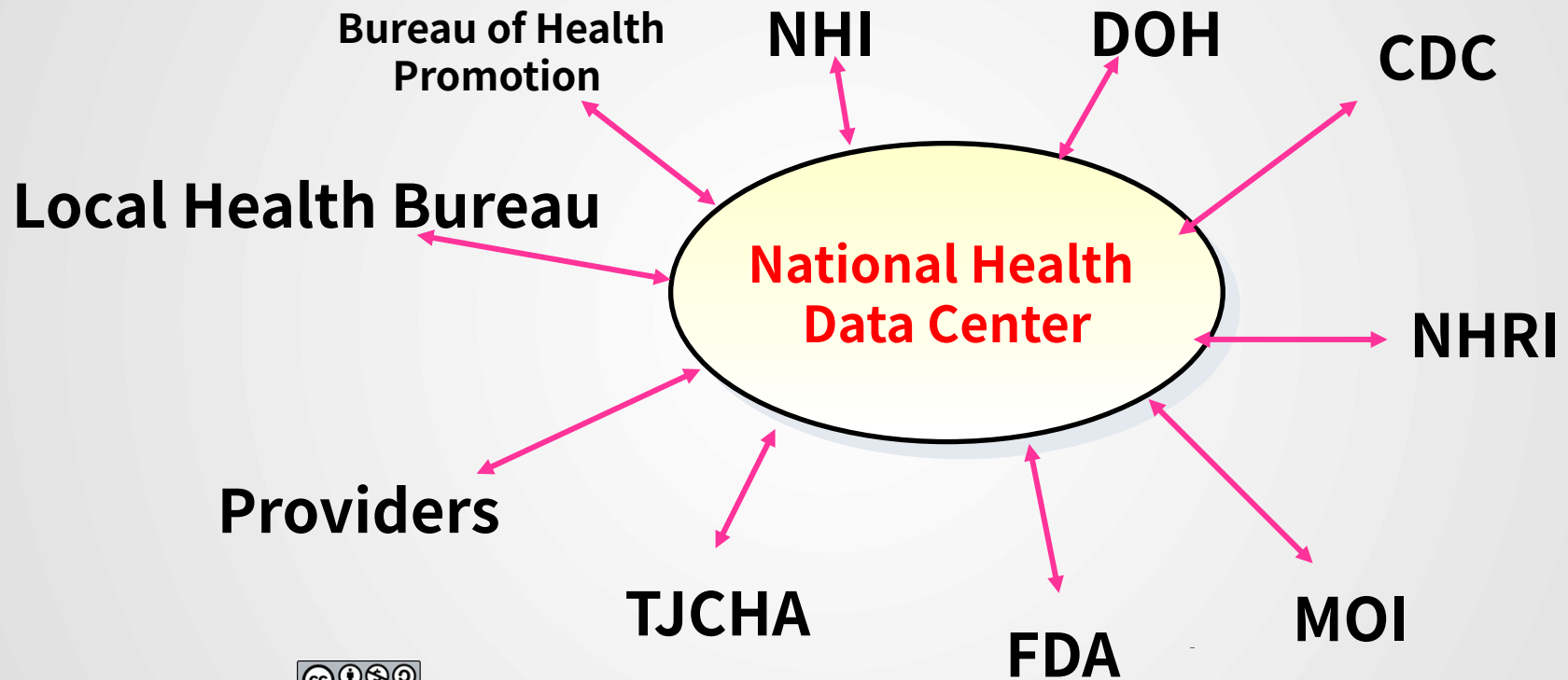
Life expectancy and per capita GDP of east-asia and south-asia countries, 2012



Affordability versus quality of healthcare



National Health Data Center



Virtual Lifetime Electronic Record

Obama directed the Department of Defense and the Department of Veterans Affairs to create the Virtual Lifetime Electronic Record:

“... will ultimately contain administrative and medical information from the day an individual enters military service throughout their military career and after they leave the military.”



-President Barack Obama



e-Health Environment

- Establishing nationwide EMR and image exchange in 2015
- Completed 507 hospitals and over 20,000 Clinics
- Developing automatic system searches for high medical services utilization records



NHI PharmaCloud System

- Record patients' drug utilization data of the last 3 months
- Making available real-time searches for hospitals and physicians to avoid repeated drug dispensing and guarantee drug safety and quality.

NHI
PharmaCloud



My Health Bank

Personal medical data accessibility

- Self-managing NHI claim records
- Alerting hospital to claim accurate data
- Facilitating discussion between doctors and patients

Personal Privacy

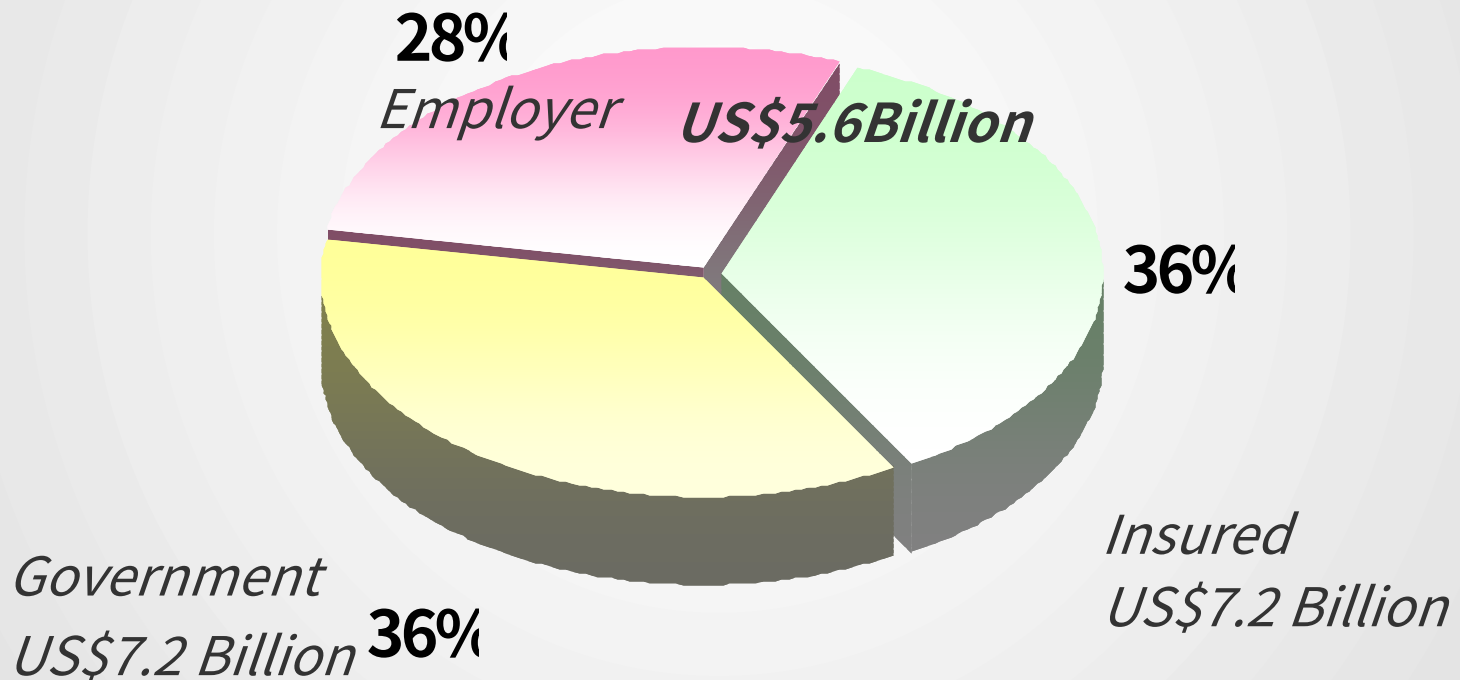
- Certificate identity
- Security for downloading files



Sources of NHI Revenues

Total premium revenues in 2014: NT\$600billion (US\$20 billion)

(US:\$2700 billion)



Source: The National Health Insurance Statistics, 2006



Burden of Employer

- 2014 1680 億台幣
- 1 % GDP
- Lowest in developed countries
- US 8% GDP



a typical health care institute

- Total revenue 3.1 billion
- Total expenditure 3.0 billion(3%+)
- Personnel expenditure 1.2 billion(40%)
- Health Insurance 0.041 billion(1.3%)
- Labor Insurance 0.037 billion(1.2%)



國際醫療

輸出 - 中國大陸

台資醫院

台籍台醫

台籍陸醫 較多

國際病人

陸客 - 健檢、醫美、牙醫

他國 - 重症



生技新藥廠

- TRPMA 27 家會員
- 上市、上櫃 約 20 家
- 華人亞太疾病
- 台灣醫學中心臨床試驗成熟
- 比韓國、香港、新加坡、大陸強
- 跨國多中心臨床試驗



Si2c發掘潛力案源中主要項目

類別	開發機構（公司）	品 項	進 度
新藥	台大團隊、陽明團隊	晚期肝癌	2年內申請美國與台灣臨床
	高醫大	近視預防與治療	3年內完成臨床前開發
	國家中醫研究所、中研院、台大、生技中心	杭丁頓（舞蹈症）	2年內申請美國與台灣臨床
醫材	台大團隊	可分解的人工神經導管	已成立善醫生技
	成大	植牙導板	已成立巧醫生技
	陽明大學	髓腔內骨釘定位孔導引裝置	育成公司中
	成功大學	舒感電漿活膚儀	育成公司中
	秀傳醫院	超輕型手術用數位立體顯微鏡	育成公司中
	鏡鈦、中央大學	C-arm影像輔助骨科手術用導航系統	將進入產品化中

製表：杜蕙蓉



其他醫藥製造業

- 檢驗試劑
- 醫材
- 醫療消耗品
- 復健器材
- 病人代步電動車
- 健身器材



其他醫藥製造業

- 疫苗
- 骨髓庫、臍血庫、細胞庫
- 隱形眼鏡
- 血液製劑
- 健康食品

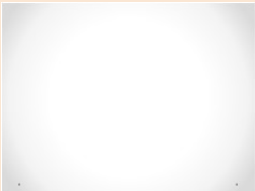
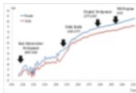


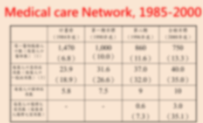
電子健康產品

- 體重計
- 血壓計
- 脂肪計
- 骨密度計
- 運動紀錄器
- 穿戴式電子產品

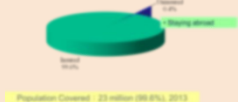
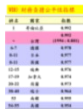


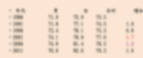
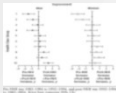
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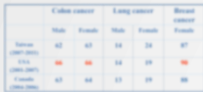
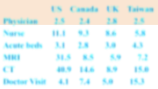
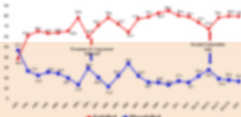
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5			私立慈濟大學公

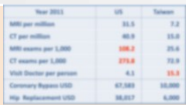
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17			私立慈濟大學公 資料來源：health affairs (http://content.healthaffairs.org/content/by/year) 瀏覽日期：2014.11.23
17			私立慈濟大學公 資料來源： (http://www.mohw.gov.tw/cht/DOS/Statistic.aspx?f_list_no=312&fod_list_no=2286) 瀏覽日期：2014.11.23

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20			資料來源：A 10-Year Experience with Universal Health Insurance in Taiwan: Measuring Changes in Health and Health Disparity/ACP 作者：Chi Pang Wen, MD, DrPH; Shan Pou Tsai, PhD; and Wen-Shen Isabella Chung, MSc (http://annals.org/article.aspx?articleid=739496) 依據 著作權法第 46、52、65 條合理使用。瀏覽日期：2014.11.23
21	Life expectancy after the introduction of NHI improved more for lower-ranked health classes。 		同上列。
22			私立慈濟大學公 資料來源： 國際資料：OECD Health Data 2013 How Does Luxembourg Compare (http://www.oecd.org/luxembourg/Briefing-Note-LUXEMBOURG-2013.pdf)，頁一。 臺灣數據：中華民國一〇〇年國民醫療保健支出 (http://www.mohw.gov.tw/MOHW_Upload/doc/%E4%B8%AD%E6%96%87NHE2011_0000711000.pdf)

頁碼	作品	版權標示	作者 / 來源
24	Infant Mortality Rate, 2012 		私立慈濟大學公 資料來源： United Nations Statistics Division (http://unstats.un.org/unsd/default.htm)
25	Cancer 5 year Survival 		資料來源： 1. Taiwan data from HPA Cancer Registry. 2. USA data from SEER (Surveillance Epidemiology and End Results). 3. Canada data from Canadian Cancer Society/National Cancer Institute of Canada. 4. UK (England and Wales) data from Cancer Research UK. 私立慈濟大學公
26	Organ transplantation survival rate 2003-2012  Health Resources 	 	私立慈濟大學公 資料來源：2003-2012 年全民健保器官移植存活率 / 衛生福利部中央健康保險署 (http://www.nhi.gov.tw/Resource/webdata/26057_2_%E5%99%A8%E5%AE%98%E7%A7%BB%E6%A4%8D%E5%AD%98%E6%B4%BB%E7%8E%87%202014.03.31.pdf)
28	High Public Satisfaction 		私立慈濟大學公
30			私立慈濟大學公 資料來源：衛生福利部中央健康保險署 (http://www.nhi.gov.tw/)

頁碼	作品	版權標示	作者 / 來源
33	Because we are a single payer, we can save a tremendous amount of administrative cost.		資料來源：Lessons from Taiwan's universal health insurance: A conversation with Taiwan's Health Minister/ Health Affairs Vol 28, No. 4, 2009 (http://content.healthaffairs.org/content/28/4/1035.abstract) 瀏覽日期：2014.11.23 依據 著作權法第 46、52、65 條合理使用。
37			私立慈濟大學公 資料來源：84 年到 102 年時間數列統計 / 衛生福利部統計處 (http://www.mohw.gov.tw/cht/DOS/Statistic.aspx?f_list_no=312&fod_list_no=5230) 瀏覽日期：2014.11.23
39			私立慈濟大學公
41			私立慈濟大學公
42			資料來源：Taiwan tops the expat health care charts/ Telegraph Media Group (http://www.telegraph.co.uk/health/expathealth/11190870/Taiwan-tops-the-expat-health-care-charts.html) 瀏覽日期：2014.11.23 依據 著作權法第 46、52、65 條合理使用。

頁碼	作品	版權標示	作者 / 來源
43			私立慈濟大學公
44			資料來源：President Obama Announces the Creation of a Joint Virtual Lifetime Electronic Record/THE WHITE HOUSE (http://www.whitehouse.gov/the-press-office/president-obama-announces-creation-a-joint-virtual-lifetime-electronic-record) 瀏覽日期：2014.11.23 依據 著作權法第 46、52、65 條合理使
48			私立慈濟大學公 資料來源：95 年全民健康保險統計 / 衛生福利部中央健康保險署 (http://www.nhi.gov.tw/webdata/webdata.aspx?menu=17&menu_id=662&WD_ID=698&webdata_id=2128) 瀏覽日期：2014.11.23
53			資料來源：6 新藥 + 9 醫材 Si2C 潛力新秀出列 / 工商時報 作者：杜蕙蓉 (http://money.chinatimes.com/news/news-content.aspx?id=20140923000041&cid=1210) 瀏覽日期：2014.11.23 依據 著作權法第 46、52、65 條合理使用。

