Taiwan's National Health Insurance

Recent efforts and effects

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OUTLINE

- Background
- Recent efforts under NHI
  - Revenue increase
    - Raising premium rate
    - Expansion of premium calculation base
  - Cost containment
    - Pay-for-performance programs
    - Prospective payment system/Diagnosis related groups
    - Integrated outpatient services program
    - Capitation payment
- Conclusion

TAIWAN 2009

- Basic economic background
  - **Population** 23 million
  - **Density** 639 persons per square km
  - **Aging** 10.6 population
  - **GDP** US$16,353 per capita
  - **NHE in GDP** 6.9%

- Health status
  - **Life expectancy** 75.9(Male)/82.4(Female)
  - **Infant mortality** 4.1 ‰

FEATURES OF NHI 1995-

- Compulsory universal coverage
- Comprehensive benefit package
- Public-run single-payer system
- More than 90% of providers contracted
- Diversified payment schemes
- Hospitals with large outpatient departments
- Freedom to choose doctors for a visit

MAJOR ACHIEVEMENT OF NHI

- Easy access to care with frequent utilization
- Health care expenditure at an affordable level
- Fairly good quality of care
- High public satisfaction

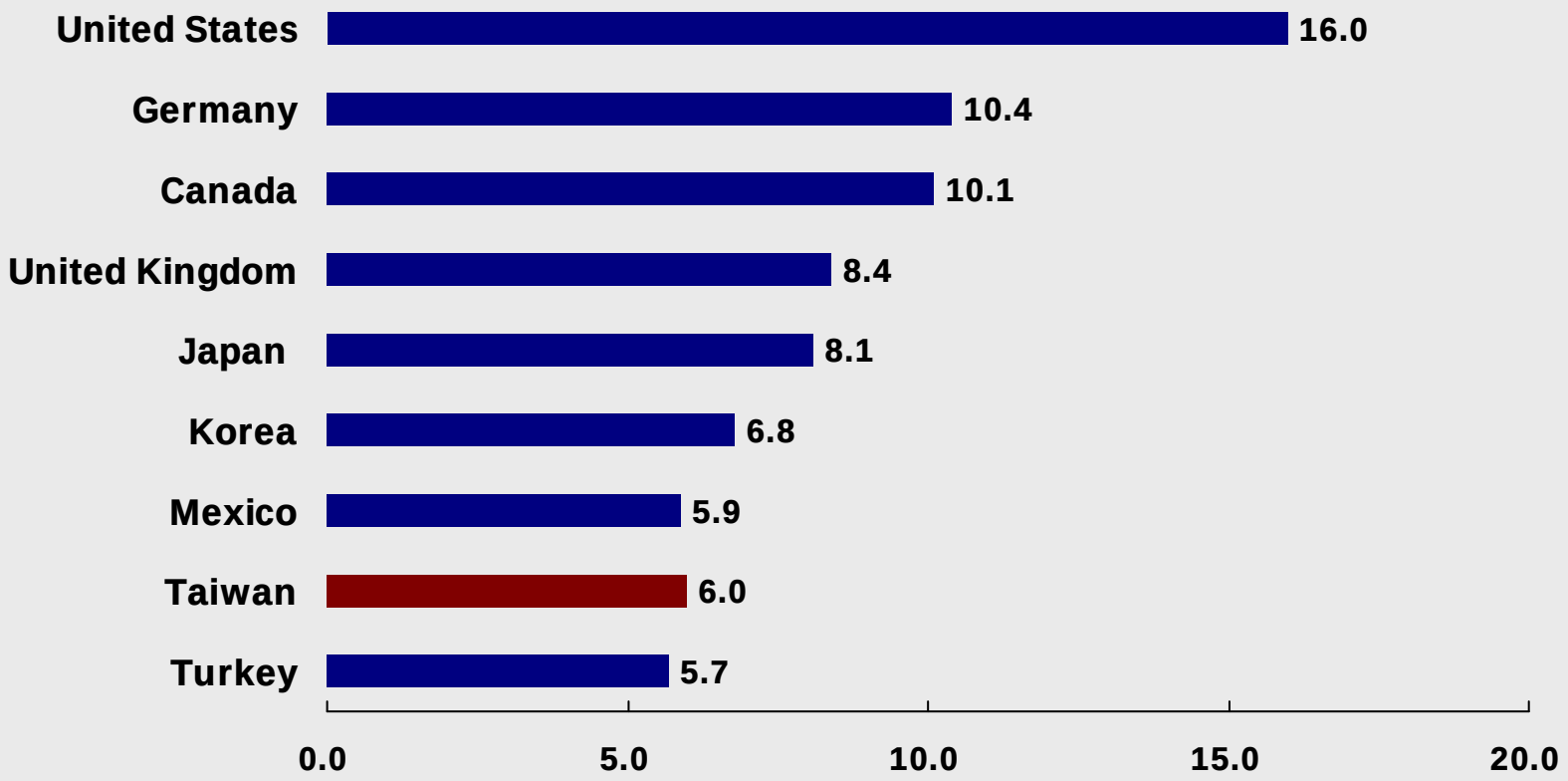
EASY ACCESS TO CARE

Services	*Previously Insured (n=844)*		*Newly Insured (n=177)*	
	Before	After	Before	After
Rate(%)				
Physician visits	27.3	29.5	14.7	24.9
Hospital admission	11.6	10.6	4.0	9.8
Emergency services	9.4	10.1	5.6	10.6
No. of visit, mean (SE)				
Physician visits	***0.480***(0.034)	***0.594***(0.045)	***0.209***(0.006)	***0.480***(0.079)
Hospital admission	0.125(0.013)	0.103(0.013)	0.040(0.015)	0.113(0.032)
Emergency services	0.106(0.012)	0.111(0.015)	0.051(0.018)	0.114(0.032)

Source: Cheng & Chiang. JAMA 1997;278:89-93

LOW HEALTH CARE EXPENDITURE

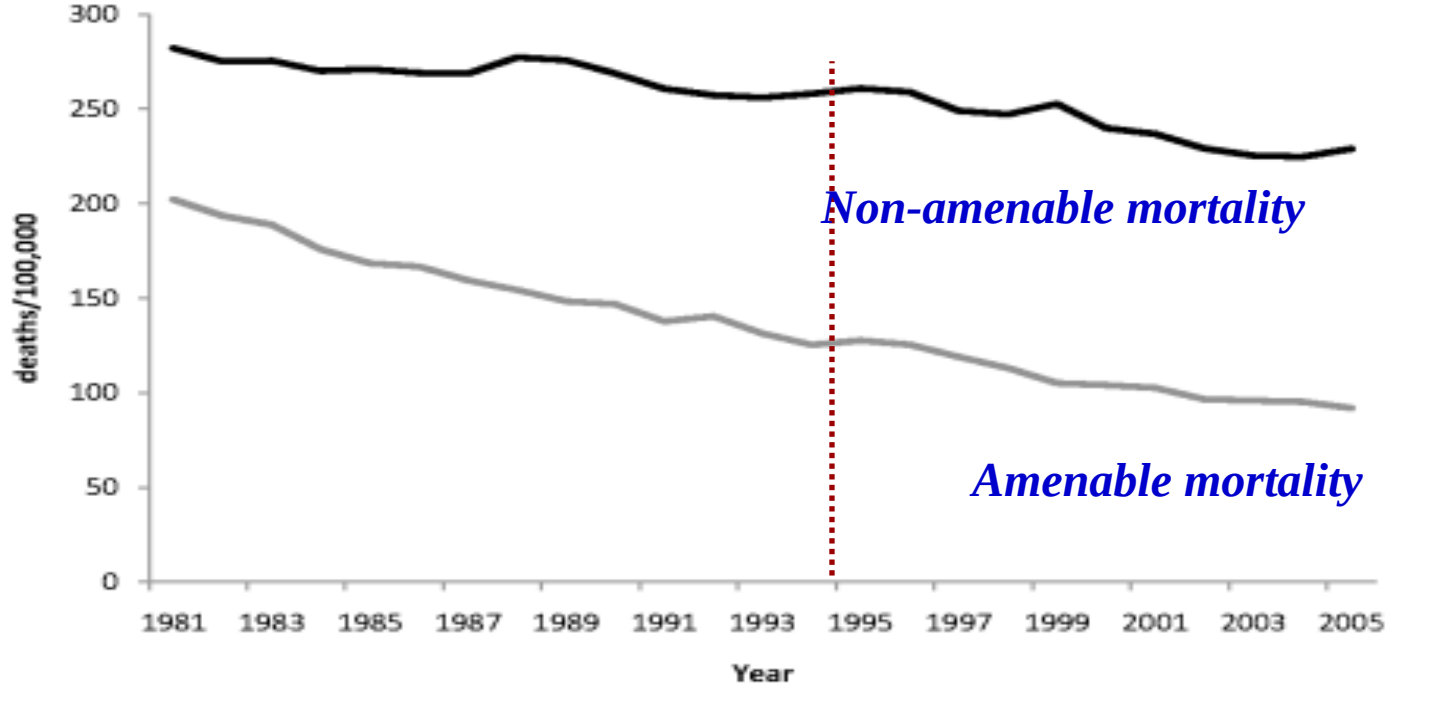
Health Care Expenditure as a share of GDP, 2007



Source: OECD Health Data, Taiwan Health Statistics, 2007

FAIRLY GOOD QUALITY OF CARE

- **NHI was associated with a reduction in amenable mortality**

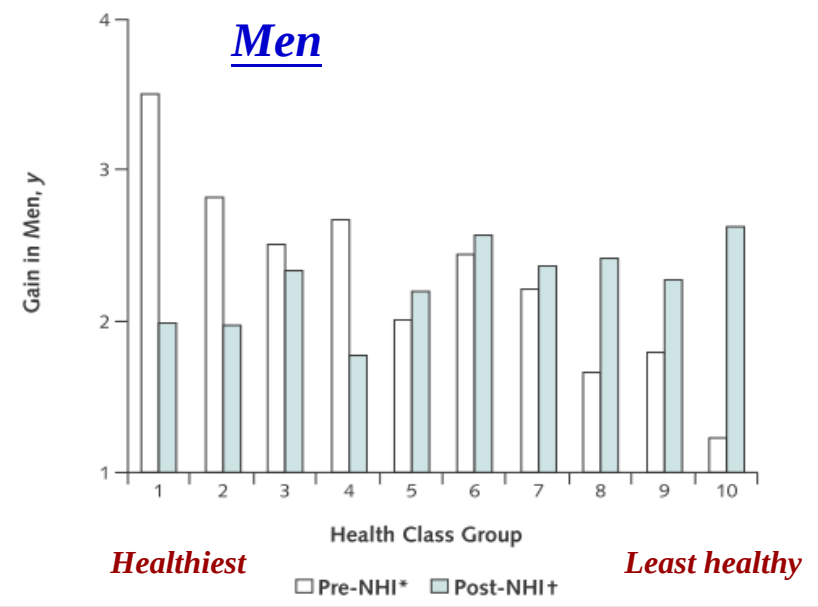


Trends in amenable and non-amenable mortality age 0-74, in Taiwan, 1981-2005

Source: Lee et al. BMC Health Services Research 2010;10:225

FAIRLY GOOD QUALITY OF CARE

- **Life expectancy after the NHI improved more for low-ranked health classes, resulting in narrowed health disparity.**

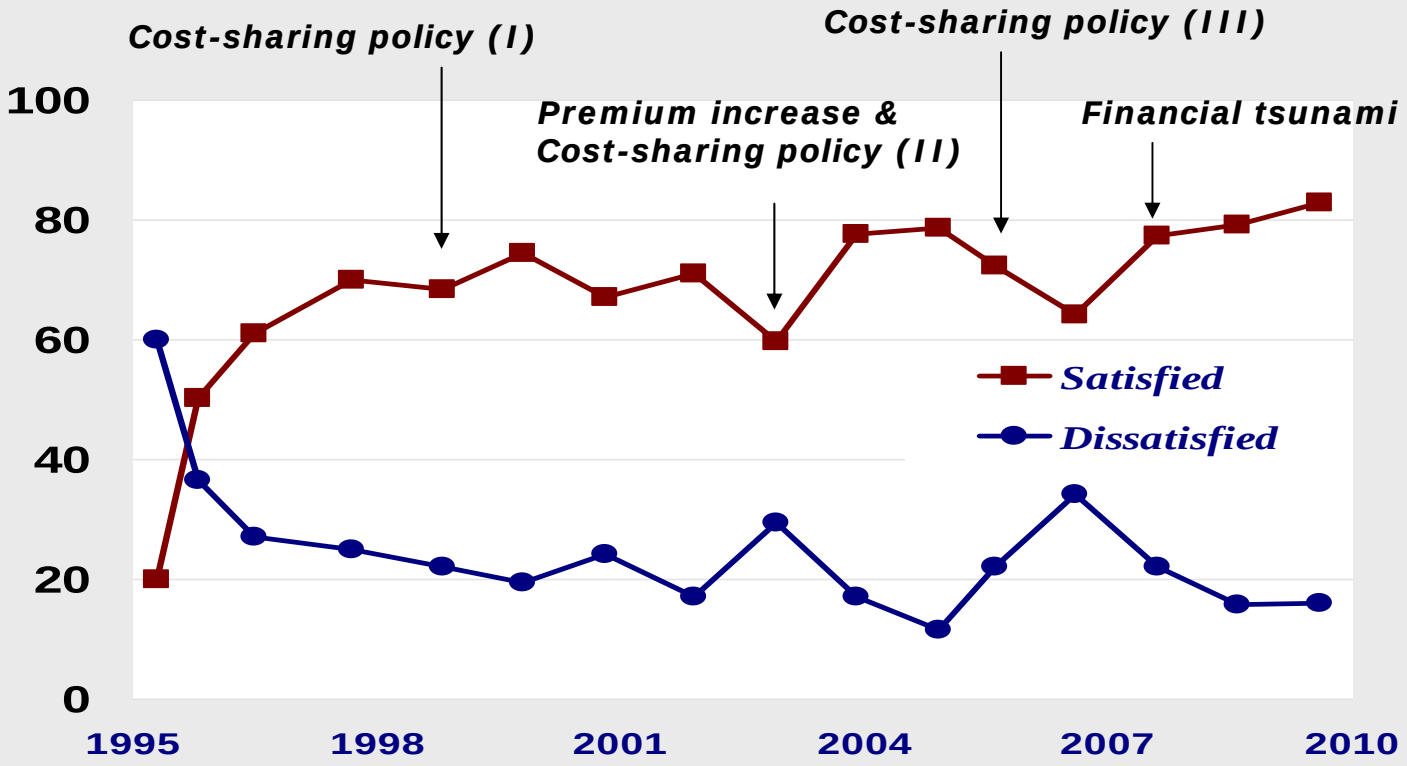


Gain in life expectancy during the period before (1982-1984 to 1992-1994) and after (1992-1994 to 2002-2004) the introduction of NHI.

Source: Wen et al. Annals of Internal Medicine 2008;148:258-267

HIGH PUBLIC SATISFACTION

Public satisfaction，1995-2010



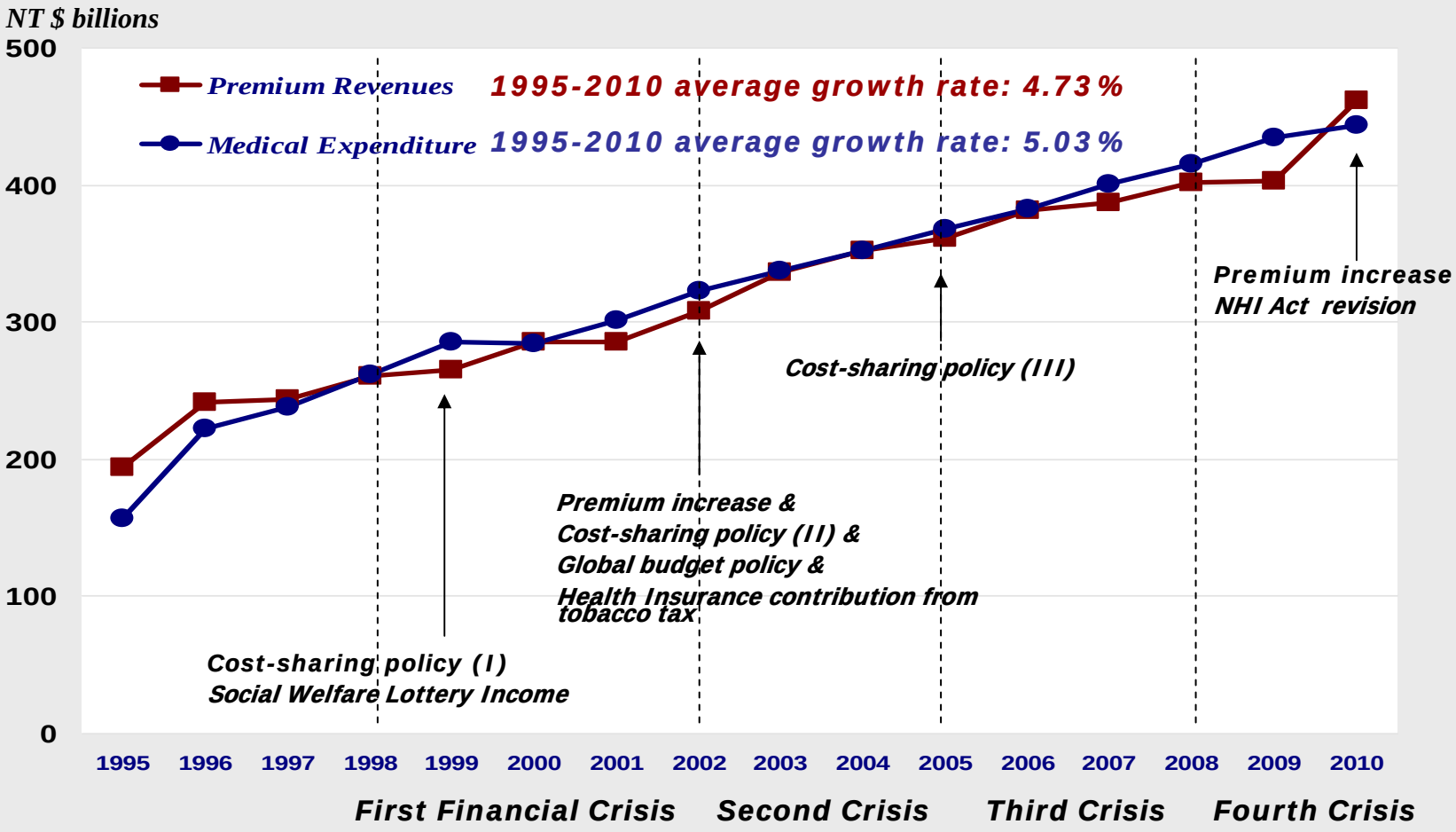
Source: Taiwan Health Statistics

RECENT EFFORTS

- Financial imbalance is the most critical problem that needs to be tackled. Several programs has been carried out by the NHI to mitigate the financial pressure and increase the quality of care for the patients.

- Recent efforts
  - Revenue increase
  - Cost containment: new payment reform

NHI REVENUES AND EXPENDITURE *1995-2010*



Source: Taiwan NHI Statistics

NHI REVENUES AND EXPENDITURE *1995-2010*

Year	Premium revenues	Medical expenditure	Surplus/deficit	Cumulative surplus/deficit
1995	194.0	156.8	37.1	37.1
1996	241.3	222.9	18.4	55.5
1997	243.6	237.6	6.0	61.6
1998	260.5	262.0	***-1.6***	60.0
1999	264.9	285.9	***-21.0***	39.0
2000	285.2	284.2	1.0	40.0
2001	286.1	301.8	***-15.6***	24.3
2002	307.6	323.3	***-15.7***	8.7
2003	336.8	337.1	***-0.4***	8.3
2004	352.2	352.7	***-0.4***	7.9
2005	361.1	367.4	***-6.3***	1.5
2006	381.9	382.2	***-0.3***	1.2
2007	387.4	401.1	***-13.8***	***-12.6***
2008	402.0	415.9	***-14.0***	***-26.5***
2009	403.1	434.8	***-31.7***	***-58.2***
2010	461.2	443.2	17.9	***-40.3***

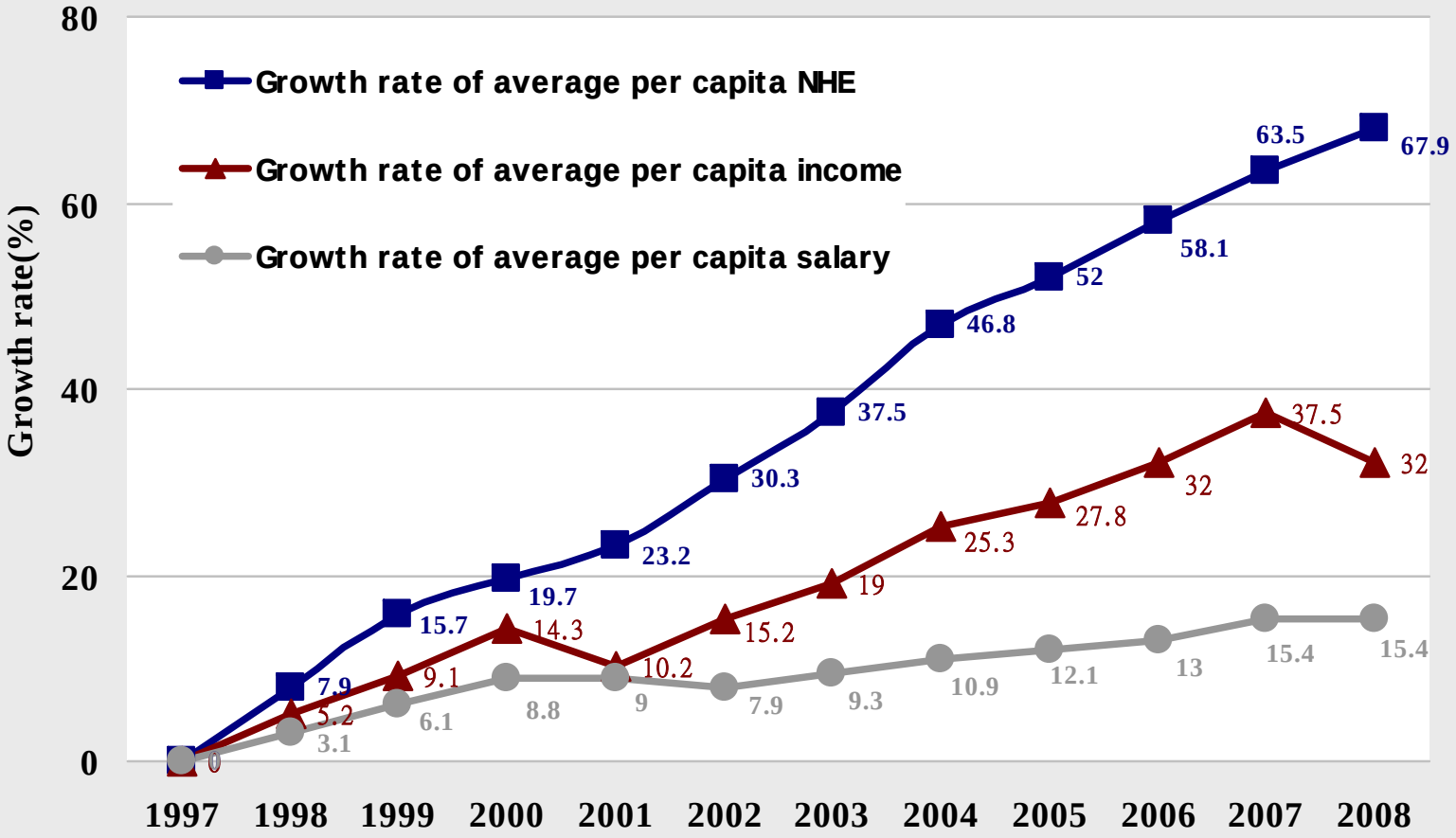
1995: March~ December (NT $ billions)

Source: Taiwan NHI Statistics

RECENT EFFORTS REVENUE INCREASE[1]

- Premium rate increase
  - *2002* From 4.25% to 4.55%
  - *2010* From 4.55% to 5.17%
- Earmarked tax subsidies
  - *1999* Social Welfare Lottery Income
  - *2002* Health Insurance Contribution from Tobacco tax
- Cost-sharing policy
  - *1999* Outpatient drugs, frequent-user and rehabilitation
  - *2002* Outpatient services and exam/tests fees
  - *2005* A four-level cost-sharing scheme to promote referrals

HEALTH EXPENDITURE, INCOEM AND SALARY, 1997-2008



Source: Taiwan DOH and DGBAS Statistics

RECENT EFFORTS REVENUE INCREASE[2]

- Expansion of premium calculation base
  - *Second Generation Health Insurance plan*: Changing from individual's regular salary to total household income.
  - *National Health Insurance Act revision (pass Jan. 2011)*
    - Regular premium (individual's regular salary)
    - Supplementary premiums (bonus, income from business, stock dividend, interest, rent, part-time jobs)

    →generating NT $ 20 billion extra premium income annually.

COST CONTAINMENT NEW PAYMENT REFORM

- NHI's payment design plays a major role in cost containment.
  - Pay-for-performance programs (P4P)
  - Prospective payment system/ Diagnosis-based groups (PPS/DRGs)
  - Integrated outpatient services program
  - Capitation payment

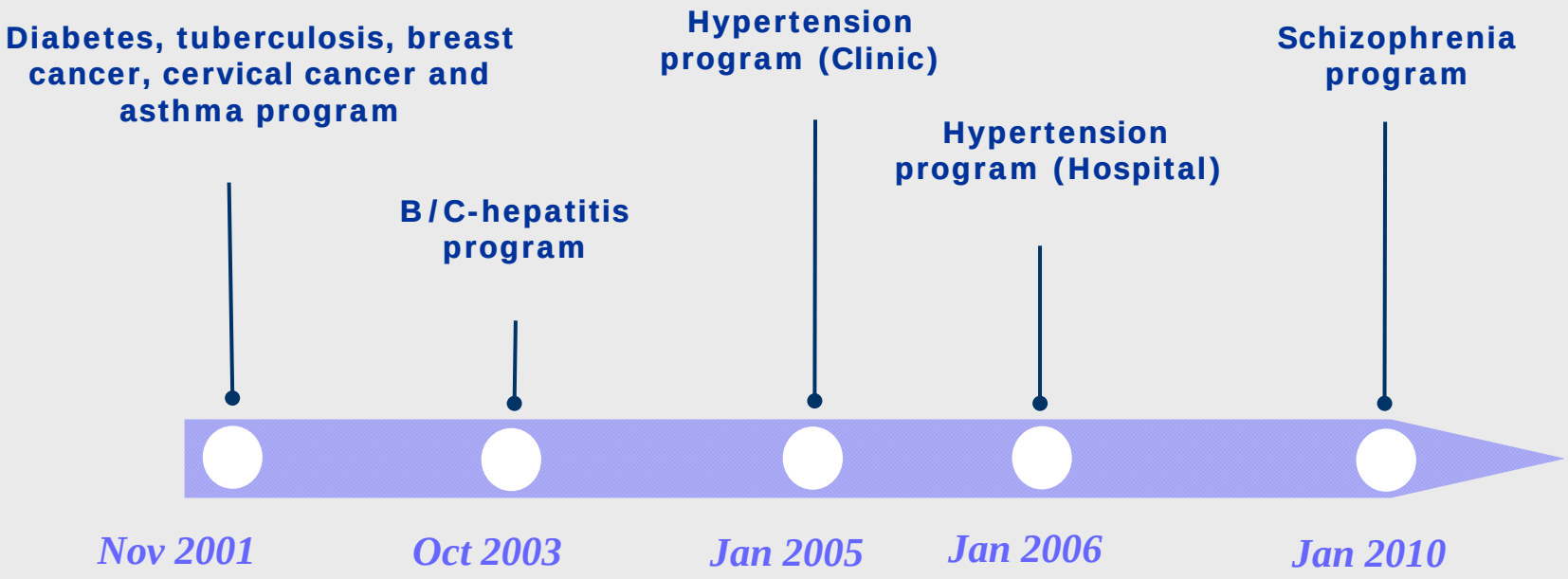
PAY-FOR-PERFORMANCE PROGRAMS

- The concept of the P4P program is to provide financial incentives to health care providers based on whether healthcare providers achieve pre-determined quality benchmarks. ***(Peterson, 2006)***

- There are growing numbers of P4P models. Many counties have adopted P4P programs to improve health care quality while controlling cost. ***(Meddings and McMahon, 2008; Berwick et al., 2006)***

- Taiwan's P4P programs started in 2001: encouraging healthcare providers to increases needed follow-up care for patients.

TAIWAN'S P4P PROGRAMS



The P4P Agenda

Source: BNHI, 2010

THE P4P PROGRAM FOR DIABETES CARE

- Goal of P4P program for diabetes care

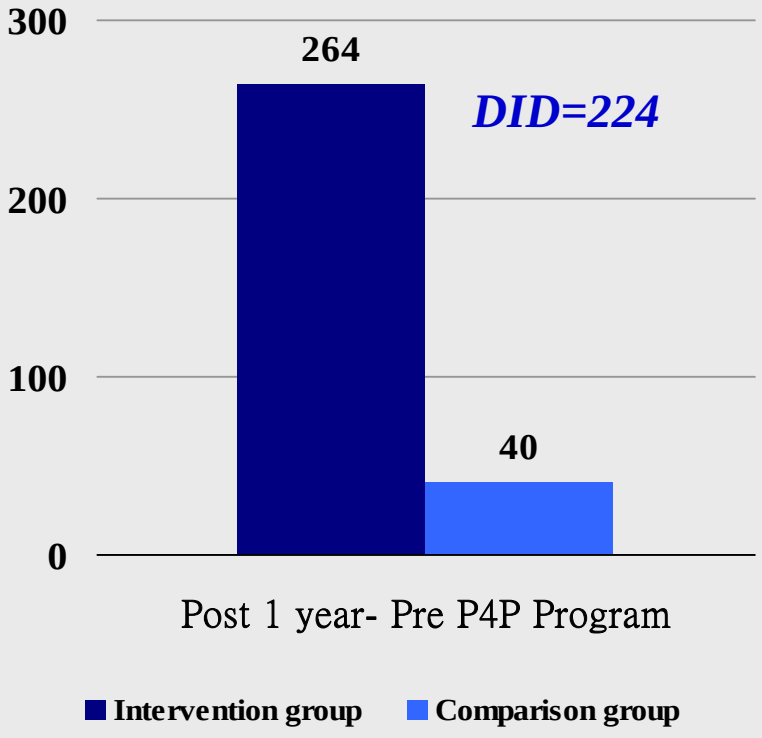
  Providing financial incentives for healthcare providers to increase *comprehensive follow-up visits* including enhanced self-care education an annual diabetes-specific physical examinations.

- Participation qualification
  - Hospitals and community clinics with physicians qualified in general specialties can voluntarily apply to participate in the P4P program.
  - The participating physicians can enroll individual patient in the program.

- Reimbursement
  - ***Regular*** FFS reimbursement for health services
  - ***Additional*** higher physician fee for follow-up visit
  - ***Additional*** case management fee

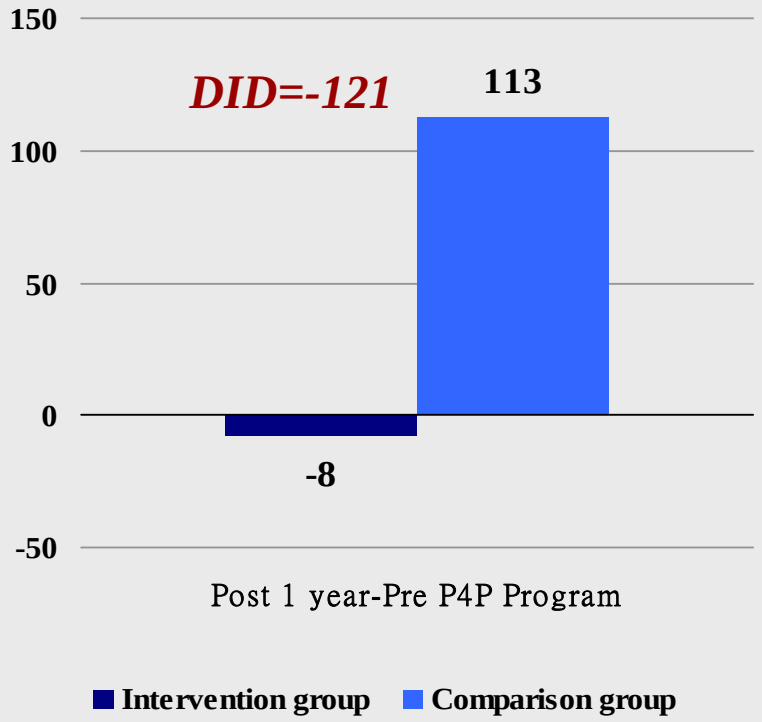
SHORT-TERM EFFECTS OF P4P PROGRAM ON EXPENSES

Expenses for diabetes-related physician visits



Expenses for diabetes-related inpatient services

(NT dollars)



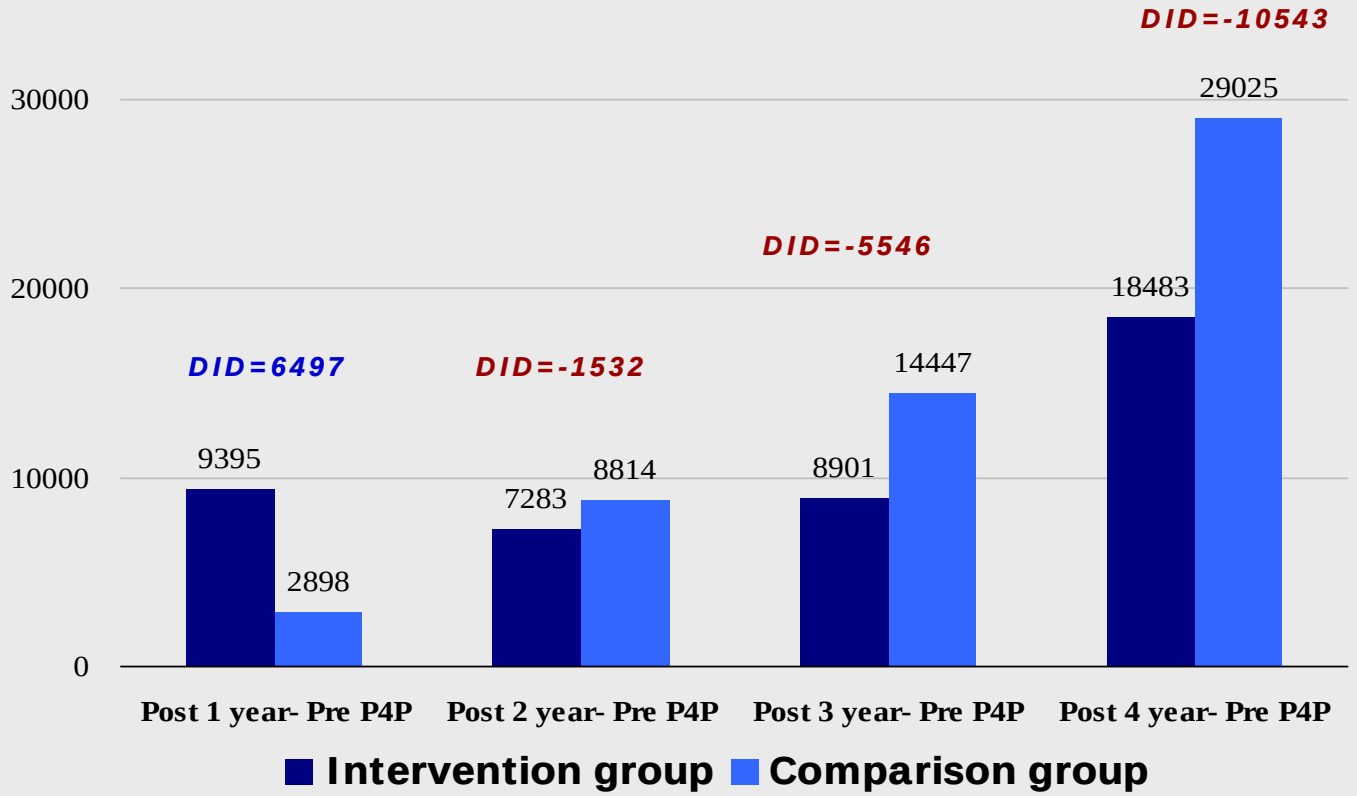
Predicted values obtained from GEE models with gamma distribution

SE for differences and DID were estimated using a bootstrap technique. All DID effects achieved a $p < 0.001$ significance level

Source: Lee et al. American Journal of Managed Care 2010;16:65-9.

LONG-TERM EFFECTS OF P4P PROGRAM ON EXPENSES

Expenses for all health services for consecutive participants matched set *(NT dollars)*



Predicted values obtained from GEE models with gamma distribution

SE for differences and DID were estimated using a bootstrap technique. All DID effects achieved a p < 0.001 significance level

Source: Cheng et al. Medical Care. Accepted, 2011.

PROSPECTIVE PAYMENT SYSTEM

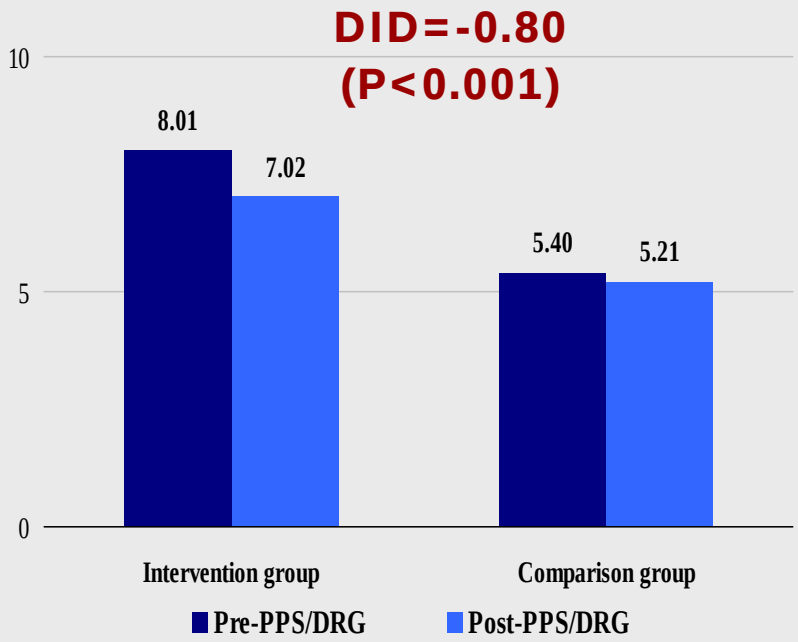
- The PPS/DRGs system transfers the financial responsibility from insurers to health care provider and increases the providers' cost consciousness; therefore, hospitals tend to change their behaviors. *(Hodgkin and McGuire, 1994)*

- Since 1980s the United States implemented PPS/DRGs in the Medicare program; then adopted in many other countries. *(Gerdtham, 1999; Culter and Zeckhauser, 2000; Mikkola, 2003)*

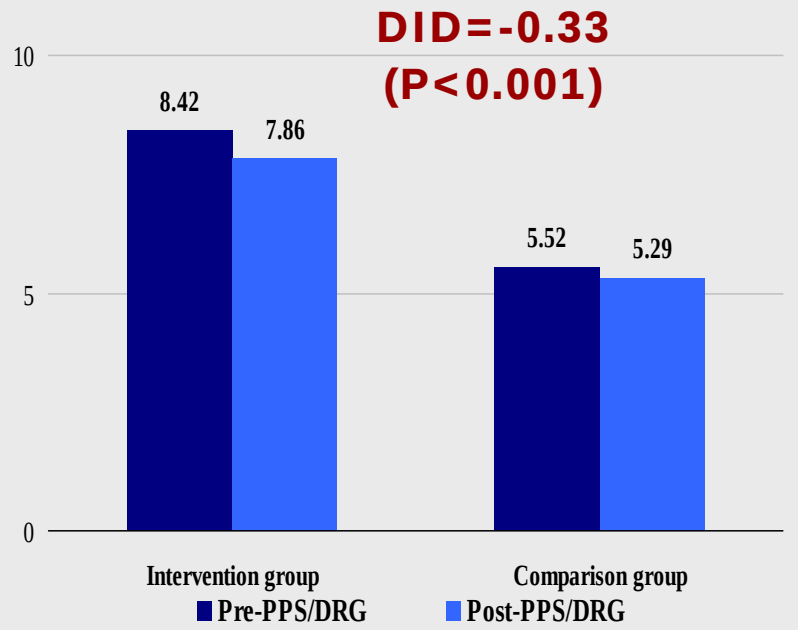
- Taiwan's DRG payment is to be implemented gradually in 5 years, starting from 2010. Potential effects will be closely monitored.

PRELIMINARY RESULTS
THE EFFECTS OF PPS/DRGs ON LENGTH OF STAY

Cardiology procedure



Orthopedics procedure



Length of stay (days)

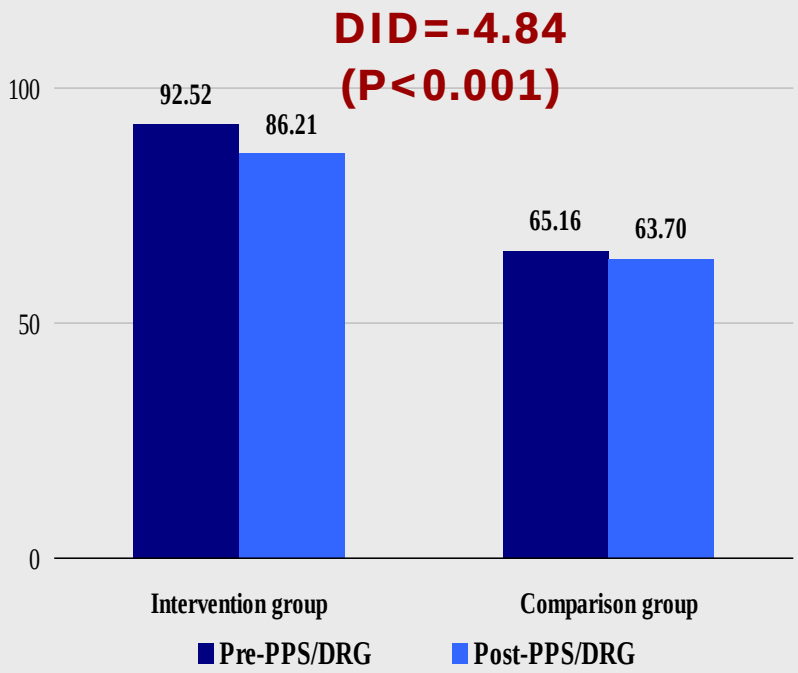
Cardiology procedure (case group: CABG, PTCA); Orthopedics procedure (case group: TKR, THR)

Predicted values obtained from GEE models with gamma distribution and log link.

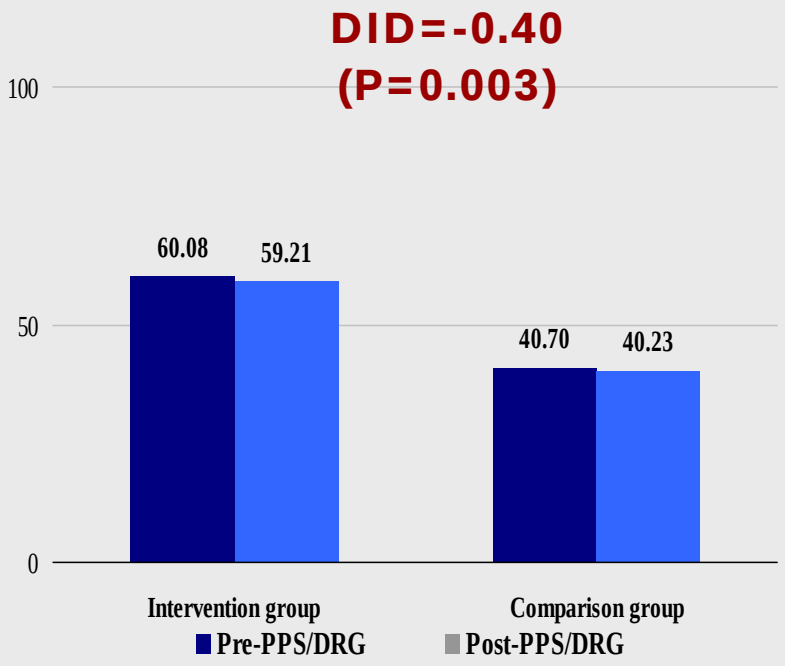
SE for differences and DID were estimated using a bootstrap technique.

PRELIMINARY RESULTS
THE EFFECTS OF PPS/DRGs ON TREATMENT INTENSITY

Cardiology procedure



Orthopedics procedure



The number of orders

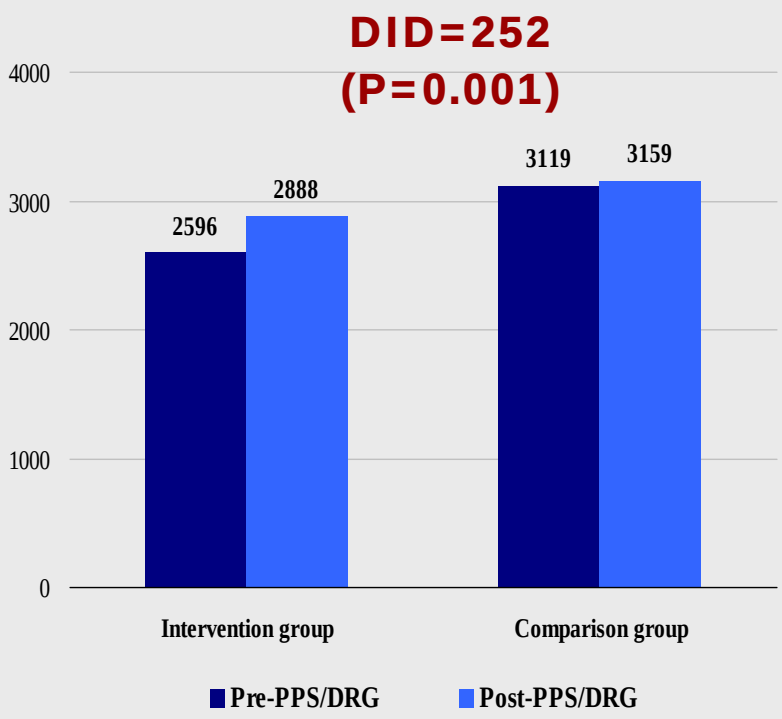
Cardiology procedure (case group: CABG, PTCA); Orthopedics procedure (case group: TKR, THR)

Predicted values obtained from GEE models with binominal distribution and log link.

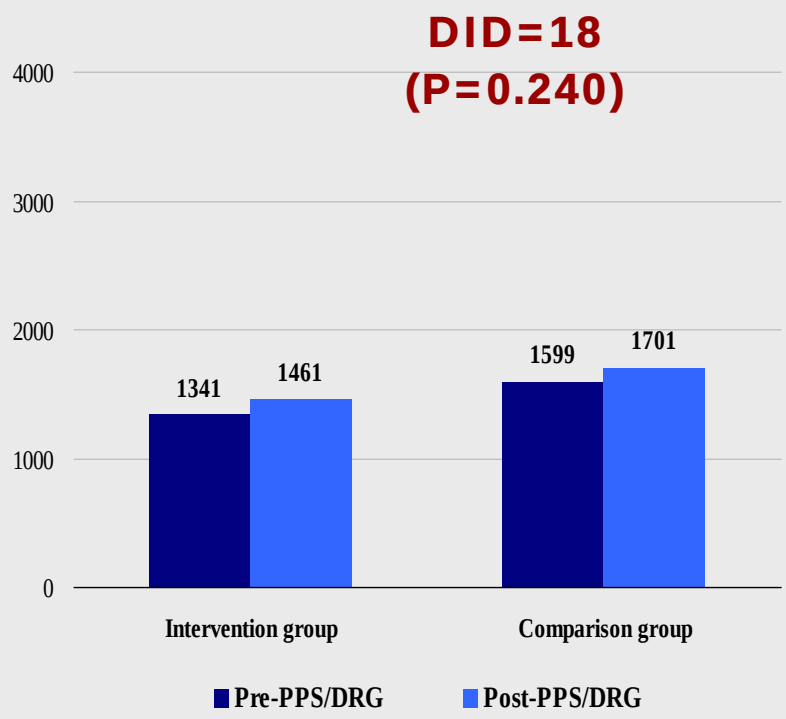
SE for differences and DID were estimated using a bootstrap technique.

PRELIMINARY RESULTS
THE EFFECTS OF PPS/DRGs ON COST-SHIFTING

Cardiology procedure



Orthopedics procedure



Expenses for exam/tests on outpatient setting within one week before index hospitalization (NTD)

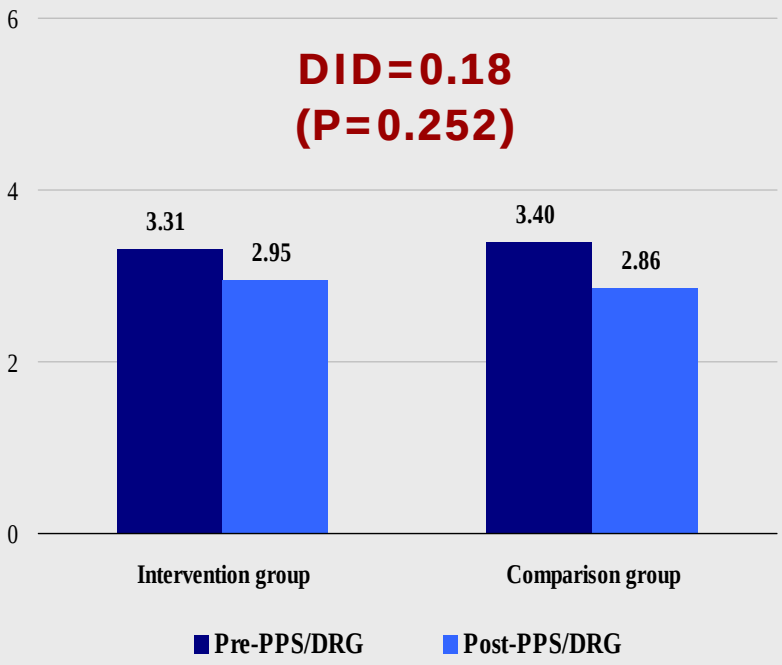
Cardiology procedure (case group: CABG, PTCA); Orthopedics procedure (case group: TKR, THR)

Predicted values obtained from GEE models with gamma distribution and log link.

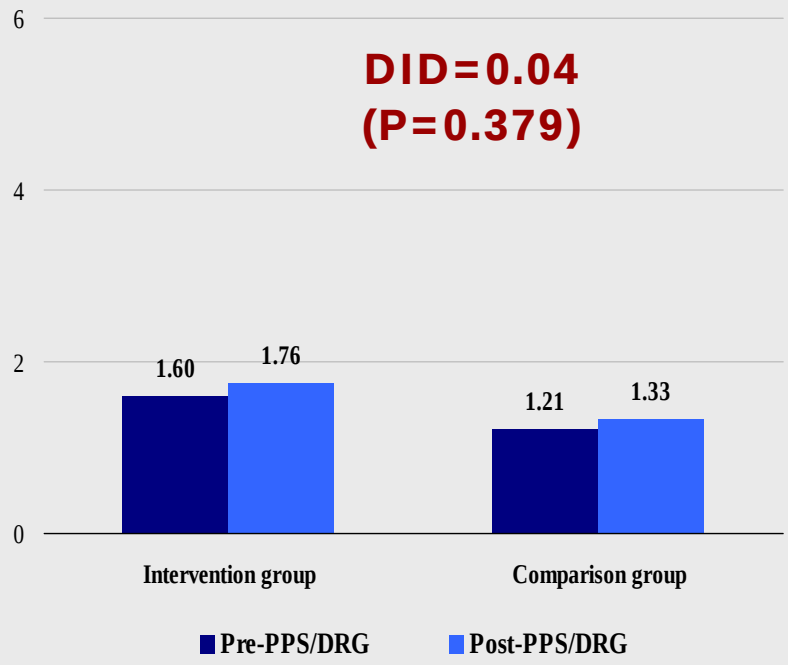
SE for differences and DID were estimated using a bootstrap technique.

PRELIMINARY RESULTS
THE EFFECTS OF PPS/DRGs ON TREATMENT OUTCOME (%)

Cardiology procedure



Orthopedics procedure



**Emergency department visits within 3 days after discharge*

Cardiology procedure (case group: CABG, PTCA); Orthopedics procedure (case group: TKR, THR)

Predicted values obtained from GEE models with binominal distribution and logit link.

SE for differences and DID were estimated using a bootstrap technique.

OVERUSE OF HEALTHCARE SERVICES

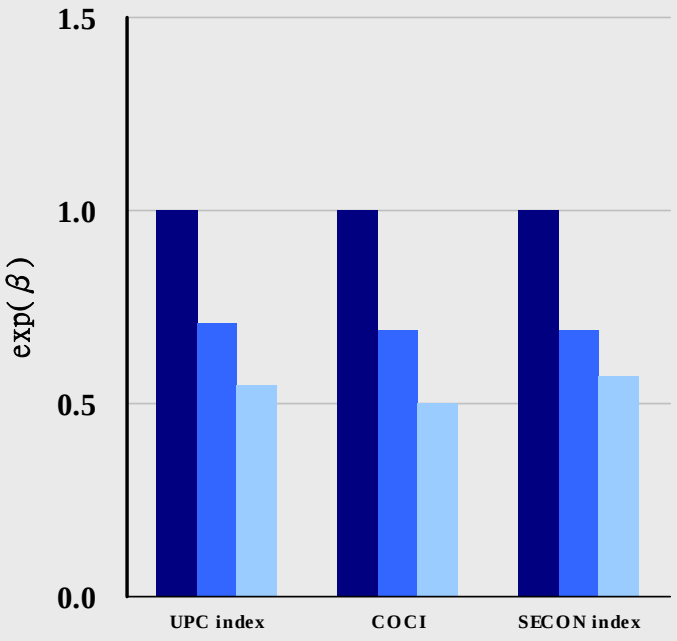
- Facilitated by the ease of accessibility, the average number of annual physician visits in Taiwan is one of the highest in the world (15.2 per person). *(Taiwan Health Statistics, 2009; OECD, 2009)*

- There is no gate-keeper to coordinate provision of health services and increasing the continuity of care for patients is a critical challenge.

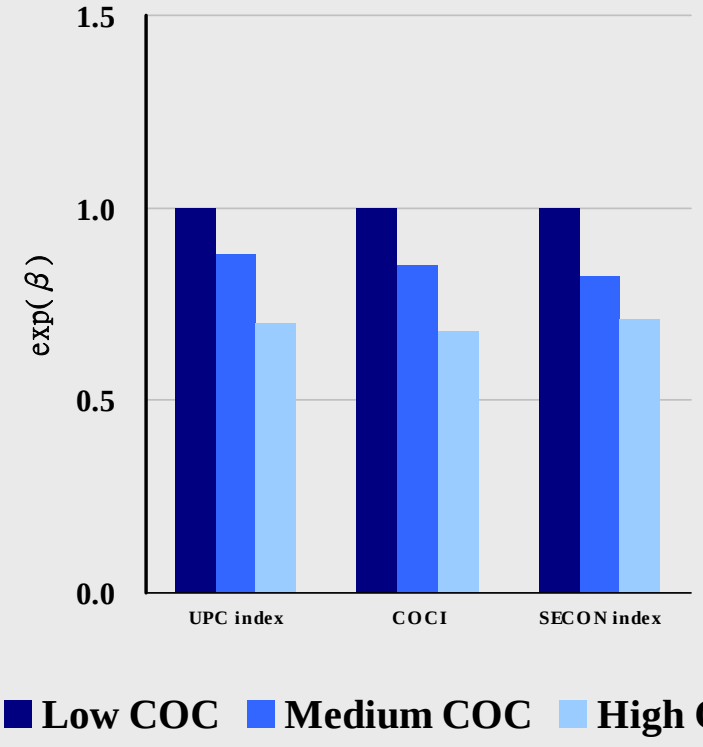
- The benefit of continuity of care have been well-recognized
  - Evidence from health systems with or without referral arrangement
  - Greater continuity of care may result in better health outcome
  - Improving continuity of care might reduce cost of healthcare

CONTINUITY OF CARE
THE EFFECTS OF COC ON EMERGENCY DEPARTMENT VISITS

In the same year



In the subsequent year



All models controlled for patient's age, sex, low-income status, physician density of the area which the patient most frequently sought care, the total number of physician visits and Charlson index. ($p<0.001$)

Source: Cheng et al. Health Policy and Planning 2010;16:65-9.

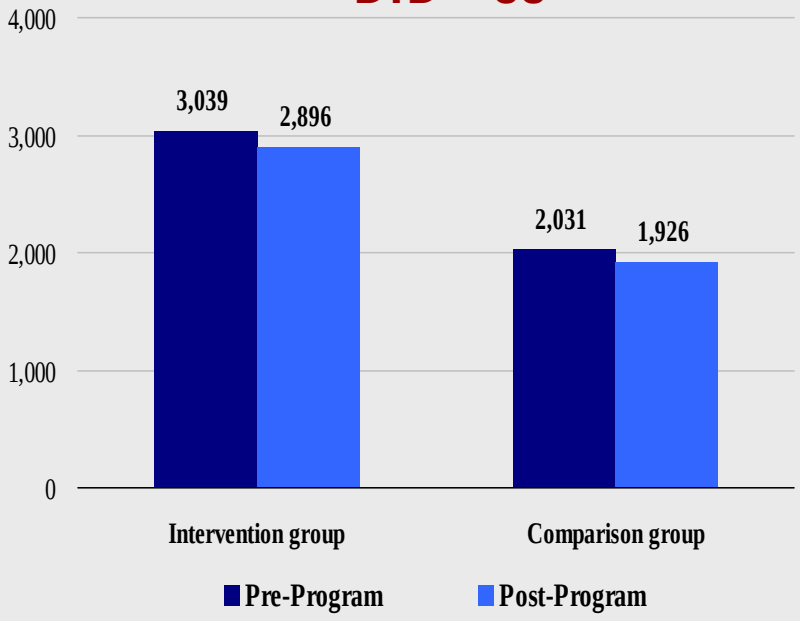
THE "INTEGRATED OUTPATIENT SERVICES" PROGRAM

- The Bureau of NHI has launched a new program to promote the "integrated outpatients services" started in 2009.
- Hospitals are encouraged to provide integrated outpatient services to patients with multiple chronic conditions in order to reduce inappropriate drug use or test repetition.
- Scheduled development in three stages
  - Stage 1 (2009-2010): providing integrated services within hospitals or integrated teams.
  - Stage 2 (2011-2012): providing integrated services between hospitals
  - Stage 3 (2013-): integrating hospitals and clinics vertically.

PRELIMINARY RESULTS
THE EFFECTS OF IOS PROGRAM ON HEALTHCARE EXPENSES

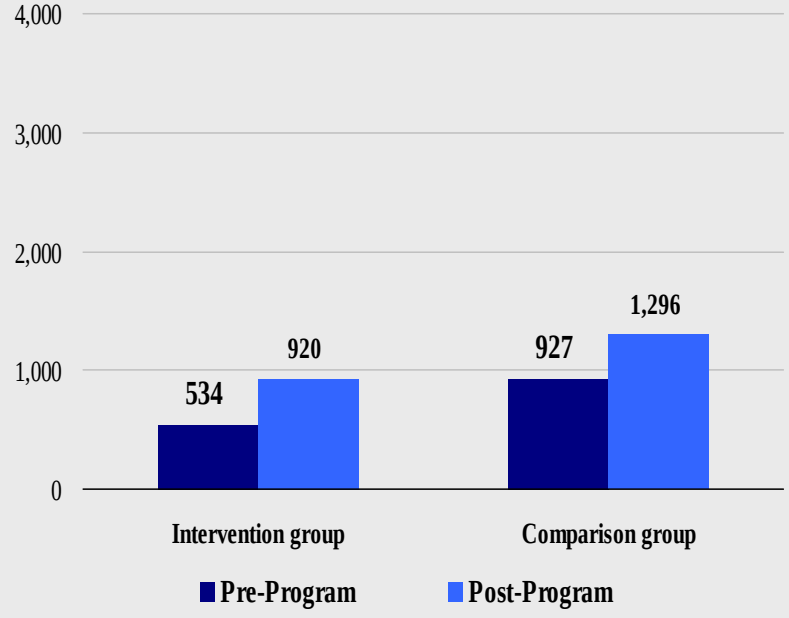
Inside index hospital

DID=-38



Outside index hospital

DID=17



Average healthcare expenses per person per month (NT dollars)

EYE ON THE FUTURE: CAPITATION

- Capitation payment provides strong incentives for healthcare providers to increase the continuity of care and reduce expenses.
- Four principles are suggested (under Taiwan's NHI)
  - Limited financial risk for providers
  - Freedom of choice for patients
  - Structural competition within areas
  - Sufficient information for monitoring
- Risk adjustment techniques and resources allocation mechanism need to be developed in advance.
- The balance between over-use, under-use, and quality of care is always a difficult decision to make.

CONCLUSION

- Revenue increase is indeed a political decision-making rather than an insurance financial issue in Taiwan and many other countries.

- Cost-containment efforts via payment reform
  - The P4P programs might reduce healthcare expenses in the long run.
  - PPS/DRGs
    - Shortened length of stay and reduced treatment intensity
    - No significant deterioration in health outcome
    - Partial cost shifting prior hospitalization was observed
  - The integrated outpatient services program showed no desired effects.

- There is no perfect system in health care. Financial imbalance is one of the most critical problems that need to be handled.

Thank you very much