

A Pay-For-Performance Program In Taiwan Improved Care For Some Diabetes Patients, But Doctors May Have Excluded Sicker Ones

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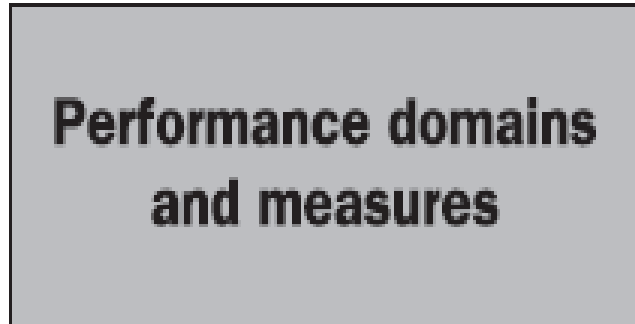
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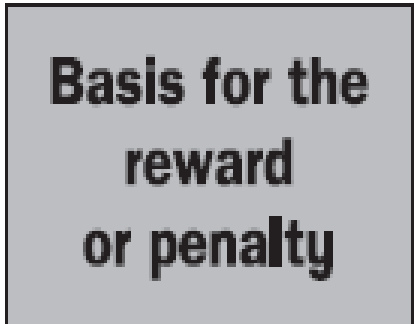
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Pay-for-performance programs

- to align payment with specific health care goals
- to improve the delivery and quality of care.
- offer financial incentives to providers who achieve, improve, or exceed their performance on specified benchmarks for quality, cost, or other measures.
- effectiveness of pay-for-performance remains in question



- Performance domains
- Indicators



- Absolute level of measure—target or continuum
- Change in measure
- Relative ranking



- Bonus payment or penalty
- Publicize measures and ranking
- Other non-financial



- Information systems and flows
- Verification process



- the specifics of the performance measures and incentive structures may prompt unintended responses and adversely affect patients.

cherry-pick

- have **incentives to game** the system and obtain higher payments or high scores without improving the health of their patients.
- Providers may also be able to “cherry-pick” certain patients for the program or to exclude others from measurement.
- Some programs give providers great discretion to choose participants; others do not.

Taiwan's National Health Insurance Approach

- took a different approach to pay-for-performance.
- The characteristics of ambulatory care in Taiwan differ somewhat from those in other countries.
- Utilization is extremely high;
- patients average approximately 13.5 visits per year, compared to an average of 6.7 visits per year in 2004 in other developed countries in the OECD.
- Primary care workloads (the number of patients seen per day) are also relatively high in Taiwan compared to other countries,
- duration of patient visits with the physician is very short—often two to five minutes.

Taiwan's National Health Insurance Approach

- large amount of “**doctor shopping**”—that is, seeing many doctors for the same problem—so that **continuity of care is more problematic**
- **continuity of care** is one of the issues that the **pay-for-performance** program is designed to address
- Reimbursement at the **physician** level is primarily **fee-for-service**, although **pilot projects using capitation models have recently begun.**

Cont...

Prior studies had found that **diabetes care for many in Taiwan was not adequate, so in 2001 Taiwan implemented a nationwide pay for performance program for diabetes.**

Cont...

Taiwan's National Health Insurance **diabetes pay-for-performance** program was designed to create incentives for providers to deliver **adequate care**, especially **regular checkups**, for **patients with diabetes**.

Bonuses for three services

1. initial patient enrollment and check-up bonus

- medical history and physical examination.
- lab
-
- c
- Selfm

This bonus can be claimed only once for each enrolled patient, at his or her initial enrollment visit.

Bonuses for three services

1. initial patient enrollment and check-up bonus

2. The follow-up management bonus

- **assessing**

- **phy**

- **I**

- **ev**

- **self-manage**

This bonus can be claimed once every three months.

Bonuses for three services

1. initial patient enrollment and check-up bonus
2. The follow-up management bonus
3. The annual evaluation and report bonus

• The annual evaluation and report bonus is paid per patient, and the provider is required to confirm that the patient received all services specified in a series of ten separate performance measures.

Bonuses for three services

1. initial patient enrollment and check-up bonus
2. The follow-up management bonus
3. The annual evaluation and report bonus
 - eight blood tests
 - the so-called SGOT enzyme test (for serum glutamic aminotransferase)
 - as well as a urinalysis or urine microalbumin test
 - an eye exam.

Taiwan's diabetes pay-for-performance program uses a point system to calculate bonuses.

the points awarded in the first year are as follow:

- Initial enrollment and check-up, 1,845 reimbursement points;
- follow-up management, 875 reimbursement points for each of two visits
- Annual evaluation and report, 2,245 reimbursement points,
- for a total of 5,840 points.



However, the DM-P4P program in Taiwan adopts the **rank**, and not the rate, of **each indicator**.

For example, if there are two intermediate outcome indicators, then the indicator average for a provider is calculated by **mean rank of the providers according to the two indicators**.

This score represents the mean rank at which each measure was met.

- For patients not enrolled in the program, bonuses vary depending on the organization with which the physician is associated and the year.
- At most, physicians can receive 300 points for each of four outpatient visits, or 1,200 reimbursement points.

In the second and subsequent years

- bonuses are available for three follow-up management appointments and one evaluation and report, for a total of 4,870 available reimbursement points.

Study Data And Methods

- Outpatients with diabetes **770,969** enrollees defined as having a diabetes International Classification of Diseases, Ninth Revision, Clinical Modification **[ICD-9-CM] code**.
- Only patients **who were alive from the beginning to the end** of the study period were included.
- Of those enrolled in 1999, **699,876** were consecutively registered in the National Health Insurance program from 1999 to 2005 and constituted the study sample (panel).

Study Data And Methods

- The 198,765 patients who eventually enrolled in the program between 2001 and 2005 constituted the experiment group;
- the 501,111 patients who never enrolled served as the control group.

Study Data And Methods

- To assess the comparability of patient populations, we used the Diabetes Complications Severity Index.
- This index uses ICD-9-CM codes and laboratory data to identify the presence of diabetes complications (retinopathy; nephropathy; neuropathy; and cerebrovascular, cardiovascular, peripheral vascular, and metabolic diseases) and assigns a level of severity to each complication.

Study Data And Methods

- The Diabetes Complications Severity Index assigns a score, ranging from **0 to 2**, to each **complication**, depending on the presence and severity of the complication
- **0 is no abnormality**, **1 is some abnormality**, and **2 is severe abnormality**.
- This score was calculated **annually** for each subject based on all **primary and secondary diagnostic codes** for all of his or her inpatient and outpatient utilization in a year.

Statistical Analysis

- For patients in the experiment group, the adherence rates were further tracked for the involved and not-yet involve in each year.
- For patients in the control group, the adherence rates were tracked for patients in both involved and noninvolved organizations.
- using multiple proportional variable Ztest and posteriori analyses with Tukey tests.

EXHIBIT 1**Numbers Of Enrolled And Nonenrolled Patients, Taiwan National Health Insurance Diabetes Pay-For-Performance Program, 1999-2005**

Year	Cases enrolled		Not enrolled	Cases never enrolled	
	Current year	Cumulative		Institution involved	Institution noninvolved
1999	— ^a	— ^a	198,765	— ^a	501,111
2000	— ^a	— ^a	198,765	— ^a	501,111
2001	150	— ^a	198,615	276	500,835
2002	31,533	31,683	167,082	70,319	430,792
2003	47,923	79,606	119,159	113,098	388,013
2004	57,791	137,397	61,368	141,010	360,101
2005	61,368	198,765	— ^b	158,410	342,701

EXHIBIT 2**Diabetes Complications Severity Index Scores For Enrolled And Nonenrolled Patients, Taiwan National Health Insurance Diabetes Pay-For-Performance Program, 1999-2005**

Year	Cases enrolled		Not enrolled	Cases never enrolled			Total
	Current year	Cumulative		Institution involved	Institution noninvolved	Subtotal	
1999	— ^a	— ^a	2.59 (0.26)	— ^a	4.40 (0.62)	4.40 (0.62)	3.89 (0.54)
2000	— ^a	— ^a	2.64 (0.28)	— ^a	4.51 (0.65)	4.51 (0.65)	3.98 (0.57)
2001	2.70 (0.31)	2.70 (0.31)	2.69 (0.28)	4.67 (0.62)	4.65 (0.71)	4.65 (0.70)	4.09 (0.60)
2002	2.73 (0.29)	2.73 (0.30)	2.74 (0.31)	5.40 (0.66)	4.77 (0.73)	4.86 (0.71)	4.26 (0.63)
2003	2.88 (0.33)	2.83 (0.34)	2.78 (0.30)	5.63 (0.64)	4.84 (0.72)	5.02 (0.70)	4.39 (0.61)
2004	2.84 (0.30)	2.84 (0.35)	2.85 (0.33)	5.81 (0.67)	4.95 (0.76)	5.19 (0.73)	4.53 (0.64)
2005	2.89 (0.32)	2.87 (0.36)	— ^b	5.97 (0.69)	5.14 (0.75)	5.40 (0.73)	4.68 (0.63)

EXHIBIT 3**Frequency Of Diabetes Complications Per 100 Enrolled And Not-Enrolled Patients At Involved Institutions, Taiwan National Health Insurance Diabetes Pay-For-Performance Program, 2002-05**

Complication (ICD-9-CM code)	Enrolled (cumulative)		Not enrolled (includes both not yet enrolled and never enrolled)	Never enrolled	
	2002	2005	2002	2002	2005
Diabetic ophthalmopathy (250.5x)	4.39	4.45	21.93	24.65	26.63
Diabetic nephropathy (250.4)	28.35	28.58	29.58	30.05	32.07
Diabetic neuropathy (356.9, 250.6)	13.89	15.34	15.98	16.11	20.06
Angina (413)	9.51	10.35	14.07	14.78	16.70
Diabetic peripheral vascular disease (250.7)	25.54	25.96	28.00	31.15	32.90
Foot wound and complication (892.1)	0.03	0.04	8.79	10.15	11.92
Ulcer of lower limbs (707.1)	2.21	2.31	9.63	10.47	10.79

Patients' Adherence To Diabetes Quality Measures, Stratified By Enrollment, Taiwan National Health Insurance Diabetes Pay-For-Performance Program, 1999-2005

Cases enrolled (n = 198,765)

Measure, year	2001 (n = 150)	2002 (n = 31,533)	2003 (n = 47,923)	2004 (n = 57,791)	2005 (n = 61,638)	Not enrolled (n = 198,765), all prior- and current-year enrolled	Cases never enrolled (n = 501,111)
HEMOGLOBIN A1C							
1999	— ^a	— ^a	— ^a	— ^a	— ^a	54.9	54.4
2000	— ^a	— ^a	— ^a	— ^a	— ^a	55.4	54.7
2001	100.0	— ^b	— ^b	— ^b	— ^b	55.7	55.0
2002	100.0	100.0	— ^b	— ^b	— ^b	56.4	55.7
2003	100.0	100.0	100.0	— ^b	— ^b	56.4	55.8
2004	100.0	100.0	100.0	100.0	— ^b	56.4	55.8
2005	100.0	100.0	100.0	100.0	100.0	— ^b	55.7
LDL CHOLESTEROL SCREENING							
1999	— ^a	— ^a	— ^a	— ^a	— ^a	20.8	20.4
2000	— ^a	— ^a	— ^a	— ^a	— ^a	21.3	20.8
2001	100.0	— ^b	— ^b	— ^b	— ^b	21.5	21.0
2002	99.8	100.0	— ^b	— ^b	— ^b	22.5	21.9
2003	99.8	99.9	100.0	— ^b	— ^b	22.6	22.0
2004	99.7	99.8	99.8	100.0	— ^b	22.6	22.1
2005	99.7	99.8	99.8	99.9	100.0	— ^b	22.1
URINALYSIS OR MICROALBUMIN							
1999	— ^a	— ^a	— ^a	— ^a	— ^a	26.2	25.7
2000	— ^a	— ^a	— ^a	— ^a	— ^a	26.8	26.0
2001	100.0	— ^b	— ^b	— ^b	— ^b	27.2	26.4
2002	99.8	100.0	— ^b	— ^b	— ^b	28.6	28.1
2003	99.8	99.9	100.0	— ^b	— ^b	28.7	28.2
2004	99.7	99.8	99.8	100.0	— ^b	28.8	28.3
2005	99.7	99.8	99.8	99.9	100.0	— ^b	28.3
EYE EXAM							
1999	— ^a	— ^a	— ^a	— ^a	— ^a	3.8	3.5
2000	— ^a	— ^a	— ^a	— ^a	— ^a	4.1	3.8
2001	100.0	— ^b	— ^b	— ^b	— ^b	4.3	3.9
2002	99.8	100.0	— ^b	— ^b	— ^b	5.1	4.7
2003	99.8	99.9	100.0	— ^b	— ^b	5.1	4.8
2004	99.7	99.8	99.7	100.0	— ^b	5.2	4.9
2005	99.7	99.8	99.8	99.8	100.0	— ^b	4.9

Conclusion

- In summary, the pay-for-performance program for diabetes care in Taiwan was designed to increase the quality of care, and it did so for the subset of patients enrolled in the program. However, it provides a cautionary tale emphasizing the importance of designing incentives so that quality is improved on the broadest possible scale.

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