

# A Comparison Study on Outpatient Reimbursement between Interstitial Cystitis/ Bladder Pain Syndrome and Rheumatoid Arthritis Patients in Taiwan Public Health Insurance



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## Hypothesis / Aim of study :

Interstitial cystitis/bladder pain syndrome (IC/BPS) is an enigmatic chronic pain disease. Studies have investigated differences in medical utilization between IC/BPS and non-IC/BPS. However, no study has compared medical expenditures between IC/BPS and rheumatoid arthritis (RA). This study is aimed to compare outpatient reimbursement between IC/BPS and RA in Taiwan public health insurance.

## Study design, materials and methods :

This was an observational study using Taiwan Longitudinal Health Insurance Database between 2002- 2013. Patients with ICD-9-CM codes for IC/BPS or RA were selected and matched under 1:5 ratio based on index year. Possible confounders, including age, sex, income, hospital levels and the reimbursements from 24 comorbidities (modified from an automated risk-adjustment model [RxRisk]) were surveyed and adjusted. Yearly and each visit of pharmacy, non-pharmacy and total claims were determined.

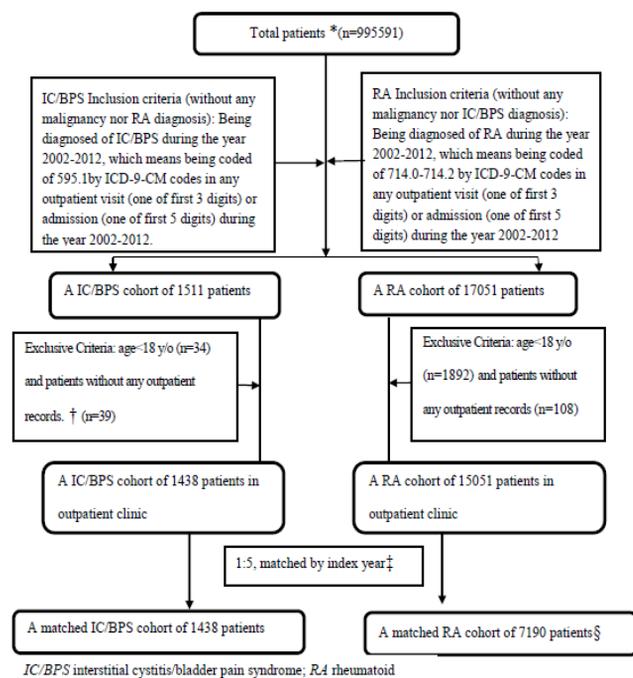


Figure 1. The procedures of selecting outpatient IC/BPS and RA cohorts.

## Results:

A Total of 1438 IC/BPS patients and 7190 RA patients were identified. IC/BPS patients were significantly younger and with higher female ratio. Income of IC/BPS was lower, but no statistically different. Both cohorts had no significant difference in the reimbursements from comorbidities, except end stage renal disease, which reimbursement was higher in RA. After confounders adjusted, Regression co-efficient of IC/BPS to RA were significantly lower in yearly total pharmacy claim (\$-65.8), yearly total claim (\$-64.1), pharmacy claim per visit (\$ -3.4) and total claim per visit (\$-5.0).

Table 1. Characteristics and outpatient reimbursements of comorbidities between IC/BPS and RA cohorts

Variable	IC/BPS (n=1438)	RA (n=7190)	p
Age, mean (SD), year	46.6 (15.82)	52.3 (15.05)	0.000
Female, n (%)	1143 (79.5%)	5137 (71.4%)	0.000
Income, mean (SD), \$	1029.7 (705.60)	1061.9 (759.33)	0.135
Hospital Level, n (%)			
1. medical center	288 (20.0%)	1207 (16.8%)	0.000
2. regional hospital	460 (32.0%)	1440 (20.0%)	
3. local hospital	206 (14.3%)	1343 (18.7%)	
4. clinic	484 (33.7%)	3200 (44.5%)	
Comorbidity* (ICD-9-CM)	N†; fee \$, mean(SD) (min., median, max.)	N; fee \$, mean (SD) (min., median, max.)	
ESRD‡ (585)	13; 1571.0 (4685.70) (31.4, 69.1, 17019.6)	74; 7244.0 (9472.07) (7.6, 395.7, 23546.8)	0.038

IC/BPS interstitial cystitis/bladder pain syndrome; RA rheumatoid arthritis

Table 2. Outpatient reimbursement\* comparisons between IC/BPS cohort (n=1438) and RA cohort (n=7190), without confounders adjusted.

Variable	IC/BPS; fee \$		RA; fee \$		p
	mean (SD)	range	mean (SD)	range	
pharmacy claim	39.3 (142.80)	0-2506.3	94.3 (413.33)	0-13430.7	0.000
non-pharmacy claim	104.7 (308.03)	3.0-4201.6	92.9 (277.77)	0-17983.3	0.151
total claim	144.1 (377.83)	3.0-4505.6	187.3 (549.83)	3.0-17983.3	0.004
pharmacy claim per visit	8.2 (12.00)	0-144.1	11.2 (24.56)	0-636.0	0.000
non-pharmacy claim per visit	27.1 (41.53)	3.0-552.7	26.0 (47.10)	0-1695.2	0.402
total claim per visit	35.3 (42.70)	3.0-558.7	37.2 (52.90)	3.0-1695.2	0.193

IC/BPS interstitial cystitis/bladder pain syndrome; RA rheumatoid arthritis

Table 3. Outpatient reimbursement comparisons with regard IC/BPS cohort (n=1438) to RA cohort (n=7190), with confounders adjusted.\*

Variable	Regression coefficient; \$	(95% confidence interval; \$)
Pharmacy claim	-65.8†	(-87.5~-44.0)
Non-pharmacy claim	1.8	(-14.2~17.8)
Total claim	-64.1†	(-93.7~-34.5)
Pharmacy claim per visit	-3.4†	(-4.7~-2.2)
Non-pharmacy claim per visit	-1.5	(-4.0~1.0)
Total claim per visit	-5.0†	(-7.7~-2.2)

IC/BPS interstitial cystitis/bladder pain syndrome; RA rheumatoid arthritis

\* adjusted confounders of age, sex, hospital level and end stage renal disease.

† indicate  $p < 0.05$

## Limitations:

The limitations of using outpatient reimbursement representative of medical utilization are (1) outpatient reimbursement is not the whole picture of medical utilization; (2) without outcome information, and inefficient IC/BPS management possibly causing reluctant follow-up; (3) self-pay and pay for alternative medicine not available.

## Conclusion :

The results suggest that, outpatient reimbursement of IC/BPS was significantly lower than RA, mainly on the pharmacy expenditure. Less reimbursement indicates less medical utilization possibly due to unsatisfied outcome. Further advance in IC/BPS treatment should be emphasized.