出國報告（出國類別：口頭海報發表）

2018年國際尿控協會(International Continence Society Annual Meeting 2018)心得報告

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摘　　要

自 1971 年以來，國際尿控協會（International Continence Society, ICS）透過 ICS 年會和學會期刊（Neurourology and Urodynamics）在全球開展了多學科的專精研究和教育。此學會目前有 3,000 多名世界各國的會員，是泌尿科醫生、婦女泌尿科醫生、物理治療師、護士、基礎科學家和研究人員的聚集團體，專精於尿路控制與骨盆底相關疾病。

2018 年的 ICS 會於美國費城舉行，來自各國的婦女泌尿醫師及醫療照護人員共同發表討論研究成果。其中台灣約有 30 位、亞洲約有 200 位、全球共有 1500 位左右學者與會。

在為期四天的議程中，除了豐原醫院的三篇研究成果論文以海報型式由我和同行醫師發表，參與世界婦女泌尿醫學的年度學術研討之外，也在年會中與其他國家熱烈討論了目前在「間質性膀胱炎」上的研究成果與未來發展。另外，也深切了解了美國國家衛生研究院在下泌尿道症候群的研究網絡，其為全國性資料統整、涵括各州之 7 個研究中心及大學的綿密網絡，成立五年內已在學術上有非常輝煌的研究成果，將為疾病的了解與治療帶來巨大的影響。而由知名法律專家演講的人工網膜法律議題，也讓臨床醫療人員了解到醫病溝通與知情告知的重要性，讓專業人員更能尊重病人權利並保護自己與醫院…。這些收收獲與心得，都值得與國內專業人士共享，朝國際頂尖邁進，造福與病患!

(2017 年國際尿控協會會議)

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本　　文

一、目的

在每年的年會中，藉由與會的各國學者們學術發表與討論，使我們除了解目前各國發展治療「間質性膀胱炎」與婦女泌尿疾病的發展方向與最新研究外，與國際專家的詢答討論，更是可以提高我們對於「間質性膀胱炎」認知的視野，進而利於國內發展「間質性膀胱炎」治療理論之突破，造福病患!

大會現場

各國參加學者

二、過程

以下為與「會議」及「海報發表」過程

課程學習心得 (一)

主題: 人工網膜相關的法律問題

近年來，「婦女骨盆脫垂」隨著高齡化社會日趨盛行，;「人工網膜懸吊手術」漸成治療方式的主流，然陰道人工網膜修補手術雖然微創，成功率高 (3 年成功率達 93%)，但是一小部分 (約 2%) 的女性在術後會面臨人工網膜外露後的出血、性交疼痛或慢性骨盆腔疼痛的問題，隨著愈來愈多的相關併發症發現，產生了許多法律訴訟案件（附圖 1）。也因此，美國食品藥品監督管理局 (FDA)從 2008 年開始，陸續提出警告陰道人工網膜重建手術應小心此併發症（附圖 2）。

本演講由目前執業於紐約的律師 Ben Rubinowitz 先生回顧經陰道網膜懸吊手術相關的法律訴訟議題。其中討論了有關原告律師對於網膜製造商、醫師、醫院等的訴訟與審問。並且也討論到當遇到相關訴訟時，如何保護泌尿科、婦產科醫師與醫院的技巧; 與告知、簽署同意書等的重要性。Ben Rubinowitz 律師同時也提供了幾個實例參考討論。

演講內容對於臨床醫師的建議重點如下:

在使用陰道網片術前一定要告知病人：

(1) 植入的網片是永久性的，

(2) 後來可能需要再次手術來處理網片所引發的併發症，但不一定能處理得宜，

(3) 有些嚴重的併發症可能會影響到將來的生活品質，這些包括性交疼痛、陰道疤痕和陰道壁狹窄。

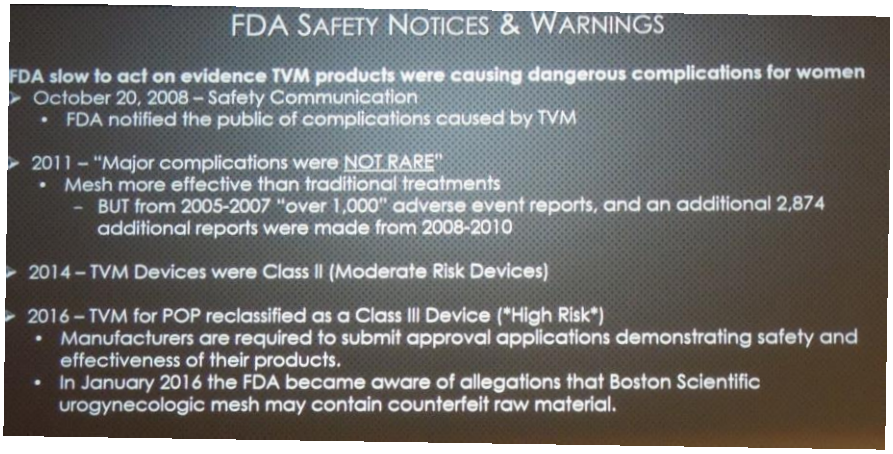
目前的證據支持使用人工合成的網片，以增加陰道前壁脫垂手術的成功率，但還沒有足夠的證據顯示用人工網片做骨盆臟器脫垂手術是絕對安全的。所以醫師對手術適應症的抉擇，各種網膜的生物及化學性質的差異，及整正確的植入技巧需有一定程度的認知，並且對網膜併發症的處理有足夠的知識與經驗，這有助於讓病患對手術充分瞭解。希望隨著臨床經驗和研究數據的逐漸累積，能將人工網膜手術標準化並擬定治療指引，為病人提供最佳的醫療服務。

Ben Rubinowitz, a trial lawyer who practices in New York City, present an overview of transvaginal mesh litigation. This session will be an up-to-date discussion of issues involved in the litigation as well as trial issues and techniques used by plaintiff’ s attorneys to prove their case against Product Manufacturers, Doctors and Hospital Employees. The discussion will also include methods and strategies that can be used to protect urologists, gynecologists, and hospital employees from being sued and what to do in the event a physician or hospital employee is involved in a lawsuit. A discussion of the learned intermediary doctrine, which shifts the blame away from the product manufacturer to the doctor, will be discussed as well as a detailed discussion of the importance of Informed Consent. Mr. Rubinowitz will not only discuss these issues but will provide trial demonstrations related to these important points.

Cases in transvaginal mesh MDLs as of July 2018

COMPANY	PENDING ACTIONS	TOTAL ACTIONS
C.R. Bard	7,223	15,690
American Medical Systems	3,766	21,236
Boston Scientific	18,901	25,633
Ethicon	34,729	40,321
Coloplast	1,029	2,671
Cook Medical	68	642

附圖 1. 人工網膜的各項法律訴訟案件統計



附圖 2. 近年來美 FDA 對於人工網膜的各項警訊

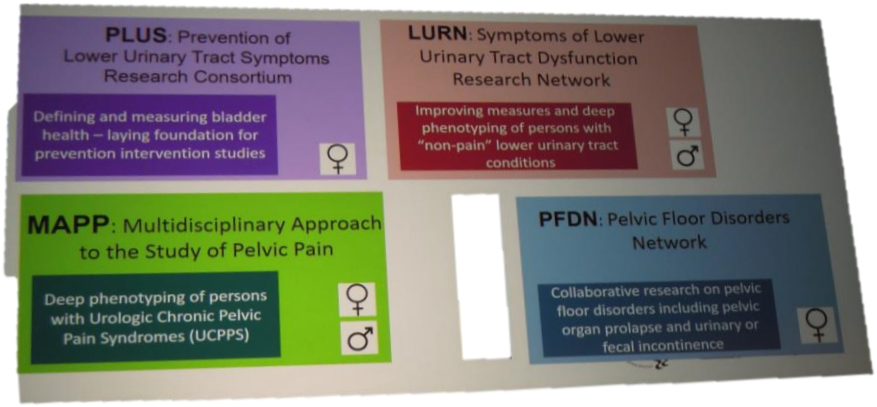
課程學習心得 (二)

主題:

國家衛生研究院（NIH）下泌尿道症候群相關的先驅研究計劃網絡

本次研討會的目的是提供了目前美國國家衛生研究院近年來有關下泌尿道症候群的主要全國性研究團隊有四個：

1. Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN)
2. Prevention of Lower Urinary Tract Symptoms Research Consortium(PLUS)
3. Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain(MAPP)
4. Pelvic Floor Disorders Network (PFDN)



NIH 下泌尿道症候群的研究計劃網絡

美國國立衛生研究院在過去 20 年裡支援了多個臨床研究網路, 探討下尿路疾病的各個方面資料。Bavendam 博士提供這些網路的簡要歷史概述。代表調查員- Eunice Kennedy Shriver 等四位教授者, 將對美國兒童健康和人類發展研究所的盆底疾病網路 (PFDN) 、國立糖尿病和消化腎病研究所多學科方法研究慢性盆腔疼痛 (MAPP)、下尿路功能障礙的症狀研究網路 (LURN) 和預防下尿路症狀研究聯合會 (PLUS) 提出相關領域的創新研究工作與成果。

雖然社會因素對於人體健康的影響早已獲得認同, 但是直到近年才對此一因素的機制和途徑進行研究調查。藉由社會生態模式, 注重社會、組織和社區結構, 並個人及其社會網路經歷健康的系統，使我們的研究中能廣泛考慮健康決定因素, 同時揭示了我們對於膀胱健康促進的重視。

1. Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN)

   Lower urinary tract dysfunction (LUTD) is common in both men and women, and the incidence and prevalence increases as people age. The effects of LUTD on individuals and the nation are enormous. People with LUTD face a number of social, mental and physical health effects as a result of their symptoms, and treatments for LUTD are not very effective, have significant side-effects, and are costly. The financial burden of this disorder is expected to increase dramatically as the population ages.

   In an effort to better understand the nature of the symptoms that characterize LUTD, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has established the Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN). The LURN is comprised of an interdisciplinary team of researchers, study coordinators, and medical facilities at six US clinical sites and a data coordinating center (DCC). These sites are working together to improve the lives of people with LUTD.

   Kevin Weinfurt discuss the Symptoms of Lower Urinary Tract Dysfunction Research Network’ s (LURN) efforts to understand the different measurement needs (e.g. phenotyping, diagnosis, outcome measure) and fill some of the gaps in measurement of lower urinary tract symptoms and their impact on individuals. He will present new data on the LURN Recall study which includes 2 basic sets of comparisons, 1) comparing 1-day, 1-week, and 1-month recall periods and 2) comparing traditional bladder diary to 3-day and 1-week recall periods.

2. Prevention of Lower Urinary Tract Symptoms Research Consortium--PLUS

The PLUS Research Consortium is focusing on symptoms including accidentally leaking urine (urinary incontinence), needing to go often during the day (urinary frequency), getting up to go at night (nocturia), having a very strong and sudden need to urinate (urgency), trouble urinating and pain in the bladder area before, during or after urinating.

The PLUS Research Consortium is funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH). PLUS involves researchers from seven nationwide research centers and one coordinating center. The research team includes researchers from many different fields. By sharing methods and expertise between researchers from medicine, nursing, epidemiology, biostatistics, social work, clinical practice, community health, sociology, and other areas, the PLUS Research Consortium hopes to greatly improve prevention and intervention strategies. The overall goal is to empower women and girls to live healthy, active lives.

3. Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain—MAPP

The MAPP Research Network embraces a systemic – or whole – body – approach in the study of Urologic Chronic Pelvic Pain Syndrome (UCPPS). UCPPS is a term adopted by the network to encompass both IC/BPS and CP/CPPS, which are proposed as related based on their similar symptom profiles. In addition to moving beyond traditional bladder – and prostate-specific research directions, MAPP Network scientists are investigating potential relationships between UCPPS and other chronic conditions that are sometimes seen in IC/PBS and CP/CPPS patients, such as irritable bowel syndrome, fibromyalgia, and chronic fatigue syndrome.

The MAPP Network includes multiple key focus areas, including:

- Epidemiology of Disease
- Phenotyping of Urological and Non-Urological symptoms
- Neuroimaging / Neurobiology Studies
- Identification of Biomarkers of Disease
- Characterizations of Organ Cross-Talk / Pain Pathways

Presented by Jason Kutch, multi-site clinical research networks have the potential to dramatically improve outcomes in the study of lower urinary tract dysfunction, not only by increasing sample size but also by promoting rigor, reproducibility, and

generalizability of results. This is especially true in the relatively nascent field of using neuroimaging to study dysfunction in brain regulation of the human urinary system. Here I describe efforts in the Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network to develop and deploy a large multi-site neuroimaging study, as well as highlight convergent results that have emerged from the MAPP study.

4. Pelvic Floor Disorders Network (PFDN)

NICHD established PFDN in 2001 to encourage collaborative research on pelvic floor disorders (PFDs) and to improve patient care. PFDs affect as many as one-third of U.S. women and include pelvic organ prolapse, urinary and fecal incontinence, and other sensory and emptying abnormalities of the lower urinary tract and the gastrointestinal tract.

The multi-center Eunice Kennedy Shriver NICHD sponsored Pelvic Floor Disorders Network (PFDN) has been successfully conducting randomized surgical and non-surgical trials that have advanced the field of pelvic floor conditions since 2001. These trials have addressed all female pelvic floor disorders including urinary incontinence, pelvic organ prolapse and fecal incontinence, all of which cause distressing symptoms that impact women’ s quality of life and perceived overall health. The network organization offers several advantages to the study of these disorders including recruitment, increased generalizability, decreased bias, centralized oversight and committed investigators. A discussion of select trials will be presented

課程學習心得 (三)

INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME

間質性膀胱炎/膀胱疼痛症候群

此講題包含了兩天，分成兩個時段，各有8個與12個作者報告討論了世界各國目前對間質性膀胱炎/膀胱疼痛症候群，一個病因與治療尚無定論之疾病的相關研究。

其中來自匹茲堡大學泌尿科的Chermansky C等的研究，得到此次大會的榮

譽獎，題目為: 以創新的核磁共振顯影劑用於測量間質性膀胱炎/膀胱疼痛症候群患者膀胱厚度—

MRI Imaging of Human Bladder Wall Using Intravesical Novel Contrast Mixture: Applications In Painful Bladder Syndrome/Interstitial Cystitis (PBS/IC)。

Hypothesis / aims of study

There remains an unmet need for an imaging technique which will differentiate ulcerative Painful Bladder Syndrome/Interstitial Cystitis (PBS/IC) from non-ulcerative PBS/IC. MRI is a radiation-free imaging technique that demonstrates excellent contrast of pelvic tissues in 3D-anatomy. Past attempts at unenhanced and contrast enhanced T1 weighted MRI of human bladder wall were unable to improve the contrast-noise ratio (CNR) and the spatial resolution per image pixel. Intravesical novel contrast mixture (NCM) has been recently shown to improve the CNR of rat bladder wall injured with protamine sulfate. In this clinical study, the safety and feasibility of MRI enhanced with intravesical NCM in evaluating patients with PBS/IC was tested.

Study design, materials and methods

After giving informed consent, 6 women (25-78y) submitted to 3T MRI before and after intravesical NCM. The 6 women consisted of 2 controls, 2 with non-ulcerative PBS/IC, and 2 with ulcerative PBS/IC. NCM 50 ml was freshly prepared by diluting Gadobutrol (Gadovist, Bayer) 1:250 and Ferumoxytol (Feraheme, AMAG Pharmaceuticals) 1:104 in sterile water for injection. Respiratory monitoring belt was placed around patient and under receiver coil for checking breath-hold during fast image acquisition with repetition time/echo time of 5.5/2ms. Single slice of 5mm thickness was acquired during single breath-hold of 17 seconds for each flip angle to minimize the motion and chemical shift artifacts. Quantitative measurement of T1 made from the differences in signal intensity of 20 pixels representing bladder wall in pre-contrast and post-contrast images taken at

different flip angles.

Results

NCM instillation in subjects did not evoke pain or discomfort. Post-contrast bladder wall T1 relaxation times of ulcerative PBS/IC subjects were reduced from pre-contrast values by 44% compared to 18% for controls and non-ulcerative PBS/IC, *p<0.0001 using two-way ANOVA followed by Tukey’ s test. NCM enhanced-MRI increased the bladder wall CNR in all subjects by 4-fold in post-contrast images (57.84 ± 32.01 vs 12.34 ± 9.63, *p<0.02 using paired Student’ s t test) compared to pre-contrast images acquired with same parameters. Intravesical NCM allowed accurate determination of significant bladder wall thinning from 3.39±0.74 mm pre-contrast to 2.93±0.8 mm post-contrast,*p<0.05.

Interpretation of results

MRI enhanced with intravesical NCM allowed differentiation of the bladder wall into different tissue layers with an increased depth of gadolinium diffusion in the ulcerative-type PBS/IC patients. This pilot study was limited by the small size and was not powered to demonstrate the group-wise differences in bladder wall thickness. The significantly reduced bladder wall T1 relaxation times in the ulcerative PBS/IC patients are promising and warrant further evaluation in an independent trial with a larger sample size.

Concluding message

NCM instillation achieves artifact-free differential contrast and spatial resolution of human bladder wall, which is not possible with instillation or injection of single contrast agents. These findings demonstrate the safety and feasibility of NCM enhanced MRI to characterize changes within the bladder wall for phenotyping PBS/IC.

作者與研究團隊利用創新的混合型顯影劑，用在核磁共振的檢查儀器，克服了傳統單一成份的顯影劑在成像上的甘擾與限制，使得核磁共振能更提高分

辨間質性膀胱炎/膀胱疼痛症候群與一般正常者的膀胱厚度，也能區分出潰瘍型與非潰瘍型的患者，此一結果大大提升了此一疾病的檢查準確度，因而能得到大會的榮譽獎。

這樣的創新與嘗試其實在台灣的醫療環境是可行的，因為只需要不多的患者參與，成本不高，研究設計也簡單，只是大家通常注重於業務與健保的規範，而未能多花些時間精力在研究創新上，著實可惜。藉由這次的ICS年會，確能讓我們學習到事情不同的視野與思維。

在此SECTION中，其他不同國家學者的研究還有許多值得了的還有:

Possible Usefulness Of Blood Inflammatory Marker C-Reactive Protein As A Biomarker For Hunner Lesions In Interstitial Cystitis （Miyata Y 等）:

此研究討論了對於間質性膀胱炎/膀胱疼痛症候群在診斷上新的血漿檢測方法，對於這一難以確診且難以捉摸的疾病，如果能有一種方便且準確的檢測方法，必能在此一疾病的了解與治療上有重大突破! 不過因為此研究尚有許多限制與干擾因素尚無法克服，仍須有更多進一步的研究才能確認。

Therapeutic Effect Of Repeat Platelet-Rich-Plasma Intravesical Injections For IC/BPS Refractory To Conventional Treatment （Lee C等）:

作者利用「高濃度血小板血漿」RPR，重複膀胱內注射治療間質性膀胱炎/膀胱疼痛症候群的病人，結果少有副作用，明顯改善患者膀胱容量與泌尿道症狀。此一治療藥物原本用來治療骨關節等部位的疾病，促進修復組織損傷。此研究發現RPR亦可以用來治療間質性膀胱炎/膀胱疼痛症候群，未來應有更多的相關研究發表，也為間質性膀胱炎/膀胱疼痛症候群的治療帶來新的契機!

海報發表共三篇 (四)

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A comparison of the outpatient reimbursement for interstitial cystitis/ bladder pain syndrome and irritable bowel syndrome treatment in Taiwan : A nationwide population-based study

Kun-Min Chang [1,2], Ming-Huei Lee [2,3], Huei-Ching Wu[2,3], Shang-Liang Wu[4], Hsuan-Hung Lin[2]

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[4] Centre for Environment and Population Health, Griffith University, Australia

Hypothesis / aims of study

Interstitial cystitis/bladder pain syndrome (IC/BPS) and irritable bowel syndrome (IBS) are chronic pelvic pain disorders. Both are embarrassing and can inhibit daily activities. They often coexist which might be due to "neural cross-talk". There are many similarities between these two diseases, such as difficult to get definite diagnosis and efficient treatment because of elusive etiology. These patients often have physical, psychological, social and work influences, and consequently need lots of medical care. Clemens (2008) reported IC/BPS mean yearly medical expense 2.4 times higher than the age and gender controlled non- IC/BPS. The cost differences were mainly due to pharmacy and outpatient expense. In this study, we objectively compared public health insurance reimbursement between IC/BPS and IBS during one year after index date (the date of first diagnosis) in outpatient perspective to evaluate whether IC/BPS had more reimbursement than IBS.

Materials and methods

Through data mining in 2002-2013 Longitudinal Health Insurance Database of Taiwan, we identified IC/BPS and IBS patients. There were 2 models (unmatched and matched) designed to compare outpatient reimbursement for IC/BPS and IBS. The conclusion would be verified if we got same results from both models. In model 1, we compared two cohorts before matching. In model 2, IC/BPS to IBS were matched under 1:1 ratio based on index date, sex, age, income, and 22 co-morbidities (chronic diseases modified from RxRisk model) (Figure 1). Data of expense were compared with Chi-square, ANOVA and multiple linear regressions based on the purpose of our research and properties of variables.

RESULTS

In model 1, IC/BPS had larger female proportion and less income level. There was no significant ratio difference in comorbidities between two cohorts (Table 1). Before matching, IC/BPS had significantly higher visit times (2.9 vs. 2.5). There was no significant difference in pharmacy expense. There were significant differences in yearly non-pharmacy expense, yearly total, per-visit non-pharmacy expense and per-visit total claims (Table 2). In model 2, IC/BPS and IBS were matched nearly identically (Table 4). Except total visit times and yearly total pharmacy claim, there were significant differences in yearly total non-pharmacy, yearly total, per-visit pharmacy, per-visit non-pharmacy and per-visit total claims. (Table 5) From regression analysis, both models revealed the medical expenses of IC/BPS to IBS were significantly higher in yearly total, yearly non-pharmacy, per-visit non-pharmacy and per-visit total claims. There was no significant difference in yearly total pharmacy claim in both models, per-visit pharmacy claim in model 1 and visit times in model 2 (Table 3 and Table 6).

CONCLUSIONS

In unmatched model, the larger female proportion and lower income in IC/BPS were compatible with clinical scenario. Patient characteristics of these two cohorts showed no significant difference in ratio of comorbidities. It probably reflected "neural cross-talk" between these 2 patient groups. More IC/BPS outpatient visits might be the result of larger proportion of female gender and easy accessibility to health care with low co-payment in Taiwan

As compared model 1 to model 2, the pharmacy cost per-visit had different significant result. It might be the result of more outpatient visits in matched IBS as compared to unmatched situation. It again echoed the larger female proportion would increase the medical utilization and resulted in higher visit times. Many studies illustrated IC/BPS had more medical cost than non-IC/BPS patients. The results demonstrated the outpatient reimbursements of IC/BPS were higher than IBS, mostly from non-pharmacy expense, no matter model 1 or 2. This might be due to the necessity of non-pharmacy intervention for treatment, including urodynamic survey and cystoscopic interventions such as coagulation or hydrodistension.

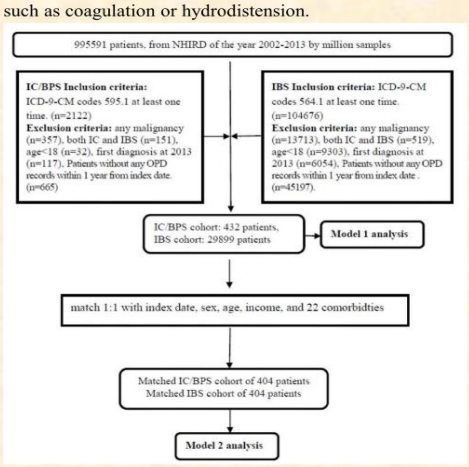

Figure 1Flow chart

<Table 1> Comparison of confounders in IC/BPS and IBS cohorts (unmatched).

Variable	IC/BPS (n = 432)	IBS (n = 29899)	p
Age, mean (SD), year	43.8 (16.35)	43.7 (15.52)	0.908
Female, n (%)	326 (75.5%)	15331 (51.3%)	<0.001
Income, mean (SD), $	973.6 (698.17)	1157.9 (849.82)	<0.001
Hospital level, n (%)			
1. Medical center	47 (10.9%)	2675 (8.9%)	0.212
2. Regional hospital	39 (9.0%)	3457 (11.6%)	
3. Local hospital	45 (10.4%)	2847 (9.5%)	
4. Clinic	301 (69.7%)	20920 (70.0%)	
Comorbidities[1], n[2] (%)			
(No comorbidities that rate with significant values between two cohorts)			

Range: minimum-maximum
[1] Comorbidity rate with statistically significant values
[2] Patients with the comorbidity

<Table 4> Comparisons of confounders in IC/BPS and IBS cohorts (matched).

Variable	IC/BPS (n = 404)	IBS (n = 404)	p
Age, mean (SD), year	43.20 (16.00)	43.06 (15.97)	0.900
Female, n (%)	306 (75.7%)	306 (75.7%)	1.000
Income, mean (SD), $	962.56 (656.3)	968.24 (667.5)	0.903
Hospital level, n (%)			
1. Medical center	41 (10.1%)	43 (10.6%)	0.404
2. Regional hospital	37 (9.2%)	39 (9.7%)	
3. Local hospital	44 (10.9%)	30 (7.4%)	
4. Clinic	282(69.8%)	292 (72.3%)	

Range: minimum-maximum

<Table 2 >Comparison of outpatient reimbursement for IC/BPS and IBS cohorts (unmatched), without adjusting for confounders.

Variable	IC/BPS (432)		IBS (29899)		p
	Mean (SD)	Range	Mean (SD)	Range	
Pharmacy claim	32.6 (99.06)	0-1297.1	30.8 (141.37)	0-14012.6	0.795
Non-pharmacy claim	109.7 (358.10)	3.0-3122.8	50.4 (76.64)	0-1491.6	<0.001
Total claim	142.3 (370.32)	3.0-3175.3	81.2 (179.69)	1.67-14158.1	<0.001
Pharmacy claim per-visit	8.7 (13.93)	0-144.1	7.9 (14.00)	0-934.2	0.236
Non-pharmacy claim per-visit	28.0 (43.73)	3.0-337.2	21.3 (29.00)	0-1205	<0.001
Total claim per visit	36.7 (45.05)	3.0-338.3	29.2 (31.9)	1.67-129	<0.001
Total visits	2.9 (4.08)	1-41	2.5 (3.10)	1-89	0.007

range: minimum-maximum.

<Table 5>Comparison of outpatient reimbursement for IC/BPS and IBS cohorts (matched)

Variable	IC/BPS (404)		IBS(404)		p
	Mean (SD)	Range	Mean (SD)	Range	
Pharmacy claim	33.0 (101.76)	0-1297.1	22.8 (54.41)	0-557.4	0.075
Non-pharmacy claim	110.5 (347.58)	3.0-3122.8	58.2 (68.07)	3.0-423.1	0.001
Total claim	143.5 (380.53)	3.0-3175.3	73.0 (106.51)	3.0-922.7	<0.001
Pharmacy claim per-visit	8.8 (14.28)	0-144.1	6.8 (10.94)	0-151.3	0.027
Non-pharmacy claim per-visit	27.5 (43.07)	3.0-337.2	20.9 (24.37)	3.0-184.7	0.007
Total claim per visit	36.3 (44.60)	3.0-338.3	27.7 (26.03)	3.0-186.8	0.001
Total visits	2.9 (4.2)	1-41	2.6 (3.3)	1-34	0.197

range: minimum-maximum.

<Table 3> Regression analysis of the comparison of outpatient reimbursement for IC/BPS and IBS cohorts (unmatched) *

Variable	Regression coefficient	(95% confidence interval)
Pharmacy claim	3.7	(-9.7 to 17.1)
Non-pharmacy claim	61.5†	(53.4 to 69.6)
Total cost	65.4†	(47.9 to 82.9)
Pharmacy claim per visit	1.1	(-0.3 to 2.4)
Non-pharmacy claim per visit	7.6†	(4.8 to 10.3)
Total cost per visit	8.6†	(5.6 to 11.7)
Total visits	0.46†	(0.2 to 0.8)

*adjusting for the confounders; sex and income
†$p < 0.05$

<Table 6> Regression analysis of the comparison of outpatient reimbursement for IC/BPS and IBS cohorts (matched) *

Variable	Regression coefficient	(95% confidence interval)
Pharmacy claim	10.2	(-1.0 to 21.5)
Non-pharmacy claim	60.3†	(25.7 to 94.9)
Total cost	70.6†	(32.0 to 109.1)
Pharmacy claim per visit	2.0†	(0.2 to 3.7)
Non-pharmacy claim per visit	6.6†	(1.8 to 11.5)
Total cost per visit	8.6†	(3.6 to 13.7)
Total visits	0.34	(-1.78 to 0.86)

*no confounders after matching two cohorts
†$p < 0.05$

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Morbidity rate and medical utilization of chronic prostatitis -population based study

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Hypothesis / aims of study

Chronic prostatitis (CP) is a chronic disease that affects men of all ages. It impacts the quality of life and associated with substantial cost. Previous studies estimated the morbidity of CP in men using various methods. Most of these studies are limited by the study samples from limited geographic regions and there are no nationwide morbidity estimates of CP in men in Taiwan. This study aim to calculate the morbidity rate and medical utilization of CP over 12 years using a nationwide database for the purpose of developing clinical and health policies.

Materials and methods

This was a retrospective cohort study of the Longitudinal Health Insurance Database 2010 with new diagnoses of CP (ICD-9 code 601.1) from 2002 through 2013. The morbidity rate (including incidence and prevalence) was adjusted for age and calendar date using density methods. Moreover, medical utilization and overlap of benign prostatic hyperplasia (BPH) during the study period were measured. Definition of morbidity rate as follows:
Incidence = Number of new CP cases each year ÷ Number of people observed in the population each year
Period prevalence = Number of patients that occurred within two years ÷ Number of people observed in the population within two years

Figure 2: Your caption to go here

RESULTS

It was observed that the incidence of CP was 27.9/100,000 in 2002 and 49.6/100,000 in 2013. The prevalence of CP was 48.1/100,000 in 2003 and 90.6/ 100,000 in 2013 (Fig 1). In 2002, the incidence was 102.0/100,000, 47.9/100,000, and 11.0/100,000 in ages above 65, 40-65 and under 40 years, respectively. The prevalence in 2003 was 175.7/100,000, 75.8/100,000, and 20.3/100,000 in ages above 65, 40-65 and under 40 years, respectively (Fig 2). This pattern was similar until 2013. There are 33%, 50% and 17% of incident (yearly new) CP cases aged above 65, 40-65 and under 40 years respectively (Fig 3). The mean outpatient and inpatient visit time was 6.6 and 1.1 times during study period, respectively (Fig 4). The diagnosis overlap of CP and benign prostatic hyperplasia (BPH) within one year of index date was 22.91% in 2002 and 2.90% in 2013 (Fig 5).

CONCLUSIONS

The morbidity rate of CP increased progressively during our study period (2002-2013) but the overlap of confusing diagnosis decreased. This could be explained by the available use of PPS (Pentosan polysulfate sodium) and HA (hyaluronic acid) in Taiwan at the period. The older age yielded higher incidence and prevalence was similar to previous studies. The most common onset age was 40-65 years in our data. Because of the unpredictable treatment outcome and chronic characteristic, the morbidity rate would further increase in the future. Due to no effective treatment for CP, the mean admission and outpatient visit time per year was similar during these years. However, the medical need will still increase in the future because of its elevating morbidity rate.

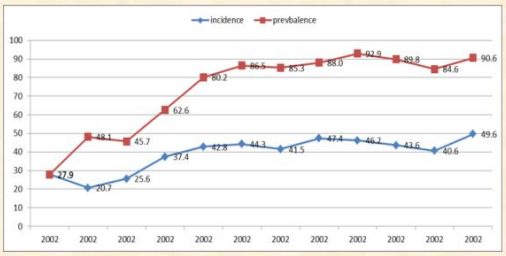

Figure 1. Chronic prostatitis incidence and prevalence between 2002-2013 in LHID 2010 (per 100,000)

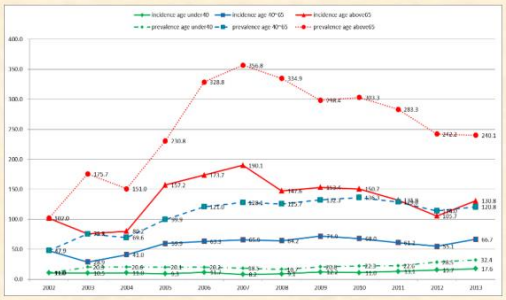

Figure 2. Chronic prostatitis incidence and prevalence between 2002-2013 (by age) in LHID 2010 (per 100,000)

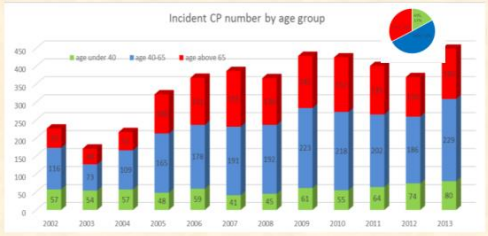

Figure 3. Incident Chronic prostatitis number by age group

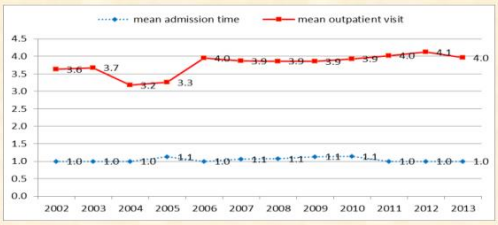

Figure 4. Distribution of hospitalizations and outpatient visits for chronic prostatitis patients between 2002-2013 in LHID 2010

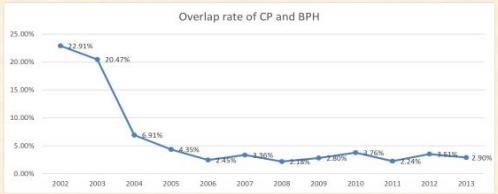

Figure 5. Overlap rate of chronic prostatitis and benigh prostatic hyperplasia

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A comparison of the outpatient reimbursement for interstitial cystitis/bladder pain syndrome and fibromyalgia treatment in Taiwan: A nationwide population-based study

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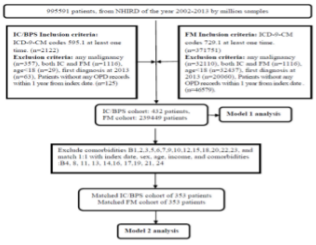
Hypothesis / aims of study

Interstitial cystitis/bladder pain syndrome (IC/BPS) and fibromyalgia (FM) are two non-cancer chronic pain diseases with autonomic dysfunction. They also are one of the comorbidities for each other. They both take long time to get definite diagnosis because of no biomarkers or clear criteria (average: IC/BPS 7 years and FM 5 years). In this study, we compared public health insurance reimbursement between IC/BPS and FM in outpatient perspective to evaluate whether IC/BPS had more reimbursement than FM.

Study design, materials and methods

Through data mining in 2002-2013 Longitudinal Health Insurance Database of Taiwan, we identified IC/BPS and FM patients. In this study, we designed 2 models (unmatched and matched) to compare outpatient reimbursement for IC/BPS and FM. (**model 1**: comparisons between two cohorts without matching; **model 2**: first excluding patients with comorbidities [chronic diseases modified from RxRisk model and N≤15], and then IC/BPS to FM matched under 1:1 ratio based on index date, sex, age, income, and the rest comorbidities) (Figure 1). The confounders, including age, sex, income, hospital levels and the rate of comorbidities would be adjusted in multiple linear regressions if there were significant differences. Data of expense were compared with Chi-square, ANOVA and multiple linear regressions.



<Figure 1> Flow chart

<Table 1> Comparison of confounders in IC/BPS and FM cohorts (unmatched).

Variable	IC/BPS (n = 432)	FM (n = 239449)	p
Age, mean (SD), year	43.8 (16.35)	43.0 (15.52)	0.299
Female, n (%)	326 (75.5%)	133521 (55.8%)	0.000
Income, mean (SD), $	973.6 (698.17)	1128.2 (777.77)	0.000
Hospital level, n (%)			
1. Medical center	47 (10.9%)	17968 (7.5%)	0.055
2. Regional hospital	39 (9.0%)	22037 (9.2%)	
3. Local hospital	45 (10.4%)	23456 (9.8%)	
4. Clinic	301 (69.7%)	175988 (73.5%)	
Comorbidities*, n† (%)			
B7 Depression	13(3.0%)	4225(1.8%)	0.046
B12 Glaucoma	9(2.1%)	2050(0.9%)	0.013
B17 Hypertension	32(7.4%)	24010(10.0%)	0.042
B21Psychotic illness	33(7.6%)	11975(5.0%)	0.008
B24 Tuberculosis	35(8.1%)	14270(6.0%)	0.038

Range: minimum-maximum
* Comorbidity rate with statistically significant values
† Patients with the comorbidity

<Table 4> Comparisons of confounders in IC/BPS and FM cohorts (matched).

Variable	IC/BPS (n = 353)	FM (n = 353)	p
Age, mean (SD), year	42.01 (15.22)	42.02 (15.24)	0.993
Female, n (%)	264 (74.8%)	264 (74.8%)	1.000
Income, mean (SD), $	1033.2 (638.0)	1073.6 (618.1)	0.393
Hospital level, n (%)			
1. Medical center	33 (9.3%)	17 (4.8%)	0.128
2. Regional hospital	33 (9.3%)	38 (10.8%)	
3. Local hospital	33 (9.3%)	34 (9.6%)	
4. Clinic	254(72.0%)	264 (74.8%)	

Range: minimum-maximum

<Table 2 >Comparison of outpatient reimbursement for IC/BPS and FM cohorts (unmatched), without adjusting for confounders.

Variable	IC/BPS (432)		FM (239449)		p
	Mean (SD)	Range	Mean (SD)	Range	
Pharmacy claim	32.6 (99.06)	0–1297.1	10.3 (68.96)	0–8977.1	0.000
Non-pharmacy claim	109.7 (338.10)	3.0–3122.8	42.7 (108.58)	0–10653.4	0.000
Total claim	142.3 (370.32)	3.0–3175.3	53.1 (136.72)	0–10715.7	0.000
pharmacy claim per-visit	8.7 (13.93)	0-144.1	3.4 (8.86)	0–1743.9	0.000
non-pharmacy claim per-visit	28.0 (43.73)	3.0–337.2	17.5 (19.43)	0–4156.9	0.000
Total claim per visit	36.7 (45.05)	3.0–338.3	20.8 (21.63)	0–4517.4	0.000
Total visits	2.9 (4.08)	1-41	2.2 (2.84)	1-92	0.000

range: minimum-maximum.

<Table 5>Comparison of outpatient reimbursement for IC/BPS and FM cohorts (matched)

Variable	IC/BPS (353)		FM (353)		p
	Mean (SD)	Range	Mean (SD)	Range	
Pharmacy claim	32.7 (103.68)	0–1297.1	9.1 (30.23)	0–414.5	0.000
Non-pharmacy claim	119.3 (369.32)	3.0–3122.8	47.3 (146.24)	2.2–2389.9	0.001
Total claim	152.0 (401.04)	3.0–3175.3	56.3 (155.94)	3.8–2403.1	0.000
Pharmacy claim per-visit	8.5 (14.40)	0-144.1	3.6 (8.54)	0–130.2	0.000
Non-pharmacy claim per-visit	28.7 (45.21)	3.0–337.2	15.6 (12.04)	2.2–125.8	0.000
Total claim per-visit	37.3 (46.62)	3.0–338.3	19.2 (14.54)	3.0–132.4	0.000
Total visits	3.0 (4.3)	1-41	2.2 (2.6)	1-19	0.005

range: minimum-maximum.

<Table 3> Regression analysis of the comparison of outpatient reimbursement for IC/BPS and FM cohorts (unmatched) *

Variable	Regression coefficient	(95% confidence interval)
Pharmacy claim	22.0†	(15.5 to 28.5)
Non-pharmacy claim	66.4†	(56.1 to 76.8)
Total cost	88.4†	(75.5 to 101.4)
Pharmacy claim per visit	5.3†	(4.5 to 6.2)
Non-pharmacy claim per visit	10.6†	(8.8 to 12.4)
Total cost per visit	15.9†	(13.9 to 18.0)
Total visits	0.68†	(0.4 to 0.9)

* adjusting for the confounders sex, income, comorbidities B7, B12, B17, B21, B24
† $p < 0.05$

<Table 6> Regression analysis of the comparison of outpatient reimbursement for IC/BPS and FM cohorts (matched) *

Variable	Regression coefficient	(95% confidence interval)
Pharmacy claim	23.6†	(12.3 to 35.0)
Non-pharmacy claim	72.0†	(30.5 to 113.6)
Total cost	95.7†	(50.7 to 140.7)
Pharmacy claim per visit	5.0†	(3.2 to 6.7)
Non-pharmacy claim per visit	13.1†	(8.2 to 18.0)
Total cost per visit	18.1†	(13.0 to 23.2)
Total visits	0.76†	(0.23 to 1.28)

* no confounders after matching two cohorts
† $p < 0.05$

Results

IC/BPS outpatient expenses were significantly higher than FM in both models. The yearly total pharmacy, total non-pharmacy, total claim, and per-visit pharmacy, per-visit non-pharmacy claim and per-visit total claim, all showed significantly different (Table 2 and table 5). In model 1, significantly higher proportion of female and lower income level in IC/BPS cohort were noted. In addition, the proportions of comorbidities in both cohorts were significantly different in depression, glaucoma, hypertension, psychotic disease and tuberculosis (Table 1). After regression analysis, IC/BPS had significantly higher outpatient reimbursement than FM in both model 1 and model 2, including yearly pharmacy, yearly non-pharmacy, yearly total claim, per-visit pharmacy, per-visit non-pharmacy and per-visit total claim (Table 3 and table 6) .

Interpretation of results

The result of model 1 and 2 revealed the same tendency which can confirm the reimbursement outcome in the cohort study. It was identified that outpatient reimbursement was significantly higher in IC/BPS than FM from results of both model 1 and 2. The larger proportion of female patients and the lower income in IC/BPS population observed in model 1 are compatible with clinical scenario. The proportions of comorbidities were significantly higher in IC/BP except hypertension. It might indicate IC/BPS cohort had more complicated health condition. Our study result of lower male prevalence in IC/BPS, contrast to the higher male prevalence of hypertension in other epidemiology study, that may explain the lower comorbidity in our study.
Though IC/BPS patients were in lower income status, the reimbursement was higher than FM might be due to the easy accessibility and very low co-payments ($ 3-7) in Taiwan. Obvious bladder discomfort and consequent pharmacy and nonpharmacy treatment, such as urodynamic or cystoscopic surgery that FM didn't require, that might explain the higher medical cost in IC/BPS group. In Taiwan, Elmiron® and Cystistat® were approved for management of IC/BPS, it would make the reimbursement even higher.

Concluding message

IC/BPS has significantly different gender and income distribution. The outpatient reimbursement for IC/BPS was significantly higher than FM in both pharmacy and non-pharmacy expenditure. Due to IC/BPS patients experiencing more complex health condition, more pharmacy and non-pharmacy treatment were needed. Because of the chronicity of IC/BPS, the expenditure will increase as time goes on. Paying more attention to the disease research and providing more efficient treatment are encouraged.

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三、心得及建議

經由此次國際性跨科、跨領域的年會，除了開拓專業視野，了解各國在婦女泌尿科學上，醫療與學術最新的研究成果與未來趨外; 也在年會中與其他國家熱烈討論了目前在「間質性膀胱炎」上的研究成果與未來發展，將把整合性照護的觀念在國內運用於此類病人。另外，也深切了解了美國國家衛生研究院(NIH)在下泌尿道症候群的四個研究網絡，其在臨床與學術上的輝煌成果與對疾病治療帶來巨大的影響，是值得我們學習與執行的，我們將把寶貴的資料提供給相關人員參考與學習。而人工網膜法律議題，讓臨床醫療人員了解到醫病溝通與知情告知的重要性，我們將把這些重要觀念帶回醫院與同業，讓專業人員更能尊重病人權利並保護自己與醫院。

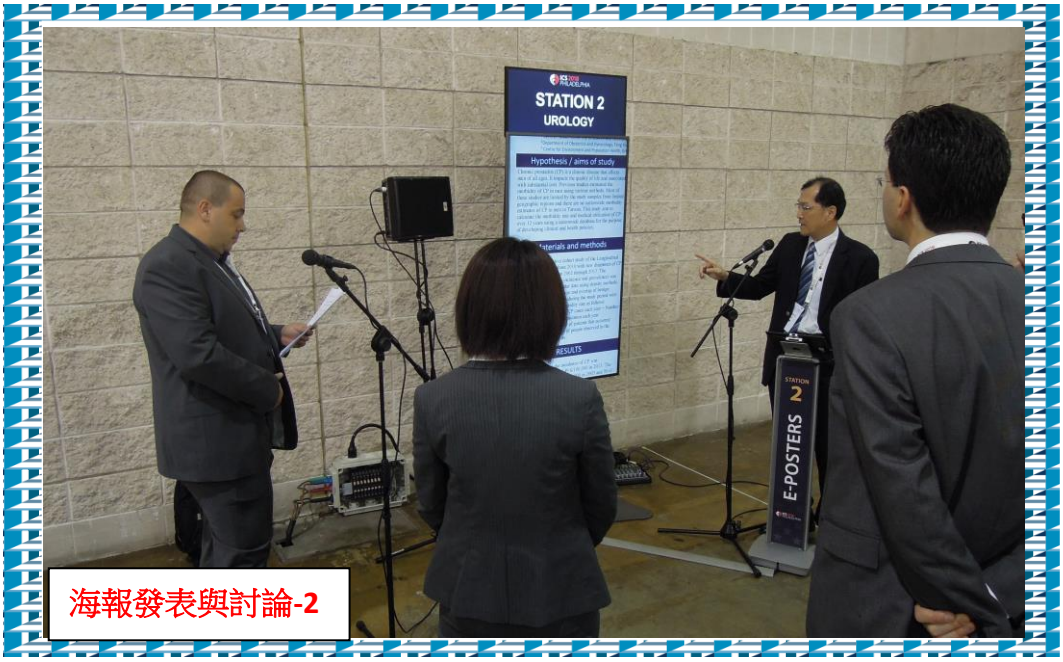
最後，豐原醫院發表的三篇研究成果論文在此次年會獲得熱烈的贊同與討論，我們在此項年會已連續 3 年都能獲得錄取發表，更已有 7 篇 SCI 的 paper 刊登，這都証明豐原醫院與部立醫院在國際婦女泌尿領域上得到肯定，我們也會在臨床醫療與學術研究上繼續努力，除造福民眾，也為國為醫院爭光!

照　　片

大會報到處

各國參加學者

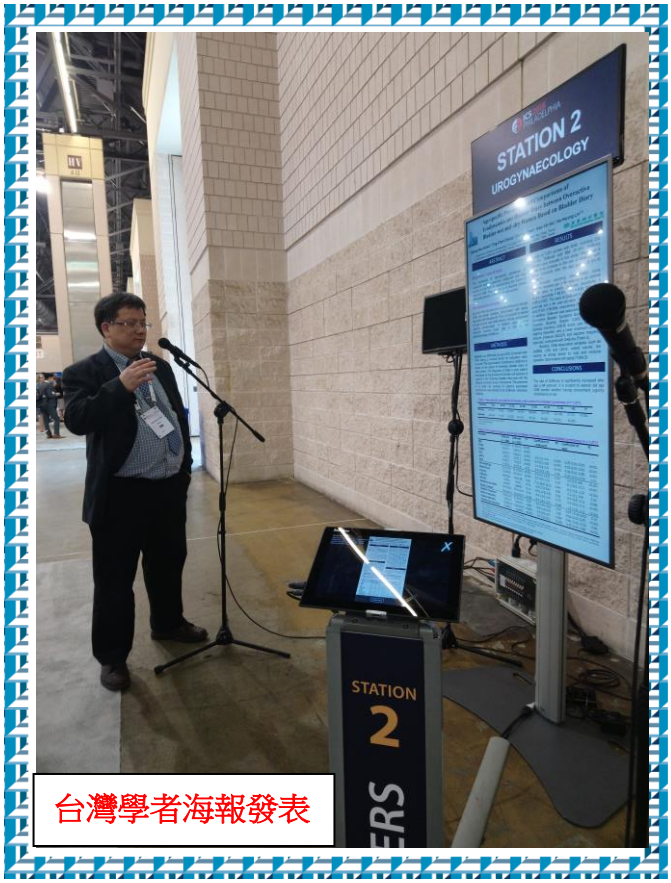
海報發表與討論-1



海報發表與討論-2

海報發表與討論-3

大會現場



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