

# 加護病房提早移除導尿管降低 泌尿道感染率效果之評估

參賽編號：BC00070

機構名稱：安泰醫療社團法人安泰醫院

活動期間：2008年3月至2010年3月

團隊成員：陳寶珍督導、呂云傑醫師、  
楊雯瓊護理長、沈秋香感控師、  
林玉娟護理



8/28/2010

安泰醫療社團法人安泰醫院宗旨：永續提供屏南鄉親優質、可近、安全的醫療服務



# 簡報大綱

- 形成問題
- 資料庫搜尋與結果
- 文獻評讀
- 臨床應用
- 比較透過EBM的介入與傳統介入方式之對醫療照顧品質之差異
- 成效評估



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# Asking Answerable Clinical Questions

- Background Questions
- Foreground Questions

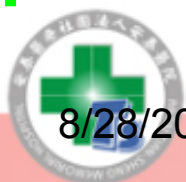


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# Background Questions

- 2007年內科加護病房病患存留導尿管平均使用率為60.03%，而分析2007年10~12月單位共11位泌尿道感染個案，平均感染發生密度5.00‰。
- 依據台灣醫療照護品質指標(Introduction of Taiwan Healthcare Indicator Series ;THIS )數據顯示之「加護病房泌尿道感染平均發生密度 $\leq 3.80$  ‰」呈現明顯上升之趨勢。



# Foreground Questions

加護病房泌尿道感染有增加之趨勢，病人插導尿管是否需要提早移除，才可以降低泌尿道感染？



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# 將問題寫成PICO

問題類型	<input checked="" type="checkbox"/> 治療性 <input type="checkbox"/> 診斷性 <input type="checkbox"/> 預後性 <input type="checkbox"/> 併發性
P	加護病房導尿管留置的病人
I	提早移除導尿管
C	無提早移除導尿管
O	泌尿道感染



# 資料庫搜尋策略

- 搜尋策略

- Secondary Database

- Uptodate
    - Cochrane library

- Primary Database

- Pub Med
    - 思博網



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# Key words(關鍵字)設定

		主要詞彙 Primary Term
P		Intensive care unit
I		Catheters OR Foley
C		
O		Urinary tract infection





# Uptodate

關鍵字：catheter、Foley、Urinary tract infection

974

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY

November 2004

## CATHETER-ASSOCIATED URINARY TRACT INFECTIONS IN INTENSIVE CARE UNITS CAN BE REDUCED BY PROMPTING PHYSICIANS TO REMOVE UNNECESSARY CATHETERS

Wei-Chun Huang, MD; Shue-Ren Wann, MD; Shoa-Lin Lin, MD; Calvin M. Kunin, MD; Ming-Ho Kung, MD; Chin-Hsun Lin, MD;  
Chien-Wei Hsu, MD; Chun-Peng Liu, MD; Susan Shin-Jung Lee, MD; Yung-Ching Liu, MD; Kwok-Hung Lai, MD; Tzu-Wen Lin



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## 搜尋cochrane library

- 關鍵字: Intensive care unit、Urinary tract infection

Wiley InterScience home > The Cochrane Library home

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Independent high-quality evidence for health care decision making

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Show Results in:  
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There are 2 results out of 6244 records for: "Intensive care unit and Urinary tract infection in Record Title in Cochrane Database of Systematic Reviews"

View: 1-2

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<input type="checkbox"/>	<p><a href="#">Treatments for symptomatic urinary tract infections during pregnancy</a> Juan C Vazquez, José Villar January 2010 <a href="#">Review</a></p>
<input type="checkbox"/>	<p><a href="#">Long-term antibiotics for preventing recurrent urinary tract infection in children</a> Gabielle Williams, Lei Wei, Anna Lee, Jonathan C Craig January 2009 <a href="#">Review</a></p>

[Select All](#) (to export citations)



# 搜尋PubMed

- 關鍵字 : catheter 、 urinary tract infection、 intensive care unit
- Exclusion 10 articles ; Inclusion 2 articles

[Show Index](#)

[Search Builder Instructions](#)

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### Search History

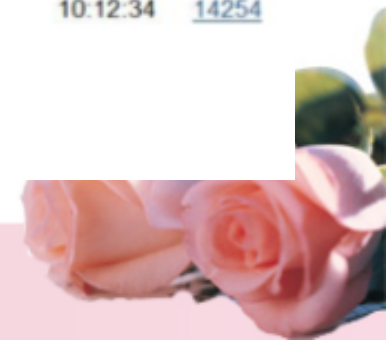
Search	Most Recent Queries	Time	Result
<a href="#">#4</a>	Search ((#1) AND #2) AND #3	10:52:40	<a href="#">112</a>
<a href="#">#18</a>	Search (#4) AND #17	10:50:41	<a href="#">12</a>
<a href="#">#17</a>	Search trial	10:50:05	<a href="#">794567</a>
<a href="#">#6</a>	Search (#4) AND #5	10:17:57	<a href="#">18</a>
<a href="#">#5</a>	Search Meta-analysis OR review	10:14:50	<a href="#">1838132</a>
<a href="#">#3</a>	Search "Intensive care unit" OR ICU	10:13:30	<a href="#">56379</a>
<a href="#">#2</a>	Search "Foly's catheter" OR catheter	10:13:06	<a href="#">216638</a>
<a href="#">#1</a>	Search "Urinary tract infection" OR UTI	10:12:34	<a href="#">14254</a>

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# 資料庫搜尋結果

資料庫種類	文章篇數	不符合	符合
	1	0	1
	0	0	0
	12	10	2
思博網	0	0	0

# 資料庫搜尋結果

資料庫種類	文章篇數
<b>RCT Double Blind</b>	<b>0</b>
<b>RCT</b>	<b>0</b>
<b>Cohort</b>	<b>0</b>
<b>Case Control</b>	<b>2</b>



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安泰醫療社團法人安泰醫院宗旨：永續提供屏南鄉親優質、可近、安全的醫療服務



# CATHETER-ASSOCIATED URINARY TRACT INFECTIONS IN INTENSIVE CARE UNITS CAN BE REDUCED BY PROMPTING PHYSICIANS TO REMOVE UNNECESSARY CATHETERS



Wei-Chun Huang, MD; Shue-Ren Wann, MD; Shoa-Lin Lin, MD; Calvin M. Kunin, MD; Ming-Ho Kung, MD; Chin-Hsun Lin, MD; Chien-Wei Hsu, MD; Chun-Peng Liu, MD; Susan Shin-Jung Lee, MD; Yung-Ching Liu, MD; Kwok-Hung Lai, MD; Tzu-Wen Lin

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY JULY 2007, VOL. 28, NO. 7

2007

ORIGINAL ARTICLE

## Effectiveness of Multifaceted Hospitalwide Quality Improvement Programs Featuring an Intervention to Remove Unnecessary Urinary Catheters at a Tertiary Care Center in Thailand

Anucha Apisarnthanarak, MD; Kanokporn Thongphubeth, RN; Sirinaj Sirinvaravong, MD;  
Danai Kitkangvan, MD; Chananart Yuekyen, RN; Boonyasit Warachan, PhD; David K. Warren, MD; Victoria J. Fraser, MD



# 文獻評讀工具

- Oxford levels of evidence
- Critical Appraisal Skills Program (CASP)

CEBM > EBM Tools > Finding the Evidence > Levels of Evidence

**Oxford Centre for Evidence-based Medicine - Levels of Evidence (March 2009)**

What are we to do when the irresistible force of the need to offer clinical advice meets with the immovable object of flawed evidence? All we can do is our best: give the advice, but alert the advisees to the flaws in the evidence on which it is based.

The CEBM 'Levels of Evidence' document sets out one approach to systematising the process for different question types.

(For definitions of terms used see our [glossary](#))

Level	Therapy / Prevention, Actology / Harm	Prognosis	Diagnosis	Differential diagnosis / symptom prevalence study	Economic and decision analyses
1a	SR (with homogeneity) of RCTs	SR (with homogeneity) of inception cohort studies; CoR validated in different populations	SR (with homogeneity) of Level 1 diagnostic studies; CoR with 10 studies from different clinical centres	SR (with homogeneity) of prospective cohort studies	SR (with homogeneity) of Level 1 economic studies
1b	Individual RCT (with narrow Confidence Interval)	Individual inception cohort study with > 80% follow-up; CoR validated in a study	Validating** cohort study with good*** relevance standards, or CoR validated	Prospective cohort study with good follow-up***	Analysis based on clinically sensible costs or alternatives, systematic

**Other Formats**

This Levels of Evidence page is available for download in a range of other formats for your convenience. Please click on the appropriate links below:

- Word (.doc)
- Office 2007 (.docx)
- PDF (.pdf)
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Spanish (abridged) extract from *Sociedad Mexicana de Ortopedia y Podiatria*

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## Appraisal Tools

Tools were developed by the Critical Appraisal Skills Programme (CASP) to help with the process of critically appraising articles of the following types of research. There are available and free to download for personal use. However, we regret we are not in a position to answer individual enquiries. If you have any questions regarding our tools, please check our list of [FAQs](#).

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- [Randomised Controlled Trials \(RCTs\)](#)
- [Qualitative Research](#)
- [Economic Evaluation Studies](#)
- [Cohort Studies](#)
- [Case Control Studies](#)
- [Diagnostic Test Studies](#)

Please be aware of our copyright on these tools.



# 嚴格的文獻評讀

- Validity/Reliability (效度/信度)
- Importance/Impact (重要性)
- Practice/Applicability (臨床適用性)

**Critical Appraisal Skills Programme (CASP)**

making sense of evidence

**11 questions to help you make sense of a  
case control study**



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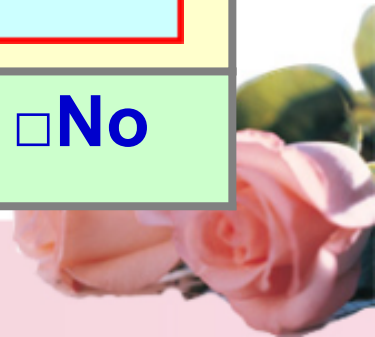
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# 1. Did the study address a clearly focused issue? (明確報告重點)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p><b>Objective</b> The aim of this study was to evaluate the efficacy of nurse-generated daily reminders to physicians to remove unnecessary urinary catheters 5 days after insertion.</p> <div data-bbox="229 1010 1038 1300" style="border: 2px solid red; padding: 10px; margin-top: 20px;"> <p style="text-align: center;">研究目的</p> <p>評估護理人員每天提醒醫師在病人裝置導尿管5天後移除不必要的導尿管的效果。</p> </div>	<p><b>Objective:</b> To evaluate the efficacy of a multifaceted hospital wide quality improvement program that featured an intervention to remind physicians to remove unnecessary urinary catheters.</p> <div data-bbox="1159 1010 1932 1300" style="border: 2px solid red; padding: 10px; margin-top: 20px;"> <p style="text-align: center;">研究目的</p> <p>評估藉由介入提醒醫師在病人裝置導尿管3天後移除不必要的導尿管的醫療品質改善效果。</p> </div>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>



## 2. Did the authors use an appropriate method to answer their question?

(作者適當方法)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p><b>Methods:</b> A time-sequence nonrandomized intervention study. The study consisted of a 12-month retrospective observational phase (November 2000 to October 2001) followed by a 12-month prospective intervention phase (January to December 2002). The key intervention was a daily reminder to physicians from the intensive care nursing staff to remove unnecessary urinary catheters 5 days after insertion.</p> <p>一年觀察期及一年的介入期 (屬於time-sequence nonrandomized intervention study)</p>	<p><b>Methods:</b> A hospital wide preintervention-postintervention study was conducted over 2 years (July 1, 2004, through June 30, 2006). The intervention consisted of nurse-generated daily reminders that were used by an intervention team to remind physicians to remove unnecessary urinary catheters, beginning 3 days after insertion.</p> <p>一年觀察期及一年的介入期 (屬於time-sequence nonrandomized intervention study)</p>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>

# 3. Were the cases recruited in an acceptable way? (可接受方法收集個案)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p><b>Patients</b></p> <p>The population consisted of all consecutive patients admitted to the adult ICUs during the period between November 2000 and December 2002. Patients with CAUTI that occurred less than 48 hours after admission to the ICUs were excluded. The study consisted of a 12-month retrospective observational phase (November 2000 to October 2001) followed by a 12-month prospective intervention phase (January to December 2002). Twelve-month periods were selected to exclude seasonal variation. The interphase between November and December 2001 was not included. Infection control practices did not differ between the two time periods and included consistent aseptic technique at the time of catheter insertion, use of closed catheter drainage, and education on urinary catheter care.</p>	<p><b>Setting and Patients</b></p> <p>Thammasart University Hospital (Pratumthani, Thailand) is a 450-bed, tertiary care university hospital in central Thailand. It serves a 150-mile-radius referral base and has 17 patient-care service units and departments. In this hospital, a physician's order was required before the insertion of a urinary catheter, and no silver-coated or nitrofurazone-coated catheters were used. The study population consisted of all consecutive patients admitted to the hospital from July 1, 2004, through June 30, 2006. Patients with a CA-UTI that occurred less than 48 hours after admission were excluded. The study consisted of a 12-month baseline observation phase (July 1, 2004, through June 30, 2005) followed by a 12-month intervention phase (July 1, 2005, through June 30, 2006).</p>
<p>收案的病人是<u>ICU</u>的病人 排除48小時內發生CAUTI的病患</p>	<p>收案的病人是<u>全院</u>的病人 排除48小時內發生CAUTI的病患</p>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>

# 4. Were the controls selected in an acceptable way? (控制選擇在可接受的方法)

Wei-Chun Huang et al.  
2004

Characteristic	Observational Group	Intervention Group	P
No. of patients	3,129	3,168	
Total patient-days	15,960	15,525	
Ever catheterized any time (SD)	74.5% ( $\pm$ 4.2%)	76.2% ( $\pm$ 5.1%)	.19
Mean length of ICU stay, d (SD)	5.1 ( $\pm$ 0.9)	4.9 ( $\pm$ 1.3)	.34
Mean age, y (SD)	64.3 ( $\pm$ 9.2)	66.1 ( $\pm$ 13.4)	.46
Male (%)	2,284 (73)	2,249 (71)	.08
Mean APACHE II score (SD)	23.5 ( $\pm$ 12.6)	24.1 ( $\pm$ 14.7)	.27
Death (%)	1,064 (34)	1,140 (36)	.10
No. of patients with CAUTI (%)	118	77	
CAUTI-related bloodstream infection	8 (7)	5 (7)	.39
CAUTI-related mortality	3 (3)	2 (3)	.64
Pathogens (%)			.85
Gram-negative bacteria	61 (52)	45 (58)	
Gram-positive bacteria	12 (10)	7 (9)	
Yeasts	45 (38)	25 (33)	

對照組  
(n=3129)  
兩組人口學及控制變項無顯著差異，顯示具平衡性。

Anucha Apisarnthanarak et al.  
2007

Characteristic	Preintervention (n = 1,105)	Postintervention (n = 1,907)	P
Age, mean $\pm$ SD, years	48 $\pm$ 8.7	52 $\pm$ 7.9	.24
Female sex	519 (47)	640 (69)	.35
Principal condition diagnosed*			
Cardiovascular disease	276 (25)	301 (23)	.26
Gastrointestinal disease	254 (23)	288 (22)	.57
Diabetes	221 (20)	274 (21)	.55
Cerebrovascular or other neurological disease	199 (18)	222 (17)	.50
Pulmonary disease	133 (12)	170 (13)	.47
Immunocompromised state	95 (9)	91 (7)	.15
Malignancy	52 (5)	39 (3)	.10
Other	166 (15)	196 (15)	.96
APACHE II score, mean $\pm$ SD	14 $\pm$ 7.7	15 $\pm$ 8.6	.85
Type of urinary catheter			
Foley catheter	906 (82)	1,090 (84)	.24
Condon catheter	111 (10)	105 (8)	.20
Suprapubic catheter	44 (4)	39 (3)	.21
Percutaneous nephrostomy tube	22 (2)	39 (3)	.15
Clean intermittent catheterization	22 (2)	26 (2)	.88
Positive urine culture result, by type of organism			
Gram-negative bacteria	603 (60)	758 (58)	.33
Gram-positive bacteria	111 (10)	105 (8)	.12
Yeast	332 (30)	444 (34)	.39

對照組  
(=1105)兩組人口學及控制變項無顯著差異，顯示具平衡性。

Yes,  Can't Tell,  No

Yes,  Can't Tell,  No

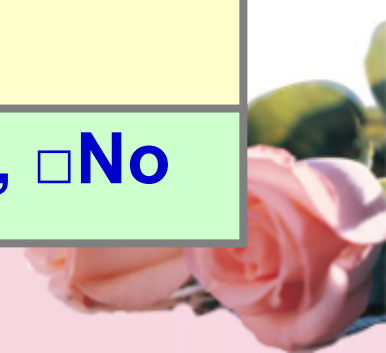
# 5. Was the exposure accurately measured to minimize bias? (準確測量減少偏差)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p>This consisted of requiring the nursing staffs to remind physicians daily to remove urinary catheters if they were no longer needed 5 days after insertion. The physicians in charge made decisions regarding inserting or removing the urinary catheters. No other interventions were used during the two time periods, including silver alloy catheters, nitrofurazone-coated catheters, condom catheters, or intermittent catheterization. The program was promoted at monthly staff meetings for physicians and nurses. The hospital's human subjects review board approved the study.</p>	<p>Routine infection control practices did not differ between the 2 periods; these practices included use of aseptic technique during catheter insertion, use of closed urinary catheters, and education of nursing staff about urinary catheter care. The treating physicians were not aware of the purpose of this study during either study phase. During the entire study period, the only concurrent infection control initiative was a hospitalwide quality improvement program for preventing ventilator-associated pneumonia.</p>
<p>感染控制作業在兩階段是一致的。文獻中沒有很清楚提到主治醫師是否知情。</p>	<p>感染控制作業在兩階段是一致的。病患的主治醫師對於研究的目的是不知情的。</p>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>

# 6. What confounding factors have the authors accounted for ?

(干擾因素是什麼)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p style="text-align: center;"><b>干擾因子較多</b></p> <ol style="list-style-type: none"><li>1. 只觀察在ICU期間的狀態，無轉出後的追蹤情形。</li><li>2. 缺乏對於無症狀的UTI病人處置與評估。</li><li>3. 缺乏使用導尿管的適應症評估。</li></ol>	<p style="text-align: center;"><b>干擾因子較少</b></p> <ol style="list-style-type: none"><li>1. 缺乏對於無症狀的UTI病人處置與評估。</li></ol>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>



# 7-1. What are the results ?

Wei-Chun Huang et al.  
2004

TABLE 2  
AVERAGE DURATION OF CATHETERIZATION AND RATE OF CATHETER-ASSOCIATED URINARY TRACT INFECTION IN THE ADULT INTENSIVE CARE UNITS

ICU	Average Duration of Catheterization (d)			Rate of CAUTI (‰)*		
	Observational Group	Intervention Group	P	Observational Group	Intervention Group	P
Medical	8.6 (± 3.3) <sup>†</sup>	5.7 (± 1.0)	.006	10.9 (± 10.0)	6.6 (± 10.3)	.304
Surgical	8.2 (± 2.8)	4.4 (± 0.7)	< .001	10.2 (± 5.4)	6.2 (± 6.1)	.105
Cardiovascular surgical	6.6 (± 2.5)	3.6 (± 1.0)	.004	5.2 (± 5.4)	5.9 (± 6.6)	.778
Neurosurgical	8.2 (± 2.3)	5.7 (± 0.5)	.03	18.1 (± 13.7)	10.8 (± 6.4)	.106
Coronary	6.0 (± 1.3)	3.9 (± 0.5)	< .001	12.5 (± 10.9)	11.9 (± 9.5)	.890
All units	7.0 (± 1.1)	4.6 (± 0.7)	< .001	11.5 (± 3.1)	8.3 (± 2.5)	.009

CAUTI = catheter-associated urinary tract infection; ICU = intensive care unit.  
\*Episodes of CAUTI per 1,000 catheter-days.  
Numbers in parentheses are standard deviations.

平均使用導尿管的天數  
所有的ICU單位  
對照組 vs 介入組  
(7.0±1.1 days vs. 4.6±0.7 days) (p<0.001)

CAUTI的發生率  
所有的ICU單位  
對照組 vs 介入組  
(11.5% vs. 8.3%) (p=0.009)

# 7-2. What are the results ?

Anucha Apisarnthanarak et al.  
2007

TABLE 3. Average Duration of Catheterization and Catheter-Associated Urinary Tract Infection (CA-UTI) Rate, by Patient Care Unit

Units	Duration of catheterization, mean $\pm$ SD, days			CA-UTI rate, mean $\pm$ SD, episodes per 1,000 catheter-days		
	Preintervention	Postintervention	<i>P</i>	Preintervention	Postintervention	<i>P</i>
Medical	9.6 $\pm$ 3.3	3.2 $\pm$ 1.0	<.001	21.5 $\pm$ 10.0	6.5 $\pm$ 4.3	.02
Surgical	7.3 $\pm$ 2.3	1.5 $\pm$ 0.5	<.001	19.4 $\pm$ 5.4	7.8 $\pm$ 6.1	.03
ICU	14 $\pm$ 3.8	5.6 $\pm$ 1.0	<.001	23.4 $\pm$ 13.7	3.5 $\pm$ 6.4	.01
All <sup>a</sup>	11 $\pm$ 2.5	3 $\pm$ 0.7	<.001	21.5 $\pm$ 5.5	5.2 $\pm$ 2.1	<.001

NOTE. ICU, intensive care unit.

<sup>a</sup> Included orthopedic, rhino-otolaryngology, general practices, and pediatrics.

平均使用導尿管的天數  
所有的內科、外科及ICU單位  
對照組 vs 介入組  
(11 $\pm$ 2.5 days vs. 3 $\pm$ 0.7 days) ( $p < 0.001$ )

CAUTI的發生率  
所有的內科、外科及ICU單位  
對照組 vs 介入組  
(21.5% vs. 5.2%) ( $p < 0.01$ )



# 8. How precise are the results?

## How precise is the estimate of risk?

(結果精確度如何？如何精確估計風險？)

Wei-Chun Huang et al. 2004	Anucha Apisarnthanarak et al. 2007
<p>1. The duration of catheterization decreased from <math>7.0 \pm 1.1</math> days in the observation group to <math>4.6 \pm 0.7</math> days in the intervention group (<math>P &lt; .001</math>).</p> <p>2. The rate decreased from <math>11.5 \pm 3.1</math> to <math>8.3 \pm 2.5</math> episodes per 1,000 catheter-days (<math>P = .009</math>).</p> <p>3. The monthly cost was reduced by 69%, from <math>\\$4,021 \pm \\$1,800</math> for the observation group to <math>\\$1,220 \pm \\$941</math> for the intervention group (<math>P = .004</math>).</p>	<p>1. rate of catheter-associated urinary tract infection (CA-UTI) (mean rate, 21.5 vs 5.2 infections per 1,000 catheter-days [<math>P &lt; 0.001</math>])</p> <p>2. the duration of urinary catheterization (mean, 11 vs 3 days [<math>P &lt; 0.001</math>])</p> <p>3. A linear relationship was seen between the monthly average duration of catheterization and the rate of CA-UTI (<math>r = 0.89</math>; <math>P &lt; 0.001</math>).</p> <p>4. The intervention had the greatest impact on the rate of CA-UTI in the intensive care units (mean rate, preintervention vs postintervention, 23.4 vs 3.5 infections per 1,000 catheter-days [<math>P = 0.01</math>]).</p> <p>5. the hospitalization cost for each patient during the intervention was reduced by 58% (mean, <math>\\$366</math> vs <math>\\$154</math> [<math>P &lt; 0.001</math>]).</p>
<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes, <input type="checkbox"/> Can't Tell, <input type="checkbox"/> No</p>

# 9. Do you believe the results ?

結果評估	Wei-Chun Huang et al. 2004	Anucha Apisarntharak et al. 2007
ICU平均導尿管使用天數	<b>7.0 vs 4.6 (p&lt;0.001)</b>	<b>11 vs 3 (p&lt;0.001)</b>
ICU之CAUTI發生率	<b>11.5 ‰ vs 8.3 ‰ (p=0.009)</b>	<b>21.5 ‰ vs 5.2 ‰ (p&lt;0.001)</b>
導尿管使用天數與CAUTI的相關性	<b>具相關性 (r=0.50; p=0.01)</b>	<b>具相關性 (r=0.89; p&lt;0.001)</b>
不適當導尿管的使用	-	<b>20.1% vs 11% (p=0.04)</b>
整體醫療費用的支出	<b>降低69% (p=0.004)</b>	<b>降低58% (p&lt;0.001)</b>
抗生素費用的支出	-	<b>降低63% (p&lt;0.001)</b>
	<input type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>	<input type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>



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# 證據等級評估

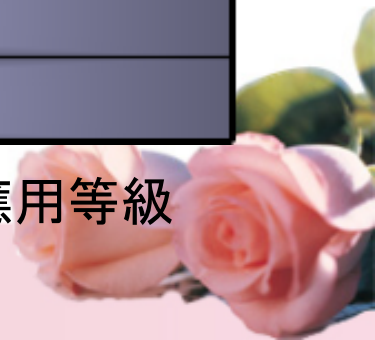
Level		Therapy/Prevention, Aetiology/Harm
1	a	將隨機對照臨床試驗研究(RCT)以系統性評論後(systematic review: SR)的結果
	b	具有嚴格的信賴區間的個別RCT研究
	c	無論使用何種研究方法,但其研究結果為完全無效的研究報告
2	a	將同質性的世代研究(cohort studies)以系統性評論後的結果
	b	個別世代研究或質量不足的RCT研究(例如低於95% CI)
	c	以多數結果為基礎的研究及生態學的研究
3	a	將同質性的個案對照研究(case control studies),以系統性評論後的結果
	b	個別的個案對照研究(individual case control study)
4		病例統計報告,以及質量不足的個案對照研究
5		未經嚴謹評估的專家意見或基礎生理學,一般實驗室研究



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英國的Oxford Centre證據應用等級

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# 10. Can the results be applied to the local population ?

Do these results apply to your patient?

結果能應用在我們的病人嗎?

Is our patients so different from those in the study that its results cannot apply?

我們研究的病人是否與文獻中病人有本質上差異而影響結果套用?

Is the treatment feasible in our setting?

在我們病人是否能使用該治療?

文獻中病人族群與我們想到應用的病人是相似的。

目前本院共有內科、外科及心臟等三個ICU單位。

根據文獻證據顯示加護病房導尿管留置的病人提早移除不必要的導尿管可以降低CAUTI的發生率 (Level 3a)

可以考慮執行ICU之UTI改善計劃

Yes,  Can't Tell,  No

# 11. Do the results of this study fit with other available evidence ?

(文獻結果是否一致)

**TABLE 2**  
AVERAGE DURATION OF CATHETERIZATION AND RATE OF CATHETER-ASSOCIATED URINARY TRACT INFECTION IN THE ADULT INTENSIVE CARE UNITS

ICU	Average Duration of Catheterization (d)			Rate of CAUTI (%) <sup>a</sup>		
	Observational Group	Intervention Group	P	Observational Group	Intervention Group	P
Medical	8.6 (± 3.3) <sup>b</sup>	5.7 (± 1.0)	.006	10.9 (± 10.0)	6.6 (± 3.3)	.304
Surgical	8.2 (± 2.8)	4.4 (± 0.7)	<.001	10.2 (± 5.4)	6.2 (± 6.1)	.105
Cardiovascular surgical	6.6 (± 2.5)	3.6 (± 1.0)	.004	5.2 (± 5.4)	5.9 (± 6.6)	.778
Neurosurgical	8.2 (± 2.3)	5.7 (± 0.5)	.08	18.1 (± 13.7)	10.8 (± 6.4)	.106
Convalescent	6.0 (± 1.3)	3.9 (± 0.5)	<.001	12.5 (± 10.9)	11.9 (± 9.5)	.890
All units	7.0 (± 1.1)	4.6 (± 0.7)	<.001	11.5 (± 3.1)	8.3 (± 2.5)	.000

CAUTI = catheter-associated urinary tract infection; ICU = intensive care unit.  
<sup>a</sup>Episodes of CAUTI per 1,000 catheter-days.  
<sup>b</sup>Numbers in parentheses are standard deviations.

**TABLE 3.** Average Duration of Catheterization and Catheter-Associated Urinary Tract Infection (CA-UTI) Rate, by Patient Care Unit

Units	Duration of catheterization, mean ± SD, days			CA-UTI rate, mean ± SD, episodes per 1,000 catheter-days		
	Preintervention	Postintervention	P	Preintervention	Postintervention	P
Medical	9.6 ± 3.3	3.2 ± 1.0	<.001	21.5 ± 10.0	6.5 ± 4.3	.02
Surgical	7.3 ± 2.3	1.5 ± 0.5	<.001	19.4 ± 5.4	7.8 ± 6.1	.03
ICU	14 ± 3.8	5.6 ± 1.0	<.001	23.4 ± 13.7	3.5 ± 6.4	.01
All <sup>a</sup>	11 ± 2.5	3 ± 0.7	<.001	21.5 ± 5.5	5.2 ± 2.1	<.001

NOTE. ICU, intensive care unit.

<sup>a</sup> Included orthopedic, rhino-otolaryngology, general practices, and pediatrics.

Yes  No




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# 臨床應用

1. 結合實證醫學的結果、臨床專業經驗給予病人建議
2. 結合病人價值，幫助病人做出最後的決定臨床處置

醫療現況	替代選擇
<p>1. 泌尿道感染是目前醫院常見院內感染，佔醫院感染之30%-40%。</p> <p>2. 住在加護病房<math>\leq</math>4天得到泌尿道感染的機率是4.7%，有留置導尿管得到泌尿道感染是7.2%，</p>	<p>97年3月開始提醒醫師不必要的尿管留置，儘早移除導尿管</p> 
經濟效益	病人價值觀
減少不必要的抗生素藥費成本	降低病人死亡率

## 安泰醫院留置導尿管超過7天未移除提報單

制定日期：2008.02

修訂日期：2008.03

病房別：\_\_\_\_\_

主治醫師：\_\_\_\_\_

病患姓名：\_\_\_\_\_

1. 請主治醫師勾選未移除導尿管原因。

病歷號碼：\_\_\_\_\_

2. 提報單填寫完後請送至感控室。

床 號：\_\_\_\_\_

<input type="checkbox"/> 1. 尿失禁者有 <u>薦部</u> 或 <u>會陰部</u> 開放性傷口	<input type="checkbox"/> 2. 需密切觀察尿量之病患(如急性腎衰竭)
<input type="checkbox"/> 3. 引起尿瀦留者(如神經性膀胱)	<input type="checkbox"/> 4. Foley training 失敗之病患
<input type="checkbox"/> 5. 膀胱出口阻塞(不適合以外科矯正而需長期置放者)	<input type="checkbox"/> 6. 其他：_____ (請說明)

\*置入導尿管日期： 年 月 日

\*移除導尿管日期： 年 月 日

\*是否第一次提報：是 否：上次提報日期：

\*一式一聯

# 做出最後臨床決策

- 以去學術語的方式回答病人的問題
  - 我們考慮文獻證據、醫師臨床經驗及病人自己的價值觀，評估使用提早移除導尿管治療，對於病人品質、病人經濟狀況、健保給付有相當助益。



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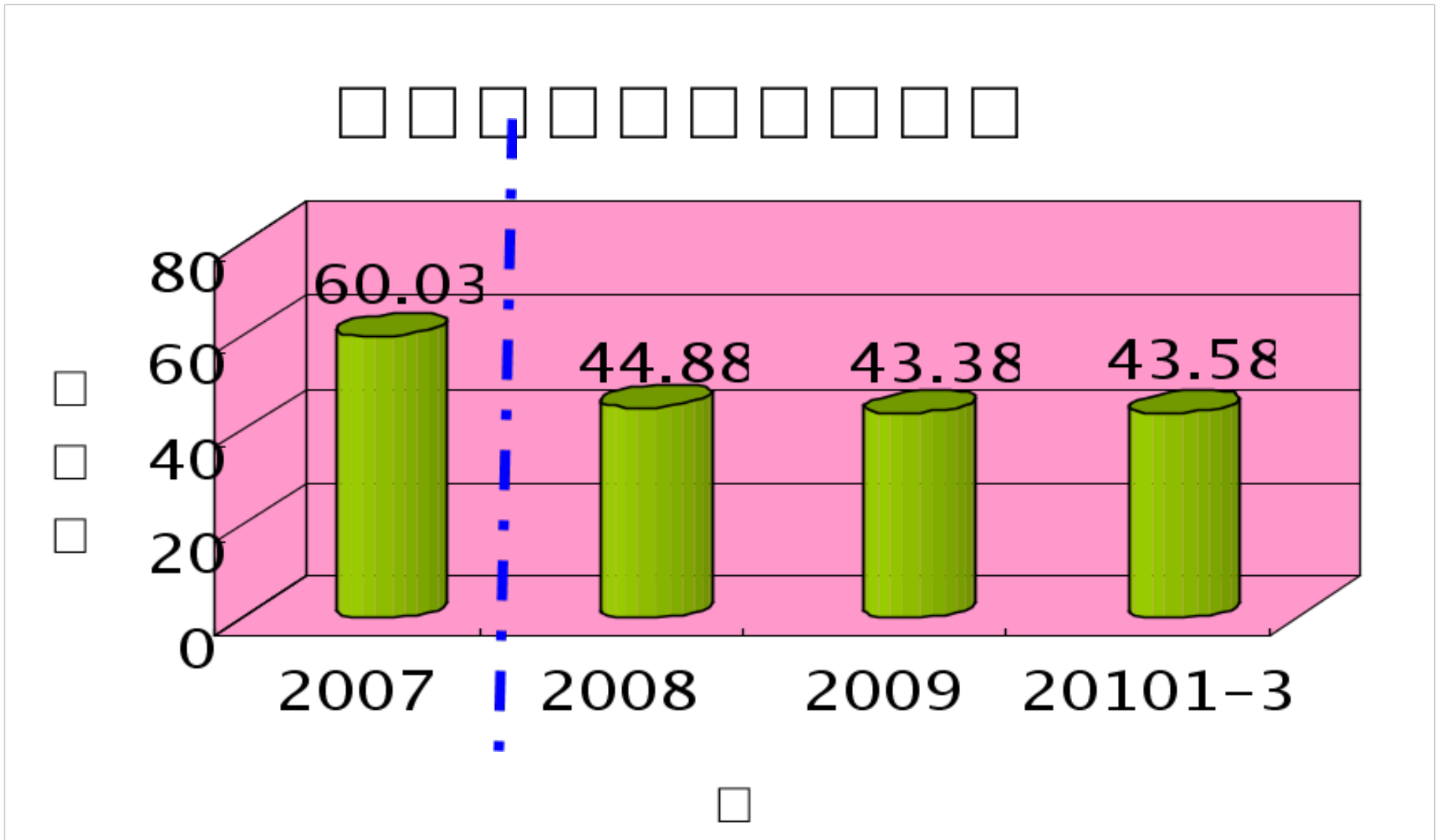
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# 比較透過EBM的介入與傳統介入方式之對醫療照顧品質之差異

照護品質	傳統介入方式	EBM介入方式
較佳的臨床療效	不做提醒	提醒醫師提早移除導尿管
降低泌尿道感染的產生	6.78‰	4.61‰
導尿管使用率	60.03%	43.38%
醫療費用的降低	增加	降低



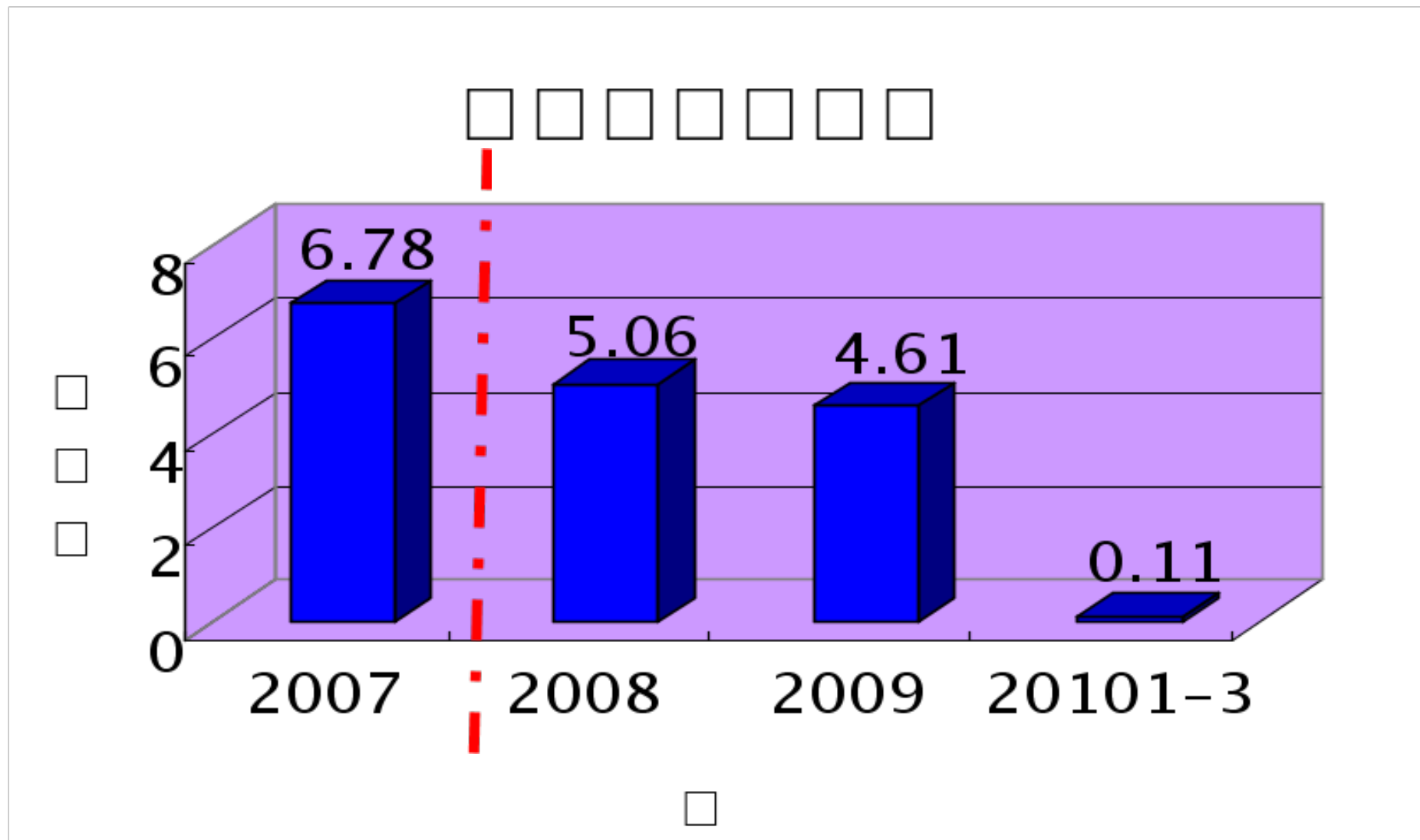
【公式 = 分子 (內科加護病房存留導尿管使用日數) / 分母 (內科加護病房總住院人日數) \* 100】



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【公式 = 分子（內科加護病房存留導尿管相關之尿路感染次數） / 分母（內科加護病房存留導尿管使用日數） \* 1000】



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# 成效評估

## 步驟1:在提出臨床問題方面

我提出的問題是否具有臨床重要性？是，可以作為治療參考。

是否知道自己設定的問題類型？是，治療性的問題。

## 步驟2:在搜尋最佳證據方面

我是否從大量的資料庫來搜尋答案？是。  
我是否在搜尋上愈來愈熟練了？需要加強。

## 步驟3:在文獻評讀方面

我可以更正確更有效率的使用一些審慎評估如:NNT?需要加強。

## 步驟4:在整合證據與病患的價值觀方面

我盡力將審慎評估的結果融入治療中嗎?是。  
我是否因此搜尋結果而改變了原來的治療策略？部分有。

# 結論

經過介入性措施確實有下降，但是在2010感染率進一步下降非為單一原因造成，應該有其他原因：推行洗手運動、訪客限制等

- 臨床方面

落實照護病人前後洗手，持續落實提醒醫師移除不必要的尿管留置，進而成為標準執行作業程序

- 教育方面

仍需加強感染管制相關教育



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謝謝您的聆聽  
敬請指導!



大鵬灣單車道

大鵬灣瀉湖之美

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