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

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

Asking Answerable Clinical Questions

- Background Questions
- Foreground Questions

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≦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？

將問題寫成PICO

問題類型	■治療性 □診斷性 □預後性 □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

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

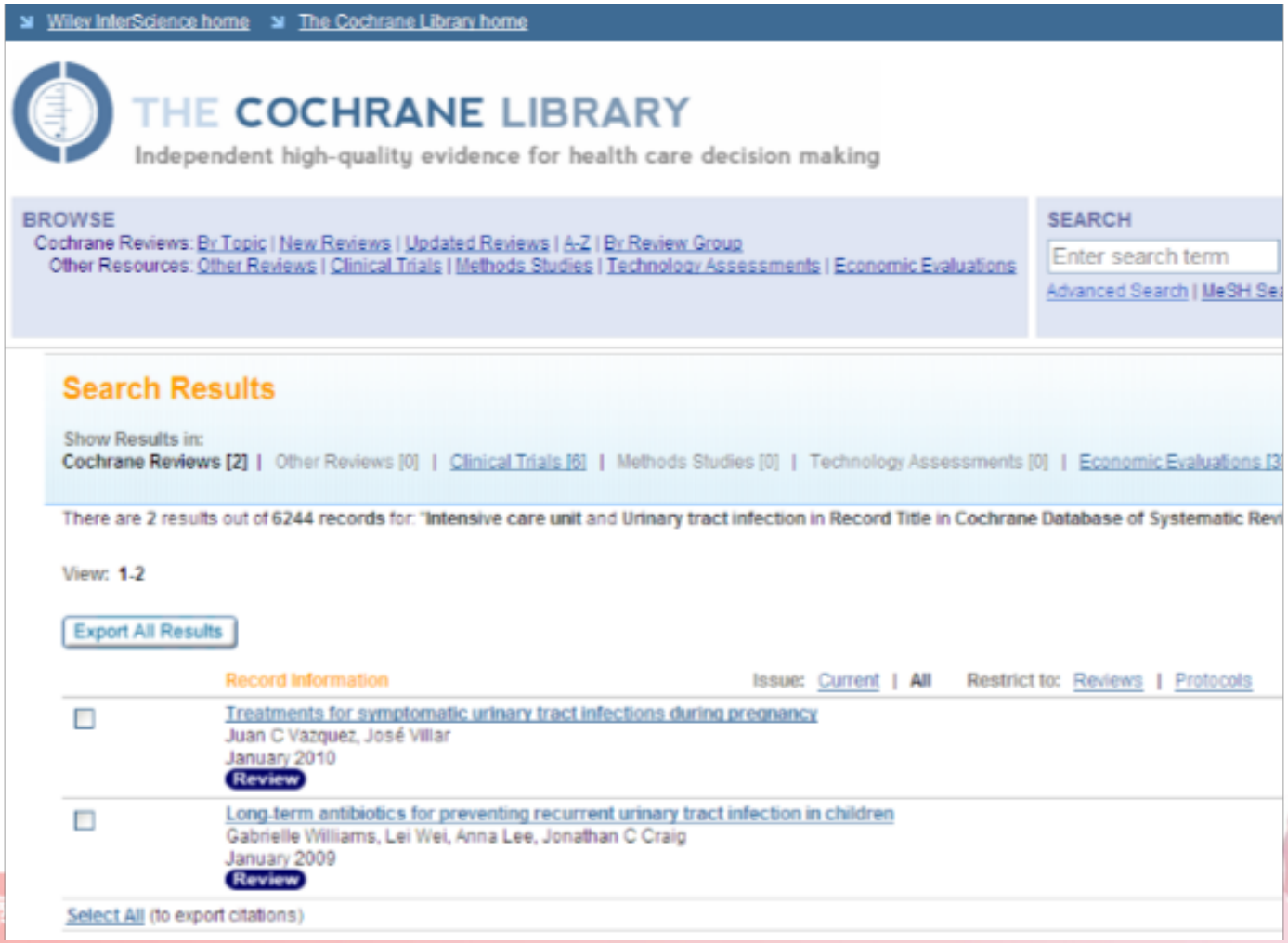
CATHETER-ASSOCIATED URINARY TRACT INFECTIONS IN INTENSIVE CARE UNITS CAN BE REDUCED BY PROMPTING PHYSICIANS TO REMOVE UNNECESSARY CATHETERS

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

THE COCHRANE LIBRARY
Independent high-quality evidence for health care decision making

搜尋cochrane library

- 關鍵字：Intensive care unit 、 Urinary tract infection



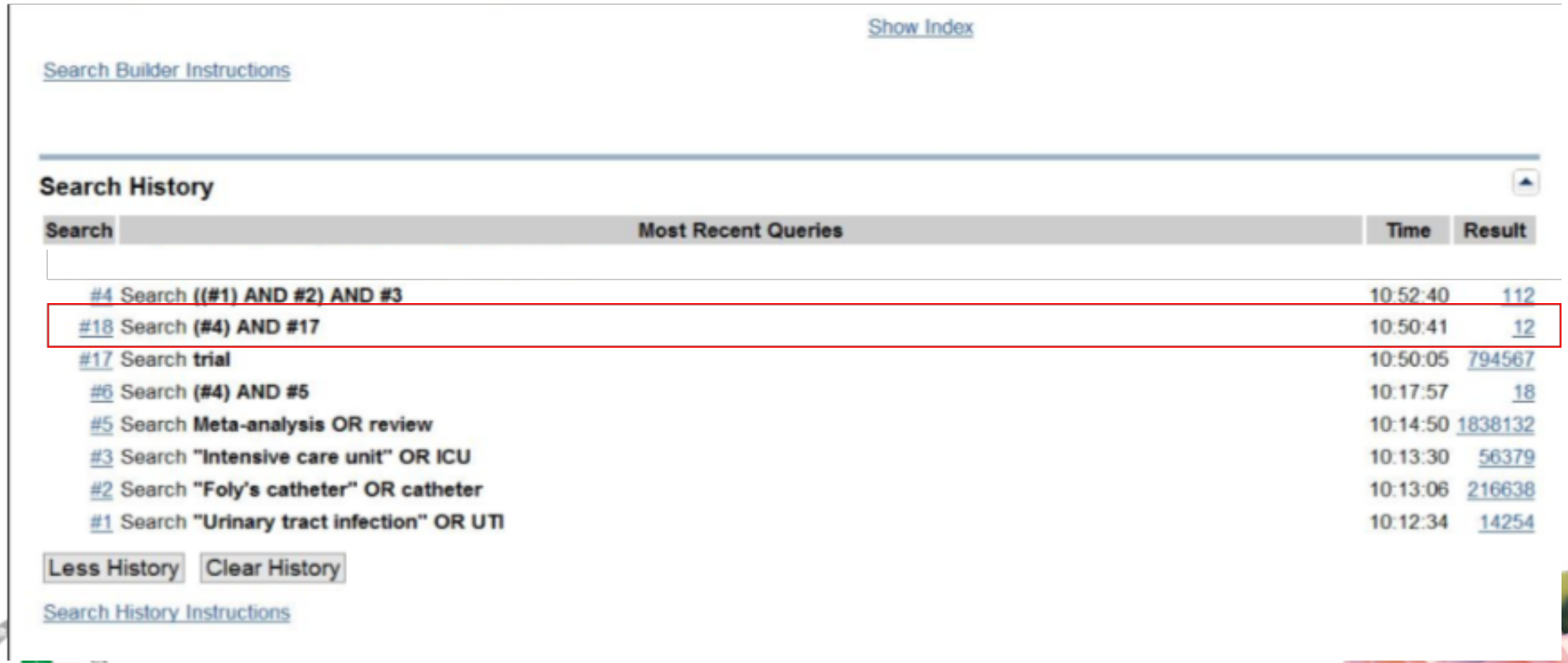
8/28/2010

PubMed.gov
U.S. National Library of Medicine
National Institutes of Health

搜尋PubMed

- 關鍵字：catheter 、 urinary tract infection、intensive care unit

Exclusion 10 articles；Inclusion 2 articles



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Search Builder Instructions

Search History

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

Less History | Clear History

Search History Instructions

資料庫搜尋結果

資料庫種類	文章篇數	不符合	符合
UpToDate. ONLINE 18.1	1	0	1
THE COCHRANE LIBRARY Independent high-quality evidence for health care decision making	0	0	0
PubMed.gov U.S. National Library of Medicine National Institutes of Health	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
RCT Double Blind	0
RCT	0
Cohort	0
Case Control	2

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

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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)

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

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
Objective 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.	**Objective**: To evaluate the efficacy of a multifaceted hospital wide quality improvement program that featured an intervention to remind physicians to remove unnecessary urinary catheters.
研究目的 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。	研究目的 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。
□Yes, □Can't Tell, □No	□Yes, □Can't Tell, □No

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
Methods: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 dailyreminder to physicians from the intensive care nursingstaff to remove unnecessary urinary catheters 5 days after insertion.	**Methods:** 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.
一年觀察期及一年的介入期 (屬於time-sequence nonrandomized intervention study)	一年觀察期及一年的介入期 (屬於time-sequence nonrandomized intervention study)
□**Yes,** □**Can't Tell,** □**No**	□**Yes,** □**Can't Tell,** □**No**

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
Patients 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.	**Setting and Patients** 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).
收案的病人是***ICU***的病人 排除48小時內發生CAUTI的病患	收案的病人是全院的病人 排除48小時內發生CAUTI的病患
□**Yes, □Can't Tell, □No**	□**Yes, □Can't Tell, □No**

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	Anucha Apisarnthanarak et al. 2007

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% (± 4.2%)	76.2% (± 5.1%)	.19
Mean length of ICU stay, d (SD)	5.1 (± 0.9)	4.9 (± 1.3)	.34
Mean age, y (SD)	64.3 (± 9.2)	66.1 (± 13.4)	.46
Male (%)	2,284 (73)	2,249 (71)	.08
Mean APACHE II score (SD)	23.5 (± 12.6)	24.1 (± 14.7)	.27
Death (%)	1,064 (34)	1,140 (36)	.10
No. of patients with CAUTI (%)	118	77	
CAUTI-related blood-stream infection	8 (7)	5 (7)	.39
CAUTI-related mortality	3 (3)	2 (3)	.64
Pathogens (%)			.65
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。

Characteristic	Preintervention (n = 1,105)	Postintervention (n = 1,307)	P
Age, mean ± SD, years	48 ± 8.7	52 ± 7.9	.24
Female sex	519 (47)	640 (49)	.35
Principal condition diagnosed[a]			
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 (8)	91 (7)	.15
Malignancy	52 (5)	39 (3)	.10
Other	166 (15)	196 (15)	.96
APACHE II score, mean ± SD	14 ± 7.7	15 ± 8.6	.85
Type of urinary catheter			
Foley catheter	906 (82)	1,098 (84)	.24
Condom 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	663 (60)	758 (58)	.33
Gram-positive bacteria	111 (10)	105 (8)	.12
Yeast	331 (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
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.	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.
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。	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。
□Yes, □Can't Tell, □No	□Yes, □ Can't Tell, □No

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
干擾因子較多 1.只觀察在ICU期間的狀態，無轉出後的追蹤情形。 2.缺乏對於無症狀的UTI病人處置與評估。 3.缺乏使用導尿管的適應症評估。	干擾因子較少 1.缺乏對於無症狀的UTI病人處置與評估。
□Yes, □ Can't Tell, □No	□Yes, □ Can't Tell, □No

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

	Average Duration of Catheterization (d)			Rate of CAUTI ( )*		
ICU	Observational Group	Intervention Group	*P*	Observational Group	Intervention Group	*P*
Medical	8.6 (± 3.3)†	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

	Duration of catheterization, mean ± SD, days			CA-UTI rate, mean ± SD, episodes per 1,000 catheter–days		
Units	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[a]	11 ± 2.5	3 ± 0.7	<.001	21.5 ± 5.5	5.2 ± 2.1	<.001

NOTE. ICU, intensive care unit.
[a] 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**±2.5 days vs. **3**±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
1.The duration of catheterization decreased from 7.0 ± 1.1 days in the observation group to 4.6 ± 0.7 days in the intervention group (*P* < .001). 2. The rate decreased from 11.5 ± 3.1 to 8.3 ± 2.5 episodes per 1,000 catheter-days (*P* = .009). 3. The monthly cost was reduced by 69%, from $4,021 ± $1,800 for the observation group to $1,220 ± $941 for the intervention group (*P* = .004).	1. rate of catheter-associated urinary tract infection (CA-UTI) (mean rate, 21.5 vs 5.2 infections per 1,000 catheter-days [P<0.001]) 2. the duration of urinary catheterization (mean, 11 vs 3 days [P<0.001]) 3. A linear relationship was seen between the monthly average duration of catheterization and the rate of CA-UTI (r=0.89; P<0.001). 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 [P=0.01]). 5. the hospitalization cost for each patient during the intervention was reduced by 58% (mean, $366 vs $154 [P<0.001]).
□ **Yes, □Can't Tell, □No**	□ **Yes, □Can't Tell, □No**

9.Do you believe the results ?

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

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
	b	個別世代研究或質量不足的RCT研究(例如低於
	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

Level 3a

英國的Oxford Centre證據應用等級

8/28/2010

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

Do these results appply 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群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)

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Neurosurgical	8.2 (± 2.3)	5.7 (± 0.5)	.03	18.1 (± 12.7)	10.8 (± 6.4)	.106
Coronary	6.0 (± 1.3)	2.9 (± 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.
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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*	11 ± 2.5	3 ± 0.7	<001	21.5 ± 5.5	5.2 ± 2.1	<.001

NOTE. ICU, intensive care unit.
* Included orthopedic, rhino-otolaryngology, general practices, and pediatrics.

□ **Yes** □**No**

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
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%。 2.住在加護病房≦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%，	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 
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

8/28/2010

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：_____

□1.尿失禁者有薦部或會陰部開放性傷口	□2.需密切觀察尿量之病患(如急性腎衰竭)
□3.引起尿潴留者(如神經性膀胱)	□4.Foley training 失敗之病患
□5.膀胱出口阻塞(不適合以外科矯正而需長期置放者)	□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

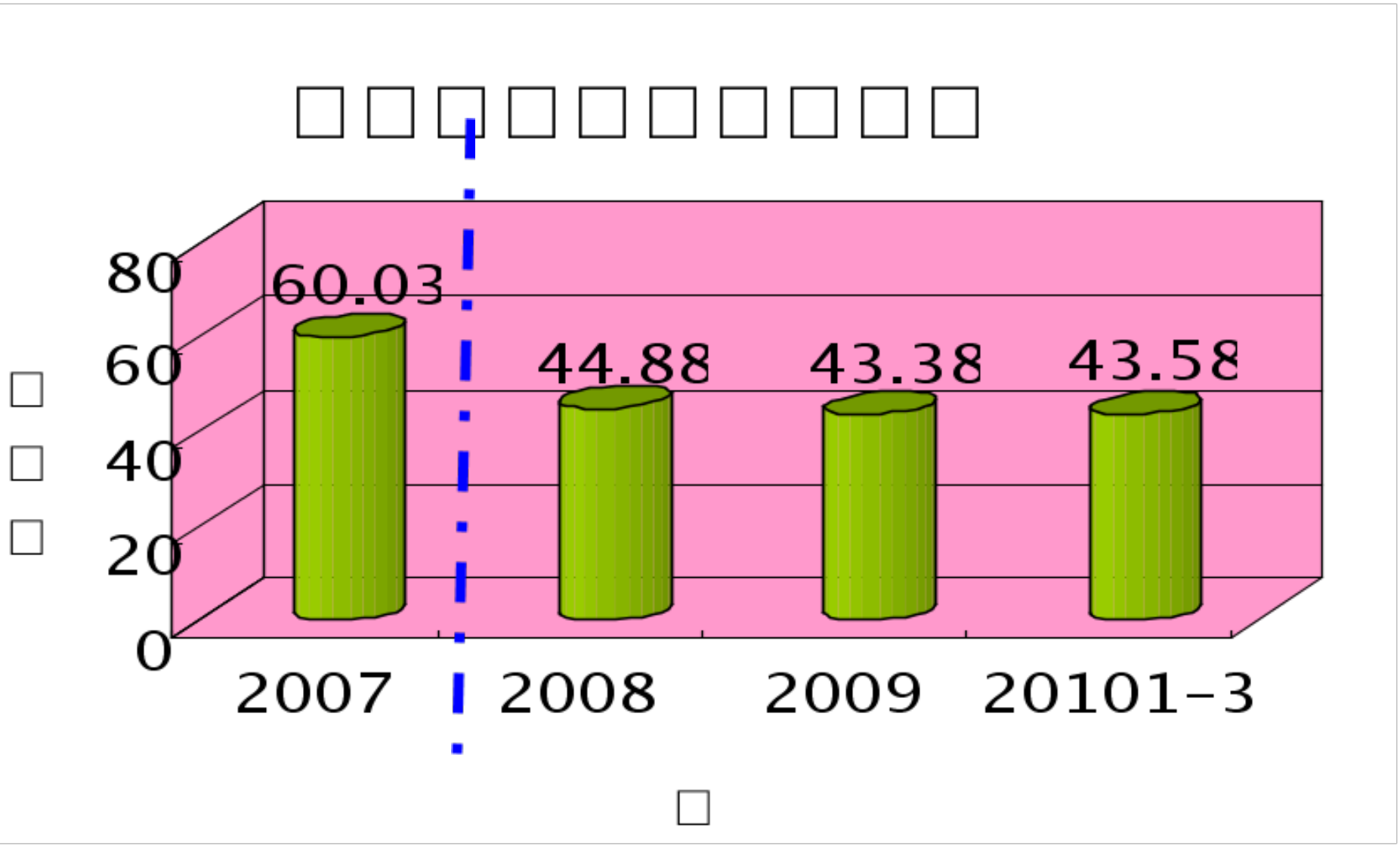
做出最後臨床決策

- 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。

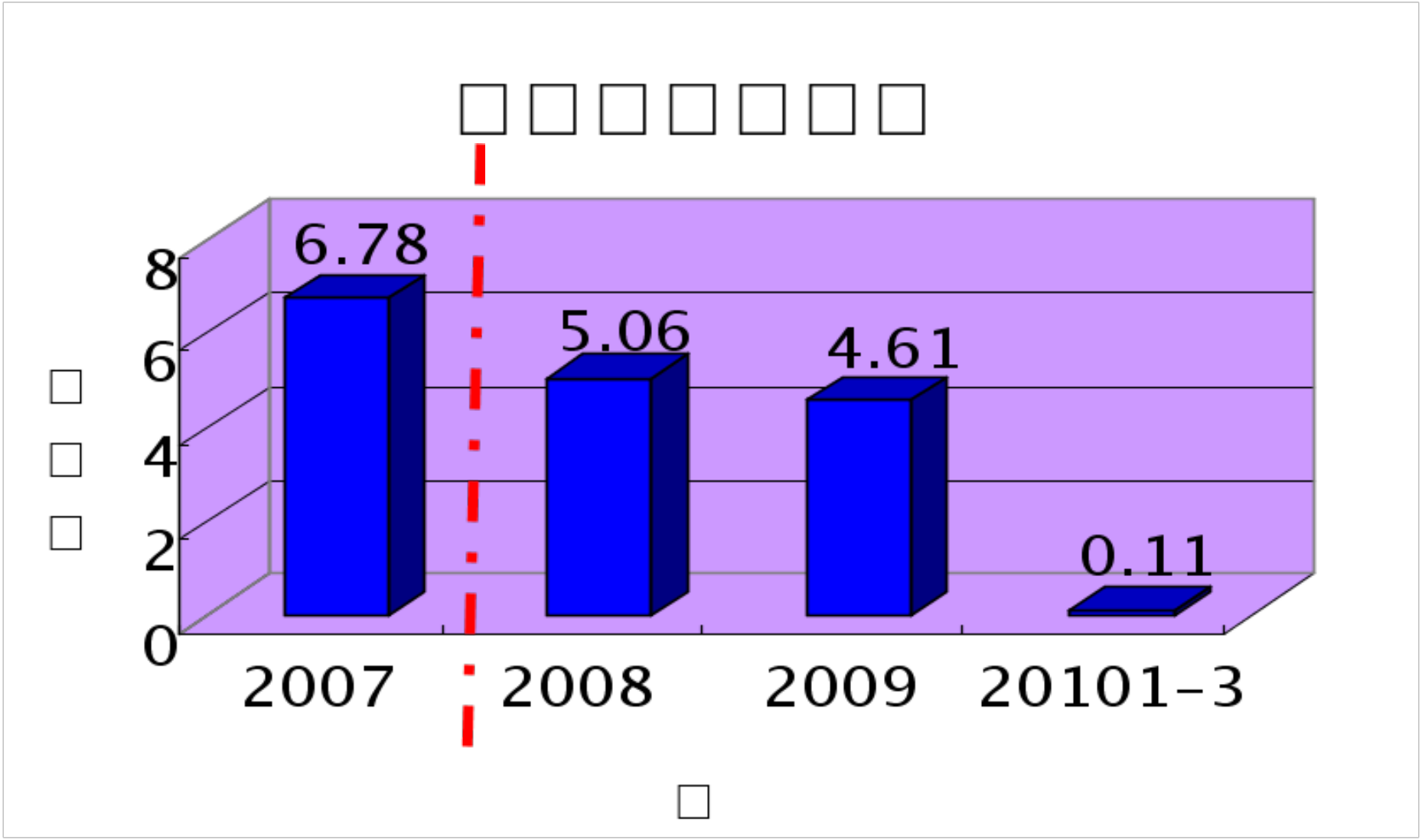
8/28/2010

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）】



【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】

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。

8/28/2010

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

謝謝您的聆聽
敬請指導!

大鵬灣瀉湖之美

大鵬灣單車道