



手部衛生與醫療品質的經濟效益

Infection control Center

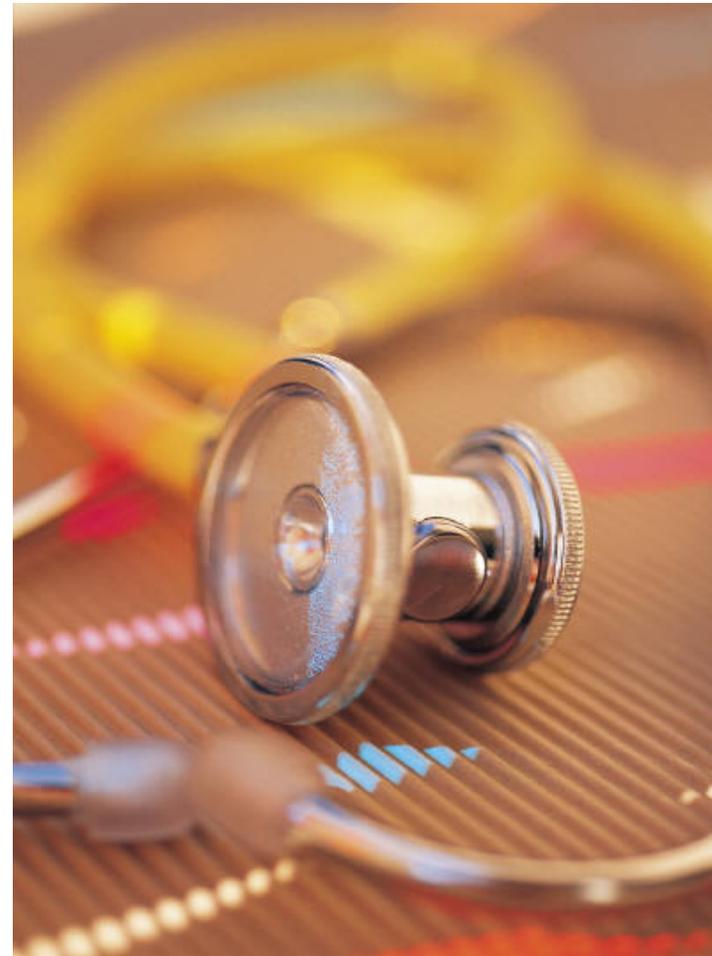
Mackay Memorial Hospital.

李聰明 醫師

醫療品質的定義

符合病人的需求。

病人可以方便得到最佳醫療結果，使病人及其家屬能夠滿意，並在成本與效益方面得到合理化。



國內醫療品質管理問題

未落實以病人為中心的原則

臨床面著墨較少

相關規範制訂不夠週延

有效的量測系統建置尚未完備

過度重視營運績效

忽略專業技能以外的醫療教育

醫療品質文化尚未深耕



感染管制工作的重要性

“病人的安全是醫院的基石”

“感染管制是病人安全的基石” ----- by 李聰明

醫院評鑑、醫院感控查核

醫院督導考核、病人安全品質查核

Definition

Health Care-associated Infection (HCAI)

- Also referred to as “nosocomial” or “hospital” infection

“An infection occurring in a patient during the process of care in a hospital or other health-care facility which was not present or incubating at the time of admission. This includes infections acquired in the health-care facility but appearing after discharge, and also occupational infections among health-care workers of the facility”

HCAI: The worldwide burden

- Estimates are hampered by limited availability of reliable data
- The burden of disease both outside and inside health-care facilities is unknown in many countries
- No health-care facility, no country, no health-care system in the world can claim to have solved the problem

Estimated rates of HCAI worldwide

- At any time, **hundreds of millions of people worldwide** are suffering from infections acquired in health-care facilities
- In modern health-care facilities in the developed world: **5–10% of patients** acquire one or more infections
- In **developing countries** the risk of HCAI is 2–20 times higher than in developed countries and the proportion of patients affected by HCAI **can exceed 25%**
- In **intensive care units**, HCAI affects about **30% of patients** and the **attributable mortality may reach 44%**

HAI是全球的沉重負荷

有效的數據有限，因此難以正確估計

不論在機構內或機構外，疾病造成後續問題是未知的

沒有醫療機構、國家、健康照護系統能保證HAI問題已獲得解決

HAI影響到億萬人，是全球病人安全的主要問題，全球HAI統計如下：

型態	已開發國家	開發中國家	單位別	HAI發生率	死亡率
HAI發生率	5-10%	>25%	加護病房	30%	44%

開發中國家HAI感染率

調查類型	盛行率 (%)	發生率 (%)	發生率 (per 1000 patient-days)	發生率 (per 1000 device-days)
全院	4.6–19.1	2.5–5.1	9.7–41.0	
成人加護病房	18.4–77.2	4.1–38.9	18.2–90.0	
新生兒加護病房		2.9–57.7	2.6–62.0	
外科手術部位感染		1.2–38.7		
呼吸器相關肺炎				2.9–23.0
導管相關血流感染				1.7–44.6
導管相關尿路感染				3.2–51.0

WHO Guidelines on Hand Hygiene in Health Care (2009)

Comparative impact of hospital-acquired infections on medical costs, length of hospital stay and outcome between community hospitals and medical centres

W.H. Sheng^a, J.T. Wang^b, D.C.T. Lu^c,
W.C. Chie^d, Y.C. Chen^a,
S.C. Changa,*

^aDepartment of Internal Medicine, National Taiwan University Hospital, Taipei City, Taiwan, ROC

^bDepartment of Internal Medicine, Far-East Memorial Hospital, Taipei County, Taiwan, ROC

^cDepartment of Internal Medicine, Lo-Tung Poh-Ai Hospital, I-Lan County, Taiwan, ROC

^dInstitute of Epidemiology, College of Public Health, National Taiwan University, Taipei City, Taiwan, ROC

Summary

To understand the impact of hospital-acquired infections on mortality and medical costs in modern medical care systems in different healthcare settings, we performed a case-control study at a medical centre and two community hospitals. A total of 144 and 129 adult case-control pairs who received care in a 2000-bed tertiary referral medical centre and two 800-bed community hospitals, respectively, between October 2002 and December 2002 were enrolled. Prolongation of hospital stay, extra costs and complications associated with hospital-acquired infections were analysed. Patients in the medical centre had more severe underlying disease status ($P < 0.001$), more malignancies ($P < 0.001$), more multiple episodes of hospital-acquired infection ($P = 0.03$), and more infections with multidrug-resistant bacteria ($P < 0.001$) than patients in community hospitals. **The additional length of hospital stay and extra costs were similar for patients with hospital-acquired infections in the community hospitals and the medical centre (mean 19.2 days vs. 20.1 days, $P = 0.79$; mean US\$ 5335 vs. US\$ 5058, $P = 0.83$; respectively).** The additional length of hospital stay and extra costs in both the medical centre and the community hospitals were not related to the sites of infection or the bacterial pathogens causing hospital-acquired infections, although medical costs attributable to hospital-acquired fungal infections due to *Candida* spp. were much higher for patients in the medical centre. Prevalence of hospital-acquired-infection-related complications, such as adult respiratory distress syndrome, disseminated intravascular coagulation, organ failure or shock, was similar between the two groups, but patients in the medical centre had a higher mortality rate because of their underlying co-morbidities.

醫療照護相關感染的重要性

根據WHO調查，已開發國家之急性醫院住院病人的院內感染發生率為**5-10%**

保守估計台灣每年院內感染人數約有 85000人，造成**住院天數延長約20天**，醫療資源多付出**近200億元**

美國疾病管制中心2002年監測資料顯示，該國當年直接或間接因醫療照護相關感染死亡的人約有99000人

參考美國人口數來推估**我國**直接或間接因醫療照護相關感染的死亡人數，**每年應不低於5000人**

2008年台灣**第十大主要死因死亡人數為4012人**，可見院內感染之迫切重要性。

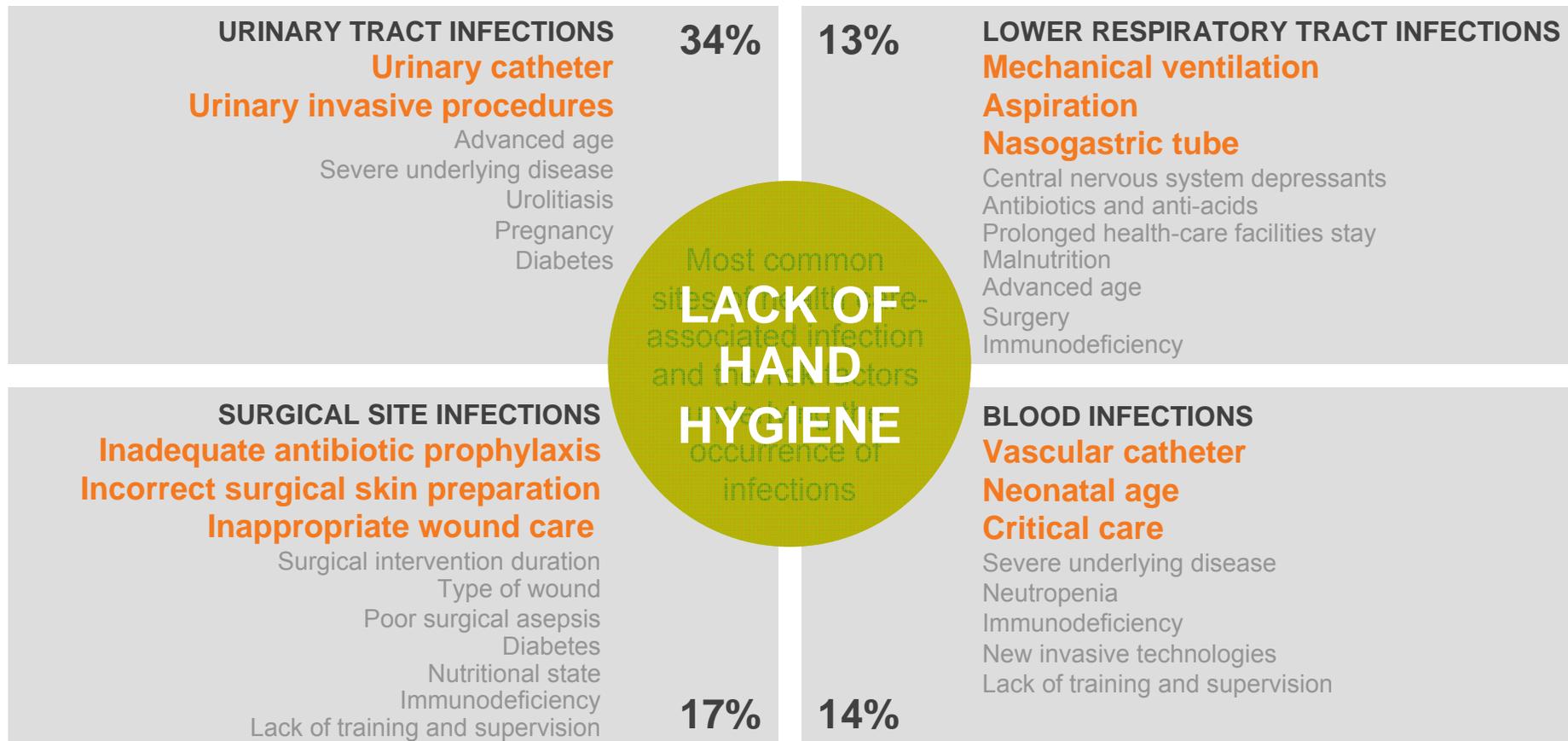
The impact of HCAI

HCAI can cause:

- more serious illness
- prolongation of stay in a health-care facility
- long-term disability
- excess deaths
- high additional financial burden
- high personal costs on patients and their families



Most frequent sites of infection and their risk factors



Prevention of HCAI

- Validated and standardized prevention strategies have been shown to reduce HCAI
- At least 50% of HCAI could be prevented
- Most solutions are simple and not resource-demanding and can be implemented in developed, as well as in transitional and developing countries

拯救生命：清潔雙手 (Save Lives: Clean Your Hands)

為鼓勵落實手部衛生，降低HAI，WHO訂定5月5日為「拯救生命：清潔雙手(Save Lives: Clean Your Hands)」活動日

藉由5月5日聯想到五隻手指，亦代表著應執行手部衛生的五個時機，呼籲全球醫療院所及醫護人員重視HAI控制，以清潔雙手為措施，維護院內工作人員及病人的健康





Ignaz Semmelweis, 1815-1865

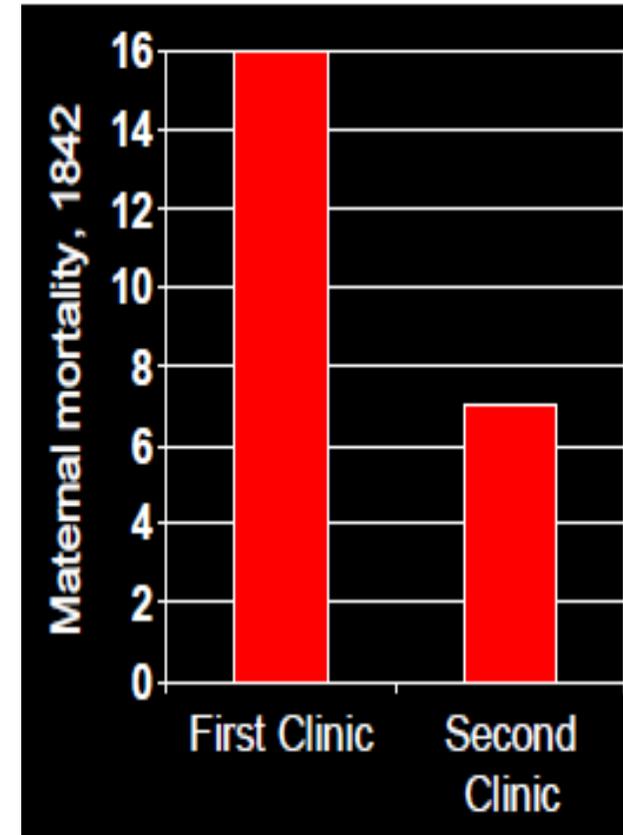
手部衛生的前驅

1840's:維也納綜合醫院

分兩診區，每**24**小時輪收住院：

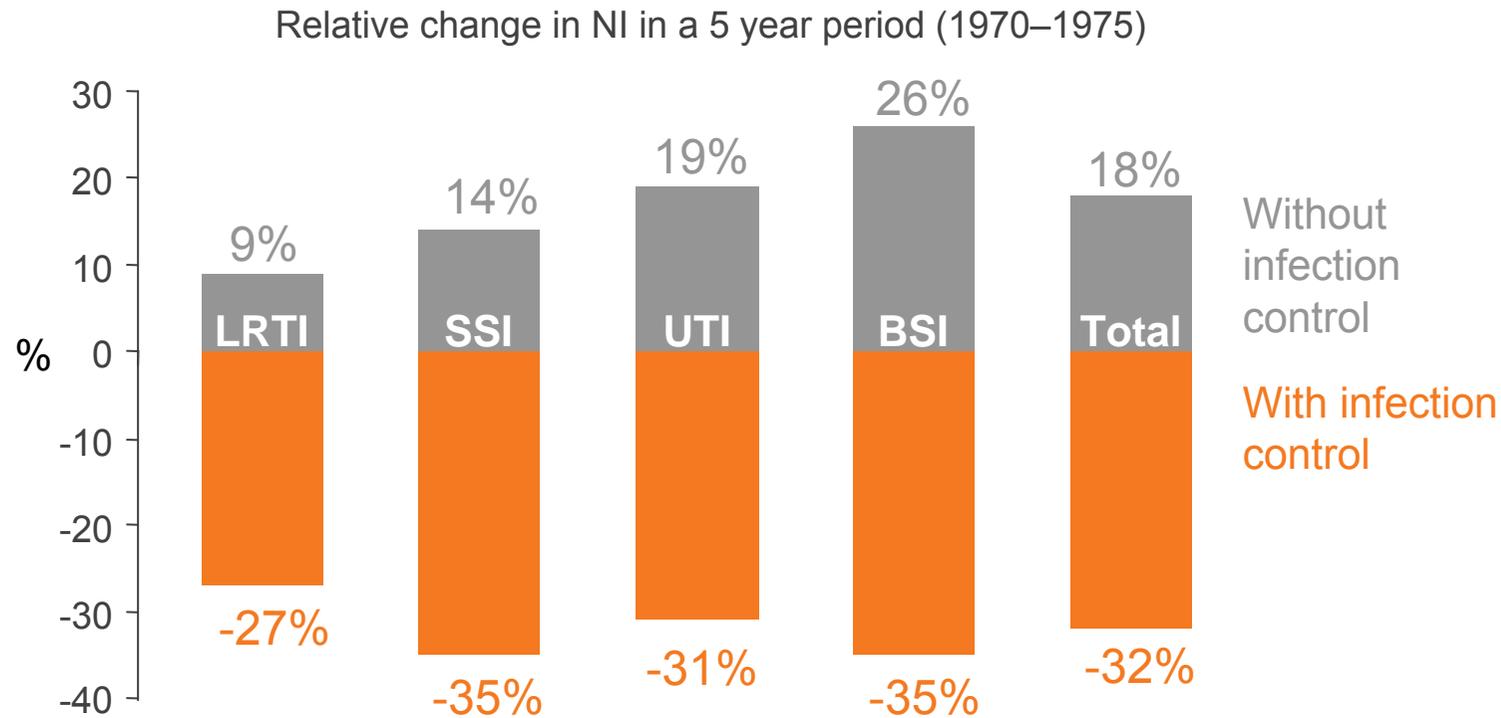
- 第一診區：
醫師及醫學生
- 第二診區：
助產婆

因為與產婦接觸前先洗手，所以第二診區產婦感染產褥熱的死亡率明顯低於第一診區



SENIC study: Study on the Efficacy of Nosocomial Infection Control

- >30% of HCAI are preventable



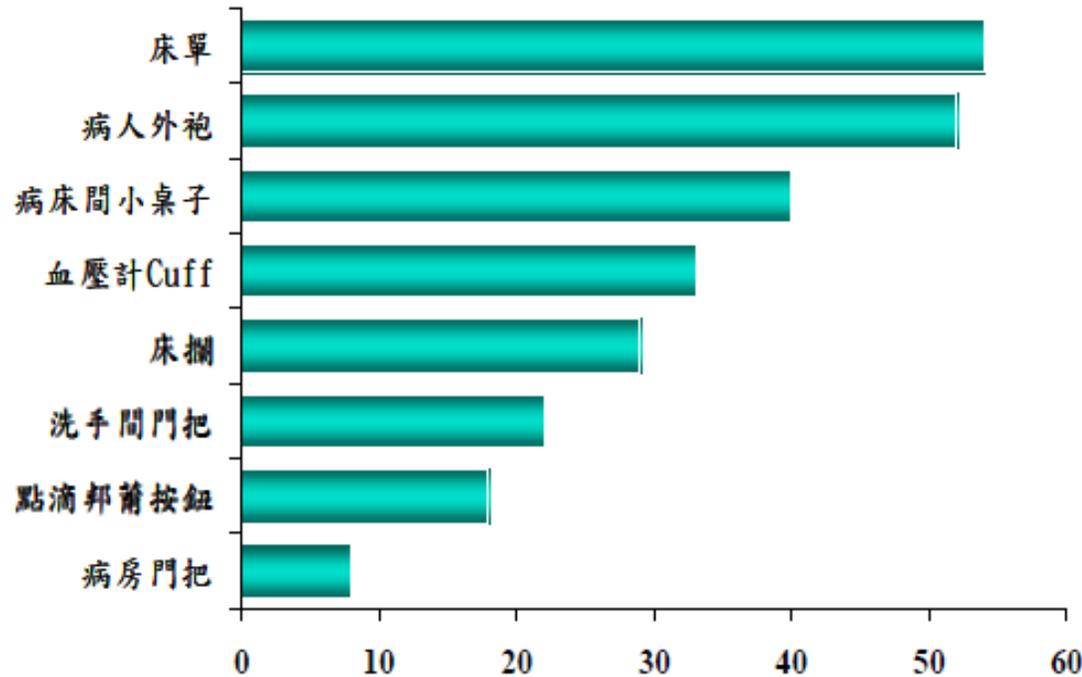
Haley RW et al. *Am J Epidemiol* 1985

洗手與
院內感染



hand
hygiene
saves lives

醫護人員雙手可能受病原菌污染的地方



MRSA 病人的病房中受污染的環境設施表面的比率

抗藥性病菌可能位於病人的腸胃道或是表面皮膚上，可能污染醫療環境

醫療人員可能因接觸到受污染的醫療設備表面而變成病原菌的傳播者，間接傳播到其他病人身上

藉由醫護人員雙手等污染環境



~ 污染的環境表面增加交叉感染的機會 ~

The Risk of Hand and Glove Contamination after Contact with a VRE (+) Patient Environment.

Hayden M, ICAAC, 2001, Chicago, IL.

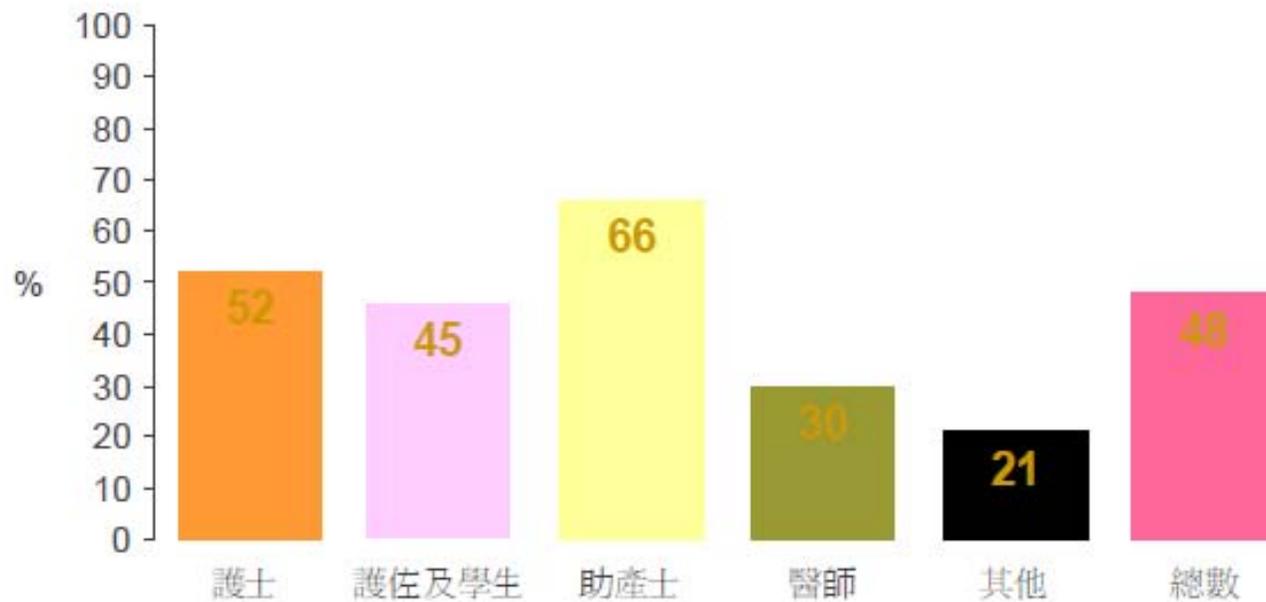
VRE: vancomycin-resistant enterococci

Why should you clean your hands?

- **Any health-care worker**, caregiver or person involved in patient care needs to be concerned about hand hygiene
- Therefore hand hygiene concerns **you!**
- **You** must perform hand hygiene to:
 - **protect the patient** against harmful germs carried on **your** hands or present on his/her own skin
 - **protect yourself** and the health-care environment from harmful germs

各專業醫護人員的洗手遵從率

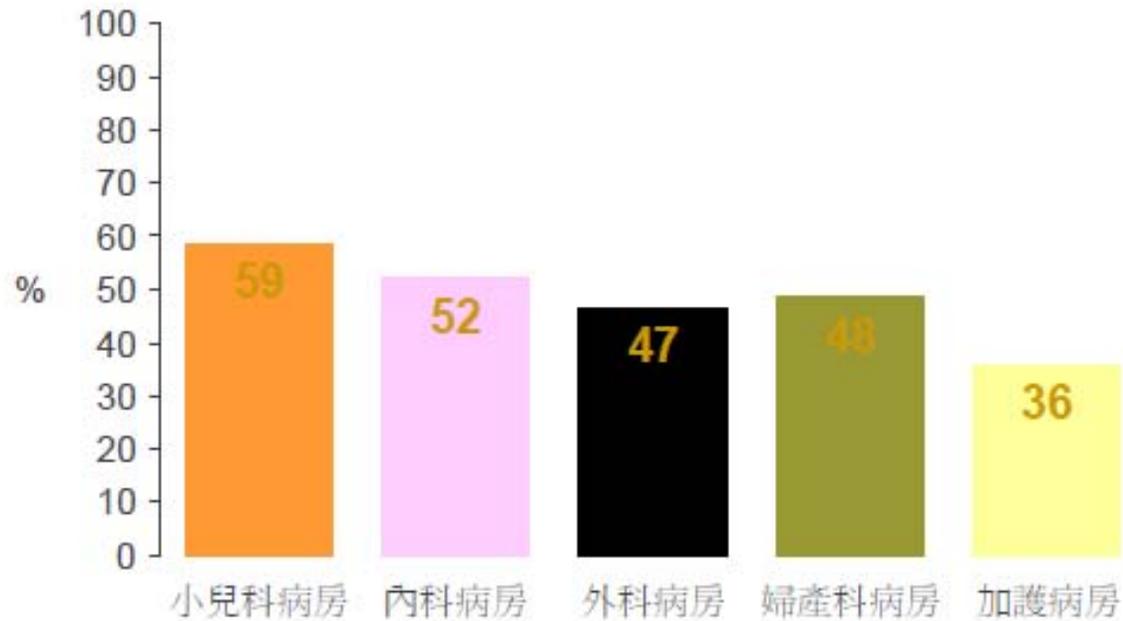
- 在瑞士日內瓦的醫院內，洗手遵從率以護士和助產士較高，醫師是比較低的族群



Pittet D, et al. *Ann Intern Med* 1999

洗手遵從率和各醫療單位的相關性

- 在瑞士日內瓦醫院內，高危險群的病人往往在洗手遵從率最差的加護病房治療



Pittet D, et al. *Ann Intern Med* 1999

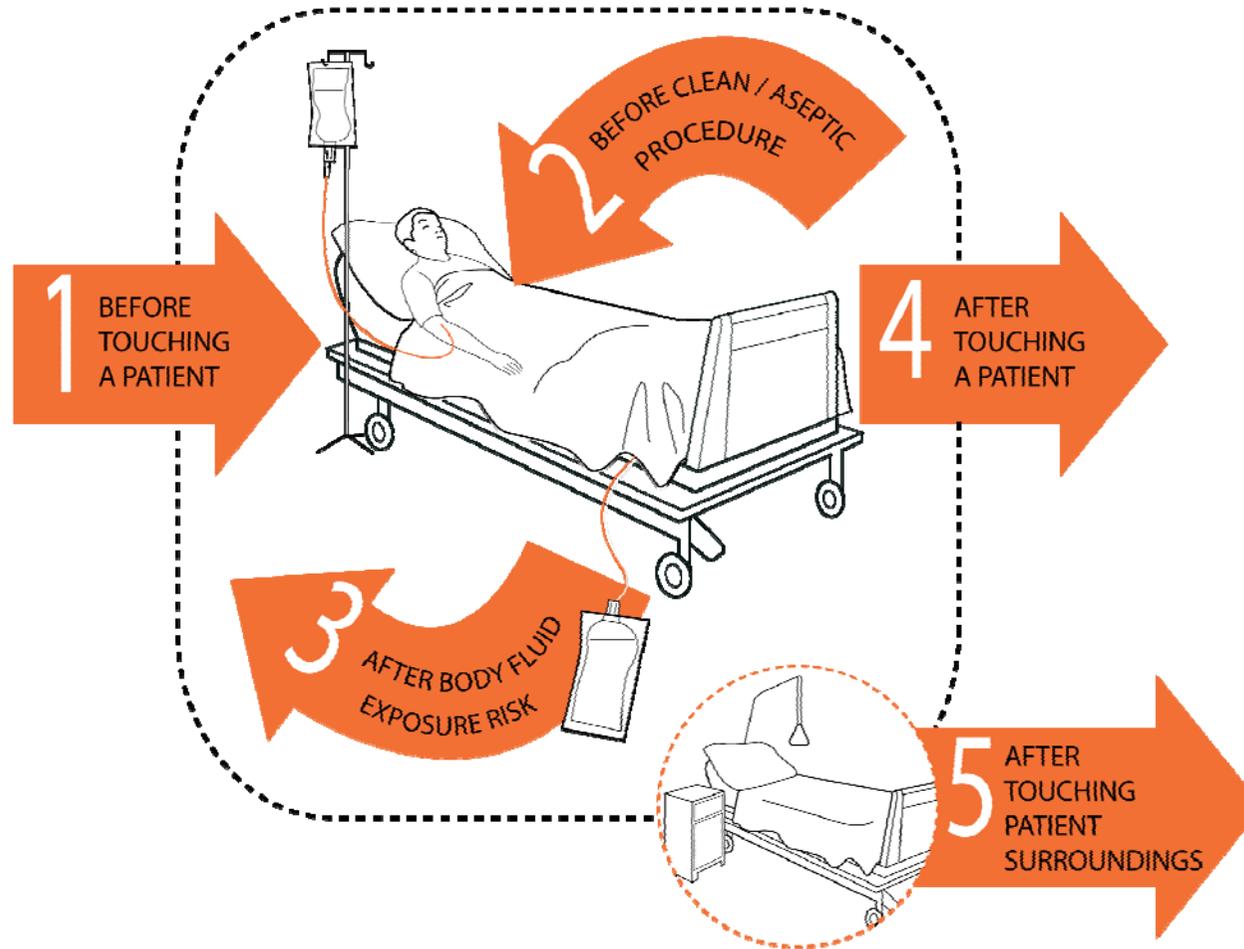
洗手後的手部培養



下班前未洗手之培養



The “My 5 Moments for Hand Hygiene” approach



手部衛生五時機

1.接觸病人前

BEFORE TOUCHING A PATIENT

2.執行清潔/無菌操作技術前

BEFORE CLEAN/ASEPTIC PROCEDURE

3.暴觸病人體液風險後

AFTER BODY FLUID EXPOSURE RISK

4.接觸病人後

AFTER TOUCHING A PATIENT

5.接觸病人週遭環境後

AFTER TOUCHING PATIENT SURROUNDINGS

洗手步驟



①



②



③

1. 先以流動的水淋濕雙手和前臂
2. 再使用洗手液
3. 掌心對掌心搓揉



④



⑤



⑥

4. 右(左)掌心搓揉左(右)手背
5. 指縫間搓揉
6. 指背在掌心中搓揉



⑦



⑧



⑨

7. 右(左)拇指作輪狀搓揉
8. 右(左)手指尖對左(右)手掌心來回搓揉
9. 沖水後，用紙巾把手擦乾

註：特殊單位非使用感應式須以紙巾把水龍頭關上



馬偕紀念醫院
Mackay Memorial Hospital

感染管制中心

何時使用含酒精性搓揉劑洗手

與病人直接接觸前

與病人皮膚直接接觸後

與病人附近之儀器，設備接觸後

手套脫除後

PS:手部無可見污染



Hand hygiene and glove use

- The use of gloves **does not replace** the need to clean your hands!
- You should **remove gloves to perform hand hygiene**, when an indication occurs while wearing gloves
- You should **wear gloves only when indicated** (see the Pyramid in the Hand Hygiene Why, How and When Brochure and in the Glove Use Information Leaflet) – otherwise they become a **major risk for germ transmission**

Compliance with hand hygiene

- Compliance with hand hygiene differs across facilities and countries, but is **globally <40%**¹
- **Main reasons** for non-compliance reported by health-care workers²:
 - Too busy
 - Skin irritation
 - Glove use
 - Don't think about it

¹Pittet and Boyce. *Lancet Infectious Diseases* 2001;

²Pittet D, et al. *Ann Intern Med* 1999

Time constraint = major obstacle for hand hygiene

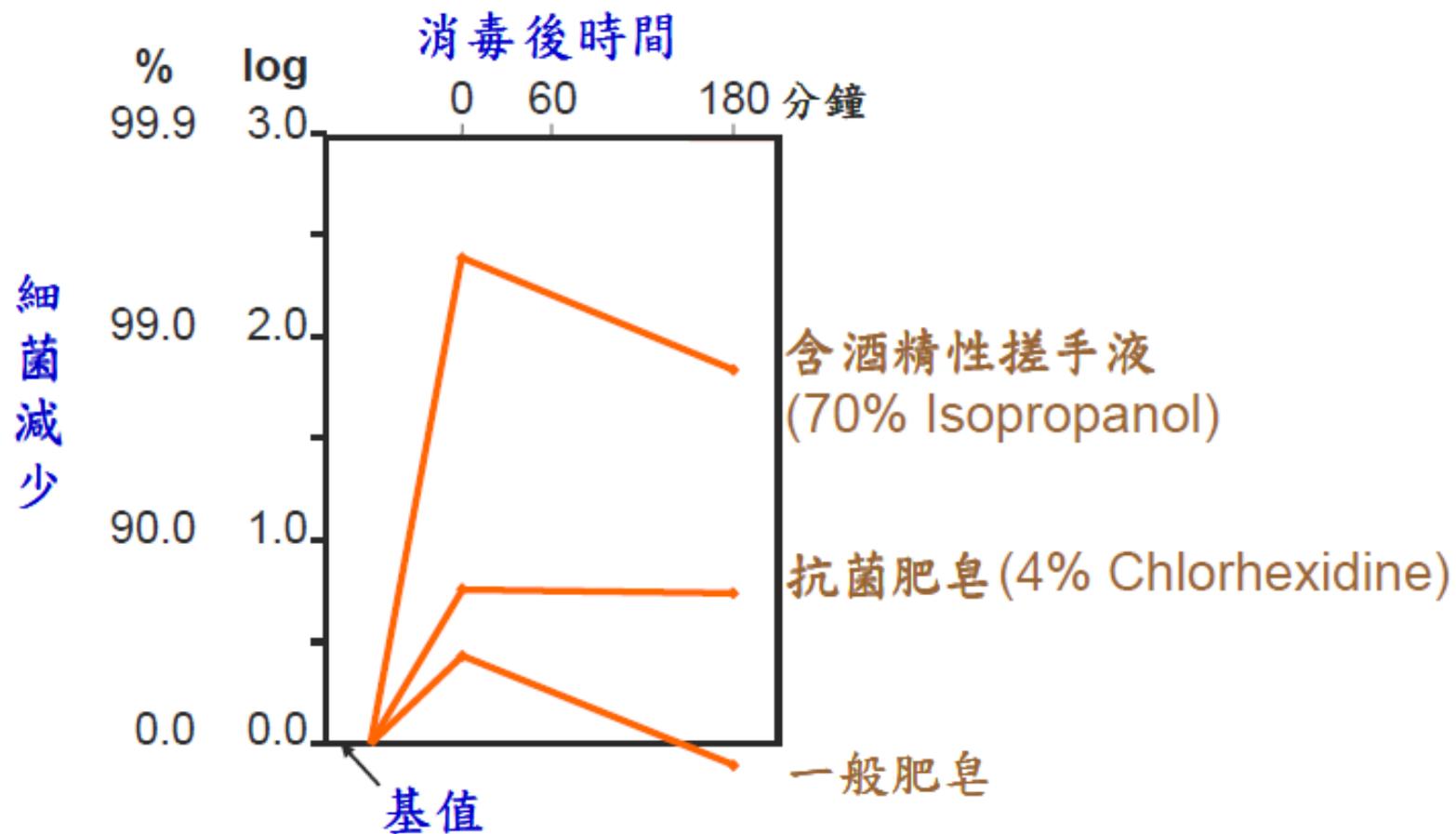


Adequate handwashing with
water and soap requires
40–60 seconds

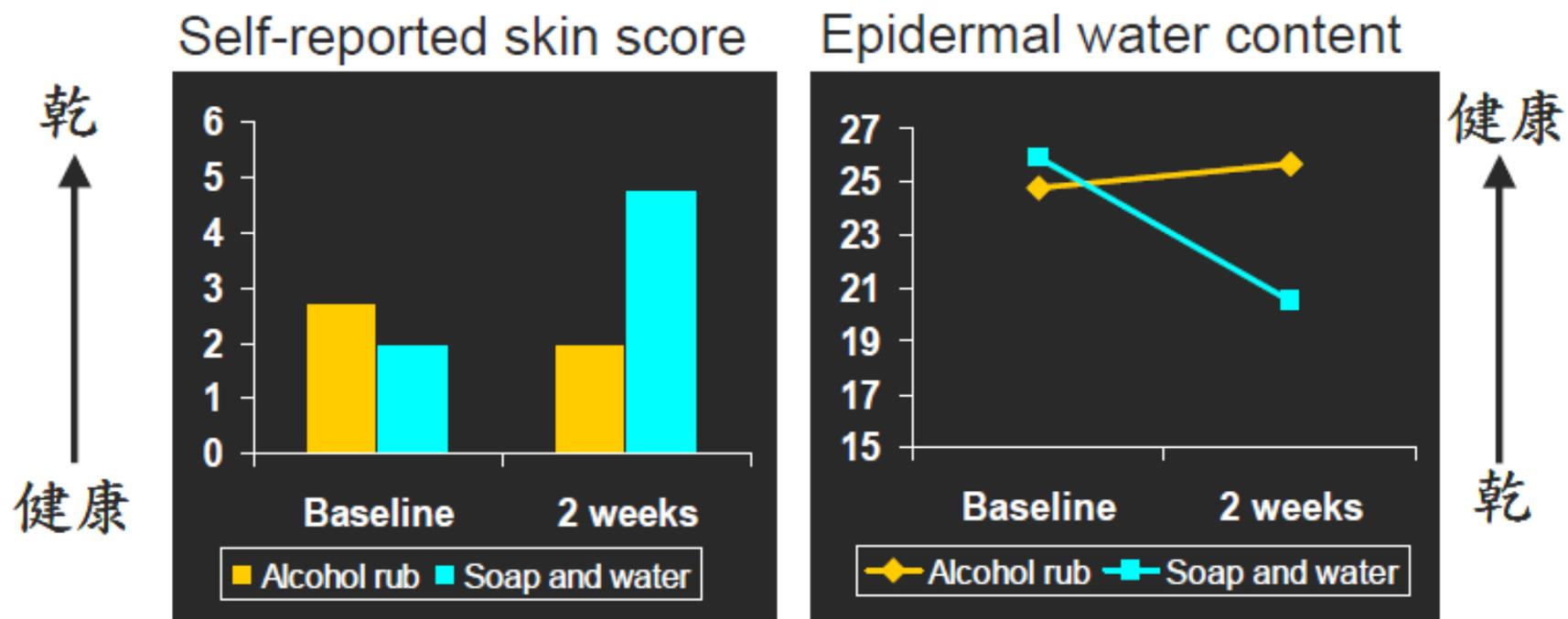
Average time usually adopted
by health-care workers:
<10 seconds

Alcohol-based
handrubbing: **20–30 seconds**

手部衛生清潔劑降低手上細菌的能力



酒精性乾洗手液對皮膚的影響



酒精性乾洗手液對皮膚較少傷害

Boyce J, *Infect Control Hosp Epidemiol* 2000;21(7):438-441.

推廣手部衛生運動的方法和目標

WHO自2005年結合病人安全大力推動手部衛生運動，
目前已獲初步成效，證明**手部衛生**結合其他感控
措施確可有效降低院內感染

在今(2009)年5月5日公佈了最新版本的手部衛生指
引、推廣策略指引及各項工具

推廣手部衛生運動的方法和目標

建立全院參與、管理階層投入、文件建置、**文化形塑**
及病人參與之執行目標

降低院內感染率，防範社區感染或如H1N1新型流感等
新興傳染病引發院內感染事件，以減少醫療資源
耗用，保障病人與工作人員的安全

A consensus-based, tested improvement strategy now exists

- WHO Multimodal Hand Hygiene Improvement Strategy
- Field tested in eight pilot centres and over 350 additional health-care facilities worldwide
- Based on the recommendations of the **WHO Guidelines for Hand Hygiene in Health Care**
- 5 core components; **5 indications (moments)** for hand hygiene

WHO手部衛生五大策略(1)

策略	作法
系統性改變 (System Change)	建置院內各單位手部衛生設備，並達到WHO推動醫護人員在每一個病人區(patient zone)皆可方便取得酒精性乾洗手液之目標
教育訓練 (Training Education)	針對不同對象有系統的規劃從基礎到進階的課程，定期或不定期舉辦教育訓練，以提高醫護人員手部衛生認知
評估及回饋 (Evaluation and Feedback)	依據績效指標項目規劃稽核及評估(含QCC)作業，並規劃績效指標及計畫實施成效定期回饋機制，以提供計畫參與人員及院內員工參考

WHO 手部衛生五大策略(2)

策略	作法
工作場所標示 (Reminders in the Workplace)	規劃以 <u>WHO 手部衛生 5 時機</u> 等海報為主題，於門診診間、病房、手部衛生設備設置處等醫護人員工作場所佈置宣導，加強醫護人員正確執行手部衛生
創造院內安全文化風氣 (Institutional Safety Climate)	<ol style="list-style-type: none">1. 由醫院院長及主管發表聲明支持院內手部衛生推廣計畫2. 建立病人參與(設計病人入院說明卡及出院病人電訪問卷，以及訪視方式)3. 規劃持續型手部衛生推動計畫

Realistic targets for improvement (1)

<insert details of the *targets for hand hygiene improvement or HCAI reduction set by your facility*> e.g.

- Improve **compliance** by x% in Year 1
 - Improve compliance by y% during Years 1–5
 - Increase compliance by z% by 2020
 - Reduce **infection rates** by x% over a z-year period
-
- Targets will be influenced by **baseline data**

Realistic targets for improvement (2)

- Targets should be realistic

If baseline compliance is 20%, it is unrealistic to set a target of 60% after 1 year of an intervention

- Targets are dependent upon the necessary hand hygiene infrastructures **being in place**

<Note: WHO Patient Safety has a global target of year on year improvements / sustaining the gains up to 2020>

Summary

- HCAI places a **serious disease burden** and **significant economic impact** on patients and health-care systems
- Appropriate hand hygiene – **the simple task** of cleaning hands at the right times and in the right way – saves lives
- There are **5 indications (moments)** for hand hygiene in health care
- Global compliance with the “**My 5 Moments for Hand Hygiene**” approach is universally sub-optimal
- **Your support and compliance** with the initiatives is essential to **save lives in your facility**

SAVE LIVES

Clean **Your** Hands

A WHO Patient Safety Initiative



**World Health
Organization**