

Reduction Program of Surgical Site Infections in a Public Hospital

Dr. Raymond Lai
Hospital Infection Control Officer
Prince of Wales Hospital
11 May 2010

Surgical Site Infections (SSI)

- The second most common hospital acquired infection
- Each SSI prolong an average of 7.5 patient bed days
- At least 1/3 of them are preventable

Objectives

- To set up a surveillance system and monitor the trend of SSIs in PWH
- To reduce the SSI rate continuously for better patient care quality

Process and Program

- Multidisciplinary approach involving Department of Surgery, O&T, O&G, Operating Theatre, Infection Control Team and patients as well
- Continuous Surveillance program of SSI adopting the criteria of National Nosocomial Infection Surveillance was established since 2005

Program

- Major surgeries such as colorectal, gastric, biliary, cardiothoracic, herniorraphy, urology and vascular surgeries are being surveyed
- An infection is defined as patients with compatible symptoms and signs within 30 days of operation
- Post discharge surveillance are done by phone interview

Program

- Feedback of results are done by quarterly distribution of reports to the head of departments and to individual surgeon
- Results are shared and reviewed at their departmental meetings

PRINCE WALES HOSPITAL [CONFIDENTIAL]

DATA COMPARISON OF SUR UNIT

WOUND INFECTION RATE FOR THE PERIOD OF Oct/2009 To Dec/2009 LAPRO. CASE = ALL

Oct/2009-Dec/2009

WOUND CLASS	WOUND SURVEYED	INFECTION	RATE(%)
[1] CLEAN	124	2	[1.6]
[2] CLEAN CONTAMINATED	152	4	[2.6]
[3] CONTAMINATED	44	0	0
[4] DIRTY	51	3	[5.9]
Total	371	9	[2.4]

Report Date: Saturday, 20 February, 2010

PRINCE WALES HOSPITAL [CONFIDENTIAL]

DATA COMPARISON OF SUR UNIT

TEAM WOUND INFECTION RATE FOR THE PERIOD OF Oct/2009 To Dec/2009 LAPRO. CASE = ALL

Team	T1-H			T2-U			T3-C			T4-V			T9			T10			TOTAL		
	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)	Wound Surveyed	Infection	Rate (%)
[1] CLEAN	6	0	0	9	0	0	3	0	0	12	0	0	0	0	0	94	2	[2.1]	124	2	[1.6]
[2] CLEAN CONTAMINATED	45	2	[4.4]	25	0	0	60	2	[3.3]	4	0	0	18	0	0	0	0	0	152	4	[2.6]
[3] CONTAMINATED	9	0	0	13	0	0	13	0	0	9	0	0	0	0	0	0	0	0	44	0	
[4] DIRTY	14	1	[7.1]	11	0	0	20	2	[10.0]	6	0	0	0	0	0	0	0	0	51	3	[5.9]
Total	74	3	[4.1]	58	0	0	96	4	[4.2]	31	0	0	18	0	0	94	2	[2.1]	371	9	[2.4]

Report Date: Saturday, 20 February, 2010

CONFIDENTIAL



PRINCE OF WALES HOSPITAL

MEMORANDUM

From: Infection Control Unit, PWH

Ref :

Tel : 2632 2316 / 2632 1266

Fax : 2632 4704

Date: 17 August, 2009

To: DR. CHAN, XX

Your Ref :

dated

Dear Surgeon,

Please be informed that the SSI surveillance report for 1st Quarter 2009 is ready. The following is the report for surgeon specific wound infection rate 1st Quarter 2009.

You are code (OG00xx).

Also attached is the list of infected patients under your care (if any).

For queries, please contact the Infection Control Team at ext. 2316.

Thank you for your attention.

Infection Control Team
PWH

Template of SSI report

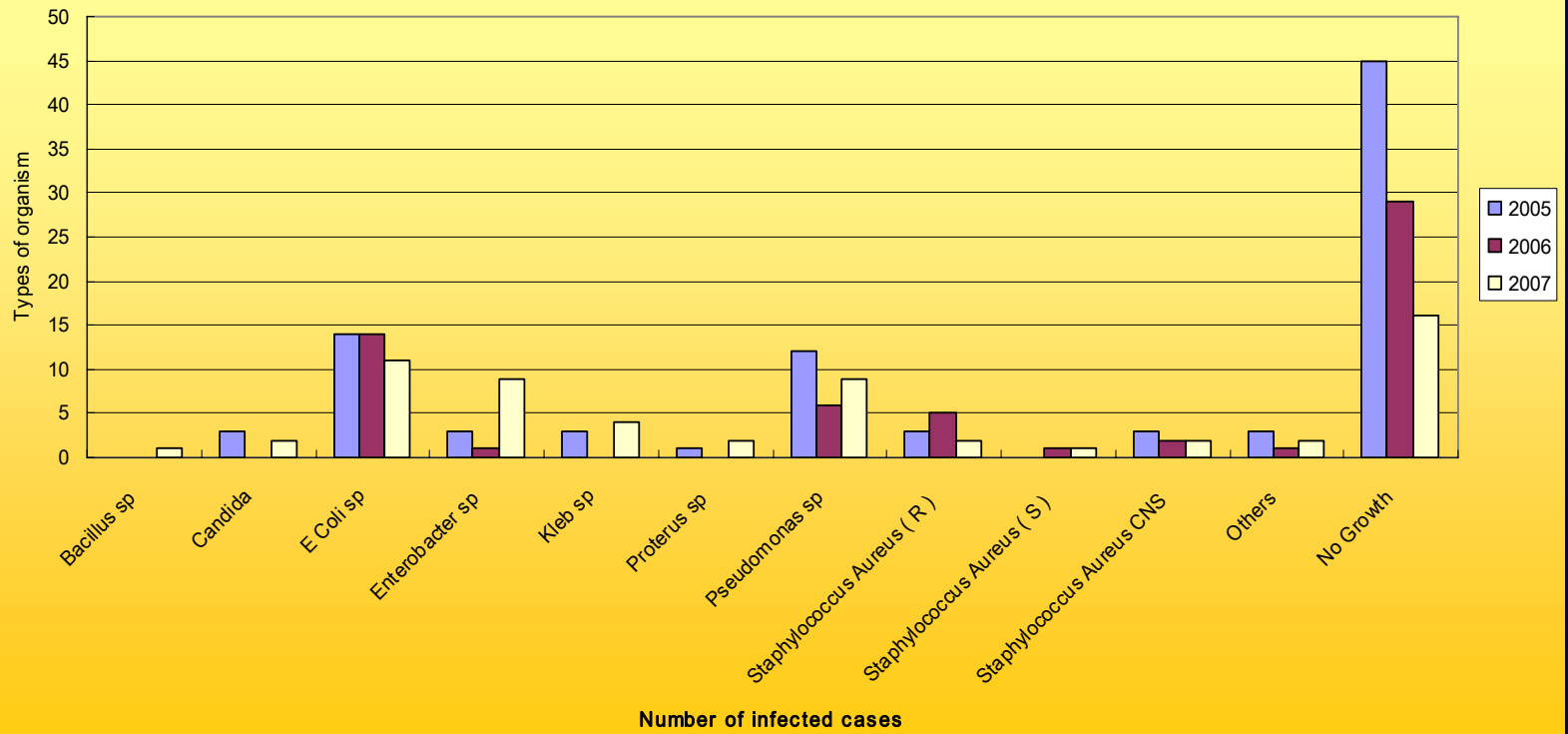
[CONFIDENTIAL]

Template

SURGEON-SPECIFIC WOUND INFECTION RATE - SUR
FOR THE PERIOD OF Jan/2008 To Dec/2008 LAPRO. CASE = ALL

SURGEON NAME	Oct/2008-Dec/2008 (4Q08)				Jul/2008-Sep/2008 (3Q0)		
	TOTAL OPERATIONS	TOTAL INFECTIONS	(WOUND CLASS)	INFECTION RATE	TOTAL OPERATIONS	TOTAL INFECTIONS	(WOUND CLASS)
S0006							
S0007							
S0011							
S0013							
S0014							
S0026							
S0027							
S0037							
S0044							
S0051							
S0055							
S0058							
S0061							
S0068							
S0073							
S0084							
S0085							
S0094							
S0099							
S0104							
S0108							
S0112							
S0114							
S0123							
S0127							
S0128							
S0138							
S0142							
S0150							
S0153							
S0156							
S0159							
S0189							
S0237							
S0240							
S0245							

KPI surgeries: Causative Organisms Isolated in Infected Surgical Site in Surgical Department



Program

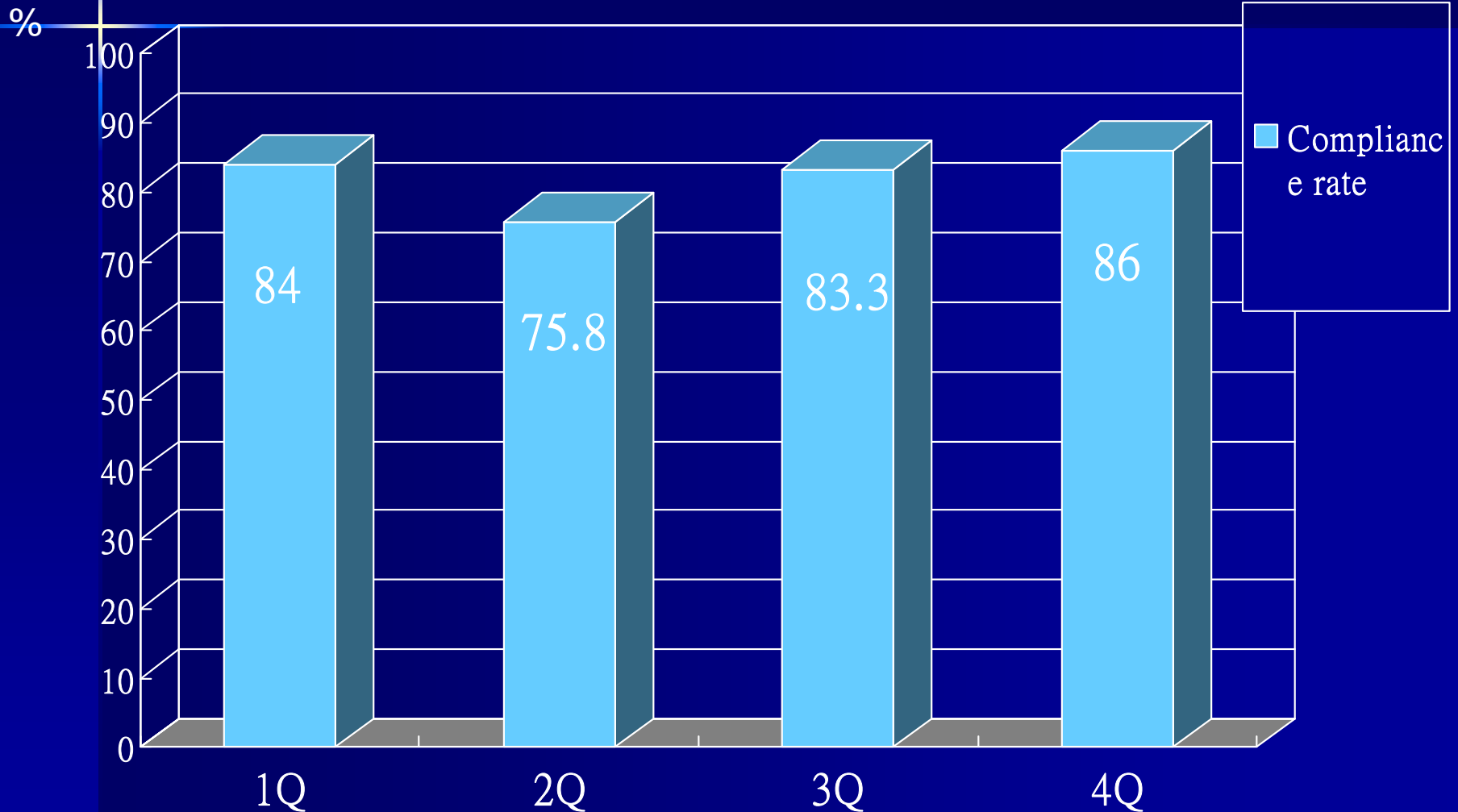
- Apart from the surveillance program we also focus on the implementation of the SSI bundles, namely:
- Replacement of razors by clippers
- Close monitoring and adjustment of perioperative blood glucose for cardiothoracic patients
- Maintenance of perioperative normothermia for patients with colorectal surgeries
- Monitoring of compliance with appropriate antibiotics prophylaxis

Replacement of razors by clippers – since 2005

- Hair removal – with clippers
- Tools – clippers, not razor because the microscopic cuts will serve as the foci for bacterial multiplication



Pre-operative antibiotics prophylaxis (given within 60 min of incision) in 2009



1 2 3

SURGICAL SAFETY

1 2 3

THEATRE, BEFORE ANAESTHESIA

- Anaesthetist (Surgeon in LA) has confirmed the following patient's information
 - Name & HKID
 - Diagnosis
 - Procedure / Side
 - Anaesthesia safety check completed (Concentration & dosage of LA)
- In case of regional anaesthesia, site checked against surgical procedure with nurse Yes
- Known allergy Yes No
- Airway assessment
- Fixed dentures / Crowns / Loose teeth Yes No

SIGN IN Anaesthetist (Surgeon in LA)

Signed : _____

Print : _____

Date : _____

Time : _____

BEFORE INCISION

- Time Out ▪ Name & HKID ▪ Diagnosis ▪ Procedure / Side
- Anaesthetist Signed : _____ Nurse Signed : _____
- Print : _____ Print : _____
- Marking Confirmed N/A
- Anticipated critical events & patient specific concerns Discussed N/A
- Prophylactic antibiotics Checked & Given N/A
- Availability of essential medical devices confirmed (OT list remark)
- Yes N/A

TIME OUT (Surgeon)

Signed : _____

Print : _____

Date : _____

Time : _____

BEFORE LEAVING THEATRE

- Instrument, gauze & needle count correct
- Name of procedure recorded
- Specimen label confirmed and sent
- Yes N/A
- Equipment problem addressed
- Yes N/A
- Key concerns for recovery and management of this patient
- Reviewed N/A

SIGN OUT (Circulating nurse)

Signed : _____

Print : _____

Date : _____

Time : _____

Other two bundles

- Close monitoring and adjustment of perioperative blood glucose for cardiothoracic patients
- Maintenance of perioperative normothermia for patients with colorectal surgeries
- Observed and are routine practices

Patient education pamphlet

一. 手術前預備



如有吸煙習慣，應盡早戒煙



控制體重，保持良好飲食習慣



糖尿病人應盡量保持正常血糖水平



保持良好個人衛生，
手術前請先沐浴，但切勿使用剃刀剃毛

二. 手術後護理

傷口會被敷料及膠布覆蓋好，
有時亦可能附有膠管用以引流傷口滲液；

活動時應避免牽拉傷口及引流管；
護士會因應需要，為你的傷口更換敷料。

Patient education pamphlet

三·出院後的護理

保持傷口乾爽，勿自行塗搽藥膏。

不要用手觸摸未痊癒的傷口。

若需處理傷口，應在處理前後清潔雙手。

避免穿著過緊衣服及搬動重物，以防影響或拉傷傷口。

若傷口被沾濕，應盡快往普通科門診洗傷口和更換敷料。

應參照醫護人員在出院時之指導，並按照日期往普通科門診拆除縫線。

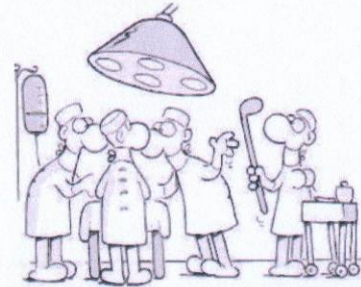
需注意傷口情況，如遇有：紅腫、痛楚加劇、流血水、流膿、發熱等徵狀，需立即求診。

如有任何問題，可向醫護人員查詢。

祝早日康復

外科手術

傷口護理小貼士



雖然大多數病人手術後的傷口都會癒合良好，但仍有少部份病人的傷口會出現感染(傷口發炎)的併發症。

其實，你的參予可以協助減低手術後傷口感染的機會。



沙田威爾斯親王醫院

Program of surgical hand antisepsis technique 2009

Objectives

- To collect baseline information on hand antisepsis technique
- To identify area for improvement
- To promote the basic principles of hand antisepsis technique

Survey tool: Standardized checklist

Surveyor: OT staff and ICN

- Type of HCW
- Team
- Choice of disinfectant
- Scrubbing procedure (e.g. use of nail brush, duration of scrub, rinsing method, drying method etc.)

Recommendation of Surgical Hand Antisepsis Technique

1. Remove all jewelry and watches from hands & wrist



2. General hand wash with antimicrobial agent under running water

3. (Optional) clean subungual area with nail cleaner/ nail brush (1st day of the day)

6. Rinse under running water from finger tips to elbows in one direction



7. Use elbows to turn off the taps



8. Pat dry each hand & arm by using a different side of the sterile towel






5. Hands keep higher than elbows all the times

4. Apply antimicrobial agent and scrub with circular motion for at least 2 mins (from hands to elbow)

References:

Standard Recommended Practices and Guidelines, ARON 2007
Guideline for hand hygiene in health-care settings, CDC 2002

Surgical hand antisepsis technique program in 2009

Activity	Content	Target group	
Demonstration video (6mins) (Sep 2009)	<ul style="list-style-type: none"> ■Continuous display in rest room for a week 	All OT staff & new comer	
Promotional board (Since Jul 2009)	<ul style="list-style-type: none"> ■OT corridor ■Size (117cm x 88cm) 	All OT staff	
Poster (since Jul 2009)	<ul style="list-style-type: none"> ■All Scrub room ■Size (105cm x 29.7cm) 	All OT staff	
Workshop (Jun 2009)	<ul style="list-style-type: none"> ■Demonstration and return demonstration 	All interns	

Summary of audit results - Surgeons

Audit items	Compliance % (Jan 09)	Compliance % (Nov 09)
■ No Jewelry on hands or wrists	97.1%	100%
■ No artificial nails	100%	100%
■ Scrub over back and front of both hands	100%	100%
■ Rinse in one direction	80%	90.5%
■ Both hands keep higher than elbows all the times	81%	95.2%
■ Keep hands up and away from surgical attire after scrubbing	100%	100%

Summary of surgical hand antisepsis audit results - Surgeons

Audit item	Jan 09	Nov 09
No of observed subject	35	42
Duration of scrubbing time (Total)	Range 46 – 187 sec	Range 25 -246 sec
Duration of total scrubbing time/ contact time (Average)	114.8 sec	170.9 sec
No of antisepsis application (Range)	1-7 times	1-5 times
No of antisepsis application (Average)	3.3 times	2.7 times
Continuous contact time > 120 sec (Standard)	6 subjects (17.1%)	11 subjects (23.8%)

Summary of audit result - Nurses

Audit items	Compliance % (Jan 09)	Compliance % (Nov 09)
■ No Jewelry on hands or wrists	100%	100%
■ No artificial nails	100%	100%
■ Scrub over back and front of both hands	100%	100%
■ Rinse in one direction	90.9%	96.2%
■ Both hands keep higher than elbows all the times	100%	100%
■ Keep hands up and away from surgical attire after scrubbing	100%	92.3%

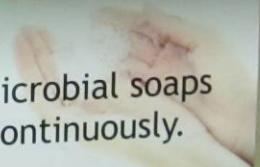
Summary of surgical hand antisepsis audit result - Nurses

Audit item	Jan 09	Nov 09
Observed subject	11	26
Duration of scrubbing time/ contact time (Total)	Range 120-130 sec	Range 54-250 sec
Duration of total scrubbing time/ contact time (Average)	183 sec	146.1 sec
No of antisepsis application (Range)	2-3 times	2-4 times
No of antisepsis application (Average)	2.5 times	2.2 times
Continuous contact time > 120 sec (Standard)	2 subjects (18.2%)	12 subjects (46.2%)

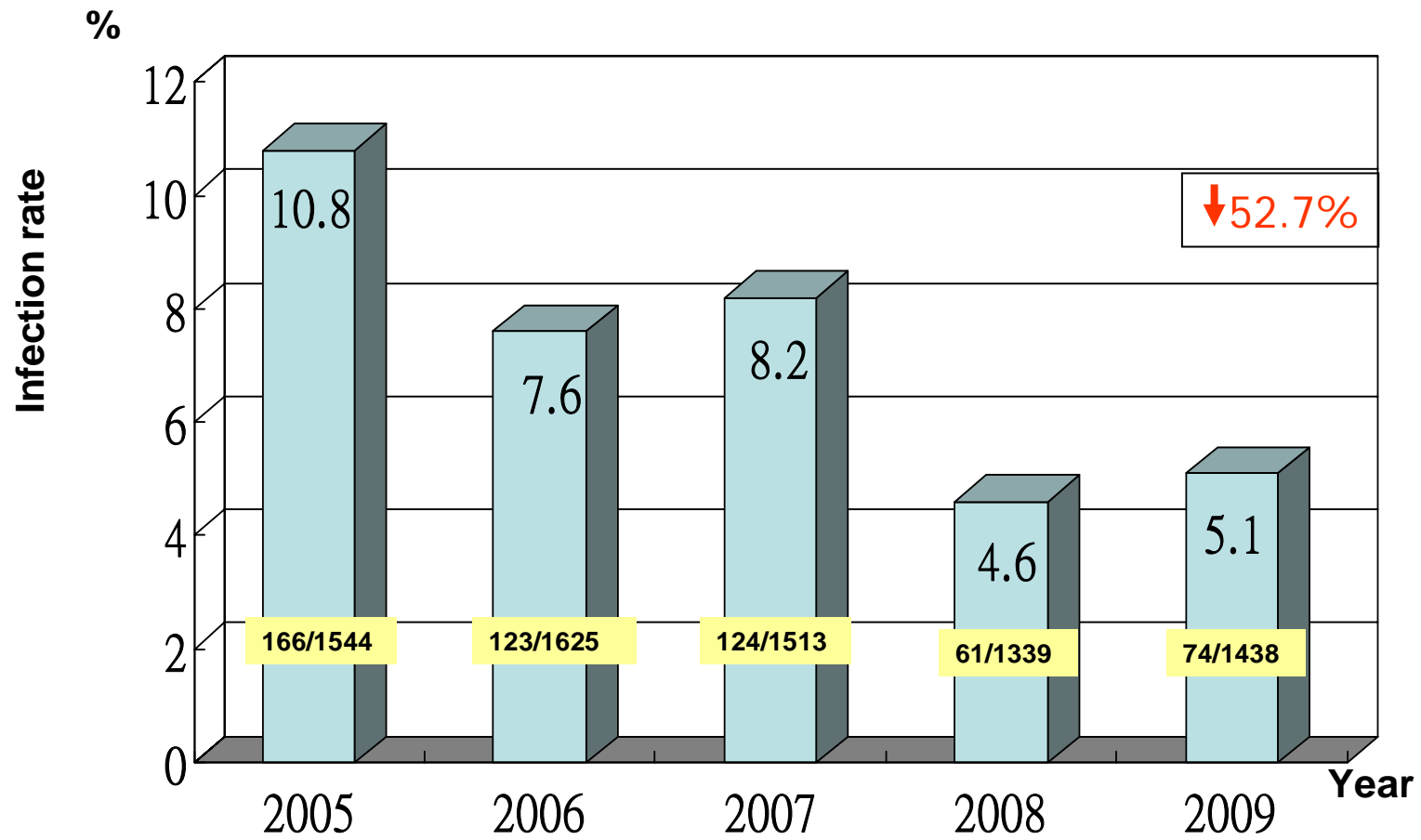
您今日「掙」 咗兩分鐘未？



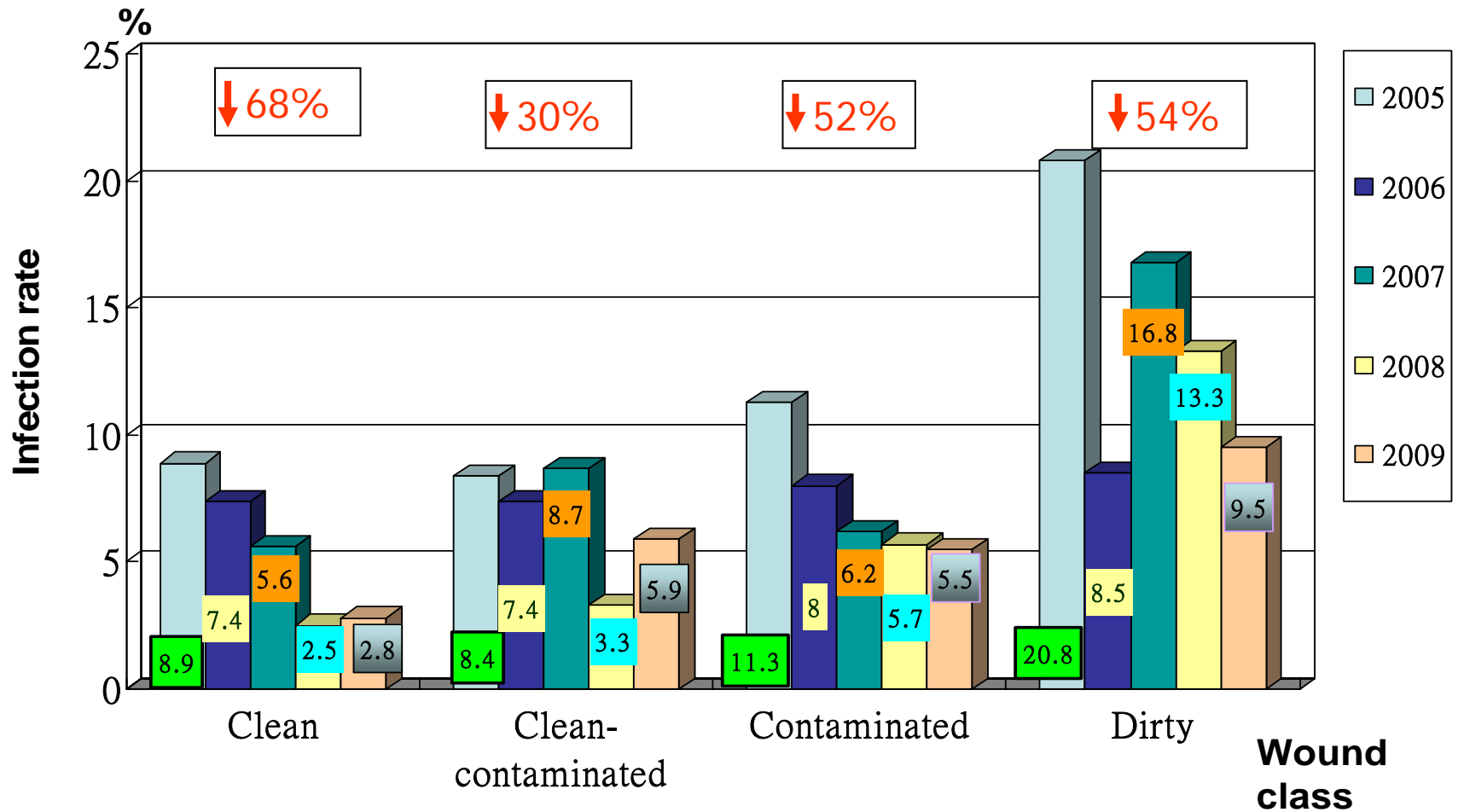
Please scrub with antimicrobial soaps
for at least **2 minutes** continuously.



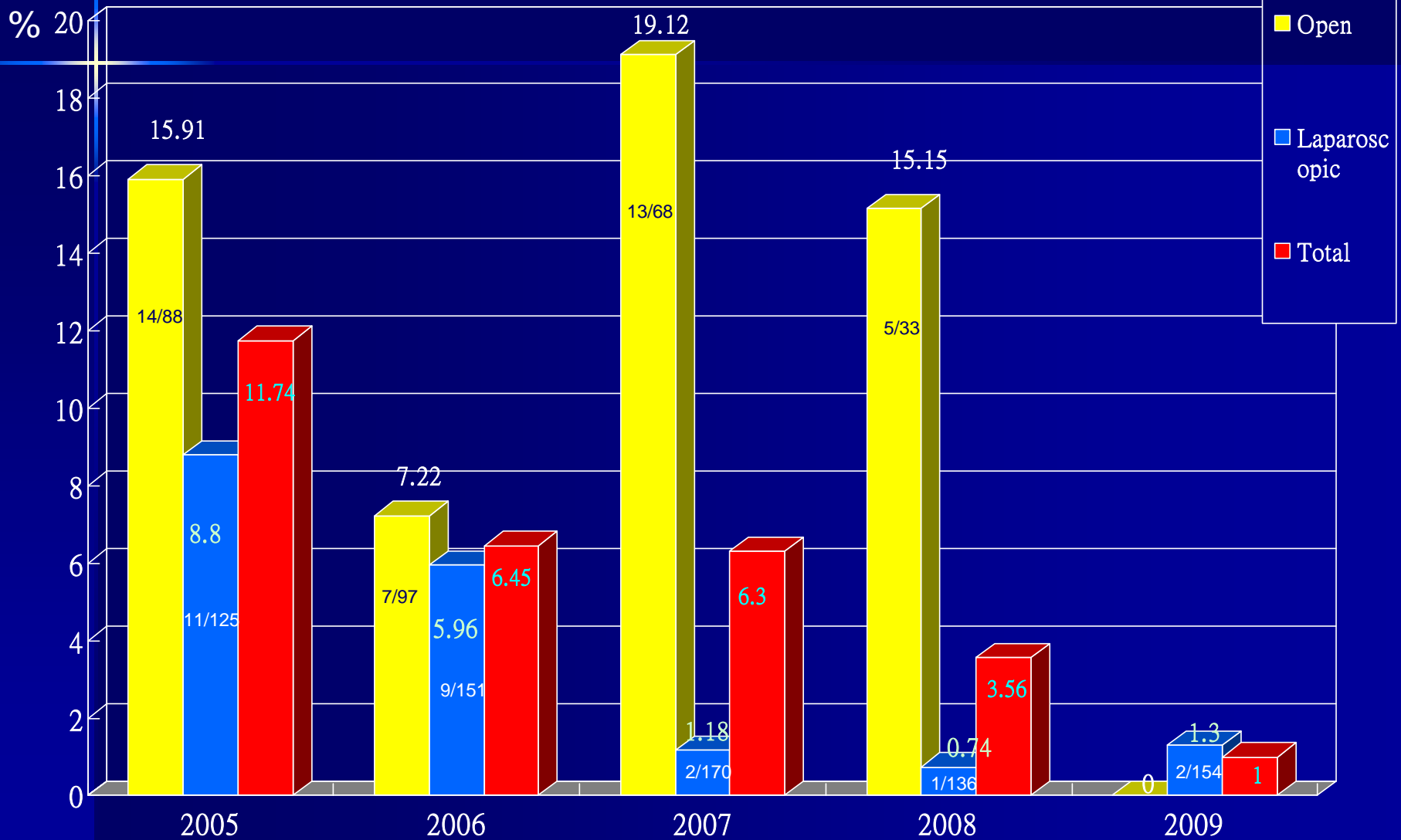
Overall Infection rate



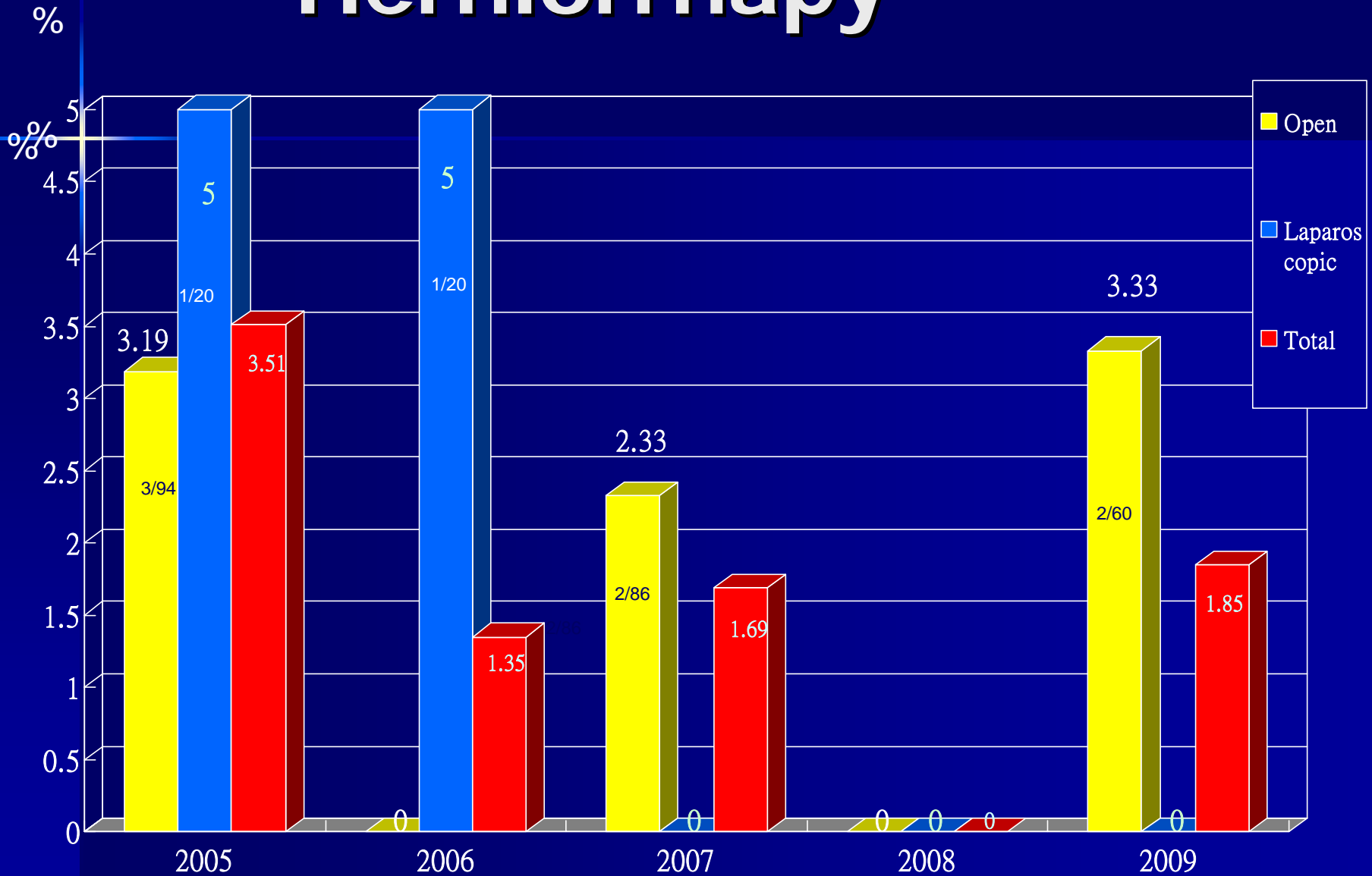
Infection rate- Wound class



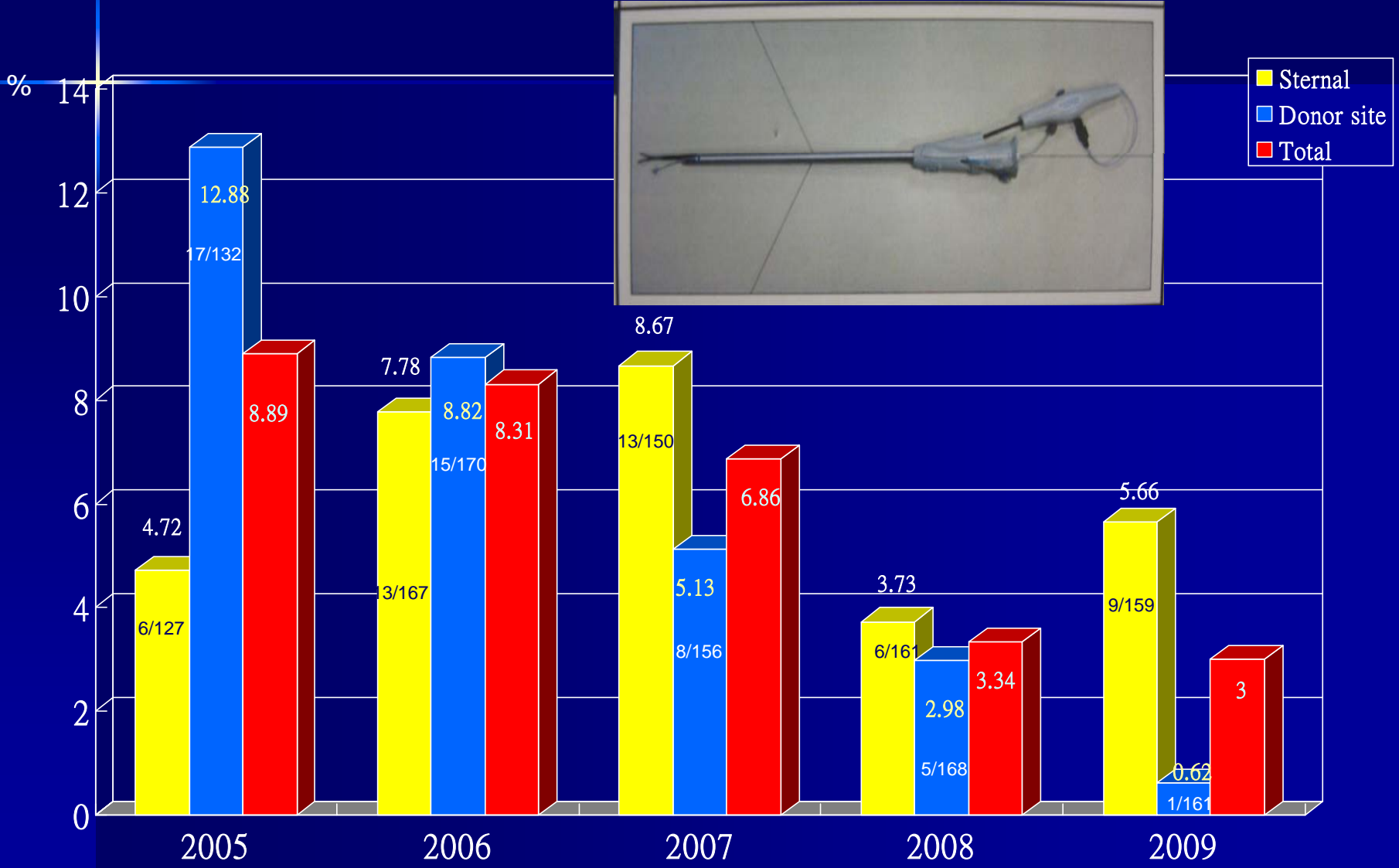
Cholecystectomy



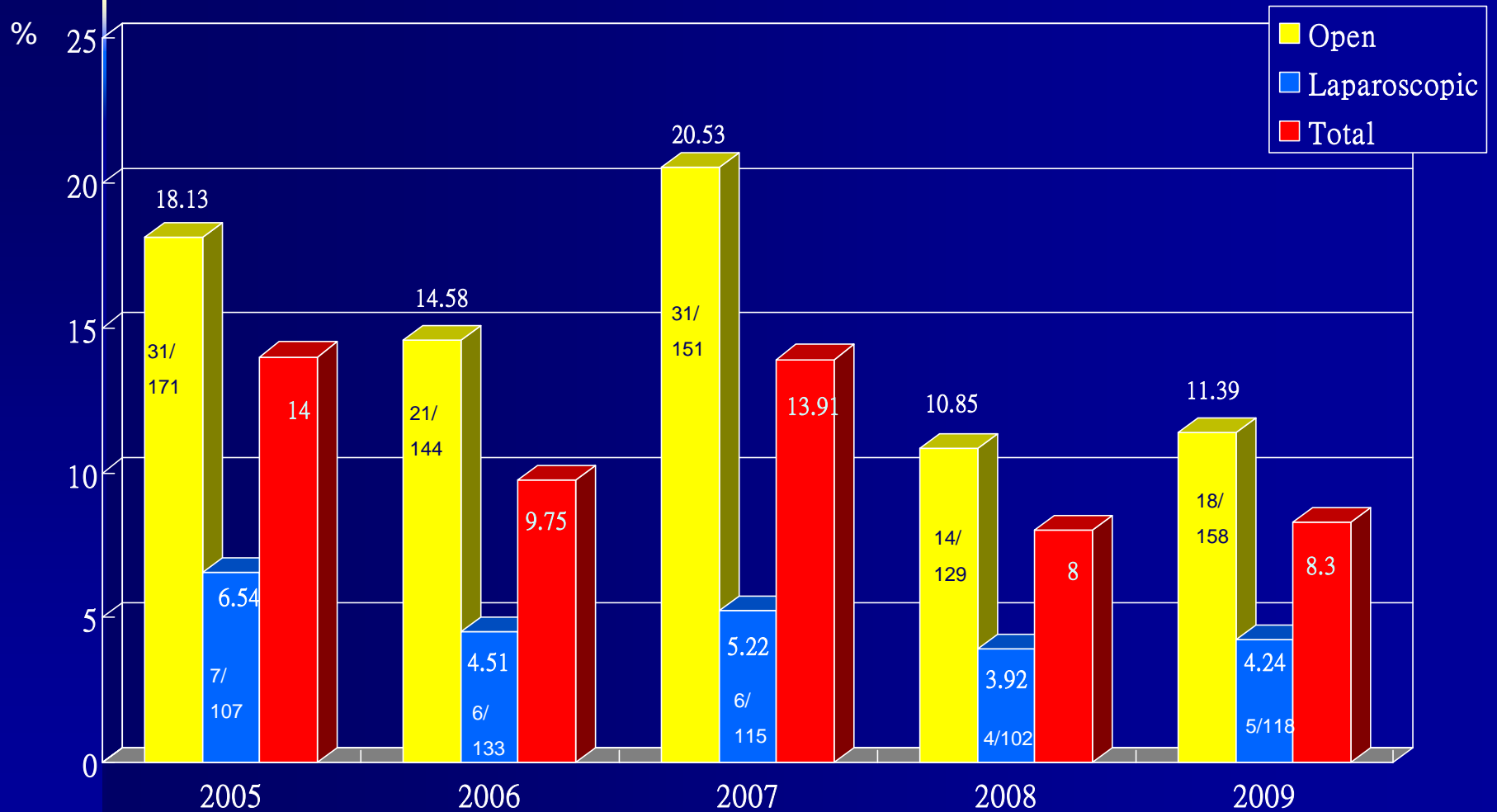
Herniorrhapy



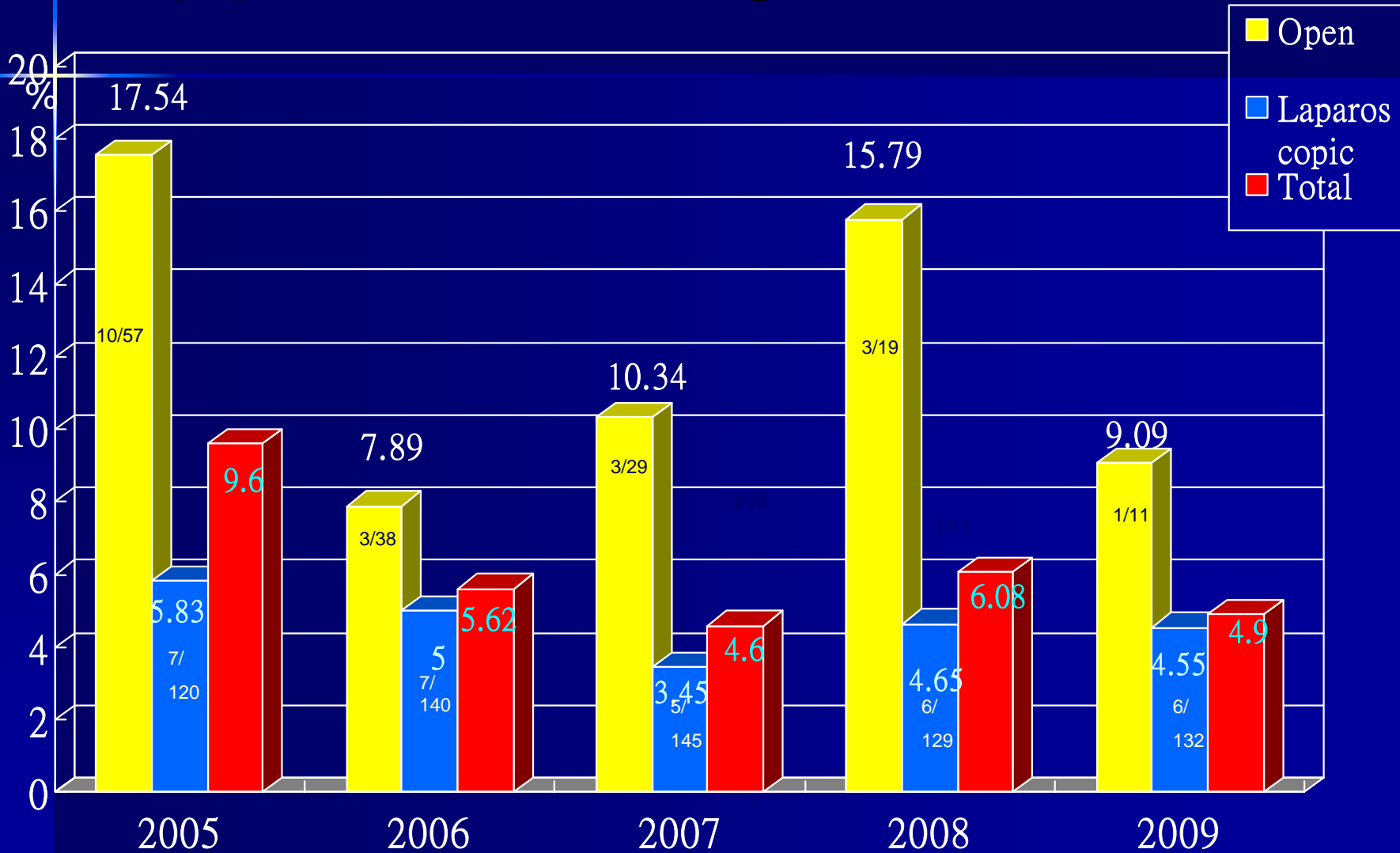
CABG with Donor site



Colon surgery



Appendectomy



Summary

- A systemic surveillance system with regular feedback is effective to reduce SSI
- Collaboration with corresponding department in the implementation of reduction bundles can further reduce the rate
- Tremendous positive impact on patient safety and effective utilization of limited hospital resources

Acknowledgement

- On behalf of the patients we would like to offer our gratitude to the COS of Department of Surgery and the DOM of OT for their contributions of the work