



Improvement of Post-Cardiac Surgery Central Chest Tube Exit Wound Care

Singapore Healthcare Management 2016

ANC Zhang Xiaoxia
A/Prof Kenny Sin Yong Kong
Dr Sibayan Meynard Garpida
NC Lim Kheng Chye Jeremy

Nursing Department / Cardiothoracic Surgery Department
National Heart Centre Singapore

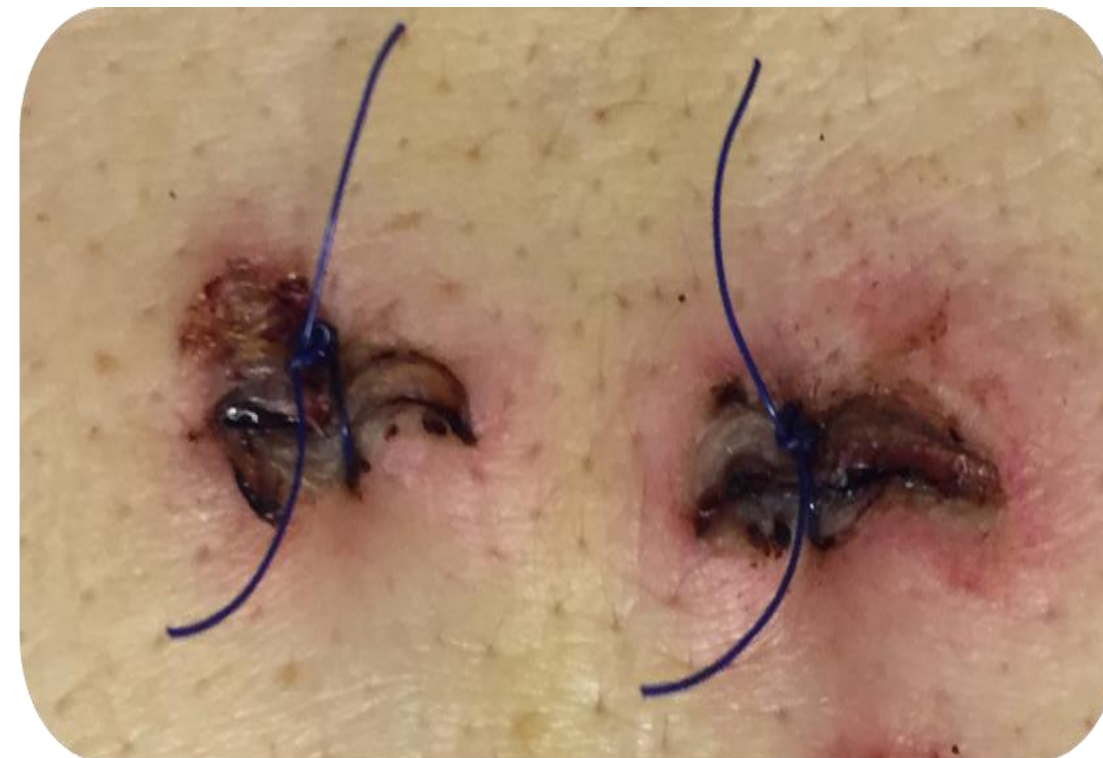
BACKGROUND

There are average 1000 patients undergoing open heart surgery per year. All surgical wound are closed by dissolvable suture, except chest tube exit sutures. Each patient has 2-3 chest tubes post-cardiac surgery.

Post-discharge about 1 week, the family need to bring patient to outpatient clinic for suture removal, which create stress to family to bring a sick patient out in addition of other appointments, Pertaining suture removal, it can induce pain, especially for those have being embedding for a period.

Objectives

1. To explore a safe alternative method, instead of suture, managing post cardiac surgery central chest tube exit wounds.
2. To improve patients' satisfaction and quality of life with use of alternative way for closure of chest tube exit wounds.



Chest tube exit wounds closed by Suture

METHODOLOGY

Solution development process

- Literature Review for possible practice
- Filter the solutions by consulting experts
- Final selection by conducting a comparison study



Steri-Strips™ are slim adhesive strips that are applied across wound instead of sutures. Efficacy and reliability of adhesive tape has been proven in closure of simple lacerations and small surgical wounds. It is rapid, easily apply, cost effective and limits chances of infection. However, no studies compared the efficacy of Steri-Strip with surgical suture in closure of post-cardiac central chest tube exit wounds.

This is an evidence-based quality improvement project in combination research and clinical education conducted by a team, formed with Cardiothoracic Surgery (CTS) nurses surgeons, from July 2014 to June 2015. The model of Plan-Do-Check-Act (PDCA) was utilized to translate research results into clinical practice.

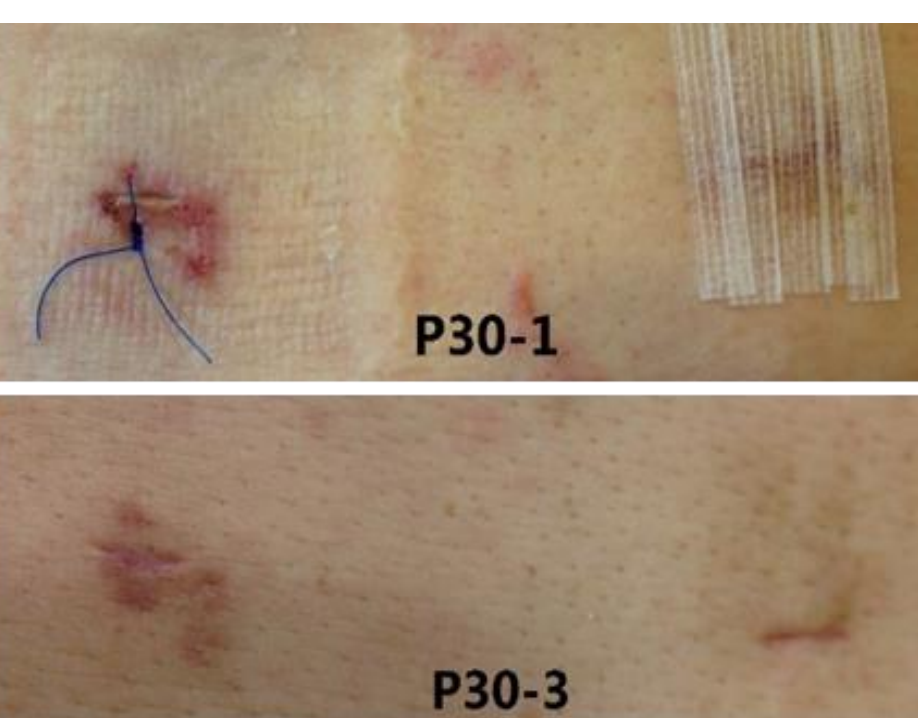
- Provided on-job-training on method of apply Steri-Strip
- Emphasized re-apply Steri-strips for excessive exudates wounds

- Established Steri-Strip is a reliable and safe alternative method for chest tube exit wounds
- Increase patient's satisfaction



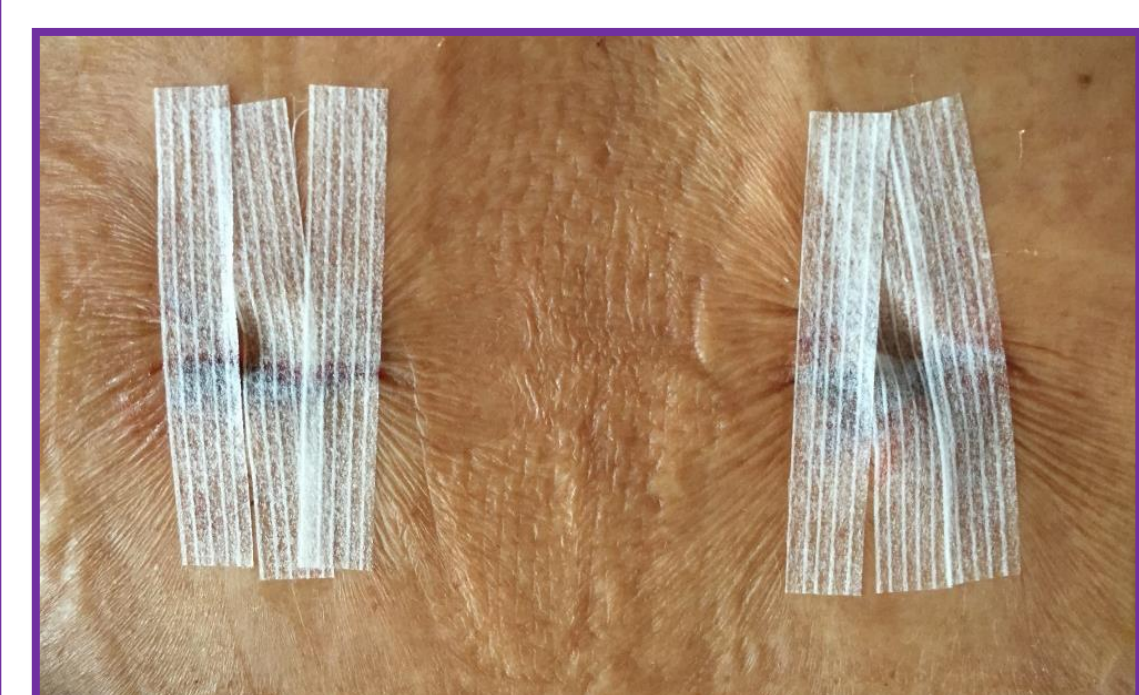
- The problems were:
- Easy fall when wound is exudative
 - No standard in practice

- 31 patients were recruited into the RCT study
- Results showed Steri-Strip was more efficient in managing chest tube exit wounds



Suture Steri-Strip
2 assessments for a patient

CONCLUSION



Chest tube exit wounds closed by Steri-Strip

Steri-Strip is a safe alternative method for post-cardiac surgery chest tube exit wound closure.

This project is aligned to our organization's vision and mission of providing quality healthcare and achieving excellence in healthcare as people-centred organization.

RESULTS

Tangible Outcome

a. Process Flow Comparison

Before			After	
Exit wounds closed by Suture	Time Taken		Exit wounds closed by Steri-Strip	Time Taken
1		vs		
2	Write a memo to OPS for STO 0.25Hr	vs	NA	
3	Explain STO procedure/ Memo 0.1Hr	vs	NA	
4	Wound care advice 0.1Hr	vs	Wound care advice 0.1hr	
5	Family bring patient to clinic (2 persons) 8Hrs	vs	NA	
6	Suture removal 0.5Hr	vs	NA	
HCW spend 0.95Hrs/Pt Family spend 8Hrs/Pt		vs	HCW spend 0.1 Hrs/Pt	

Save HCW man-hours **850hrs/p.a.**

Save patient & family man-hours **8000Hrs/p.a.**

8850 MAN-HOURS SAVED P.A.

b. Direct Cost-saving with Steri-Strip

	Suture cost /pt	Steri-Strip cost/pt	Cost saving /pt	Cost-saving /1000Pts/p.a.
Material	\$4.10	\$0.40	\$3.70	\$3,700.00
Suture remove	\$21.50	\$0.00	\$21.50	\$21,500.00
Transportation	\$10.00	\$0.00	\$10.00	\$10,000.00
Total Cost	\$35.6	\$0.4	\$35.2	\$35200

98.9% COST DEDUCTION



- Reduces medical resources requirement
- No medical waste required
- Savings on manpower

Intangible Outcome

Clinical Outcome	Patient-Centered Care	Improve patients' satisfaction
<ul style="list-style-type: none"> Reduces pain when closure of wounds. Better aesthetic results. Free of pain caused by suture removal. 	<ul style="list-style-type: none"> Reduces patient and family inconvenience and alleviate their stress during suture removal. Improve patient & family quality of life Reduces cost 	

Acknowledgements

- Nurses and Doctors from Cardiothoracic Surgery Department (Ward 56) of National Heart Centre Singapore.
- Chief Nurse Ho Ai Lian, ADN Tay Ai Liu, SNM Foo Lee Lian
- Ms Jacqueline Huo, Ms Lay Sock Yee