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Background

• Incidence of superficial and deep sternal wound infections post cardiac surgery varies 1.3% to 12.8%.

• Reported incidence for post operative mediastinitis ranged from 1% to 5%.

• Significant burden to morbidity and mortality.
  – Prolonged hospital stay – increased risk of hospital acquired events.
  – Return to theatre
  – Requiring involvement from other specialties e.g. Plastic surgery, microbiology
  – Cancelled elective procedures
Objective

Assess impact of wound adjuncts using multidisciplinary approach to reduce sternal wound issues
Methods

• Logged 18 months of sternal wound complications requiring return to theatre from 2014-2015
• Wound complications range from superficial to deep sternal wound infections and any wound discharge/instability without positive culture.
• Analysis of root causes emerged to show following patterns:
  - High BMI
  - Sternal instability
  - Diabetes
  - Wound discharge
Multidisciplinary team of the following groups:

Pilot approach using wound adjuncts on 1 consultant series

- High BMI
- External sternal support
- Diabetes
- Negative pressure dressing
Wound adjuncts:

- negative pressure dressing at time of surgery
- external support vest the next day.
Initial pilot study

15 patients fit the criteria for pilot in 1 consultant series between **Apr 2015 - Aug 2015**.

- Results->
  
  - No wound dehiscence
  - No extra theatre time
  - No plastic surgical involvement.

Widened approach across the department: **Sept 2015 – Jan 2016**
Criteria

• Inclusion criteria
  - BMI >30
  - Diabetic
  - redo sternotomy
  - Re-opening for bleeding
  - Patients on immunosuppressants of any kind.
  - Frail patients with poor bone quality (on surgeon’s request).
  - Greater than 5 cm fat superficial to sternum

❖ Preoperative preparations stayed the same throughout the study.
  - Chlorhexidine gluconate wash, Octenisan wash
EXTRA THEATRE TIME (HOURS, MINS) BEFORE AND SINCE INTRODUCTION OF ADJUNCTS

> 50% reduction in theatre time

SEPT 2014 - JAN 2015

SEPT 2015 - JAN 2016
Re-audit to assess sustainability of approach

1 year follow up study.
• Education of staff
• Increasing awareness
  – Presentation at SCTS 2016
  – Poster put up on ward
  – CQC awareness
## Results

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<tbody>
<tr>
<td>Total no. of patients with sternal wound complications</td>
<td>28</td>
<td>12</td>
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<tr>
<td>% of sternal wound complications</td>
<td>5%</td>
<td>2%</td>
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<tr>
<td>Total no. of sternotomies</td>
<td>553</td>
<td>615</td>
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<tr>
<td>Total extra time in theatre</td>
<td>189hrs 34mins</td>
<td>96hrs 13mins</td>
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Number of sternal wound complications 1 year follow up study
1 year follow up to extra theatre time (hrs.mins)

> 50% reduction in theatre time
Analysis

• 1 year re-audit has shown a significant improvement following implementation of wound adjuncts. n=12, p=0.0036
• Extra time back to theatre has reduced by more than 50%.
• Retrospective cost analysis has proven savings of £70 000 per annum from our re-audit data.
Conclusion

• Our 1 year follow up study since implementation of wound adjuncts by using a multidisciplinary approach has provided positive reflection to reducing sternal wound issues.

• By widening awareness to such use in theatre, HDU and on the ward through education, national presentation, and even introducing our approach to CQC, we have demonstrated sustainability.
Thank you