Integrating Advanced Wound-closure Systems into an Eras-based Bundle of Care Eliminates Sternal Surgical-site Infections

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BACKGROUND

Current cardiac SSI-prevention bundles focus on antibiotics, normothermia, clipping, and glucose control. However, the **wound-closure system** remains underemphasized despite its role in tissue perfusion, bacterial ingress, dead space, and healing.

OBJECTIVE

To assess whether a standardized **ERAS-compatible wound-care and closure bundle** could eliminate sternal SSI and dehiscence in the first 500 consecutive sternotomy patients.

RESULTS

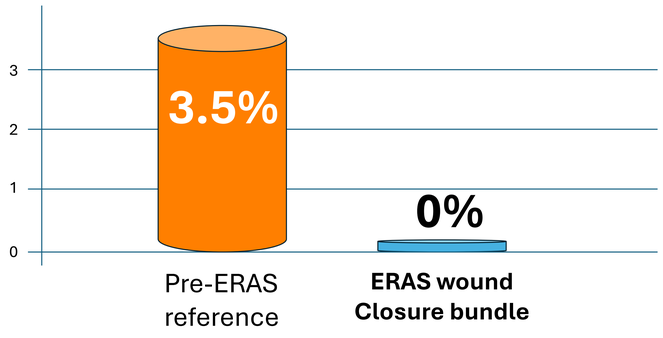
500
CONSECUTIVE PATIENTS
ERAS wound protocol

0%
STERNAL SSI/ DEHISCENCE
0/500

-2.5 d
LOS reduction
Vs. pre-ERAS

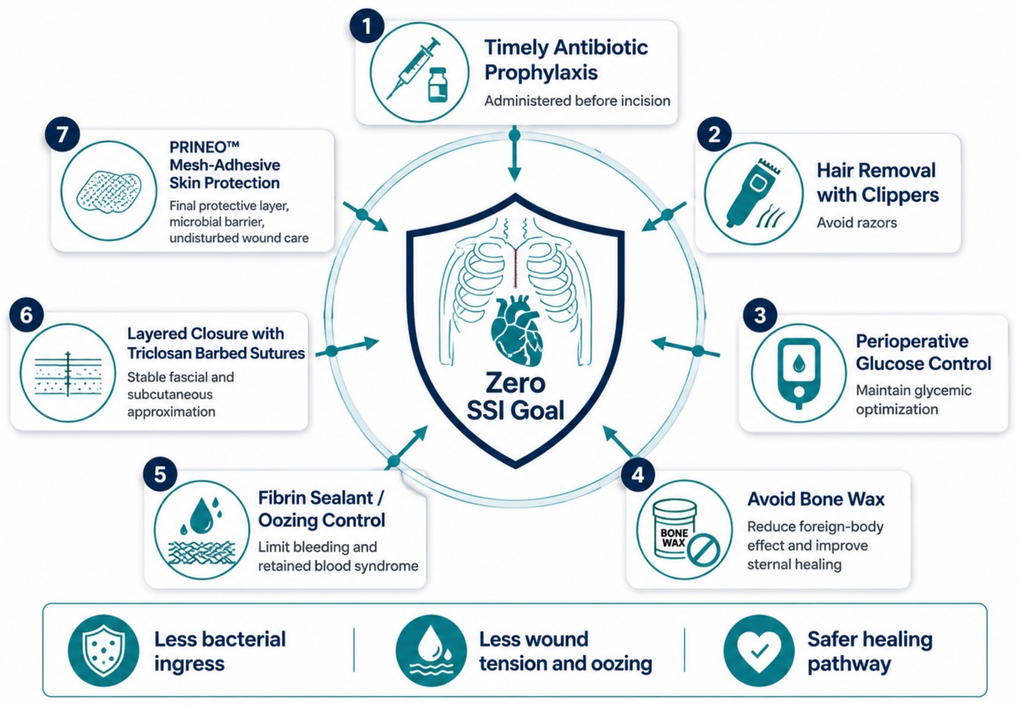
Primary outcome: sternal SSI/dehiscence

Superficial, deep and mediastinal infection endpoint



METHODS

Since 2023, 500 consecutive adult sternotomy patients, in an ERAS accredited centre, were treated with a standardized bundle considering wound closure and wound care not as an afterthought:



1 **Classic ERAS SSI prevention**
Antibiotics, no razors, glucose control

2 **Hemostasis & dead-space control**
No bone wax; fibrin/thrombin sealant to reduce oozing and retained blood

3 **Layered antimicrobial closure**
Fascial/subcutaneous approximation using triclosan-impregnated barbed sutures

4 **Undisturbed final skin barrier**
PRINEO mesh-adhesive system for tension sharing, sealing and surveillance

CONCLUSION

A standardized ERAS wound-closure bundle was associated with 0% sternal SSI/dehiscence in the first 500 consecutive patients.
Wound closure and wound care:

- no more an afterthought
- a distinct pillar of ERAS cardiac surgery.
- integrate in the next guidelines