This is the accepted version of a paper published in *Journal of Hospital Infection*.

Citation for the original published paper (version of record):

Hygienic interventions to decrease deep sternal wound infections following coronary artery bypass grafting.
*Journal of Hospital Infection*, 91(4): 326-331
http://dx.doi.org/10.1016/j.jhin.2015.08.021

Access to the published version may require subscription.

N.B. When citing this work, cite the original published paper.

Permanent link to this version:
http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-273884
Summary

Background:

The department of Cardiothoracic surgery at Uppsala University Hospital has 25 beds in 1-4 patient rooms and an operating suite consisting of 5 operating rooms with ultraclean air. Around 700 open heart (250 isolated Coronary artery by-pass grafting, CABG) operations are performed annually. In 2009, the numbers of deep sternal wound infections (DSWI) increased to unacceptable rates despite existing hygienic guidelines.

Aim:

To show how root cause analysis (RCA) followed by quality improvement interventions reduced the rate of DSWI after CABG surgery.

Methods:

Only isolated CABG patients requiring surgical revision due to DSWI were included.

Swabs and tissue biopsies were taken during surgical revision and analysed with standard methods. DSWI were registered prospectively according to CDC definitions.

A RCA for infection was performed Sep 2009-April 2010. Interventions based on results of the RCA and on nationally recommended practices were concluded in April 2010, and thought to have taken full effect by July 1, 2010.

Air was actively sampled at ≤ 0.5 m from the sternal incision.

Findings:

DSWI incidence rates per CABG operations decreased from 5.1 % pre- to 0.9 % post- intervention. Wound cultures pre-intervention grew *Staphylococcus aureus* 27.1 % and coagulase negative *Staphylococcus* (CoNS) 47.1 %, post-intervention *S. aureus* 23.1 % and CoNS 30.8 %. Air counts did not exceed 5 cfu/m³.

Conclusion:

When the etiology of an error is multifactorial, a RCA engaging both the medical professions and the infection control team, can be a tool to map causes leading to adverse events such as HAIs. A systematic quality improvement intervention based on the RCA can reduce the number of deep sternal wound infections after CABG surgery.