

# Predicting return to theatres for re-exploration after cardiac surgery through hourly analyses of drain output – a drainology study

## Objectives

There is wide variation in the management of chest tubes following cardiac surgery. We aim to quantify the median post-operative drain output following routine cardiac surgery and determine any differences in hourly and cumulative output in patients that are taken back to theatre.

## Methods

A retrospective cohort study was conducted with a prospectively maintained institutional database assessing hourly and cumulative drain output in the first 72 hours following cardiac surgery. All patient over 16 years old undergoing coronary artery bypass, valve or thoracic aortic surgery were included.

## Results

Between January 2013 and July 2021, 15824 patients met the inclusion criteria. The mean age was 63 (13) years and 4025 (25%) were female. 781 patients (4.9%) required reoperation for bleeding. The cumulative median drain output for the first six post-operative hours were 150, 275, 375, 450, 525 and 600ml in the reoperation group, and 50, 100, 125, 150, 175 and 200ml in the non-reoperation group. There was significant overlap in the upper quartile of the non-reoperation cohort and the lower quartile of the reoperation cohort. Median drain output reached 0ml by hour 19 in the reoperation group and hour 17 in the non-reoperation group.

## Conclusions

Our results demonstrate that decision to return to theatre cannot be made based on drain output alone, as there is significant crossover between those requiring reoperation and those who do not. Most blood loss occurs within the first 24 post-operative hours, highlighting the opportunity to evaluate the safety of early drain removal from this time point.

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Alexander Smith (1), Paulo De Sousa (1), Tuan Chen Aw (1), Mario Petrou (1), Eric Lim (2), (1) Royal Brompton Hospital, London, London, (2) Royal Brompton Hospital, LONDON, London