6 POST-PROCEDURAL CARE OF CHEST DRAINS

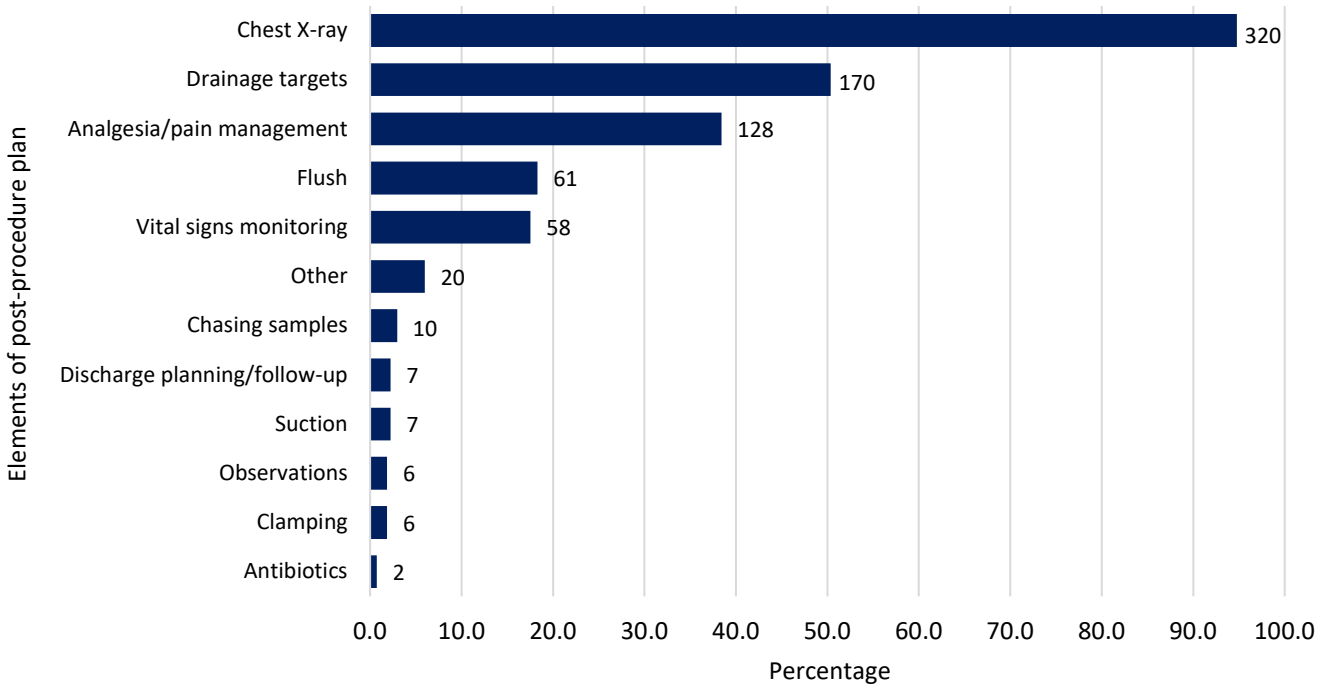
For this chapter, pleural aspirations have been removed from the analysis. The denominator for chest drain insertion is 453.

Post-procedure plan

A post-procedure plan provides clear guidance on decisions regarding monitoring, imaging, and drain removal, all of which are clinically and operationally important. Nearly a quarter of patients (106/440; 24.1%) (unknown in 13) had no documented post-procedure plan.

While chest radiography was commonly recorded, other important elements, including drainage targets (170/334; 50.8%), monitoring plans and pain management (128/334; 38.3%), were frequently omitted (F6.1). Despite this, reviewers reported that appropriate post-operative analgesia was prescribed for 275/293 (93.8%) patients (unknown in 160). However, there was room for improvement in post-procedure nursing care for 90/437 (20.6%) patients (unknown in 16) and in post-procedure medical care and decision making for 142/430 (33.0%) patients (unknown in 23).

Where a proforma was used, there was a trend towards better post-procedure nursing care and medical care. Room for improvement in post-procedure nursing care was identified in 20/100 (20.0%) cases with a proforma, compared with 69/244 (28.3%) without a proforma. Similarly, room for improvement in post-procedure medical care was identified in 34/117 (29.1%) of cases with a proforma, compared with 100/282 (35.5%) without one.



F6.1 Elements of the post-procedure plan

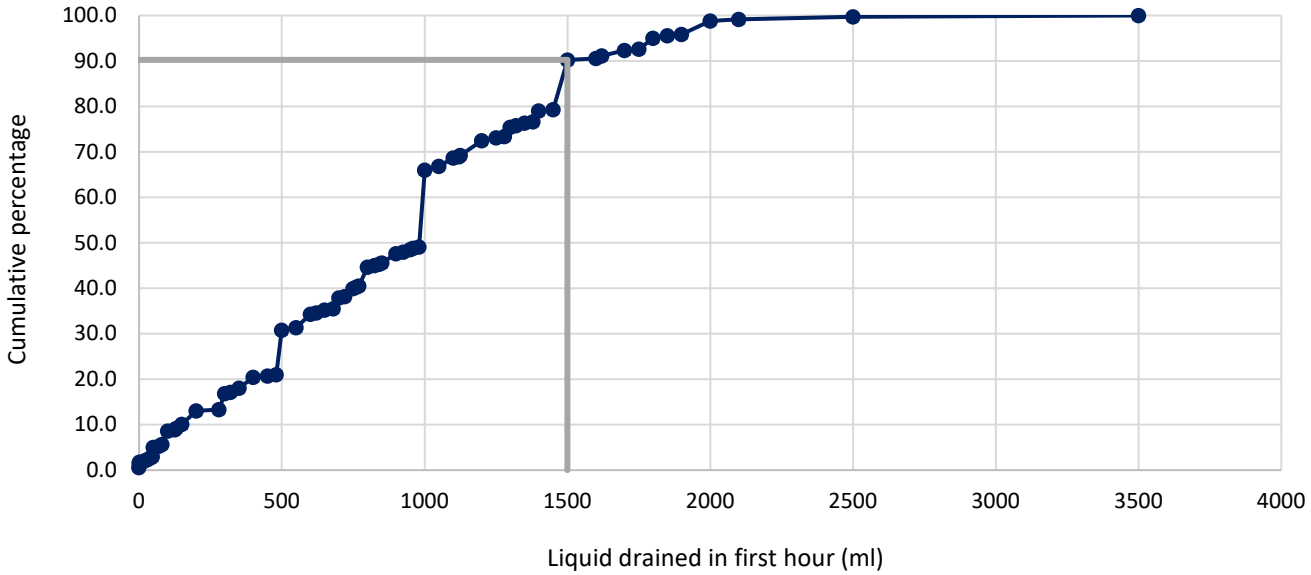
Case review data; *n=334*

Post-procedure care

Reviewers identified gaps in both nursing and medical care, often related to poor documentation, lack of clear planning and inadequate monitoring. These issues were less frequent where a proforma was used, again highlighting the role of structured pathways in improving care.

The 2020 National Patient Safety Alert on rapid offload of pleural effusion fluid recommends that no more than 1500ml fluid should be drained from a pleural effusion in the first hour after chest drain insertion.[21]

Of the patients with an effusion, 34/338 (10.0%) had more than 1500ml of fluid drained within the first hour after insertion (F6.2). The largest volume drained in the first hour was 3500ml. Documentation of the volume drained was inconsistent, limiting assurance that fluid drainage was actively controlled.



F6.2 Liquid drained within the first hour of drain insertion
Case review data; n=338

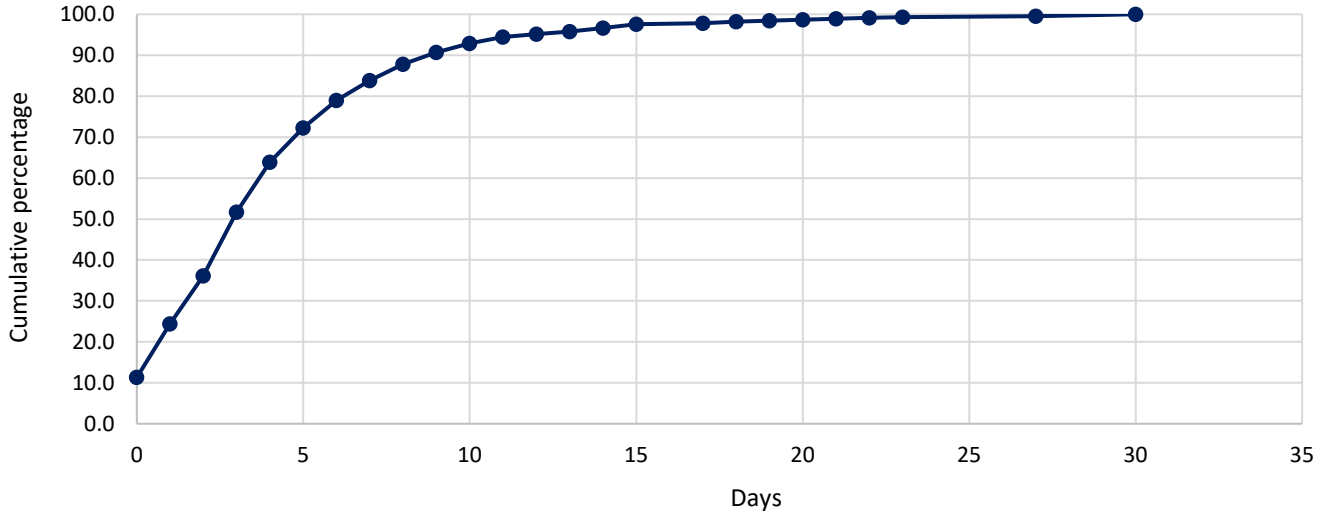
This finding means that despite the patient safety alert, patients remain exposed to the recognised risk of re-expansion pulmonary oedema and cardiovascular instability. Data on complications (presented in chapter7) showed that there were five patients who experienced this complication.

The chest drain was checked on a daily basis in 264/325 (81.2%) patients (T6.1). However, a significant minority did not have a daily drain check documented. The drain was clamped in 183/388 (47.2%) patients (unknown in 65).

T6.1 The chest drain was checked at least daily for bleeding/signs of infection	Number of patients	%
Drain checked at least daily	264	81.2
Drain not checked daily	61	18.8
Subtotal	**325**	
Unknown	128	
Total	**453**	

Case review data

The median length of time a drain was in place was 2.9 days (F6.3). In total, 75/396 (18.9%) chest drains were not left in place for an appropriate duration (T6.2), with both premature removal (n=26) and prolonged retention (n=43) observed (unknown in six).



F6.3 Number of days the drain was in place (data does not include pleural aspirations)
Case review data; n=453

T6.2 The drain was in place for an appropriate length of time	Number of patients	%
Yes	321	81.1
No	75	18.9
Subtotal	**396**	
Unknown	57	
Total	**453**	

Case review data

Prolonged drainage contributed to increased length of stay, while premature removal led to the need for reinsertion in 16 cases. This means that patients experienced increased clinical risk both because of early removal and prolonged exposure to the risks of chest drains as well as avoidable bed days. These findings indicate variability in post-procedural decision making and monitoring.

The drain was dislodged in 54/420 (12.9%) patients (unknown in 33) and in seven of these patients the drain was not documented as secured. Overall, the drain was not documented as being appropriately secured in 33/267 (12.4%) patients (unknown in 186).

The drain removal was planned in over 90% of patients (315/345; 91.3%; unknown in 108) and 30/426 (7.0%) patients needed re-insertion of the drain (unknown in 27). There were 12 patients who experienced a complication at the time of drain removal, including bleeding and pain.

Outcome and follow-up

Patients were most frequently discharged home (406/563; 72.1%). There were 86/563 (15.3%) patients who died prior to hospital discharge. There were 15 patients died who within 30 days of discharge, and the reviewers thought that seven of these deaths were potentially related to the chest drain.

Where the information was available, 48/296 (16.2%) patients were readmitted in the next 30 days. Of these readmissions, 18 were related to the chest drain itself.

Follow-up was arranged for 324/427 (75.9%) patients (unknown in 121). Among the patients without arranged follow-up, the reviewers thought that 41/103 (39.8%) patients should have had follow-up arranged.