Keywords: Chest drains/Early discharge/Nurse-led clinics/Respiratory

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In this article...

- Benefits of early discharge for patients with a chest drain
- How review at a nurse-led clinic supported these patients
- Evaluation of this nurse-led service

Setting up a nurse-led chest drain clinic

Post-operative air leaks are a common complication of lung surgery, occurring in around 15% of patients. The leaks lead to air escaping into the pleural cavity, between the visceral surface of the lung and parietal layer of the chest wall; this trapped air is known as a pneumothorax (Henry et al, 2003). The most common cause of the leaks is a small alveolar pleural fistula, which can be slow to heal (Wilkinson et al, 2011).

In the initial post-operative period, patients with air leaks are treated with either underwater seal chest drains (Bar et al, 2009) or Thopaz drainage systems (Rathinam et al, 2011); most problems resolve within a few days. Those persisting for more than seven days can lead to prolonged hospitalisation and considerable frustration for patients. However, many patients can be managed with ambulatory chest drains, which are safe, clinically effective and cost effective (Vuorisalo et al, 2005). Perhaps most importantly, from the patient’s perspective, ambulatory chest drains also allow increased mobility. Patients who are suitable for treatment can be discharged home and managed effectively as outpatients.

Ambulatory chest drains

Ambulatory chest drainage systems evolved from a portable device invented by Henry Judah Heimlich in 1964 to enable a one-way valve system to drain fluid and air from within the pleural space. The widely used Rocket ambulatory chest drain has been developed using the same principle and has a drainage bag with a one way flutter valve to let air out.

This system is ideal for increasing mobility and independence in those with prolonged air leaks as it is worn on a belt around the waist. Importantly, it can be used in the hospital or community setting. Although other systems are available, this system has been found to be cost effective, safe and easy to manage for both patients and health professionals.

Ambulatory systems are not as effective as underwater seal chest drainage systems at treating large air leaks from the pleural cavity. These can be treated by adding suction to the traditional drainage systems if necessary, which is not possible with the ambulatory drain (Vuorisalo et al, 2005). Ambulatory drains are also not recommended for patients with:

- Marginal lung function;
- Fluid drainage of >200ml/24hours;
- Large air leaks;
- No ability to retain information;
- Marginal lung function;
- Fluid drainage of >200ml/24hours;
- Large air leaks;
- No ability to retain information;

Patients with ambulatory chest drains can be discharged home early if supported by review at a nurse-led clinic, patient information and a 24-hour helpline.

5 key points

1. Safely discharging patients with a chest drain can reduce hospital costs and length of stay, and increase patient satisfaction
2. Learning from the lived experiences of patients can help improve services
3. Advanced practitioner knowledge and skills are essential for autonomous management of patients with chest drains
4. Competency in chest X-ray analysis and interpretation is vital for safe and effective management of a nurse-led chest drain clinic
5. Nurse-led clinics increase patient satisfaction and can reduce waiting times

Chest drains are used to release trapped air
» No social support (Rieger et al, 2007).
MacDuff et al (2010) suggest the size of pneumothorax is less important than the degree of clinical compromise; as such, the decision of whether to use an ambulatory chest drain should always be informed by clinical judgement. A number of risks are associated with ambulatory chest drains, including:
» Surgical emphysema;
» Drain site infection;
» Increased pneumothorax;
» Accidental removal.
However, if patients and their families receive adequate education on drain management and early detection of complications, and have access to 24-hour professional support, these drains can be safely managed in the community.

Developing the service
Historically, very few patients were discharged from the thoracic ward of Liverpool Heart and Chest Hospital with ambulatory chest drains. Those who were discharged with drains in situ were discharged by the surgical teams and would return to the ward for review as an outpatient. This involved waiting for an unspecified time until a clinician was available to see them, causing considerable patient dissatisfaction.

Ward nurses were frustrated at having extra patients on the ward – adding to their already busy workload – and the decisions made about chest drain management were inconsistent. To address these issues, we decided to set up a chest drain clinic led by an advanced nurse practitioner.

Nurse-led clinics are managed by highly skilled nurses with expertise in caring for a specific patient group. The advanced practice role uses skills such as autonomous decision making, patient education, psychological support and condition management to address patients’ need (Hatchett, 2008). In many cases, advanced nursing roles have extended into areas previously managed by doctors, filling gaps in the provision of healthcare services. However, these roles can also be used to develop and implement new approaches to care delivery.

In advanced practice roles, new nursing responsibilities extend the scope of practice. Before this nurse-led service could be implemented, advanced training and competency attainment in chest drain management, along with chest X-ray interpretation and analysis, was undertaken. The development of the service was approved under trust governance arrangements.

The first stage in developing the service was a stakeholder analysis, in which the ANP, thoracic medical consultants and associate director of nursing discussed the complexities of managing patients who were discharged home with ambulatory chest drains. The ANP proposed an alternative way of organising the service, and reviewed the available evidence to develop an evidence-based protocol for ambulatory chest drain care and management; this was ratified by the trust governance board.

The ANP undertook advanced training to achieve competence in chest X-ray analysis and drain management through a structured work-based learning programme with the thoracic surgeons. This constituted part of an MSc degree in advanced practice. The ANP then had a six-month period of ward-based clinical mentorship, before the autonomous nurse-led outpatient clinic was established.

The clinic runs one half-day per week, and can review a maximum of four patients. The service is supported by written patient information sheets, telephone support and a 24-hour dedicated helpline, which is managed by the ANPs on weekdays and the nurse in charge of the ward at all other times. The practice guidelines for the service are summarised in Box 1.

Evaluation of the nurse-led clinic
Two sources of information were used to evaluate the service:
» Routinely collected activity data allowed us to see whether patient outcomes differed from the existing service;
» Specific evaluation data collected by us from patients allowed us to evaluate the patient experience.

The combined information gave a good indication of the safety and acceptability of the new ambulatory chest drain service.

Patient outcomes
Between March and August 2013, 23 patients were discharged with an ambulatory chest drain and booked into the nurse-led clinic for review. Nineteen (93%) of these patients were autonomously and successfully managed by the ANP.

The remaining four patients (17%) needed referral to the surgical team; three of these had contacted the 24-hour helpline before their clinic visit and were advised to return to the ward for immediate review. One was found to have a drain site infection, one had surgical emphysema, and the remaining patient had a chest infection. The ANP managed their further care after they had been seen by the surgical team.

Only one patient was referred back to the consultant clinic by the ANP; this was due to an increased asymptomatic pneumothorax. However, after being seen by the consultant team, this patient was also returned to the nurse-led service. All patients had successful outcomes and were discharged.

Patient experience
Patient experience was explored using phenomenological interviewing. We thought this method would give us a good insight into patients’ experience of living with a chest drain and their views of the nurse-led service. The trust research and development lead advised that this work would not require ethical approval due to the evaluative nature of the study and minimal risk to patients.

Five patients who attended the clinic agreed to be interviewed by the ANP. The recorded and transcribed interviews took place at the end of clinics over a five-week period. The transcripts demonstrated that patients were extremely satisfied with the nurse-led service. We were also able to evaluate how useful patients found the

BOX 1 PRACTICE GUIDELINES FOR THE NURSE-LED CHEST DRAIN CLINIC

- Patient deemed safe to be discharged home with an ambulatory chest drain by the consultant team
- Written and verbal information given to patient and family, teach-back methods used to ensure understanding
- Community support established (district nurse team contact and referral)
- Safe discharge checklist completed to ensure thorough discharge process is met
- Clinic appointment letter given for 7-14 days post discharge
- Telephone support – follow-up call within 48 hours of discharge plus ensure a 24-hour helpline service is available
- Patient reviewed in clinic by advanced nurse practitioner (on same day as a consultant clinic if support needed)
- Patient discharged from the nurse-led clinic is referred back to routine follow up
- GP and consultant informed of clinic outcome via letter
Information and support

The information given to patients on discharge was rated very highly, particularly the use of teach-back methods. This involved asking patients to relay the given education back to staff to ensure they retained the key points; this reassured staff that patients were aware of abnormal symptoms to look out for (increased breathlessness, worsening pain, surgical emphysema) and when to call the helpline for advice.

A follow-up phone call within 48 hours of discharge reassured patients that they were cared for and also gave staff confidence that patients were coping at home. The 24-hour availability of advice made patients feel secure in managing their chest drain.

Patients were highly satisfied with the service as they had retained the symptom information from the discharge education session. However, we made minor changes to our written information by incorporating the symptom advice into the clinical letter. Although patients had been sent home with the information booklet from the chest drain manufacturer, this focuses more on the mechanics and management of the ambulatory drainage bag than on clinical symptoms to look out for.

Managing a chest drain at home

Living with a chest drain is a topic that has not been extensively researched. As patient experiences can inform the development of future services, this evaluation offered important information on how to organise and deliver care for patients with ambulatory chest drains. The patients interviewed identified four key areas as important:

» Safety;
» Dealing with anxiety and fear;
» Embarrassment;
» Discomfort.

These concerns are to be expected when patients and families have to deal with the safe management of medical equipment in the home. It is encouraging to see that, with the discharge information provided, the 48-hour follow-up call and a 24-hour helpline, the clinic can reassure patients and families, help them feel safe and reduce their anxiety and fear.

Patients were aware that the treatment was a short-term solution and were mainly concerned about ensuring the safe functioning of the chest drain. The majority reported a degree of pain from the chest tubing, despite taking their prescribed analgesia, yet they were also aware that this reminded them the drainage tube was still in place, which made them more cautious, preventing accidental removal of it.

Conclusion

The key to high-quality patient care is safety, effectiveness and acceptability. In an NHS that is under severe financial pressure there are opportunities for nurses to be involved in the development of high-quality, innovative approaches to care. Patient safety must always be at the forefront of care provision and, with additional specialist training and competencies, ANPs have an important role to play in developing and evaluating new approaches to care delivery.

The experience of implementing and evaluating this autonomous nurse-led chest drain clinic suggests that practice innovations such as this can not only improve the patient experience, but also advance nursing skills and enhance the quality of care in a challenging economic environment.

References


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What is the correct way to remove a chest drain?

Bit.ly/NTChestDrainRemoval