



# Adoption support resource – insights from the NHS

Implementation support  
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# Contents

1 Introduction .....	3
2 Current practice .....	5
3 Summary of NICE recommendations .....	6
4 Tips for adoption .....	7
5 How to implement the guidance .....	8
Implementation group .....	8
Assessment of readiness .....	9
Care pathway mapping .....	10
Thopaz+ management .....	11
Education .....	13
Measuring success .....	13
Resource impact and business case .....	14
6 Shared learning examples .....	16
7 Acknowledgements .....	17
8 About this resource .....	18

# 1 Introduction

This resource provides practical information and advice on the NICE medical technologies guidance on [Thopaz+ portable digital system for managing chest drains](#).

NICE's adoption team worked with contributors who use Thopaz+ in NHS organisations to gather their learning and experiences. Contributors acknowledged that Thopaz+ has been widely adopted for thoracic surgery, and other specialities are now beginning to adopt it. It is anticipated that the learning shared in this adoption resource could be applicable and useful to a variety of specialities.

The information presented in this resource is intended solely to support the NHS in adopting, further researching or evaluating the use of this technology. It is complementary to the medical technologies guidance and was not considered by the committee when developing its recommendations.

Thopaz+ ([Medela UK](#)) is a portable digital chest drain system that provides regulated negative pressure close to the patient's chest and continuously monitors and records air leak and fluid drainage. There are more details about the technology in [section 2](#) of the guidance.

The benefits of using Thopaz+ compared with conventional chest drains as reported by the NHS staff involved in producing this resource, include:

- shorter chest drainage time and length of hospital stay
- continuous objective monitoring of air leaks and fluid loss, which helps inform when to remove the drain or when to offer alternative management strategies
- digital readouts during hospitalisation making it easier to accurately document and monitor air and fluid loss
- increased comfort, because it lets people move with the drain in place
- increased staff efficiency and available nursing time
- more accurate and safe suction
- better safety through alerts for large losses and blockages

- faster set-up (because there is no underwater seal)
- fewer drain canister changes needed
- less risk of drainage fluid re-entering the thoracic cavity through the 1-way valve.

## 2 Current practice

Conventional chest drains use an underwater seal to help drain air and fluid from the pleural space, allowing the lung to re-inflate. This can be done with or without additional wall suction. The NICE guideline on [major trauma](#) recommends chest drains for managing chest trauma in pre-hospital and hospital settings, but chest drain management is not specifically covered by NICE guidance.

The British Thoracic Society [guidelines on pleural disease](#) state that chest drains should include a valve mechanism to prevent fluid or air entering the pleural cavity. This may be an underwater seal, flutter valve or other recognised mechanism. Chest drains with underwater seals appear to be standard care in the NHS and consist of a water seal, optional suction control and drainage collection bottle. These drains collect fluid and prevent backflow into the pleural cavity, while at the same time allowing a subjective assessment of air leaks and fluid loss. The drainage bottle must be placed below chest level and kept upright. Suction may sometimes be needed, depending on the patient's condition, and can usually be provided using a low grade wall suction unit.

### 3 Summary of NICE recommendations

NICE has produced guidance on [Thopaz+ portable digital system for managing chest drains](#). This adoption support resource specifically relates to using Thopaz + for managing chest drains after thoracic surgery.

The guidance recommends that:

- The case for adopting Thopaz+ for managing chest drains is supported by the evidence. Thopaz+ can reduce drainage time and length of stay in hospital, and improves safety for people with chest drains. Its use may also improve clinical decision making through continuous, objective monitoring of air leaks and fluid loss.
- Thopaz+ should be considered for people who need chest drainage after pulmonary resection or because of a pneumothorax. The system can increase patient mobility because it is portable. Staff find it more convenient and easier to use than conventional chest drains.
- Cost modelling (see [section 4](#) of the guidance) indicates that Thopaz+ is cost saving compared with conventional chest drains in people after pulmonary resection. The estimated saving is £111 per patient per hospital stay, with savings mainly achieved through reduced length of stay. NICE's [resource impact assessment](#) shows that, at a national level, adopting Thopaz+ is expected to save around £8.5 million per year in England.

## 4 Tips for adoption

Contributors to this resource considered the following to be important:

- Forming an implementation project team with representation from staff groups along the care pathway and with support from directorate and finance management.
- Care pathway mapping to identify quality and efficiency aspects of the care pathway that could be changed to get the most benefit from adopting Thopaz+. Importantly, this includes developing a drain removal protocol.
- Agreeing and formalising the cycle of use of reusable Thopaz+ units to ensure they are available when needed and not lost or discarded accidentally.
- Liaising with the company to provide initial training for all staff involved in the care pathway, tailored to roles and responsibilities. Selected staff should then be educated to become internal expert trainers to provide continued support and maintain standards.
- Developing a business case, taking into the account the anticipated resource impact of using Thopaz+.
- Developing data collection systems and methods to monitor the effect of using the technology. This data could be used to support future business cases for Thopaz+.

## 5 How to implement the guidance

Contributors' experiences have been used to develop practical suggestions on how to implement the guidance on Thopaz+. Local organisations will need to assess how applicable these suggestions are, taking into consideration the time, resources and costs of an implementation programme.

This technology can be best adopted using a project management approach. NICE has produced [resources to help you put guidance into practice](#), which set out the most common steps taken when putting evidence-based guidance into practice.

### Implementation group

Form a local implementation group who will work together to implement the guidance and manage any changes in practice.

Individual NHS organisations will determine the membership of this group, how formally it functions, how it is run and how long it will be needed. Consider the following stakeholders so that the guidance is implemented in an effective and sustainable way:

- **Clinical champion:** they could be a thoracic surgeon, respiratory physician or trauma surgeon, with an interest in managing chest drains, and should have the relevant knowledge and understanding to be able to drive the project, answer any clinical queries and champion the project at a senior level.
- **Project manager:** they could be someone in a clinical or managerial role who will be responsible for the day-to-day running of the project, coordinating the project team and ensuring the project is running as planned. This may be a senior thoracic nurse or senior member of the allied healthcare professional team.
- **Management sponsor:** they will be able to help assess the financial viability of the project, ensure the business case is produced and help to show the cost savings achieved. This may be the departmental operations manager or someone from the finance team.



- Healthcare professionals involved in the care pathway for patients who would use Thopaz+. They will be valuable members of the project team because they will be providing the service. For adoption in a thoracic surgical specialty this may include:
  - operating staff
  - theatre recovery nurses
  - cardiac surgeons
  - thoracic surgeons
  - nurses and anaesthetists working in critical and intensive care units
  - nurses and doctors on the relevant wards (thoracic, respiratory and cardiothoracic)
  - physiotherapists.
- Clinical audit facilitator: they will be able to help set up systems to collect and analyse local data needed to measure the project's performance and carry out audits.

## Assessment of readiness

Questions the implementation team may wish to consider when preparing to adopt Thopaz+ are:

- What is the current care pathway? What actually happens and where? Who is involved (decision making and doing tasks)?
- What changes need to be made to best integrate the technology into the care pathway?
- Which patients is the technology suitable for (consider selection criteria and contraindications)?
- Who is responsible for using the technology and maintaining it? Staff will need education and training before its use; how will this be provided?
- Who will be responsible for fixing the systems if they develop faults?

- Will a tracking system for the technology be useful to prevent it being misplaced in busy clinical areas?
- How will you ensure a consistent supply of disposables and where these should be distributed (for example, critical care, wards and theatres)?
- Will a pilot period be helpful?
- Is any new documentation needed (observation charts, patient information leaflets and troubleshooting leaflets)?
- Where will unused Thopaz+ units be stored?
- How will implementation be funded?
- How will performance measures at local level be identified and implemented?
- Who will be responsible for collecting clinical data?
- How can effective communication be ensured?
- Are there any obvious challenges and how can these be overcome?

## Care pathway mapping

Individual organisations need to consider where in the pathway to implement the guidance and any changes to the current pathway that may be needed. Firstly identify current practice. This should be what usually happens and not what would ideally happen.

Once current practice has been established, asking the questions in [assessment of readiness](#) will help understanding about where the technology will fit in the care pathway and what changes to the pathway will be needed.

Thopaz+ is suitable for use in line with the guidance, in a variety of services including respiratory medicine, cardiothoracic surgery and critical care units. The learning and experiences of contributors to this resource are restricted to thoracic surgery speciality, but we expect that the learning will apply to and be useful across a number of specialities.

## Thoracic surgery

Contributors said that Thopaz+ was used for all patients who need a chest drain after

thoracic surgery (except for pneumonectomy). Thopaz+ replaces conventional chest drains or Thopaz for this group of patients.

Contributors identified how changes to the care pathway could optimise the benefits offered by Thopaz+.

- Developing a drain removal protocol specifically for Thopaz+ is particularly important to realise its claimed benefits. Thopaz+ gives a continuous recorded objective assessment of air leaks and fluid loss in number (real time) and graph form (historical trend) which, when used with the protocol, can help senior suitably trained nursing staff decide when to remove the drain (rather than waiting for surgical review). The specifics of the protocol, which may include consideration of additional clinical results, must be agreed locally in collaboration with relevant healthcare professionals (for example, contributors reported that the air leak may not need to be 0). Sourcing examples and learning from teams who have adopted Thopaz+ at other trusts would be beneficial.
- Thopaz+ includes alarm alerts, which may negate the need for nurse escorts when patients are leaving the ward. However, 1 contributor said this should be a local decision and not solely based on the presence of Thopaz+.
- The objective nature of Thopaz+ data recording means that the role of observing and documenting air leaks and fluid loss could be extended beyond nursing staff to other appropriately trained healthcare professionals.

## Thopaz+ management

The Thopaz+ unit is reusable, whereas conventional chest drains are only single use. Organisations looking to adopt Thopaz+ will need to establish a cycle of use to ensure that the device is available and no consumables or parts are lost. Consider the following:

- How will you ensure a clean working device is available in operating theatres as soon as it is needed? This is important for adoption. If it is not available at the right time, it will not be used. Contributors reported the following:
  - The elective theatre list is used for planning and the pumps are sourced from the ward on the day. One contributor stated that on patient admission, a porter collects Thopaz+ from a cupboard on the ward, signs it out for that named patient and takes it to theatres.
  - Using a medical equipment library / department who collect the drains in a central store.
  - Thopaz+ needs to be available out of hours.
  - One contributor said that they keep a conventional chest drain available in case there is a problem with a Thopaz+ system.
- Ensure that there is a system for replenishing consumables stock. Local sites will be best placed to guide this but monitoring use of consumables and location when first adopting Thopaz+ will inform the ordering and distributing schedule.
- Where will the devices be stored when not in use? Contributors reported that systems can go missing. One contributor stores them in a locked cupboard on the cardiothoracic ward and signs them out on a named patient basis, to prevent loss. The devices should be clearly labelled and numbered as part of the department's inventory.
- How will you ensure everyone is aware not to discard Thopaz+ systems? Labelling them as non-disposable has been effective.
- Who will be responsible for cleaning the unit after use? It is common for nurses or healthcare assistants to have this role and be responsible for storing the equipment back in its designated space.
- What happens if a device stops working? Could a replacement be sought while the faulty equipment is fixed? Who will fix it? This will depend on whether the devices are a capital purchase unit and if the warranty is still applicable or whether they have been loaned via a rental agreement. Discussing the options with the manufacturer and trust's medical engineering department will help planning for this.

## Education

Training is important to successfully adopt Thopaz+. Changing from conventional chest drains to Thopaz+ represents a change in practice (there will be a smaller learning gap changing from Thopaz to Thopaz+). One contributor suggested first using the system in non-complex cases and during normal working hours, before expanding the service as competence across the team increases.

When designing a training plan consider:

- Who will have overall responsibility for ensuring the training programme is suitable and delivered to plan? A clinical educator type role would be well suited to this.
- Who needs training? All healthcare professionals who will use Thopaz+ in the care pathway should have training. Within thoracic surgery, this is potentially a large group of people and is likely to include healthcare professionals working in the following areas; theatres, recovery, critical care, cardiothoracic / thoracic ward. Multiple training sessions may be required to capture free staff in between their clinical duties.
- What will the training comprise? This will differ based on role and at what point in the care pathway they are using Thopaz+ but it should capture the benefits of changing practice to support sustained adoption.
- Will there be a system for signing off staff competence with the device? This would be organised internally.
- How will staff competence be maintained? Having internal staff trained as 'expert trainers' could be useful in-house. Trusts may also choose to include training on Thopaz+ as part of induction training for all relevant new staff.

A basic understanding of how to use Thopaz+ takes around 30 minutes. The company provides training at the point of purchase and provides on-site help either in person or over the phone 24 hours a day for an agreed time during the implementation period. Contributors reported this was beneficial because it allows questions to be addressed as they arise. After this the company offers refresher training as needed.

## Measuring success

It is important to take measurements before, during and after adopting Thopaz+.

Information from NICE's [resource impact template](#) and contributors to this resource suggested several measures of success. Before implementation, the team should decide at a local level who will be responsible for collating and managing this data. Data collected could include:

- number of people for whom Thopaz+ is being used
- length of hospital stay
- total drain time
- incidences of blocked Thopaz+ systems and when changing to a conventional drain was needed
- incidences of post-drain pneumothoraces or pleural collections that require intervention
- any reported clinical incidents with Thopaz+.

Clinical incidents with Thopaz+ may be more common than expected during initial adoption because of the comprehensive data collection plan in place (which is unlikely to have been in place before adoption). It is important to monitor the rate of clinical incidents over time to ensure it decreases.

## Resource impact and business case

Producing a business case should be a priority for the implementation team. Local arrangements for developing and approving business plans will vary and each organisation is likely to have its own process in place. However, completing a resource impact assessment will help identify if the technology will be cost neutral, cost saving or cost incurring which in turn will inform the business case.

Contributors reported that the purchase cost of Thopaz+ may itself be a barrier to adoption, although in addition to capital purchase, the company also offers rental and lease options. Contributors said that the increased costs of purchasing the device were offset by a reduction in bed days and freeing up nursing time. Also, depending on local arrangements, the cost of Thopaz+ consumables may be less than that for conventional chest drain consumables. Thopaz+ is available on the NHS supply chain.

NICE has published a [resource impact report and template](#) that can be used by NHS

commissioners and providers to better understand the local costs associated with adopting Thopaz+. The national assumptions used in the resource impact template can be altered to reflect local circumstances. A number of variables need to be understood to do this.

## 6 Shared learning examples

The following shared learning example shows how an NHS organisation has implemented this NICE medical technologies guidance.

- [Oxford University Hospitals NHS Foundation Trust](#)



## 7 Acknowledgements

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## 8 About this resource

This resource accompanies the NICE medical technologies guidance on [Thopaz+ portable digital system for managing chest drains](#). It was developed using NICE's [process guide for adoption support resources for health technologies](#). It is an implementation tool that summarises the experiences reported by NHS sites which have adopted this technology and shares the learning that took place.

It is the responsibility of local commissioners and providers to implement the guidance at a local level, being mindful of their duty to advance equality of opportunity and foster good relations. Nothing in this document should be interpreted in a way that would be inconsistent with this.

[More information about the adoption team.](#)

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