



Summary on Thopaz⁺ NICE guideline

Precious life,
progressive care

Summary

The National Institute for Health and Care Excellence (NICE) recommends adopting Thopaz+ for chest drainage management. The use of Thopaz+ shows significant clinical benefits and leads to cost savings in pulmonary resection and pneumothorax patients. Additional benefits of adopting Thopaz+ are the standardisation of chest drainage treatment and the improvement of patient safety and satisfaction.

Introduction

National Institute for Health and Care Excellence (NICE)

The National Institute for Health and Care Excellence (NICE) is an independent organization that supports healthcare professionals by providing guidance and advice to ensure safe, effective health and social care. The NICE recommendations are based on evidence from studies, clinical experts and local authorities from the public and private sectors. All medical treatments or devices covered by a NICE guidance are subjected to rigorous, objective and independent assessments evaluating clinical effectiveness, cost saving potential and impact on current healthcare system.

Chest drains

Drainage of air and fluid from the pleural space, or chest drainage, allows the lung to reinflate. Patients can undergo chest drainage, for example, after pulmonary resection or because of pneumothorax. Current standard care uses a wall suction drainage system equipped with collection bottles and an underwater seal to prevent backflow. This assessment of air leakage and fluid loss is subjective and requires monitoring by healthcare professionals. No previous NICE guideline has specifically covered chest drainage management before.

Thopaz+

Thopaz+ is a portable digital chest drainage system from Medela AG, Baar, Switzerland. The device delivers regulated individualized suction and continuously monitors and records air leakage and fluid loss. Thopaz+ is equipped with a suction pump, a digital display, a rechargeable battery, standard chest tube adaptors and disposable collection canisters.

Download the Thopaz+ Simulator App on the [iTunes App-Store](#) or for [Android](#) on CNET.

Clinical evidence

Of 13 externally assessed randomised controlled trial studies and comparative studies (total number of patients n=1632), eleven analysed the use of Thopaz+ after pulmonary resection and two included patients with pneumothorax. Drainage times and hospital stays are significantly shorter when using Thopaz+ compared with the standard wall suction chest drainage system; whereas no statistically significant differences in chest drain reinsertion rates were found. No quantitative, comparative data relating to staff time were found.

Based on committee decision and economic model verification, the cost saving potential for adopting Thopaz+ for chest drainage management is as high as £111 per pulmonary resection patient, per hospital stay. The main cost saving driver is the reduction in hospital stay length.

Recommendations

The NICE guideline for managing chest drains with Thopaz+ is supported by evidence from published studies and clinical experts. The recommendations for the use of, and benefits associated with adopting, Thopaz+ for chest drainage are summarised below.

- **Thopaz+ leads to clinical improvements** in patients needing chest drainage after pulmonary resection or because of pneumothorax.
- **Thopaz+ significantly reduces drainage time and hospital stay length.** Other benefits include improved decision making, patient safety and satisfaction, as well as staff confidence, compared with conventional wall suction chest drainage systems.
- **Thopaz+ saves up to £111 per pulmonary resection patient per hospital stay and up to £550 per pneumothorax patient** compared with conventional chest drainage. Thopaz+ use for chest drainage management is expected to reduce costs by £8.5 million per year in England.

Disclaimer – Cost effectiveness is based on the local business offer in England, but is applicable also to Scotland and Ireland. The case for adopting Thopaz+ for managing chest drains is supported by the evidence of randomised controlled trials (n=826) and a total number of patients n=1632 enrolled in Europe, Asia and the USA.

Committee discussion

The NICE medical technologies advisory committee identified additional benefits and considerations for adopting Thopaz+ for chest drainage management.

Clinical effectiveness

Thopaz+...

- **... affords clear advantages over conventional wall suction chest drainage systems.** The management of chest drainage with Thopaz+ leads to shorter drainage time and shorter hospital stays for pulmonary resection patients.
- **... improves decision making.** Digital chest drain management allows continuous and objective measurement of air leakage and fluid loss, leading to reliable and efficient clinical decisions.
- **... increases patient satisfaction.** Thopaz+ is portable, allowing for patient mobility, and the device is easy to use.
- **... could be used in other patient groups needing chest drains.** Evidence indicates that the clinical benefits of using Thopaz+ to treat pneumothorax are comparable to those of pulmonary resection patients. A broader range of patients needing chest drainage, e.g. after cardiac surgery or trauma, might also benefit from Thopaz+ use.

System impact considerations

Other than clinical benefits, adopting Thopaz+ for chest drain management can have wide reaching impacts on the current healthcare system.

- **Standardisation of chest drainage management.** Thopaz+ continuously and objectively measures air leakage and fluid loss, facilitating the assessment of patients' progress as well as the standardisation of chest drainage management across different wards.
- **Easy to use.** Thopaz+ is easier to use than the conventional drainage system, improving staff confidence and releasing nurse time.

- **Improvement of patient safety.** Thopaz+ has in built alarms warning hospital staff of potential problems, e.g. blocked tubings, leakage or high fluid loss.

Cost savings

The cost savings associated with adopting Thopaz+ for chest drain are as high as **£111 per pulmonary resection patient, per hospital stay**. However, the estimated cost saving is likely conservative because staff time saving was not considered in the cost model. Therefore, additional cost savings are expected from adopting Thopaz+ for chest drainage management. All factors contributing to cost savings, as identified

by the committee, are described below.

- **Reduction in hospital stay length.** Thopaz+ reduces the hospital stay length of pulmonary resection patients by up to 1.5 days (average 0.4 days) compared with conventional wall suction chest drainage. Early chest drain removal and patient discharge is facilitated by the continuous monitoring of air leakage and fluid loss.
- **Staff time saving.** The increase in patient safety and mobility releases nurse time, e.g. escorting of patients by non clinical staff during X-ray department visits. Additional staff time saving can be expected from improved decision making and reduced complication rates.

NICE recommends
Thopaz+ portable digital chest drainage device

„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.“

Allows for **COST SAVINGS** of up to **£ 550** per patient

Improves **SAFETY** for patients with chest drains

SHORTENS hospital stay due to shorter chest tube duration

- **High device utilisation.** Healthcare professionals quickly adopt Thopaz+ as the standard for managing chest drains and the device is used to almost 100% capacity in wards.
- **Purchase of Thopaz+ is more cost-effective than rental.**
- **Cost savings are likely in other patient populations.** Reduced drainage times and hospital stay lengths associated with the use of Thopaz+ in pneumothorax patients are likely to result in cost savings (i.e. £550 per patient).

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Please contact us or your local Medela representative for details.

Local contact



Medela AG
Lättichstrasse 4b
6340 Baar, Switzerland
www.medelahealthcare.com

International Sales
Medela AG
Lättichstrasse 4b
6340 Baar
Switzerland
Phone +41 41 562 51 51
Fax +41 41 562 51 00
customercare@medela.ch
www.medelahealthcare.com