

## Putting NICE guidance into practice

### **Resource impact report: Thopaz+ portable digital system for managing chest drains (MTG37)**

Published: March 2018

## Summary

NICE has recommended the case for adopting Thopaz+ for managing chest drains is supported by the evidence. Thopaz+ should be considered for people who need chest drainage after pulmonary resection or because of a pneumothorax.

We estimate that each year per 100,000 population:

- 21 people having a pulmonary resection are eligible for treatment with Thopaz+ of which 20 will have Thopaz+ from year 4 onwards once uptake has reached 95%
- 28 people who have a pneumothorax are eligible for treatment with Thopaz+ of which 25 will have Thopaz+ from year 4 onwards once uptake has reached 90%.

The number of people expected to have Thopaz+ and the estimated annual saving of implementing this guidance per 100,000 population, based on the uptake in the resource impact assumptions, is shown in table 1.

**Table 1 Estimated annual saving for providers of implementing the guidance for a population of 100,000**

	2018/19	2019/20	2020/21	2021/22	2022/23
Population using Thopaz+ each year	13	23	34	45	45
Device cost (£)	409	818	1,227	1,636	1,636
Bed day savings (£)	4,025	8,051	12,076	16,101	16,101
<b>Overall saving (£)</b>	<b>3,616</b>	<b>7,233</b>	<b>10,849</b>	<b>14,465</b>	<b>14,465</b>

The resource impact is anticipated to apply to provider organisations only.

Savings are mainly from a reduced length of stay in hospital.

This report is supported by a [resource impact template](#) which may be used to calculate the resource impact of implementing the guidance by amending the variables.

This technology is used by providers as part of a procedure that is commissioned by clinical commissioning groups. Providers are NHS Hospital Trusts.

# 1 Thopaz+ portable digital system for managing chest drains

1.1 NICE has recommended [Thopaz+ portable digital system for managing chest drains](#).

- The case for adopting Thopaz+ for managing chest drains is supported by the evidence.
- Thopaz+ should be considered for people who need chest drainage after pulmonary resection or because of a pneumothorax.

1.2 Chest drains are used after all types of thoracic surgery to assist with drainage of air and fluid from the pleural cavity and encourage the re-inflation of the lung. Chest drains are kept in place after surgery until the lung(s) has re-inflated, fluid drainage has reduced and air drainage stopped.

1.3 Underwater seal chest drains are the current standard of care in the NHS and consist of a water seal, suction control and drainage collection bottle.

1.4 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. The system comprises an in-built, regulated suction pump with digital display, rechargeable battery, tubing that connects to any standard chest drain catheter and a Thopaz+ disposable fluid collection canister. Sensors in the system turn the pump on and off to ensure the pressure level set by the healthcare professional is precisely maintained.

## 2 Resource impact of the guidance

2.1 We estimate that:

- 21 people per 100,000 population having pulmonary resection and 28 people per 100,000 with a pneumothorax are eligible for treatment with Thopaz+ each year
- 20 people having a pulmonary resection and 25 people with a pneumothorax will have Thopaz+ from year 4 onwards once uptake has reached 95% for pulmonary resection and 90% for pneumothorax.

2.2 The current treatment and future uptake figure assumptions are based on clinical expert opinion and are shown in the resource impact template.

2.3 The estimated annual resource impact of implementing this guidance per 100,000 population based on the uptake in the resource impact assumptions is shown in table 2.

2.4 This is equivalent to an annual cost of £896,000 for new devices offset by savings of £8,822,000 in bed days for the population of England, to give a net saving of around £7,926,000.

**Table 2 Resource impact of implementing the guidance using NICE assumptions for a population of 100,000**

	2018/19	2019/20	2020/21	2021/22	2022/23
Uptake	25%	50%	75%	95%	95%
Population using Thopaz+ each year	13	23	34	45	45
Device costs (£)	409	818	1,227	1,636	1,636
Bed day savings (£)	4,025	8,051	12,076	16,101	16,101
<b>Overall saving (£)</b>	<b>3,616</b>	<b>7,233</b>	<b>10,849</b>	<b>14,465</b>	<b>14,465</b>

2.5 This report is supported by a [resource impact template](#) which may be used to calculate the resource impact of implementing the guidance by amending the variables.

## ***Savings and benefits***

- 2.6 We anticipate that where Thopaz+ is used to manage chest drains in people having a pulmonary resection, there will be a reduced length of stay in hospital. It is estimated that the saving in bed days compared to standard care will be 0.4 days on average. This will allow providers to better utilise beds.
- 2.7 Where Thopaz+ is used to manage chest drains in people with a pneumothorax, the committee was convinced of the plausibility of a saving in bed days. The saving may potentially be 1.9 bed days per person, but can be adjusted in the template based on local assessment.

## **3 Implications for commissioners**

- 3.1 This technology is used by providers as part of a procedure that is commissioned by clinical commissioning groups. Providers are NHS Hospital Trusts.
- 3.2 It is not anticipated that there will be any resource impact for commissioners from implementing this guideline because the same national tariff code is applicable if Thopaz+ is used.
- 3.3 Thopaz+ falls within the programme budgeting category 11X problems of the respiratory system.

## **4 How we estimated the resource impact**

### ***The population***

- 4.1 The eligible population for Thopaz+ is people who have had a pulmonary resection or have a pneumothorax and need a chest drain. According to Hospital Episodes Statistics (HES) (NHS Digital), for 2015/16, the number of people in England who had:
- a pulmonary resection was 11,500 and
  - a pneumothorax was 15,300.

**Table 3 Number of people eligible for treatment per 100,000**

Population		Proportion (%)	Number of people
Total population			100,000
Adult population		78.67%	78,674
Incidence of pulmonary resection per adult population <sup>1</sup>	a	0.03%	21
People having a pulmonary resection likely to be treated with Thopaz+ <sup>2</sup>	b	95%	20
Incidence of people admitted to hospital with a pneumothorax per adult population <sup>1</sup>	c	0.04%	28
People likely to be treated with Thopaz+ <sup>2</sup>	d	90%	25
Total number of people eligible for treatment with Thopaz+	a + c		49
Total number of people estimated to have Thopaz+ each year from year 4	b + d		45
1 Source: NHS Digital HES 2015/16			
2 Source: Clinical expert opinion			

### ***Assumptions***

- 4.2 The resource impact template assumes that currently 5% of the people having a pulmonary resection would have chest drains managed by Thopaz+, based on clinical expert opinion.
- 4.3 In the future 95% of the people having a pulmonary resection would have chest drains managed by Thopaz+, based on clinical expert opinion.
- 4.4 The resource impact template assumes that currently 5% of the people who have a pneumothorax would have chest drains managed by Thopaz+, based on clinical expert opinion.

- 4.5 In the future 90% of the people who have a pneumothorax would have chest drains managed by Thopaz+, based on clinical expert opinion.
- 4.6 In both current and future practice it is assumed that 5% of people who have a pneumothorax have a simple aspiration to treat the pneumothorax.
- 4.7 The remaining population is assumed to have standard underwater seal chest drains.
- 4.8 The device and consumable costs are in line with the External Assessment Centre (EAC) assessment of the manufacturer's submission.
- 4.9 The bed day cost is a weighted average of the cost of excess bed days, for the relevant reference cost activity.
- 4.10 Pulmonary resection is coded to the Healthcare Resource Group (HRG) DZ02: Complex Thoracic Procedures, 19 years and over.
- 4.11 Pneumothorax is coded to HRG DZ26: Pneumothorax or Intrathoracic Injuries.
- 4.12 The drain used in standard care needs re-inserting 17 times for every 1,000 people treated. This has been added as an average cost to standard care device costs.
- 4.13 The population with a pulmonary resection and a Thopaz+ drain will have a reduction in bed days of 0.4 days over standard care. The bed day savings are based on the average time of treatment from studies used by the EAC to assess Thopaz+. There were 5 studies used to assess Thopaz+ for people who had a pulmonary resection.
- 4.14 The population with a pneumothorax and a Thopaz+ drain will have a reduction in bed days of 1.9 days over standard care. The EAC

found 1 study that assessed the impact of Thopaz+ on length of stay. It is possible to change the number of bed days in the resource impact template for both standard care and care using Thopaz+ to reflect local estimates.

### ***Sensitivity analysis***

4.15 The anticipated savings are highly sensitive to changes in bed days. If the reduction in bed days for pneumothorax was 1.4 days rather than 1.9 days, there would be savings of £11,000 per 100,000 population, rather than the baseline savings of £14,500.

## About this resource impact report

This resource impact report accompanies the NICE guidance on [Thopaz+ portable digital system for managing chest drains](#) and should be read with it.

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