

## What is the true whole life cost for a powered pressure area care mattress?

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### Introduction

Healthcare providers and Tissue Viability face an increasingly crowded marketplace when choosing powered pressure area care (PAC) support surfaces.

With 'high end' PAC systems costing between £800 and £1,500 per mattress and no-frills, 'low-end', powered PAC support surfaces costing as little as £300 each, PAC tender stakeholders typically need to decide between feature-rich, high-end, 'high-cost' support surfaces or more basic, low-end, 'low-cost' products.

Setting aside essential procurement considerations (such as PAC support surface classification, device safety, product performance, ability to prevent pressure ulcers and reduce PU incidence) and focussing purely on the financial aspect of powered PAC mattress procurement, the key stakeholder questions are;

1. Does a low-cost PAC mattress procurement strategy offer significant savings in the short, medium and long term?
2. Are high-cost products really too expensive?

To determine the true life-cost of a PAC product over the course of a contract, healthcare providers MUST consider product life expectancy, quality and reliability in terms of breakdowns and spare part spending.

Spreading the cost over the product lifespan and including spares spending allows providers to look past 'list' or 'purchase' prices and see either a total product cost or a true cost-per day for the PAC products they are comparing. This approach informs a longer term view of product procurement and ensures all stakeholders involved in the procurement process are comparing 'apples with apples' when looking at the financial element of PAC mattress selection.

Whilst data on PAC product list price and actual selling price (ASP) is often relatively easy to come by, manufacturers are often reluctant to publicise their data on product reliability and the associated spend on spare parts required to keep their products working.

To enable PAC tender stakeholders to build a realistic picture of product reliability and spend on spare parts, manufacturers must provide sufficient data to customers during the procurement process. This data can then be used in association with the list price or ASP to examine a 'cost per day' for a single mattress and also to project a 'lifetime cost' for the product.

### Three Year PAC Mattress Spares Spend from a Community Equipment Loan Store

Between 2016 and 2018 a community equipment loan store operating a fleet of 195 powered PAC mattress systems from Talley spent a total of £13,190 on spare parts.

This equates to an annual spend of: £13,190 / 3 = £4,396.67 per year.

Assuming each mattress has 360 days use per year, the total number of bed days per year for 195 mattresses is: 360 x 195 = 70,200 bed days per year.

The average daily cost to maintain each mattress with spares is: £4,396.67 / 70,200 = £0.06.

Over a single year this represents a spares spend per mattress of £0.06 x 360 = £22.86.

### Modelling Whole Life Mattress Costs with Spares

PAC mattress manufacturers and distributors should report data on the spares spend required to maintain their products as it allows providers to determine the daily cost of PAC mattresses over their lifespan. The example given in Table 1 represents a Talley PAC mattress replacement

system with a list price of £1,350. It uses the Community Equipment Loan Store spares spend data from above and assumes the product lasts for 10 years and that a replacement cover is required every 5 years at a cost of £225 per cover.

A £1,350 product costs only 94 pence per day to run when spreading costs over five years. This drops to 56 pence per day over a ten year product lifespan. At a cost of 56 pence per day it is possible to cover five beds with a safe, effective, high end, Class IIa, clinically proven support surface for a total cost of £2.80. That equates to less than a cup of coffee per day!

	Daily cost over 1 year (assume 360 days use)	Daily cost over 5-years (assume 1800 days use)	Daily cost over 10-years (assume 3600 days use)
Product list price £1350	£ 3.75	£ 0.75	£ 0.38
Annual cost per system for spares £22.86	£ 0.06	£ 0.06	£ 0.06
Replacement cover cost @ £225 every 5 years	N/A	£ 0.13	£ 0.13
<b>TOTAL DAILY RUNNING COST (inc. spares+cover)</b>	<b>£ 3.81</b>	<b>£ 0.94</b>	<b>£ 0.56</b>

TABLE 1.

Daily running costs for a PAC mattress spread over one, five and ten years

Using this same costing model and plugging in different scenarios relating to purchase price, spares spend and replacement covers reveals some interesting data when considering the whole life costs for a low end mattress with a shorter lifespan. See Table 2.

PRODUCT SCENARIO	COST PER DAY (£) COST PER YEAR (£)	YEAR 1	YEAR 5	YEAR 10
PRODUCT A: Cost: £1350 Annual spares: £22.86 Cover costs: £225 / 5 years Lifespan: 10 years	Cost per DAY	£3.81	£0.94	£0.56
	Cost per YEAR	£1372.55	£1687.75	£2025.50
PRODUCT B: Cost: £1000 Annual spares: £22.86 Cover costs: £225 / 5 years Lifespan: 10 years	Cost per DAY	£2.84	£0.74	£0.47
	Cost per YEAR	£1022.55	£1337.75	£1675.50
PRODUCT C*: Cost: £500 Annual spares: £50 Cover costs: £150 / 2 years Lifespan: 4 years	Cost per DAY	£1.53	£0.78	£0.68
	Cost per YEAR	£550.00	£1400.00	£2450.00
PRODUCT D*: Cost: £300 Annual spares: £100 Cover costs: NA Lifespan: 2 years	Cost per DAY	£1.11	£0.78	£0.69
	Cost per YEAR	£400.00	£1400.00	£2500.00

TABLE 2. Daily and yearly costs for PAC mattresses calculated over one, five and ten years

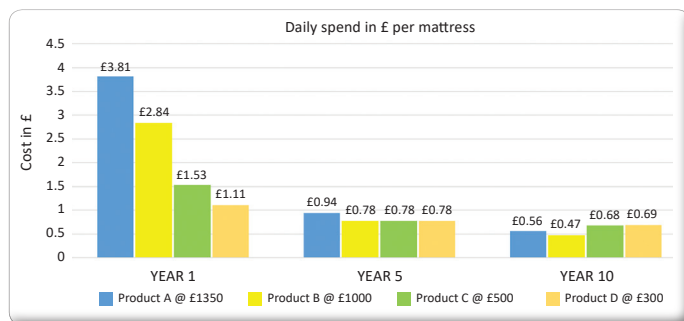


FIGURE 1. Daily spend in £ per mattress at one, five and ten years

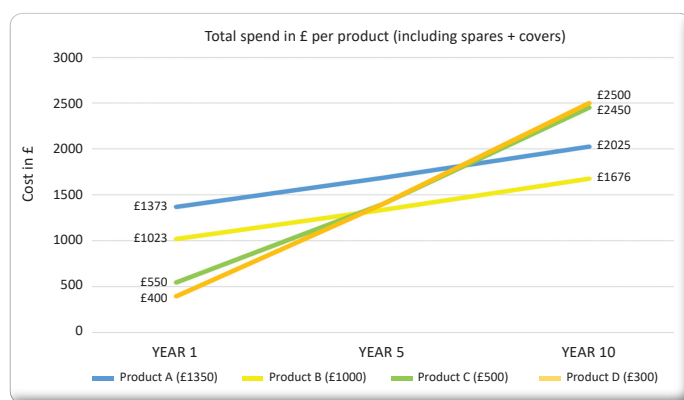


FIGURE 2. Cumulative total spend per product over one, five and ten years

Projecting costs over 1, 5 and 10 years and looking at either cost per day (Figure 1) or the cumulative total spend per product (Figure 2) it is clear to see that based on the proposed scenarios the products effectively reach equivalence at the 5 year mark.

The most cost effective products in the longer term are indeed those that have a higher initial purchase price but incur fewer costs in terms of annual spares spend and cover replacement.

## Discussion

Assuming that PAC mattress manufacturers and distributors are willing to supply healthcare providers with realistic, genuine data gathered from current customers on product quality and reliability in terms of spares spend, cover replacements and product lifespan, then the above costing model, although relatively crude, can potentially help inform a procurement decision from a purely financial perspective.

If this is the case, then this should be done with the significant caveat that this model takes no account of product safety, performance and the ability of the support surface to maintain or reduce PU incidence rates.

Any short term cost saving realised by switching PAC supplier could well be rapidly wiped out if the healthcare providers PU incidence rates rise post-adoption of any new product implementation.

With the cost of treating pressure ulcers ranging from an estimated £1,064 (Category I) to £10,551 (Category IV) <sup>1</sup> and the average cost of a pressure ulcer estimated at £5,672 per case, <sup>2</sup> even a minor upturn in PU incidence could potentially wipe out any short term cost saving realised when switching to an alternative PAC support surface provider.

With all healthcare providers currently striving to provide safe, effective harm free care to patients, device safety, performance and documented evidence around pressure ulcer prevention and reduced PU incidence rates must be given significant consideration and ideally weighted accordingly during any PAC support surface procurement process.

## Conclusion

Plugging accurate purchase/rental prices, spares spend and lifecycle data into the model presented in this poster affords providers greater clarity when deciding which PAC products potentially represent the best value for money in the short, medium and long term.

Interestingly whilst the low-end PAC systems potentially offer significant short term financial gains they may ultimately work out the more costly option in the longer term.

## References

1. Bennett G, Dealey C, Posnett J. The cost of pressure ulcers in the UK. Age Aging. 2004 May;33(3):230-5
2. Dealey C, Posnett J, Walker A. The cost of pressure ulcers in the United Kingdom. Journal of Wound Care. 2012; 21(6):261-2, 264, 266.