Healthcare resource impact of Polybalm® for prevention of chemotherapy-induced nail toxicity: an economic analysis

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Polybalm® Polybalm.com

PharmacoMedics Pharmaceutical, Medical & Scientific Services PharmacoMedics.com

G2PR G2PR.com

Significance & background

Chemotherapy-induced nail toxicity is a pervasive adverse event, with incidence rates reaching 89% in breast cancer patients receiving docetaxel and 85% in those receiving paclitaxel after multiple cycles. No evidence-based topical treatment was available to manage this until Polybalm® became the first RCT-backed treatment for cancer therapy-associated nail damage.

Polybalm®, a polyphenolic-rich nail bed topical balm, demonstrated an 84% relative risk reduction in a randomized controlled trial (incidence 7% vs 43%, p<0.0001). This toxicity frequently manifests as onycholysis, subungual hemorrhage, and paronychia, leading to functional impairment and reduced quality of life.

Management falls primarily to nursing care; however, in the absence of topical options, the only evidence-based alternative has been nail cryotherapy, which requires valuable chair-time and is accessible in a minority of settings. Consequently, the economic burden is substantial, driven by dermatology referrals, podiatry visits, and secondary infection management. Furthermore, severe toxicity (Grade 2/3) necessitates chemotherapy dose reductions or delays, potentially compromising oncologic efficacy.

Aims of this economic assessment

To evaluate the healthcare resource impact of implementing Polybalm® treatment and prophylaxis for patients receiving chemotherapy, specifically assessing impact at real-world incidence rates observed in multi-cycle regimens.

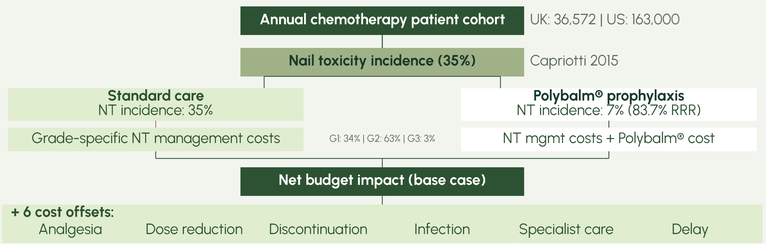
Specific objectives:

1. Develop a resource impact model incorporating key cost offset categories covering direct healthcare resource savings from nail toxicity prevention
2. Validate key parameters using nurse clinical input (data-on-file, 2026) and standardize relative risk reductions to RCT evidence (83.7% RRR)
3. Evaluate the economic impact across reported incidence ranges to identify the threshold for cost neutrality

Study design: Budget impact analysis from UK NHS and US payer perspectives. One-year time horizon. Chemotherapy-treated cancer populations.

Evidence base: Comprehensive literature review (526 studies screened). Thomas 2018 RCT foundation for Polybalm®. Capriotti 2015 meta-analysis on nail damage incidence. Piraccini 2019 grade distribution. NHS Reference Costs 2023/24. CMS Medicare PFS/OPPS 2024. ACS Cancer Statistics 2025. nurse-validated clinical parameters.

Interventions / methods



Nurse-validated baselines (Data-on-File, DoF, March 2026) | 83.7% RRR applied uniformly (Thomas 2018)

Key parameters - nurse-validated (2026)

Parameter	Without Polybalm®	With Polybalm®	Source
Nail toxicity incidence	35%	**7%**	Thomas 2018 RCT RRR 83.7%
Dose reduction rate	10%	**1.63%**	Baseline, nurse input; RCT RRR applied
Treatment delay rate	4%	**0.65%**	Baseline, nurse input; RCT RRR applied
Discontinuation rate	3%	**0.49%**	Baseline, nurse input; RCT RRR applied
Polybalm® cost/patient	-	£83 (UK) / $135 (US)	Ex-VAT; multi-pack discounts available

DoF = data-on-file (nurse clinical input, UK hospital visits, March 2026). RRR = relative risk reduction

Evaluation / results

Nail toxicity cases avoided (US) **45,640** /year

Total US cost offsets **$16.9M** /year

US net savings **$16.6M** /year

Metric	UK (NHS)	US (Payer)
Target population	36,572	163,000
Total cost offsets	**£2,318,454**	**$16,922,187**
Revised net budget impact	**–£1,945,136**	**–$16,597,328**
Per-patient net savings	–£53.18	–$101.82
Return on investment	**1.92×**	**1.75×**

Polybalm® is cost-saving in both UK and US settings.
Net savings maintained with conservative nurse-validated baseline rates.

Discussion

Commissioning Polybalm® presents a strong economic case for chemotherapy-treated populations where cumulative nail toxicity risk exceeds ~8–10% incidence (reduced from estimated ~50% reported in the submitted abstract, to ~35% in updated model without cost offset, which reflected base-case management savings only).

Polybalm® is cost-saving for virtually all chemotherapy-treated populations. By preventing severe nail damage, Polybalm® alleviates patient suffering as the first RCT-based topical chemotherapy nail toxicity therapy, and it also releases healthcare resources otherwise consumed by toxicity management.

Key findings

+ Cost-saving in both settings: Net savings of £1.95M/year (UK) and $16.6M/year (US) with comprehensive cost offsets. The economic case holds even with conservative nurse-validated rates.
+ Strengthened evidence base: Baseline rates for dose reduction (10%), treatment delay (4%), and discontinuation (3%) validated by nurse clinical input (data-on-file, 2026).
+ All Polybalm® rates derived consistently using standardised 83.7% RRR from the Thomas 2018 RCT.
+ Dose reduction and discontinuation prevention are the largest offsets.
+ The model identifies a cost-neutrality threshold at approximately 8-10% incidence; meaning Polybalm® is cost-saving for virtually all chemotherapy-treated populations..
+ **Implications for nursing practice:** Oncology nurses are uniquely positioned to implement Polybalm® as a prophylactic intervention. Early initiation of nail care protocols during chemotherapy can prevent downstream treatment modifications and generate measurable cost savings.

Limitations

+ Single RCT evidence (n=60, breast cancer, paclitaxel); generalizability to other chemotherapy assumed
+ Baseline dose modification rates from UK nurse input - US-specific input and validation in progress
+ Polybalm® offers multi-pack discounts - pricing used here is for single-packs; multi-packs will yield further saving
+ Cost offsets for treatment delay use conservative assumptions
+ One-year time horizon; longer-term benefits not captured

References

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6. Nurse clinical input, data-on-file (Polybalm®, 2026)

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