The Investment Case for Prosthetics and Orthotics in the UK: A Treasury-Compliant Economic Analysis

Prepared by Cebr for the British Association of Prosthetics and Orthotics

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Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them.

The report does not necessarily reflect the views of the British Association of Prosthetics and Orthotics.

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1. Executive Summary

Scope

This is a report by the Centre for Economics and Business Research (Cebr) for the British Association of Prosthetics and Orthotics (BAPO). It covers the potential economic impacts of increased investment in prosthetic and orthotic (P&O) services on the NHS, social care, and the UK economy in 2025, and over a 10-year time horizon.

Expanded provision would provide both a service improvement and be cost saving for the NHS and social care system, with wider benefits for productivity, independence and quality of life. This report presents estimates of the cost required to achieve expanded P&O provision, gross and net savings to the NHS and social care services from this provision, the gross value added (GVA) and tax uplift to the UK economy. It also presents the overall return on investment (ROI) of the proposed intervention, along with the benefit cost ratio (BCR).

The ROI is calculated as net savings over total intervention cost. Therefore, an ROI of 2 : 1 is interpreted as a £2 net saving for every £1 spent. In gross terms therefore, an ROI of 2 : 1 relates to gross savings of £3 per £1 invested, which equivalently represents a BCR - calculated as the total benefits divided by the total costs - of 3.

Therefore, where the benefit of an intervention exceeds the cost, this results in an ROI of above zero and a BCR of >1. A negative ROI (i.e. -0.5 : 1) or a BCR of <1 (i.e. 0.5) indicates a net loss, as only £0.5 gross savings are obtained from every £1 invested.

Methodology

- Due to a lack of data on the number of people eligible for P&O treatment who are untreated, we utilise an approach using the World Health Organization (WHO) recommendation that provision in high-income countries should be 15-20 prosthetists and orthotists (POs) per million of the population.[1] This method estimates the shortfall in PO professionals, comparing the estimated current number of professionals to the WHO implied benchmark.
- This under-provision of professionals is then used to estimate the number of patients they would be able to treat, and therefore the theoretical patient treatment gap.
- Estimates for the intervention cost for P&O services are produced by utilising a combination of desk research, commercial information from P&O providers, and NHS data. This provides an overall intervention cost, and costs broken down by service, and some orthotic conditions.
- Estimates for the gross savings of treatment are produced by constructing economic models – through in-house analysis and research of existing literature – to quantify the savings to the NHS and social care through routes such as reduced healthcare

[1] WHO standards for prosthetics and orthotics, Part 2. World Health Organization, February 2017, available here

resource utilisation and reduced risk of injuries which require surgery. Key modelling assumptions and inputs were agreed in conjunction with industry experts.

- Employment and productivity impacts of the intervention, in terms of GVA and tax uplifts for the UK, are estimated by analysing existing research to evaluate the productivity gained by patients, or number of patients returning to work, because of P&O treatment.
- ROI and BCR estimates are derived by aggregating the economic benefits – the net savings for the NHS and social care, and the added GVA – and comparing them to the total intervention cost, per the approaches set out above.
- Estimates for the 10-year forecast are produced by using the input data for 2025 and adjusting it according to predicted changes across relevant demographics, such as population size, each year for the following decade. Further adjustments were made to account for factors such as the dynamics of increased recurrent treatment of patients, with expanded P&O capacity.

The treatment gap, cost and benefits

There were an estimated 953 practising POs in the UK in 2025. Based on the midpoint of the WHO guidance (17.5 professionals per million of population), an additional 263 POs were needed to meet this benchmark. Given this, the number of patients not receiving adequate P&O care[2] is estimated to have stood at approximately 193,000. It is important to note that this figure is not obtained from waiting lists, but is an estimate derived from the workforce shortfall.

If a lower level of need (15 POs per million in the population) were assumed for the UK, the patient gap would be closer to 66,000 patients in 2025. If the higher level of need were assumed (20 POs per million) the patient gap would be 320,000. Comparing against prevalence rates for the conditions modelled in our study and with input from BAPO, the midpoint level of P&O need was chosen, as is further discussed in the Appendix.[3]

Considering likely distributions between additional orthotists and prosthetists, the cost of treatment for this patient population in 2025 would have been:

- **£98.3m** in total, of which
- **55.5%** would have been orthotic treatment costs
- **44.5%** would have been prosthetic treatment costs

Which would have produced an estimated net saving to the NHS and social care of:

[2] By 'patients not receiving adequate P&O care' we primarily refer to patients that are eligible for P&O treatment but that are not receiving it. Given the diseases patients seen by POs tend to have (diabetes, osteoarthritis, neurological conditions, etc.) it is unlikely these patients would be wholly outside of the NHS system, but rather more likely they are currently treated by other services within the NHS that don't include P&O treatment.

[3] Further sensitivity testing on how our model results and ROIs change as the modelled patient number increases is included in this Executive Summary and in the Appendix. This is done in the context of varying patient-per-professional ratios but is also applicable to any scenario where the cohort of patients is larger.

- **£125.9m** in the first year of treatment
- **52.8%** would have been orthotic savings
- **47.2%** would have been prosthetic savings

This treatment would also have led to the following productivity benefits:

- **£58.8m** additional contribution to GDP[4] [5]
- **£14.6m** tax uplift

10-year forecast

We estimate the following cumulative impacts if no action is taken to invest further in P&O services by 2035, appropriately discounted and expressed in 2025 price levels:

- **£1.4bn** in lost net savings to the NHS and social care
- **£631m** in lost contribution to GDP
- **£156m** in lost tax gains to the Exchequer

Return on investment and benefit cost ratio

We calculate the **health and social care ROI**, which captures savings coming from reduced resource utilisation (including social care), hospitalisation, and surgeries. This ROI indicates the savings the NHS and social care services could enjoy from expanded P&O provision. When above zero, it indicates that the intervention would more than break even and generate net savings.

We also present the **total ROI**, which, as well as these savings in utilisation and hospitalisation, accounts for GVA gains from productivity improvements following better health post-intervention. We present the two separately so that the impacts on the NHS and social care services can be distinguished from more general impacts across the whole economy.

For both the specific health and social care comparison of costs and benefits and the total comparison of costs and benefits, we also present associated BCR figures.

The **ROIs associated with treating the 2025** patient gap are estimated to be:

- **1.28 : 1** health and social care ROI, demonstrating that investment in P&O not only breaks even, but produces an additional £1.28 net saving per £1 invested, equalling a £2.28 gross saving.

[4] With potential additional benefits associated with increased employment, for which the lower certainty of the evidence mean that ultimately we do not include these figures within our headline figures.

[5] GVA measures the contribution to GDP made by businesses and industries, before accounting for taxes and subsidies on products. GDP is total GVA plus taxes on products, less subsidies on products. GVA can therefore be thought of as a proxy for contributions to GDP, which it is here referred to as.

- **1.88 : 1** total ROI, showing that, when including gains from productivity improvements, net benefits increase to £1.88 per £1 invested. This equals gross benefits of £2.88 for every £1 invested.
- These ROIs correspond to a health and social care BCR of **2.28** and a total BCR of **2.88.**

For the 10-year forecast, both ROIs increase as intervention costs taper post-initial intervention:

- **1.84 : 1** health and social care ROI associated with treating all patients to 2035. This represents an overall net saving to the NHS and social care services of £1.84 per £1 invested, with an overall gross saving of £2.84 per £1 invested.
- **2.68 : 1** total ROI to 2035, representing a net total benefit of £2.68 per £1 invested and gross total benefit of £3.68 per £1 invested.
- These ROIs again correspond to equivalent BCRs. Over the 10-year forecast, the health and social care BCR is **2.84**, with the total BCR rising to **3.68**.

Sensitivity testing on the ROI figures

The effect of varying certain assumptions made in our modelling of the overall ROIs presented are as follows:

- **Changes to assumptions on the number of patients treatable by each orthotist affect ultimate ROI**:
  - Based on NHS Trust data, our model assumes orthotists conduct 7.3 appointments per working day (excluding sick and annual leave days). Project partners, however, were concerned this number was unrepresentative of provision among services contracted by the NHS, and suggested an assumption of 12 appointments per day was also tested. Since 7.3 is however, still best supported by the (admittedly scant) data, it feeds into headline figures while the second scenario is presented as part of sensitivity testing.
  - If we were to assume that orthotists conduct 12 appointments per working day, the implied number of treatable patients would be 305,000.
  - Treating an expanded cohort would increase net savings to £152.4 million but decrease the health and social care ROI to 1.14 : 1. Since increasing the patient cohort implies that patient severity would decrease, the ROI is depressed as per patient returns decrease notably while per patient intervention costs only marginally fall. Therefore, although absolute net savings would increase from treating more people, the ROI would decrease.
    - Note this scenario has similar effects to assuming a higher level of need in the UK, by choosing the upper bound of the WHO guidance of 20 POs per million in the population. As more patients are treated, overall severity decreases reducing per patient benefits, while total intervention costs increase as more POs are hired (unlike the example above). The combined effect of this is a decline in relative ROI.
  - Rather than a limitation of our model, the sensitivity of ROIs reflects the need to complement our analysis with a better understanding of the characteristics of untreated patients and the severity of their conditions.
  - Assumptions on patients treated per prosthetist are not similarly tested since, given more recent data on both number of prosthetists and number of patients treated by prosthetic services, we have more confidence in this estimate

- **ROIs are, for the most part, only slightly sensitive to the assumed device and staff costs (when tested within a reasonable range):**
    - A change in device cost of 20% in either direction across all of the conditions we model changes the ROI by 15%. That is, if all devices prescribed to prosthetic and orthotic patients were 20% more expensive, the health and care ROI would be 1.08 : 1 (i.e. would still be considerably above breakeven), while the total ROI would be 1.60 : 1.
    - When changing only one condition's device cost by 20%, the impact on overall ROI is within a smaller range of 4% -- 7%. For instance at the top of that range, increasing prosthetic device cost by 20% decreases the health and social care ROI to 1.19 : 1.

- **Varying the net cost reduction rate applied to the 'all other orthotic' category from its current 8% level also has only a moderate effect on overall ROI**:
    - Sensitivity testing is applied on this estimate since it is obtained from a US academic source and was felt by some stakeholders to be too low.
    - Increasing the cost saving rate to 10% increases the health and social care ROI to 1.37 : 1 (+7%) and the total ROI to 1.97 : 1 (+5%). The same magnitude of changes, but of the opposite sign, would be expected if the cost saving rate is decreased to 6%.

- **Overall ROI is considerably sensitive to varying the assumed number of hours of social care avoided through prosthetic treatment:**
    - We assume that, on average, people with limb difference or limb absence living without a prosthesis receive 2 hours of care a day. This does not mean that every person receives these 2 hours, but is taken as a simplifying assumption given the lack of publicly available data on the matter.
    - While it is to be expected receipt of prostheses reduces dependence on social care and that therefore some savings would materialise, the exact magnitude of savings is uncertain.
    - Our baseline ROI assumes receipt of a prostheses reduces daily hours of care by 2. It may not be the case, however, that everyone without a prosthesis already has access to this level of care. For that reason, we also test the effect of reducing the number of hours of care saved to 1.5 hours a day. This reduces the health and social care ROI to 1.13 : 1 (a 12% reduction) and the total ROI to 1.73 : 1 (an 8% reduction).
    - A further reduction to 1 hour a day (a 50% reduction) decreases the health and care ROI to 0.98 : 1 (a 23% reduction); still above break even (since the ratio is positive)
    - It is possible, still, that we understate the extent to which prosthetics improve independent living. An increase to 2.5 hours a day saved increases the health and care ROI to 1.43 : 1 and the total ROI to 2.03 : 1.
    - To understand which of these scenarios is most reflective of the potential impact on the care system, a comprehensive audit is needed on the utilisation of social care services by patients with limb differences and absence, for both those that do and do not use prostheses.

Overall, therefore, sensitivity testing reinforces the validity of our model, and points to the changes that could be expected if variation of our current assumptions was justified from future research. Further detail is included in the Appendix.

Limitations of this study:

Given the restricted P&O data environment, a number of assumptions have been necessary to quantify the intervention costs and expected returns of P&O care expansion. A selection of key assumptions are as follows:

- Lacking comprehensive and publicly available data on patients on P&O waiting lists and their characteristics, we anchor our estimates for the P&O patient gap on the shortfall in POs in the UK, as implied by WHO guidance for developed economies. UK-specific evidence would have been preferable, while direct evidence on the P&O patient gap would have been better still, removing the need to have inferred this key datapoint.

- To convert the PO shortfall into a patient gap, we employ patient-per-clinician assumptions based on 2015/16 FOI data. This is NHS Trust data that may not reflect private sector levels of treatment. Unified data on the number of appointments orthotists conduct across the public and private sector would strengthen the assumptions used.

- Due to an absence of data on the distribution of conditions among the untreated patient population, we have used the distribution of conditions among current patients as a proxy. While this is unlikely to reflect the true distribution, the current patient distribution is the most reliable data source we had available to us.

- There has been limited academic coverage on the impact of prosthetic prescription on social care utilisation, despite prostheses considerably improving function and therefore independence. To quantify these benefits, we rely on professional experience which, despite its relevance, is a weaker source of evidence.

- Given the treatment of a broad range of conditions by orthotic services, data availability by condition varies and, for some like plantar fasciitis and rheumatoid arthritis, is patchy. These, along with other conditions for which reliable data is unavailable, are classed under an 'all other orthotic' category. This allows us to ensure appropriate coverage of all orthotic conditions, although it does involve losing granularity on different care pathways.

- Condition-by-condition cost data is unavailable for orthotic services, hence assumptions around treatment pathways (for conditions like diabetes, knee osteoarthritis and stroke) have been drawn with the help of professional experts. These would be reinforced by the publishing of official data breaking down treatment by condition and pointing to the conditions most systematically undertreated. One such datapoint is the cost of prescribing custom orthotics against that of off-the-shelf products.

- Quality of life improvements are discussed, but additional QALYs from intervention are not quantified, which would likely drive total ROIs upward.

More details on the methodology used in this study are included in the Appendix, at the end of this report.

2. Introduction

The Centre for Economics and Business Research (Cebr) is pleased to present this report, commissioned by the British Association of Prosthetics and Orthotics (BAPO), on the investment case for expanding prosthetic and orthotic (P&O) provision in the UK.

Prosthetic and orthotic services provide patients with essential care that can help alleviate, manage, and prevent symptoms associated with conditions as diverse as diabetes, arthritis, or strokes – as well as providing life-changing prostheses for patients with limb loss and limb difference. Orthoses and prostheses have been shown to improve medical outcomes and quality of life for thousands of patients[6], but, unfortunately, remain underfunded in the UK.

Prosthetists and orthotists have consistently appeared in the UK's temporary shortage list. In 2022, BAPO estimated the UK was 142 to 477 POs short, directly impacting waiting lists and the quality of service provided.[7] Where staff availability is constrained, it is likely that a number of patients are not receiving the care they need. For instance, they could be missing out on better treatment of a diabetic foot ulcer through the use of orthoses, or have been waiting for a prosthesis for too long.

Despite underfunding, the P&O profession has improved efficiency of services in a number of ways. With the onset of the COVID-19 pandemic, P&O services acted quickly to digitise. BAPO issued virtual assessment guidance to its members by April 2020, and a survey of UK orthotists found that, within 6 months of the first lockdown, over 90% of orthotists had started telehealth appointments.[8 9] Remote contact has since been embedded into care pathways, with BAPO's Standards for Best Practice setting guidelines for timings of online and telephone appointments, helping P&O services improve efficiency through digitalisation. This has freed up capacity from in person appointments and helped handle a higher proportion of complex patients than previously possible.[10]

While these efficiency improvements have allowed for broader coverage of P&O services, the shortage in POs continues to limit the number of patients that can be treated. Compounding to this lack of staff is the lack of data on key variables, such as the number of people with amputations in the UK and the level of amputation.

Assessing the extent of under-provision in the UK is therefore made difficult by the fragmented and incomplete nature of the data on prostheses and orthoses made publicly accessible by the NHS. Attempts to provide a complete picture of UK orthotic service provision have in the

6 Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

7 Eddison N, Healy A, Leone E, Jackson C, Pluckrose B, and Chockalingam N. Profile of the UK prosthetic and orthotic workforce and mapping of the workforce for the 21st century. The British Association of Prosthetists and Orthotists. 2023

8 Leone et al. Exploration of implementation, financial and technical considerations within allied health professional (AHP) telehealth consultation guidance. 2021

9 Eddison, Healy & Chockalingam How has the COVID-19 pandemic affected orthotic services in the United Kingdom? 2021

10 BAPO, Standards for Best Practice. 2025

past been limited by the little information Trusts, Integrated Care Boards, and Health Boards were able to offer. [11]

This report therefore serves not only to demonstrate the benefits of potential increases in P&O investment – as discussed further below – but also serves as a call to action for improved understanding of P&O; profession-specific data reporting and integration of P&O into wider NHS governance processes.

As a result of these data challenges, this report undertakes innovative analysis, anchoring our estimate for the 'gap in patients' not receiving adequate P&O care to the UK's gap in POs, relative to WHO guidance. **Our estimates for this 'gap in patients' are presented in Section 3**. The gap is estimated using 2025 data, the latest year with sufficiently comprehensive data to allow us to develop economic models,[12] although these are expected to have remained reflective of P&O provision through to 2026.

The specific investment we model, therefore, is the hiring, across the NHS and private providers, of a sufficient number of POs to meet WHO guidance on necessary levels, subsequently filling this 'patient gap'. This intervention is necessary in a situation in which, as discussed above, efficiency gains have been achieved with the level of investment available, but staff shortages continue to hinder the coverage of treatment. **We subsequently assess the associated costs and benefits of this additional recruitment**. To circumvent the limited data environment, we also undertook a data collection effort in collaboration with project partners, which included prosthetic and orthotic service and product providers, as well as professional bodies like BAPO and trade associations like the British Healthcare Trades Association (BHTA).

These data were particularly helpful in estimating the cost of intervention and associated healthcare savings, presented in Section 4. For each condition experienced by P&O patients[13], we estimate the intervention cost associated with adequate provision and the healthcare savings to follow from reduced resource use and surgical interventions. We also present the net healthcare savings, although, given data constraints, we are unable to quantify every cost and saving that would follow from expanded provision. A summary of the costs and benefits we do and do not model is presented in Table 1.

[11] Chockalingam N, Eddison N, Healy A. Cross-sectional survey of orthotic service provision in the UK: does where you live affect the service you receive? BMJ Open. 2019 Oct 24;9(10):e028186. doi: 10.1136/bmjopen-2018-028186.

[12] We refer here to official economic statistics on measures such as inflation, which at the time of starting analysis in early 2026 did not cover the full year 2026.

[13] Please note that, throughout the report, the term 'patient' is used to refer to anyone who we estimate would benefit from P&O treatment, who is not currently receiving it.

Table 1: Costs and benefits included in our analysis

Cost / Benefit	Variable	Included	Excluded
Costs	Cost of device(s)	✓	
	Staff time (both PO and technician time)	✓	
	Administration cost[14]		✗
	Investment in facilities		✗
	Staff training time		✗
Benefits	Reduced use of NHS resource (hospitalisation, drug prescription, etc)	✓	
	Reduced incidence of surgeries	✓	
	Reduced social care need	✓	
	Improved productivity (reduced absenteeism/presenteeism)	✓	
	Improved likelihood of returning to work		✗
	Increased QALYs		✗
	Lower disability benefit payments		✗

Where appropriate, costs and benefits which are not quantified in our model are still discussed qualitatively. Similarly, where there is not enough compelling evidence to include a particular benefit across all conditions treated by POs, we include this only for those conditions for which the data robustly supports.

Across the literature and data we were able to collect, some conditions were better represented than others, particularly in regards to the different conditions treated by orthotic devices. This justified following a hybrid approach, by which some conditions were modelled separately while others were modelled jointly, using data on the average returns on treating an orthotic patient. This approach allowed us to cover all patients treatable by orthoses while benefitting from improved granularity where possible. The conditions we model separately are diabetes (diabetic foot ulcers specifically), knee osteoarthritis, and strokes. Conditions modelled jointly include other neurological conditions like cerebral palsy and multiple sclerosis (MS), hip osteoarthritis, scoliosis, and plantar fasciitis, amongst others.

[14] To a certain extent, we expect patients not receiving adequate P&O care to be patients that are already treated elsewhere within the NHS, and that therefore additional administration costs related to the intervention would not necessarily be larger than current administration costs. The same is likely also to an extent true for investment in facilities, with increased P&O provision offsetting the need for alternative facilities to treat patients elsewhere in the health system. However due to data-related challenges, these effects are not feasible to quantify.

For prosthetics patients, we model upper-limb and lower-limb prostheses users jointly for simplification.

As well as health and social care savings, increased P&O provision would be likely to have a positive impact on employment, as patients' health outcomes improve and, with them, their productivity and ability to return to work. **Section 5 presents our estimates for the number of diabetes, osteoarthritis, and prosthetic patients that would improve their work outcomes following treatment[15], and the associated impact on UK GDP and returns to the Exchequer**.

Beyond monetary benefits, P&O provision would also be associated with **quality-of-life improvements** which, although difficult to quantify, are no less relevant to the investment case. **These are qualitatively summarised in Section 6.**

Finally, the health and social care savings, employment outcomes, and quality-of-life improvements, are all considered in tandem to produce **return on investment and benefit cost ratio estimates, presented in Section 7**. As well as discussing the returns government could expect to see from increased investment in P&O in the short term, **we also discuss the likely evolution of the P&O patient gap over a ten-year period up to 2035. We then similarly calculate the discounted ROI and BCR of improving P&O provision throughout that horizon**.

This extension to consider the benefits of additional investment through 2035, demonstrates the corresponding de facto consequences of not investing sufficiently in meeting future P&O needs. This is particularly prescient in the context of an ageing population, for which P&O provision is only going to increase in importance, over the next decade.

To summarise, the report is structured as follows:

- **Section 3:** The gap in patients not receiving adequate P&O care as of 2025, anchored to the gap in professionals in the UK
- **Section 4:** The costs and benefits associated with intervention to fill the gap as of its 2025 level
- **Section 5:** The employment and productivity impacts associated with said intervention
- **Section 6:** The quality-of-life improvements associated with P&O intervention
- **Section 7:** The overall ROI and BCR of investment in P&O services, both in 2025 and up to 2035, considering how the patient gap and costs and benefits of treatment are likely to evolve

[15] The patients and conditions for which the evidence is strongest around a positive labour market impact of P&O provision.

3. The gap in patients not receiving adequate P&O care

Key to estimating the returns of investing in increased prosthetic and orthotic provision is to first understand the current extent of under-provision. We consider this in terms of eligible patients not receiving P&O treatment, but who would benefit from this, then the size of the investment required to deliver this care.

Unfortunately, precise data around the share of patients who would benefit from, but do not currently receive P&O treatment, is sparse. Still, it is widely acknowledged that a 'gap in patients' exists, partly as a consequence of the prosthetic and orthotic profession having been on the UK's shortage of occupations list for many years.[16]

We therefore anchor our estimates for this 'gap in patients' to the existing gap in POs in the UK, utilising WHO guidance for necessary provision levels in developed countries.[17] The implication is that, for as long as the UK has fewer POs than the number recommended by the WHO given the UK's level of development, there will exist a population of patients that are not receiving the care they need due to capacity constraints.

This section presents our estimates for the gap in POs in the UK and, consequently, for untreated patients, as they stood in 2025. 2025 is chosen as the reference year due to the larger availability of data, although it is expected to continue to reflect the situation in P&O provision through to 2026. Future projections of the gap, additionally, are presented in Section 7.

3.1 Gap in POs in the UK

The number of registered prosthetic and orthotic professionals in the UK, as seen in register data from the HCPC (the Health and Care Professions Council)[18] has been steadily increasing since 2018, having increased from 1,056 registered professionals in January of that year to 1,260 by May of 2026. While welcomed, this increase is not sufficient to solve the UK's P&O under-provision problem.

Firstly, the number of registered POs does not necessarily reflect the number of practising prosthetists and orthotists in the UK. This is due to a portion of registered POs not currently being employed as part of the PO workforce. Underpinning this assertion is a recent survey by BAPO of the P&O workforce[19], finding that only three-quarters of registered POs are currently employed practitioners. Specifically, this estimated the number of practising POs in the UK in 2022 to be 876, despite the number of registered professionals that year being closer

[16] Eddison N, Healy A, Leone E, Jackson C, Pluckrose B, and Chockalingam N. Profile of the UK prosthetic and orthotic workforce and mapping of the workforce for the 21st century. The British Association of Prosthetists and Orthotists. 2023

[17] WHO standards for prosthetics and orthotics, Part 2. World Health Organization, February 2017, available here.

[18] HCPC register, accessed in March 2026, available here.

[19] Eddison N, Healy A, Leone E, Jackson C, Pluckrose B, and Chockalingam N. Profile of the UK prosthetic and orthotic workforce and mapping of the workforce for the 21st century. The British Association of Prosthetists and Orthotists. 2023

to 1,160: the gap demonstrates the number of registered POs not currently employed as practitioners.

In 2025, we estimate the number of practising POs to have increased to 953, corresponding to an average 1,266 POs registered with HCPC at any point throughout the year. While an improvement, this is still below the recommended level of POs recommended by the WHO for a country like the UK.

Specifically, the WHO recommends that for a developed economy the level of P&O provision should be between 15 and 20 POs per million in the population.[20] For a country the size of the UK, with approximately 69.5 million inhabitants,[21] this translates to a need for 1,042 POs, at the lower end, and 1,390 POs at the higher end. Throughout our analysis, we assume the UK's level of POs need to be closer to a midpoint between these two, at 17.5 professionals per million in the population. [22] **This corresponds to a total level of need of 1,216 professionals, or 263 additional hires the NHS would have had to make to meet 2025 levels of demand. That would have constituted a 28% increase on current levels of professionals.**

953
Practising prosthetists and orthotists in the UK

+28%
expansion of the workforce required to meet WHO guidance on P&O needs in the UK population

We estimate that, of the current P&O workforce, 71% are orthotists, while 29% are prosthetists.[23] In the absence of better information around specific patient care requirements, we have assumed that the additional recommended recruitment is similarly proportionately split between new prosthetists and new orthotists. Therefore, when applying these shares to the 263 additional hires required across the P&O workforce, it follows that **the number of additional orthotists needed in the UK as of 2025 was 187, while that of prosthetists was 76.**

20 WHO standards for prosthetics and orthotics, Part 2. World Health Organization, February 2017, available here

21 United Kingdom population mid-year estimate, Office for National Statistics, November 2025, available here.

22 This assumption and its implications are further discussed in the Appendix.

23 As a simplifying assumption, we assume dual practising POs (which make up about 9% of the P&O workforce) are distributed as either prosthetists or orthotists.

3.2 Gap in P&O patients in the UK

A shortfall in POs implies a cohort of patients eligible for prosthetic and orthotic treatment who are not obtaining it, because of P&O services being understaffed.

In practice, this means patients with conditions that could be more efficiently treated through P&O, receiving treatment from other NHS services[24]. Examples might include diabetic foot ulcer patients that could benefit from receiving pressure offloading devices, in terms of both improving the management of their active ulcers and avoiding the recurrence of new ones, not receiving the appropriate orthotic care because of a lack of orthotists in the system. Similarly, patients with limb loss and limb difference who would be eligible for receiving a prosthetic limb might not be receiving adequate care due to a lack of prosthetists.

The number of patients not receiving adequate P&O care is estimated, as of 2025, to have been approximately 193,000.

We estimate the number of patients not receiving adequate P&O care due to the gap in prosthetists and orthotists to have been 192,968 patients, as of 2025. This is an estimate based on the shortfall of POs, and does not come from waiting list data.

Of these, the vast majority are patients that would be treated via orthotic services (96%) while the rest, approximately 7,000, would be treated through prosthetic services. This distribution is due, in part, to the increased prevalence of conditions treated with orthoses – like diabetes, osteoarthritis, or strokes – relative to the lower prevalence of amputation or limb difference, which, for instance in England is believed to affect between 55,000 and 60,000 people, as of 2025.[25] In addition, our engagement with industry contacts suggests that on average, due to the complexity of treatments and a greater requirement for follow-up appointments, prosthetists treat fewer patients on average per professional, than orthotists.

Our estimates for the number of patients not receiving adequate P&O care rest on assumptions around the number of patients each P&O professional would be able to treat in a year. At the moment, we assume each additional orthotist would be able to treat approximately 1,000 new patients in a year. This is a more conservative estimate than that implied by the fragmented NHS data available on orthotic patients and professionals, which implies a ratio of between 1,800 and 2,900 patients per orthotist[26]. In the case of prosthetists, the assumed ratio is 93 new patients per new prosthetist, reflecting the more appointment-intensive nature of prosthetic service provision, as well as the smaller treatment population[27].

We hold little information on the characteristics of the estimated 193,000 patients not receiving adequate care for conditions treatable through prosthetic and orthotic services, given, partly,

[24] Throughout our modelling, we assume that the 'untreated population' of P&O patients are patients already within the NHS system, but treated through different services. Given the conditions we model, this is a reasonable assumption, and implies that when considering cost of intervention, administration costs associated with treating completely new patients are not included.

[25] Prosthetic service specification, NHS England, May 2025, available here.

[26] From our estimate that 71% of the 2025 P&O workforce are orthotists, it follows that, for these 676 orthotists to treat the 1.2 to 2 million patients cited by the NHS as treated by the orthotic services, each would need to treat between 1,800 and 2,900 patients each year.

27 In the Appendix, we provide more detail as to how this ratio of patients to professionals is calculated and run sensitivity testing on it in Section 7.

the fact that they are currently outside the P&O system. Further research, therefore, is required in order to understand which conditions are most severely undertreated in the UK.

In the meantime, we assume all untreated prosthetic patients (i.e. those on waiting lists or receiving inconsistent treatment) would need to be fitted with a new prosthetic device.[28] For orthotic patients, we assume the conditions these potential patients could be treated for are distributed in the same way, as conditions existing patients are treated for[29]. However, we acknowledge that this lack of clarity in turn brings significant uncertainty for the nature and magnitude of the benefits of increased P&O provision, as estimated in this report.

The approach taken implies that, across the estimated 193,000 untreated patients, conditions are distributed as shown in Table 2.

Table 2: Conditions experienced by the untreated patient population eligible for orthotic treatment[30]

Condition	Number of patients that could receive treatment	Share (%)
Orthotics - Diabetes	33,451	18.0%
Orthotics - Knee osteoarthritis	12,422	6.7%
Orthotics - Strokes	15,945	8.6%
Orthotics – All others	124,021	66.7%
All Orthotics	185,840	96.3%
Prosthetics	7,128	3.7%
Total	192,968	100%

Source: Cebr analysis, commercial information from P&O providers, NHS[31]

The costs and benefits of treating prosthetic and orthotic patients are presented separately. For orthotics, we focus on diabetic foot ulcers (DFUs), knee osteoarthritis, and strokes, per the wide, reliable literature for orthotic treatment, including on costs, wider savings, and outcomes. All other orthotic treatment is analysed together, per generalised literature.

28 For context, industry partners believe that, while patients who lack orthotic treatment are often those not referred to orthotics and treated elsewhere in the NHS, prosthetic patients whose needs are not being met are more likely to only have inconsistent access to services through fragmented prosthetic care pathways.

29 Data on what conditions orthotic patients are treated for and how they are distributed across the patient population come from information shared by multiple P&O service providers, although caution should be taken when interpreting these, as they may not be representative of the overall sector. Here, again, the NHS ought to provide complete data on the conditions treated by POs.

30 Note that the ‘Share’ column figures for the orthotics conditions set out the share of specific orthotics patients, as opposed to the share of all orthotics and prosthetics patients.

31 Commercial information was collected for this study from 5 P&O providers, of which one is a large NHS provider while the remaining four are large private sector providers which also contract services to the NHS. Further detail on this data collection process is included in the Appendix.

4. Cost and net savings of expanded P&O provision

Increasing the number of prosthetists and orthotists in the UK is key to improving the provision of P&O services across the country. This can provide savings to health and social care through reduced resource utilisation, such as fewer hospital visits and drug prescriptions, avoidance of more complex procedures like surgery, and lower social care costs as patients gain increased independence. Expanded P&O provision also carries intervention costs - as well as staff costs, treating more patients involves a range of other costs, mainly for additional devices and other products.[32]

In this section, therefore, we present the costs and net savings associated with the first year of treatment for the 193,000 patients we estimate would have benefitted from P&O services in the UK as of 2025. We provide the net savings across all patients, by orthotic and prosthetic services, and by condition. Cost of intervention is broken down in the same way, and additionally by both staff and device cost.

4.1 Total intervention cost and net savings

Total intervention costs as of 2025

For all the 193,000 patients we estimate could have benefited from treatment in 2025, the total intervention cost is estimated to have come to £98.3 million. With an estimated average salary of £48,161 for orthotists and £43,888 for prosthetists in the UK[33], we estimate **15.3% of the total intervention cost would be attributable to new staff cost, expected to come to a total £15.1 million in 2025.**

The remaining £83.2 million would be associated with device and product costs, implying an average staff cost per patient across all conditions of £78 and device cost per patient of £431.[34]

The intervention cost associated with treating 193,000 patients in 2025 would have totalled £98.3 million.

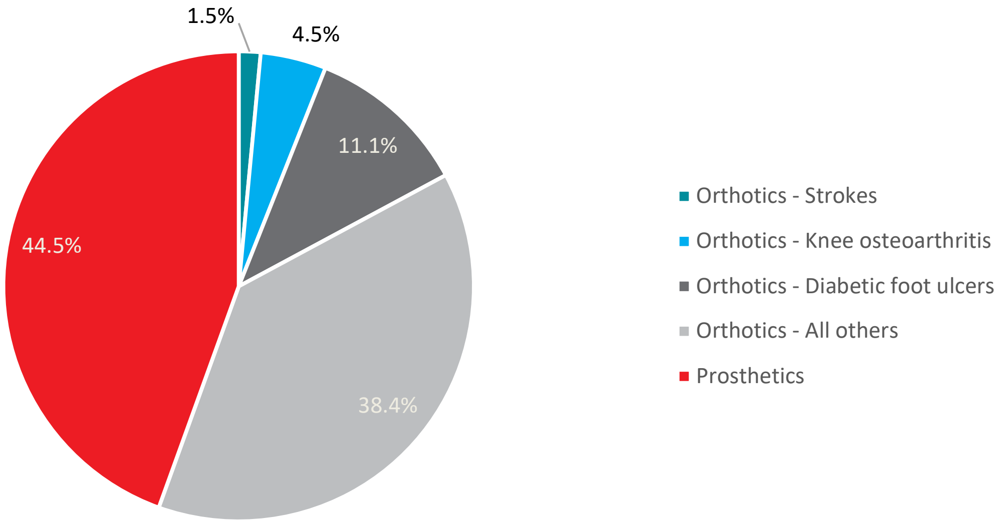
Figure 1 presents the breakdown of these costs by condition, outlining the share of costs attributable to each condition treated by either orthotic or prosthetic services.

[32] We assume, for the sake of simplification, that administration costs to the NHS of treating new P&O services would not be materially different than those associated with treating these patients through other NHS services. This rests on the assumption that patients treated by newly hired POs are already treated within the NHS which, given the conditions we look at – diabetes, osteoarthritis, neurological conditions, or limb difference – is a reasonable assumption. In what regards staff costs, we consider only salary costs and don't include other employment costs such as pension contributions or National Insurance payments.

[33] These have been estimated from data collected by BAPO and presented in its 2022 Workforce Review, available here. Before being multiplied by the modelled gap in POs, they are converted to overall compensation of employees estimates that include other costs like national insurance and pension contributions, using data from official economic statistics (specifically, ratios sourced from the Blue Book).

[34] It is worth noting that, given a lack of comprehensive data on orthotic and prosthetic service provision from the NHS that collects number of patients, devices prescribed, costs, and appointments in one source, these estimates have been estimated from a Cebr and BAPO-led data collection effort across prosthetic and orthotic providers in the public and private sector.

Figure 1: Distribution of costs associated with closing the untreated patient gap in P&O services at its 2025 level, by condition treated



Source: Cebr analysis, commercial information from P&O providers, NHS

As can be seen above, prosthetic service provision represents the largest share of any single category within the total intervention cost (44.5%). This is due to the high intervention cost associated with fitting a prosthetic device. While comprehensive NHS data on prosthetic limb costs was not readily accessible, data collected for this project places the average cost of a prosthetic device at approximately £5,100, and that of prosthetist and technical support staff time to be around £1,000, in the first year of treatment.

The average upfront staff and device cost for treating an average orthotic patient is considerably lower, estimated to stand at £294. While treating some conditions, such as knee osteoarthritis, has higher associated intervention costs (as will be discussed later in this section), this average is heavily influenced by the large volume of patients that fall under 'all other conditions treated through orthotic services'. This category includes a range of conditions for which reliable literature on treatment via orthoses is not available, such as plantar fasciitis, neurological conditions like cerebral palsy or MS, and rheumatoid arthritis. For these conditions, we estimate treatment cost for the first year of treatment to be approximately £300. [35]

Expanding provision to diabetic foot ulcer (DFU) patients not receiving orthotic treatment is estimated to account for 11.1% of the total intervention cost, while treating knee osteoarthritis and stroke patients would account for 4.5% and 1.5%, respectively.

Total net health and care savings as of 2025

We estimate that **intervening to close the untreated patient gap in P&O, as it stood in 2025, would be associated with net health and social care savings of £126.3. million in the first year of treatment**. That is, treating the estimated 193,000 additional patients through

[35] This is based on average appointment and device costs for orthotic treatment of any patient, collected from project partners.

P&O services would be associated with an initial upfront investment of £98.3 million, and gross health and social care savings 2.3 times as large that year (£224.6 million), resulting in the net saving of £126.3. million set out above.

Intervening to close the untreated patient gap as it stood in 2025 would be associated with net health and social care savings of £125.9 million in the first year of treatment.

Savings are calculated specifically for the year of treatment. That is, we capture the savings related to lower resource utilisation and avoided incidence of surgery during the year a patient spends in treatment (or years, if a recurring P&O patient in subsequent ten-year projections), but not in the subsequent years after they stop being treated by P&O services. This reflects the fact that most evidence on the cost-savings from P&O intervention is calculated over a 12-to-18-month window. Further research is needed to understand cost-savings beyond that, although it is worth noting that this does, to the extent that P&O intervention brings longer-term benefits, make our estimates for net health and social care savings likely somewhat conservative.

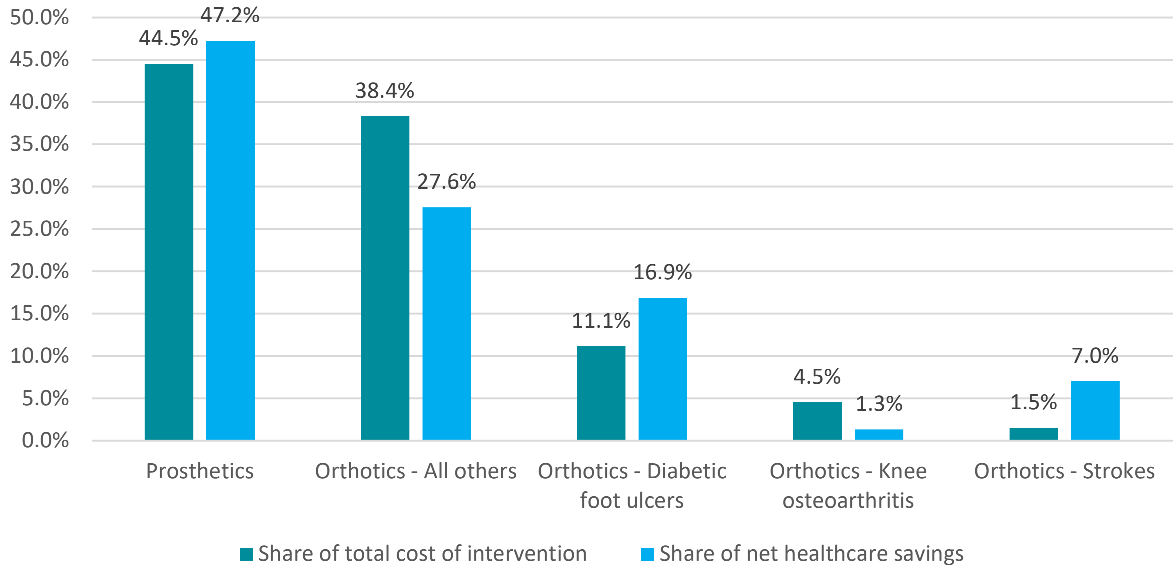
£98.3 m
intervention cost from treating the 2025 patient gap

2.3x
larger gross savings than intervention cost in 2025

£126.3 m
net savings from treating the 2025 patient gap

Figure 2 presents the distribution of net health and social care savings associated with P&O intervention, by condition treated, and compared against the share of total intervention costs attributable to each condition. More detail, including the absolute estimated costs and benefits of the intervention, are subsequently discussed in the next section of this report.

Figure 2: Distribution of total intervention costs and net healthcare savings associated with closing the untreated patient gap in P&O services at its 2025 level, by condition treated



Source: Cebr analysis, commercial information from P&O providers, NHS

As can be seen, **prosthetic provision, while costly on a per patient basis, also accounts for the largest share of net savings (47.1%). This is due primarily to associated reductions in care costs,** as patients regain mobility and independence. Both DFUs and strokes account for larger shares of net health and social care savings than they do for the total intervention cost, representing 16.9% and 7.0% of total net savings, respectively. This indicates the significant and disproportionate net benefit to the health and social care systems of treating these patients with orthoses.

Knee osteoarthritis and the 'all other' orthotic conditions category account for a lower share of net savings than they do total intervention costs. The condition-by-condition returns on investment are further discussed in Section 7.

For some of the conditions we model, lower utilisation of healthcare resource accounts for the majority of savings, while, for others, social care cost reductions are the main driver. We expand on the mechanism through which savings manifest in the condition-by-condition breakdown to follow in the rest of this section.

4.2 Intervention cost and net savings - Orthoses

Diabetic patients

Diabetic foot ulcers are debilitating wounds which negatively impact patients' quality of life and health outcomes. They affect over 100,000 people in the UK at any given time [36] and can lead

[36] As discussed here.

to life-altering outcomes such as, in 17% of cases, limb amputation.[37] After amputation, mortality rates increase significantly.[38]

Orthotic management of diabetic foot ulcers can help improve both the management of an ulcer once it appears as well as lowering the chances of it recurring, for both first-time and pre-existing DFU patients. [39]

Overall, we estimate that the total intervention cost associated with treating the 33,451 diabetic patients we estimate would have been eligible for orthotic treatment as of 2025 would come to £10.9 million. This accounts for 11.1% of the total intervention cost across all P&O provision, and approximately 18% of all estimated orthotic untreated patients.

Not every one of these approximately 33,000 diabetes patients would have previously developed a DFU or currently have an active one. We estimate that 33% of untreated diabetes patients, or approximately 11,000, would be active DFU patients.[40] The remaining two-thirds of diabetes patients would be those at a high risk of developing their first DFU, with orthotic provision for this group serving a more preventative purpose. The specific intervention we model for both groups is the provision of pressure-offloading devices, such as insoles or footwear.

33,000
Diabetic patients that could be treated through orthotic services

£10.9 m
The upfront intervention cost for treating all eligible diabetic patients

[37] Guest JF, Fuller GW, Vowden P. Diabetic foot ulcer management in clinical practice in the UK: costs and outcomes. Int Wound J. 2018 Feb;15(1):43-52. doi: 10.1111/iwj.12816.

[38] Vuorlaakso M, Kiiski J, Salonen T, Karppelin M, Helminen M, Kaartinen I. Major Amputation Profoundly Increases Mortality in Patients With Diabetic Foot Infection. Front Surg. 2021 Apr 30;8:655902. doi: 10.3389/fsurg.2021.655902.

[39] van Netten JJ, Raspovic A, Lavery LA, Monteiro-Soares M, Paton J, Rasmussen A, Sacco ICN, Bus SA. Prevention of foot ulcers in persons with diabetes at risk of ulceration: A systematic review and meta-analysis. Diabetes Metab Res Rev. 2024 Mar;40(3):e3652. doi: 10.1002/dmrr.3652

[40] The number of diabetic patients who are active DFU patients has been calculated by estimating the number of DFU patients our model implies are currently treated by orthotists and the total prevalence of DFU in the diabetic population. The difference between the two is the number of 'untreated' DFU patients, which applies to any patient who has had or currently has a DFU. In this way, our estimate for DFUs is 'capped' to the population prevalence of this condition.

We estimate the average cost to the NHS of managing an active DFU that does not lead to amputation to be £9,392.[41] Costs for managing DFUs that do lead to amputation are considerably higher, estimated to stand at £27,497 per patient.[42]

As to the additional intervention cost of treating diabetic patients through orthotic devices, we estimate the cost of fitting a pressure-offloading device for a patient who has had a previous DFU or has one actively to be £340. The cost of preventatively treating a high-risk diabetic patient who has never developed a DFU is estimated to be somewhat lower, at £320, with the main difference between the two being required staff time. Most costs associated with fitting a diabetic patient with an orthotic device are therefore related to the cost of the device itself, which we estimate to come to an average £278.[43]

We estimate that the treatment of all the estimated diabetic patients that could benefit from P&O provision would be associated with a net saving of £21.3 million. For DFU patients, savings manifest from avoiding recurrence and associated amputation,[44][45] as well as lower healthcare resource use when patients are treated via orthotic services.[46] For diabetic patients, avoidance of a first ulcer similarly leads to savings in surgery and resource utilisation.[47]

Gross savings (before intervention costs are accounted for) would amount to £32.2 million, distributed across both reduced healthcare resource utilisation and avoided amputations. A breakdown of the cost savings associated with treating both diabetic and DFU patients, is presented in Figure 3.

[41] This is based on estimates presented in Guest JF, Fuller GW, Vowden P. Diabetic foot ulcer management in clinical practice in the UK: costs and outcomes. Int Wound J. 2018 Feb. We have separated non-amputation and amputation costs, and brought the estimates up from 2015/2016 prices to 2025 prices, using the CPI index.

[42] As well as 2025 healthcare costs related to amputation and covered in Guest (2018) cited in the footnote above, we added post-amputation provision and care (similarly brought up to 2025 prices) as estimated in Kerr M, Barron E, Chadwick P, Evans T, Kong WM, Rayman G, Sutton-Smith M, Todd G, Young B, Jeffcoate WJ. The cost of diabetic foot ulcers and amputations to the National Health Service in England. Diabet Med. 2019 Aug.

[43] These cost estimates are implied from the data we were able to collect from P&O service providers on appointments per patient and footwear device costs. They also imply a staff cost of £63, equivalent to three 30-minute appointments paid at an average £42 an hour.

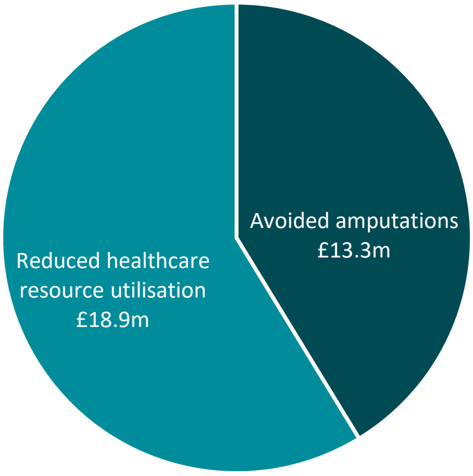
[44] Of the approximate 50% of DFU patients who will re-ulcerate, orthotic use can help reduce the risk of recurrence by 47%, leading to an ultimate risk reduction of 23.5% as found in this literature review: Monteiro-Soares, M., Rasmussen, A., Lavery, L., Bus, S., van Netten, J., Sacco, I., Raspovic, A., & Paton, J. (2023). Prevention of foot ulcers in persons with diabetes at risk of ulceration, https://doi.org/10.1002/dmrr.3652.
van Netten JJ, Raspovic A, Lavery LA, Monteiro-Soares M, Paton J, Rasmussen A, Sacco ICN, Bus SA. Prevention of foot ulcers in persons with diabetes at risk of ulceration: A systematic review and meta-analysis. Diabetes Metab Res Rev. 2024 Mar;40(3):e3652. doi: 10.1002/dmrr.3652

[45] Given that 17% of ulcers lead to amputation, avoiding an ulcer avoids amputation at this rate too, as by Guest JF, Fuller GW, Vowden P. Diabetic foot ulcer management in clinical practice in the UK: costs and outcomes. Int Wound J. 2018 Feb;15(1):43-52. doi: 10.1111/iwj.12816

[46] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[47] Orthotic use could reduce the risk of the appearance of a first ulcer by 26%, as found in Monteiro-Soares, M., Rasmussen, A., Lavery, L., Bus, S., van Netten, J., Sacco, I., Raspovic, A., & Paton, J. (2023). Prevention of foot ulcers in persons with diabetes at risk of ulceration, https://doi.org/10.1002/dmrr.3652.

Figure 3: Breakdown of gross savings from orthotic treatment of diabetic foot



Source: Cebr analysis, commercial information from P&O providers, NHS

As can be seen, most (59%) of cost savings are associated with reduced utilisation, while 41% are associated with cost-savings from avoided amputations. In what regards reduced utilisation, DFU management costs are estimated to be a net 8% lower when treated through orthotic services (as opposed to standard treatment)[48], and are therefore reduced to £8,654. Where amputations are avoided through avoided ulceration, we assume treatment costs are reduced from the £27,497 discussed above to the £3,341 annual NHS cost of managing a high-risk diabetic patient[49]. More generally, we assume the latter becomes the new treatment cost for any patient that avoids ulceration.

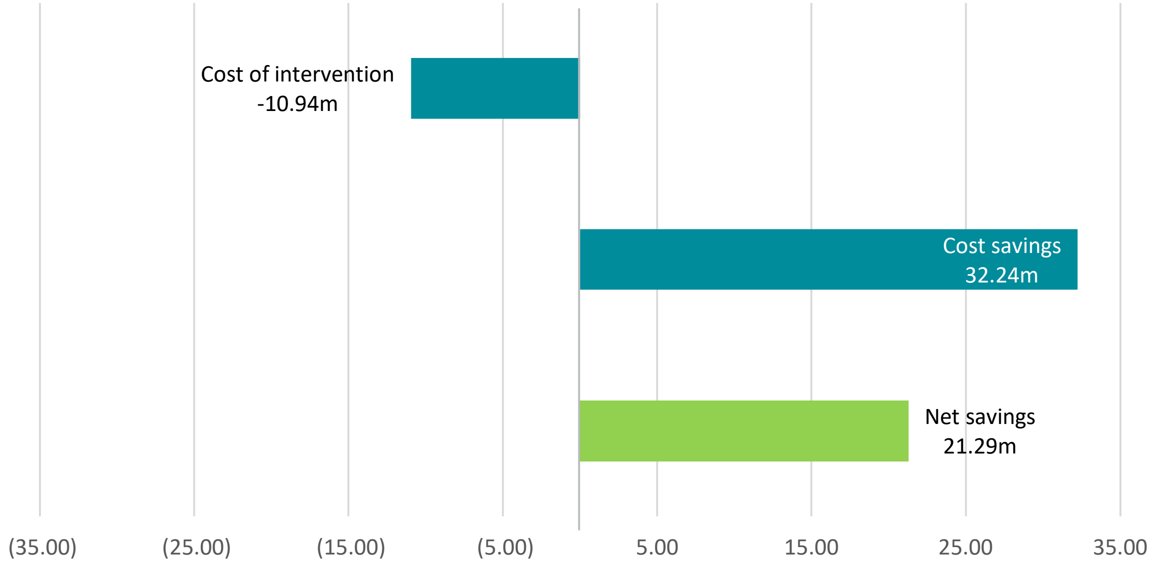
Reduced resource utilisation accounts for the majority of gross savings because, even where patients re-ulcerate, orthotic treatment still reduces acute hospital visits and drug spending. We do not, however, have enough evidence to conclude that, where patients re-ulcerate, orthotic device use decreases the rate of amputation (17% on all who ulcerate). Consequently, we estimate only 4% of active DFU patients who receive orthotic treatment would avoid an amputation. However, the fact £13.3 million could be saved from avoiding a relatively small number of amputations demonstrates the compelling logic behind increased orthotic provision for all diabetic patients.

Finally, we present the intervention, gross savings, and net savings associated with intervention in Figure 4.

[48] As reported for lower-limb orthotic recipients in this study of Medicare patients: Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[49] This is estimated from Diabetes UK data on the total cost of treating a diabetic patient and also accounts for the intervention cost associated with providing patients orthotic devices.

Figure 4: Net savings to the NHS of orthotic intervention for currently untreated diabetic patients



Source: Cebr analysis, commercial information from P&O providers, NHS

Gross savings are expected to exceed intervention cost, resulting in a net saving of £21.3 million. It is worth noting that the majority of these net savings relate to the treatment of DFU patients. In our model, pre-emptive treatment of high-risk diabetic foot patients generates a slight net loss of £2.7 million. Given that the incidence of a first DFU among diabetic patients is relatively low - estimated to be 6.25%[50] - intervention leads to small avoidance rates and, therefore, moderate cost savings. This is not, of course, to say that intervention does not substantially improve quality of life for those for whom a DFU is avoided, as is further discussed in Section 6.

To note, when discussing these findings with subject matter experts, some stakeholders felt an intervention cost of £340 to be too low for DFU patients. We therefore run some sensitivity testing on this figure within the net savings. Increasing our estimate for the orthotic intervention cost to account for six appointments in a year rather than three does not substantially change the overall net savings. While intervention cost for DFU patients would increase to approximately £403, net savings would only decrease to £21.1 million, as the avoidance of amputations and lower utilisation of healthcare resource and hospitalisation continues to deliver savings.

Knee osteoarthritis patients

Knee osteoarthritis (OA) is a degenerative joint condition where the cartilage around the knee wears down, leading to bone-on-bone friction, which causes pain and reduced mobility. Orthoses are used to reduce pain, improve mobility, and to delay knee replacement surgery.

[50] Edmonds M, Manu C, Vas P. The current burden of diabetic foot disease. J Clin Orthop Trauma. 2021 Feb 8;17:88-93. doi: 10.1016/j.jcot.2021.01.017

Of the estimated 193,000 untreated patients across P&O services, 12,422 are estimated to be eligible for knee OA orthotic treatment.[51] The cost of treatment across this patient population is £4.45 million. This cost is mostly driven by the orthotic products, with a cost of approximately £3.86 million to provide orthoses to these patients - compared with £590,000 in staff costs associated with the initial fitting and check-ups in the first year.

12,422

Untreated patients eligible for orthotic treatment of knee OA in 2025

£4.45m

the total cost of orthotic intervention among knee OA patients in the first year of treatment

Combining these figures, we estimate the per patient cost of treatment for knee OA is £358 (where device cost accounts for £311[52]) in the first year of treatment.

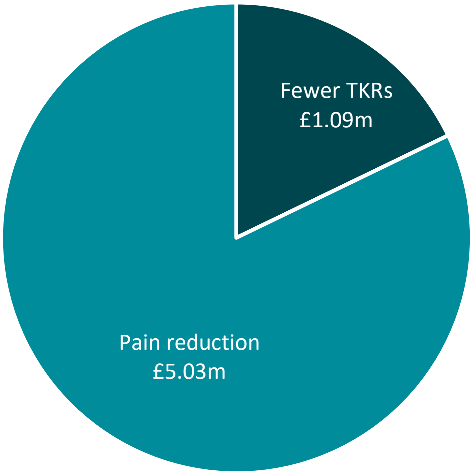
We estimate this treatment of osteoarthritis results in gross savings elsewhere in the healthcare and social care systems of £6.12 million and therefore a net saving of £1.66 million. Savings are driven by two components: reduced healthcare utilisation from lessened pain - such as a reduction in the usage of opioid medication - leading to lower medical costs (£5.03 million);[53] and savings from a reduction in total knee replacement (TKR) surgeries among those treated (£1.09 million).

[51] Knee osteoarthritis is modelled here, rather than all forms of osteoarthritis, due to insufficient relevant literature on orthotic treatment of other types of OA. This is discussed further in the Appendix.

[52] This is a blended average of product costs, with 5% of OA patients assumed to be treated with APOS footwear (cost £816) and the remaining 95% with knee braces, with costs taken from NHS data (average cost £284).

[53] Based on research on the level of healthcare utilisation among osteoarthritis patients, before and after being treated by an AposHealth orthotic. A NICE review, which contains a summary of these findings, can be found here

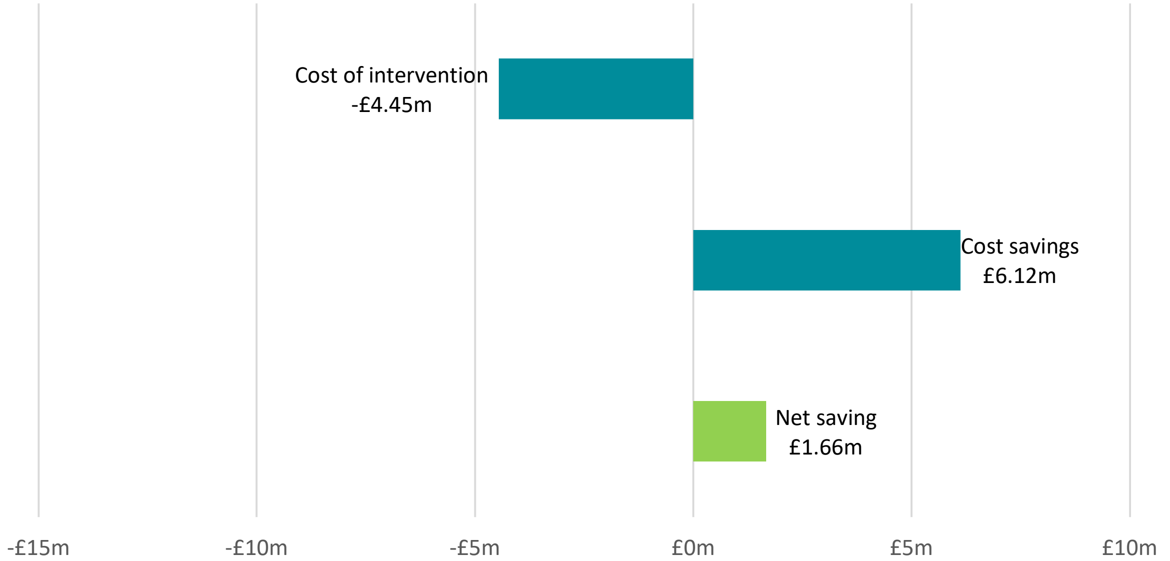
Figure 5: Breakdown of gross savings from orthotic treatment of knee osteoarthritis



Source: Cebr analysis, commercial information from P&O providers, NHS

The above graph shows that the savings from pain reduction are the predominant component of gross savings for knee OA patients. This is because, while a single patient avoiding a TKR surgery saves substantially more (£12,928 per avoided surgery) than a single patient benefitting from reduced pain (£412 per patient), the number of patients who avoid surgery in the first year is low. Of the 12,422 patients eligible for treatment, we estimate that only 84 of them would avoid surgery in this timeframe.[54] By contrast, all patients except those who undergo TKR surgery, are estimated to gain the benefits from pain reduction.

Figure 6: Net savings of orthotic treatment for knee OA patients not currently receiving orthotic services



Source: Cebr analysis, commercial information from P&O providers, NHS

[54] These specific calculations are discussed further in the Appendix.

Hence, orthotic treatment of osteoarthritis is estimated to be a cost-effective intervention for the budgets of the health and social care systems.

Stroke patients

Strokes are an acute medical condition caused by an interruption in the blood supply to the brain and are a leading cause of both disability and death in the UK. The gait of people who have had strokes can be significantly affected by issues such as foot drop. Ankle-Foot Orthoses (AFOs) can be used to manage biomechanical impairments and improve the clinical presentation of these conditions.

Of the estimated 193,000 untreated patients, 15,945 of them are estimated to be stroke patients. The costs of treatment across this patient population are £1.47 million; this is split between £610,000 for orthoses, and £860,000 in staff costs.

15,945
Untreated patients eligible for orthotic treatment of stroke rehabilitation in 2025

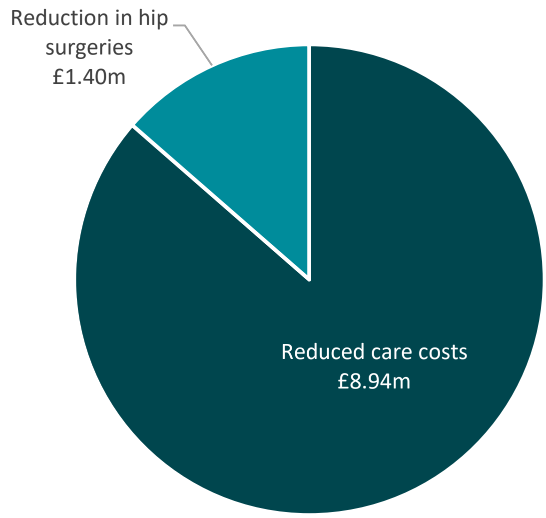
£1.5m
the total cost of orthotic intervention among stroke patients in the first year of treatment

The per patient orthotic treatment cost for stroke patients is £92 for the first year.[55]

We estimate the net savings of treating stroke patients with orthoses to be £8.87 million, as a result of gross savings of £10.34 million. These gross savings are driven by reduced care costs (£8.94 million) alongside a reduction in hip surgeries (£1.40 million). The reduction in care costs is derived from the cost saving associated with reduced dependency among stroke patients, and the reduced rate of hip surgeries is brought about by AFOs reducing the risk of falling, and consequently the risk of hip fracture.

[55] For additional context, this is the cost of initial AFO treatment - occurring at the point of discharge from inpatient care. It does not include treatment costs (or the corresponding benefits) of the more comprehensive assessment of orthotic need many stroke patients receive further on in recovery. This was due to a lack of available data on the costs associated with this pathway, and data on potential benefits. Device cost, additionally, reflect the cost of off-the-shelf orthoses, as information on custom-made orthoses was not made available to us.

Figure 7: Breakdown of gross savings from orthotic treatment of stroke patient during rehabilitation



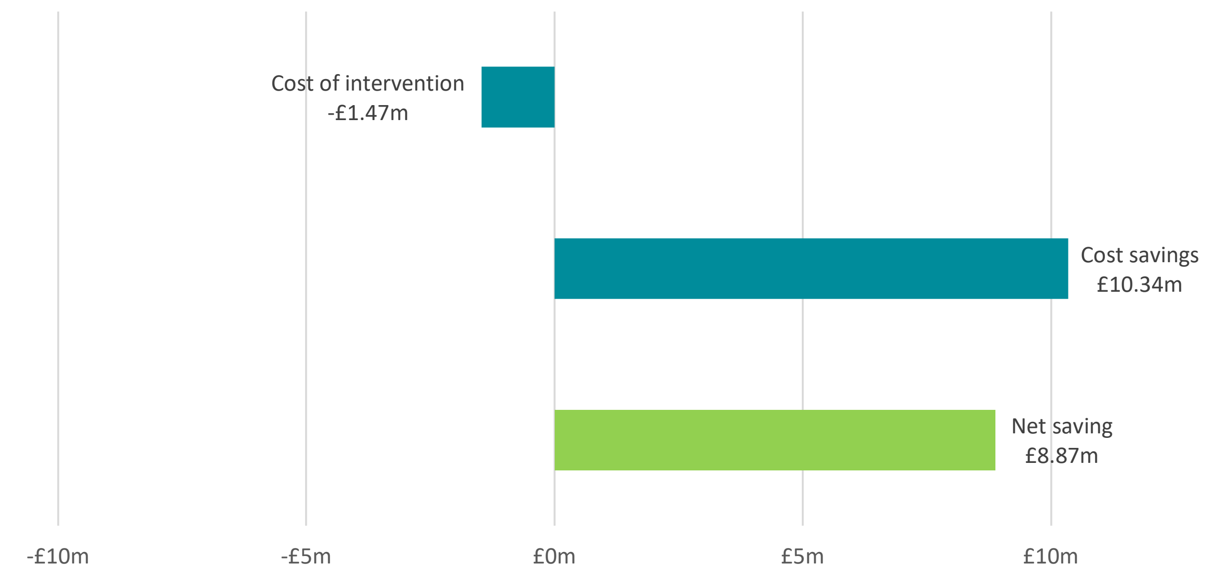
Source: Cebr analysis, commercial information from P&O providers, NHS

Reduced care costs are the dominant form of cost saving, because, while only a small fraction of these patients avoid suffering a hip fracture (67 out of 16,000)[56], over 20% of stroke patients who receive orthotic treatment are estimated to have reduced levels of dependence as a result.[57] For these individuals, orthotic treatment acts as a partial substitute for wider social care treatment and associated cost.

[56] This is estimated by taking the risk of a stroke patient breaking their hip from falling, and then applying a reduction associated with orthotic treatment, taken from literature.

[57] Based on research linking AFO treatment to improved Functional Ambulation Categories (FAC) scores among stroke patients, and that FAC scores are a good predictor of community ambulation ability.

Figure 8: Net savings of orthotic treatment for stroke patients not currently receiving orthotic services



Source: Cebr analysis, commercial information from P&O providers, NHS

Hence, orthotic treatment of strokes is estimated to be a highly cost-effective intervention from the perspective of the health and social care systems.

All other conditions

As discussed, the intervention cost for treating diabetic, osteoarthritis, and stroke patients can be modelled separately thanks to existing, robust data and literature that discusses orthotic treatment for each of these conditions, along with the subsequent benefits of this treatment.

These are not, however, the only conditions treated by orthotic services. Orthotists treat a wide range of conditions, including scoliosis, plantar fasciitis, rheumatoid arthritis, cerebral palsy and general post-surgical recovery. For these individual, often less prevalent conditions, we take a more generalised approach, given reduced data on condition-specific orthotic costs and benefits, while still recognising the benefit derived from POs serving these patients.

From data collected through our project partners – a group of public and private sector orthotic and prosthetic service and product providers – we have calculated the average yearly cost of treating any patient that goes through the orthotic service and applied it to all untreated patients who are not diabetic, OA, or stroke patients.

Overall, we estimate that treating the 124,000 untreated orthotic patients who do not have diabetes, OA, or strokes, would be associated with an upfront cost of £37.7 million; 38.4% of the total intervention cost.

124,000
Additional patients that could be treated through orthotic services

£37.7 m
The upfront intervention cost for treating all other eligible orthotic patients

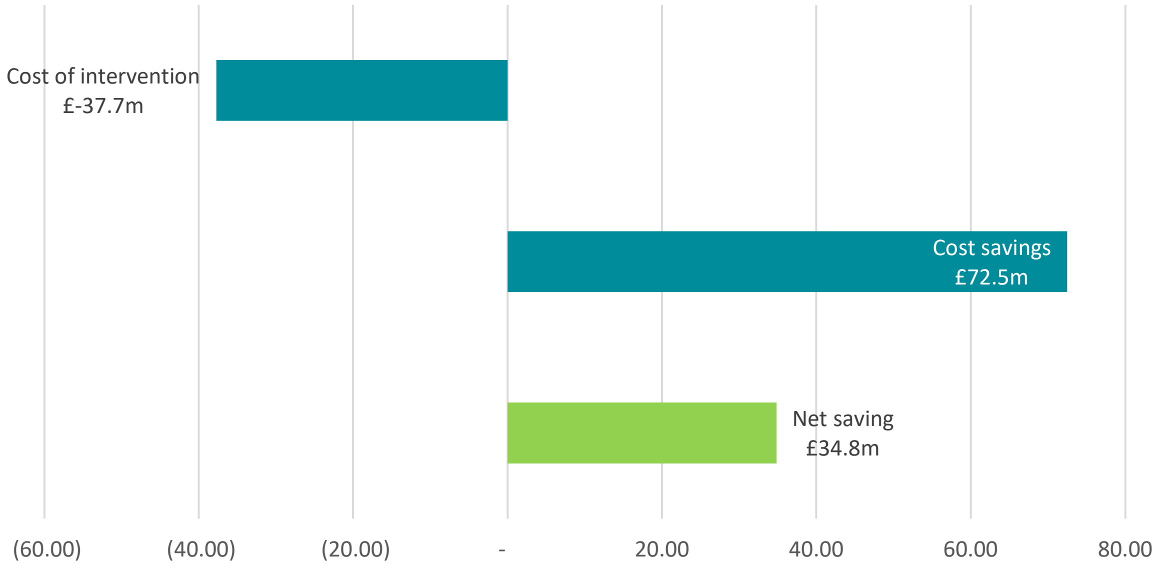
For these patients, we assume average device costs to come to £241, with an additional staff cost of £63 related to approximately three appointments in the first year of treatment, amounting to an average treatment cost of £304.[58]

We estimate that the treatment of all other patients that could benefit from orthotic provision as of 2025 would be associated with a net saving of £34.8 million. This corresponds to a reduction in wider healthcare costs associated with treating these patients, as orthotic device use reduces hospitalisations and overall resource use.[59 60]

Gross savings amount to £72.5 million, distributed solely as healthcare savings. While it is possible that health improvements are also associated with savings in social care for patients, further research is required into the relationship between orthotic treatment and social care requirements.

We present the cost, gross savings, and net savings associated with intervention in Figure 9.

Figure 9: Net savings of orthotic treatment for patients with all other orthotic-eligible conditions, not currently receiving orthotic services



Source: Cebr analysis, commercial information from P&O providers, NHS

[58] Given that the 'all other orthotic' category includes a range of varied conditions, three appointments per patient is taken as a simplifying assumption for all conditions included within this category. This is a slightly larger number of appointments per patient than implied by the rest of our modelling (closer to 2).

[59] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[60] Further detail as to how these are calculated is included in the Appendix.

4.3 Intervention cost and net savings – Prostheses

In England alone, there are approximately 55,000 to 60,000 people living with amputation or limb difference, of which the NHS treats approximately 43.8%.[61] We estimate that closing the gap in prosthetists in the UK by hiring an additional 76 would **increase the number of people being treated by prosthetic services by 7,000, increasing the share of people living with amputation or limb difference treated by prosthetics to 56.1%.**[62] These additional prosthetic patients may be those currently affected by treatment pathways from their prosthetics services.[63] Importantly, anchoring our estimates to the number of prosthetists recommended by WHO guidance avoids implying that all people with limb loss or difference in the UK should be treated by prosthetists, acknowledging that a considerable share of them may not be eligible for treatment.

We estimate that the intervention cost of providing prosthetic services for an additional 7,000 people in their first year of treatment would amount to £43.7 million, 44.5% of the total intervention cost.

As discussed above, this is mainly due to the high cost of prosthetic devices and the appointment-intensive nature of treatment, requiring as many as ten to fifteen appointments in the first year of treatment, attended by both prosthetists and support technicians.[64]

7,000
Additional patients that could be treated through prosthetic services

£43.7 m
The total intervention cost for all untreated prosthetic patients as of 2025

Per patient, we estimate that device costs come to approximately £5,100, while staff costs would stand close to £1,000, including both prosthetist and technician time. These costs were shared by project partners and take the average across all prosthetic patients, including both

[61] NHS England data, available here. To come to a total UK figure of patients with limb absence and difference treated by the NHS, we also accounted for the number of amputees in Scotland as reported here.

[62] We do not assume that 100% of people with limb difference or limb absence would be eligible to receive a prosthetic device, and therefore this gap in patients is only estimated on the gap of prosthetists that exists in the UK, and how many more people the missing prosthetists could treat.

[63] Limb Loss & Limb Difference Alliance, 'Limb Loss & Limb Difference Alliance: Parliamentary Briefing'.(2026), available here

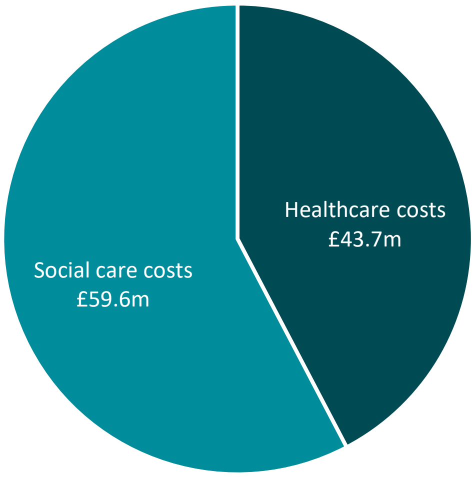
[64] The number of appointments required by patients is estimated from data provided by project partners, as well as the number of appointments for which technicians need to be present. While BAPO's 2022 Workforce Review also found there to be a shortage in technicians in the UK, we expect that most of the costs associated with hiring more technicians would be captured by our 'staff time' cost estimate.

lower and upper-limb prostheses. Given the higher prevalence of lower-limb amputees in the population, these average figures are likely weighted towards lower-limb provision.

We estimate that the treatment of all patients that could benefit from prosthetic provision as of 2025 would be associated with a net saving of £59.6 million. This corresponds, firstly, to savings in healthcare utilisation costs (hospital stays, drug spending, hospice costs, etc.)[65] and, secondly, to reductions in social care costs from increased patient independence. In what regards healthcare savings specifically, these have been found by multiple studies to be large enough to counteract intervention costs, not necessarily leading to a net cost saving, but at least achieving breakeven. [66] [67]

Gross savings (before intervention costs are accounted for) would amount to £103.4 million, distributed across both health and social care savings. Figure 10 below presents the breakdown of how gross savings are distributed across the two.

Figure 10: Breakdown of gross savings expected from increased provision of prostheses



Source: Cebr analysis, commercial information from P&O providers, NHS

Social care cost savings are associated with limb-wearing amputees who achieve a sufficient level of independence, not requiring the same degree of care they would need if they were not using a prosthetic device. Experience from professionals consulted for this study suggests that the average non-limb wearing amputee receives approximately two hours of care a day. Assuming these two hours would be wholly avoided through the use of a prosthesis for

[65] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

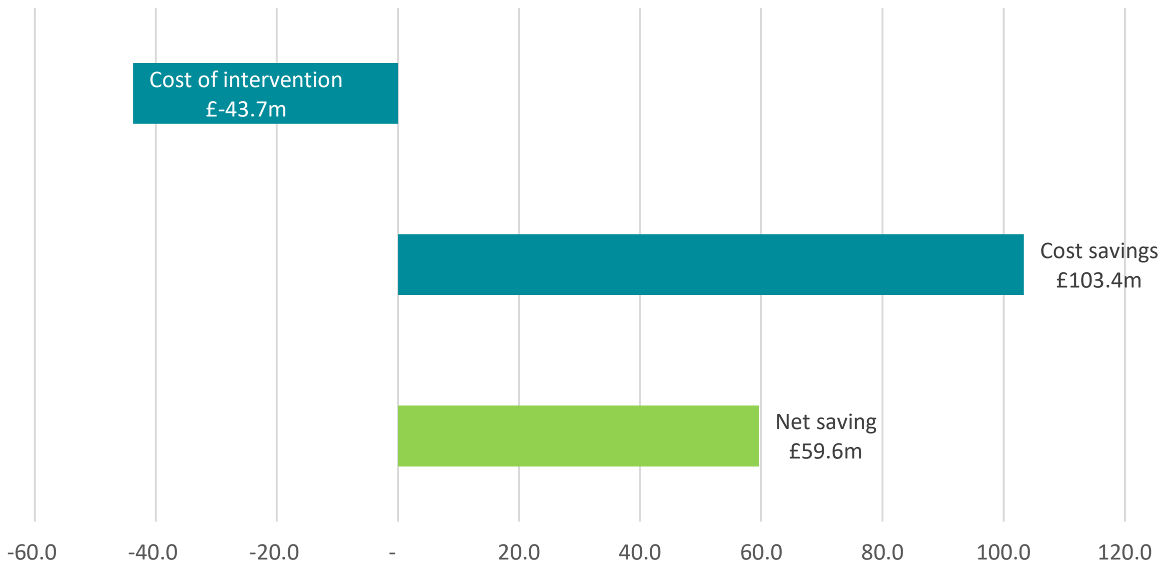
[66] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[67] Miller TA, Paul R, Forthofer M, Wurdeman SR. Impact of Time to Receipt of Prosthesis on Total Healthcare Costs 12 Months Postamputation. Am J Phys Med Rehabil. 2020 Nov;99(11):1026-1031. doi: 10.1097/PHM.0000000000001473.

prosthetic patients[68], associated cost savings per patient per year would be of £14,600.[69] It is worth noting that further research is needed to more robustly establish the relationship between social care utilisation and prostheses provision which anecdotal experience points to. Part of this research should involve an audit on the utilisation of social care services by persons with limb difference and absence.

Finally, we present the cost, gross savings, and net savings associated with prosthetic intervention in Figure 11.

Figure 11: Net savings to the NHS from increased provision of prostheses



Source: Cebr analysis, commercial information from P&O providers, NHS

Gross savings are estimated to be larger than intervention cost, resulting in a net saving of £59.6 million.

[68] We recognise this is a weighty assumption, and therefore robustly test it in the sensitivity testing sections of the report, in the Executive Summary and Appendix.

[69] Assuming the cost of an hour of care to be £20.

5. Employment and productivity impacts

5.1 Overall impact of employment and productivity improvements

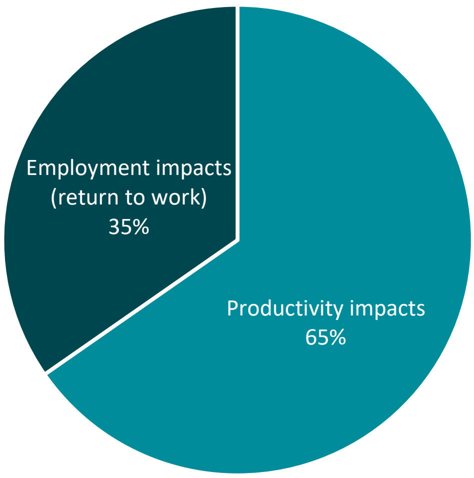
Prosthetic and orthotic treatment have significant employment and productivity improvements for those receiving treatment. Employment improvements occur when P&O treatment allows patients to return to work, benefitting the economy through an expansion in the labour force, increasing economic output. Productivity improvements occur when treatment allows patients who are currently working to become more productive – through reductions in pain, time off, and other health-related complications – increasing their economic output.

Productivity and employment improvements both generate GVA and tax uplifts; productivity improvements through increased economic output from patients who become more productive, and employment impacts via the economic output generated by patients who move from being completely out of work, into employment. To note, due to the weaker evidence base for the employment improvements, they are excluded from our ROI and BCR estimates.

The economic impact of productivity improvements would have stood at £59 million in GVA growth and a £15 million tax uplift

Indicatively, aggregating the productivity-driven and employment-driven impacts, we estimate a potential boost to UK GVA of up to £90 million. This comprises productivity impacts adding an estimated £58.8 million in GVA while also providing a tax uplift of £14.6 million, compared to a GVA impact of £31.2 million and a tax uplift of £7.7 million from employment improvements.

Figure 12: Share of impacts from productivity and employment improvements, respectively, at 2025 levels, GVA



Source: Cebr analysis, commercial information from P&O providers, NHS

The drivers behind each impact channel are discussed in the following sub-sections.

5.2 Productivity impacts

Productivity impacts are assessed by estimating the improvement treatment has on patients' ability to work uninhibited by health-related complications. This component of the evaluation measures the productivity effects of treating diabetes and knee osteoarthritis patients.[70] Other conditions treated by orthotic services have been excluded due to the limited extent to which treatment is seen as having a workforce impact. For example, stroke patients have an average age of 72 – well above the UK retirement age – so treatment is unlikely to have a notable impact on working-age productivity.[71]

Table 3: Number of patients and associated productivity impacts, by condition (GVA, tax, at 2025 levels)

Condition	Number of patients with improved productivity	GVA productivity, per patient	Total GVA productivity impact	Total tax uplift
Total	**5,900**	**£9,900**	**£59 million**	**£15 million**
DFUs	500	£55,600	£28 million	£7 million
Knee osteoarthritis	5,400	£5,700	£31 million	£8 million

Source: Cebr analysis, commercial information from P&O providers, NHS

As the above table shows, we estimate a productivity impact of £59 million a year in added GVA across the UK economy, alongside an annual £15 million tax uplift for the Exchequer.

For DFU patients, productivity improvements occur in patients of working age, with a job, who avoid a recurrent DFU because of orthotic treatment.[72] While few DFU patients fall into this category (due to a high average age and the degree of disability among DFU patients), the per-person benefit is large where DFUs are avoided, because of the severe impact of acquiring a DFU on a person's productivity.[73]

For those with OA, the patients facing improvements are also those of working age with a job – but with impacts coming from the productivity improvements associated with pain reduction.[74] The estimated per patient GVA impact of £5,700 corresponds to the significantly lower productivity reduction associated with OA than with DFUs.

Despite this, the overall productivity impacts are larger than for DFUs, due to the significantly higher number of osteoarthritis patients estimated to be in work. This is driven by the average age of OA patients being 61, relatively young compared to the patient population of other conditions which have workforce impacts. As a result, we estimate over 60% of untreated OA

[70] Why orthotic conditions only have productivity, and not employment impacts, is discussed in the report's Appendix.

[71] For more extensive discussion on why other conditions have been excluded, see the Appendix.

[72] For both DFU and OA patients, the UK-wide rate of employment among disabled people of working-age has been applied to the working-age share of their patient population. Further discussion on why this approach was taken is in the Appendix for this section. Data limitations on employment rates among high-risk diabetic patients limit our ability to refine our assumptions

[73] This is based on research quantifying the level of productivity loss among DFU patients, compared to non-DFU diabetics, found here.

[74] A discussion of how this was estimated is in the report's Appendix.

patients are of working age, of whom those in work are able to benefit from improvements in productivity from pain reduction.

5.3 Employment impacts

Employment impacts are assessed by estimating the number of patients able to re-enter the workforce after treatment improves their level of health. This component of the evaluation estimates this impact on prosthetic patients, due to the relative availability of evidence for these patients.

591
Patients that could return to work due to prosthetic treatment

£31m
yearly GVA added to the UK economy by those returning to work

£8m
yearly tax uplift from prosthetic patients returning to work

Of the 7,128 patients we estimate to be receiving inadequate access to prosthetic care, but eligible, for prosthetic treatment, 3,147 of them are estimated to be of working age.[75] Previous academic research implies that 19% of working age amputees could return to work after the receipt of a prosthesis, which, when applied to the 3,147 eligible working age patients, results in an estimated 591 patients that could return to work following prosthetic treatment.[76]

This would be associated with new contributions to GVA from people who were not previously working, amounting to £31 million per year, and an associated £8 million in tax receipts.

While these are significant findings, they are not included in the final ROI or BCR figures; this is due to a weaker evidence base underpinning these estimates compared to the other sections of the analysis. Specifically, establishing the direction of causality between receipt of prostheses and participation in the labour force is challenging, as the number of RCTs conducted in this space is limited due to both logistic and ethical reasons. It is intuitive that, as people's mobility and independence improve, their chances of returning to work do so as well, hence why the above analysis is presented but, ultimately, given the limitations in establishing causality, not included in our overall ROI and BCR.

[75] Based on the most recent available data on the age distribution of those undergoing amputations.

[76] Lee SP, Chien LC, Shih HT, Ho S, Clemens S. Returning to work after dysvascular lower limb amputation-A novel multivariate approach to examine relative contributions of biopsychosocial predictors. Prosthet Orthot Int. 2025 Feb 1;49(1):30-37. doi: 10.1097/PXR.0000000000000322.

6. Quality of life improvements

The positive health and employment outcomes related to receipt of prosthetic and orthotic care are also likely to improve patient quality of life. As people regain independence, their feelings of social integration and self-sufficiency increase. Where they avoid life-altering procedures such as amputation of a limb, the impact on quality of life is obvious.

In this section, we discuss the evidence linking orthotic and prosthetic interventions with improved quality of life, in what regards reduced pain, increased physical functioning, and independence.

6.1 The impact of orthotic provision on quality of life

As has been shown in the sections above, orthotic provision is associated with a number of positive health outcomes, including reduced pain and improved mobility and independence. There exists a broad literature linking each of these outcomes with improved quality of life.

Pain reduction

In what regards **pain reduction**, the orthotic management of conditions like DFUs and osteoarthritis has, as shown above, been associated with improvements in patient health and pain alleviation. **Pain alleviation, in turn, is likely to improve quality of life**, as has been observed in a large-scale survey of patients in England, that found chronic pain patients were considerably more likely to report a lower quality of life than the general population (measured as health-related quality of life or HRQoL).[77] Pain, as studied through qualitative interviews as part of this study, tended to interfere with physical functioning, professional and social life, and personal relationships, amongst other factors.

In what regards DFUs specifically, a study of patients within a specialised clinic in the UK found that 86% of patients reported some degree of DFU pain, with aches and exhaustion often mentioned as affecting patients' psychological and physical wellbeing.[78] This is further validated by recent evidence from Singapore, showing most patients with DFUs experience a diminished HRQoL[79]. An unhealed ulcer poses increasing complications, negatively affecting physical functioning and quality of life.[80] **As far as orthotic intervention is able to alleviate the symptoms associated with DFUs through appropriate off-loading, or avoid re-ulceration, patient pain will be reduced and quality of life improved**.

Indeed, this is the key finding from a UK study of diabetic patients that measured the impact of orthotic intervention across the survey sample. For those patients with at-risk feet, specialised orthotic intervention resulted in statistically significant improvement in both

[77] Hadi MA, McHugh GA, Closs SJ. Impact of Chronic Pain on Patients' Quality of Life: A Comparative Mixed-Methods Study. J Patient Exp. 2019 Jun;6(2):133-141. doi: 10.1177/2374373518786013. HRQoL is a quality of life measure based on an individual's mental and physical health.

[78] The impact of diabetic foot ulcer pain on patient quality of life, Bradbury S., Price P., Wounds UK, 2011, Vol 7, No 4, available here.

[79] Lam BJW, Lee PYF, Liew H, et al. Health-related quality of life of patients with diabetic foot ulcers in Singapore: A cross-sectional and longitudinal analysis. *Proceedings of Singapore Healthcare*. 2025;34. doi:10.1177/20101058251326709

[80] Jaksa PJ, Mahoney JL. Quality of life in patients with diabetic foot ulcers: validation of the Cardiff Wound Impact Schedule in a Canadian population. Int Wound J. 2010 Dec;7(6):502-7. doi: 10.1111/j.1742-481X.2010.00733.x.

physical and mental well-being (measured using the SF-36[81]). In particular, role limitation improved by 65% for the treatment group post-intervention[82].

Where an avoided DFU would have otherwise led to amputation, the associated improvements in pain and quality of life are clear. For example, most patients with an amputation (up to 80%) suffer from phantom limb pain.[83] More generally, amputation profoundly impacts quality of life and dramatically increases mortality rates.

Diabetic foot ulcers are not the only condition for which orthotic management can lead to pain reduction. For osteoarthritis too, use of orthotic devices such as footwear (modelled above) has been seen to lead to pain reduction. **Pain reduction in osteoarthritis patients is also likely to lead to quality-of-life improvements**. A recent study of 150 patients with osteoarthritis in the US found that pain and reduced psychological wellbeing were associated with lower quality of life.[84] Recent evidence from India similarly finds OA negatively impacts quality of life and increases the likelihood of patients self-reporting as disabled.[85]

Improved mobility and functioning

For the conditions we model, orthotic device usage is also often associated with improved physical functioning, which in turn impacts quality of life. Reduced mobility has been associated with reduced quality of life, as independence and feelings of self-sufficiency are negatively impacted. For instance, research investigating how better scores on the 6-minute walk distance test relate to quality of life found that 100 metres longer on the test were associated with EQ-5D-5L scores 5.2% higher on average. [86] This study also found that diseases that decrease mobility, such as arthritis, have a significant impact on quality of life.

By avoiding re-ulceration for patients with DFUs – for whom treatment often involves constrained mobility – and reducing pain for osteoarthritis patients, it is likely orthotic treatment improves overall mobility. As far as DFU related amputations are avoided, patient functionality will also improve, with lower-limb amputations being related to higher levels of depression and lower rates of mobility than for patients with a recurrent DFU.[87] To the extent, additionally, that

[81] The SF-36 is a quality of life measure encompassing physical, mental, and social wellbeing, and assessed through a self-reported survey.

[82] Davies, S., Gibby, O., Phillips, C. *et al.* The health status of diabetic patients receiving orthotic therapy. *Qual Life Res* **9**, 233–240 (2000). https://doi.org/10.1023/A:1008979825851

[83] Erlenwein, Joachim[a,*]; Diers, Martin[b]; Ernst, Jennifer[c]; Schulz, Friederike[d]; Petzke, Frank[a]. Clinical updates on phantom limb pain. PAIN Reports 6(1):p e888, | DOI: 10.1097/PR9.0000000000000888

[84] Giotis D, Gianniki M, Koukos C, Veliou K, Saseendar S, Chaidou A. Impact of Knee Pain and Osteoarthritis on Quality of Life: A Comprehensive Assessment of Physical, Social, and Psychological Factors. J Orthop Case Rep. 2025 Apr;15(4):306-312. doi: 10.13107/jocr.2025.v15.i04.5528.

[85] Kumar T, Pandey V, Kumar A, Elhence A, Choudhary V. Quality of life and self-reported disability in patients with osteoarthritis: Cross-sectional descriptive study. J Educ Health Promot. 2023 Mar 31;12:81. doi: 10.4103/jehp.jehp_1055_22.

[86] Shafrin J, Sullivan J, Goldman DP, Gill TM. The association between observed mobility and quality of life in the near elderly. PLoS One. 2017 Aug 21;12(8):e0182920. doi: 10.1371/journal.pone.0182920.

[87] Davie-Smith, F, Coulter, E, Kennon, B, Wyke, S & Paul, L 2017, 'Factors influencing quality of life following lower limb amputation for peripheral arterial occlusive disease: a systematic review of the literature', Prosthetics and Orthotics International, vol. 41, no. 6, pp. 537-547. https://doi.org/10.1177/0309364617690394

improved functioning allows people to develop their professional life, as modelled in Section 5, quality of life is also likely to improve.

For stroke patients, too, orthotic intervention is likely to lead to quality of life improvements through increased physical functioning. Following a stroke, fewer than 50% of patients return to an independent life, while even those who regain functional independence continue to suffer limitations. [88] Overall, quality of life 6 months after a stroke is deeply impacted, particularly for severe stroke patients.[89] **As modelled above, an ankle foot orthosis (AFO) can improve walking and balance after a stroke[90], reducing complications related to increased risk of falling and, consequently, improving patient quality of life.**

6.2 The impact of prosthetic provision on quality of life

As discussed, quality of life is profoundly affected by amputation. The provision of prostheses for amputees has the potential to improve functionality, independence, and the likelihood of returning to work, positively impacting patient quality of life.

A literature review from the Glasgow Caledonian University on the quality of life of amputees finds that **the ability to walk successfully with a prosthesis has the greatest positive impact on quality of life for lower-limb amputees**, finding that even small amounts of walking result in greater quality of life compared to being unable to walk. This might be due to improved physical fitness as much as it is due to the use of prostheses allowing for more social interaction and participation. [91]

Indeed, physical functioning, as described above, is positively related to quality of life, with a recent study of an older cohort in the US finding a relationship between standing and walking and quality of life as measured by the EQ-5D-5L utility score.[92] At the same time, increased social participation across non-amputee populations has been associated with higher quality of life and lower levels of loneliness and related depression.[93] [94]

[88] Bártlová S, Šedová L, Havierniková L, Hudáčková A, Dolák F, Sadílek P. Quality of Life of Post-stroke Patients. Zdr Varst. 2022 Mar 21;61(2):101-108. doi: 10.2478/sjph-2022-0014.

[89] Butsing, N., Voss, J.G., Keandoungchun, J. *et al.* Changes of health-related quality of life within 6 months after stroke by clinical and sociodemographic factors. *Sci Rep* **15**, 416 (2025). https://doi.org/10.1038/s41598-024-84454-5

[90] Sarah F. Tyson, Ruth M. Kent, Effects of an Ankle-Foot Orthosis on Balance and Walking After Stroke: A Systematic Review and Pooled Meta-Analysis, Archives of Physical Medicine and Rehabilitation, Volume 94, Issue 7, 2013, Pages 1377-1385, ISSN 0003-9993, https://doi.org/10.1016/j.apmr.2012.12.025.

[91] Davie-Smith, F, Coulter, E, Kennon, B, Wyke, S & Paul, L 2017, 'Factors influencing quality of life following lower limb amputation for peripheral arterial occlusive disease: a systematic review of the literature', Prosthetics and Orthotics International, vol. 41, no. 6, pp. 537-547. https://doi.org/10.1177/0309364617690394

[92] Marquez DX, Aguiñaga S, Vásquez PM, Conroy DE, Erickson KI, Hillman C, Stillman CM, Ballard RM, Sheppard BB, Petruzzello SJ, King AC, Powell KE. A systematic review of physical activity and quality of life and well-being. Transl Behav Med. 2020 Oct 12;10(5):1098-1109. doi: 10.1093/tbm/ibz198.

[93] Liang LY. The impact of social participation on the quality of life among older adults in China: a chain mediation analysis of loneliness, depression, and anxiety. Front Public Health. 2024 Sep 25;12:1473657. doi: 10.3389/fpubh.2024.1473657.

[94] Watanabe T, Suzuki M, Yamada K, Aizu N, Ota K. The relationship between social participation and quality of life in individuals with traumatic brain injury. Fujita Med J. 2025 Aug;11(3):111-120. doi: 10.20407/fmj.2024-016.

7. Return on investment and benefit cost ratio

To calculate the returns expected from increased investment in P&O services (the return on investment or ROI) and the benefit cost ratio (BCR), we compare the total cost of intervention against the expected benefits. Table 4 below shows the costs and benefits we include within our calculations.

Table 4: Costs and benefits included in our analysis

Cost / Benefit	Variable	Included	Excluded
Costs	Cost of device(s)	✓	
	Staff time (both PO and technician time)	✓	
	Administration cost[95]		✗
	Investment in facilities		✗
	Staff training time		✗
Benefits	Reduced use of NHS resource (hospitalisation, drug prescription, etc)	✓	
	Reduced incidence of surgeries	✓	
	Reduced social care need	✓	
	Improved productivity (reduced absenteeism/presenteeism)	✓	
	Improved likelihood of returning to work[96]		✗
	Increased QALYs		✗
	Lower disability benefit payments		✗

As a reminder, throughout this section and consistent with the rest of the report, when describing the **cost of intervention**, we refer to the aggregated cost of devices and staff time. When referring to the **benefits of intervention**, we refer to savings in use of NHS resource, surgical procedures, and social care, as well as productivity improvements from better health.

[95] To a certain extent, we expect patients not receiving adequate P&O care to be patients that are already treated elsewhere within the NHS, and that therefore additional administration costs related to the intervention would not necessarily be larger than current administration costs.

[96] As discussed above, although calculated and presented in Section 5, this is not included in the overall ROI and BCRs, due to lower confidence in the estimates, although a prosthetics-specific ROI is presented for which it is included.

Where patients are treated through P&O, this would generate gross savings (from the benefits outlined in Table 4) and where they are not, these gross savings are foregone. When the P&O intervention cost is removed from gross savings, we obtain the net savings. The net savings describe how much cheaper treatment of patients would be in the intervention scenario compared to the inaction scenario.

The health and social care ROI is calculated as these net savings over total intervention cost, while the total ROI includes further benefits, associated with productivity improvements enabled by prostheses and orthoses. An ROI of 2 : 1 is interpreted as a £2 net saving for every £1 spent. In gross terms therefore, an ROI of 2 : 1 relates to gross savings of £3 per £1 invested, which equivalently represents a BCR - calculated as the total benefits divided by the total costs - of 3.

Therefore, where the benefit of an intervention exceeds the cost, this results in an ROI of above zero and a BCR of >1. A negative ROI (i.e. -0.5 : 1) or a BCR of <1 (i.e. 0.5) indicates a net loss, as only £0.5 gross savings are obtained from every £1 invested.

7.1 ROI and BCR from treating the 2025 patient cohort

We estimate that not treating the 193,000 people who we estimate were eligible for prosthetic and orthotic treatment in the UK in 2025, would have been associated with missing out on £125.9 million in net health and social care savings (£224.3 million gross savings)[97] and £58.8 million[98] in increased GVA[99]. This latter figure is driven by the productivity benefits unlocked by additional P&O provision. This GVA figure also includes a gain to the Exchequer of £14.6 million.

Setting these benefits against the additional cost of the proposed increase in P&O services (£98.3 million), **we estimate the health and social care ROI to come to 1.28 : 1**, with every £1 spent in P&O generating £1.28 in net savings (£2.28 in gross savings) elsewhere in the NHS and social care services. This corresponds to **a health and social care BCR of 2.28.**

Across all benefits (including the impact of productivity improvements) the total ROI of treating the 2025 patient gap is estimated to be 1.88 : 1. That is, **every £1 spent on P&O services would have generated £1.88 in net benefit – a total gross return of £2.88 including the £1 invested – across health and social care savings and GVA. This corresponds to a total BCR of 2.88.**

The health and social care ROI associated with treating all patients eligible for treatment in 2025 would have been 1.28 : 1, with a total ROI (i.e. including productivity gains) of 1.88 : 1, reflecting cost savings expected from intervention.

This suggests that interventions in orthotic and prosthetic services not only break even, in terms of covering the upfront investment required, but generate significant cost savings, as

97 Note that gross savings here refer only to health and care savings, and do not include GVA gains coming from improved productivity.

98 Note that this figure excludes prosthetic employment gains due to greater uncertainty in the estimates.

99 Contributions to the Exchequer are not explicitly mentioned here, but are included in the ROI and BCR calculated as part of the GVA contributions associated with productivity improvements.

well as having a positive impact on UK GDP through improved productivity from better health (and potentially further benefits through supporting increased participation in the labour market). Additionally, our ROI and BCR captures benefits associated with the year patients are treated in, and do not necessarily include savings after they stop being treated. It is possible, however, that longer term benefits exist that have not been studied yet.

Sensitivity testing patient-per-orthotist assumptions

As discussed in the Appendix, our model assumes each orthotist is able to conduct 7.3 appointments per working day (excluding sick and annual leave days). ROI figures are sensitive on this assumption which, although based on NHS FOI data, was felt by industry stakeholders to be potentially too low when also considering NHS contracted services . This is one of the assumptions around which there is most uncertainty in the model, and hence it is discussed here in more length. The results of other sensitivity testing are discussed in the Appendix.

As well as a scenario of 7.3 appointments per working day, we also tested a second scenario where orthotists conduct 12 appointments per working day, which was felt to be closer to what NHS contracted services provide. As the number of patients orthotists can see increases, so does the implied patient gap. **Increasing to 12 appointments per day grows the patient gap to an estimated 305,000 under-treated patients.**

Treating this expanded cohort of patients would increase net savings to £152.4 million (by £26.5 million), as more patients avoid costlier non-orthotic treatment. **Health and social care ROI, however, would decrease to 1.14 : 1, corresponding to a BCR of 2.14 : 1**. This is because as more patients are treated, average severity decreases once capacity is large enough to treat non-urgent patients. The benefit of treating a non-urgent patient to the NHS (at least in the short term) is smaller than that of treating an urgent patient, and therefore per patient returns decrease with an expanded cohort. Intervention costs for non-urgent patients are also lower, but decrease by less than the benefits of treatment, which means that the overall ROI in relative terms falls as more non-urgent patients are treated.

It is worth noting that the differences in ROI between these two scenarios ultimately reflect uncertainty in the exact size of the orthotics patient gap. If reliable, comprehensive data was available on the number of under-treated patients, this would allow policymakers to judge the characteristics of the patient population that the expanded P&O workforce would be treating, and therefore which of the two scenarios is most relevant.

Table 5 shows the ROI for every condition modelled, presenting both the health and social care ROI as well as the total ROI (which also accounts for productivity gains).

Table 5: Health and social care ROI and total ROI associated with an intervention on the estimated 2025 patient gap

Condition	Health and social care ROI	Total ROI
Orthotics - Diabetes	1.95	4.48
Orthotics - Osteoarthritis	0.37	7.36[100]
Orthotics - Stroke	6.03	6.03
Orthotics - All others	0.92	0.92
All orthotics	1.22	2.30
Prosthetics	1.36	2.07
Total	1.28	1.88[101]

Source: Cebr analysis, commercial information from P&O providers, NHS

As can be seen, ROIs vary by condition, with the health and social care returns on intervention being highest for diabetic and stroke patients. These are conditions where savings related to reduced hospitalisations and resource use, avoided surgeries, and reduced reliance on social care, considerably exceeds intervention costs. In the treatment of stroke patients, for instance, each £1 spent is associated with an additional £6.03 saved elsewhere in the NHS or social care services, while in diabetes the net per-pound-saving is £1.95, equalling a gross saving of £2.95. The treatment of osteoarthritis results in a net gain of £0.37 per £1 invested (gross gain of £1.37) due to relatively smaller savings. Prosthetic treatment, on the other hand, is associated with a £1.36 net saving on every pound spent.

Total ROI does not differ from health and care ROI for conditions for which we do not model any productivity gains, such as strokes and less severe conditions like plantar fasciitis, included within the 'Orthotics – all others' category. **Gains associated with improved productivity post treatment have a considerable impact on the diabetes and OA total ROI, increasing the former to 4.48 : 1 and the latter to 7.36 : 1.** This implies that, for every £1 spent on diabetes provision, £4.48 is obtained in the form of net health and care savings or increased GVA related to improved productivity (a gross gain of £5.48). In the case of osteoarthritis, productivity gains are large enough to compensate for smaller health and social care savings. **Overall, total ROI for all orthotic treatment is estimated to be 2.30 : 1.** This is lower than the simple average of all the conditions' total ROI because, by virtue of

[100] This high total ROI is driven by two factors: the productivity impacts for treating OA of £31 million in GVA, and the relatively low cost of intervention (£4.45 million). The productivity impacts are a consequence of OA patients being a relatively young cohort compared to other conditions (61, compared to 67 for DFU patients, and 72 for strokes). This means a larger share of patients are of working age, in the workforce, and therefore able to translate improved symptoms into productivity improvements.

[101] Note that, due to a lower confidence in the employment gains associated with prosthetic treatment, they have been included within the prosthetic ROI but excluded from the total ROI.

accounting for intervention costs for all conditions but only modelling productivity gains for some, the total ROI is tempered.

Prosthetic total ROI also increases relative to health and care ROI, up to 2.07 : 1, or £2.07 net (£3.07 gross) gained for every £1 spent although, given concerns around the strength of these estimates, it is excluded from the total ROI, which stands at 1.88 : 1.[102]

Sensitivity testing patient-per-orthotist assumptions

Where a larger patient cohort of 305,000 patients is assumed (in the second scenario where orthotists conduct 12 appointments per day) total ROI would decrease to 1.59 : 1, reflecting a decrease in severity of patients treated.

7.2 ROI and BCR from treating patients to 2035

The patient gap to 2035

As discussed throughout the report, much of our analysis has been anchored in 2025 data. Given that investment in P&O has not changed substantially during 2025 and the first half of 2026, we expect the patient gap to only have increased since. **If inaction continues, we estimate the number of eligible patients not receiving adequate care would increase from an estimated 193,000 in 2025 to 238,000 patients by 2035, driven mainly by population growth.**

If inaction continues, we estimate that the number of eligible patients not receiving adequate care would increase from an estimated 193,000 in 2025 to 238,000 patients by 2035, driven mainly by population growth.

Our estimates for how we expect demand for P&O services to increase into the future are anchored to ONS population projections.[103] That is, as the population grows, demand for P&O services will grow with it. In what regards the supply of POs we assume that, barring any new investment, the current level of 953 POs will be maintained through to 2035.[104] Our estimates for the future gap in patients treatable by P&O services, along with the number of additional POs needed to treat them in each year, are presented in Table 6.

Table 6: Future projections for the gap in patients that could be treated by P&O services and the associated number of professionals required, up to 2035

Year	Additional POs needed relative to 2025	Patients that could be treated by additional POs
2025	263	192,968
2026	272	199,338

[102] In the calculation of the total ROI, we therefore account for prosthetic intervention costs but not employment gains, ultimately depressing the ROI, relative to the individual orthotic and prosthetic ROIs.

[103] National population projections: 2024-based, Office for National Statistics, April 2026, available here.

[104] Assuming that entry and exit from the profession balance each other out. It is worth noting, also, that the inclusion of QALYs in an ROI or BCR calculation could also bring the total ROI or BCR higher.

2027	281	205,707
2028	286	209,529
2029	291	213,351
2030	298	218,447
2031	304	222,269
2032	309	226,091
2033	314	229,912
2034	319	233,734
2035	324	237,556

Source: Cebr analysis, commercial information from P&O providers, NHS, ONS

Each year, new professionals will be needed to meet increased demand for treatment. If intervention is delayed until, say 2028, 286 additional hires would be required to provide treatment for the 210,000 patients that could benefit from it.

Over the whole period, we expect an increase in eligible patients of 23%. As mentioned above, given we anchor our projections to ONS population estimates, the main driver for increased demand in P&O is an expanded population. We expect that other factors, such as population ageing, will also increase the number of patients eligible for P&O treatment, as the rates of conditions like diabetes and osteoarthritis increase in the population.

To some extent, we expect this effect to be captured by our assumption that the UK's level of P&O need relates to 17.5 POs per million in the population. In practice, this means our 2025 estimate of untreated patients starts at a higher point than if we had chosen the lower bound estimate of 15 POs, and is therefore better placed to capture increases in disease prevalence expected through to 2035.

The costs and benefits of treating patients up until 2035

If all patients that could benefit from P&O treatment received it up until 2035, we would expect a total (discounted) intervention cost over the ten years of £750 million, **resulting in net cost savings of £1.4 billion as treatment costs are reduced, and GVA gains as patients improve their health and productivity of £631 million**. Gains to the Exchequer, consequently, would have been expected to amount to £156 million. All of these estimates are presented in 2025 price levels and additionally discounted using the standard 3.5% per year discount rate.

As with our single-year estimates, in our forecast we capture costs and benefits for every year that a patient is treated. For a single year, costs include intervention costs for all new as well as recurrent patients from years prior. Table 7 presents the total discounted intervention cost associated with treating the yearly number of patients outlined in Table 6 as well as the associated net savings and productivity gains.

Table 7: Intervention cost and net saving associated with treating the untreated patient population in each year to 2035, discounted to 2026

Year	Yearly cost of increased P&O provision (£, m)	Yearly net health and social care saving (£, m)	Yearly productivity gains (£, m)[105]
2025	98.3	126.3	58.8
2026	69.5[106]	133.5	60.7
2027	69.3	133.1	60.5
2028	67.8	130.3	59.6
2029	66.7	128.1	58.6
2030	66.1	127.1	58.0
2031	64.8	124.6	57.0
2032	63.7	122.4	56.0
2033	62.6	120.3	55.0
2034	61.4	118.1	54.1
2035	60.3	116.0	53.1
Total	750	1,379	631

Source: Cebr analysis, commercial information from P&O providers, NHS, ONS

For each year where an expanded cohort of POs is hired and treating patients, the costs and net savings are presented above, with year-on-year cost and benefit discounting making yearly figures decrease to 2035, since discounting is first applied in 2027. This does not however imply that the absolute value of the benefits falls over time, solely that the present value of these benefits falls. Total intervention and savings across the period come to a total intervention cost of £750 million and net saving of £1.4 billion.

In what regards the benefits associated with intervention, we for the most part assume that, for as long as a patient is treated and their health is improved as a result, treatment will continue to be cost saving, and their productivity improved. This is particularly relevant for osteoarthritis or prosthetic treatment, where we expect patients to continue to require treatment for multiple years. Further discussion on how each condition's costs and benefits are modelled is included in the Appendix.

The ROI and BCR of treating patients up until 2035

The health and social care ROI associated with treating eligible patients over the ten years to 2035 is estimated to stand at 1.84 : 1, meaning that, for every £1 spent on

105 Note that prosthetic employment benefits have been omitted from this table due to lower confidence in the estimates.

106 Intervention costs fall after the first year of treatment, driven mainly by prosthetic intervention costs falling considerably for everyone treated in that first year.

intervention the associated net saving would be £1.84. This corresponds to a gross saving of £2.84, resulting in a BCR of 2.84.

This is slightly higher than the health and social care ROI and BCR for 2025 alone, due mostly to intervention costs for some conditions reducing once the patient has received their first year of treatment: for instance, prosthetic patients fitted with a new limb in their first year and subsequently only requiring check-up appointments. Another contributor is that for people undergoing amputations from 2026 onwards, we reflect in our model that early provision of prostheses is associated with a 25% decrease in post-amputation care.[107] We assume, therefore, these patients would be promptly provided for in the intervention scenario, where enough POs are hired to meet demand each year.

The total ROI would also be expected to be higher, at 2.68 : 1, reflecting additional net savings and contributions to GDP of £2.68 for every £1 spent. This corresponds to a gross saving of £3.68 per £1 invested, thus creating a BCR of 3.68. Again, this is larger than its counterpart in 2025, reflecting lower intervention costs for recurrent patients.

Both the health and social care ROI and the total ROI increase as patients continue to be treated through to 2035, to 1.84 : 1 and 2.68 : 1, respectively, reflecting decreasing intervention costs after the first year of treatment.

Both health and social care ROIs and total ROIs to 2035, are presented, by condition, in Table 8.

Table 8: Health and social care ROI and total ROI associated with treating the estimated patient gap up until 2035, by condition

Condition	Health and social care ROI (to 2035)	Total ROI (to 2035)
Orthotics - Diabetes	1.95	4.48
Orthotics - Osteoarthritis	1.01	11.23[108]
Orthotics - Stroke	6.03	6.03
Orthotics - All others	0.92	0.92
All orthotics	1.28	2.39
Prosthetics	3.61	5.48
Total	1.84	2.68

Source: Cebr analysis, commercial information from P&O providers, NHS, ONS

[107] Miller TA, Paul R, Forthofer M, Wurdeman SR. Impact of Time to Receipt of Prosthesis on Total Healthcare Costs 12 Months Postamputation. Am J Phys Med Rehabil. 2020 Nov;99(11):1026-1031. doi: 10.1097/PHM.0000000000001473.

[108] For an explanation of the relative magnitude of this estimate, see footnote 100.

Conditions where the ROI is unchanged between 2025 and 2035 (diabetes, strokes, and all other orthotic conditions) are those for which we assume that intervention costs and net savings would remain close to stable throughout the period. In the case of osteoarthritis, reduced intervention costs for recurring patients bring the health and social care ROI to 1.01 : 1, representing a net gain of £1.01 for every £1 invested. As mentioned, the health and social care ROI for prosthetics increases both because it is assumed that new amputees would be treated earlier, bringing treatment cost down, as well as because average yearly device cost decreases once a limb is fitted for the first time.

These changes to intervention costs and savings are also reflected in a larger total ROI for both orthotic conditions (of 2.39 : 1) and prosthetic treatment (of 5.48 : 1), although the latter is excluded from the overall total ROI on the same grounds as above.

Overall, therefore, the ROI and BCR associated with treating more people through prosthetics and orthotics is likely to increase over time, as intervention costs are reduced and some new net savings manifest.[109]

Sensitivity testing patient-per-orthotist assumptions

Where a larger patient cohort of 305,000 patients is assumed (in the second scenario where orthotists conduct 12 appointments per day) health and social care ROI to 2035 would decrease to 1.41 : 1, while total ROI to 2035 would decrease to 1.96 : 1. This, again, reflects the assumption that more patients would be treated into the next decade than estimated in the baseline scenario, and that the average patient would therefore be of a lower severity.

[109] In relation to the sensitivity testing done on the 2025 ROI, it is worth noting that an expansion of the patient cohort here does not lead to a reduced ROI because we would similarly expect the number of patients with DFUs and limb differences to increase over the ten-year horizon, maintaining the balance between higher-return and lower-return interventions, particularly as the lower-returns on conditions like OA are tempered because of the reasons discussed above.

8. Conclusion

This report has set out the number of people in the UK who could have benefitted from expanded P&O provision in 2025, the cost of treating them, the net savings associated, and the employment and quality of life impacts we expect would have followed. We have also presented how the patient gap is expected to evolve to 2035, and with it, the associated costs and benefits.

Overall, there exists a patient gap in the UK related to an understaffed P&O service, which we estimate to be of 193,000 patients. Treatment provision for these patients in 2025 would have been associated with net health and social care cost savings of £126.3 million – rising to a benefit of £185.0 million when additionally considering productivity improvements of treatment.[110] It is worth noting again that this estimate relates to the shortfall in POs and is not based on waiting list data.

An overall health and social care ROI in 2025 of 1.28 : 1 suggests net savings of £1.28 on healthcare and social services for every £1 spent (BCR of 2.28). **This implies that P&O interventions, at times seen as costly and difficult to justify, bring sufficient benefits to be ultimately cost-saving.** Critically, many of these cost-savings, as we have discussed, relate to **moving care from inpatient to community settings**, reducing hospitalisation and drug spending costs.

Similarly, an associated total ROI of 1.88 : 1 (BCR of 2.88) shows that **benefits go beyond health and social care savings and extend to wider society through increased productivity, directly contributing to UK GDP and the Exchequer**. The estimated yearly contributions, respectively, are £58.8 million and £14.6 million. **Increased participation is not only beneficial for the economy, but for individual quality of life.**[111]

Provision into the future, additionally, continues to present an improved health and care ROI of 1.84 : 1 and total ROI of 2.68 : 1 (BCRs respectively of 2.84 and 3.68). This occurs as intervention costs related to treating patients for the first time are reduced and new savings manifest. Improved orthotic and prosthetic provision now, therefore, continues to pay into the future, alleviating pressure from inpatient settings and contributing to overall UK productivity while, perhaps most importantly, improving the quality of life of what we estimate to be close to 200,000 people.

It is worth noting, additionally, that there exists uncertainty in our ROI and BCR estimates, driven primarily by the challenging P&O data environment. The lack of yearly, publicly available data on the number of P&O patients treated and the associated costs necessarily involves working around assumptions and uncertainty in estimates.

Collecting data on patients and the conditions they are treated for is essential for understanding whether certain conditions are systematically underprovided for. Even within this report, data paucity drives the approach undertaken to assess P&O under-provision, whereby this is inferred from recommended PO levels relative to the UK's population and level

110 These include gains from productivity improvements, although additional Exchequer contributions are not included since they are not additive to productivity improvements.

111 While we do not quantify quality of life improvements in this study, it is likely incorporating these would bring the ROIs and BCRs above those presented here.

of development, per WHO guidelines. This is clearly a second-best approach to measure under-provision compared to direct understanding of patient needs and PO capacity, however it was necessary given the poor data landscape.

Another clear area where better data collection and reporting from the NHS is needed is device and appointment cost, where the data that is available is fragmented across National Cost Collection databases and necessitates time-consuming FOIs to access. In many cases, this data is regularly supplied by providers to NHSE but is unfortunately not made publicly and readily accessible.

While it is our belief that this is the most exhaustive piece of research conducted into the benefits of P&O investment, the fact that these benefits exist is not necessarily new information. As far back as 2004, NHS-commissioned research was demonstrating the value of P&O provision, finding that every £1 invested in orthotic provision could save around £4 elsewhere.[112] Through a combination of academic research, consultancy work and NHS reviews, often driven by the industry itself, this broad finding has continued to be corroborated over the last two decades.

Yet without more comprehensive data collection effort from the NHS, it is more difficult for government to understand both the scale of the intervention required and the additional value that this could bring. Improved data collection, to ultimately support broader integration of P&O services into wider NHS governance processes and decision-making, is critical.[113]

In the meantime, even where based on imperfect information, our report serves to show that increased investment into P&O services is sorely needed while also paying for itself by reducing other health and social care costs on a better than 1:1 basis.

[112] Boxer P, Flynn T. Orthotic Pathfinder: a patient focused strategy and proven implementation plan to improve and expand access to orthotic care services and transform the quality of care delivered. London: Business Solutions; 2004.

[113] We note for example that based on recent data shared from recent BAPO FOIs, amongst applicable Trusts/Health Boards, more than half do not include prosthetics (54% excluded) and orthotics (58% excluded) amongst their mainstream workforce planning.

Appendix

A1.1 The gap in patients not receiving adequate P&O care

Why the midpoint of the WHO recommendation on POs

As discussed, WHO guidance puts the recommended level of POs for a country such as the UK, at 15-20 per million population. For our modelling, we proceed with an assumed need of 17.5 professionals per million. The reason we assume the midpoint in the number of POs needed per million people is a combination of guidance by BAPO stakeholders, and cross-evidencing against the disease prevalence rates that exist in the UK.

As such, the lower bound number of POs per capita fell short of meeting patients' needs, not only of the current prevalence of conditions like diabetes and osteoarthritis in the UK, but of their likely future levels as the UK demographic profile changes over the next decade. The higher bound number of POs, on the other hand, implied too high prevalence rates for the conditions we model, and seemed mismatched to the UK's current level of need for orthoses-related treatment of conditions like osteoarthritis or strokes.

How the shortfall in POs is translated into a patient gap

We have calculated the ratio of patients to professionals for both orthotists and prosthetists by utilising NHS data on appointments and patients and survey responses from prosthetic and orthotic providers sent out via BAPO stakeholders.

For orthotists, NHS data from 13 Trusts on the number of appointments per orthotist were used to identify a per-day number of appointments.[114] This is then applied to a patient-to-appointment ratio, itself derived from NHS data gained in an FOI on the number of orthotic patients and appointments across all Trusts providing orthotic services.[115] This patients per clinician per year figure (993 patients per clinician) is then applied to the shortfall in orthotists, implied from the difference between the WHO midpoint recommendation and the current number of professionals.

Prosthetic patient numbers have been calculated by dividing the estimated number of prosthetic patients in 2025[116] by the estimated 2025 number of prosthetists, before applying this per-prosthetist patient per year number (93 patients per clinician) to the shortfall in prosthetists implied again by comparison with the WHO midpoint recommendation. This is then cross-referenced, similarly to orthotics, with survey data from prosthetic providers – which provided a broadly comparable patient per clinician figure of 73. We chose to use the 93 patient per clinician figure since it was based on top-down estimation; this gives us a more representative average than a figure from a single prosthetic supplier.

Estimates for the patient gap, therefore, are derived from the PO shortfall, rather than from waiting list data.

[114] Then calculating the daily number of appointments per orthotist, based on the expected days worked of an NHS orthotist, and comparing it to data provided by orthotic providers in a survey.

[115] Provided by BAPO

[116] For England and Scotland (2021 data), since data for Wales and Northern Ireland is less readily accessible.

A1.2 Cost and net savings of expanded P&O provision – diabetes

For the estimation of the costs and benefits associated with treating the cohort of diabetic patients, we utilise a combination of evidence from project partners, literature, and NHS data obtained through FOIs.

Data from project partners was collected from March to May 2026 from five P&O providers. One of these is an NHS trust and a large provider of orthotic services, while the others are large private sector organisations that also provide P&O services to the NHS. For our calculations, averages are taken across project partner data where appropriate to generate modelling inputs. We recognise that the number of project partners is low, although the fact that coverage of the sector is relatively high from our sample, and that wherever possible we cross-check data inputs against FOI data on a larger number of NHS Trusts, mitigates this limitation.

For the share of patients with diabetes, we assume this to be 18% of the total orthotic untreated population, based on data collected from project partners on the share of conditions patients seen by orthotists are treated for. This provided us with an estimate of approximately 33,000 diabetic patients treatable with orthoses, of which 33% are DFU patients. As discussed above, we cap the number of DFU patients by calculating the prevalence of DFUs in the population, the number of DFU patients currently treated as implied by our model, and taking the difference to be the untreated number of DFU patients. The remaining 67% of diabetic patients are assumed to be at risk of developing a DFU, but without ever having developed one before.

In terms of the costs associated with treating diabetes, the sources for each of these are referenced in Section 4.2, and include the cost of an amputation, of a recurring DFU, and of treating a high-risk diabetic patient without a DFU. The cost reduction applied to each patient depends on their pathway, as described below. For patients who do not avoid a new DFU but who do avoid an amputation, we applied the 8% net cost reduction obtained from a study on a cohort of Medicare patients[117] to estimates for the cost of treating a DFU in the UK.[118] The latter were calculated in 2015/16 and so are brought up to 2025 price levels using CPI inflation.

The intervention cost is then calculated in terms of device cost - for which we reference the data collected through project partners - and staff cost, for which we use partner data on appointments per patient as well as salary band data collected by BAPO in its 2022 survey of the workforce together with 2025 salary band data.[119] We assume DFU patients receive one more appointment per year than high-risk diabetic patients, an assumption also tested with industry experts.

The rates of prevalence and avoidance of DFUs and amputations are referenced above but, in essence, they imply that, for both DFU and diabetic patients, after receiving treatment patients can experience one of four outcomes:

[117] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[118] Guest JF, Fuller GW, Vowden P. Diabetic foot ulcer management in clinical practice in the UK: costs and outcomes. Int Wound J. 2018 Feb;15(1):43-52. doi: 10.1111/iwj.12816.

[119] Eddison N, Healy A, Leone E, Jackson C, Pluckrose B, and Chockalingam N. Profile of the UK prosthetic and orthotic workforce and mapping of the workforce for the 21st century. The British Association of Prosthetists and Orthotists. 2023

- A patient unlikely to develop a DFU receives an orthotic device, increasing treatment costs without generating new savings.
- A patient likely to develop a DFU receives an orthotic device, because of which they no longer develop a DFU. Thus, treatment costs are considerably lower, as the patient is now only treated for high-risk diabetes rather than a DFU. In particular, where this patient was likely to suffer complications that lead to amputation, cost savings are substantial.
- A patient likely to develop a DFU still develops one despite receiving an orthotic device. Treatment costs are still lower than they would have been (an 8% reduction), as orthotic management of DFUs has been found to be cost-saving.
- A patient likely to develop a DFU still develops one despite receiving an orthotic device, which ultimately leads to amputation. For this patient, no cost savings are modelled.

The costs and savings associated with each of these pathways are calculated separately (using the estimates, again, outlined above), and aggregated to obtain overall savings. Of course, intervention costs are calculated for all of these patients receiving a new orthotic device.

A1.3 Cost and net savings of expanded P&O provision – osteoarthritis

Why only knee OA is modelled

The reason that solely knee OA is modelled, rather than including hip OA, is the available evidence we were able to gather. From a mix of desk research, and information provided by BAPO stakeholders, we developed a good base of information to estimate the improvement rate associated with treating knee osteoarthritis. We were unable to source the same information for hip osteoarthritis and therefore were unable to model it separately from the ‘all conditions’ section.

Patient profile

We assume that the untreated knee OA patients suffer from a mixed severity of osteoarthritis, ranging from mild-to-moderate to severe levels of pain. This is based on guidance from industry experts, who advised modelling a mixed severity caseload for OA, not just severe cases. These patients are prescribed knee braces or, less commonly, AposHealth devices.

Savings methodology

The cost savings of OA treatment come from two routes: reduced healthcare utilisation from pain reduction, and a reduction in total knee replacements (TKRs); the methodology of each will be discussed in turn.

The savings from pain reduction come from research from AposHealth, which is corroborated by estimates derived from available sources on knee braces. It found that there was a gross saving of 15% in healthcare resource utilisation – such as reduction in opioid medication need, fewer physiotherapy appointments, and fewer medical tests such as CT scans.

This gross saving is then applied to separate research, which quantifies the resource utilisation cost to the NHS per year, per patient with OA.[120] In 2025 prices, this stands at £2,745 per OA

[120] Research paper can be found here

patient, implying a per patient gross saving of £412. Multiplied by all patients (excluding those expected to have TKRs) provides a gross saving of £5.03 million.

The TKR savings were calculated by comparing the annual incidence rate of TKR surgery with and without treatment. The annual, non-treated, rate of TKRs was estimated by combining research on the standard annual incidence rate in the US and scaling it to the age breakdown of those receiving TKR surgery in the UK. This allowed us to develop a baseline rate of TKRs among our OA population, while lacking a UK specific figure for our patient population. The reduced incidence rate is then taken from literature on the number of patients who receive a TKR after the first year being treated by the orthotic device. This difference (9.84% to 6% annual incidence rates, respectively) is applied to the share of the population with severe OA and provides the share of patients who are estimated to have avoided a TKR because of orthotic treatment.

Multiplying this number of patients with the costs associated with TKR surgery and post-surgical care from the research, leads to an estimated gross saving of £1.09 million.

A1.4 Cost and net savings of expanded P&O provision – strokes

Why other neurological conditions were not modelled individually

Other neurological conditions, other than strokes, have not been modelled individually due to a lack of available data on improvement rates from orthotic treatment and the routes through which this would bring cost savings. Hence, the other conditions have been included in the modelling of 'all other orthotic conditions'.

Stroke patients – considering rehabilitation team prescription of AFOs

We considered the impact of rehabilitation teams prescribing AFOs to stroke patients instead of orthotists on the demand for orthotists. Utilising research that surveyed UK orthotists who work with stroke patients, we were able to derive an estimate for the share of AFOs rehabilitation teams prescribe without orthotist involvement.[121] We found this didn't affect demand for orthotists given the degree of need we model.

Stroke patients – savings methodology

The gross savings of orthotic treatment of strokes has two components: reduced care costs, and reduction in the number of hip surgeries. They will be discussed in turn.

For social care cost saving, we calculated the share of patients expected to have reduced dependency due to orthotic treatment and quantified that saving per-patient. This was initially based on literature for the annual social care costs for stroke patients in the UK[122]. We then disaggregated the costs for stroke patients by levels of dependency, using breakdowns of this data across the range of stroke severity that patients face. We then calculated a reduction in dependency by applying the improvement in functional ambulation scores (FAC) from orthotic treatment of stroke patients, observed in research, to the predictive power of FAC scores to identify a patient as being able to community ambulate. This calculation results in the estimate that a 20% higher share of stroke patients will be able to community ambulate because of

[121] The research on orthotist involvement in gait rehabilitation following stroke can be found here

[122] Source for the cost of social care among stroke patients in the first year following a stroke found here

orthotic treatment. This is used as a proxy for moving from a moderate level of dependency to a low level of dependency, with the associated reduction in costs.

This per-patient cost saving - £2,797 in 2025 prices - is applied across the 3,201 patients estimated to have improved ambulation because of AFO treatment, providing a gross saving of £8.94 million.

We estimated the reduction in hip replacement surgeries by calculating the risk of a stroke patient falling and requiring hip surgery in the first-year post-discharge, then the reduced rate when orthotic treatment is provided.

The reduced fall rate is calculated by using the Berg Balance Scale (BBS) scores as a proxy for fall risk. We identify an orthotic improvement rate from the BBS score of stroke patients using and not using an AFO. This is then compared to the BBS score expected of a non-stroke patient of comparable age, to get the proportional improvement in BBS score, compared to the baseline, non-stroke fall risk. This produces an estimated reduction in the incidence rate of hip fractures among the population of 0.41 percentage points, reducing from a 1.82% estimated incidence rate among stroke patients not treated with orthoses, to 1.41%, equivalent to 67 out of the 15,945 stroke patients treated.

Due to the high per-patient cost of hip replacement surgery and post-operative care, this produces an aggregate saving of £1.4 million from these 67 avoided surgeries.[123]

A1.5 Cost and net savings of expanded P&O provision – all other orthotic conditions

Removing the share of patients who we assume to be diabetic, osteoarthritis, or stroke patients, we estimate that 67% of patients would be treated for other orthotic conditions, among which are included plantar fasciitis, rheumatoid arthritis, hip osteoarthritis, scoliosis, or other neurological conditions such as MS or cerebral palsy, among others. As explained, conditions are modelled jointly as part of ‘all other orthotic conditions’ where there is not sufficient data on the treatment effects of orthotic treatment to robustly model costs and benefits independently.

For all of these, we assume an average NHS cost of treatment of £3,507, implied by dividing total NHS expenditure by the UK population (more refined measures on number of patients are unfortunately unavailable, as the NHS records statistics in terms of visits, rather than patients). It is likely, therefore, that this is a conservative estimate of the true cost that patients who are eligible for orthotic treatment would actually incur. To this cost, we apply the 8% net cost saving from orthotic treatment mentioned above, multiplied by all the patients – approximately 124,000 – estimated to be part of this cohort. The lack of specificity within this modelling and the dependence on overall average per person NHS treatment costs, makes this a more uncertain section of the analysis. While we are confident in the overall evidence base suggesting that orthotics treatment brings wider healthcare system cost savings, the precise quantification of this, given its dependency on an unobserved counterfactual[124], comes with more inherent uncertainty.

[123] Source for the cost of hip surgeries found here, and the source on the cost of social care following a hip fracture here

[124] Specifically, the total costs to treat an individual within the health and social care system, who would have benefited from treatment by POs, but did not receive this.

A1.6 Cost and net savings of expanded P&O provision – prostheses

For prosthetic patients, we estimate costs to be related to device costs and staff costs, as outlined in Section 4. Data for these are obtained from both project partners and the BAPO Workforce Review (particularly for salary data).

Healthcare savings are assumed to equal intervention cost, given that prosthetic provision has been found to break even[125], and social care costs are estimated by multiplying the £20 hourly rate of a social carer to 2 hours of daily care avoided, therefore leading to an estimate of £14,600 savings per person per year, in social care. This is applied to the under 70 population, taken from FOI data.

A1.7 Employment and productivity impacts

Why only DFU and osteoarthritis patients were considered across orthotic conditions

Of the conditions orthotic services reported treating, we only modelled the productivity impact of DFU and osteoarthritis patients – excluding several other significant patient populations. This was done for one of two reasons.

The first reason was that, for some conditions, the patient populations were on average too old for treatment to have a significant workforce impact. For example, the mean age of a stroke patient in the UK is approximately 72 years old, with most patients above the retirement age. Hence, in these cases, the share of patients who could potentially benefit from improved productivity or employment was considered too low to meaningfully estimate impacts.

The second reason is that some conditions were either not severe enough, or not chronic enough to have an identified workforce impact (for example, plantar fasciitis). With most cases resolving within 12 months, there is limited evidence to suggest a significant number of patients would suffer productivity impacts for a year.[126] Note that this is not the same as stating that there is no benefit; rather the evidence is simply not there to meaningfully measure this and include it within our economic modelling. For the contextual factors discussed, we do not expect these impacts to be large, although this cannot be quantitatively verified.

Consideration of employment impacts of orthotic treatment

At the outset of the project, we investigated the possibility of modelling the impact of orthotic treatment on orthotic patients returning to work, analogously to how it has been modelled for prosthetic patients. The main reason we modelled productivity rather than employment impacts for these conditions was a paucity of available literature on the extent to which orthotic treatment supports return to work among the relevant patient populations.

Hence, we proceeded with estimating the productivity impact of treating the relevant patient population groups: working-age diabetic patients at high risk of developing a DFU; working-age knee OA patients with moderate-to-severe pain.

A lack of available research on the exact employment rates among the diabetic population defined above has limited our ability to refine our assumptions on this population. Research

[125] Dobson A, Murray K, Manolov N, DaVanzo JE. Economic value of orthotic and prosthetic services among medicare beneficiaries: a claims-based retrospective cohort study, 2011-2014. J Neuroeng Rehabil. 2018 Sep 5;15(Suppl 1):55. doi: 10.1186/s12984-018-0406-7

[126] Based on literature on recovery times among Plantar Fasciitis patients

into this would benefit future analyses. As a result, we have assumed that this population has an employment rate in line with the rate of employment of the UK disabled population at large. Future research into the employment rate among this high-risk diabetic population would benefit any future analyses.

For the OA patient population defined above, this disabled employment rate was seen as an acceptable proxy.

Why employment impacts are excluded from our ROI and BCR calculations

Employment impacts were calculated for prosthetic patients only. These figures are excluded from the headline calculations due to the weaker evidence base for these estimates; all significant inputs into this model are taken from one, low sample, study on the impact of prosthetic treatment on return to work for patients.[127] Due to this, we have lower confidence in these estimates than those in all other sections: these impacts are excluded from the labour market-related benefits, within the wider ROI and BCR calculations. These final figures are therefore highly conservative.

Method used to estimate employment impacts

Employment impacts were calculated for prosthetic patients only. The method by which this was calculated is as follows.

Firstly, the working age share of the untreated patients eligible for prosthetic treatment was derived based on the source referenced in Footnote 127, as are all other inputs for the employment impacts. Next, we used research on the share of amputees that return to work to identify the baseline odds of working without intervention. We then applied figures found from the same source on the odds ratio of returning to work because of prosthetic treatment. This allowed us to estimate the share of the working-age population that is expected to return to work following amputation and prosthetic treatment. This improvement, compared to the baseline share returning to work regardless of prosthetic intervention, allowed us to arrive at our figure of 591 patients.

This is then multiplied by the salary you would expect this population to earn, based on their average age.

Method used to estimate productivity impacts

The way in which we arrived at our productivity estimates followed the below process, for both DFU and OA productivity impacts.

We first used research from the cost and net savings section of the analysis to identify which treated symptom would lead to productivity improvement for each condition, for those already in the labour market. In the case of DFUs, avoiding a recurrent ulcer was seen as the treatment outcome most likely to produce a productivity improvement. For OA, the reduction in pain associated with orthotic treatment was seen as the driver of productivity improvement.

127 The sole source for the employment impact model is found here

We then found literature that quantified the extent to which these conditions reduced work productivity.[128] [129] This provided the level of productivity loss associated with having a given condition, as a share of overall productivity. For example, DFU patients were found to have a productivity level 58% lower than non-DFU diabetic patients surveyed in the same study.[130]

This loss of productivity figure was then applied to an average salary figure, based on the average age of the working-age patients. Applying ratios between wages and other economic metrics, this provided the estimated per-patient GVA impact of improved productivity, seen in Table 3.

These per person wage impacts were then multiplied by the patient populations - the working-age population of OA patients, and the working-age population of DFU patients who are expected to avoid a recurrent ulcer due to treatment. This produced our final GVA and tax uplift figures for productivity impacts.

A1.8 Future projections

Forecasting of the future patient gap

Projecting the future patient gap involves forecasting P&O demand and supply into the future. In what regards demand, we apply the yearly population growth rate obtained from ONS population projections to the number of POs needed in the UK, as implied by WHO guidance. Supply is forecast to remain unchanged through to 2035, consistent with a scenario where no intervention to increase workforce levels happens, and where entry and exit remains somewhat balanced. The gap in professionals is then calculated as the gap between demand for professionals and the current level of supply.

To convert the gap in professionals to a gap in patients, we apply the same appointment-to-professionals and appointment-to-patients ratios used to calculate the 2025 gap in patients. To estimate the conditions untreated patients would have, we apply the same data obtained from project partners on patients' conditions, used in 2025 analysis.

Costs and benefits of treatment to 2035

To calculate costs and benefits associated with treating each of the conditions through to 2035, we calculate per patient net savings, intervention cost, and GVA and tax gained in the 2025 scenario. These estimates are applied to everyone in the future projections scenario who we assume would be a 'new' patient each year. For recurrent patients, assumptions around whether costs or benefits remain stable into future years of treatment are revised where necessary.

For instance, for recurring OA patients we assume intervention costs related to device costs are half of what they are in the first year for every year of treatment afterwards, reflecting the assumption that AposHealth devices would be replaced every two years (which is on the conservative end). We assume that, for every year a patient is treated, they continue to enjoy

[128] Paper on the productivity impact of DFUs found here

[129] Paper on the productivity impact of osteoarthritis found here

[130] For osteoarthritis, the pain reduction productivity impacts were calculated by taking the productivity loss associated with moderate-to-severe OA from research on the topic, and then deriving an improvement rate based on the pain reduction figures used in the cost and net saving section of the analysis.

the 15% reduction in treatment costs associated with APOS devices as well as the employment and productivity gains associated with better health.

For prosthetic patients, we assume net savings are slightly larger for new patients post-2025, as timely fitting of a prosthesis is related to 25% lower costs post amputation. For recurring prosthetic patients, we assume intervention costs are reduced after the first year of treatment from approximately £6,100 (including both staff and device costs), to £1,800. The latter is in part derived from the average spend on prosthetic device per patient shared by contacts at NHS England. This is weighted most heavily towards the cost of component parts, linings, and replacements which complement full limbs, which we assume patients get in their first year of treatment.

For diabetes, strokes, and all other orthotic conditions, we assume that, whether patients are new or recurring, they would experience the same costs, net savings, and employment benefits for every year that they are treated. Particularly for diabetic and stroke patients, the rationale behind this assumption is that every time a patient recurs, they experience a 'new' episode, for which all of our estimates for treating a new patient apply. This approach does implicitly assume that someone experiencing their fifth DFU sees the same benefits from orthotic treatment than someone experiencing their first DFU. Whether this is the case or not is unclear, and further research would be needed to confirm it.

Another implicit assumption from our future modelling is that entry and exit of patients (as they grow older and develop new conditions, or as they pass away) is balanced, such that the only driver of patient growth is population growth. If de facto patient needs increase as the UK population ages, this may necessitate hiring more POs, and in turn (in absolute terms) a greater increase in the benefits of doing so. Improved NHS data collection on the treatment actions of POs, along with the further needs for their services, would greatly aid in validating this.

Lastly, future costs and benefits are discounted in accordance with Green Book guidance, using a social discount rate of 3.5%, with discounting occurring from 2026.

A1.9 Sensitivity testing

Patient-to-professional ratios and size of patient cohort

Both the health and care and the total ROIs and BCRs are sensitive to the number of patients we estimate would be eligible for P&O treatment. In essence, the more patients we model to be eligible for treatment in 2025, the lower the ROI/BCR. This is driven partly by the treatment of diabetic patients. Since, in our model, we have capped the number of DFU patients to the overall population prevalence rate, treating more patients implies treating more high-risk diabetics for which the return on investment is negative, as discussed in Section 4. If we were to assume, as we do in our second scenario, that orthotists conduct 12 rather than 7.3 (as currently assumed in our model) appointments per day and that therefore 187 orthotists would be able to treat 305,000 patients as opposed to 185,000, the health and care ROI would drop to 1.14 : 1 and the total ROI would fall to 1.59 : 1, both still above breakeven.

Additionally, the lower prevalence of prosthetic patients (with a higher associated benefit relative to intervention cost) relative to osteoarthritis patients (with a lower associated benefit relative to intervention cost) means that, as more people are treated in a year, more patients with lower ROI are treated and, therefore, the overall ROI (and BCR) decreases. This is less so evidence against further investment in P&O, but rather points to initial prioritisation of the initial patients with the greatest need and subsequent greatest initial return on their treatment.

Device and staff costs

ROIs are, for the most part, only slightly sensitive to the assumed device and staff costs (when tested within a reasonable range). A change in device cost of 20% in either direction across all of the conditions we model changes the ROI by 15%. That is, if all devices prescribed to prosthetic and orthotic patients were 20% more expensive, the health and care ROI would be 1.08 : 1 (i.e. would still be considerably above breakeven), while the total ROI would be 1.60 : 1. This reflects an increase in intervention costs which, relative to stable benefits, has a depressing effect on ROI. Where costs are lower than currently modelled, this would reduce overall treatment cost and therefore increase ROI (and by association, BCR).

The impact on ROI of varying device costs for each individual condition varies but is broadly within the 4% to 7% range. For conditions like stroke, variation on the cost of AFO devices is expected to be minimal and to, for the most part, remain around £40. A scenario where device cost is lower or higher for stroke patients is therefore not wholly relevant. For diabetes patients, an increase in the cost of device from approximately £280 to £330 reduces ROI by 4%, whereas in the case of prosthetics, an increase from approximately £5,100 to £6,200 per device depresses ROI by 7%.

An equivalent change of 20% on staff costs would also affect treatment cost, and therefore impact ROI as outlined above.

Cost reduction rate applied to ‘all other orthotic’ category

Varying the net cost reduction rate applied to the ‘all other orthotic’ category from its current 8% level also has only a moderate effect on overall ROI. Decreasing the net cost saving rate to 6% depresses health and social care ROI by 7% and total ROI by 5% by decreasing net savings from £34.8 million to £26.1 million. The same magnitude of changes, but of the opposite sign, would be expected if the net cost saving rate is increased to 10%, increasing net savings to £43.5 million.

Where future research allows for better understanding cost reductions from orthotic treatment by condition, the cost reduction rate assumed could be further refined and the cohort of ‘all other orthotic’ patients disaggregated into its constituent conditions.

Number of hours of social care avoided through prosthetic treatment

ROI is considerably sensitive to varying the assumed number of hours of social care avoided through prosthetic treatment. Reducing the number of hours of care saved from 2 to 1.5 hours a day reduces the health and care ROI to 1.13 : 1 (a 12% reduction) and the total ROI to 1.73 : 1 (an 8% reduction), bringing social care savings down from £59.6 million to £44.7 million. A further reduction to 1 hour a day (a 50% reduction) decreases the health and care ROI to 0.98 : 1 (a 23% reduction), still above breakeven but down to £29.8 million.

An increase to 2.5 hours a day saved increases the health and care ROI to 1.43 : 1 and the total ROI to 2.03 : 1. This increase in ROI would be due to intervention costs remaining stable but social care savings rising to £74.5 million.

Again, where future academic literature is available to refine this assumption, the above sensitivity testing reflects how our results would change depending on the direction of the impacts.