Intermediate care for people experiencing homelessness: Cost-benefit analysis

Prepared for Pathway

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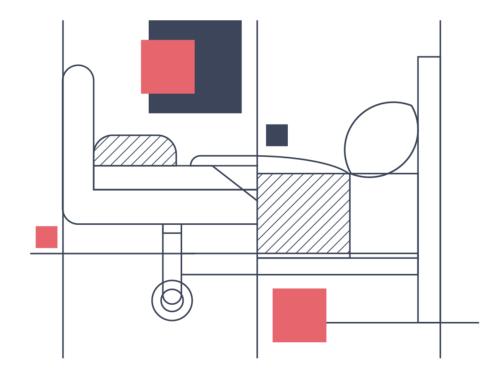






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Executive Summary

People experiencing homelessness in England face significant healthcare challenges. They have complex needs, a high frequency of visits to hospitals, and require longer inpatient stays (Cornes et al., 2018; Dorney-Smith et al., 2016; Tinelli et al., 2022). They are also likely to experience street or unsafe discharge, where patients who are medically optimised are released from hospital care without access to a safe and appropriate place to recuperate. This causes poor health outcomes and leads to repeated hospital admissions, with future support provided through unscheduled Accident and Emergency (A&E) visits (Dorney-Smith et al., 2016). Besides creating avoidable strain on the health of patients, unsafe discharge and the associated readmissions also create additional pressure and costs on the NHS.

To address the issue of unsafe discharge and reduce the burden on healthcare services, Pathway has proposed the scaling up of specialist intermediate care facilities across England. These facilities would offer a transitional healthcare solution to bridge the gap between hospital care and stable housing for patients experiencing homelessness, providing temporary medical and social care support. The facilities are proposed to be built along with a scale up of existing Pathway teams and existing intermediate care facilities. Previous trials of intermediate care in existing facilities have been shown to provide encouraging outcomes for patients, with reductions in future emergency visits and fewer hospital readmissions (Dorney-Smith et al., 2016; Hewett et al., 2012; Tinelli et al., 2022).

In this context, Alma Economics was commissioned to conduct a cost-benefit analysis of the proposed initiative, through the estimation of both the financial and societal impact of a nationwide programme for specialist intermediate care. The needs, costs and benefits were estimated through desk-based research, using existing literature and reports, as well as data from existing facilities that provide intermediate care across England.

We considered both the fixed costs related to setting up the facilities, as well as the semi-variable costs (e.g., rent, utilities) and variable costs (e.g., staff costs) associated with operating the facilities. With regards to benefits, we considered four types:

- Cost savings associated with reducing street discharges, moving away from unplanned emergency services, and increasing the use of planned outpatient services, which have a lower cost.
- Cost savings associated with minimising delayed hospital discharges.
- Costs related to other public services such as criminal justice system, housing services, mental health services, and social care.
- Non-financial benefits associated with the improved quality of life of patients receiving intermediate care.

Our analysis suggests that:

- An estimated 32,600 patients experiencing homelessness are expected to require specialist intermediate care annually.
- To meet this need, 322 facilities would be required across the country.
- The average fixed investment to set up a facility is approximately £153,000, with an annual operational cost of around £353,000.
- The programme is estimated to deliver financial savings of approximately £5,200 per patient, including savings of £790 directly through the end of street discharge, and £4,400 through the reduction of delayed discharges.
- The non-financial benefits of the programme were assessed through the quality-adjusted life years



(QALY) measure, and estimated to be worth £11,900 per person.

Over a 10-year horizon, our cost-benefit analysis suggests that an investment of £1.1 billion into the programme will generate cumulative financial benefits of £1.3 billion and societal benefits of £4.7 billion. This indicates a positive return on investment (ROI), with every £1 invested returning £1.20 in financial savings and generating £4.30 in societal value. To place these numbers in context, previous proposed interventions to tackle homelessness have typically been estimated to deliver an ROI that is less than 1 in terms of financial gains. This suggests that the proposed programme offers a compelling return on investment, with the programme not just paying for itself over a ten-year period, but also providing additional savings of 10p to the pound for public resources.

Return on Investment to Intermediate care: Costs and benefits of a nationwide programme



Source: Alma Economics analysis.

Introduction

Background

People experiencing homelessness are more likely to attend hospital emergency departments, be admitted as inpatients, and have longer hospital stays compared to the general population (Aldridge et al., 2018). In England, in particular, people experiencing homelessness attend accident and emergency (A&E) services six times as often, are admitted to hospital four times as often, and stay twice as long as housed patients (NHS England, 2022). In addition, due to a lack of accommodation or other support services, patients experiencing homelessness are often discharged from hospital directly back to the streets (Butler, 2023; Fenwick, 2024; Marsh and Greenfield, 2019). This can take the form of "unsafe discharge", where the patients are discharged to unsuitable accommodation (including return to sofasurfing or unsuitable temporary accommodation), or of "street discharge", where the patients are discharged to the street and need to sleep rough.

The practices of discharge without necessary support for accommodation poses serious risks to the health of the patients, resulting in repeated hospital admissions (Dorney-Smith et al., 2016). This is detrimental to the health of patients, leading to poor outcomes and a low life expectancy, as evidenced by numerous studies and reports (Department of Health, 2010; Dorney-Smith et al., 2016; Tinelli et al., 2022). In fact, the mean age of death for patients experiencing homelessness is only 45.4 years for men, and 43.2 for women (ONS, 2022).

The lack of support for people experiencing homelessness after discharge is also a major cost to the NHS through the "revolving door" effect. Patients are discharged without making a complete recovery and eventually need to be re-admitted due to a lack of suitable post-discharge accommodation (Dorney-Smith et al., 2016). These re-admissions are costly because they tend to be unscheduled and via A&E rather than through planned outpatient care. The cost of this unscheduled care for patients experiencing homelessness is eight times that of the housed population (Department of Health, 2010). In addition, it creates avoidable stress on the system, particularly at a time when the NHS is already facing severe pressures, with massive backlogs and high waiting times (BMA, 2024).

It is in this context that Pathway has launched its campaign to end street and unsafe discharges through the provision of intermediate care. Intermediate care has been an important part of the healthcare system in the UK since 2001, aiming to prevent unnecessary hospital admissions and to support patients who are medically stable but require additional assistance before being discharged (Cornes et al., 2018). These services bridge the gap between acute healthcare settings, such as hospitals, and long-term housing solutions. They aim to provide temporary care and support to individuals who may not require hospitalisation but still need assistance with their health and social care needs.

Intermediate care

The provision of intermediate care for persons experiencing homelessness has previously been trialled by the UK government. Operating between 2013 and 2016, the UK government's Homeless Healthcare Discharge Fund provided funding to develop methods of supported discharge for such individuals (Aldridge et al., 2018). This fund supported efforts to offer step-down, intermediate care for patients experiencing homelessness during the latter stages of their recovery before or immediately after hospital discharge.

The evidence on the effects of the provision of intermediate care on persons experiencing homelessness suggests that a programme can offer significant benefits. Cornes et al. (2018) found that step-down

support allowed patients to leave the hospital safely, and reduced future visits to A&E by 18%. Other studies confirmed the reduction of future use of A&E and also found improved housing outcomes (Dorney-Smith et al., 2016; Hewett et al., 2012). Most recently, King's College London, the London School of Economics and Expert Focus undertook a two-year evaluation of Out-of-Hospital Care Models (OOHCM) Programme¹ for people experiencing homelessness (Cornes et al., 2024). The study provided detailed data on the functioning of the programme, and reported patient outcomes and experiences, providing an estimate of the benefits to the NHS, public services, and the patients. It found that the provision of specialist intermediate care improved outcomes for most patients, with patients reporting positive experiences, and a sharp reduction in street discharge.

This project

Pathway's programme envisions the provision of intermediate care facilities across England, creating new facilities and scaling up existing ones. The provision of care at these facilities will be driven by a clinical professional for those with higher medical needs. For those who require lesser medical support and additional social support, care will be led by non-clinical care and support workers, providing physical and mental health support, drug and alcohol treatment, and support with navigating benefits and housing. These facilities can ensure that all patients get the care they need to make a complete recovery. The provision of specialist care ensures that patients have the necessary time to heal and get access to suitable options for post-discharge accommodation, reducing discharge to inappropriate accommodation or to the streets.

To understand the financial and non-financial implications of the programme, Pathway commissioned Alma Economics to undertake a cost-benefit analysis of a nationwide rollout of intermediate care². To meet the project objectives, we reviewed the literature to assess the costs and benefits of intermediate care and then built a model to estimate them. The remainder of this report provides details of our methodology and the results of the cost-benefit analysis.

¹ The Out of Hospital Care Models (OOHCM) Programme for People Experiencing Homelessness was launched by the Department of Health and Social Care (DHSC) in 2020, providing improvement support and funding to 17 test sites across England. The programme included interventions such as the provision of additional In-Reach teams working inside hospitals, and tested a variety of specialist out-of-hospital care services.

² This analysis assumes a national wide roll out of the programme without making any allowance for existing provision of intermediate care services, which operate under a variety of short-term funding models, and would need resourcing for long-term provision.

Methodology

Overarching methodology

This section outlines the methodology employed to estimate the costs and benefits of a nationwide programme to provide intermediate care for persons experiencing homelessness. We model the potential costs of delivering the programme and its benefits using a bottom-up approach. This approach calculates a per-unit value and scales it up to the total provision. This way, our analysis is granular and flexible, and can include specific costs related to the provision of services.

Our modelling of the costs and benefits takes a three-step approach:

- i) Assess the nationwide need for intermediate care.
- ii) Estimate the average cost of provision.
- iii) Estimate the benefits derived from the programme.

Specifically, we first estimate the total need for intermediate care across the nation. We then use the estimate to calculate the level of provision of care required to meet the need, including the facilities and staffing requirements. We use data from a variety of sources to translate these into the costs associated with the facilities, both fixed and operational. We aggregate these to arrive at the total cost of the programme.

In terms of benefits, we consider four types: (i) Cost savings to the NHS from reduced re-admissions and unscheduled use; (ii) Cost savings to other public services such as criminal justice and mental health; (iii) Cost savings from minimising delayed discharges; and (iv) Benefits to wellbeing for the patients. These estimates are monetised and aggregated to estimate the total benefits of the programme.

The cost-benefit modelling requires the use of specific data and assumptions. These have been obtained from various sources including data from existing intermediate care facilities, academic literature that has examined intermediate care programmes, policy papers, and evaluation programmes such as the Out-of-Hospital Care Models study (Cornes et al., 2024), and inputs from experts and stakeholders. This indicative model estimates the benefits and costs using a specific form of specialist intermediate care based on existing models. In practice, specialist intermediate care can take a variety of forms based on local needs and availability of resources.

We estimate the financial and societal benefit-to-cost ratio (BCR) over a ten-year horizon to assess the value of the programme's benefits over a longer period of time. In the following sections, we detail some of the key assumptions we incorporate into our modelling.

Estimation of need

The need for intermediate care was calculated as a function of four variables:

- i) Number of people experiencing homelessness;
- ii) The hospitalisation rate for people experiencing homelessness;
- iii) Typical length of stay in intermediate care settings; and
- iv) Type of need (clinical or non-clinical).

The target population of interest is the number of persons experiencing core homelessness. Core homelessness is a wider definition of homelessness that overcomes limitations in traditional approaches

to measurement in the UK, providing more reliable estimates of needs for the purpose of this analysis (Bramley, 2021; Fitzpatrick et al., 2023). Core homelessness includes people who sleep rough, but also accounts for people experiencing the most acute forms of homelessness, including living in unsuitable temporary accommodation and sofa-surfing. These forms constitute the "hidden homelessness" which are often not recorded in public data which relies on people approaching local authorities for assistance. This population is often at high risk of unsafe discharges after hospitalisation.

The total number of persons experiencing core homelessness in England has been estimated to be 242,000 in the latest available data (Fitzpatrick et al., 2023)³. Using an estimated ratio for the number of persons experiencing homelessness who would face hospitalisation in a year, gives us a total of 38,352 persons across England who could require use of these services. To arrive at the final need, we work with two assumptions. First, we assume a support requirement of 48 days per person based on data from existing specialist intermediate care facilities in Oxfordshire and London. Second, we assume that 55% and 33% of the population experiencing homelessness will require either clinically and non-clinically lead intermediate care support, based on the OOHCM study (Cornes et al., 2024).

In Appendix C, we provide cost-benefit estimates considering alternative scopes for the programme. The section analyses the programme if it is extended to only people who sleep rough, or alternatively, to the stock and flow of persons experiencing core homelessness.

Estimation of cost

Our approach to measuring the costs involves estimating the cost of operating a single 15-bed facility, considering the fixed, semi-variable and staff costs. The total number of facilities is calculated using a 15-bed per facility assumption. This assumption is based on the existing provision of services for intermediate care in Oxfordshire.

Fixed costs, are those associated with the set-up and operationalisation of facilities. This includes cost of refurbishments, IT costs and any other fixed items. We estimate these costs based on current data provided by existing specialist intermediate care facilities in London.

Semi-variable costs, which include rent, utilities and maintenance that need to be paid on a regular basis. These are also based on estimates provided by staff in specialist intermediate care facilities with experience in operating intermediate care facilities.

Staff costs, for hiring the required personnel to run and manage the facility. We assume that each facility would require 0.75 FTE home care manager, and a mix of support and outreach workers for nonclinically lead support, and Band 7 nurses for clinically lead support. The number of staff will depend based on the exact number of persons estimated to need support for each facility, using a clinical staff to bed ratio of 1:10, and a non-clinical staff to bed ratio of 1:3. These ratios are based on the provision of care in existing specialist intermediate care facilities. We use the total costs for each of these category of personnel based on the Manual for Unit Costs of Health and Social Care (Jones et al., 2024).

In our model, the semi-variable and staff costs can be combined as "operational costs", required by the facility to maintain its functions. The fixed costs are one-time costs required only at the beginning of the

³ While the region-wise assessments for core homelessness are not publicly available, we distribute the total number using the statutory homelessness figures for each local area. Our unit of calculation is the NHS Integrated Care Board (ICB), which is responsible for managing local NHS provision. This approach gives us an estimate for the total number of persons experiencing core homelessness for each board which we aggregate at the national level.

facility's lifespan, while operational costs must be paid for each year.

Estimation of benefits

This section outlines the methodology applied to estimate the four types of benefits that will accrue from the implementation of the proposed nationwide programme. The first three benefits are financial, with direct monetary implications to the public sector, while the fourth presents non-financial benefits to society as a whole.

1. Cost savings to NHS from reduced re-admissions and unscheduled use

The provision of intermediate care can provide the necessary support for patients who would otherwise be at risk of street discharge, to recover and recuperate, and avoid further complications that require readmissions. To estimate these savings, we have disaggregated the benefits using the same approach as the OOHCM study (Cornes et al., 2024):

- i) Reduced use of A&E services;
- ii) Reduced emergency admissions;
- iii) Reduced elective admissions;
- iv) Reduced other admissions; and
- v) Increase in outpatient visits.

These categories effectively capture the effects of moving NHS care for persons experiencing homelessness away from expensive, unplanned use of A&E, which is currently common for persons experiencing homelessness. This is redirected towards planned outpatient support, which can provide the necessary support to patients at a lower cost.

2. Cost savings to non-NHS public services

Persons experiencing homelessness are more susceptible to poor physical and mental health. The combination of poor health and homelessness can work to amplify the effect of common root causes, and risk factors that lead to homelessness in the first place. This can lead to the need for further social support, mental health support as well as require the involvement of criminal justice system. Consequently, a reduction in poor outcomes for persons experiencing homelessness also leads to a reduction in the use of other public services such as the criminal justice system, housing, mental health and social care (Pleace and Culhane, 2016).

This was also demonstrated in the OOHCM study, which examined the benefits to non-NHS public services for selected case studies (Cornes et al., 2024). We draw on to these case studies to generate estimates for our modelling.⁴ This and the previous cost savings can be directly attributed to benefits from ending street discharge in England.

3. Cost savings from minimising delayed discharges

Delays in discharge from the NHS for people who are medically optimised is an ongoing challenge. These delays reduce the number of available beds for incoming patients, increase the pressure on the NHS, and lead to poorer health outcomes for patients (NHS England, 2022). It is estimated that an average of 13,440 patients remained in hospital in spite of being fit for discharge in December 2022, although it is unclear how many of these were those experiencing homelessness (Foster, 2023).

Intermediate care facilities will help minimise the delays in discharge for persons experiencing

⁴ The benefits are based on data from a programme offering a lower level of care as compared to the proposed programme, and the estimates can be seen as being a very conservative estimate of benefits accruing from the programme.

homelessness by providing them with a safe place to recover. Based on a 2019 survey, and adjusting for the overall increase in the delay over the past four years, we estimate that this would, on average, reduce the delay in discharge by 11.15 days (Nuffield Trust, 2024; Transformation Partners, 2023). To get the monetary value for these savings, we use a per-night cost estimate of £395 for each NHS bed (Maguire, 2023).

4. Benefits to wellbeing

The benefits discussed above focus on the financial benefits that can be generated by the proposed programme. The final benefit we consider relates to the non-financial benefit gained through an improvement in the longevity and quality of life for intended beneficiaries of the programme. Support through intermediate care will lead to improved health outcomes for patients who are at risk of being discharged to the streets. With better physical health, mental health and other outcomes, there will be an increase in the patient's wellbeing.

To estimate these benefits, we use quality-adjusted life years (QALYs), in line with the HM Treasury Green Book (HM Treasury, 2024). A QALY represents the societal value of an improvement in life expectancy, combining both longevity and level of health. We refer to a study of 354 participants in the UK for intermediate care to estimate the improvements in QALY to be 0.17 for a similar provision of intermediate care (Tinelli et al., 2022).

Assumptions on programme implementation

To model the costs and benefits of the programme, we need to make assumptions about how it will be implemented in a manner that is representative of real-world practice.

We assume Year 0 as being the year of implementation. We also assume that the costs of the programme are incurred at the very start, because fixed costs for refurbishment, rental costs and staff costs would need to be paid regardless of the level of provision. The fixed costs associated with the setting up of the facilities are limited to the first year. From the second year onwards, the programme costs are expected to be purely operational, focusing on staff and rental costs.

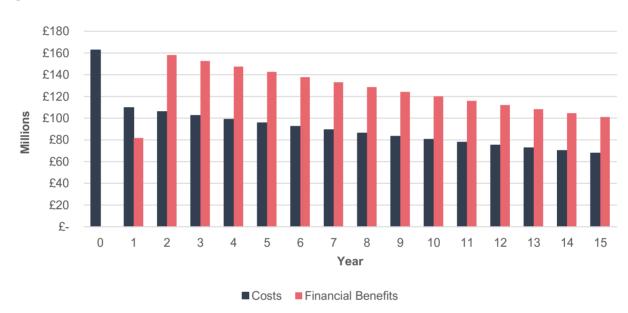
On the other hand, for benefits we assume a gradual ramp up. Our model assumes that there are no benefits (0%) in year 0. As the programme is set up and starts providing services in Year 1, it generates 50% of the total possible benefits, rising to 100% in Year 2. This gradual ramp-up mirrors the operationalisation in practice. This also allows the first year in our model to emulate additional costs of establishing the facilities, including searching for properties, finding the right staff and coordinating the setup, with no immediate financial or non-financial gains.

Results

Figure 1.

Key findings

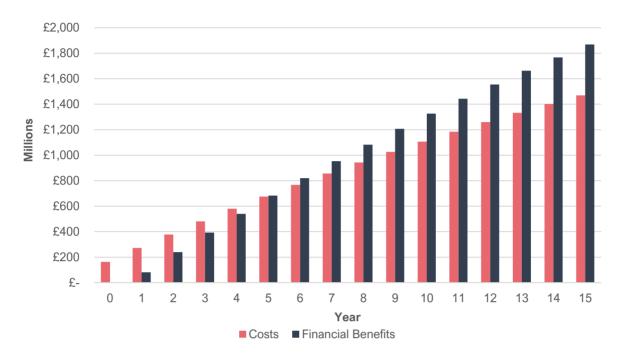
Figure 1 presents the financial costs and benefits of the nationwide programme. As discussed in the previous section, in Year 0, there will be only costs and no benefits—these costs include the expenditures associated with setting up and refurbishing the facilities. The benefits start accruing in Year 1, and by Year 2, the benefits significantly outweigh the costs—costs amounting to £106 million, while the financial benefits reach £158 million, approximately 50% higher than the costs. Both the costs and benefits are presented in present value, explaining the decline in their value over time.



Annual costs and financial benefits accrued

Source: Alma Economics calculations.

Figure 2 presents the cumulative financial costs and benefits of the nationwide programme. As can be seen in the figure, the programme breaks even in terms of financial costs in Year 5, following which the cumulative financial benefits exceed the costs. We note that this only considers the financial benefits from the programme, and excludes the non-financial social benefits derived from improvements in wellbeing. This suggests that by Year 5, the programme will be "paying for itself" by producing benefits that outweigh the costs.





Source: Alma Economics analysis.

Calculated over a ten-year horizon, we find that the programme can deliver a return on investment of 1.2, where £1 of investment generates a financial return of £1.20. If we examine the societal returns in total, including the financial and non-financial returns to the programme, we find a benefit to cost ratio of 4.3, with a £1 investment providing a £4.30 return to society in wellbeing.

To put these numbers in context, we refer to findings from previous cost-benefit analyses done in similar areas. Previous estimates of programmes to tackle homelessness have been estimated to generate £2.8 in financial savings and wellbeing values for every pound invested over a 23 year period across the UK. Our analysis for the Wales examined the implications of introducing the right to adequate housing in Wales, and suggested a benefit-cost ratio of 2.3 with societal and financial savings to be realised over a 30-year period. By comparison, this proposed programme offers a higher level of return to the investment made, partly due to the savings generated for the NHS through a reduction in delayed discharges.

Figure 3. Costs and benefits of the programme for intermediate care



Return on Investment to Intermediate care:

Detailed results

Assessment of Need

Based on our calculations, we estimate that the programme will cater to approximately **32,600 patients annually**, who will require 552,000 bed days with clinically driven support, and 1.01 million bed days with non-clinically lead support for each year. Working with the assumption that each facility will have 15 beds, this identifies the need for **322 facilities** in total across England, spread across geographical areas based on the proportion of population and need.

Cost of delivering the programme

As described in the methodology, we break down the costs into fixed costs, and operational costs (which include semi-variable and staff costs). Table 1 below shows these costs, calculated for the first year⁵.

Cost category	Cost sub-category	Estimate (£)
Semi-variable costs	Rent	£18.47 million
Semi-variable costs	Maintenance	£10.72 million
Staff costs	Clinical staff	£17.58 million
Staff costs	Non-clinical staff	£48.99 million
Staff costs	Facility manager	£17.74 million
Fixed costs	Refurbishment	£40.25 million
Fixed costs	Installations	£8.87 million
Total		£228.85 million

 Table 1. Costs of delivering the programme

Source: Alma Economics analysis.

Split across 322 facilities, the fixed costs of setting up the programme would amount to roughly £152,300 per facility. In the first and subsequent years, the operational costs of the programme would be around £113.5 million per annum in total, or approximately £353,000 per facility, primarily to support staff and rental costs. The following figure provides a graphical breakdown of the costs in year one.

⁵ We do not account for a potential reduction in costs that can be achieved by utilising the patient's entitlement of housing support under universal credit to offset the cost of facilities rental, for those patients who have a recourse to public funds.

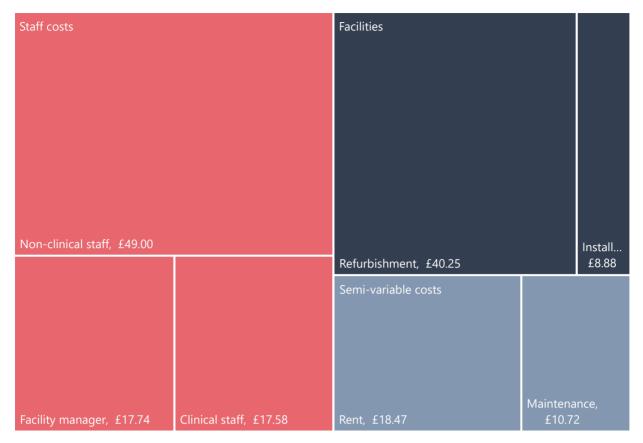


Figure 4. Tree map showing breakdown of costs in the first year (£ million)



Benefits

Table 2 shows the benefits that will accrue from implementing the programme in a year. There is a benefit of £802 per person from optimised future NHS use, amounting to £26.15 million, and a negative impact of £11.56 per person, or -£0.38 million, in costs to other public services. These services include the criminal justice system, mental health services, housing services and social care. The negative impact on public services is driven by an increase in the cost of provision of social care. The persons supported by this programme might be eligible for support, but do not access the services before the support provided by an intermediate care facility. This shift is reflected in the higher usage of social care.

Minimising delayed discharge is expected to yield a benefit of \pounds 4,400 per person annually, deriving from our assumption of a saving of 11 days, resulting in a total of \pounds 143.58 million per year. These add up to a total financial benefit of £169.53 million per year.

Improvements to overall wellbeing contribute to overall societal benefit, financial and non-financial. This amounts to a per person benefit of £11,900, totalling £388 million annually. In total, these benefits are projected to sum up to around £557 million in societal value for each year of implementation.

Benefit type	Benefit	Benefits per person per year (£)	Benefits per year (£ million)
Financial benefit	Benefits from optimised future NHS use	£802	£26.15m
Financial benefit	Benefits to public services	-£11.56	-£0.38m
Financial benefit	Benefits from removing delays in transfer of care	£4,404	£143.58m
Non-financial benefit	Benefits to quality of life	£11,900	£387.93m

Table 2. Benefit per person from one year of interventions

Source: Alma Economics analysis.

Benefit to cost ratio

In order to comprehensively estimate the benefit of the programme to society, we use a ten-year timeframe. This is the horizon over which we expect a programme such as the one proposed can be expected to generate returns. We examine the returns through both financial and societal lenses.

In terms of financial gains, over ten years, an investment of approximately £1.1 billion into the programme will generate benefits of £1.32 billion. This implies a financial benefit to cost ratio of 1.2, which is above the value-for-money threshold of 1.0. That is, £1 investment generates a return of £1.20 through the programme.

Taking wellbeing benefits into account, the investment will generate \pounds 4.7 billion in societal benefits, including the financial and non-financial returns to the programme. This implies a benefit to cost ratio of 4.3, suggesting that a \pounds 1 investment provides a \pounds 4.30 return to society.

Sensitivity analysis

We carry out a series of sensitivity analyses to assess how the results vary if we change some of the key assumptions. We test this for two key assumptions and report the financial and societal benefit to cost ratio over a ten-year horizon to provide an estimate of the return on investment the programme can generate, keeping all other parameters in the model the same. The two assumptions we test are:

- 1. Number of days of support required, where the value used in the primary model is 48 days.
- 2. Number of beds per facility, assumed to be 15 in the primary model.

Table 3. Results of sensitivity analysis

Variable	Assumption	Financial Benefit Cost Ratio	Societal Benefit Cost Ratio
Number of days	28 days	2.0	7.2
Number of days of support required	38.5 days	1.4	5
required	72 days	0.8	2.7
Number of beds per facility	6 beds	0.7	2.5
	20 beds	1.3	4.5

Varying these assumptions yields different estimates of return on investments, highlighting the importance of the values selected for the parameters. However, the common outcome in these scenarios is that the societal benefit to cost ratio remains greater than 1, suggesting a clear and positive social return on any investment made in the programme over a ten-year horizon.

Limitations

The findings of the cost-benefit analysis need to be interpreted considering the following key limitations.

- The analysis provides an indication of the order of magnitude of costs and benefits that could be achievable through the implementation of a programme. Since the analysis is based on existing research conducted on similar implementations of intermediate care, it cannot project the exact savings or benefits that the actual programme will incur.
- The analysis does not consider the profile of needs, costs or savings over time. We do not include any time series analysis or projected changes in homelessness in our model, nor do we include any assumptions on how the provision costs or benefits will change over time. For the calculation of the costs and benefits, we use net present value using constant prices at today's level, and HMT Green Book values for discounting.
- We limit the scope of the study to focus on patients who can benefit the most from intermediate care. The OOHCM study suggests that 1% of the persons experiencing homelessness who are in hospital require little or no support, 55% require non-clinically lead support, 30% require clinical support, while 14% require specialist long-term support (Cornes et al., 2024). We exclude the 1% who require little support, and the 14% who require long-term specialist support as these are outside the scope of intermediate care.
- The **scope of this study is limited to hospital admissions only**. We exclude presentations to Accident and Emergency (A&E) services as well as psychiatric admissions. Psychiatric services are typically covered under separate provisions, with there being a higher demand and supply for persons experiencing homelessness.

Appendix A: Key assumptions and sources

Measure	Description	Value	Source
Needs			
Number of ICBs included	Number of NHS integrated care boards in England	42.0	NHS England
Total number of persons with relief duty	Total number of persons who need relief duty for each of the included areas of all ICBS	230,496	HCLIC data
Total persons eligible for programme	Defined as total number of persons in core homelessness	242,000	The Homelessness Monitor 2023
Hospitalisation rate (London)	Percentage of persons experiencing homelessness hospitalised in a year	14.84%	Calculation based on North Central London Pathway data
Hospitalisation rate (out of London)	Percentage of persons experiencing homelessness hospitalised in a year	16.11%	Calculation based on Coventry and Warwickshire Pathway data
Typical Length of stay	Length of stay in intermediate care	48	Based on data from Oxfordshire facility
Support requirement	S		
No or little support	Out of scope for this project	1%	Cornes et al. (2024)
Non-clinically lead support		55%	Cornes et al. (2024)
Clinically lead support		30%	Cornes et al. (2024)
Specialist long-term support	Out of scope for this project	14%	Cornes et al. (2024)
Care provision			
Number of beds per facility		15	Based on data from Oxfordshire facility
Clinical staff to bed ratio		0.1	Deduction using data from Oxfordshire facility



Non-clinical staff to bed ratio		0.3	Data from Lowri House facility
Manager to facility ratio		0.75	Based on data from Oxfordshire facility
Utilisation rate		95%	
Facility costs			
Refurbishment	Cost of refurbishing site to set up facility	£125,000	Data from Lowri House facility, assumed to be similar for all facilities.
Installations	Cost of purchasing durable items for use	£27,565.44	IT costs based on Oxfordshire data (assuming 15 bed facility)
Semi-variable costs			
Rent (London)	Annual rental for a rented facility (London)	£67,234.20	Inflated based on average house rental prices in Oxford vs London, inflator of 1.22 (Calculations based on Zoopla 2024)
Rent (out of London)	Annual rental for a rented facility (non-London)	£55,110.00	Based on data from Oxfordshire service (assuming 15 bed facility)
Utilities & Maintenance	Running costs for facility (annual)	£33,288.00	Cost per facility based on Oxfordshire data
Staff costs			
Total cost per non- clinical support staff	Total cost of hiring a support and outreach worker for supporting patients with care needs that can be non-clinically lead	£50,468.00	Jones et al. (2023)
Total cost per clinical staff (Band 7 nurse)	Total cost of hiring a Band 7 nurse (per FTE) for supporting patients with care needs that need to be clinically lead	£110,648.00	Jones et al. (2023)
Total cost per home care manager	Total cost of hiring a home care manager for managing the facilities	£73,464.00	Jones et al. (2023)



Benefits			
Reduction in delayed discharge (days)	Calculation of the number of days of total delays in discharge for persons experiencing homelessness, adjusted for increase in overall delays	11.15 days	Transformation Partners, 2019; Nuffield Trust, 2024, Alma Economics calculations
NHS bed cost per night		£395	Maguire (2023)
Benefits to NHS		£802.12	Cornes et al. (2024), Alma Economics calculations based on Pathway 2 data for 2022- 23
Benefits to other public services		(-£11.56)	Cornes et al. (2024), Alma Economics calculations based on Pathway 2 data for 2021- 2023
STPR discount rate (1-30 years)		3.50%	HM Treasury (2022)
Discount rate for health impacts		1.50%	HM Treasury (2022)
Value of each additional QALY	Green book value of additional QALY	£70,000	HM Treasury (2022)

Appendix B: Estimation

Need

For our analysis, we use statistics on core homelessness, which offers a wider definition of who is experiencing homelessness. The definition includes the categories and definitions listed below, and includes people who sleep rough, people living in unsuitable temporary accommodation as well as those who are currently staying with family or friends ("Sofa surfing"). We follow this approach due to the nature of available data on homelessness. People facing homelessness are poorly represented in hospital data and sub-optimal discharges are often not recorded. Second, local authority data alone is a function of who approaches the local authority and receives a relief duty. These sources can only provide a partial picture of the so is only a partial picture. By combining data from local authorities on the spread of homelessness, with the estimates of core homelessness, we aim to generate more accurate data that can estimate the demand for the proposed programme.

Category	Description		
Rough Sleeping	Sleeping in the open e.g. in streets, parks, carparks, doorways		
Unconventional Accommodation	Sleeping in places/spaces not intended as normal residential accommodation, e.g. cars, vans, lorries, caravans/motor homes, tents, boats, sheds, garages, industrial/commercial premises		
Hostels	Communal emergency and temporary accommodation primarily targeted at people experiencing homelessness including hostels, refuges and shelters		
Unsuitable Temporary Accommodation	Households experiencing homelessness placed in temporary accommodation of certain types, namely Bed and Breakfast, Private Non-self-contained Licensed/Nightly Let, and Out of Area Placements (half in London, all elsewhere)		
Sofa Surfing	Individuals or family groups staying temporarily (expecting or wanting to move) with another household, excluding nondependent children of host household and students, who are also overcrowded on the bedroom standard		

Table 4. Core Homelessness Categories and Definitions Category Description (Source: Bramley, 2023)

Our approach to estimating the needs uses the integrated care board as the unit of analysis to follow the structure of NHS service provision in England. NHS operates through 42 Integrated Care Boards (ICB), which each board managing the NHS budget and collaborating with local providers (NHS England, n.d.). The ICBs operate in mutually exclusive areas and would be actively involved in a programme for intermediate care for persons experiencing homelessness.

Estimation of statutory homelessness

For each ICB, we estimate the number of persons experiencing homelessness in the ICB areas reported being eligible for relief duty, based on the latest available data from 2022-23 (MHCLG, 2023). This includes:

- i) Retrieving estimates of households experiencing homelessness at a Local Authority level (Statutory homelessness in England: financial year 2022-23);
- ii) Identifying the 42 Integrated Care Boards (ICBs) in England and matching each Local Authority

to the respective ICB according to the Integrated Care Boards (Establishment) Order 2023

iii) Estimating the number of individuals facing homelessness per Local Authority, per ICB, and nationwide. Note: We make the assumption of two children per household (facing or threatened by homelessness) according to estimations from Shelter.

Estimation of core homelessness

Next, for each ICB, we estimate the number of persons experiencing core homelessness. Data on relief duty from local authorities is used to identify the spread of homelessness across England above. This is now combined with estimates for total core homelessness across the country to generate estimates at the local level. To do so, we multiply the statutory homelessness estimates with a calibration ratio. This calibration ratio is calculated by dividing the total number of persons experiencing core homelessness by the total number of persons experiencing statutory homelessness across ICBs. Using the total estimate for core homelessness in England as 242,000 (Fitzpatrick et al., 2023), we get a calibration ratio of 1.05. That is, for every 1 person recorded in the local authority data, there are 1.05 persons experiencing core homelessness in the area. We multiply this by the statutory homelessness estimates for each ICB to arrive at the ICB-wise estimates of the number of persons experiencing core homelessness.

Estimation of need for intermediate care

To get to the final estimate for the need we anticipate for the programme, we go through the following steps:

- i) We first use a *hospitalisation rate* defined as the proportion of persons experiencing homelessness hospitalised in a year, using two representative ICBs (one from within London, and one outside London). Using data collected by Pathway in its work with local NHS trusts, we estimate a hospitalisation rate of 14.84% for London and 16.11% for outside London. We multiply the ratio by the number of persons experiencing core homelessness. For ICBs within London we use a rate of 14.84% while those outside London are assumed to have a hospitalisation rate of 16.11%. These hospitalisation numbers refer to hospitalisation admissions only, and exclude A&E and psychiatric admissions.
- ii) We multiply this with our estimate of 48 days of care requirement per person to convert the number of persons into the number of bed days, separated as those requiring clinically lead (30%) and non-clinically lead support (55%).
- iii) Finally, we assume a utilisation rate of 95%, creating spare capacity of 5% in the system to allow for patient transitions, transfers, and management of provision.

This gives us the need for each type of care that would need to be provisioned by a nationwide programme.

Costs

Estimation of facilities cost

We use the proposed 15 beds-per-facility to calculate the number of facilities required for each county. Based on data from a specialist intermediate care facility in London, we expect the cost of refurbishing a facility to be £125,000. We assume the cost for setting up facilities will be the same amount, regardless of the number of beds being set up. This is reasonable since the costs of installation of fixed facilities (such as CCTV, garden, office space) is unlikely to vary by the number of beds provided.

Estimation of semi-variable costs

We use data from existing providers of intermediate care facilities in Oxfordshire for the out-of-London rental estimate based on a 15-bed provision. To get the London rental we use a multiplier calculated using the average rents in London and Oxford using data from property search engine Zoopla.

Estimation of staff costs

We use the estimates of staff to bed ratios to obtain the number of staff required. These are derived from the data provided by existing intermediate care providers in Oxfordshire. We assume 0.1 and 0.3 as the clinical and non-clinical staff ratios, and that there is 0.75 FTE manager to run the facility.

For staff costs we use estimates from the Unit Costs of Health and Social Care Manual 2023 (Jones et al., 2024). We assume the clinical staff to be equivalent to a Band 7 nurse, a non-clinical staff to be equivalent to a support and outreach worker staff, and the facility manager to be equivalent to a home care manager. We use the total costs which include wages, initial qualifications, ongoing training, and overhead costs as specified in the manual.

Benefits

Benefits from reducing delayed discharge

We assume that the programme will allow for the elimination of delays in transfer of care for persons experiencing homelessness, as it provides an alternate space for them to recover safely. This has major benefits for the NHS which is currently facing extreme pressures and delays. To calculate the benefits, we use data from a survey of beds in London for 2019. We calculate the average number of days a person experiencing homelessness stays in the hospital after being optimised for discharge based on a study carried out by Transformation Partners (2019). We adjust this number to account for the overall increase in delays over the past 5 years. We use a 15.15% adjustment based on our calculations on the data available for the period 2021-2024 (Nuffield Trust, 2024).

Benefits from optimised future use of NHS

Based on data from the OOHCM study, we estimate the per person per year benefits from a more organised approach to healthcare for persons experiencing homelessness as a result of the provision of intermediate care, as shown in the table below. The OOHCM study reports these estimates for its Pathway 2 configuration for the years 2021-2022, which provided support to 52 persons. The savings reflect a shift in how persons experiencing homelessness access medical services. There are major reductions in the use of unplanned emergency services, which cost more, and an increase in the use of scheduled outpatient services.

	Savings
Reduced A&E use	£227.12
Reduced emergency admissions	£553.85
Reduced elective admissions	£228.65
Reduced other admissions	£0
Increased outpatient visits	-£207.50

Table 5. Benefits from optimised use of NHS (per person per year)

Source: Alma Economics calculations

Benefits from reduced use of public services

Treating adverse outcomes such as depression, anxiety, substance misuse, alcohol abuse results in increased service utilisation at a cost to public finances. For instance, mental health support leads to higher use of the NHS. We include in the model savings generated by a reduction in adverse outcomes that require further use of public services, as through intermediate care the programme can support better rehabilitation of patients. The estimates are based on the OOHCM study, which reports the figures for one of its sites that offers Pathway 1 services⁶ to 16 persons for two years 2021-2023. These are shown in the table below. The total savings for social care are negative as the patients make more use of social care services, and would otherwise be excluded from these. These are public services that typically interact with persons experiencing homelessness, addressing the specific needs and requirements that the persons have.

	Savings	
Criminal justice	£21.88	
Housing	£50.63	
Mental health	£103.75	
Social Care	-£187.81	

Source: Alma Economics calculations based on Cornes et al. (2024)

Benefits to individual wellbeing

The final category of benefits we include in our analysis is wellbeing and health. To monetise the health impact on life-years and quality of life, we use the Quality Adjusted Life Years (QALYs). The QALY approach weights life years (saved or lost) by the quality of life experienced in those years. One QALY is equal to 1 year of life in perfect health, and it is valued at £70,000 according to the Green Book. As per existing studies, intermediate care can be expected to lead to an improvement of 0.17 QALYS (Tinelli et al., 2022).

Discounting

The next step is discounting the annual avoided costs by HM Treasury discount factors of 3.5% for monetary values and 1.5% for QALYs over different time horizons (HM Treasury, 2024).

⁶ Pathway 1 services in the OOHCM study focus on home/reablement based intermediate care, providing a more limited scope of care as the one considered for this study.

Appendix C: Alternative scope

In this section, we consider the cost and benefits of providing a similar programme of intermediate care for persons experiencing homelessness, but vary the inclusion criteria. While the primary analysis focuses on stock values of core homelessness, we present two alternative versions- based on the population of people who sleep rough, and on the stock and flow of persons experiencing core homelessness in England.

Programme to support people who sleep rough only

Rough sleeping, including sleeping outside or in areas not designed for habitation, is the most visible type of homelessness. People who are already sleeping rough before admission to hospital would be most vulnerable to street discharge, and a smaller, more focused programme can target this sub-group. We use the official estimate of people who sleep rough, who are owed a relief duty from official data for 2022-2023, which suggests that 14,790 persons were sleeping rough (MHCLG, 2023).

For this model we adjust the assumptions to account for the differences in the population of people who sleep rough. People who sleep rough are more likely to require hospital admission as compared to those in other forms of homelessness. While exact data on the proportion of people who sleep rough who require hospitalisation is not available, we assume a proportion of 38 percent, based on the findings of the study by Homeless Link (2022). Next, to allow for a more flexible programme to support people who sleep rough, who form a smaller subset of the total population experiencing homelessness, we adjust the model to allow for the creation of partial facilities. In practice, these might take the form of flexible spaces that can accommodate smaller number of patients when required, and may not need the set-up of a full-time facility. With these two alterations to the original model, we arrive at the following findings.

Needs assessment: A programme designed for just under 15,000 persons across England will require the operationalisation of 42 facilities, catering to roughly 4,800 persons per year.

Costs: This programme would require a fixed cost investment of around £5.9 million and an ongoing operational cost of £19 million. The operational costs include £6.8 million in rent, utilities and £1.28 million in maintenance. The total operational cost per facility comes to around £451,000 annually.

Benefits: Working on the assumption that the programme generates the same benefits per person as the main programme above, this intervention can generate approximately £82 million in cost savings and societal benefits per year. The financial savings include £3.8 million in savings from the optimised use of NHS, negative savings of £55,000 in impact on other public services and £21 million in benefits from minimising delayed discharges due to homelessness. The programme also generates £56.8 million in wellbeing benefits.

Cost-benefit analysis: As shown in the graph below, working under the assumption of a 2-year scaleup of the programme, the financial benefits of the programme exceed the costs in year 8 of implementation.

Over a ten-year horizon, the cumulative costs of the programme are projected to be approximately £184 million, while the financial and non-financial benefits are expected to be around £194 million and £691 million. The financial benefit to cost ratio is 1.1, while the societal benefit to cost ratio, inclusive of financial and non-financial benefits is at 3.8, suggesting a £1 investment in the programme will deliver £1.10 in financial benefits, and £3.80 in societal value.

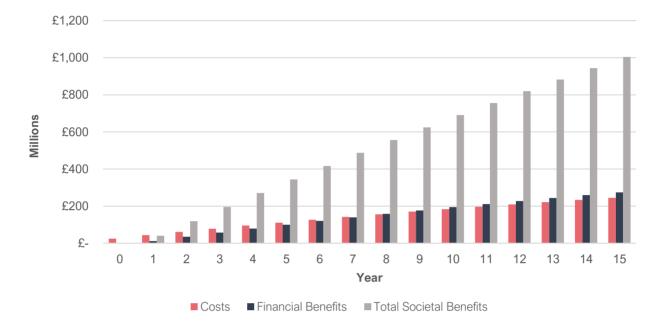


Figure 5. Cost and benefits for programme for people who sleep rough

Source: Alma Economics calculations

Programme to support stock and flow of core homelessness

Statistics on homelessness tend to capture the "stock" of persons experiencing homelessness and undercount the "flow" of persons who would be exposed to homelessness during the year. The total number of persons who have experienced homelessness can hence be expected to be larger than those reported by statistics focused on measuring the "stock".

For people sleeping rough in London for instance, the total number of stock and flow populations is nearly 5 times that of the stock population (CHAIN, 2024). To estimate the population that would be engaged in the "flow" of core homelessness, we use data from the CHAIN database on people who sleep rough. In London for the 2023/24 period, 3,000 more people who sleep rough were previously based in long-term accommodation, compared with the stock of 2,387, implying that for every 1 person in the "stock" population, we can expect there to be 2.25 persons in the stock and flow populations combined. We use this ratio on the estimate of core homelessness across England and arrive at a population of 546,147 persons.

We carry out the cost-benefit analysis using the same methodology and assumptions as above.

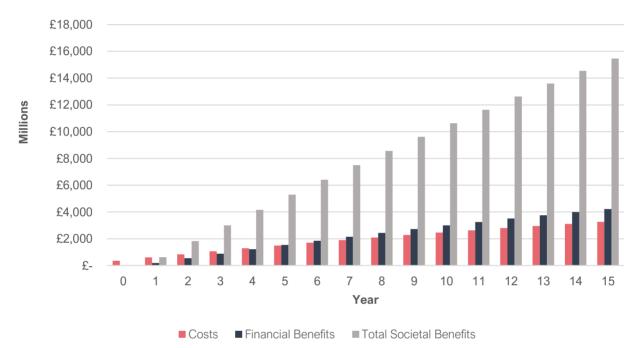
Needs assessment: A programme designed for 546,147 persons across England will require the operationalisation of 699 facilities, providing care to 73,751 persons per year. This will include 1.2 million bed days of clinically lead support, and 2.23 million bed days of non-clinically lead support.

Costs: This programme would require a fixed cost investment of around £106.6 million, and an ongoing operational cost of £252 million. The total operational cost per facility is estimated to be approximately £361,000 annually.

Benefits: We use the same assumptions for the benefits that can be generated by the programme on a per person basis. Our calculations suggest that this scope of intervention can generate approximately £1.26 billion in cost savings and societal benefits. The financial savings include £59 million in savings from the optimised use of NHS, £850,000 in costs to other public services and £324 million in benefits

from minimising delayed discharges due to homelessness. The programme also generates £875 million in wellbeing benefits.

Cost-benefit analysis: As shown in the graph below, working under the assumption of a 2-year scaleup of the programme, the financial benefits of the programme exceed the cumulative costs by Year 7. Our calculations suggest that over a ten-year period, the financial benefit to cost ratio of the programme is 1.2 while the societal benefit to cost ratio is 4.3. That is, a £1 investment in the intermediate care programme generates £1.20 in financial savings, and a £4.30 increase in societal benefit over a ten-year period.





Source: Alma Economics calculations

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