ECONOMIC ANALYSIS OF NHS PHARMACEUTICAL SERVICES IN ENGLAND

Final Report

MARCH 2025

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1 Executive Summary

1.1 Background and overview

In 2022, as a part of the final negotiated Community Pharmacy Contractual Framework (CPCF) (year 4 and year 5) deal, NHS England committed to "*commission an economic analysis of NHS pharmaceutical services through an independent review, using data provided by contractors, and [to] work with the Pharmaceutical Services Negotiating Committee on the review*."

In 2024, Frontier Economics Limited (Frontier) and IQVIA were commissioned to deliver this study.

The study addresses three research questions:

1. What are the full economic costs of delivering NHS pharmaceutical services, and how do these costs vary across and within: different types of pharmacy; different mix of dispensing activity and services; and different locations?
2. Are NHS community pharmacy businesses sustainable under the current funding model, including the current trajectory (of costs and activity) of the sector? To what extent are NHS services at risk of interruption?
3. Which clinical services can be most efficiently delivered from community pharmacy as compared with general practice or the wider NHS?

The questions were agreed between NHS England (NHSE), the Department of Health and Social Care (DHSC) and the wider pharmacy sector, including Community Pharmacy England (CPE). The approach to answering them, within the time and resources available, was proposed by Frontier and IQVIA and agreed through discussions involving all parties. The questions are interrelated. We have drawn upon our analysis of costs (question 1) to help inform our view of sustainability (question 2) and service mix (question 3).

This study was undertaken between April 2024 and January 2025. This study was undertaken by Frontier and IQVIA, independently of NHSE, DHSC and the wider pharmacy sector. We thank all of those involved for their participation and invaluable advice. All findings presented in this report are the work solely of Frontier and IQVIA.

1.2 Definitions and scope

For the purposes of this report, except where stated otherwise:

- **In-scope NHS services** refers to NHS services and over-the-counter (OTC) healthcare sales. This includes Essential and Advanced Services, including support for self-care and subsequent OTC sales of healthcare-related products. These services are the focus of this study. Other services, which may also be delivered by pharmacies (e.g. services

which are commissioned locally by the NHS or local authority and not funded by the national NHS contract, private services and sales of non-healthcare-related products) were beyond-scope in this study.

- **Archetype** refers to how pharmacies have been grouped in our analysis. The archetypes are defined based on the number of individual pharmacies within a parent company. This has been done solely for the purposes of the analysis in this study and does not imply any specific grouping outside of this study. There are five archetypes: singles, small (2-5 pharmacies), medium (6-200 pharmacies), large (over 200 pharmacies) and Distance Selling Pharmacies (DSPs).[1]

- **Full economic cost (FEC)** refers to all costs associated with the provision of NHS pharmaceutical services, with the exception of Cost of Goods Sold (COGS), on a long-run basis (where 'long-run', in this study, refers to a 3 to 5 year period).

- **Funding** refers to the NHS 'global sum' of £2.592 billion, plus 'over-delivered' funding through CPCF and Allowed Medicines Margin[2] (AMM), plus fees for flu vaccinations and Pharmacy First, which are both commissioned nationally but funded outside of the global sum for pharmacy. Note that this includes the AMM but excludes other drug reimbursement (i.e. excludes the underlying costs of the drugs dispensed).

- **Sustainability** refers to the comparison of funding with full economic cost to indicate whether NHS pharmaceutical services, as currently configured, can continue to operate on a long-run basis.

The study gathered new evidence, collected directly from pharmacies, about the costs of running NHS community pharmacy services. Working closely with the sector, NHSE and DHSC, the study explored four main **categories of cost** (some of which would not appear in company accounts or other public information or would be difficult to ascertain from those documents):

1. pharmacy-level costs for staff and running the pharmacy itself that are typically recorded in a company's management accounts at individual pharmacy level;[3]
2. centralised 'head office' and 'hub' costs which, where relevant, are typically not allocated to individual pharmacies but are support costs aggregated centrally in a company's management accounts;
3. 'hidden' and 'structural' costs (such as owners' time not charged to the company, rent not charged as a property freehold is owned, support costs picked up by a related group company, or foregone/deferred staff training and property maintenance costs). These

[1] Due to a low response to the primary data collection among DSPs, this archetype has been excluded from most of the analysis which relied upon this data. Where DSPs have been included (notably when extrapolating results to England) this has been clearly noted.

[2] https://cpe.org.uk/funding-and-reimbursement/pharmacy-funding/funding-distribution/retained-margin-category-m/

[3] Our analysis of costs excludes the cost to pharmacies of purchasing items which are subsequently dispensed.

would not appear in pharmacy accounts and are not 'cash costs' to a pharmacy but, where they occur, need to be recognised to ensure ongoing economic sustainability; and

4. the cost of capital, which is the return required by funders to invest capital in the business (on an ongoing basis). The implications for pharmacy cash-flow and profitability depend on if or when these costs are incurred and how they are financed.

This study only assessed the costs of delivering NHS pharmaceutical services. Many community pharmacy businesses also deliver private pharmaceutical services and some non-pharmaceutical services (such as retail sales of perfumes and other products). The experience of many entering a community pharmacy will be that much of the floor space is devoted to these other retail operations. They are not included in this analysis. We accounted for this by (i) only collecting data on the parts of the business that relate specifically to the provision of pharmaceutical activities; and (ii) within those services, collecting data on the proportion of costs which are due to delivering *NHS* pharmaceutical services. These costs are difficult to estimate accurately. The survey and approach used to collect the data was tested carefully in advance, with sector participants, to ensure it was fit for purpose. In addition, the analysis undertaken using this data was subject to sensitivity analysis to investigate the impact of variations in the data on our findings.

The remainder of this report and annexes describe the methods we have used in more detail. All figures relate to the 12 months to 31st March 2024, except where stated otherwise.

1.3 Main findings

This report was commissioned to develop an up to-date analysis of the financial circumstances of the NHS community pharmacy sector. The evidence collected for this report suggests that profitability and cashflow issues are affecting large portions of the sector. For example:

- Around 47% of pharmacies were not profitable in their last accounting year, as measured by EBITDA.[4]
- Approximately 24% of parent companies who provided valid data on current assets and liabilities had a current ratio of less than 1 (meaning that their current liabilities exceeded their current assets).[5]
- Between January 2021 and November 2024 there was a net reduction in the number of pharmacies in England of 7%. In the last year this reduction was concentrated in the large pharmacy chains. The number of pharmacies in other archetypes (e.g. independent pharmacies and smaller chains) has risen over the last year, as smaller companies bought some of the pharmacies being closed by the larger chains.

[4] EBITDA does not include centralised or hub costs (where relevant), or hidden or structural costs (where relevant), which would result in more pharmacies appearing unprofitable if included.

[5] The majority of parent companies who provided data on these metrics were either single pharmacies or chains of fewer than five pharmacies. Therefore, these results may not be reflective of the sector as a whole. Due to sample size constraints it was not possible to break down this percentage by archetype

- 37% of pharmacies would be deterred from closing because of the costs incurred in doing so (e.g. redundancy costs, lease commitments, loss of asset intended to support pension).
- An increasing number of pharmacies are defaulting on Direct Debit payments for stock.
- 99.9% of pharmacies reported that financial pressures in the last 3 years had led to significant changes in the management of staff, 99.9% reported changes in operations, 74.7% reported significant change in financing their business, and 81.0% reported significant changes in property management due to financial pressures.

The remaining findings cover the three research questions: the full economic cost of NHS pharmaceutical services, the sustainability of those services and which services could be offered most cost-efficiently from pharmacies. Each is examined in turn.

First, the full economic cost (FEC) of NHS pharmaceutical services. Pharmacy-level and centralised costs (items 1 and 2 in the list above) account for around 70% of full economic cost of delivering NHS services.[6] These costs will directly affect **short-term sustainability**. They are also the categories of cost which are likely to be measured most accurately in our estimates, due to the availability of better data.

Hidden and structural costs and the cost of capital (items 3 and 4 in the list above) account for around 30% of FEC. These costs are more closely related to **longer-term sustainability**.[7] If funding has been substantially lower than full economic cost for an extended period of time then these costs could start to also affect shorter-term sustainability. These hidden and structural costs and the cost of capital also generally affect other measures of sustainability (such as EBITDA and Profit Before Tax) more indirectly. A business can operate in the short-run without fully covering these costs, but given the findings of the report this is likely to have been happening for many pharmacies for several years. These costs are likely to be measured less accurately in our estimates, due to the availability of good data.

The headline results are shown in the following table. The costs vary considerably between different pharmacies, both within and across archetypes. The results in Table 1 show – alongside mean values – the cost values for the interquartile range (the “middle 50%” of pharmacies that are neither the lowest nor the highest 25%). Therefore, by definition there will be 25% of pharmacies with higher costs than suggested by the ranges that we have presented and 25% of pharmacies with lower cost than suggested by the ranges we have presented. For example, the estimate of the full economic cost of a pharmacy in a medium-sized group ranges from £407,000 to £646,000 (which excludes the most costly 25% and least costly 25% of pharmacies within this archetype).

6 Whenever costs or funding are discussed in this report it always refers to NHS costs and funding, except where stated. It was beyond the scope of this work to examine private income or costs of serving private customers in pharmacies. Those factors are also important in decisions by pharmacies about how to develop their businesses.

7 The main exception to this might be debt financing costs, depending upon the structure of the contractor’s finances.

Table 1 Full economic cost of NHS pharmaceutical services, mean and interquartile range, per pharmacy[8]

Mean (IQR)	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Pharmacy-level costs	£266k (£144k to £333k)	£307k (£214k to £379k)	£314k (£235k to £362k)	£257k (£199k to £301k)
Centralised (inc. hub-and-spoke) costs	-	£22k (£0 to £36k)	£67k (£43k to £85k)	£71k (£32k to £103k)
Hidden and structural costs	£60k (£31k to £80k)	£76k (£43k to £98k)	£53k (£3k to £78k)	£33k (£18k to £45k)
Cost of capital (tangible assets)	£60k (£32k to £80k)	£102k (£55k to £133k)	£58k (£35k to £71k)	£22k (£14k to £29k)
Cost of capital (intangible assets)	£55k (£37k to £66k)	£65k (£43k to £79k)	£55k (£40k to £66k)	£26k (£17k to £33k)
Full economic cost, per pharmacy	**£441k (£270k to £525k)**	**£573k (£386k to £712k)**	**£546k (£407k to £646k)**	**£409k (£297k to £505k)**
Full economic cost, per 10,000 items-per-month pharmacy	**£540k (£458k to £549k)**	**£603k (£516k to £665k)**	**£589k (£514k to £647k)**	**£589k (£469k to £665k)**

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: See Table 5, Table 6 and Annex D.2 for additional details.

One factor which drives this variation in costs is differences in the size of an individual pharmacy.[9] To reduce the effect of variations in pharmacy size, in Table 1 we also show a purely illustrative scenario, in which all pharmacies dispense 10,000 prescription items per month. For example, under this scenario the full economic cost of a pharmacy in a medium-sized group ranges from £514,000 to £647,000. This range is smaller than the range above, but indicates that costs still vary significantly due to factors other than pharmacy size.[10]

This scenario, whereby all pharmacies dispense 10,000 prescription items per month, does not imply that this is the optimal or most efficient volume for all individual pharmacies. Also

8 The figures presented in this table are broadly consistent with previous work such as the 2011 joint Cost of Service Inquiry (CoSI) carried out by PwC on behalf of the Department of Health. The differences that do exist likely reflect the evolution of the sector and changes in input costs during the intervening 13 years. https://cpe.org.uk/funding-and-reimbursement/pharmacy-funding/cost-of-service-inquiry/

9 Note that this is different from variations in 'group size' (i.e. number of pharmacies operated by a single parent company), which is explored by considering different archetypes.

10 Real-world variation in pharmacy costs will be driven by a range of factors, including (but not limited to): the location of the pharmacy, level of rurality, staff experience and availability, average period of treatment, quality of service delivery, patient mix and demographics, extent of local GP provision, historical timing of investment, difference in opening hours, the range of services offered by the pharmacy; and variations in efficiency of delivery.

this type of size adjustment is subject to limitations and is not an attempt to estimate accurately the 'true' costs if a given pharmacy were to expand or contract to this size.[11] The presence of significant fixed costs would mean that some pharmacies could not expand beyond current prescription levels and other pharmacies would experience non-linear changes in their costs if they altered their prescription volumes.

The data used for this analysis is based on the most systematic collection of evidence in over a decade. The data collection was designed carefully, with significant input from the Working Group and Advisory Board (both of which included pharmacy contactors currently working in the sector, and their representatives). The data was cross-checked (including following up with many respondents) and excluded data 'outliers'. However, there remains uncertainty around some figures which is reflected in the range of values observed.

Apart from uncertainty in the data, there are many factors which may contribute to the variability, including factors beyond the control of pharmacy contractors. Examples include differences in costs faced in different regions, pharmacy location, operating model, staff experience and availability, mix of services provided, patient mix and demographics, local GP and 111-operating practices, historical timing of investment, opening hours, and efficiency. The current funding model incentivises pharmacy contractors to reduce costs where possible. There is no direct evidence about variation in quality, which will also impact costs.

Examination of the data suggests that single individual pharmacies are the lowest-cost archetype, after adjusting for pharmacy size. Econometric analysis does not suggest any economies of scale at the level of individual pharmacies. It does suggest that large chains and single independents have lower costs than medium-sized groups once other relevant characteristics are controlled for. The econometric analysis also indicates that costs tend to be higher for pharmacies which are co-located with a GP practice, and lower for those which are part of the Pharmacy Access Scheme. It was beyond the scope of this work to identify the most efficient pharmacy models, and would require a more focused granular data collection and financial modelling to address this question.

Taking that full range of variation into account and aggregating across all pharmacies, we estimate £3.459 billion in pharmacy-level and centralised costs (£3.004-3.915 billion), and £1.604 billion in other (hidden, structural and capital) costs for the sector (£1.393-1.815 billion).[12] This estimate does not include any adjustment for future cost growth associated with expanding the role of community pharmacy in delivering NHS services.

Second, the financial sustainability of NHS pharmaceutical services. Comparing these costs to funding provides further insight into **the sustainability of NHS pharmaceutical services**. Total funding for 2023-24 was £2.755 billion.[13] Considering only pharmacy-level and

11 Note also that the estimated results of the 10,000 items-per-month scenario are not used in any further analysis.

12 Note these ranges were constructed to reflect some uncertainty in the extrapolation from the survey to the sector across all of England, rather than an interquartile range (IQR). This extrapolation is described in Section 6.1.1.

13 This includes 'over-delivery' of some funding in 2023-24. See Annex A.2 for more details.

centralised costs, these costs exceeded funding by £0.704 billion (£0.249-1.160 billion). The estimated total full economic cost exceeded funding by £2.308 billion (£1.642-2.975 billion). This is shown at pharmacy level in Table 2.

Table 2 Sustainability of NHS pharmaceutical services: funding minus full economic cost, mean and interquartile range, per pharmacy

Mean (IQR)	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Funding minus pharmacy-level and centralised costs, per pharmacy	-£15k (-£16k to £35k)	-£36k (-£86k to £12k)	-£93k (-£127k to -£46k)	-£102k (-£138k to -£59k)
% of pharmacies with pharmacy-level and centralised costs > funding	45.5%	67.5%	92.7%	96.6%
Funding minus FEC, per pharmacy	-£190k (-£244k to -£96k)	-£280k (-£360k to -£182k)	-£259k (-£305k to -£181k)	-£182k (-£234k to -£122k)
Funding minus FEC, per 10,000 items-per-month pharmacy	-£234k (-£241k to -£146k)	-£298k (-£359k to -£207k)	-£284k (-£335k to -£218k)	-£310k (-£385k to -£167k)
% of pharmacies with full economic cost > funding	97.7%	100.0%	99.7%	99.7%

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: See Table 41, Table 42 and Table 43 for additional details.

These estimates suggest that 45.5-96.6% of pharmacies across our archetypes have funding which is lower than pharmacy-level and centralised costs, and that 97.7-100.0% have funding which is lower than full economic cost.[14]

This suggests NHS pharmaceutical services (taken in total) are already not currently sustainable in the short-run for a large proportion of pharmacies and for a greater proportion when taking a long-run view. The likely consequences – absent intervention – include the risk of pharmacy closures or shorter opening hours, or pharmacies choosing to offer a reduced range of services.

[14] Note this is the range of average values for each of our archetypes, as shown in the table, rather than the interquartile range (IQR). Note that these estimates do not account for any variation in the level of Allowed Medicines Margin received by individual pharmacies, although we consider this impact through a sensitivity in Section 11.

In the short-run, many of these pharmacies may continue to provide NHS services if they are able to postpone capital spending or incur 'hidden' costs (to the extent these options have not already been exhausted) or because they face barriers to exit (such as lease costs and redundancy costs). That approach to meeting only short-term costs is consistent with the accounting data summarised above (e.g. 47% of pharmacies were not profitable in their last accounting year, before centralised and hub costs, as measured by EBITDA). EBITDA does not include all elements of our FEC measure such as hidden costs or centralised and hub costs.

This analysis considers the sustainability of pharmacies under the contract, funding and business models of pharmacies as they exist today. It was beyond the scope of this study to consider how sustainability would be affected by future changes to the sector.

Third, services which could be offered most cost-efficiently from pharmacies. This study was asked to examine one specific change to understand whether pharmacies have a **comparative cost advantage** in the provision of some additional NHS services.

We have examined provision patterns for nine NHS clinical services[15] amongst all pharmacies in England between April 2023 and March 2024.[16] Certain services (e.g. Pharmacy First) were still in their ramp-up phase during the reference period used for this analysis. Therefore, the figures do not represent a steady-state level of service delivery.

We observe variability in the proportion of pharmacies offering each service. Very few pharmacies offer fewer than three of the nine services examined and even fewer offer more than seven services. The majority offer between four and six services (inclusive).

Cost of delivery is one consideration when deciding the setting for clinical services. To compare the unit cost of provision in community pharmacy with GP practices and other care settings we took the service delivery fees paid to pharmacists for each of the nine services we examined, as a starting point for costs. We did not examine whether these funding levels are appropriate. We then compared these fees to the bottom-up costs of delivering the same activity / service in other parts of the healthcare system.

Table 3 shows that the opportunity costs associated with certain other primary and secondary care activities are high compared with the cost of providing services in community pharmacy settings. Existing or new community pharmacy services could, in some cases, be substitutes for other more expensive activities.

15 New Medicine Service, Blood Pressure Checks, Discharge Medicines Service, Contraception Consultation, Smoking Cessation, Stoma Customisation, Appliance Review, Pharmacy First, Flu Vaccinations

16 The majority of these services are funded via the global sum. However, Pharmacy First and NHS Flu Vaccinations are funded currently via alternative mechanisms.

Table 3 Costs of activity in community pharmacy, GP and hospital

Setting	Service	Current fee
Community pharmacy	New Medicine Service	**£20-£28** (per completed NMS depending on the total number of patients who receive the service)
Community pharmacy	Blood Pressure Checks	**£15** (for each clinic check) and **£45** (for each ambulatory monitoring).
Community pharmacy	Discharge Medicines Services	Pharmacy owners providing the full service will be paid a fee of **£35** (for pharmacy owners providing the full service). Partial payments are as follows: Stage 1 **£12** Stage 2 **£11** Stage 3 **£12**
Community pharmacy	Contraception Consultation	**£18** (per consultation)
Community pharmacy	Smoking Cessation	**£30** for first consultation, **£10** for each interim consultation and **£40** for the last consultation
Community pharmacy	Stoma Customisation	**£4.32** is paid per qualifying Part IXC item dispensed, regardless of whether customisation was required
Community pharmacy	Appliance Review	**£28** (for an AUR conducted on pharmacy premises) or **£54** for an AUR carried out in a patient's home.
Community pharmacy	Pharmacy First	**£15** per completed consultation
Community pharmacy	Flu Vaccinations	**£9.58** for each vaccine administered
GP	Surgery consultation lasting 10 minutes	**£49**
Hospital	Outpatient attendances	**£217**
Hospital	Urgent care centre attendance	**£91**
Hospital	A&E attendance	**£137-445**

Source: Various – see main report. Costs will vary depending on local circumstances. Our values represent either an average or an appropriate range.

A more detailed study would be required to understand the implications of transferring more services into a pharmacy setting. It would require identifying the specific services that community pharmacy could take on and the impact (if any) on various dimensions of quality (e.g. access and clinical outcomes). That would help inform whether delivery via community pharmacy would represent a preferable or more efficient setting relative to other care settings for patients, taxpayers, pharmacies and other parts of primary care.

1.4 Potential further work

This study has assembled the best up to-date data about pharmacy costs and sustainability. However, this study's scope means that further work could be valuable, to inform the best steps to take to ensure continuity of high-quality NHS pharmacy services. Some potential opportunities for new in-depth studies include:

- specific analysis of the efficient level of cost for pharmacy services, for example efficient levels of pharmacy-level operating costs, cost of capital and capital renewal;
- greater understanding of how quality of outcome varies across different models and cost-levels;
- more detailed exploration of the different possible service models; and
- analysis – including potentially evaluation of enacted changes – of the impact of shifting some service provision from GP to pharmacy settings.

2 Introduction

2.1 Role and size of the community pharmacy sector

The community pharmacy sector in England dispenses medicines and provides wider clinical services on behalf of the NHS. NHS England's (NHSE) vision is for the community pharmacy sector to play an increased role in the delivery of integrated primary care services to support access challenges in primary care.[17] NHSE expects this will help to release capacity in the wider NHS to address more acute and complex health conditions. This will help deliver the vision of integrated primary care set out by the Fuller Stocktake Report.[18]

The role of community pharmacy is set out in the Pharmaceutical and Local Pharmaceutical Services Regulations.[19] The 2019-20 to 2023-24 NHS Community Pharmacy Contractual Framework (CPCF) articulates a vision for how community pharmacy can play an increased role in clinical service delivery and commits to a multi-year funding settlement to achieve that vision (described in further detail below).[20]

Under the national contractual arrangement, there are three key functions each pharmacy performs for the NHS:

- procuring medicines for primary care;
- final supply and distribution of medicines and appliances to patients; and
- provision of extended professional (clinical) services (which are mostly optional for contractors to provide).

All pharmacy owners are required to offer certain Essential Services as part of the pharmacy contract, including dispensing medicines and disposing of unwanted medicines.[21] In addition, the pharmacy contract currently includes a further nine Advanced Services (e.g. hypertension case finding services). Community pharmacies can choose to provide any of these services as long as they meet necessary requirements.[22] Community pharmacies may also deliver National Enhanced Services (nationally specified services commissioned centrally by NHSE such as COVID-19 vaccinations) and/or Locally Enhanced Services (which are locally developed and designed to meet local health needs).[23] Finally, community pharmacies may

17 Overall, NHS England set out a vision for pharmacy to shift away from a purely dispensing role to become more aligned with the provision of clinical services in the 2019 Long Term Plan for the NHS. https://www.longtermplan.nhs.uk/
The 2019/20 to 2023/24 CPCF noted that community pharmacists have the potential to play a greater role in clinical service delivery https://assets.publishing.service.gov.uk/media/5d359f2e40f0b604de59fd82/cpcf-2019-to-2024.pdf

18 https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/

19 https://www.legislation.gov.uk/uksi/2013/349/contents

20 https://www.england.nhs.uk/primary-care/pharmacy/community-pharmacy-contractual-framework/

21 https://cpe.org.uk/national-pharmacy-services/essential-services/

22 https://cpe.org.uk/national-pharmacy-services/advanced-services/

23 https://cpe.org.uk/national-pharmacy-services/national-enhanced-services/

offer private services, and/or sell non-healthcare-related products such as toiletries or cosmetics.

At the end of November 2024 there were 10,454 pharmacies in England.[24] This represents a reduction of 1,276 pharmacies relative to May 2017 (when numbers were at their highest).[25]

2.2 Objectives of this study

In September 2022, as a part of the final negotiated CPCF (year 4 and year 5) deal, NHSE committed to "*commission an economic analysis of NHS pharmaceutical services through an independent review, using data provided by contractors, and [to] work with the Pharmaceutical Services Negotiating Committee on the review*." Frontier Economics and IQVIA were commissioned in 2024 to deliver this study. The results of this study will form part of the wider evidence base that can inform future framework negotiations.

The study addresses three research questions:

1. What are the full economic costs of delivering NHS pharmaceutical services, and how do these costs vary across and within: different types of pharmacy; different mix of dispensing activity and services; and different locations? See Sections 6, 8 and 11 for further details.
2. Are NHS community pharmacy businesses sustainable under the current funding model, including the current trajectory (of costs and activity) of the sector? To what extent are NHS services at risk of interruption? See Sections 7, 10 and 11 for further details.
3. Which clinical services can be most efficiently delivered from community pharmacy as compared with general practice or the wider NHS? See Section 9 for further details.

Our balance of effort across the three research questions has intentionally not been equal. As a result, this report adds most on Question 1 and relatively less on Question 3. However, the questions are interrelated. We have drawn upon our analysis of costs (Question 1) to help inform our view of sustainability (Question 2),[26] and service mix (Question 3).[27]

2.3 Timing and scope of this study

This study was undertaken between April 2024 and January 2025.

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24 Included on a Pharmaceutical List held by NHS England https://opendata.nhsbsa.net/dataset/pharmacy-openings-and-closures

25 https://opendata.nhsbsa.net/dataset/foi-32012

26 Current costs are the basis for determining potential future costs.

27 Current pharmaceutical clinical service fees and input costs are compared to costs of providing other aspects of primary care.

The most recent comparable study is the 2011 joint Cost of Service Inquiry (CoSI) carried out by PwC on behalf of the Department of Health,[28] which formed part of the evidence base for negotiations for future funding at that time. The CoSI study was considerably more detailed in its focus than this current research because it was carried out over a much longer time period and included a more detailed review of secondary data sources.

In the timeframe available for this study, it was not possible to examine in detail every possible question relating to pharmacy costs and sustainability. The core output from this study is a robust new evidence base on the costs of dispensing and delivering NHS clinical services, the variation in these costs across the sector, and the sustainability of NHS pharmaceutical services. This provides one valuable input to the wider policy discussions around community pharmacy.

We tailored our primary data collection to focus on topics which are less well-understood currently and where less up-to-date information exists, due to the limitations of using company accounts. Together with existing data, this allowed us to answer our three research questions. The following items were beyond the scope of our work:

- dispensing doctors, pharmacy in secondary care and pharmacies outside of England;
- the economic value (as opposed to cost) of NHS pharmaceutical services;
- consideration of alternative funding models;
- policy recommendations regarding the future of community pharmacy services.

Future policy decisions in this context will rely on a broader suite of evidence, beyond the scope of this study.

2.4 Governance of this study

This study was undertaken by Frontier and IQVIA, independently of NHSE, DHSC and the wider pharmacy sector.

The governance for this study included:

- third-party oversight and management by NHS Midlands and Lancashire CSU;
- a Contract Management Group, consisting of representatives from NHSE, to ensure that the study was delivered on time and within budget;
- an Advisory Board, consisting of representatives from NHSE, DHSC and Community Pharmacy England (CPE), to give strategic advice and guidance to the project team;
- a Working Group, consisting of representatives from NHSE, DHSC, CPE and a cross-section of pharmacy contractors, to provide detailed sector expertise to the project team.

[28] CoSI was commissioned and paid for by the Department of Health. It was overseen by a Steering Group that included members of Community Pharmacy England's staff and contractors on the committee https://cpe.org.uk/funding-and-reimbursement/pharmacy-funding/cost-of-service-inquiry/

These groups met frequently throughout the course of the study, to review all key materials and provide challenge to the project team. We thank all of those involved for their participation and invaluable advice. All findings presented in this report are the work solely of Frontier and IQVIA.

2.5 Structure of this report

The remainder of this report is structured as follows:

- Section 3 summarises our approach to this review.
- Section 4 describes our primary data collection.
- Section 5 briefly discusses existing evidence on community pharmacy funding, costs, activity and sustainability.
- Section 6 presents our results on the current costs of NHS pharmaceutical services.
- Section 7 explores the future costs of NHS pharmaceutical services.
- Section 8 presents our analysis of the drivers of costs of NHS pharmaceutical services.
- Section 9 explores the services which are delivered from community pharmacy.
- Section 10 presents our results on the sustainability of NHS pharmaceutical services.
- Section 11 presents sensitivity analysis on our results.
- Section 12 discusses potential further analysis.

3 Approach

This section outlines our approach to the analysis. Additional details are provided in the annexes to this report.

The approach was agreed through a process that included: Frontier and IQVIA's initial response to the Terms of Reference issued by NHS England, following its own consultation with the sector; iteration and changes to that approach following discussions with the Working Group and others;[29] and continuous engagement throughout the study.

This approach provides the most up to-date and comprehensive collection of data currently available about the sector. However, uncertainties remain (e.g. regarding the extent to which our sample precisely aligns with the sector as a whole and the precise evolution of future costs). Some of these uncertainties could be overcome with more time and greater resource. We note those uncertainties when discussing the results and their interpretation.

3.1 Definitions

To answer our three research questions, it was important to define various terms.

Pharmaceutical services

For the purposes of this analysis, we defined pharmaceutical services as falling into three categories, as follows:

- **In-scope NHS services** refers to NHS services and over-the-counter (OTC) healthcare sales.[30] This includes Essential and Advanced Services, including support for self-care and subsequent OTC sales of healthcare-related products. These services are the focus of this study.
- **Beyond-scope local services** are services which are commissioned locally by the NHS or local authority and not funded by the national NHS contract.
- **Beyond-scope private and other services** are services not commissioned by the NHS or local authority. This includes all private services. This also includes sales of non-healthcare-related products.

The two 'beyond-scope' categories above were not in the scope of our analysis, but there may be some overlap in costs between these services and in-scope NHS services (e.g. staff time) so we needed to understand where these are offered in order to treat these costs appropriately.

29 Including engagement with pharmaceutical wholesalers and financial institutions.

30 Specific funding measures and the treatment of OTC healthcare sales is discussed in Annex A.2.

Additional detail on these definitions is provided in Annex A.1.

Archetype, full economic cost, funding and sustainability

For the purposes of this analysis, we defined archetype, full economic cost, funding and sustainability as follows:

- **Archetype** refers to how pharmacies have been grouped in our analysis. The archetypes are defined based on the number of individual pharmacies within a parent company. This has been done solely for the purposes of the analysis in this study and does not imply any specific grouping outside of this study. There are five archetypes: singles, small (2-5 pharmacies), medium (6-200 pharmacies), large (over 200 pharmacies) and Distance Selling Pharmacies (DSPs).[31]

- **Full economic cost (FEC)** refers to all costs associated with the provision of NHS pharmaceutical services, with the exception of Cost of Goods Sold (COGS), on a long-run basis (where 'long-run', in this study, refers to a 3 to 5 year period). This includes 'accounting costs' (which would typically appear in a pharmacy's accounts) but also 'opportunity costs' such as the cost of unpaid staff/owner time; the cost of necessary investment in property and staff (which can potentially be foregone in the short-run only); and the return which is required by funders when capital (either debt or equity) is employed in any business. It does not include COGS, whether this is for medicines dispensed on NHS prescriptions, OTC healthcare retail sales, or any other in-scope services provided by the pharmacy. We note that many pharmacies also provide non-NHS services, and that many costs are shared between NHS and non-NHS activity.

- **Funding** refers to the NHS 'global sum' of £2.592 billion, plus 'over-delivered' funding through CPCF and Allowed Medicines Margin (AMM), plus fees for flu vaccinations and Pharmacy First, which are both commissioned nationally but funded outside of the global sum for pharmacy. Note that this includes the AMM but excludes other drug reimbursement (i.e. excludes the underlying costs of the drugs dispensed). See also Annex A.2.

- **Sustainability** refers to the comparison of funding with full economic cost to indicate whether NHS pharmaceutical services, as currently configured, can continue to operate on a long-run basis. This requires funding which is at a sufficient level to meet the full economic cost of providing NHS pharmaceutical services, described above.[32] Unsustainable businesses will often exhibit low profitability or losses, low liquidity or

[31] Due to a low response to the primary data collection among DSPs, this archetype has been excluded from most of the analysis which relied upon this data. Where DSPs have been included (notably when extrapolating results to England) this has been clearly noted.

[32] Health and Wellbeing Boards across the country publish Pharmaceutical Needs Assessments (PNAs) to articulate the pharmaceutical services that are necessary to meet needs in their area and highlight any gaps in provision. Therefore, to ensure sustainability of high quality and complete pharmaceutical services the funding provided by the NHS must be sufficient to cover these needs. Our analysis has not explored sustainability at a local or regional level.

become insolvent and close (this could exacerbate existing patterns of provision). They will often also cut costs to mitigate these risks. We note that sustainability at the sector level does not require every individual pharmacy business to be sustainable. In a competitive sector it is natural for some (less efficient) businesses to close and others to open, and some changes in business models (including consolidation) may also occur.

3.2 Sources of evidence

Our analysis used three main existing sources of evidence:

- **NHS Business Services Authority data**. NHS BSA provided data on dispensing and services activity and fees (i.e. funding), at pharmacy level, by month.
- **Publicly-available data**. We gathered public data on activity and pharmacy numbers.
- **IQVIA data**. We used pharmacy-level data on pharmacy characteristics (such as postcode, region, urban/rural location, contract type) and pharmacy openings and closures.

We have added to these existing sources by carrying out two complementary primary data collection exercises:

- **Bottom-up data collection** from a sample of parent companies, gathering detailed data at individual pharmacy level. All contractors across England were invited to participate, and data was requested from a sample. This sample was selected to reflect a range of different types of pharmacy, without intending to be nationally representative.
- **Top-down data collection** of a larger sample of parent companies, gathering less-detailed data at individual pharmacy level. All contractors across England were invited to submit data. This data was used to extrapolate to sector-level (i.e. all of England), with some re-weighting within the sample to achieve a nationally representative picture.

The bottom-up and top-down data collections were designed to be complementary and mutually reinforcing. Bottom-up allowed us to gather detail which would not be possible from a larger survey, while top-down allowed us to increase our overall sample size, contributing to the sector-level extrapolation. We combined these datasets into one overall dataset for the purposes of most of our analysis. In some places we applied results from the bottom-up sample to estimate results for the full sample (see Section 4.3.2).

We note the potential for bias in each of the above primary data collection exercises. Particular types of pharmacy might have been more likely to provide data. For example, this may be those that are: more engaged in national policy issues (so more interested in contributing to this study); better-managed (so more likely to have data available); or less capacity-constrained (so more likely to have time available). It is also possible that some respondents hold more accurate data than others, or that some respondents might have ‘rounded up’ or ‘rounded down’ their responses to influence the subsequent analysis.

To mitigate these risks, we analysed both datasets to assess the extent to which they reflect the sector as a whole, by comparing our sample distribution to population distribution across a range of characteristics (see Annex C). We also made adjustments to re-weight our sample before extrapolating to sector-level (see Section 6.1.1). Our approach of triangulating across multiple sources, wherever possible, mitigated the risk of bias as far as was practicable within the scope of this study.

3.3 Quality Assurance

Quality Assurance was an integral part of the approach to this study, at every stage. Frontier and IQVIA's processes for data collection, undertaking and quality-assuring analysis are consistent with the Aqua Book for producing quality analysis for government.[33] Our processes included activity at each of the following stages.

Quality planning. This included: planning the collection, cleaning and validation of confidential pharmacy-level data; developing an Analytical Plan which set out the intended approaches; planning the role of the Working Group and Advisory Board in reviewing plans for data collection, analysis, and reporting.

Primary data collection. The quality of the primary data received was assured using a number of complementary approaches, including data validation in the data collection tools, checks for missing or duplicated data, review of respondents' comments, checks for values within expected ranges and consistency within responses. Respondents were contacted by email to check any anomalies and to fill missing data. Further details are provided in Annex B.7.

Secondary data collection. Only data from high-quality, reputable sources was relied upon for this study. Wherever possible, multiple sources were used. Consistency checking and cross-checks with other data sources were used to identify any differences between data sources, which were explored further.

Data handling and analytical design. This included: developing an Analytical Plan which was reviewed by the Working Group and Advisory Board; following best-practice guidance for data handling, including the handling of commercially sensitive data; following best-practice in the development of Excel, R and STATA analysis; robust processes for manipulating large datasets.

Quality control of analysis. This involved multiple 'layers' of cross-check and sense-check; for input data, this included review of primary data collection, missing data and outliers, and engagement with pharmacy respondents to check data; for assumptions, this included extensive review of analytical approaches by the Working Group and Advisory Board, as well as review sessions by the study team; for outputs, this included review of all outputs by Project Manager, Project Director, and by Working Group and Advisory Boards. We carried out

[33] https://www.gov.uk/government/publications/the-aqua-book-guidance-on-producing-quality-analysis-for-government

multiple analyses in parallel using different tools (e.g. Excel, R and STATA) and analyses by different team members were used to cross-check results.

Review and publication of analytical results. Interim analytical results were prepared at two separate points during the study, for the purposes of review, challenge and refinement. These results were reviewed by the study team, Working Group and Advisory Board. This process identified multiple areas for further exploration of data and checking analysis. The final results of the analysis are published in detail in this report, for maximum transparency, subject to ensuring the confidentiality of primary data provided by pharmacy sector respondents.

4 Primary data collection

This section summarises the process by which we collected data from a sample of pharmacy contractors. Further information is provided in Annex B.

4.1 Data collected

The dataset we have compiled is at individual pharmacy level and contains data on the following broad areas:

- pharmacy characteristics and activity e.g. pharmacy location, ODS code;
- pharmacy assets and liabilities;
- pharmacy-level costs, including accounting costs as well as hidden and unmet structural costs;
- centralised and hub costs, including accounting costs as well as hidden and unmet structural costs;
- pharmacy turnover and profitability;
- company characteristics, including the number of pharmacies sold or closed;
- use of hub-and-spoke model, if relevant.

This dataset was compiled by combining IQVIA proprietary data and new primary data collected from a sample of pharmacy contractors.

4.2 Collection approach

We undertook the following activities to support data collection:

- **Sector engagement.** We engaged associations and representative bodies including Community Pharmacy England (CPE), National Pharmacy Association (NPA), Independent Pharmacy Association (IPA), Royal Pharmaceutical Society of Great Britain (RPSGB), Company Chemists' Association (CCA) and Numark.

- **Data collection tools**. We developed bespoke bottom-up and top-down data collection tools, with additional guidance provided alongside questions. These were developed with input from the Working Group and intended to minimise the burden on respondents.

- **Sampling and contact**. We invited all pharmacies across England to provide data. Contact was made primarily via email, with additional phone contact in some cases. To maximise the representativeness of the sample collected, we regularly reviewed the responses received and targeted our follow-ups to under-represented pharmacy archetypes.

- **Support for respondents.** We provided a freephone helpline and email address for respondents to ask questions. We also hosted three online drop-in sessions.

- **Quality Assurance**. The quality of the data received was assured using a number of complementary approaches, including data validation in the data collection tools, checks for missing or duplicated data, review of respondents' comments, checks for values within expected ranges and consistency within responses. Respondents were contacted by email to check any anomalies and to fill missing data.

4.3 Sample distribution

The final sample included in this analysis was drawn from 102 parent companies (35 from bottom-up and 67 from top-down) as follows:

Table 4 Sample by archetype

Category	Bottom-up (parents)	Top-down (parents)	Individual pharmacy data
DSPs	1	5	7
Singles (1 pharmacy)	13	31	44
Small (2-5 pharmacies)	8	24	77
Medium (6-200 pharmacies)	9	7	384
Large (201+ pharmacies)	4	0	654
All	35	67	1166

Source: Frontier Economics and IQVIA

Financial data was not collected for pharmacies which were not trading for a full 12 months (for any reason). This significantly reduced the total eligible population of certain pharmacy archetypes, given the number of pharmacies changing ownership in 2023-2024. Financial data was not collected for pharmacies that were operating under a Local Pharmaceutical Services (LPS) contract. One duplicate was removed from the top-down sample.

As our final sample represents over 10% of the pharmacies across England, we believe this provided a robust basis on which to undertake the analysis described in this report. It is important to note that relative to other archetypes, our sample captured a smaller share of nationwide activity undertaken by single independents. We have accounted for this when extrapolating our figures to England as a whole. However, there is greater uncertainty associated with results for that archetype. Likewise, we have sampled relatively few DSPs which limits the extent to which we can present individual results for this archetype.

We have noted cases where particular results or estimates are based on smaller sample sizes, or for other reasons, where we believe there is greater uncertainty around the results presented.

4.3.1 Data exclusions, imputations and calculations

Prior to our analysis, we undertook the following processes:

- **Financial year end adjustment**. To account for differences in the reporting period across pharmacies, we adjusted survey responses to align with a financial year end of March 2024: our base year. We created individual economy-wide cost indices for staff, buildings and other costs, and used these to inflate / deflate costs as needed to ensure all data provided was fully comparable. Detail on the specific approach that we implemented and the data sources we used is set out in Annex D.1.
- **Exclusion of outliers**. To mitigate the risk that erroneous values distorted our results, we excluded outliers. For each cost component, outliers were defined as any value more than three standard deviations above or below the within-archetype mean. More detail on these exclusions and an overview of the number of data points impacted is provided in Annex D.2.
- **Imputation of missing values**. Where values for a certain cost component were missing (either because the survey respondent did not answer or because it was excluded as an outlier), we imputed an estimated value. These imputations are described in more detail in Annex D.2.

4.3.2 Approach to combining bottom-up and top-down data

As noted above, the responses to the bottom-up survey were intentionally more detailed than the top-down survey.

Our final results rely on certain variables which were only included in the bottom-up survey (list provided below) or were only included in a simplified way as part of the top-down survey. We have used the information provided in the bottom-up to impute data for the remainder of the sample. In particular:

- The top-down survey did not ask respondents to break pharmacy-level costs into different categories (e.g. staff, buildings, other). The bottom-up dataset provides us with an indication of the proportion of costs that fall into these different categories, which has subsequently been applied to responses to the top-down survey.
- The top-down survey and the bottom-up survey asked respondents if they incurred any hidden costs or unmet structural costs. However, the top-down survey did not ask respondents to estimate the magnitude of hidden costs and unmet structural costs (whereas the bottom-up survey did). Top-down respondents who indicated that they incurred hidden costs or unmet structural costs were assigned an archetype-specific (per item dispensed) average value based on responses to the bottom-up survey.
- The bottom-up survey asked respondents separately about the presence and size of centralised costs and the presence and size of hub-and-spoke costs. The top-down survey focused on combined centralised and hub-and-spoke costs. Therefore, all of our

primary analysis combines centralised and hub-and-spoke costs.[34] Where we refer to individual estimates of hub-and-spoke costs, this draws on the bottom-up sample only.

- Assets and liabilities: The bottom-up survey asked respondents to provide tangible asset replacement values for each pharmacy. The top-down survey asked for this information aggregated across all pharmacies within a parent company. To ensure consistency, we therefore:
  - took the pharmacy-level current and fixed asset replacement values as provided by **bottom-up** respondents. We then assigned a proportion of relevant centralised and hub assets (provided at the parent level) to each of these pharmacies. We used prescription volumes (an appropriate proxy) as a scaling factor in this analysis.
  - took the parent-level tangible assets (covering both pharmacy-level and centralised assets) as provided by **top-down** respondents. We assigned a proportion of these assets to each pharmacy in the parent company for which we had data. We used prescription volumes (an appropriate proxy) as a scaling factor in this analysis.

[34] We note that hub-and-spoke models were reported as being used by relatively few pharmacies in our sample. We present some analysis of hub-and-spoke in Section 6.3.1.

5 Existing evidence on costs and sustainability

This section provides background on the community pharmacy sector using secondary data sources. We have set out a brief history of recent funding arrangements, trends in prescribing, net closures and indicators of recent financial pressures on the sector. This helps to put the results of our primary data analysis, presented in subsequent sections, into context.

5.1 Funding levels

Community pharmacy services have been subject to reductions in real funding over the last decade with a consequent impact on the market for services in England. Funding levels were reduced in cash terms across two years from £2.8 billion in 2015/16 to £2.592 billion in 2017/18. This reduction occurred at a time of steady increases in the number of prescriptions dispensed (described in greater detail below).[35]

In 2019 a five-year funding arrangement for the Community Pharmacy Contract Framework (CPCF) was agreed between The Department of Health and Social Care (DHSC), NHSE, and the Pharmaceutical Services Negotiating Committee (PSNC). This determined flat funding over the period, with some changes to the allocation of funds to different types of service.

Funding for community pharmacy was initially set at a global sum of £2.592 billion per annum for each of five years. Of this, £1.792 billion is dispersed through remuneration[36] and £800 million through a 'retained margin' collectively across the sector as a whole, which is the difference between the average cost of medicines purchased by pharmacies and the level of NHS reimbursement for them.[37] The real (inflation-adjusted) value of £2.592 billion has declined in recent years. Between July 2019 and August 2024 the price level (measured by ONS's CPI index)[38] has risen by 24%. Therefore, the level of real terms funding has been reduced.

Expenditure above the global sum is intended to be clawed back in subsequent years (e.g. if more services than estimated were provided). Measures were also introduced to smooth cash-flow for contractors (via an 'aspiration payment' of up to 70% of the prior year's payments under the Pharmacy Quality Scheme).

In addition, further funding was removed from existing fees and reallocated to a Transitional Payment pending its use for new clinical services to be provided by pharmacy. The Establishment Fee was phased out by 2020-21. In response to the impact of COVID-19 and

35 A decade of community pharmacy funding in England - The Pharmaceutical Journal (pharmaceutical-journal.com)

36 This is the fees and allowances paid to pharmacies for the professional services they provide.

37 The global sum figure of £2.592 billion does not include direct drug reimbursement costs, which is in effect a pure pass-through. Prevailing margins in the market will change and the retained margin level is set using a stratified survey. This reimbursement scheme is intended to encourage cost-effective purchasing by contractors. The retained margin also provides a way in which NHSE can adjust funds to contractors (e.g. non-recurring uplifts or over-delivery clawbacks).

38 https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l522/mm23

the rise in demand for primary care services, new resources were made available.[39] In Year 4 an additional £100 million non-recurring was made available at a rate of £50 million in Year 4 and £50 million in Year 5. The potential for a reduction in fixed payments (if needed) to manage delivery was included as part of the original agreement. The Year 5 update of the CPCF reduced the value of the Quality Payment to £45 million, abolished the remainder of the transition payment and introduced a flat fee for all contractors who dispense at least 101 items/month (£533 per month when introduced, reduced to £0 in March 2024 to avoid an expected contract overpayment).

In October 2022, changes were made to the discount deduction arrangements to improve distribution of funding between pharmacies.[40]

In May 2023, NHS England published the Delivery Plan for Recovering Access to Primary Care.[41] This introduced further funding of up to £645 million over two years to expand services offered by community pharmacy as a means of diverting demand from general practice (the majority of this maximum further funding was not delivered in 2023/24). In particular, the Pharmacy First scheme built on the CPCS and allowed pharmacists to manage clinical pathways for seven conditions, including prescription-only medicines in some cases (e.g. sinusitis, sore throat, impetigo etc).[42] This included the write-off of fees over-delivered due to increased dispensing and service levels in Years 3, 4 and 5.

5.2 Activity trends

NHS Businesses Services Authority (BSA) provides data on aggregate prescription volumes across the entire sector.[43] In 2023-24 (the most recent complete year) there were 1,126 million Single Activity Fees (SAFs).[44] This figure has risen over time. The equivalent figure in 2020-21 was 10% lower (1,027 million SAFs). 2019/20 and 2020/21 figures were impacted by COVID-19.

39 Including payments for home delivery, lateral flow tests and COVID-19 vaccines

40 https://cpe.org.uk/funding-and-reimbursement/pharmacy-funding/discount-deduction/

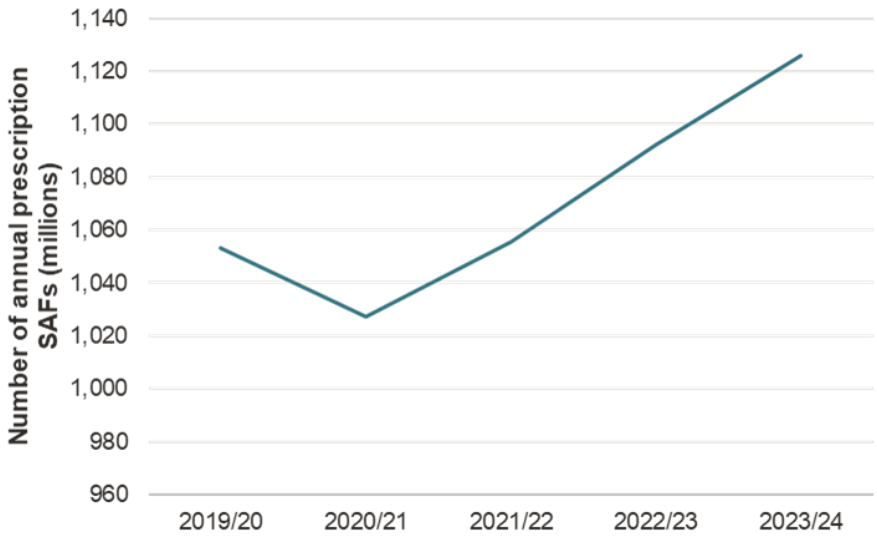
41 https://www.england.nhs.uk/publication/delivery-plan-for-recovering-access-to-primary-care/

42 More detail on the levels of funding included within our analysis is provided in Annex A.2.

43 Reimbursement- and remuneration-based data are collected by NHS Prescription Services. The data relates to the total NHS prescriptions dispensed or personally administered in England https://www.nhsbsa.nhs.uk/prescription-data/dispensing-data/pd1-reports

44 https://faq.nhsbsa.nhs.uk/knowledgebase/article/KA-01397/en-us

Figure 1 Prescription volumes (2019-20 – 2023-24)[45]



Source: https://www.nhsbsa.nhs.uk/prescription-data/dispensing-data/pd1-reports 2019/20 data provided by NHSE

Older data show an even larger rise. The equivalent figure in 2008/09, for example, was 795 million SAFs.

This rise in standard dispensing activity does not include the growth in clinical service delivery that has occurred over the same period, or plans for further future expansion of this type of activity. We have considered the potential impact of rises in clinical service activity in the coming years in Section 7.

5.3 Number of pharmacies

NHS England data shows the numbers of pharmacies in England that are included on a Pharmaceutical List held by NHS England on the last calendar day of each month.[46]

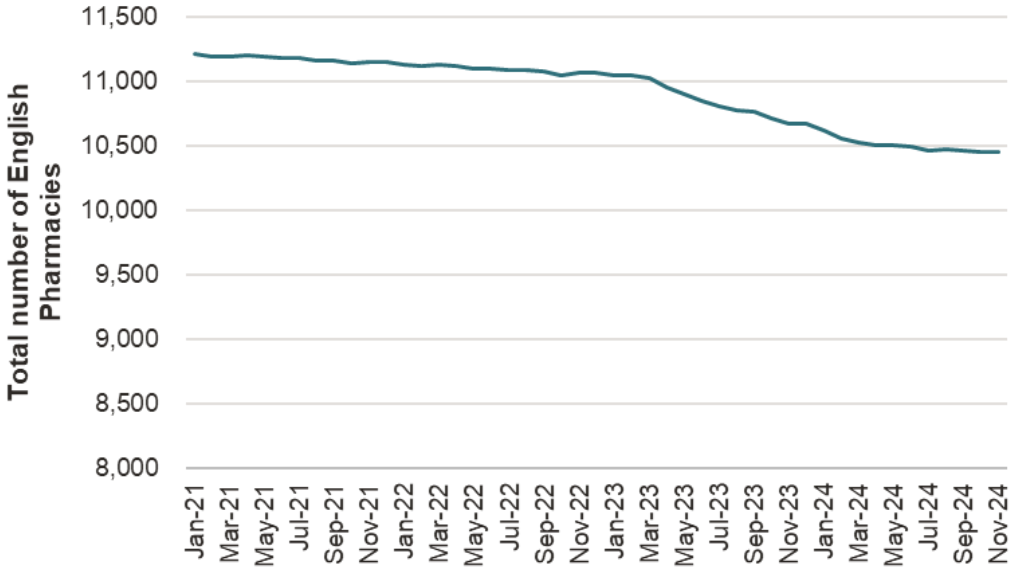
As of the end of November 2024 there were 10,454 pharmacies in England. The equivalent figure in January 2021 was 11,206. This represents a decline of 7%.

In the last year this reduction was concentrated in the large pharmacy chains. The number of pharmacies in other archetypes (e.g. independent pharmacies and smaller chains) has risen over the last year, as smaller companies bought some of the pharmacies being closed by the larger chains.

45 Data excludes dispensing doctors.

46 https://opendata.nhsbsa.net/dataset/pharmacy-openings-and-closures

Figure 2 Number of pharmacies in England



Source: *https://opendata.nhsbsa.net/dataset/pharmacy-openings-and-closures*

Over a longer period, the reduction in number of active pharmacies has been larger. In May 2017 there were 11,730 pharmacies, the highest number on record.

According to research carried out by Community Pharmacy England (CPE), the most common reasons cited by contractors for these closures include inadequate funding, rising operating costs and difficulty recruiting and retaining community pharmacists.[47]

5.4 Failed payments to wholesalers

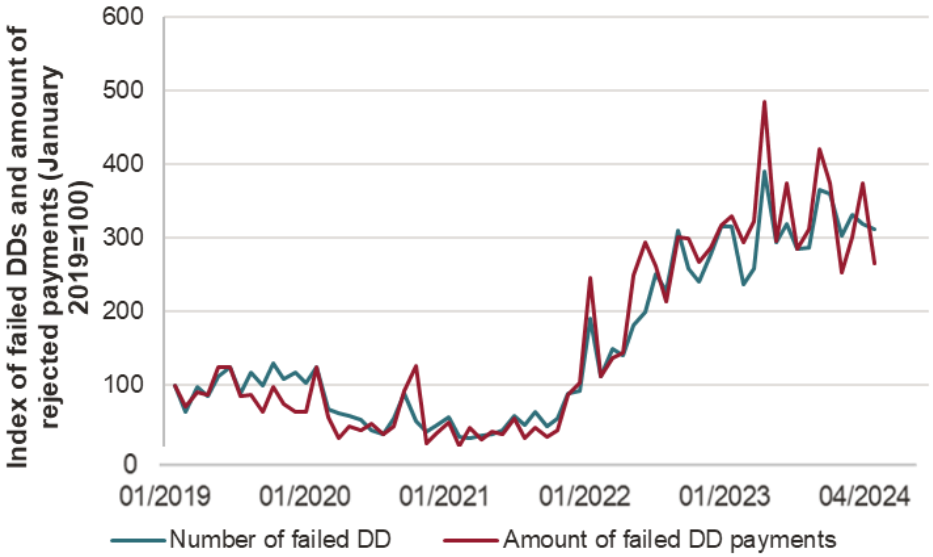
As part of this study we engaged with major pharmacy wholesalers to understand the extent to which increased financial pressures on contractors have translated into observable trends in usage of payment plans, missed direct debit payments or bad debt write-offs.

The following table shows the trend over five years of the number of missed direct debit payments by contractors to a major wholesaler (January 2019 to August 2024).[48] This information is valuable in the context of the current study as it provides an indication of when financial pressures may have increased. Our primary data collection focuses on a single year of data.

47 https://cpe.org.uk/wp-content/uploads/2023/09/Briefing-on-community-pharmacy-temporary-and-permanent-closures_Community-Pharmacy-England.pdf

48 Contractors may miss a direct debit payment for several reasons, not all of which will be related to financial pressures or point to an underlying sustainability issue. We have therefore focused on a subset of missed direct debit payments only. This relies on a categorisation undertaken by the relevant wholesaler.

Figure 3 Trend in missed direct debit payments (2019-2024)



Source: *Frontier analysis of data provided by major pharmacy wholesaler*

Note: *We have focused only on specific reasons for missed direct debit payments which are most likely to be indicative of contractor financial stress*

Relative to 2019, the number of failed direct debits and the financial amount of these missed payments have risen. As noted previously, in response to the impact of COVID-19 and the rise in demand for primary care services, new resources were made available for the sector.[49] This could have made some impact on the number of failed direct debits observed in the first half of the time period presented above.

This rise began in early 2022. Both series have been between three and four times higher over the last 12-18 months.

Our engagement with the sector suggests that missing a direct debit payment to a wholesaler is indicative of serious financial stress and would only typically occur after other options to maintain cash flow have been exhausted (e.g. additional finance, payment plans etc.). An upward trend in these metrics suggests a heightened level of financial stress across the sector, which could have implications for the continuity of supply of community pharmacy services.

[49] Including payments for home delivery, lateral flow tests and COVID-19 vaccines.

6 Current costs of NHS pharmaceutical services

In this section, we estimate the current costs of NHS pharmaceutical services, based upon our primary data collection.

Data was provided by respondents which related to different time periods, depending on their business's financial year-end. To ensure data was compared on a like-for-like basis, accounting for increasing costs over recent years[50], we adjusted data so that it relates to the 12 months up to 31st March 2024 (see Annex D.1 for further details)

Data was not provided by all respondents for all cost areas. The sample sizes reported in the tables in this section reflect the number of responses received, as well as any outliers which were excluded (see Annex D.2 for further details).

Our analysis allocates costs to in-scope NHS services, using the estimates provided by pharmacies themselves to a range of questions such as ***"what proportion of costs would be saved if the pharmacy did not perform any activity to deliver either beyond-scope local services or beyond-scope private and other services?"*** For example, if a contractor indicated that 5% of pharmacy-level costs would be saved, we allocated 95% of pharmacy-level costs to in-scope NHS services. This is calculated separately for pharmacy-level, hub and centralised costs and hidden costs (where relevant).

6.1 Full economic cost of NHS pharmaceutical services

We have estimated the full economic cost of delivering NHS pharmaceutical services. These cost estimates include:

- pharmacy-level costs;
- centralised and hub costs, where relevant, allocated to pharmacy level as described above;
- hidden and structural costs (at pharmacy, centralised and hub level), where relevant, allocated to pharmacy level;
- the absolute cost of capital (i.e. the return which is required by funders when debt or equity is employed in the pharmacy business, which represents the opportunity cost of the capital deployed to provide NHS pharmaceutical services);
- a reduction to these total costs (which relate to in-scope NHS services and also to beyond-scope services) for the proportion which would be saved if no beyond-scope services were carried out.

50 See for example: https://cpe.org.uk/wp-content/uploads/2024/05/MP-Briefing-2024-Pressures-Survey-Medicines-Supply-key-findings.pdf

These components of full economic cost are described in subsequent sections.[51] The summary results for the cost of delivering NHS pharmaceutical services are shown in Table 5.

The costs vary considerably between different pharmacies, both within and across archetypes. The results in Table 5 show – alongside mean and median values – the cost values for the interquartile range (the "middle 50%" of pharmacies that are neither the lowest nor the highest 25%). Therefore, by definition there will be 25% of pharmacies with higher costs than suggested by the ranges that we have presented and 25% of pharmacies with lower cost than suggested by the ranges we have presented. For example, the estimate of the full economic cost of a pharmacy in a medium-sized group ranges from £407,000 to £646,000 (which excludes the most costly 25% and least costly 25% of pharmacies within this archetype).

Table 5 Full economic cost, per pharmacy (2023/24), mean, median and interquartile range

Mean (Median, IQR)	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Pharmacy-level costs	£266k (£221k, £144k to £333k)	£307k (£293k, £214k to £379k)	£314k (£293k, £235k to £362k)	£257k (£241k, £199k to £301k)
Centralised (inc. hub-and-spoke) costs	-	£22k (£14k, £0 to £36k)	£67k (£60k, £43k to £85k)	£71k (£53k, £32k to £103k)
Hidden and structural costs	£60k (£54k, £31k to £80k)	£76k (£67k, £43k to £98k)	£53k (£44k, £3k to £78k)	£33k (£22k, £18k to £45k)
Cost of capital (tangible assets)	£60k (£49k, £32k to £80k)	£102k (£89k, £55k to £133k)	£58k (£52k, £35k to £71k)	£22k (£23k, £14k to £29k)
Cost of capital (intangible assets)	£55k (£50k, £37k to £66k)	£65k (£61k, £43k to £79k)	£55k (£51k, £40k to £66k)	£26k (£25k, £17k to £33k)
Full economic cost	**£441k (£406k, £270k to £525k)**	**£573k (£525k, £386k to £712k)**	**£546k (£523k, £407k to £646k)**	**£409k (£395k, £297k to £505k)**

Source: *Frontier Economics and IQVIA analysis of primary data collection.*
Note: *See Annex D.2 for additional details.*

[51] We also gathered data on the costs of shrinkage (loss of inventory for various reasons including damage and error). Data was only provided by 13 companies, with fewer than 5 responses within every archetype, so this was excluded from our analysis. Data from these companies suggested shrinkage costs are approximately 1.5% of FEC.

These results show significant variation in costs between different archetypes, and within archetypes. Apart from uncertainty in the data, there are many factors which may contribute to the variability, including factors beyond the control of pharmacy contractors such as differences in price levels in different regions and differences in the precise mix of services provided by different pharmacies. The current funding model incentivises pharmacy contractors to reduce costs where possible. We also do not directly observe variation in quality which will impact costs.

To reduce the effect of variations in pharmacy size, we also estimated these costs under a purely illustrative scenario in which all pharmacies dispense 10,000 prescription items per month. For this scenario, we assume that all costs are scaled up or down proportionately with the number of prescription items.[52]

In addition to size, real-world variation in pharmacy costs will be driven by a range of factors, including but not limited to: the location of the pharmacy which leads to variation in factor costs, level of rurality, staff experience and availability, average period of treatment, quality of service delivery, patient mix and demographics, extent of local GP provision, historical timing of investment, difference in opening hours, the range of services offered by the pharmacy; and variations in efficiency of delivery.

This scenario, whereby all pharmacies dispense 10,000 prescription items per month, does not imply that this is the optimal or most efficient volume for all individual pharmacies. Also this type of size adjustment is subject to limitations and is not an attempt to estimate accurately the 'true' costs if a given pharmacy were to expand or contract to this size.[53] The presence of significant fixed costs could mean that some pharmacies could not expand beyond current prescription levels and other pharmacies would experience non-linear changes in their costs if they altered their prescription volumes.

The results are shown in Table 6.

[52] For example, if a pharmacy in our dataset dispenses 8,000 prescription items per month, for the purposes of this scenario only, we assume that their costs would be 25% higher. This is an illustrative scenario, which is not intended to suggest that all pharmacies should be this size, or to estimate the 'true' costs if pharmacies were to expand/contract to this size (which would depend upon economies of scale and scope, for example). This scenario is purely to allow a more meaningful comparison between pharmacies of different sizes.

[53] Note also that the estimated results of the 10,000 items-per-month scenario are not used in any further analysis.

Table 6 Full economic cost, per 10,000 items-per-month pharmacy (2023/24), mean, median and interquartile range

Mean (Median, IQR)	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Pharmacy-level costs	£324k (£301k, £256k to £335k)	£329k (£329k, £257k to £388k)	£344k (£331k, £279k to £393k)	£381k (£341k, £295k to £422k)
Centralised (inc. hub-and-spoke) costs	-	£22k (£17k, £0 to £35k)	£71k (£64k, £54k to £90k)	£97k (£97k, £47k to £154k)
Hidden and structural costs	£76k (£84k, £63k to £86k)	£78k (£77k, £74k to £79k)	£56k (£58k, £3k to £67k)	£46k (£45k, £26k to £73k)
Cost of capital (tangible assets)	£73k (£70k, £68k to £73k)	£106k (£121k, £72k to £127k)	£60k (£54k, £49k to £73k)	£29k (£30k, £23k to £33k)
Cost of capital (intangible assets)	£67k (£67k, £62k to £72k)	£68k (£66k, £63k to £72k)	£58k (£57k, £54k to £61k)	£36k (£35k, £33k to £37k)
Full economic cost	**£540k (£511k, £458k to £549k)**	**£603k (£614k, £516k to £665k)**	**£589k (£566k, £514k to £647k)**	**£589k (£570k, £469k to £665k)**

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *50 pharmacies which dispense fewer than 2,000 items per month were excluded from this illustrative scenario to improve comparability.*

These cost estimates assume all pharmacies dispense the same number of items per month. The remaining variation in costs across pharmacies may be explained by a range of factors as we set out above. Some of these cost drivers are explored further in Section 8.

6.1.1 Cost of NHS pharmaceutical services across England

Based on the results from our sample, we extrapolated the cost of NHS pharmaceutical services to the sector level across England.

Our sample contains data for 1,116 pharmacies, compared with 10,454 across England. To scale up our estimates of FEC to measure aggregate costs across the sector we firstly calculate the total costs incurred by pharmacies in our sample.[54] Specifically, we use the mean

[54] For this analysis, any pharmacy who provided any data is included within our sample.

FEC for each archetype presented above and multiply that mean FEC by number of pharmacies in our sample.

To scale-up from our sample to the sector level we then calculate the archetype-specific ratios between items dispensed by pharmacies in our sample and items dispensed by all pharmacies across England.[55] This ratio varies by archetype depending on the coverage of our sample. A full set of ratios is presented in the following table.

Table 7 Extrapolation to sector-level across England

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	DSPs
Items dispensed by pharmacies in our sample	4.4 million	9.1 million	44.4 million	58.4 million	33.6 million
Items dispensed by pharmacies across England	288.6 million	174.8 million	219.1 million	356.8 million	73.4 million
Ratio	65.2	19.2	4.9	6.1	2.2

Source: Frontier Economics and IQVIA analysis of primary data collection and IQVIA proprietary data.
Note: Figures above have been rounded.

We then took the total costs incurred by our sample described above and multiplied each archetype by the ratios above.

Finally, we applied a range to reflect some uncertainty in the above extrapolation. This range was constructed as follows:[56]

- 10% variance for components of FEC for which we have more confidence, based on the evidence collected. These components are pharmacy-level and centralised costs, which account for 68% of FEC. This leads to a range of +/- 6.8% around our central estimate.
- 20% variance for components of FEC for which we have less confidence, based on the evidence collected. These components are hidden and structural costs, and the cost of capital, which account for 32% of FEC. This leads to a range of +/- 6.3% around our central estimate.
- Combining these two adjustments, we apply a range of +/- 13.2% around our central estimate of FEC for the purposes of extrapolation to England.[57]

55 Based on the total number of active pharmacies per archetype from IQVIA data.

56 We constructed these ranges to illustrate our independent view of the underlying uncertainty of different elements of FEC. The specific values chosen (i.e. 10% and 20%) reflect our judgment, however we note that alternatives could have been chosen.

57 The two ranges (+/- 6.8% and +/- 6.3%) are additive as they apply to different components of cost. Figures have been rounded.

For the purposes of this extrapolation, it was necessary to include DSPs, although they have been excluded from our primary analysis.[58] The extrapolation approach above was applied in a consistent way to DSPs as for other archetypes, drawing upon analysis of DSPs which is summarised in Annex G.

Based upon this extrapolation and re-weighting, our estimates for the full economic cost of NHS pharmaceutical services across England are shown in the following table.[59]

Table 8 Full economic cost, England (annual 2023/24), all NHS pharmaceutical services

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	DSPs	All
Number of pharmacies, England	2,724	1,543	2,020	4,131	380	10,797
Full economic cost (millions)	£1,097m - £1,430m	£734m - £957m	£897m - £1,169m	£1,419m - £1,849m	£250m - £326m	£4,397m - £5,730m

Source: Frontier Economics and IQVIA analysis of primary data collection.

We estimated that the full economic cost of providing NHS pharmaceutical services across England in the 12 months to 31st March 2024 was in the range £4.397-5.730 billion. This includes approximately £3.004-3.915 billion (68%) in pharmacy-level and centralised costs, and £1.393-1.815 billion (32%) in other costs. As above, we note that our overall FEC estimate reflects the current costs of provision, including all contractors across England. The extrapolation assumes that all pharmacies across England (and their FECs) reflects the mix and variation of the differing factors seen in the sample. In Section 10.3.1, we compare this cost with funding to consider the sustainability of the community pharmacy sector.

6.2 Pharmacy-level costs

We collected data on pharmacy-level costs of delivering NHS pharmaceutical services.

The following table shows the breakdown of these pharmacy-level costs between staff, building[60] and other costs.

58 DSPs have been omitted from earlier tables due to the greater uncertainty associated with the results for this archetype. Further detail is provided in Annex G.

59 Within archetype, these values are therefore calculated as follows: *mean FEC (sample)* x *number of pharmacies (sample) x number of items (England) / number of items (sample) +/- uncertainty range %.*

60 Buildings costs should include mortgage payments, rental payments, business rates, landlord service charges, utility bills (heat / light / water / phone / broadband), insurance and repair and maintenance costs.

Table 9 Pharmacy-level costs, breakdown by cost type, excluding stock purchases (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	13 (13)	18 (7)	339 (9)	652 (4)
Staff costs	50%	65%	79%	73%
Buildings costs	11%	12%	12%	17%
Other costs	39%	23%	9%	10%

Source: *Frontier Economics and IQVIA analysis of primary data collection (bottom-up respondents only).*

Note: *Number of pharmacies refers to those which provided data on this question. Figures are weighted averages within archetype.*

We also collected data on the proportion of total costs which would be saved if the pharmacy carried out no beyond-scope local services or beyond-scope private and other services. See Annex A.1 for further information on these definitions. The estimate of total costs that would be saved are shown in the following table.

Table 10 Pharmacy-level costs saved if no beyond-scope activity (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	37 (37)	60 (24)	367 (15)	649 (4)
% of costs not saved	88%	93%	97%	>99%
% of costs saved	12%	7%	3%	<1%

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question. Figures are weighted averages within archetype. The precise % of costs saved / cots not saved refer to our sample only and will not necessarily match the entire sector exactly. Beyond scope here covers both: (1) beyond-scope local services which are commissioned locally by the NHS or local authority and not funded by the national NHS contract (2) beyond-scope private and other services not commissioned by the NHS or local authority, and sales of non-healthcare-related products.*

The average estimate of pharmacy-level costs saved was lowest for large groups (less than 1%) and highest for single pharmacies (12%).

Adjusting for these beyond-scope costs, our estimates of the pharmacy-level costs of delivering NHS pharmaceutical services are shown in the following table. A small number of parent companies provided financial data which already allocated centralised costs to individual pharmacies, therefore the pharmacy-level averages in this table will be slightly

overstated. This does not impact our estimates of combined pharmacy and centralised costs or our estimates of FEC.

Table 11 Pharmacy-level costs, per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	37 (37)	60 (24)	367 (15)	649 (4)
Mean	£268k	£311k	£313k	£256k
Median	£209k	£304k	£293k	£239k
IQR	£146k to £317k	£237k to £370k	£239k to £367k	£197k to £301k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question. A small number of parent companies provided financial data which already allocated centralised costs to individual pharmacies. Therefore, the pharmacy level averages in this table will be slightly overstated. This does not impact our estimates of combined pharmacy and centralised costs or our estimates of FEC.*

6.3 Centralised (including hub-and-spoke) costs

In addition to data on pharmacy-level costs, we collected data on centralised and hub-and-spoke costs.

At the time of our data collection, hub-and-spoke models were only permissible between pharmacies within the same legal entity. The government is currently working towards enabling hub-and-spoke dispensing between different legal entities in 2025.[61] Therefore, all responses referred to intra-company hub-and-spoke models.

The primary role of hubs may focus on Monitored Dosage System (MDS) or Original Pack (OP) Dispensing or both. The responses in the following table cover all of these models.

We also show, in the subsequent table, the breakdown of these centralised costs (including hub-and-spoke) between staff, building[62] and other costs.

61 https://www.theyworkforyou.com/wrans/?id=2024-12-17.20609.h&s=pharmacy

62 Buildings costs should include mortgage payments, rental payments, business rates, landlord service charges, utility bills (heat / light / water / phone / broadband), insurance and repair and maintenance costs.

Table 12 Proportion of parent companies reporting centralised costs (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of parent companies	-	32	16	4
Centralised costs	-	47%	75%	100%
No centralised costs	-	53%	25%	0%

Source: *Frontier Economics and IQVIA analysis of primary data collection.*
Note: *Number of parent companies refers to those which provided data on this question. Figures are unweighted averages.*

Table 13 Centralised costs (inc. hub-and-spoke), breakdown by cost type (2023/34)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	-	8 (3)	311 (7)	431 (2)
Staff costs	-	19%	49%	69%
Buildings costs	-	1%	6%	25%
Other costs	-	81%	45%	6%

Source: *Frontier Economics and IQVIA analysis of primary data collection.*
Note: *Number of pharmacies refers to those which provided data on this question. Figures are weighted averages within archetype.*

We also collected data on the proportion of centralised costs which would be saved if the pharmacy carried out no beyond-scope local services or beyond-scope private and other services. See Annex A.1 for further information on these definitions.

The estimate of centralised costs that would be saved are shown in the following table.

Several companies intentionally provided centralised costs for the pharmacy element of their business only. The proportion of costs saved in the following table would be higher if the entire business was included.

Table 14 Centralised costs saved if no beyond-scope activity (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	-	38 (12)	343 (11)	431 (2)
% of costs not saved	-	97%	99%	>99%
% of costs saved	-	3%	1%	<1%

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question. Figures are weighted averages within archetype. The precise % of costs saved / cots not saved refer to our sample only and will not necessarily match the entire sector exactly. Beyond scope here covers both: (1) beyond-scope local services which are commissioned locally by the NHS or local authority and not funded by the national NHS contract (2) beyond-scope private and other services not commissioned by the NHS or local authority. This includes all private services. This also includes sales of non-healthcare-related products.*

We allocated centralised costs, where relevant, to the pharmacy level based on each pharmacy's share of the total number of items at the parent company level. We then reduced these costs to account for those which would be saved if no beyond-scope activity were undertaken, to estimate the costs associated with NHS pharmaceutical services.

These estimates are separate to the pharmacy-level costs described in Section 6.2 and are shown in the following table.

Table 15 Centralised costs (inc. hub-and-spoke), per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	-	59 (26)	362 (15)	431 (2)
Mean	-	£18k	£68k	£86k
Median	-	£0	£62k	£70k
IQR	-	£0 to £36k	£43k to £85k	£32k to £103k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question.*

6.3.1 Hub-and-spoke costs

Within the above centralised costs, we also collected data specifically on hub-and-spoke costs.[63] The following table shows the proportion of parent companies who reported using some form of hub-and-spoke or centralised dispensing model.

Table 16 Proportion of parent companies reporting hub costs (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of parent companies	-	26	15	4
Hub costs	-	12%	47%	75%
No hub costs	-	88%	53%	25%

Source: Frontier Economics and IQVIA analysis of primary data collection.

Note: Number of pharmacies refers to those which provided data on this question. Figures are unweighted averages.

These pharmacies may be employing a range of different hub-and-spoke or centralised dispensing models. Some of these are likely to be more comprehensive than others, which may be reflected in variations in costs. Currently, use of these models is only permitted between pharmacies within a single parent company, although in future this may change.

The following figure shows the breakdown of these hub costs between staff, building[64] and other costs.

63 Bottom-up data collection only.

64 Buildings costs should include mortgage payments, rental payments, business rates, landlord service charges, utility bills (heat / light / water / phone / broadband), insurance and repair and maintenance costs.

Table 17 Hub-and-spoke costs, breakdown by cost type (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	-	-	51 (2)	-
Staff costs	-	-	72%	-
Buildings costs	-	-	15%	-
Other costs	-	-	13%	-

Source: *Frontier Economics and IQVIA analysis of primary data collection (bottom-up respondents only).*

Note: *Number of pharmacies refers to those which provided data on this question. Figures are weighted averages within archetype. No data was provided for hub costs amongst for the 'small' archetype. Figures for companies in the 'large' archetype are not reported due to small sample size.*

We also collected data on the proportion of hub-and-spoke costs which would be saved if the pharmacy carried out no beyond-scope local services or beyond-scope private and other services. See Annex A.1 for further information on these definitions. All respondents reported that no hub-and-spoke costs could be saved. This is consistent with discussions with the Working Group which suggested that hubs would normally only carry out NHS prescription assembly work.

We allocated these costs at the pharmacy level based on each pharmacy's share of the total number of items at the parent company level.

Using the above estimate to identify costs associated with NHS pharmaceutical services, this leads to the estimated hub-and-spoke costs in the following table.

Table 18 Hub-and-spoke costs, per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	-	-	170 (5)	431 (2)
Mean	-	-	£10k	£17k
Median	-	-	£0	£0
IQR	-	-	£0 to 0	£0 to 23k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question.*

6.4 Hidden and structural costs

Some pharmacy businesses incur costs which are not captured by traditional 'accounting costs'. We considered two categories of costs:

- **Hidden costs:** these are economic costs which are not fully paid by the company due to how it is structured or operated (i.e. are not reflected in the company's management accounts). Some examples include where the owner's time in managing the business is not recognised, where property is owned (potentially outside the company) and no rent is charged to the businesses, or where the owner, the owner's family or any wider group companies provide support for the business.
- **Structural costs:** these are costs which would be incurred in the normal running of the business, but have been avoided or postponed due to financial constraints e.g. staff training or property maintenance. Given that costs were not actually incurred we asked contractors to estimate their potential magnitude.

We asked pharmacies to provide information on these costs, whether they occur at pharmacy, centralised or hub-and-spoke level.

The summary results for hidden and structural costs of delivering NHS pharmaceutical services are shown in the following tables.

Table 19 Hidden costs, per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	12 (12)	7 (3)	150 (4)	236 (1)
Mean	£8k	£20k	£1k	£10k
Median	£0	£18k	£0	£10k
IQR	£0 to £10k	£16k to £19k	£0 to £2k	£8k to £12k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question. Values in this table are based on the sample of those pharmacies who (i) reported a value of hidden costs or (ii) reported that they do not face hidden costs. Pharmacies who reported the existence of hidden costs but did not provide an estimate of their value are excluded. After imputing these missing values, the average for hidden costs is higher, as in Table 5. See Annex D.2 for further information regarding imputation.*

Table 20 Structural costs, per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	12 (12)	7 (3)	150 (4)	236 (1)
Mean	£35k	£31k	£33k	£11k
Median	£9k	£20k	£0	£11k
IQR	£0 to £39k	£12k to £36k	£0 to £0	£11k to £11k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those which provided data on this question. Values in this table are based on the sample of those pharmacies who (i) reported a value of structural costs or (ii) reported that they do not face structural costs. Pharmacies who reported the existence of structural costs but did not provide an estimate of their value are excluded. After imputing these missing values, the average for structural costs is higher, as in Table 5. See Annex D.2 for further information regarding imputation.*

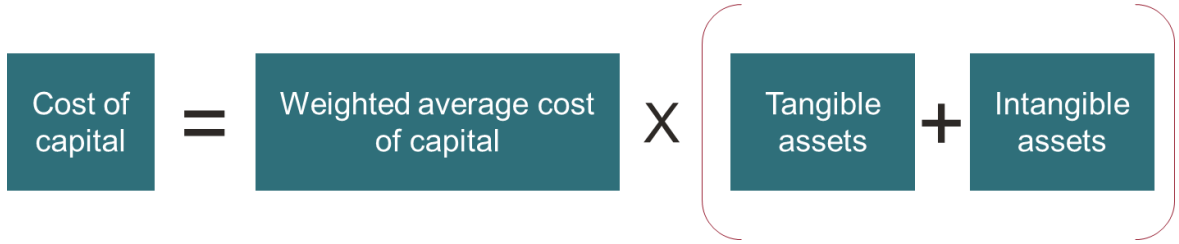
6.5 Cost of capital

To remain a viable commercial enterprise, in addition to operating costs, investors in pharmacy businesses also need to earn a 'fair return' to reward them for the risks they have taken in investing in the NHS pharmacy business. These returns reflect what investors would expect, on average, to receive from investing in NHS pharmacy businesses.

The standard, well-established approach to estimating the total cost of capital for a business is to estimate:

- the total asset base of the business, which includes tangible assets (both fixed and current) and intangible assets (such as goodwill), reflecting the capital which has been invested in the business; and
- the Weighted Average Cost of Capital (WACC), which is an estimate of the financial return which would be expected by any investor, including both the cost of debt (e.g. loans taken to finance the business) and the cost of equity (e.g. shares in the business sold to investors), reflecting the riskiness of the business. This is dictated by markets and not within the control of an individual pharmacy contractor.

Figure 4 Components of cost of capital



Source: Frontier Economics and IQVIA

The approach used to measure each of the three elements on the right-hand side of this equation are discussed in turn in the next subsections.

The approach that we implemented to estimate cost of capital was tested via conversations with financial institutions and advisors active in the pharmacy sector.

6.5.1 Tangible assets

Tangible assets include current assets (both stock and other current assets such as cash) and fixed assets (e.g. equipment) held both centrally and in individual pharmacies. Questions on tangible assets were included in our surveys (both the value of current assets and the replacement value of fixed assets). Responses to these questions provided the required input data for us to calculate tangible asset values at a pharmacy level.

This involved allocating parent company-level assets to the pharmacy level where relevant. We also assigned a proportion of these tangible assets to in-scope NHS services.

Table 21 Tangible in-scope assets (at pharmacy level) (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	19 (19)	44 (16)	129 (9)	291 (2)
Mean	£421k	£519k	£375k	£316k
Median	£349k	£456k	£326k	£300k
IQR	£208k to £609k	£293k to £660k	£248k to £443k	£254k to £364k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those which provided data on this question.

Our estimates of tangible asset values vary both within and across archetypes. This could be in part due to variations in physical size of pharmacies which can affect both space requirements and costs of stock.

Our estimates of tangible assets are higher than previous comparable studies.[65] This could be because pharmacies have become more capital-intensive in recent years (e.g. due increased use of automation). In addition, discussions with the Working Group suggested that the costs associated with carrying out pharmacy refits have risen very sharply in recent years.

6.5.2 Intangible assets

Intangible assets lack a physical substance. In the context of community pharmacy, intangible assets will include goodwill which reflects the reputation of a pharmacy business that is built up over time and may be calculated as part of a pharmacy's value during a sale.

We estimated intangible asset values using the same method as used in the PwC (2011) analysis of pharmacy costs (this involves a hypothetical comparison of the value of an established pharmacy against the cost of setting-up a new pharmacy).[66] Further detail is provided in Annex A.8. Intangible in-scope assets are estimated to be 76.7% of annual NHS turnover.[67]

Table 22 Intangible in-scope assets (at pharmacy level)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	43 (43)	76 (32)	380 (16)	651 (4)
Mean	£330k	£397k	£387k	£304k
Median	£302k	£365k	£365k	£298k
IQR	£222k to £392k	£261k to £472k	£283k to £460k	£205k to £384k

Source: Frontier Economics and IQVIA analysis of primary data collection.

Note: Number of pharmacies refers to those which provided data on this question.

65 https://cpe.org.uk/wp-content/uploads/2021/09/COSI-Report-FINAL.pdf

66 https://cpe.org.uk/wp-content/uploads/2021/09/cost-of-service-inquiry-for-community-pharmacy-appendices.pdf

67 Excluding Cost of Goods Sold (COGS). This is approximately 20% of total NHS turnover including COGS.

6.5.3 Weighted Average Cost of Capital (WACC) rate

As described above, to calculate the total cost of capital of a business, in addition to understanding the assets of that business, we need to understand the Weighted Average Cost of Capital (WACC) rate. The WACC rate captures the financial return which would be expected by any investor, and reflects the riskiness of the investment.

Working Group members told us that the current WACC faced by pharmacy businesses is relatively high, due to current under-funding leading to unsustainable businesses, which are a more risky proposition for investors.

Consistent with the definitions of full economic cost and sustainability used within this project, rather that estimating the current WACC faced by pharmacy businesses, we estimated a forward-looking WACC rate which would prevail in the long-term if the community pharmacy sector were operating in a sustainable, steady-state environment. [68]

The 'nominal' WACC rate reflects the total financial return, in percentage terms, before accounting for inflation (which reduces the value of the nominal return). The nominal WACC rate combines the cost of debt (e.g. the interest rate on a commercial loan to fund the business) and the cost of equity (e.g. the rate of return expected by someone investing in the business).

Cost of debt

Our measure of the cost of debt itself is composed of two elements:

- The nominal risk-free rate which investors require to hold long-term government bonds.[69]
- The additional debt margin which investors will require to hold riskier debt which is based on corporate bond spreads.

We add these elements together, then further adjust the cost of debt to account for the corporate tax treatment of debt.

Cost of equity

The cost of equity relies on an 'equity beta', which is a measure of the underlying volatility of the pharmacy sector relative to the broader equity market. This describes the riskiness of investing capital in the sector, as compared with investing somewhere else. Again we have taken the beta calculated in the previous PwC (2011) analysis.[70] The pharmacy sector is relatively unique across the economy, which has implications for its underlying risk profile. In particular, the sector relies extensively on a single purchaser (NHSE) which has the power to

68 Details of secondary data sources used are included in Annex A.8.

69 UK 20-year bond yields as of 16/01/25 https://tradingeconomics.com/gukg20y:ind

70 https://cpe.org.uk/wp-content/uploads/2021/09/cost-of-service-inquiry-for-community-pharmacy-appendices.pdf.

set prices. This introduces a specific set of risks for contractors and potential investors. On the other hand, relative to other sectors, demand for pharmacy services will generally be relatively stable, which could reduce the associated risks.

Given the uncertainty associated with the risk profile of the sector and the beta estimate we have used (which is based on relatively old information) we have also included a specific sensitivity around this parameter value (see Section 11).

We have drawn on recent academic evidence to inform our estimate of the equity market risk premium figure (which measures the annual excess return, over a risk-free rate, earned by an investor when they invest in the stock market). The final element of our cost of equity calculation is the small company risk premium. This proxies the additional return required for investing in small companies which have higher rates of inherent risk. We used secondary evidence to measure this size of this premium.[71]

WACC rate used in our analysis

We then combined our measures of the cost of debt and cost of equity, to estimate the nominal WACC rate. This depends upon the average proportions of debt and equity which are used to finance pharmacy businesses. This is called the 'gearing ratio'. We have taken an estimate of the gearing ratio used in the previous PwC (2011) analysis of pharmacy costs.[72] This is likely to be more representative of a sustainable average gearing ratio than current gearing ratios, which may be inflated due to current financial pressures.

This nominal WACC rate is then adjusted for inflation to give us the 'real' WACC rate that we used in our final analysis.

Table 23 WACC rate

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Nominal WACC rate (central estimate)	18.3%	18.3%	15.9%	10.4%
Real WACC rate (central estimate)	16.3%	16.3%	14.0%	8.5%

Source: Frontier Economics and IQVIA

71 https://rpc.cfainstitute.org/sites/default/files/-/media/documents/article/rf-brief/2023-international-valuation-guide-to-cost-of-capital.pdf

72 https://cpe.org.uk/wp-content/uploads/2021/09/cost-of-service-inquiry-for-community-pharmacy-appendices.pdf . Details of sources for all secondary data are included in Annex A.8.

6.5.4 Cost of capital

The final results used in our calculation of cost of capital are included in the following tables.

Table 24 Cost of capital (tangible assets), per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	19 (19)	44 (16)	129 (9)	291 (2)
Mean	£69k	£87k	£52k	£27k
Median	£57k	£77k	£46k	£25k
IQR	£35k to £100k	£48k to £110k	£34k to £61k	£22k to £31k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those which provided data on this question.

Table 25 Cost of capital (intangible assets), per pharmacy (2023/24)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	43 (43)	76 (32)	380 (16)	651 (4)
Mean	£55k	£66k	£55k	£26k
Median	£49k	£61k	£51k	£25k
IQR	£36k to £64k	£43k to £79k	£40k to £67k	£17k to £36k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those which provided data on this question.

7 Future costs of NHS pharmaceutical services

7.1 Future cost drivers

We have explored how England-wide NHS community pharmacy costs may evolve in the future, assuming the sector's configuration remains the same. Future increases in costs may be driven by:

- **Increases in activity**. Prescription volumes are expected to rise and community pharmacy may take on a bigger role in terms of service delivery in the future (for example Pharmacy First[73] only started from January 31st 2024 onwards and is still ramping up, with the expectation that it will become a significant source of patients). This will mean that the sector as a whole undertakes more work in the coming years which will have sector-wide cost implications.

- **Increases in unit costs**. The unit cost of delivering community pharmacy will also rise in the future (holding total volume of activity constant). The current costs we have presented in this report relate to the 12-month period ending 31st March 2024. Since then the national living wage (NLW) has risen once and will rise again in April 2025. In addition, employer National Insurance Contributions (NIC) will rise from 13.8% to 15% from April 2025, alongside a reduction in the secondary threshold from £9,100 to £5,000.[74] Other non-staff costs may also rise in line with generic increases in the price level more generally.

To illustrate the potential scale of future cost increases, we have modelled the combined impact of the two cost drivers above over a six-year period (from March 2024 to March 2030). We chose 2030 as an end point as it balanced our interest in examining cost evolution with greater uncertainty associated with longer-term projections.

7.2 Approach

Increases in unit costs

We proxied future nominal increases in input costs by firstly estimating total England-wide NHS pharmacy costs for the 12-month period ending March 2024 (as set out in Section 6.1.1). We know the breakdown of these costs into three categories (staff, buildings and other).

A nationwide approach, in contrast to modelling each pharmacy individually, is pragmatic given the uncertainty associated with the future path of input costs. Therefore, we have examined the impact of:

73 https://healthmedia.blog.gov.uk/2024/02/01/pharmacy-first-what-you-need-to-know/

74 https://www.tax.org.uk/national-insurance-explainer-oct24

- uprating the staff costs elements in 2024/25 and 2025/26 by known future increases in the NLW (of 9.8% and 6.7% respectively) and uprating staff cost elements by 6% per annum in future years (this is equal to the average annual rise in NLW observed over the period 2016/17-2025/26).[75,76]
- uprating the building[77] costs elements by 3.2% per annum, which is equal to the Office for Budgetary Responsibility's (OBR) average annual projected change in the Retail Price Index (RPI) over the period 2024-2030.[78] These forecasts were chosen as many pharmacy leases will calculate uplift to rent based on RPI.
- uprating other cost elements by 2.2% per annum, which is equal to an average of OBR's annual GDP deflator forecasts from 2024 onwards; OBR predicts higher inflation in 2025 before rates converge back towards a long run average of 2% per year.[79]

The following table shows how each cost item was mapped to the three categories above, to facilitate this uprating.

Table 26 Trajectory analysis: cost mapping

	Approach used
Pharmacy-level costs	Weighted average of staff, buildings and other uplifts.
Centralised (inc. hub-and-spoke) costs	Weighted average of staff, buildings and other uplifts.
Hidden and structural costs	Weighted average of staff, buildings and other uplifts.
Cost of capital (tangible assets)	Buildings uplift used
Cost of capital (intangible assets)	Weighted average of staff, buildings and other uplifts.

Source: Frontier Economics and IQVIA analysis of primary data collection.

75 https://commonslibrary.parliament.uk/research-briefings/cbp-7735/ The 2025 NLW has already been announced and will be £12.21.

76 We also separately accounted for a forthcoming rise in Employer National Insurance Contributions, which will impact the sector from 2025/26 onwards (accounting for an estimated net increase in staffing costs of approximately £50 million per annum in 2025/26). This additional adjustment was based on modelling carried out by CPE and shared with the project team.

77 Buildings costs should include mortgage payments, rental payments, business rates, landlord service charges, utility bills (heat / light / water / phone / broadband), insurance and repair and maintenance costs.

78 These projections were made in October 2024 https://obr.uk/efo/economic-and-fiscal-outlook-october-2024/

79 https://obr.uk/forecasts-in-depth/the-economy-forecast/inflation/ https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-october-2024-autumn-budget-2024

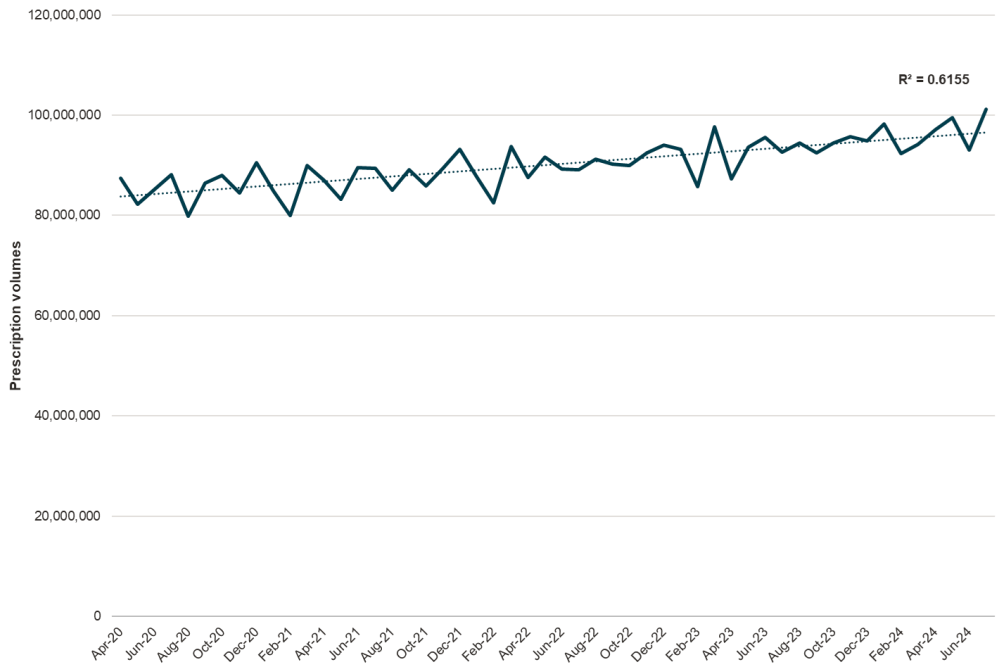
We have not accounted for the impact of any potential pharmacy closures as part of this analysis. Discussions with the Working Group suggested that this could lead to higher costs as remaining pharmacies must expand relatively rapidly to accommodate additional demand.

Increases in activity

In July 2024 pharmacies delivered 99.9 million Single Activity Fees (SAFs) across England. This figure has risen over time. The equivalent figure in July 2023 was 91.5 million SAFs.

In the following figure we have presented the trend in number of monthly prescriptions[80] across England between July 2020 and July 2024 (based on NHS BSA data). A simple linear time trend explains over 60% of the observed variation in this series. The average monthly growth rate that we observe over this entire period is 0.13%.

Figure 5 Prescription volumes (April 2020-July 2024)[81]



Source: https://www.nhsbsa.nhs.uk/prescription-data/dispensing-data/pd1-reports

We assumed that this trend will continue on average. Specifically, we projected this trend forward to calculate monthly prescription volumes as of March 2030. Based on recent trends this figure will be approximately 109 million SAFs. This represents a 17% rise relative to March 2024.

80 Number of items prescribed follows a very similar trend.

81 This corresponds to the period for which NHSE publishes PD1 reports.

Therefore, we increased our estimate of 2029/2030 England-wide pharmacy costs by a further 17% (after making the unit cost adjustments described above).

We have not modelled how costs could rise in a non-linear way as a result of rises in activity, as understanding the nature of any non-linearity was beyond the scope of this study. Non-linearities could occur, for example, if a pharmacy is required to make a major capital investment once demand for services surpasses a certain threshold of if different business models are needed at higher volumes. We have also not modelled the potential impact of any future policy changes in this context (for example, the widespread introduction of Independent Pharmacist Prescribers in community pharmacies).

7.3 Future costs

The results of this trajectory analysis are presented below. This assumes that the current structure of the community pharmacy sector (e.g. the proportion of pharmacies that fall into each archetype) remains the same.

Table 27 Estimated full economic cost, England (2023/24-2029/30)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	DSPs	All
Full economic cost (2023/24, millions)	£1,264	£845	£1,033	£1,634	£288	£5,063
Full economic cost (2029/30, millions)	£1,945	£1,334	£1,707	£2,688	£432	£8,106

Source: Frontier Economics and IQVIA analysis of primary data collection. Figures in the 'All' column do not exactly equal the sum across archetypes due to rounding.

In aggregate terms, the full economic cost of delivering all NHS community pharmacy could rise from £5,063 million to £8,106 million between 2023/24 and 2029/30. This increase of £3,043 million would represent a cumulative 60% increase over the period. This specific projection does not make any separate provision for future cost growth associated with major extension of service delivery by pharmacies (it implicitly assumes that clinical service activity will grow in line with dispensing). For example, any additional costs associated a more rapid expansion of Pharmacy First is not accounted for in the above calculations. Nor does the projection make any adjustment for: how business models might evolve if demand continues to rise; the role of new technology; or other potential changes.

It is possible that activity in clinical services delivered by the pharmacy sector could grow faster than our projected growth in overall activity (proxied by historical rises in prescription volumes).

We explored the impact of clinical service activity[82] growing at twice the rate of dispensing (i.e. a 34% increase between 2023/24 and 2029/30). If this were to occur, the resulting FEC in 2029/30 would be £8,303 million instead of £8,106 million.

82 The share of clinical services as a proportion of all activity remains at approximately 17%, based on the share of funding which is currently attributable to clinical services.

8 Cost drivers

8.1 Descriptive analysis

In this section we explore the main drivers of full economic cost (FEC) by analysing how FEC varies by pharmacy and group size, region and pharmacy characteristics. We first explore these differences through descriptive statistics and subsequently through an econometric analysis.

The descriptive analysis presented below compares characteristics 'one at a time', without accounting for other characteristics which also affect costs. This means that some characteristics can appear to drive an increase in costs (e.g. pharmacies with characteristic X have higher costs, on average) when in fact the true cost driver is a different characteristic, which happens to be more common amongst those with the first characteristic (e.g. pharmacies with characteristic X are more likely to also have characteristic Y, which is the true cost driver). Econometric analysis can be used to explore these effects and to isolate the cost impact of particular characteristics. The descriptive analysis helps us to build up a picture of how costs vary across the sector and informs the econometric analysis.

A regional splits reveals that pharmacies in London have the highest full economic costs in England, 5.4% above the national average, followed by the Midlands at 3% above the average. The South West have the lowest costs, at 7.1% below the average. For a pharmacy dispensing 10,000 items per month, the average cost is £644k in London compared to £568k in the South West.

Table 28 Full economic cost, per 10,000-items-per-month pharmacy, by region

Region	FEC per 10,000-items-per-month pharmacy	Difference to national average
London	£644k	5.4%
Midlands	£629k	3.0%
North West	£626k	2.5%
East of England	£624k	2.1%
South East	£619k	1.3%
North East and Yorkshire	£582k	-4.7%
South West	£568k	-7.1%

Source: Frontier Economics and IQVIA analysis of primary data collection and IQVIA proprietary data.
Note: Figures are averages, unweighted by archetype representation at the England level.

If we explore variation in FEC by pharmacy characteristics, we find that costs are:

- 9.3% higher for those in urban areas compared to those in rural areas;[83]
- 15.7% lower for those with a co-located GP practice; and
- 1.3% lower for those being part of the Pharmacy Access Scheme (PhAS).

As noted above, these cost differences should be considered carefully. These averages do not account for other factors, which might be correlated with the above characteristics and may be the 'true' drivers of higher or lower costs.

Table 29 illustrates how these characteristics differ by archetype in our sample. For instance, it highlights that pharmacies with a co-located GP practice are significantly more common among parent companies with more than 6 pharmacies, while independents are more likely to participate in the PhAS than other archetypes. To disentangle the relationship among these variables, we conducted an econometric analysis to isolate the effect of each variable in explaining a pharmacy's full economic cost.

Table 29 Pharmacy characteristics by archetype

Characteristics	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Urban	80%	79%	86%	88%
GP co-located	8%	5%	25%	23%
Pharmacy Access Scheme	20%	12%	13%	14%
Service mix	21%	20%	27%	17%

Source: Frontier Economics and IQVIA analysis of primary data collection, NHS BSA data and IQVIA proprietary data
Note: Service mix is the proportion of funding which is associated with services, rather than dispensing.

8.2 Econometric analysis

In this sub-section we explore the main drivers of FEC through econometric analysis. We considered the impact of pharmacy characteristics, including size, on pharmacies' FEC.[84] We used standard econometric analysis techniques. The dataset covers data from 1,159 pharmacies which are part of 96 parent companies.

[83] Rurality is based on ONS' Lower Super Output Area classification. Urban includes major conurbations, minor conurbations, cities and towns, and cities and towns in a sparse setting. Rural includes rural villages, rural towns and fringe areas, rural villages in a sparse setting and rural towns and fringe areas in a sparse setting. https://www.ons.gov.uk/methodology/geography/geographicalproducts/ruralurbanclassifications/2011ruralurbanclassification

[84] Further detail about the econometrics, including analysis of the drivers of sustainability (rather than cost), are included in Annex H.

We explored the following pharmacy characteristics in our analysis:

- **Pharmacy size**, measured by the number of items dispensed. We analysed the extent to which costs increase as size increases. We also analysed whether costs increase proportionally as size increases i.e. whether larger pharmacies exhibit economies of scale (lower cost-per-item as size increases) or diseconomies of scale (higher cost-per-item as size increases). Items dispensed provides a proxy for all activity, including services. In the vast majority of cases this will be a good proxy as NHS BSA funding data shows that services account for a small share of overall funding, on average.
- **Group size** categorised by archetype. We analysed the extent to which costs vary between our archetypes, when other characteristics are accounted for.
- **Pharmacy characteristics** including its service mix and whether it is co-located with a GP practice.
- **Location characteristics** including rurality, region, participation in the Pharmacy Access Scheme (PhAS), and the level of deprivation of the local area, measured by Index of Multiple Deprivation (IMD)[85] decile (where decile 1 is the most deprived decile and decile 10 is the least deprived decile).

The pharmacy and location characteristics tested in our model were selected based on available data and discussions with the Working Group to identify the most relevant factors for explaining a pharmacy's costs.

We use an ordinary least squares (OLS) model at the pharmacy level for our econometric analysis. The dependent variable is our measure of FEC and independent variables are presented in the following table. To ensure the validity of our approach, we conducted several technical diagnosis checks, including tests for linearity between independent and dependent variables, normality of errors, collinearity, and heteroskedasticity. Further discussion of these checks can be found in Annex H.

The technical results of this analysis are shown in the following figure. Following standard econometric practice, we consider parameters' statistical significance with thresholds at 1%, 5% and 10%, and we note some caution in interpreting the results for parameters that are only significant at the higher 10% threshold. These percentages reflect the probability that the relationship between FEC and a given driver is *not* due to a genuine influence of the latter on the former but instead due to random variation in our sample. Statistical significance is therefore a measure of how confident we can be in the estimates obtained.

85 https://data.cdrc.ac.uk/dataset/index-multiple-deprivation-imd The overall IMD index is used, which combines information from seven individual domains.

Table 30 Regression analysis of full economic cost on cost drivers

Cost driver	Coefficient (£)	Standard error (£)	P-value and significance
Intercept	119,279.2	17,165.2	**<0.001*** **
Items dispensed	2.8	0.106	**<0.001*** **
Items dispensed squared	$2.115*10^{-6}$	$2.6*10^{-7}$	**<0.001*** **
GP co-located	21,297.4	6,155.2	**<0.001*** **
Urban	10,672.1	7,987.8	0.181
Pharmacy Access Scheme	- 15,545.4	8,547.2	**0.069***
IMD index decile	- 1,013.5	941.9	0.282
Service mix	- 12,382.9	38,263.5	0.746
Singles	- 1.883.2	13,249.7	0.887
2-5 pharmacies	64,973.9	10,392.2	**<0.001*** **
6-200 pharmacies	51,373.0	5,989.0	**<0.001*** **
North West	39,994.4	12,402.3	**0.002*** **
South East	40,279.7	11,413.8	**0.001*** **

Source: Frontier Economics and IQVIA analysis of primary data collection and IQVIA proprietary data.

*Note: Sample 1,159 pharmacies from 96 parent companies. R-squared of 0.848. IMD decile 1 is most deprived, 10 is least deprived. The notation *** refers to a coefficient being statistically significant at 1% level, ** at 5% level, and * at 10% level.*

These results show that:

- The intercept of £119,279 represents the estimated FEC when the numbers of dispensed items is zero. While a zero dispensing volume is not realistic, this measure serves as a proxy of the 'baseline' costs inherent to running any pharmacy, before considering dispensing volumes or other characteristics below.
- Each additional item dispensed (as a proxy for overall activity) increases costs by approximately £2.80. Note that this is not the full cost of dispensing one additional item, which includes the other costs in this list.
- The positive yet small coefficient of items dispensed squared suggests that, for high volumes of dispensing, the costs would increase at a slightly higher rate for an additional item dispensed, hinting at diseconomies of scale in pharmacy size (as distinct from group size, considered below). However, its small size suggests a relatively small impact.
- A pharmacy which is co-located with a GP practice has higher costs (£21,297 on average). Note that this is the opposite of the result from the descriptive analysis above. This reveals that the apparent lower costs were driven by other characteristics. The

econometric analysis shows that, once these other characteristics are accounted for, the impact of GP co-location is to increase costs.[86]

- Being part of the PhAS is associated with lower costs on average (£15,545). The relevant coefficient is only significant at the 10% level. Therefore, our level of confidence in the parameter estimated is lower than for other variables.
- Compared to groups with over 200 pharmacies, costs are £64,974 higher for groups with 2-5 pharmacies and £51,373 higher for groups with 6-200 pharmacies, indicating potential economies of scale with larger groups. However, no statistically significant difference was found for single independents when compared to groups with over 200 pharmacies, possibly due to their small sample size in this study.
  - We note that these archetypes were defined solely for the purposes of this study and do not imply any specific grouping outside of this study. We would caution against interpreting the above results as showing that costs change when groups reach any particular size (e.g. 2 pharmacies, 6 pharmacies, or 201 pharmacies).
- Only two regions – North West, and South East – are associated with costs that are statistically significantly higher:[87] £64,974 and £51,373 higher, respectively.[88]
  - Although London appeared to have the highest pharmacy costs in the descriptive analysis, costs for pharmacies in London are not statistically significantly different, once the location effect is isolated from other pharmacy characteristics. This suggests that London's higher costs may be due to differences in other characteristics.
- No other relationships were statistically significant in our model, including whether a pharmacy is in an urban location, or the IMD decile of the local area.

Considering specifically the findings in relation to economies of scale, the above results indicate that:

- there was no appreciable difference in the cost-per-item when comparing **pharmacy size** i.e. no economies or diseconomies of scale; and
- comparing **group size**, there was no appreciable difference between singles and groups with over 200 pharmacies, while the costs were somewhat higher for small (2-5) and medium-sized groups (i.e. evidence of potential economies of scale among large groups).

To illustrate the econometric results, we considered the costs of a fictional pharmacy in the North West that dispenses 10,000 items per month (i.e., 120,000 items a year), which is co-located with a GP practice, is part of the Pharmacy Access Scheme and part of group of 2-5 pharmacies. The following table shows how we would estimate this fictional pharmacy's full economic cost, using the econometric results above.

86 This is consistent with anecdotal evidence from the Working Group, which suggested that rents, in particular, tend to be higher for pharmacies which are co-located.

87 The table only shows the results for these regions to simplify the presentation.

88 The region used as baseline and not included in the model is East of England. This choice is arbitrarily done by the model and does not impact the interpretation of regional effects.

Table 31 Illustrative example of econometric results – full economic cost of a fictional pharmacy

Cost driver	Illustrative pharmacy	Impact on cost	Explanation
Baseline costs	-	+ £119,279	These are the 'starting costs' in the econometric model, which apply to all pharmacies.
Items dispensed	120,000 per year	+ £336,000	Each additional item increases costs by £2.80, on average (note this is not the full cost).
Items dispensed (squared)	120,000 per year (squared)	+ £30,455	For high numbers of items dispensed, costs are slightly higher. For a pharmacy dispensing 60,000 items per year, this value would be half as large.
GP co-location	Yes	+ £21,297	Costs are higher for pharmacies which are co-located with GPs. For a pharmacy which is not co-located, this row would be zero.
PhAS participation	Yes	- £15,545	Costs are lower for pharmacies which are part of the PhAS. For a pharmacy which is not part of PhAS, this row would be zero.
Archetype (group size)	2-5	+ £64,974	Costs are higher for pharmacies in a group of 2-5. For a pharmacy in a group of 200+ pharmacies, this row would be zero.
Region	North West	+£39,994	Costs are higher for pharmacies in the Midlands. For the 'baseline' region of East of England, or regions for which we estimate no impact (e.g. London, South West), this row would be zero.
Full economic cost (FEC)		**+£596,454**	This is the sum of the rows above.

Source: Frontier Economics and IQVIA analysis of primary data collection and IQVIA proprietary data.

We have developed this example to illustrate how the results from our econometric exercise determine our expectation of the costs of different types of community pharmacies in England. Nevertheless, it is important to bear in mind that the effect on costs of the variables included are independent of each other and, thus, there is a much larger number of combinations of conditions and, thus, of resulting full economic cost.

These results provide insights into the drivers of cost – and cost variation – across the community pharmacy sector. However, these results should not be interpreted as providing estimates or benchmarks for any particular (real) pharmacy. As discussed throughout this report, there are many reasons why costs vary between pharmacies (e.g. quality), only some of which could be included in the econometric analysis above, due to the scope of the study and data available.

9 Services delivered from community pharmacy

In this section we have provided an overview of the current patterns of service provision that we observe across the community pharmacy sector. To inform potential future service delivery we have also considered potential expansion of community pharmacy services via a comparison with GP costs.

9.1 Services provided

Below we have set out the proportion of all English community pharmacies offering a range of specific NHS pharmaceutical services. This draws on data provided by NHS BSA. All pharmacies will offer Essential Services as part of the pharmacy contract (including dispensing medicines and disposing of unwanted medicines).[89] The analysis below is based on data from April 2023 - April 2024. The Advanced Services are divided into two categories:

- those that are funded via the global sum; and
- those that are funded via other mechanisms.

It is important to note that certain services were ramping up or down during the reference period used for this analysis.[90] For example, Pharmacy First only commenced from February 2024 onwards, significantly expanding on the Community Pharmacy Consultation Service (which has been excluded from the analysis below). Therefore, the figures below do not represent a steady-state level of service delivery in some cases and the proportions of pharmacies offering each service may change significantly in the coming months and years.

The average number of consultations per pharmacy per year are only calculated amongst those pharmacies that deliver the relevant service.

In some cases we have combined services that are recorded separately in the underlying NHS BSA data into a single line in the table above. For example, our category of blood pressure checks above covers both *Blood Pressure Checks* and *Ambulatory Blood Pressure Monitoring.* Also our Discharge Medicines Service category covers *Stages 1, 2,* and *3* and our Contraception category covers *Consultation*, *Initial* and *Ongoing* contraception services.

We observe considerable variability in the proportion of pharmacies offering each service. Among services funded via the global sum, the New Medicine Services, Blood Pressure Checks, and a Discharge Medicines Service are provided by most pharmacies. Contraception Consultations, Smoking Cessation services, Stoma Customisation and Appliance Reviews are each provided by a minority of pharmacies (and average volumes are also smaller).

89 https://cpe.org.uk/national-pharmacy-services/essential-services/

90 Likewise wider rollout of Independent Prescribing in this context could impact care pathways. https://www.england.nhs.uk/publication/update-on-independent-prescribing-in-community-pharmacy-pathfinder-programme/

Also, the vast majority of pharmacies provide Pharmacy First and Flu vaccinations (neither of which is funded via the global sum).

Table 32 Services provided by pharmacies

Funding stream	Service	% of pharmacies reporting activity	Average number of consultations per year, per pharmacy[91]
Global sum	New Medicine Service	91%	273
Global sum	Blood Pressure Checks	73%	115
Global sum	Discharge Medicines Service	53%	11
Global sum	Contraception Consultation	23%	6
Global sum	Smoking Cessation	3%	5
Global sum	Stoma Customisation	5%	5
Global sum	Appliance Review	1%	414
Primary Care Recovery plan	Pharmacy First	81%	18
NHS vaccination fund	Flu Vaccinations	77%	227

Source: Frontier Economics and IQVIA analysis of NHS BSA data on 11,557 pharmacies
Note: Analysis based on all pharmacies for which data available for at least 1 month

9.2 Economies of scope

Economies of scope occur when it is more economic (i.e. unit costs are lower) to provide two services (or produce two goods) alongside one another, than to provide them separately. Within community pharmacy, this may occur when the particular staff, buildings or other inputs required to deliver one service are the same for another service. There may also be operational reasons why it is more efficient to provide certain services together (due to the administration or delivery of those services). We considered whether there was any indication

[91] Among those delivering each service.

of economies of scope in the delivery of different mixes of community pharmacy services based on the combination of services provided by pharmacies.

Using the data above we have also calculated the proportion of pharmacies offering different numbers of services (from 0-9). Services here are defined in the same way as above.

Table 33 Number of services provided by pharmacies[92]

Number of services offered	Number of pharmacies reporting activity	% of pharmacies reporting activity
0 services	631	5%
1 service	956	8%
2 services	695	6%
3 services	1,094	9%
4 services	2,683	23%
5 services	3,543	31%
6 services	1,755	15%
7 services	192	2%
8 services	7	<1%
9 services	1	<1%

Source: Frontier Economics and IQVIA analysis of all English pharmacies
Note: Analysis based on all pharmacies for which data available for at least 1 month

Very few pharmacies offer fewer than three services or more than seven services. The majority offer between four and six services (inclusive). This suggests it may be more economic to offer a slightly broader range of services (if not the full range). In order to test conclusively it would be necessary to compare the funding provided per service with the relevant FEC per service. This level of FEC granularity is not available.

We investigated which services tend to be offered alongside one another, most frequently. We have highlighted four specific examples of pairs of services below which we identified in the data as having the strongest relationships:

- **Flu vaccinations and Pharmacy First:** When a pharmacy offers flu vaccinations, they are much more likely to offer Pharmacy First. Among those pharmacies not offering flu vaccinations, 30% offer Pharmacy First. Among those pharmacies which do offer flu vaccinations, this increases to 94%.

92 This covers the entire population of pharmacies across England, rather than the sample who responded to our surveys. Analysis covers 12 months 12 months to March 2024.

- **Flu vaccinations and Blood Pressure Checks:** When a pharmacy offers flu vaccinations, they are also much more likely to offer Blood Pressure Checks. Among those pharmacies not offering flu vaccinations, 22% offer Blood Pressure Checks. Among those pharmacies which do offer flu vaccinations, this increases to 88%.
- **New Medicine Services and Blood Pressure Checks:** When a pharmacy offers the New Medicine Service (NMS), they are more likely to offer Blood Pressure Checks. Among those pharmacies not offering NMS, only 4% offer Blood Pressure Checks. Among those pharmacies which do offer NMS, this increases to 81%.
- **Stoma Customisation and Appliance Reviews:** Pharmacies only tend to offer Appliance Reviews if they also offer Stoma Customisation. Among those pharmacies offering Stoma Customisation, 11% also offer Appliance Reviews. Among those pharmacies which do not offer Stoma Customisation, this falls to less than 0.1% offering Appliance Reviews.

This indicates potential economies of scope in provision of these combinations of services, although we note that a range of other operational and financial factors will be considered when pharmacies determine the range of services that they will offer. For example, the above patterns are likely to be driven in part by the facilities that exist within a pharmacy. The pairs of services set out above are all likely to require an adequately sized consulting room.

9.3 Potential expansion of the role of community pharmacy

NHS England's vision is for the community pharmacy sector to play an increased role in the delivery of integrated primary care services to support access challenges in primary care.[93] NHS England expects this will help to release capacity in the wider NHS to address more acute and complex health conditions. This will help to deliver the vision of integrated primary care set out by the Fuller Stocktake Report.[94]

Discussions with the Working Group emphasised that the extent to which an individual pharmacy can take on additional clinical service activity will in part be determined by their current facilities. Increasing provision will at some point mean that an individual pharmacy reaches a threshold whereby they require an additional consulting room, for example.

The following conceptual framework may be helpful when considering the potential costs of providing additional services in community pharmacy.

Broadly speaking there are two categories of additional services that could be provided by community pharmacy. Community pharmacy contractors could either expand existing services that are already provided to some extent by community pharmacy. Alternatively, community

93 Overall, NHS England set out a vision for pharmacy to shift away from a purely dispensing role to become more aligned with the provision of clinical services in the 2019 Long Term Plan for the NHS. https://www.longtermplan.nhs.uk/

The 2019/20 to 2023/24 CPCF noted that community pharmacists have the potential to play a greater role in clinical service delivery https://assets.publishing.service.gov.uk/media/5d359f2e40f0b604de59fd82/cpcf-2019-to-2024.pdf

94 https://www.england.nhs.uk/publication/next-steps-for-integrating-primary-care-fuller-stocktake-report/

pharmacy contractors could be asked to provide an entirely new service. This second category of 'new' services may already be provided in other parts of the primary care system.

As set out below, the best source of evidence on the cost of future provision of additional services will depend on which category that service falls under.[95]

Figure 6 Additional community pharmacy services

Source: Frontier Economics and IQVIA

We note that estimating costs for a 'new' service is the least straightforward and depends upon the specific nature of that service e.g. the mix of staff required to deliver the service, the time taken to provide the service to each patient, any equipment or materials which are required to delivered the service, and the setting in which it is possible to (safely and effectively) provide the service. This can be supported, in some cases, by some benchmarking analysis of the costs of similar services in alternative settings.

Our analysis did not look at specific services which could in the future be delivered partially or entirely by community pharmacy. However, our work has provided a detailed articulation of pharmacy costs which can provide a starting point for future decisions in this context alongside other factors (see next sub-section).

9.4 Comparison of costs across settings

9.4.1 Staff costs

It was not possible within the scope of this study to carry out the type of detailed costing exercise set out in Figure 6 above. However, we have compared the staff costs of different roles across the NHS, including pharmacists and non-pharmacists in community pharmacy as well as GPs and nurses in primary care, and doctors and nurses in secondary care.

95 When considering whether to expand an existing service or offer a new service, a pharmacy will consider both the costs and the likely level of take-up.

Table 34 Variation in unit staff costs

Sector	Role	Mean gross salary, full time employees
Community pharmacy	Pharmacists (ASHE data)	£49,968
Community pharmacy	Pharmacists (National Careers Service data)[96]	£37,000-61,000
Community pharmacy	Pharmaceutical technicians (ASHE data)	£31,310
Community pharmacy	Pharmacy and optical dispensing assistants (ASHE data)	£22,257
GP	Salaried GP (NHS Digital data)	£68,974-£104,086 (basic salary) £143,100 (estimated average earnings)
GP	GP Partner (NHS Digital data)	£163,900[97]
GP	Generalist medical practitioners (ASHE data)	£55,006
GP	Community nurses (ASHE data)	£40,781
GP	Nurse practitioners (ASHE data)	£43,944

Source: Annual Survey of Hours and Earnings, 2024. Nuffield Trust Analysis of NHS Digital Data[98]

The table above draws on secondary data collected by the Office for National Statistics (ONS),[99] the National Careers Service[100] and analysis of NHS Digital Data by the Nuffield Trust.[101]

96 Note this includes a number of roles including dispensing chemist, community pharmacist, and hospital pharmacist.

97 2020/21

98 https://www.nuffieldtrust.org.uk/resource/exploring-the-earnings-of-nhs-doctors-in-england

99 https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/annualsurveyofhoursandearningsashe

100 https://nationalcareers.service.gov.uk/job-profiles/pharmacist

101 https://www.nuffieldtrust.org.uk/resource/exploring-the-earnings-of-nhs-doctors-in-england

To provide an indication of pharmacist[102] and GP earnings we drew on both of these sources. ASHE data is used as it includes information on a range of roles including pharmacy and those working in general practice. However, the specific occupational code which maps most closely to GPs also includes a range of other roles[103] which means that the average is distorted somewhat. Therefore, we have also drawn on information on GP earnings specifically published by Nuffield Trust. However, this will not be directly comparable to the ASHE estimates as they are drawn from NHS Digital data rather than a direct survey of individuals.[104]

We can see that GP's have higher gross salaries on average than community pharmacists. However, this comparison must be treated with a degree of caution as the various data sources used above will not be entirely comparable. In addition, GPs are funded differently to pharmacies in England and some GP costs are reimbursed outside of fees (e.g. rent, rates, utilities, medical insurance, IT, waste collection).

Non-pharmacists working in the community pharmacy sector (e.g. pharmaceutical technicians and dispensing assistants) also tend to have relatively low salary costs.

This suggests that relative to delivery via GPs there is potential to deliver some services from community pharmacy at a lower cost. However, this would rely on:

- the community pharmacy workforce having sufficient capacity to deliver these new services;
- the staff in community pharmacy having the required clinical skillset to take on these new services or have access to the requisite training (which would also entail a cost);
- investment in community pharmacy facilities to ensure adequate capacity can be provided at a similar marginal cost following increased patient demand (e.g. consultation rooms); and
- considering any reduction in secondary care demand that might arise as a result of moving care into the community.

This requires further detailed consideration, which was beyond the scope of this work.

9.4.2 Unit cost of provision

The staff cost differentials that we have highlighted above are a key driver of overall cost of service delivery. To compare the unit cost of provision in community pharmacy to GP practices and other care settings we:

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102 Pharmacist salaries will be driven by a range of demand and supply side factors. It is possible that recruitment of community pharmacy staff as part of the Additional Roles Reimbursement Scheme could have impacted demand for clinical pharmacists or pharmacy technicians. https://www.england.nhs.uk/gp/expanding-our-workforce/

103 The relevant Standard Occupational Code includes: Generalist medical practitioners, Doctor, General practitioner, House officer (hospital service), Medical practitioner, and Physician.

104 For example the ASHE estimates relate to 2024 whereas the Nuffield Trust estimates relate to 2023/25 for salaried GPs and 2020/21 for GP partners.

- Use the service delivery fees paid to pharmacists for each of the nine services described above as a starting point for costs. We did not examine whether these funding levels are appropriate as we did not examine the costs of providing these services individually. There may be cross-subsidisation (in either direction) between clinical service delivery and dispensing work which would limit the comparability of these fees to other costs.
- We then present secondary evidence on bottom-up costs of activity / service delivery in other parts of the healthcare system as a point of comparison. We used the most up to date sources possible. However, in some cases the evidence available was several years old. We have provided further detail below.
- The secondary data sources that we have used (such as the Personal Social Services Research Unit)[105] will inevitably differ in scope from the primary data collection that we have undertaken as part of this work and will not account for any primary care funding decisions taken recently. As such, the cost estimates in Table 35 are not directly comparable to our NHS pharmaceutical FEC estimates.

Table 35 Community pharmacy service fees

Service	Current fee (set-up fees have been excluded)
New Medicine Service	**£20-£28** (per completed NMS depending on the total number of patients who receive the service)
Blood Pressure Checks	**£15** (for each clinic check) and **£45** (for each ambulatory monitoring).
Discharge Medicines Services	Pharmacy owners providing the full service will be paid a fee of **£35** (for pharmacy owners providing the full service). Partial payments are as follows: Stage 1 **£12,** Stage 2 **£11,** Stage 3 **£12**
Contraception Consultation	**£18** (per consultation)
Smoking Cessation	**£30** for first consultation, **£10** for each interim consultation and **£40** for the last consultation
Stoma Customisation	**£4.32** is paid per qualifying Part IXC item dispensed, regardless of whether customisation was required
Appliance Review	**£28** (for an AUR conducted on pharmacy premises) or **£54** for an AUR carried out in a patient's home.
Pharmacy First	**£15** per completed consultation
Flu Vaccinations	Pharmacy owners will be paid **£9.58** for each vaccine administered

Source: *https://cpe.org.uk/national-pharmacy-services/advanced-services/*

[105] PSSRU https://www.pssru.ac.uk/project-pages/unit-costs/

Table 36 Cost of other Primary and Secondary Care service delivery

Setting	Service	Cost
GP	Surgery consultation lasting 10 minutes	£49[106]
Hospital services	Outpatient attendances	£217[107]
Hospital services	Urgent care centre attendance	£91
Hospital services	A&E attendance	£137-445

Source: PSSRU (2024) https://kar.kent.ac.uk/105685/1/The%20unit%20costs%20of%20health%20and%20social%20care_Final3.pdf NHS England (2024) https://www.england.nhs.uk/publication/2023-25-nhs-payment-scheme/ Costs will vary depending on local circumstances. Our values represent either an average or an appropriate range.

The tables above show that the opportunity costs associated with certain other primary and secondary care activities are high compared with the cost of providing services in community pharmacy settings. Existing or new community pharmacy services could, in some cases, be substitutes for other more expensive settings.

A more detailed study would be required to understand the implications of transferring more services into a pharmacy setting. It would require identifying the specific services that community pharmacy could take on and the impact (if any) on various dimensions of quality (e.g. access and clinical outcomes). That would help inform whether delivery via community pharmacy would represent a preferable or more efficient setting relative to other care settings for patients, taxpayers, pharmacies and other parts of primary care.

106 This includes direct care staff costs and a share of the qualification costs staff incur. This excludes prescription costs per consultation. This is based on GP salaries in 2021/22. Salaries may have risen since then. https://kar.kent.ac.uk/105685/1/The%20unit%20costs%20of%20health%20and%20social%20care_Final3.pdf

107 This relates to Elective/non-elective Health Care Resource Group (HRG) data, average cost per episode. National Cost Collection costs are the average unit cost to the NHS of providing defined services to NHS patients in England in a given financial year. They show how NHS providers spend money to provide health care to patients https://kar.kent.ac.uk/105685/1/The%20unit%20costs%20of%20health%20and%20social%20care_Final3.pdf

10 Sustainability of NHS pharmaceutical services

10.1 Approach to comparison of funding with full economic cost

Our analysis of sustainability compared funding with full economic cost. It was not straightforward to undertake this comparison on a consistent basis, due to the mix of services provided by most pharmacies (including NHS and private services), and the data which was available from pharmacies on the cost of goods sold (across both NHS and private services). We addressed these issues in three steps:

- **Step 1: definition of in-scope services**. Services were defined as 'in-scope' or 'beyond-scope' for this analysis (see Annex A.1 for definitions). Our cost and funding estimates relate only to in-scope activity.

- **Step 2: exclusion of cost of goods sold (COGS) and associated NHS reimbursement**. Our estimates exclude both costs and funding of the drugs and appliances dispensed by pharmacies for NHS prescriptions (bought by pharmacies and reimbursed by the NHS). Data on these costs was not readily available, and excluding reimbursement from funding is consistent with the 'global sum'. Note that Allowed Medicines Margin (AMM) is still included within funding, for consistency with the 'global sum' (see Section 10.2.1 for explanation of how AMM was estimated at pharmacy level).

- **Step 3: consideration of sales of OTC healthcare products**. The remaining potential inconsistency between our cost and funding estimates is caused by sales of over-the-counter (OTC) healthcare products. Pharmacies provide self-care advice to customers buying such products as part of their NHS contract. We therefore considered this to be in-scope activity. We collected data from pharmacies which *includes* (but does not separately identify) the in-scope turnover received from these sales (turnover measure 4, see Annex A.2). We collected funding data from NHS BSA which *excludes* these sales (funding measure 2, see Annex A.2). The cost data available from pharmacies includes some but not all costs associated with OTC healthcare sales: it excludes the associated cost of goods sold (as in step 2) but includes other relevant costs (such as staff and buildings costs) which are partly incurred to deliver this activity. We therefore tested two alternative imperfect comparisons of funding with cost:

    - Costs compared with pharmacy data on all in-scope funding (NHS plus customer sales) (turnover measure 4) – this will tend to over-estimate the sustainability of pharmacies, because not all costs are included (i.e. COGS of OTC healthcare products excluded, but the turnover from in-scope sales is included).

    - Costs compared with NHS BSA data on NHS in-scope funding (funding measure 2) – this will tend to slightly under-estimate the sustainability of pharmacies, because not all income is included (i.e. income from in-scope OTC healthcare sales is excluded).

The primary measure of funding used in this study is funding measure 2 as it relies on actual funding levels provided on a consistent basis for all pharmacies by NHS BSA. In Section 11 we consider a sensitivity analysis using turnover measure 4.

10.2 Funding

For the purposes of this report, funding refers to the NHS 'global sum' of £2.592 billion, plus 'over-delivered' funding through CPCF (£46.2 million) and AMM (£39.6 million), plus fees for flu vaccinations and Pharmacy First, which are both nationally commissioned but funded outside of the global sum for pharmacy (see Annex A.2). This gives total funding of £2.755 billion for 2023-24. We note that the 'over-delivered' funding is not necessarily recurrent and could be reduced in future years, but was included in our analysis to ensure consistency with the costs estimated for 2023-24.

The above funding figure of £2.755 billion:

- includes Single Activity Fees and fees for Essential and Advanced Services;
- includes the Allowed Medicines Margin; and
- excludes other drug reimbursement.

Consistent with this definition, the analysis below is based on funding measure 2 (see Annex A.2).

Our estimates for the funding from delivering NHS pharmaceutical services, excluding AMM, are shown in the following table.

Table 37 Funding excluding AMM, per pharmacy (funding measure 1)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	£175k	£204k	£200k	£159k
Median	£161k	£183k	£190k	£157k
IQR	£120k to £201k	£135k to £248k	£149k to £238k	£107k to £200k

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of pharmacies refers to those for which these results were calculated. Funding in this table excludes beyond-scope services, drug reimbursement and AMM.*

10.2.1 Allowed Medicines Margin

Analysis of data on Allowed Medicines Margin (AMM) was out-of-scope for this study. We were advised that it is very difficult to robustly estimate AMM at a pharmacy level, and that pharmacies would not be able to provide this data. We therefore did not collect any data on AMM at pharmacy level. However, to assess the sustainability of the sector, it was necessary for our analysis to consider AMM.

Our estimates of funding at a pharmacy level include AMM, allocated as follows:

- total AMM of £839.6 million (including £39.6 million over-delivery in 2023-24) was divided by total number of items dispensed (1.11 billion) to give average AMM per item of £0.755;
- AMM per pharmacy is calculated by multiplying AMM per item by the number of items dispensed.

In practice, AMM varies between pharmacies and over time, with a potential further impact on sustainability. This was explored through sensitivity analysis (see Section 11). Our allocation of AMM is shown in the following table. Given the standardised way in which we have allocated AMM the variation in the following table reflects only variation between pharmacies in the number of items dispensed. The following table does not reflect the true variation in AMM between pharmacies, which was not explored in this study.

Table 38 Allowed Medicines Margin, per pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	£76k	£89k	£87k	£67k
Median	£64k	£82k	£82k	£66k
IQR	£49k to £93k	£58k to £115k	£60k to £106k	£43k to £87k

Source: Frontier Economics and IQVIA analysis of primary data collection.

Note: Number of pharmacies refers to those for which these results were calculated.

10.2.2 Funding per pharmacy

We combined our estimates of funding excluding AMM with our estimates of AMM, to estimate total funding per pharmacy.

Table 39 Funding, per pharmacy (funding measure 2)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	£251k	£293k	£287k	£227k
Median	£226k	£271k	£272k	£222k
IQR	£168k to £297k	£193k to £350k	£209k to £344k	£151k to £287k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those for which these results were calculated.

10.2.3 Funding per 10,000 items-per-month pharmacy

The funding estimates above vary between pharmacies, partly due to differences in pharmacy size. To reduce the effect of pharmacy size, we also estimated funding under a scenario in which all pharmacies dispense 10,000 prescription items per month. For this scenario, we assume that funding is scaled up or down proportionately with the number of prescription items.[108] The results are shown in the following table.

Table 40 Funding, per 10,000 items-per-month pharmacy (funding measure 2)

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	£306k	£304k	£305k	£320k
Median	£307k	£298k	£300k	£307k
IQR	£279k to £325k	£285k to £322k	£288k to £316k	£293k to £328k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those for which these results were calculated.

[108] For example, if a pharmacy in our dataset dispenses 8,000 prescription items per month, for the purposes of this scenario only, we assume that their funding would be 25% higher. We note that in reality, funding may not scale in this 'linear' way.

10.3 Sustainability: funding compared with full economic cost

To assess the sustainability of pharmacies, we compared our estimates of the funding received by pharmacies with our estimates of their FEC. We calculated the difference between funding and FEC at a pharmacy level. A positive value indicates that funding exceeds FEC. The following tables show our results.

Table 41 Funding minus pharmacy level and centralised costs, per pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	-£15k	-£36k	-£93k	-£102k
Median	£5k	-£36k	-£80k	-£100k
IQR	-£16k to £35k	-£86k to £12k	-£127k to -£46k	-£138k to -£59k
% of pharmacies with pharmacy level and centralised costs > funding	45.5%	67.5%	92.7%	96.6%

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those for which these results were calculated.

Table 42 Funding minus FEC, per pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	-£190k	-£280k	-£259k	-£182k
Median	-£155k	-£259k	-£229k	-£157k
IQR	-£244k to -£96k	-£360k to -£182k	-£305k to -£181k	-£234k to -£122k
% of pharmacies with full economic cost > funding	97.7%	100.0%	99.7%	99.7%

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those for which these results were calculated.

Table 43 Funding minus FEC, per 10,000 items-per-month pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)
Number of pharmacies (parent companies)	44 (44)	77 (32)	384 (16)	654 (4)
Mean	-£234k	-£298k	-£284k	-£310k
Median	-£211k	-£309k	-£263k	-£276k
IQR	-£241k to -£146k	-£359k to -£207k	-£335k to -£218k	-£385k to -£167k

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those for which these results were calculated.

We estimated that 45.5-96.6% of pharmacies across our archetypes have funding which is lower than pharmacy-level and centralised costs,[109] and that 99.7-100% have funding which is lower than full economic cost.[110]

Pharmacies with funding which is lower than full economic cost are not sustainable in the long-run. In the short-run, many of these pharmacies may continue to provide NHS services if they are able to cover those costs described above which more directly affect sustainability in the short-run. It is also possible that otherwise-unsustainable pharmacies continue to operate because:

- beyond-scope services offered by these pharmacies (such as private services) provide a cross-subsidy to NHS pharmaceutical services, which improves the overall financial position of the business;
- some pharmacies face significant exit barriers;
- for pharmacy groups, more sustainable pharmacies provide a cross-subsidy to less sustainable pharmacies; or
- some pharmacies are relying on increased external borrowing or additional finance from other sources[111] as short term fixes which may not be possible to maintain in the long-run.

109 Including hub-and-spoke costs.

110 Note that these estimates do not account for any variation in the level of Allowed Medicines Margin received by individual pharmacies, although we consider this impact through a sensitivity in Section 11.

111 Including intra-company loans or using funds allocated to pension pots to support their business.

10.3.1 Sustainability of NHS pharmaceutical services across England

Based on the results from our sample, we extrapolated our analysis of sustainability of NHS pharmaceutical services to the sector level across England. The approach to extrapolation was the same as for full economic costs, explained in Section 6.1.1.

For the purposes of this extrapolation, it was necessary to include DSPs, although they have been excluded from our primary analysis. The extrapolation approach above was applied in a consistent way to DSPs as for other archetypes, drawing upon analysis of DSPs which is summarised in Annex G.

Based upon this extrapolation and re-weighting, our estimates for the sustainability of NHS pharmaceutical services across England are shown in the following table.

Table 44 Funding minus pharmacy level and centralised costs, England

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	DSPs	All
Number of pharmacies, England	2,724	1,543	2,020	4,131	380	10,797
Number of pharmacies with pharmacy level and centralised costs > funding	1,238	1,042	1,872	3,992	326	8,469

Source: Frontier Economics and IQVIA analysis of primary data collection.

Table 45 Funding minus full economic cost, England

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	DSPs	All
Number of pharmacies, England	2,724	1,543	2,020	4,131	380	10,797
Number of pharmacies with full economic cost > funding	2,662	1,543	2,014	4,118	380	10,717

Source: Frontier Economics and IQVIA analysis of primary data collection.

We estimated that 8,469 pharmacies across England (78% of pharmacies) had funding which was lower than pharmacy level and centralised costs. We estimated that 10,717 pharmacies across England (99% of pharmacies) had funding which was lower than full economic cost.

Within these 99% of pharmacies, NHS pharmaceutical services are not sustainable in the long-run (with 78% of pharmacies being unsustainable in the short-run). There is a significant risk of interruption to NHS pharmaceutical services offered in these pharmacies, due to closure

of these pharmacies, or due to operational pressures leading to a reduction in quality or scope of services provided.

We estimated that full economic cost exceeded funding, across England in the 12 months to 31st March 2024, by £1.642-2.975 billion. Considering only pharmacy-level and centralised costs, these costs exceeded funding by £0.249-1.160 billion. This suggests that current funding does not cover those costs which more indirectly affect sustainability (99% of pharmacies), and do not cover those costs which directly affect sustainability most of the time (78% of pharmacies). A number of different actions could be used to help close this gap (e.g. changes to operating models, changes to funding). It was beyond the scope of this work to consider the best course of action.

10.4 Profitability

This analysis complements our above analysis of FEC versus funding, by providing information on alternative measures of profitability. Data was collected on profitability of pharmacies, by asking pharmacies to provide evidence on Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA). EBITDA is a standard accounting measure of profitability, although it is not used by all companies and may be calculated slightly differently in different companies' accounts.

In our data, EBITDA was provided at pharmacy level, and relates to the pharmacy as a whole, including beyond-scope services. It does not include centralised or hub costs (where relevant), or hidden or structural costs (where relevant), which would result in more pharmacies appearing unprofitable if included.

Nevertheless, EBITDA provides an indication of the profitability of the pharmacy sector. A negative value for EBITDA indicates significant financial distress given that the measure is before interest, tax, depreciation, amortisation, centralised costs and hub costs, plus the wider economic hidden and unmet structural costs.[112] We found that 47% of pharmacies had negative EBITDA. This varied between archetypes, with 0% among single independents (albeit from a relatively small sample of 15 pharmacies, as fewer respondents in this archetype used EBITDA as an accounting measure) and over half (55%) among large chains.

We also analysed EBITDA Margin, which we calculated by taking EBITDA as a proportion of turnover, including drug reimbursement (Turnover Measure 1). We found that 95.4% of pharmacies had an EBITDA Margin of less than 10%, and that 99.8% of pharmacies had an EBITDA Margin of less than 20%. Businesses with EBITDA Margin below either of these threshold values would be considered (taking into consideration other measures, as we do in this report) as struggling financially.[113]

[112] For a discussion, see https://www.investopedia.com/ask/answers/072715/what-considered-healthy-evebitda.asp.

[113] For a discussion, see https://www.businessnewsdaily.com/4461-ebitda-formula-definition.html and for industry EBITDA Margin averages (from US data which reduces comparability) see https://fullratio.com/ebitda-margin-by-industry.

Table 46 EBITDA before centralised, hub-and-spoke and hidden/structural costs, per pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	All
Number of pharmacies (parent companies)	15 (15)	34 (12)	319 (9)	602 (3)	970 (39)
Mean	£98,073	£63,134	£25,345	-£4,912	£3,930
Median	£81,441	£19,253	£19,463	-£10,926	£5,183
IQR	£36,000 to £123,469	-£29,900 to £63,759	-£19,757 to £70,140	-£56,204 to £36,890	-£46,411 to £51,285
% of pharmacies with negative EBITDA	0%	35%	36%	55%	47%

Source: Frontier Economics and IQVIA analysis of primary data collection.

Note: Number of pharmacies refers to those which provided data on this question.

Table 47 EBITDA Margin before centralised, hub-and-spoke and hidden/structural costs, per pharmacy

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	All
Number of pharmacies (parent companies)	15 (15)	34 (12)	319 (9)	602 (3)	970 (39)
Mean	10.3%	5.6%	0.9%	-4.7%	-2.3%
Median	7.9%	2.3%	2.2%	-1.1%	0.5%
IQR	3.4% to 10.5%	-2.6% to 7.7%	-1.8% to 5.5%	-9.2% to 3.3%	-5.7% to 4.5%
% of pharmacies with EBITDA Margin <10%	60.0%	79.4%	95.6%	96.3%	95.4%
% of pharmacies with EBITDA Margin <20%	93.3%	91.2%	99.4%	100.0%	99.8%

Source: Frontier Economics and IQVIA analysis of primary data collection.

Note: Number of pharmacies refers to those which provided data on this question. Mean values are unweighted and do not reflect the differing sizes in turnover between the pharmacies within the sample. These values are therefore not directly comparable to mean EBITDA values in previous table.

Across our sample of 970 pharmacies, the average unweighted EBITDA Margin was -2.3%. Accounting for variations in pharmacy turnover, the average weighted EBITDA Margin was

1.2% (i.e. comparing the average EBITDA of £3,930 from the table above with Turnover Measure 1 for the same sample).

We also gathered data from parent companies on Profit Before Tax (PBT), which includes the costs charged through the accounts for interest, depreciation and amortisation. We found that 32% of parent companies reporting data had negative Profit Before Tax, although we note this was from a relatively small sample of pharmacies (and this may also include the impact of provision of non-NHS activities in some cases).

Table 48 Profit Before Tax, per company

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	All
Number of parent companies	22	15	-	-	37
Mean	£26,302	£23,734	-	-	£25,261
Median*	£29,000	£0	-	-	£23,500
IQR*	£600 to £61,400	-£41,700 to £75,900	-	-	-£4,200 to £62,600
% of companies with negative PBT	23%	47%	-	-	32%

Source: *Frontier Economics and IQVIA analysis of primary data collection.*

Note: *Number of parent companies refers to those which provided data on this question.*
Figures for median and IQR have been rounded to the nearest £100 to ensure anonymity of respondents.
Figures are at company level and therefore not comparable with the EBITDA figures presented in previous tables, which are at pharmacy level.
Figures for companies in the 'medium' and 'large' archetypes are not reported due to small sample sizes.

10.5 Liquidity

Liquidity in this context refers to a company's ability to meet short-term financial obligations. We have used the current ratio as our measure of liquidity. This is calculated as the ratio of current assets (stock, cash, short term debtors) to current liabilities (outstanding debt with maturity of less than 12 months).

A pharmacy parent company with poor liquidity may struggle in the near future to pay wages or pay supplier bills. These companies may also struggle to raise further finance and it is possible that these companies could breach covenants which relate to existing borrowing. Liquidity is therefore an important indicator of the overall financial health of the sector.

In the following table we have set out information on the distribution of the current ratio (current assets / current liabilities) for parent companies who report both a valid figure for current assets and current liabilities. Companies who reported a zero figure for current liabilities were

excluded from this analysis. However, in some cases they may genuinely have no short-term liabilities.

The following table is based purely on bottom-up data, as the top-down survey did not distinguish between short- and long-term liabilities.

Table 49 Distribution of current ratio

Current ratio range	Proportion of sample
<1	24%
1-2	47%
>2	29%

Source: Frontier analysis of bottom-up data

Note: Analysis is at the parent company level (sample size 17 parent companies)

Our analysis shows that amongst pharmacy parent companies who provided relevant data 24% had a current ratio below 1.[114] Amongst this group current liabilities exceeded current assets. Therefore, around half of pharmacy companies in our sample who provided relevant data may struggle to meet their debts over the next year. This could lead to financial difficulties and even closure amongst a subset of these companies.

10.6 Other pressures on pharmacy businesses

We asked pharmacies about the cost pressures they face. The following figure shows that 37% of pharmacies would be deterred from closing because of the costs incurred in doing so (e.g. redundancy costs, lease commitments, loss of asset intended to support pension). This was as high as 94% for small chains and as low as 28% for medium chains.

Even if closing a pharmacy would lead to additional costs being incurred, unprofitable pharmacies may close in the future if FEC exceeds funding by a significant margin for an extended period of time.

[114] The majority of parent companies who provided data on these metrics were either single pharmacies or chains of fewer than five pharmacies. Therefore, these results may not be reflective of the sector as a whole. Due to sample size constraints it was not possible to break down this percentage by archetype

Table 50 Share of pharmacies stating that the costs incurred in closing would prevent them from doing so

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	All
Number of pharmacies (parent companies)	12 (12)	16 (6)	238 (5)	652 (4)	918 (27)
% reporting 'yes'	92%	94%	28%	38%	37%
% reporting 'no'	8%	6%	72%	62%	63%

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those which provided data on this question.

We also asked pharmacies whether financial pressures in the last 3 years had led to significant changes in their business.

Table 51 Share of pharmacies for whom financial pressures in the last three years have affected aspects of their business

	Singles (1)	Small (2-5)	Medium (6-200)	Large (201+)	All
Number of pharmacies (parent companies)	13 (13)	20 (8)	331 (8)	654 (4)	1018 (33)
Management of staff[115]	76.9%	100.0%	100.0%	100.0%	99.9%
Operations[116]	92.3%	100.0%	100.0%	100.0%	99.9%
Financing ability[117]	92.3%	85.0%	97.0%	65.9%	74.7%
Property management[118]	30.8%	85.0%	97.0%	73.7%	81.0%

Source: Frontier Economics and IQVIA analysis of primary data collection.
Note: Number of pharmacies refers to those which provided data on this question.

115 Examples include (but are not limited to) reducing staffing hours, reducing overtime, use of locum staff, changing staff mix, inability to meet pay rises of comparable sectors.

116 Examples include (but are not limited to) changing opening hours, cancelling staff training, deferring non-immediate costs, reducing or stopping free services such as MDS trays or prescription deliveries.

117 Examples include (but are not limited to) late payment of bills, asking wholesalers for additional credit, extending loan durations, requiring additional short-term borrowing, use of mezzanine debt, use of debt factoring, failing a bank covenant test, provision of financial support from wider group businesses, loan guarantees, mortgages or financial support based on personal/family assets, pensions or from wider group businesses.

118 Examples include (but are not limited to) foregoing necessary maintenance or reduced normal property spend levels.

The table above shows that:

- 99.9% of pharmacies reported significant changes in the management of staff;
- 99.9% reported significant changes in operations
- 74.7% reported significant change in financing their business; and
- 81.0% reported significant changes in property management.

These figures were highest among single independents, and lowest among large chains.

11 Sensitivity analysis

The results presented in this study are based on the best available evidence. To understand how certain parameter values and evidence affect the final results, we carried out a sensitivity analysis in several key areas.

Below we have compared the headline results for FEC and the percentage of pharmacies with FEC greater than funding, under these sensitivities, with the 'baseline' results.

These baseline results are consistent with the results which we presented in the earlier sections of this report.

These sensitivities do not represent potential 'future scenarios' or 'policy options' for the sector. They are intended solely to demonstrate the impact of key assumptions on our results.

The sensitivities were as follows:

- **Costs due to in-scope NHS services.** In our baseline, we calculated the proportion of costs due to in-scope NHS services using estimates from our primary data collection. Respondents estimated the percentage of costs which would be saved if the pharmacy delivered no beyond-scope local NHS or local authority services or private services (i.e. only delivered in-scope NHS services, see section 3.1), which we applied for each pharmacy. We tested two sensitivities:
  - Sensitivity 1. We multiplied by 1.2 the pharmacy's estimate of the % of costs which would be saved if the pharmacy undertook no beyond-scope services.
  - Sensitivity 2. We multiplied by 0.8 the pharmacy's estimate of the % of costs which would be saved if the pharmacy undertook no beyond-scope services.
- **Hidden and structural costs.** In our baseline, we use estimates of the size of hidden and structural costs from our primary data collection. Respondents estimated the £ value of costs in each category, including all such costs at the pharmacy level and at central- and hub-level, where relevant. We tested two sensitivities:
  - Sensitivity 1. We multiplied by 1.2 the estimate of hidden and structural costs, at pharmacy, central and hub level (where relevant), for each pharmacy.
  - Sensitivity 2. We multiplied by 0.8 the estimate of hidden and structural costs, at pharmacy, central and hub level (where relevant), for each pharmacy.
- **Weighted Average Cost of Capital (WACC)**. In our baseline, we use a central value for the WACC rate for each archetype, which is calculated as the average of a lower bound and upper bound. We tested two sensitivities:

- Sensitivity 1. We use the upper bound WACC rate for each archetype. This upper bound is based on a higher equity beta which is a measure of the underlying volatility of the pharmacy sector relative to the broader equity market. The previous PwC (2011) study applied a Capital Asset Pricing Model framework to a selection of geographically dispersed comparator pharmacy organisations to estimate a beta value of 0.82. This is somewhat uncertain, given it is based on relatively old information and the unique risk profile of the English pharmacy sector, due to the importance of a single purchaser (NHS England). Our upper bound examines the impact of using a beta value of 1 across all archetypes.

- Sensitivity 2. We use the lower bound WACC rate for each archetype. This is based on beta value of 0.64 across all archetypes.

- **Value of tangible assets.** Cost of capital is based on applying the WACC to the pharmacy's asset base. As noted above our baseline estimates of tangible asset values come directly from responses to our survey questions. It is likely to have been difficult for some respondents to estimate these values accurately. We tested two sensitivities:

  - Sensitivity 1. We multiplied by 1.2 the estimate of tangible asset values at pharmacy, central and hub level (where relevant), for each pharmacy. This acknowledges the potential for respondents to have under-estimated replacement costs, for example.

  - Sensitivity 2. We multiplied by 0.8 the estimate of tangible asset values at pharmacy, central and hub level (where relevant), for each pharmacy. This acknowledges the potential for respondents to have over-estimated replacement costs, for example.

- **Allowed Medicines Margin**. In our baseline, we assume that AMM is distributed on a 'flat' basis of £0.755 per item dispensed (£839.6 million divided by 1.11 billion items). In reality, we expect that some pharmacies will receive 'above average' AMM (benefiting their sustainability) while others will receive 'below average' AMM (harming their sustainability). The distribution of AMM is complex and uncertain. To test the impact of higher/lower AMM (as simply as possible), we tested two sensitivities:

  - Sensitivity 1. We multiplied by 1.2 the estimated value (based on the 'flat' distribution above) of AMM estimated for each pharmacy. We note that this increases the total AMM distributed by 20% (from £839.6m to £1,007.5m).

  - Sensitivity 2. We multiplied by 0.8 the estimated value (based on the 'flat' distribution above) of AMM estimated for each pharmacy. We note that this decreases the total AMM distributed by 20% (from £839.6m to £671.7m).

- **Pharmacies included in analysis.** A range of different pharmacy models exist across England. As a proportion of all pharmaceutical activity (which may itself be a smaller or larger proportion of the total business), some pharmacies deliver a higher proportion of in-scope NHS pharmaceutical activity, whereas others a much lower proportion of in-

scope NHS pharmaceutical activity (and a higher proportion of private and locally commissioned activity).

- We tested a sensitivity in which our analysis was only undertaken for those pharmacies which reported undertaking 95% or more in-scope NHS activity (therefore undertaking less than 5% private or beyond-scope local activity).[119] We chose this threshold to focus on pharmacies that were almost entirely reliant on NHS activity. The specific value chosen (i.e. 95%) reflects our judgment, however we note that alternatives could have been chosen.

- We did not estimate the FEC across England for this subset of pharmacies (which would not be comparable with the baseline), just the impact on the proportion of these pharmacies which had FEC greater than funding.

- **Funding / turnover measure.** Our baseline analysis uses funding measure 2, based upon NHS BSA data, including 'over-delivery' of funding in 2023-24 (see Annex A.2 for definitions). We tested two sensitivities:

  - Sensitivity 1. We use funding measure 2, but exclude the 'over-delivered' funding in 2023-24. We exclude £46.2 million in CPCF (2.6% of £1.792 billion CPCF funding) over-delivery and £39.6 million in AMM delivery (4.95% of £800 million AMM funding). We estimated this impact by reducing our baseline estimate of CPCF funding for all pharmacies by 2.6% and reducing our baseline estimate of AMM funding for all pharmacies by 4.95%.

  - Sensitivity 2. We instead use turnover measure 4, based upon our primary data collection. Turnover measure 4 is slightly higher than funding measure 2, as it includes turnover from in-scope OTC healthcare sales, which are absent from funding measure 2. We note that funding measure 2 is an under-estimate of the income received by pharmacies, which would include any income from OTC healthcare sales. By contrast, turnover measure 4 is an over-estimate of the income received by pharmacies, which would still need to be reduced by the cost of goods sold as pharmacies do not receive these products at zero cost (see Annex A.2 for further details). We did not adjust funding measure 2 or turnover measure 4 to account for this difference, due to the lack of available data to do so robustly.

The results are shown in the following table.

[119] This % is based on respondents' own estimates of the % of costs which would be saved, if the pharmacy delivered no beyond-scope local NHS or local authority activity and no beyond-scope private activity.

Table 52 Sensitivity analysis

Input	Assumption	FEC, England (million)	% of pharmacies with FEC > funding
Baseline	-	£5,063m	99.3%
Costs due to in-scope NHS services	Beyond-scope x1.2	£5,015m	98.7%
	Beyond-scope x0.8	£5,112m	99.3%
Hidden and structural costs	x1.2	£5,174m	99.3%
	x0.8	£4,953m	98.7%
WACC rate	Equity beta = 1	£5,132m	99.3%
	Equity beta = 0.64	£4,995m	99.3%
Tangible asset values	x1.2	£5,175m	99.3%
	x0.8	£4,952m	99.3%
Allowed Medicines Margin	x1.2	No change	98.7%
	x0.8	No change	99.3%
Pharmacies included in analysis	Only those which report 95%+ in-scope NHS activity	No change	96.8%
Funding / turnover measure	Funding measure 2 minus 'over-delivery'	No change	99.3%
	Turnover measure 4	No change	91.3%

Source: *Frontier Economics and IQVIA analysis*

Note: *Where the '% of pharmacies with FEC > funding' does not change relative to the baseline, this is because the change in assumption does not lead to any individual pharmacy experiencing a change in this measure.*

12 Potential further work

The evidence presented in this report is the most comprehensive overview of the community pharmacy sector since 2011. It provides a robust basis for detailed discussions about the funding and future of the sector. Unavoidably, there remain uncertainties. These uncertainties arise partly because of the inherent complexity of the sector: the model of delivery varies widely between pharmacies, with funding delivered across multiple channels, with variation between pharmacies and over time. Each individual pharmacy is unique and aggregation will always obscure some of those differences. Other uncertainties are a consequence of the necessary constraints of time and resource for this study. In this latter case, further work could help to support upcoming discussions. Some potential opportunities for new in-depth studies are set out below.

Understanding service efficiency and quality

The analysis contained in this report is designed to assess the full economic cost of pharmacy services across the country. While doing this, it also illustrates some differences in unit costs between different archetypes and pharmacy characteristics. However, there would be additional value in understanding more precisely what an optimally efficient cost for different types of pharmacy service is (in a similar way that the NHS tariff provides benchmark prices for hospital services).[120] A wider use of efficiency benchmarks might help both pharmacy providers and commissioners to locate opportunities for service improvement.

The analysis above does not examine the quality of services delivered. It is possible that variations in cost within the provider sector are, in part, related to differing quality levels (for example, differing staff complements may affect patient access and other aspects of service quality). Incentives to provide high-quality services also depend upon contracting models and the ways in which quality are measured and rewarded. Further analysis of the quality across community pharmacy providers would be valuable.

Variation

The sampling strategy used for the analysis in this report was designed to reflect the diversity of pharmacy models that exist within the sector. However, it was not possible – at the level of detail required for this analysis – to fully explore the variation which exists across the community pharmacy in England. In particular, further work could focus more narrowly on the variation in service delivery across different regions and local areas. This could include further analysis of the costs of delivery in more rural areas. This analysis could also explore in more detail the relationships between delivery costs, deprivation and accessibility.

[120] In addition, the value offered by different models would also need to be considered.

Delivery models

The community pharmacy sector has seen significant changes to the delivery model, including the advent of robotic technologies to aid dispensing and the introduction of Distance Selling Pharmacies (DSPs). The analysis in this report has included data from both hub-and-spoke models (using robotics) and DSPs, to the extent that was possible with the data available. However, there may be more value in a deeper analysis of how these different delivery models might in future impact on costs (and quality).

Shift in service provision

The range of clinical services available through a community pharmacy has grown over the last decade. NHS England's vision is for community pharmacy to play a greater role in first contact primary care (as exemplified by the Pharmacy First scheme).

In this report we have highlighted the differences between pharmacy-level fees for service and those paid to GPs, urgent care centres and hospitals. It is possible that cost savings to the NHS could be made by shifting more care from higher cost settings to community pharmacy – assuming that this was clinically appropriate and resulted in sufficient quality of care.

The opportunity for further shifting of care is likely to be addressed in the forthcoming 10 Year Plan and the application of this to community pharmacy would be worthy of further analysis.

It is also possible that existing extended services such as Pharmacy First do not perfectly substitute for GP care and may provide, in part at least, an additional service (e.g. people attend under Pharmacy First who would not attend their GP surgery). Conversely, it is possible that a proportion of patients attending Pharmacy First receive an onward referral to their GP (or another health care setting). These factors need to be understood more fully so that the cost-effectiveness of extending pharmacy-level care can be analysed.