

Title: Community Pharmacy in 2016/17 and beyond IA No: DH6008 Lead department or agency: Department of Health Other departments or agencies:	Impact Assessment (IA)		
	Date: 19/10/2016		
	Stage: Final		
	Source of intervention: Domestic		
	Type of measure: Secondary legislation		
Contact for enquiries: Hiba Sameen			
Summary: Intervention and Options			RPC Opinion: N/A

Cost of Preferred (or more likely) Option

Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2016 prices)	In scope of One-In, Two-Out?	Measure qualifies as
£3,546m-£3,645m	£m N/A	£m N/A	No	N/A

What is the problem under consideration? Why is government intervention necessary?
 NHS funding for community pharmacies to provide dispensing and other services was £2.8bn in 2015/16. Decisions made as part of the 2015 Spending Review mean this amount will be reduced in 2016/17 and 2017/18, to contribute to the £22bn in efficiency savings the NHS needs to deliver by 2020/21.

The current mechanism for funding community pharmacy is complex, and there is a constant need to ensure that NHS resources are being directed in an optimal manner, as well as community pharmacy needing to make its contribution to the efficiency savings the NHS needs to deliver. This includes seeking to ensure that good patient access to pharmaceutical services is maintained whilst ensuring the most efficient use is made of public funds. Government intervention is needed to improve the mechanism for funding community pharmacies, to ensure NHS resources are allocated efficiently.

What are the policy objectives and the intended effects?
 The primary objective is to increase the health gains realised from the NHS budget, by ensuring that expected efficiency savings in delivering community pharmacy services result in cost savings to the NHS - while ensuring that patient health is not jeopardised, and minimising impacts on travel times to access community pharmacy services.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Do nothing, or

- Reduce funding of community pharmacies by £113m in 2016/17 and by a further £95m in 2017/18, and simplify the payment system by introducing a single activity fee and phasing out the establishment payment
- Reduce funding of community pharmacies and simplify the payment system as for option 1 and introduce a "Pharmacy Access Scheme" (PhAS) to ensure patient health and good patient access to community pharmacy services are not jeopardised.

Option 2 is preferred, as it is most likely to meet the Government's objectives.

Will the policy be reviewed? It will be reviewed. This is a living document which will be reconsidered as part of the on-going monitoring of the changes to which it relates.

Does implementation go beyond minimum EU requirements?			N/A		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro N/A	< 20 N/A	Small N/A	Medium N/A	Large N/A
What is the CO ₂ equivalent change in greenhouse gas emissions? (tonnes CO ₂ equivalent)			Traded: N/A	Non-traded: N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:  Date: 19/10/2016

Summary: Analysis & Evidence

Do Nothing

Description: Do Nothing

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate: -

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		Optional	Optional
High	Optional		Optional	Optional
Best Estimate	-		-	-

Description and scale of key monetised costs by 'main affected groups'

The "do nothing" option is the counterfactual scenario, against which other options are assessed. The value of costs and benefits are therefore zero, by definition.

Other key non-monetised costs by 'main affected groups'

N/A

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		Optional	Optional
High	Optional		Optional	Optional
Best Estimate				

Description and scale of key monetised benefits by 'main affected groups'

The "do nothing" option is the counterfactual scenario, against which other options are assessed. The value of costs and benefits are therefore zero, by definition.

Other key non-monetised benefits by 'main affected groups'

N/A

Key assumptions/sensitivities/risks

N/A

Discount rate (%)

BUSINESS ASSESSMENT (Option 0)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs:	Benefits:	Net:	No	IN/OUT/Zero net cost

Summary: Analysis & Evidence

Policy Option 1

Description: Reduce funding by £208m and simplify the payment system

Price Base Year 2016	PV Base Year 2016	Time Period Years 5	Net Benefit (Present Value (PV)) (£m)		
			Low: 3,510	High: 3,645	Best Estimate: -

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low		0	0
High		37	136
Best Estimate		-	-

Description and scale of key monetised costs by 'main affected groups'

There is no reliable way of estimating the number of pharmacies that may close as a result of this policy, and the potential impacts in this IA are assessed on the basis that there is a scenario where no pharmacy closes. Potential increased travel time and consequent economic cost for patients who have to travel further if their nearest community pharmacy closes. We cannot robustly estimate this for reasons described in the body of the Impact Assessment, but have provided illustrative scenarios that value potential increased travel costs at between **£0 and £37m pa** on average over the period evaluated. We have not presented a best estimate for costs to main affected groups due to uncertainty in our estimates.

Other key non-monetised costs by 'main affected groups'

Potential but non-quantifiable effects on local communities and commerce

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low			
High			
Best Estimate		945	3,645

Description and scale of key monetised benefits by 'main affected groups'

Patients and health service users will benefit as the cost savings from the measure are used to fund more NHS treatments and services. The savings of £208m pa are estimated to generate an additional **13,867 Quality-Adjusted Life Years pa** in health gains for patients, valued at **£832m pa**.

Other key non-monetised benefits by 'main affected groups'

N/A

Key assumptions/sensitivities/risks	Discount rate (%)	NHS 1.5% / other 3.5%
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The key assumption is that there will be no significant impact on patient health, and that patients will continue to receive the pharmacy services they need. The Impact Assessment tests the sensitivity of our assumption.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs:	Benefits:	Net:	No	IN/OUT/Zero net cost

Summary: Analysis & Evidence

Policy Option 2

Description: Reduce funding by £208m, simplify the payment system and introduce a Pharmacy Access Scheme

Price Base Year 2016	PV Base Year 2016	Time Period Years 5	Net Benefit (Present Value (PV)) (£m)		
			Low: 3,546	High: 3,645	Best Estimate: -

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low		0	0
High		27	100
Best Estimate		-	-

Description and scale of key monetised costs by 'main affected groups'

There is no reliable way of estimating the number of pharmacies that may close as a result of this policy, and the potential impacts in this IA are assessed on the basis that there is a scenario where no pharmacy closes. Potential increased travel time and consequent economic cost for patients who have to travel further if their nearest community pharmacy closes. We cannot robustly estimate this for reasons described in the body of the IA, but have provided illustrative scenarios that value potential increased travel costs at between **£0 and £27m pa** on average over the period evaluated. We have not presented a best estimate for costs to main affected groups due to uncertainty in our estimates.

Other key non-monetised costs by 'main affected groups'

Potential but non-quantifiable effects on local communities and commerce

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low			
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Best Estimate		945	3,645

Description and scale of key monetised benefits by 'main affected groups'

Patients and health service users will benefit as the cost savings from the measure are used to fund more NHS treatments and services. The savings of £208m pa are estimated to generate an additional **13,867 Quality-Adjusted Life Years pa** in health gains for patients, valued at **£832m pa**.

Other key non-monetised benefits by 'main affected groups'

N/A

Key assumptions/sensitivities/risks

Discount rate (%)

NHS 1.5% / other 3.5%

The key assumptions are:

- that there will be no significant impact on patient health, and patients will continue to receive the community pharmacy services they need. The Impact Assessment tests the sensitivity of our assumption.
- the Pharmacy Access Scheme (PhAS) will function as intended

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs:	Benefits:	Net:		

Background

Current arrangements for community pharmacies under the NHS community pharmacy contractual framework

1. Community pharmacies are, almost wholly, private businesses providing state-funded NHS pharmaceutical services under the community pharmacy contractual framework (CPCF). They supply around 90% of NHS prescription items dispensed in the community.

CPCF services

2. Community pharmacies deliver two tiers of services under the CPCF.
 - i) All pharmacies are required to provide **essential services**, which include dispensing, prescription-linked healthy lifestyle advice, and support for self-care within a clinical governance framework.
 - ii) They can choose – and the majority do - to provide **advanced services** if accredited, which include medicine use reviews (MURs) and the new medicines service (NMS).
3. Pharmacies also provide **enhanced services**, as commissioned locally by NHS England area teams to meet local needs, such as a minor ailment service. Local authorities (LAs) and clinical commissioning groups (CCGs) can also commission services directly from pharmacies, and the majority of public health services are commissioned this way, for example stop smoking services.
4. However these lie outside of the CPCF; and so are outside the scope of the proposed changes.
5. It is worth noting that the proposed package includes steps NHS England will take to encourage all CCGs to commission a minor ailments scheme by April 2018.

Payments to pharmacies

6. Payments are broken down into two core components – **remuneration** (fees and allowances for providing services) and **reimbursement** (the cost of the drugs).

Remuneration

7. Remuneration is essentially the cost to NHS England of maintaining the community pharmacy network and the services provided by it.
8. Payment for essential and advanced service categories is determined nationally and paid by NHS England.¹
9. For 2015/16 the total funding for these services (known as the “contract sum”) is **£2.8bn** - £2bn through fees and allowances (remuneration) and £800m target margin from the products community pharmacies dispense. The margin is the difference between the price reimbursed by the NHS for the products dispensed and the price at which pharmacies buy them.

¹ Some determinations that would normally be made by NHS England will be made by DH where the changes are linked to the Spending Review.

10. Enhanced services and services commissioned by LAs and CCGs are funded separately to the contract sum.
11. The fees and allowances payable for essential and advanced services are set out in the monthly Drug Tariff (Part III and Part VI). They are subject to variable VAT rates. Table 1 below shows the main fees and the proportion they represent of the total fees of £2bn for 2015/16.
12. The fees comprise at 2015/16 rates:
- a **dispensing** fee (90p per item);
 - other **professional fees** in relation to dispensing, including dispensing controlled drugs, such as morphine, and where the net ingredient cost of a dispensed product is £100 or more;
 - a **variable practice payment**, increasing in bands, and including a contribution for provision of auxiliary aids and a requirement to meet a minimum staffing level at the pharmacy depending on prescription item volume.
 - a semi-fixed **establishment payment** to contribute towards certain fixed costs banded by prescription volume.
 - Allowances for operating through the **electronic prescription service** (EPS). The allowances to support implementation are payable only once to any pharmacy but in two stages - £2,600 for operating Release 1 and £1,000 for operating Release 2. There is also a monthly allowance of £200 to cover on-going costs;
 - a **repeat dispensing payment**, worth £125 per month for pharmacies with appropriately trained staff to provide this service;
 - payments for advanced services.

Table 1: Amounts paid in fees and their proportion of the total fees in 2015/16

Fee description	Amount (£m pa)	Proportion (%)
Dispensing fees	910	46%
Other professional fees	109	5%
Practice payments	549	27%
Establishment payment	276	14%
Electronic prescription allowances	27	1%
Repeat dispensing payment	17	1%
Advanced services, including MURs and the NMS	112	6%
Total	2,000	100

Product reimbursement

13. Reimbursement is the price paid to the pharmacy for the item dispensed. The overall value of the reimbursement includes the target margin (£800m) as described above. Whilst fees

and allowances are paid by NHS England, reimbursement (including margin) is charged back to CCGs.

14. The reimbursement prices for medicines, appliances and other products dispensed are published monthly in the Drug Tariff or determined in accordance with provisions of the Drug Tariff.
15. The reimbursement price received by pharmacies is then adjusted via a discount scale. How much an individual pharmacy receives depends on the total value of the prices for the items dispensed that month. A sliding discount is applied - from 5.63% for a value up to £125 to 11.5% for a value of £160,001 or more.

Problem

16. The major underlying problem and primary justification for Government intervention is that:
 - a balance needs to be struck between ensuring that good patient access is maintained whilst ensuring efficient use of NHS funds. If that balance is struck incorrectly, and the evidence of clustering of pharmacies suggests that it has been, the consequence may be unnecessary costs on the NHS budget.
17. Additionally, it is considered that:
 - improvements in community pharmacy delivery are expected to increase community pharmacy efficiency – and intervention is required to ensure these increases in efficiency are reflected in reduced costs to the NHS; and
 - it is responsible when using public money to ensure that savings are generated wherever possible.
18. These issues are considered and explained in more detail below. Taken together, they show that government intervention is required to increase the cost-effectiveness of funding for community pharmacy, and to increase the health benefits realised from the NHS budget.

Inappropriate focusing of NHS resources on certain clusters of pharmacy businesses

19. The current approach to funding entails providing an “establishment payment” to all community pharmacies. This payment is intended to contribute towards business overheads and in practice helps community pharmacies to be economically viable in areas with lower prescription volume (and therefore lower prescription volume-based revenues).
20. Provision of the establishment payment may also mean that high prescription volume areas may have a disproportionate amount spent on business costs, if the amount of activity in a locality is shared across a ‘cluster’ of pharmacies, albeit recognising that any additional pharmacy means increased patient choice. Most pharmacies in a cluster would receive the establishment payment regardless of the quality of provision, and thus NHS resource for business costs is targeted at a small geographical area in circumstances where that targeting of that type of resource is not in fact necessary to maintain good patient access.
21. We note that evidence shows that deprived areas (by the Index of Multiple Deprivation) tend to have more clustering of pharmacies, and have considered whether deprived areas could be adversely affected by this policy as a result.² It is worth noting that it is not necessarily the case that pharmacies cluster around deprived communities to meet an increased health need – the correlation may be because deprived communities tend to be in urban, built up areas. This suggests some pharmacies may operate in these deprived communities to benefit from the higher footfall. The PhAS has been designed to protect areas that may be at risk of reduced access; typically access is not at risk in areas with high provision. It takes isolation and need levels into account; this is done by cross checking information held on needs and isolation of populations against the pharmacies included in the scheme. To ensure that no area is adversely affected, a review of eligibility will be granted for pharmacies that may have narrowly missed out on the scheme through the distance criteria, but are in areas of high deprivation and are critical to patient access. This

² Todd, Adam, “Clustering of Community Pharmacies, Unpublished Working Paper, Durham University (2016)

will cover pharmacies that are located in the top 20% most deprived areas in England, and who are located 0.8 miles from another pharmacy. Additional funding for successful reviews under this criterion will be made available as required.

22. To the extent that the current approach means that the current level of service, in essence, could be available for patients for less resource, it therefore imposes unnecessary costs on the NHS budget.

Improvements in efficiency of delivering community pharmacy services

23. Recent developments in approaches to community pharmacy organisation and delivery are expected to lead – over time - to improvements in the efficiency of providing community pharmacy services to patients. One example of this is the “Electronic Prescription Service (EPS)”, which most community pharmacy providers are already using, and which has the potential to increase the operational efficiency of community pharmacy providers by reducing the time taken to dispense a prescription item. The use of this service frees up pharmacist time to concentrate on other activities, such as delivering patient-centred services designed to optimise the use of medicines by patients.
24. The Government is separately consulting on changes to medicines legislation to allow the ‘hub and spoke’ dispensing model across different legal entities, such that independent community pharmacies could also benefit from the efficiency gains of that model.
25. These improvements in efficiency would be expected to contribute to enabling community pharmacies to provide the same level of service (including service enhancements) to patients using less resource. However, the policy options in this impact assessment are not predicated on hub and spoke being used or increased use of EPS.

NHS financial circumstances

26. The NHS Five Year Forward View described the need for greater efficiency and productivity in the NHS, and in the 2015 Spending Review the Government re-affirmed the need for the NHS to deliver £22bn in efficiency savings by 2020/21. Community pharmacy is a core part of NHS primary care and has an important contribution to make as the NHS rises to this challenge.
27. The Spending Review involved robust scrutiny of all areas of health expenditure. Government saw the potential for efficiencies to deliver savings in community pharmacy, at the same time as supporting the longer term development and transformation of the sector.
28. The funding commitment for community pharmacies is a high level economic and political decision, reached following negotiations with HM Treasury in the context of the Government’s Spending Review. For community pharmacy, this represents a reduction in the amount of NHS funding available.

Objective

29. The primary objective is to improve the cost-effectiveness of funding for community pharmacy services, and to increase the patient health benefits realised from the NHS budget overall, by reallocating savings from community pharmacy funding to other uses – while ensuring that patient health is unaffected, and minimising impacts on patient travel

times to access NHS community pharmacy services by making appropriate adjustments to the mechanism for funding community pharmacy.

Options

30. Apart from in the 'do nothing' option, the options in this Impact Assessment are based on a funding profile for community pharmacy of £2.687bn in 2016/17 and £2.592bn in 2017/18. For modelling purposes, the Impact Assessment then assumes funding is frozen at £2.592bn for the remainder of the five-year time horizon, although no decisions on funding beyond 2017/18 have been taken as yet.

Do nothing

31. The status quo would remain; community pharmacy funding would remain at **£2.8bn pa** for a five year period and the other changes included in the package would not be made.
32. To the extent that this funding is greater than the amount required to provide the current level of service, this option would perpetuate an inefficient level of spending on community pharmacy. Patients would continue to be deprived of the benefits they would gain from treatments and services that could be provided elsewhere in the NHS if this funding was allocated to some other use and none of the improvements within the package would be realised.

Option 1: Reduce community pharmacy funding by £208m per annum by 2017/18 and simplify the payment system

33. Under this option, total community pharmacy funding would be reduced from £2.8bn pa, by £113m in 2016/17 and a further £95m in 2017/18, to give a final annual saving of **£208m**.
34. The reduction would be achieved with a combination of fee changes:
- Reducing the establishment payment in 2016/17 by 20% from December 2016 and 40% from April 2017, and then freezing it at this level for the subsequent 3 years³.
 - Merging the following item fees into a single activity fee, which will then be reduced to deliver the remaining savings to achieve an overall funding reduction:
 - Dispensing fee
 - Practice payment
 - Repeat dispensing payment
 - Monthly EPS allowance
35. In addition, a quality payment scheme will be introduced from April 2017 of £75m to cover the 2017/18 financial year. This is funded from the overall funding envelope, and will comprise of a set of quality criteria, for which eligible pharmacies will receive funding depending on how many they meet. We have assumed all pharmacies qualify for all criteria in this IA.

³ The policy intention is to phase out the establishment payment over time. The amount in future years will be the subject of future negotiations with the sector, but for the purposes of this impact assessment we have held it flat beyond 2017/18.

Option 2: Reduce community pharmacy funding by £208m per annum by 2017/18, simplify the payment system and introduce a Pharmacy Access Scheme

36. This option entails the same overall changes as option 1, i.e. total community pharmacy funding would be reduced from £2.8bn pa, by £113m in 2016/17 and a further £95m in 2017/18, to give a final annual saving of **£208m**, but with a scheme to protect patient access to community pharmacy services.
37. A PhAS would be introduced that protects pharmacies that are 1 mile from another pharmacy while excluding high-activity pharmacies, whose viability is unlikely to be affected by the reduction in pharmacy funding. Qualifying community pharmacies would receive additional funding in comparison to other community pharmacies that do not qualify.
38. Overall, the Pharmacy Access Scheme would have the effect of directing additional funds to geographically important community pharmacies with low or average levels of activity – which are the most significant in terms of the potential impacts of funding changes on patient access. The PhAS has been designed to protect areas that may be at risk of reduced access. It takes isolation and need levels into account; this is done by cross checking information held on needs and isolation of populations against the pharmacies included in the scheme. To ensure that no area is adversely affected, a review of eligibility will be granted for pharmacies that may have narrowly missed out on the scheme through the distance criteria, and are in areas of high deprivation but are critical to patient access.
39. The increase in cost resulting from making payments to community pharmacies qualifying for the Pharmacy Access Scheme would be funded by a reduction in remuneration for other community pharmacies.

Evaluation of costs and benefits

Narrative summary of impacts

40. Reducing community pharmacy funding will generate **NHS cost savings of £113m in 2016/17 and £208m per annum from 2017/18**. These reductions will be put in place from December 2016, thus over a 16 month period between December 2016 and March 2018, £321m will be released from pharmacy funding from a total spend of £3.7bn over the period. These savings will be used by the NHS to provide additional treatments and services, resulting ultimately in health benefits for patients.
41. It is not the Government's intention to reduce the number of community pharmacies. However, we cannot know for certain how the market will react, and we recognise the potential for some pharmacies to take the decision to close as a result of the changes. We cannot estimate this as we do not hold individual pharmacy level data and cannot know the business decisions pharmacies will take. However, we have provided illustrative scenarios for the purposes of this Impact Assessment to demonstrate what the impact on patient travel times would be if some pharmacies did close, including a scenario where no pharmacy closes. It is considered that a reduction in the number of community pharmacies would not lead to negative health impacts for patients – we test the sensitivity of this assumption later in this document.

42. Options 1 and 2 entail substantially the same impacts. However, the inclusion of the PhAS at Option 2 is expected to result in less increase in travel time for patients, in the case that there were any closures.
43. The quality payment scheme is expected to maintain or increase the quality of services provided by community pharmacies – although this potential benefit has not been explicitly estimated.

NHS cost savings

44. Both options entail NHS cost savings of **£208m per annum** by 2017/18. This section explains how the ultimate impact of these cost savings is calculated and valued.
45. Because the NHS budget is used fully, cost savings generated by these (or any other) measures will be put to some alternative use in the NHS – rather than being returned to central Government funds. These uses may include any of the range of treatments and services the NHS provides, and which could be provided in greater numbers, or with lower waiting times, or at higher levels of quality if greater funds were available. The ultimate result of generating cost savings is therefore the increased health benefits for patients resulting from the use of these funds to provide additional or improved treatments and services in the NHS.
46. The standard unit for measuring health benefits is the Quality-Adjusted Life Year (QALY⁴). While it is not possible to know the specific use to which any individual amount of additional funding provided to the NHS will be put, evidence is available of the average number of QALYs expected to be gained for any given amount of additional NHS funding – by whatever means these gains are achieved. This evidence is expressed as an estimate of the cost per QALY gained “at the margin” in the NHS of **£15,000**. In other words, the best available evidence indicates that additional health benefits of 1 QALY are generated for every £15,000 of additional funding provided to the NHS⁵. The cost savings of **£208m pa** are therefore expected to lead to the provision of an additional **13,867 QALYs pa** by 2017/18.
47. It is important to note that, even though the proposed reductions in community pharmacy spending occur within the context of a target of £22bn pa of efficiency savings across the NHS as a whole, the funds released will be used for some other use in the NHS, and will not simply “cancel out” some part of this target of savings. As long as the cost savings are not taken from the NHS budget, they will be put to some alternative use – and the estimate of health benefits explained above will apply.
48. Standard IA methodology entails monetising impacts in order to represent their value to society. It is important to note that the value society puts on a QALY is not necessarily the same as the cost at which the NHS can generate additional QALYs.
49. DH estimates that society values a QALY at **£60,000**. The corresponding social value of benefits from NHS cost savings in both options is **£832m pa**. The present value of these benefits over the five year period evaluated is **£3,609 m**.
50. A reduction in funding for community pharmacies entails a reduction in the income of pharmacy owners and employees, and may be expected to lead to reductions in the employment of pharmacists, pharmacy technicians and other pharmacy staff, as well as

⁴ A unit of health which combines length and quality of life in a single measure

⁵ See Annex for further explanation of the cost per QALY at the margin in the NHS, and the social value of a QALY

other effects described later in this document. However, because the savings made from community pharmacy funding will be spent elsewhere in the NHS, there will be a corresponding increase in income and employment for other NHS employees and suppliers. The standard assumption is therefore that there is no net effect on income of suppliers to the NHS overall.

Increase in travel times for patients

Reduction in community pharmacy numbers

51. Reducing income would mean that community pharmacies must reduce their costs, change their business model or accept reduced profits, and in some circumstances this could mean pharmacies become economically unviable. There is no reliable way of estimating the number of pharmacies that may close as a result of this policy, and the potential impacts in this IA are assessed on the basis that there is a scenario where no pharmacy closes. The reasons behind the difficulty in assessing the number of closures are outlined below.
52. There are a number of business models within the community pharmacy sector, and reductions in NHS funding would impact differently on different community pharmacies depending on a range of factors, such as:
 - the type of company the community pharmacy is part of (e.g. independent, chain or multiple)⁶;
 - the volume of NHS prescriptions it dispenses;
 - the pharmacy's business model (e.g. whether it has a large retail arm or is predominantly focused on delivering services commissioned by NHS England, CCGs and/or local authorities) and its level of income from other sources - this could be both from retail and other private streams, but also from being commissioned to provide services with funding from other sources;
 - the costs of the debt used to purchase an NHS community pharmacy and other overheads, such as lease costs;
 - the way the business is financed.
53. Overall, community pharmacies would see a cut of 4.0% on average in remuneration in 2016/17⁷ and 7.4% in 2017/18 compared to 2015/16. For community pharmacies that do not qualify for the Pharmacy Access Scheme (PhAS), this reduction is equivalent to 4.6% on average in remuneration in 2016/17⁸ and 8.3% in 2017/18. These numbers assume that all community pharmacies receive an equal share of the quality payment.
54. It is difficult to predict precisely the impact of these proposals on the viability of community pharmacies and, therefore, which - if any - might close as a result of the cut in funding. Our indicative analysis suggests community pharmacies run a 15% operating margin⁹, that is, the margin before tax and interest is charged. This analysis uses the limited data available. We have matched with our payments data with Companies House data for 80 chains and multiples. This data and analysis may not be representative of the full population of pharmacies. Nevertheless, a funding reduction of 12% in 16/17, could mean that some

⁶ Independent pharmacies here are businesses with one pharmacy only; 'chains' are businesses with 2-20 pharmacies, and 'multiples' are businesses with more than 20 pharmacies.

⁷ Equivalent to 12.1% in the last 4 months of 2016/17

⁸ Equivalent to 13.8% in the last 4 months of 2016/17

⁹ Analysis conducted by DH using Companies House data, 2015

community pharmacies would be at risk of closure, without adapting their business. In a scenario where closures did occur, independent (typically micro business) and chain pharmacies could be at higher risk of closure, but even multiples may choose to close community pharmacies that do not bring in significant footfall.¹⁰ As stated above though, there is no reliable way of estimating closures, and the potential impacts in this IA are assessed on the basis that there is a scenario where no pharmacy closes.

55. Moreover, it is not clear, if the viability of an individual business is threatened, whether these businesses will close or simply be taken over by other owners on the basis that they can be run more efficiently and remain viable business propositions. For example, a current pharmacy may become unviable because it is unable to meet the quality criteria in order to benefit from payments from the Quality Scheme. Another owner may be able to run the business in such a way so as to benefit from those payments, and/or simply run the business more efficiently.
56. Finally, there is an important interdependency in that, if a pharmacy closes, it is likely that the prescriptions that were dispensed by that pharmacy would be redistributed to pharmacies located nearby. Therefore pharmacy closures, if any were to occur and as is currently the case, would have an immediate positive impact on the viability of remaining pharmacies.
57. For these reasons, it is impossible to provide any robust estimate of the number of pharmacy closures that may result. However, **hypothetical closure scenarios** are examined in the sensitivities section below to illustrate the scale of the impact on patient travel times, were pharmacies to close.

Effect of reduced community pharmacy numbers on patient travel times

58. As noted above, there is no basis for a robust estimate of the potential number of closures. Instead, for the benefit of transparency, we have developed a ready reckoner which shows what the impact would be on patient travel times if 100 pharmacies were to close. This is purely illustrative, and is not indicative of what we believe may actually happen.
59. The potential impact on travel times has been estimated by using geographical data on population density and community pharmacy locations to calculate average journey times to the nearest community pharmacy across the population of England; and the effect of reduced community pharmacy numbers on those journey times.
60. A reduction in community pharmacy numbers would be likely to mean that some patients have further to travel to access community pharmacy services, however our analysis shows that for hypothetical closure scenarios the increase is very small.

Geographic representation of patients and pharmacies and calculation of the average journey time

61. Journeys are represented by considering the routes between 'origin points' which represent the locations of patients, and 'destination points' which represent the locations of pharmacies.
 - Origin points are derived from 'Output Areas' - the smallest geographical unit for which population information is available. The population of each Output Area is taken from the 2011 census. The locations of each Output Area are taken as the centre of population density (or 'centroid').

¹⁰ For the purposes of our analysis we consider Independents to be single pharmacies; Chains to be a group of between 2 – 20 pharmacies; and Multiples to be a group of 20 pharmacies and above.

- Destination points are the postcodes and first line addresses of the 11,448¹¹ pharmacies in England as of 1 September 2016, validated by the NHS Business Services Authority and NHS England. We exclude distance selling pharmacies from our calculations. This is because patients do not travel to distance selling pharmacies to collect their prescriptions.
62. GIS mapping software is used to represent the geographical locations of each origin point and destination point. Journey times to nearest community pharmacies are calculated assuming using average walking speed of 3 miles per hour, based on walking via road routes.
 63. Using this approach, the average journey time to the nearest community pharmacy for patients in England, based on the current number and distribution of pharmacies, is estimated to be **12.82 minutes**. It is acknowledged that not all patients go to their nearest community pharmacy to get their prescription dispensed – some may go to a community pharmacy *en route* to work or near their workplace. However, this approach allows baseline provision across geographies to be protected so that if some patients need to get to a community pharmacy near their place of residence, there is one available.

Modelling the impact of reduced community pharmacy numbers – OPTION 1

64. To simulate the hypothetical scenario of pharmacy closures, 100 community pharmacies are randomly removed from the set of destination points, and the average journey time is recalculated assuming that individuals whose nearest community pharmacy has closed will instead use the second nearest.
65. Multiple simulations are carried out, removing different random samples of community pharmacies, to give a representative estimate of the impact on average journey times.
66. The average journey time after removal of **100 pharmacies** at random was estimated at **12.87 minutes**, an increase of **0.05 minutes per journey**. If 200 pharmacies were to close, then we would expect the impact to 0.10 minutes per journey, and so on. This is very small because of the comprehensive provision of community pharmacies in England.

Modelling the impact of reduced community pharmacy numbers – OPTION 2

67. Option 2 entails the same overall changes as option 1, but with a scheme to protect patient access to community pharmacy services. Pharmacies that are the most critical for access will qualify for the Pharmacy Access Scheme (PhAS), under which they will receive additional funding, relative to those which are less geographically important for patient access and which do not qualify for the scheme.
68. It is assumed that pharmacies qualifying for the PhAS will not close as a result of the proposed change in funding – as their level of funding will be at similar levels to the funding they received in 2015/16 (less a 1% efficiency from December 2016 and a 3% efficiency from April 2017). To model the impact of option 2, community pharmacies expected to qualify for the PhAS are therefore excluded from the pool used to model closures. Selections are made at random from the remaining, non-PhAS set of community pharmacies, and the average journey time is recalculated, as for option 1.
69. The average journey time after removal of 100 community pharmacies at random from the pool excluding those expected to qualify for PhAS was estimated at **12.86 minutes**, an increase of **0.04 minutes per journey**. As expected, excluding geographically important community pharmacies by using the PhAS resulted in a lower overall impact on journey

¹¹ This excludes distance-selling pharmacies.

times. This shows that the hypothetical impact on travel times caused by closures is mitigated through the PhAS.

70. It is worth noting however that the necessary random closure approach adopted may overstate the impact. Other things equal, we would expect small pharmacies that are part of large clusters to be more likely to close, which in turn would have less of an impact on travel times for patients as they will access in another pharmacy in the cluster. Also, the modelling does not take any account of potential reduction in opening hours which may also affect access.

Average travel times to nearest community pharmacy (for indicative 100 pharmacy closures) under options 1 and 2:

Options	Travel time (minutes)
Average travel time to nearest pharmacy for ‘do nothing’	12.82
Average travel time to nearest pharmacy for Option 1	12.87
Travel time Impact for Option 1	0.05
Average travel time to nearest pharmacy for Option 2	12.86
Travel time Impact for Option 2	0.04

Monetising increases in travel time

71. The total increase in travel time as a result of the measures was calculated by multiplying the impact on travel time per journey by the number of prescription forms issued in England per annum.¹² Each prescription form may include multiple prescription items. The number of prescription forms issued is therefore assumed to represent the number of journeys to a community pharmacy per annum.
72. Between December 2016 and March 2018 there will be an estimated **678m** prescription forms issued¹³. Under option 1, an increase in travel time of **0.05 minutes per journey** is therefore estimated to correspond to a total increase in travel time of **35m** minutes across the whole population as a result a closure of 100 pharmacies.
73. The economic value to patients of this increase in journey length was calculated using standard Government estimates of the value of time¹⁴. Taking the “other” time estimate for 2010 and non-working time journeys, and uprating using appropriate GDP deflators gives an estimate for the value of time of **£7.47 per hour**, or **£0.12 per minute**.
74. Applying this value to the increase in journey time gives a monetised value for additional travel costs of **£4.4m** for 100 pharmacy closures for **Option 1** and **£3.2m** for **Option 2**, between December 2016 and March 2018.
75. Monetary values for impacts for both options over the period of analysis are shown below.

¹² In practice, patients will have to travel to their pharmacy and back home. This would mean multiplying the travel time estimate by two. However, in reality we would not expect this number of additional journeys, and so have assumed half (by not multiplying by two). This is because patients may of course do other things while they are collecting their prescription. We also expect there to be far fewer journeys than one per prescription. There are also significant number of older patients who will have their prescriptions delivered to care homes – this demographic will be on the largest number of prescriptions. All these variables and others mean we have to adopt a compromise approach and one journey per one prescription is a reasonable compromise in all the circumstances.

¹³ This may change with better estimation techniques – currently it is based on 2015/16 number of prescription forms (BSA), with 2% annual growth

¹⁴ The WebTAG data book: <https://www.gov.uk/government/publications/webtag-tag-data-book-december-2015>

Option 1	Dec 16 - March 18	2017/18	2018/19	2019/20
Additional travel time impact per prescription per 100 closures (min.)	0.05	0.05	0.05	0.05
Number of prescriptions forms	677,622,941	520,935,154	531,353,857	541,980,934
-> Additional travel time per 100 closures, min.	35,384,636	27,202,592	27,746,644	28,301,577
Value of time, £ per min.	0.12	0.12	0.12	0.12
-> Additional travel costs per 100 pharmacies closing, £	4,404,918	3,386,362	3,454,090	3,523,171

Option 2	Dec 16 - March 18	2017/18	2018/19	2019/20
Additional travel time impact, per prescription per 100 closures (min.)	0.04	0.04	0.04	0.04
Number of prescriptions forms pa	677,622,941	520,935,154	531,353,857	541,980,934
-> Additional travel time per 100 closures, min.	26,085,746	20,053,899	20,454,977	20,864,076
Value of time, £ per min.	0.12	0.12	0.12	0.12
-> Additional travel costs per 100 pharmacies closing, £	3,247,330	2,496,445	2,546,374	2,597,301

76. As expected, the costs of option 2 from increased patient travel time are less than those of option 1.
77. As noted above, we cannot robustly estimate the number of potential pharmacy closures. However, to get a sense of the scale of the impact of closures on patient travel times were closures to occur, we consider two hypothetical closure scenarios for the purposes of this IA. These are illustrative only.
78. No pharmacies close (low scenario)
79. 1,000 pharmacy close (high scenario)
80. For a scenario of 0 closures, there are obviously no additional travel time costs to patients. In an illustrative upper bound scenario where there are 1,000 closures, the **additional travel costs to patients** would be **£44m for Option 1** and **£32m for Option 2** between December 2016 and March 2018.

Effect on patient health

81. Even if there were closures as a result of the funding reductions, it is not considered that this would lead to any significant impacts on patient health.
82. The major health impact of community pharmacies is in enabling patients to receive the medicines they are prescribed. It is considered highly unlikely that any patients will be unable to receive their medicines, although for the sake of completeness, there is a scenario that needs to be considered where, of the ~1bn items prescribed each year, some small number might not be dispensed as a result of the measures. Based on the ready reckoner approach of community pharmacy closures, the potential increase in journey times are relatively minor, and patients will have a number of means of ensuring they receive the medicines they need. For example, distance-selling pharmacies deliver straight

to patients' homes, which could be an option if a patient's travel time to their nearest pharmacy increases beyond a level they are prepared to travel (although given the scale of potential increases we think this is unlikely). As such, any consequent health effects are considered to be insignificant. This assumption is particularly likely to hold for option 2, where active steps are taken to minimise impacts on journey times by ensuring the most geographically important pharmacies receive additional funding.

83. The possibility of negative effects on health, and the magnitudes of health losses required to offset the health gains through cost savings (from reallocation of those savings to other NHS service), are considered in more detail below ("Sensitivities, risks and assumptions").

Other possible effects of community pharmacy closures

Impacts on quality or services offered by pharmacies

84. We must consider whether funding reductions could have an impact on the quality or services offered by community pharmacies – the possibility of this is assessed in this section. Respondents to the consultation stated that, to mitigate the funding reductions, community pharmacies could choose to open only for their 'core' hours, or to withdraw non-NHS services, such as home delivery. Pharmacies will need to ensure they are complying with any duties under the Equality Act 2010 when performing public functions. This could include the pharmacy considering whether it is appropriate to offer – for example – the delivery of prescriptions to housebound patients and the use of medicines dosage systems to aid patients with the taking of regular medication. Even following the funding reduction, pharmacies will still need to compete to secure prescription volume; and so the competitive incentive to provide these services remains.
85. Related to this, the PSNC has commissioned a report on 'The Value of Community Pharmacy' from external consultants. This report evaluated 12 services that community pharmacy currently provides. This includes essential, advanced and locally commissioned services, as well as other non-commissioned services. Our Impact Assessment only covers the overall impact on essential and advanced services commissioned via the CPCF. However, in Annex B we consider the evaluation of a subset of services which fall under the CPCF carried out in the aforementioned report, noting that the scope and framework of analysis are not directly comparable.

Impacts on other parts of the NHS

86. As well as the formal services they provide, community pharmacies may also be used by patients as a source of health information and advice. Respondents to the consultation stated that reductions in the numbers of community pharmacies could lead some patients to seek health advice from GPs, other primary care providers, or acute services, thereby imposing additional costs on the NHS.
87. However, even if there were closures, the magnitudes of impact on travel time are not considered sufficient to materially deter any significant number of patients from seeking this guidance from a community pharmacy. Those patients who would previously have found it most convenient to get such information from a community pharmacy are considered unlikely to change their decision and seek a different route of access to medical care, even if in some cases there are small increases in travel time. To the extent that patients seek such advice in the context of some other engagement with community pharmacy, such as collection of a prescription, the measures will presumably have no effect – as patients will still engage with community pharmacies for these services to the same extent, allowing for the possibility of some impact on opening hours. Finally, the measures in option 2 to reduce the impact on geographically isolated community pharmacies are

expected to further reduce the likelihood of any increased costs on other NHS primary care providers.

88. In addition, the overall package of measures contains steps to decrease pressure on other parts of the NHS, by embedding pharmacy into the urgent care pathway through an expansion of the services already provided by community pharmacies in England for those who need urgent repeat prescriptions and treatment for urgent minor ailments and common conditions

Impacts on local communities and commerce

89. Beyond their direct benefits in providing NHS pharmacy services to patients, community pharmacies may play a less tangible role in promoting welfare and social cohesion in local communities, and in supporting local commercial areas.
90. Any impacts of the measures on these beneficial effects of community pharmacies cannot be quantified – though they are not considered to be significant relative to the direct effects of the measures on NHS costs and patient travel time. In particular it is important to note that the preferred option (2) entails measures to ensure that isolated pharmacies receive greater funding than more closely positioned pharmacies– further reducing the likelihood that any closures would have significant impacts on local communities because there would ordinarily be at least one remaining pharmacy in the vicinity.

Impacts on carbon emissions

91. As there is a potential for additional miles travelled if pharmacies were to close, we estimate the hypothetical impact on carbon emissions in CO2 Tonnes and the monetised costs of these emissions.
92. The table below shows that there would be an increase of 3,152 CO2 Tonnes in emissions in the hypothetical case of 1,000 closures assuming 64% of all journeys are made using cars (National Travel Survey, 2014). The monetised value of these additional emissions would be £180,654.

	Value
England Total car miles^[1]	219,000,000,000
England Total CO2 Tonnes^[2]	82,907,000
England CO2 Tonnes emission/miles^[3]	0.00038
£ per Tonne of CO2	57
CO2 Tonnes per mile travelled in England, £	0.02
Additional miles travelled between Dec 2016 and March 2018 for 1,000 closures	13,010,360
% of journeys in England made by car¹⁵	64%
Additional CO2 Tonnes emissions, £	3,152
£ per Tonne of CO2	180,654

[1] Road Traffic Forecasts, Department for Transport, 2015: <https://www.gov.uk/government/publications/road-traffic-forecasts-2015>

[2] Road Traffic Forecasts, Department for Transport, 2015: <https://www.gov.uk/government/publications/road-traffic-forecasts-2015>

[3] The monetary value of carbon - WebTaG data book in tab A3.4: <https://www.gov.uk/government/publications/webtag-tag-data-book-december-2015>

15National Travel Survey, Department for Transport, 2014: <https://www.gov.uk/government/statistics/national-travel-survey-2014>

Net impacts

93. The key drivers to this impact are a) the savings to the NHS (i.e. the associated health benefit of the use to which those funds can be put), and b) the increase in travel time were pharmacies to close. As noted above, we cannot estimate the number of pharmacy closures. However, we consider 2 hypothetical scenarios for closures in order to arrive at a net impact:
94. No pharmacies close (low scenario)
95. 1,000 pharmacy close (high scenario)
96. We have considered a low and high estimate simply to illustrate the influence of closures on patient travel time. In the situation where there no closures, the total benefits and net benefits are the same, as there are no travel time costs to patients. The **NPV of the net benefits** in this scenario is **£3,645m** for both Option 1 and Option 2.
97. For a scenario with 1,000 closures the **NPV of net benefits** for **Option 1** are **£3,510m** and for **Option 2** are **£3,546m**. For full calculations and impacts see summary table on page 23 below.

Sensitivities, risks and assumptions

98. The main uncertainties in respect of the reduction in funding relate to the effects on patient travel time to access community pharmacy services, and the consequent impacts.

Impacts on travel costs

99. While we cannot robustly predict the number of potential closures, the ready reckoner presented above based on the travel time cost for 100 closures can be converted into an impact on the NPV, where each 100 pharmacy closures reduces the NPV of the proposals by **£11.2m**.

Impacts on patient health

100. The assumption that patient health will be unaffected is important. A substantial negative effect on health could lead to impacts that would offset the benefits of NHS savings. This section provides sensitivity analysis to understand the likelihood that any health losses due to any reduction in community pharmacy numbers could offset the health gains from cost savings.
101. We test the sensitivity using a ready reckoner approach for the health impact to patients. To do this, we assess the health lost (in QALYs) if some proportion of prescriptions were permanently foregone by patients (i.e. not collected). Below, we use an illustrative scenario to calculate the health lost if additional travel time acted as a deterrent for some proportion of patients who would have to travel more than an additional 20 minutes were their pharmacy to close. In this scenario we assume that no PhAS pharmacies would close, so populations served by PhAS pharmacies are not included.
102. There are only 878 pharmacies which serve a population that faces an additional travel time of greater than 20 minutes to the next nearest pharmacy. This group of 878 pharmacies will dispense an estimated total of 121 million prescription forms between December 2016 and March 2018.

103. The table below calculates the QALYs lost if **1% of prescriptions** were not collected for patients who face an additional travel time of 20 minutes if their nearest pharmacy closed. If 1 % of these prescriptions were not collected, there would be a **loss of 2,384 QALYs**. This should be compared against the QALYs gained elsewhere in the NHS from the savings generated from the funding reductions (21,400 QALYs). It should be noted that 1% is only an illustrative number to allow for scaling up or down the health impacts to patients if prescriptions were not collected if potential additional travel time served as a deterrent to patients collecting their prescriptions.

	Dec 2016 - Mar 2018
Cost of drug and service	13,333,333,333
Cost per QALY^[1]	10,000
Total QALYs	1,333,333
Prescription forms	677,622,941
QALY per form	0.00197
Number of prescription forms for patients affected add time >=20min	121,169,688
QALYs lost if 1% of these prescriptions are not collected	2,384
QALYs gained elsewhere in the NHS^[2]	21,400

Use of alternative methodology for calculating benefits

104. The analysis above uses standard DH IA practice to monetise the ultimate impacts of the proposed measure, and express them in terms of their social value, as specified in the HMT Green Book guidance on conducting policy evaluation. This entails calculating the number of QALYs expected to be provided elsewhere in the NHS as a result of the savings realised from the proposals, using the £15,000 estimate of the cost at which additional QALYs are generated in the NHS, and then monetising these QALYs at their estimated social value of £60,000.
105. If, instead of monetising QALY gains at their estimated social value, they are monetised at their cost of generation at the margin in the NHS (or, equivalently, benefits they are simply equated to the magnitude of NHS cost savings), the corresponding figures for benefits would be: **£208m pa**, with a PV of **£911m**. The NPV of options 1 and 2 would be **£775m** and **£812m** respectively. The realisation of a net benefit in the calculations presented therefore does not depend on a difference between the cost of producing QALYs at the margin in the NHS, and the social value of a QALY.

^[1] This is an illustrative figure based loosely on assumptions regarding the cost per QALY of branded medicines (£25k) and generic medicines (£5k) per QALY.

^[2] This is calculated in the summary table on page 21

Summary of Calculations¹

Option 1		<i>Dec 16 - Mar 18</i>				
<i>Year:</i>		<i>2018/19</i>	<i>2019/20</i>	<i>2020/21</i>	<i>-> NPV</i>	
Cost saving effects	Cost savings, £	321,000,000	208,000,000	208,000,000	208,000,000	
	-> QALYs gained in NHS (@£15,000 / QALY)	21,400	13,867	13,867	13,867	
	-> Value of QALYs gained (@£60,000 / QALY), £	1,284,000,000	832,000,000	832,000,000	832,000,000	3,645,905,623
Travel time effects	Travel time impact, min. per prescription	0.52	0.52	0.52	0.52	
	Number of prescriptions forms pa	677,622,941	520,935,154	531,353,857	541,980,934	
	-> Additional travel time, min.	353,846,358	272,025,924	277,466,443	283,015,772	
	Value of time, £ per min.	0.12	0.12	0.12	0.12	
	-> Additional travel costs, £	44,049,182	33,863,623	34,540,895	35,231,713	135,542,712
Aggregate effects	Total costs, £ (travel time effects)	44,049,182	33,863,623	34,540,895	35,231,713	135,542,712
	Total benefits, £ (cost saving effects)	1,284,000,000	832,000,000	832,000,000	832,000,000	3,645,905,623
	-> Net benefit, £	1,239,950,818	798,136,377	797,459,105	796,768,287	3,510,362,911

Option 2		<i>Dec 16 - Mar 18</i>				
<i>Year:</i>		<i>2018/19</i>	<i>2019/20</i>	<i>2020/21</i>	<i>-> NPV</i>	
Cost saving effects	Cost savings, £	321,000,000	208,000,000	208,000,000	208,000,000	
	-> QALYs gained in NHS (@£15,000 / QALY)	21,400	13,867	13,867	13,867	
	-> Value of QALYs gained (@£60,000 / QALY), £	1,284,000,000	832,000,000	832,000,000	832,000,000	3,645,905,623
Travel time effects	Travel time impact, min. per prescription	0.38	0.38	0.38	0.38	
	Number of prescriptions forms pa	677,622,941	520,935,154	531,353,857	541,980,934	
	-> Additional travel time, min.	260,857,458	200,538,989	204,549,769	208,640,765	
	Value of time, £ per min.	0.12	0.12	0.12	0.12	
	-> Additional travel costs, £	32,473,297	24,964,447	25,463,736	25,973,011	99,922,825
Aggregate effects	Total costs, £ (travel time effects)	32,473,297	24,964,447	25,463,736	25,973,011	99,922,825
	Total benefits, £ (cost saving effects)	1,284,000,000	832,000,000	832,000,000	832,000,000	3,645,905,623
	-> Net benefit, £	1,251,526,703	807,035,553	806,536,264	806,026,989	3,545,982,798

¹ Note that this table shows the travel time impact for patients for a hypothetical 1,000 pharmacy closure scenario

Annex A - Estimates of the NHS cost of providing an additional QALY, and society's valuation of a QALY

106. This Annex defines and describes two distinct, but related concepts:
- i) The cost per QALY provided “at the margin” in the NHS;
 - ii) The societal value of a QALY.
107. It then provides an illustrative example of how these two figures are used in DH Impact Assessments.

The cost per QALY “at the margin” in the NHS (£15,000)

108. The NHS budget is limited, in any given time period. This means that there are potential activities, or beneficial uses of funds, which would generate QALYs but which cannot be undertaken because the budget is fully employed. If additional funds were given to the NHS, additional QALYs would be generated by funding these activities. Similarly if funds were taken from the NHS, QALYs would be lost - as some activity “at the margin” could no longer be funded and would necessarily be discontinued.
109. The cost per QALY “at the margin” is an expression of how many QALYs are gained (or lost) if funds are added to (or taken from) the NHS budget. It has been estimated by a team led by York University, and funded by the Medical Research Council, to be £12,981¹. Expressed in £2016, and adjusted to give an appropriate level of precision, DH interprets this estimate as a cost per QALY at the margin of **£15,000**.
110. This implies that every £15,000 re-allocated from some other use in the NHS is estimated to correspond with a loss of 1 QALY. Conversely, any policy which releases cost savings would be deemed to provide 1 QALY for every £15,000 of savings released.

The social value of a QALY (£60,000)

111. Society values health, as individuals would prefer to be healthy and to avoid death. This value can be expressed as a monetary “willingness to pay” for a QALY – the unit of health.
112. The value society places on a QALY is also, in principle, a matter of empirical fact that may be observed. DH currently estimates this value to be **£60,000**, based on analysis by the Department for Transport of individuals’ willingness to pay to avoid mortality risks².
113. Note that the estimated social value of a QALY significantly exceeds the estimated cost of providing a QALY at the margin in the NHS. This implies that the value to society of NHS spending, at the margin, significantly exceeds its cost. Adding £15,000 to the NHS budget would provide 1 QALY, valued at £60,000, according to these estimates.

¹ See <http://www.york.ac.uk/che/research/teenta/thresholds/> and links therein

² See p23 in <https://www.gov.uk/government/publications/quantifying-health-impacts-of-government-policy>

Example Impact Assessment calculation

114. Suppose a project costs **£15m** – and these costs fall on the NHS budget. It is expected to generate health gains to patients amounting to **1,200 QALYs**.
115. The costs and benefits, and the overall net benefit of the project would be calculated as follows:
- The costs of the project are the QALYs that would be gained if the funds were used elsewhere in the NHS, but which are foregone if the project is undertaken. Using the standard DH estimate that one QALY is gained elsewhere for every £15,000 of funding, this gives an ‘opportunity’ cost of **1,000 QALYs lost**. Monetising these costs at the DH estimate of the social value of a QALY gives a monetary equivalent of **£60m**.
 - The benefits of the project are simply the QALYs gained – that is **1,200 QALYs gained**. Monetising these costs using the DH estimate of the social value of a QALY gives a monetary equivalent of **£72m**.
 - The net benefit of the project is therefore **200 QALYs**, or, expressed in monetary terms **£12m**.
116. In principle, costs and benefits in the above example can be expressed either in QALYs or in £, and give the same (correct) result. However many projects have other impacts besides NHS costs and QALYs, and it is important to be able to express all the impacts in the same currency. For example, a project might generate cost savings to business, which are denominated in £s.
117. This is why normal DH practice is to convert all ultimate impacts into £, as recommended in the HMT Green Book. For costs falling on the NHS budget this means converting them first in to QALYs (at £15,000 / QALY), and then monetising them (at £60,000 / QALY).
118. Note that the effect of this conversion is to multiply the NHS costs by 4, in order to give their true £ value. Another way to view this conversion is to say a project will have to provide monetary gains worth at least 4x the direct NHS costs in order to provide a net benefit.

Annex B - Report commissioned by Pharmaceutical Services Negotiating Committee (PSNC) evaluating some pharmacy services – ‘The Value of Community Pharmacy’

119. ‘The Value of Community Pharmacy’ is a report commissioned by the PSNC to evaluate the net social value generated by a set of 12 services provided by community pharmacy. Some of these services are locally commissioned and some are other ‘non-commissioned’ services that pharmacies provide. To make a direct comparison with the services that we are concerned with in our Impact Assessment, we have extracted 6 services evaluated in the report that are explicitly commissioned under the CPCF essential and advanced services. These are noted below:
- Non-commissioned minor ailments service
 - Managing errors/clarifying prescriptions
 - Medicines adjustments
 - Managing drug shortages
 - Medicines Use Reviews (MURs)
 - New Medicines Service (NMS)

120. Note that the medicines adjustments service is only partially covered by CPCF essential services as only those people eligible under the Equality Act 2010 are covered.
121. The framework of analysis in ‘The Value of Community Pharmacy’ constructs a counterfactual scenario for each service, if community pharmacy did not provide the service. It is assumed that the service would be provided elsewhere in the health system at the same quality. The report uses this framework to then estimate the value provided by community pharmacy by assessing the difference between the impacts under this scenario and those under the current provision of community pharmacy. The cost of providing the service under the NHS CPCF is netted off. Note that the report states that it cannot evaluate MURs due to lack of information available.
122. Data for this analysis was collected over a short time window, where not already available. The survey received a low response rate - 13% of all pharmacies completed the survey and the sample is not reflective of the total population³. A summary of the results for the 6 services in scope of CPCF essential and advanced services is given below:

Table B1: Summary evaluation of 6 services for which the cost is (in part) covered by the CPCF

Services	Essential	NHS CPCF cost (£m)	Net value to NHS, patients and society (£m)	Advanced	NHS CPCF cost (£m)	Net value to NHS, patients and society (£m)
Non-commissioned minor ailments service	✓	21.8 ⁴	1,143.5 ⁵			
Managing prescribing errors/clarifying prescriptions	✓	10.3 ⁶	552.6 ⁷			
Medicines adjustments ⁸	✓	66.6 ⁹	138.0 ¹⁰			
Managing drug shortages	✓	19.2 ¹¹	92.4 ¹²			
Medicines use reviews				✓	Not evaluated	Not evaluated
New medicines service				✓	20.24 ¹³	17.3 ¹⁴

³ P158, The Value of Community Pharmacy (PSNC/PwC, 2016). With regard to the survey responses, “we can reject the null hypothesis that the distribution of our responses is not significantly different to the population at the 1% level”.

⁴ P78, The Value of Community Pharmacy (PSNC/PwC, 2016)

⁵ P79, The Value of Community Pharmacy (PSNC/PwC, 2016)

⁶ This figure comes from p93 of The Value of Community Pharmacy (PSNC/PwC, 2016) and is calculated as the number of prescribed items requiring pharmacy intervention (1,842,077 – p88) multiplied by the cost per resolution (£5.57 – p93). However, we note that while the 1.84m covers prescription clarification and identifying errors activity, strictly speaking the cost per resolution of £5.57 relates only to prescription clarification.

⁷ This consists of £10.2m from clarifying prescriptions (p96, The Value of Community Pharmacy(PSNC/PwC, 2016)) and £542.4m from addressing prescribing errors.

⁸ This covers Essential Services part of Medicines Adjustment only i.e. this only relates to the funding received for contribution in Practice Payment for the Equality Act (p105, The Value of Community Pharmacy (PSNC/PwC, 2016)

⁹ P105, The Value of Community Pharmacy (PSNC/PwC, 2016)

¹⁰ P105, The Value of Community Pharmacy (PSNC/PwC, 2016)

¹¹ This figure comes from p122 of The Value of Community Pharmacy (PSNC/PwC, 2016), It is calculated as the cost per drug resolution multiplied by the number of resolutions. The cost per resolution is £2.40 (p122) and there are 8m resolutions (p117-118, 5.07+2.93)

¹² P123, The Value of Community Pharmacy (PSNC/PwC, 2016)

¹³ Community Pharmacy fees data, NHS Business Services Authority, 2016

¹⁴ P149, The Value of Community Pharmacy (PSNC/PwC, 2016)

123. Whilst we would flag that, as a point of detail, the assessment of the value of these services does not conform fully to the way the Department conducts assessments of this sort, we acknowledge that it is a valuable piece of work in assessing the value community pharmacy can deliver.

124. In the context of this IA we would note the following

- The counterfactual scenarios are, in the main, that patients access opportunistic fall back services. Alternative counterfactuals exist where services similar to that provided by community pharmacy could be commissioned, albeit these alternative counterfactuals may differ in terms of cost and impact.
- One cannot draw too many conclusions regarding the impact of the proposals dealt with in this IA and the value of these services as evaluated by PwC. What is important is the extent that the proposals put these services at risk. Though we cannot tell how many pharmacies would close, the ready reckoner type analysis above suggests that the impact on patient access would be modest.