Title: Amendments to the Human Medicines Regulations 2012 to widen access to naloxone for use in an emergency **IA No:** 2285 **Lead department or agency:** Department of Health **Other departments or agencies:**	Impact Assessment (IA) **Date:** 10/04/2015 **Stage:** Validation-Stage **Source of intervention:** Domestic **Type of measure:** Secondary legislation **Contact for enquiries:** Department of Health Drugs Team

Summary: Intervention and Options

RPC Opinion: Awaiting Scrutiny

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB in 2009 prices)	**In scope of One-In, Two-Out?**	**Measure qualifies as**
N/A	£99,000	-£8,600	Yes	OUT

What is the problem under consideration? Why is government intervention necessary?

Naloxone is an antidote in cases of overdose from opioids. As it needs to be given by injection, it is a prescription-only medicine, although it can be administered by anyone for the purpose of saving a life. The Advisory Council on the Misuse of Drugs (ACMD), the statutory expert group which advises the Government on drugs issues, recommended that naloxone should be made more widely available. Subsequent to the ACMD report, the World Health Organisation published advice on the community management of opioid overdose which strongly recommended the use of naloxone. The changes will allow organisations and individuals who are likely to be in contact with opiate users to hold naloxone.

What are the policy objectives and the intended effects?

Reducing drug-related deaths is a Government priority and over half of all deaths related to drug poisoning involved an opiate drug, such as heroin. The intended effect of the amendments is to increase the likelihood that naloxone will be available in a timely fashion to reverse opioid overdose, and will ultimately prevent deaths.

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

The following options are under consideration:

Option 0 – Do nothing

Option 1 - Amend the Human Medicines Regulations 2012 to widen access to naloxone for use in an emergency in the UK

Easing the impact of the current regulations can only be achieved by amending the regulations, so no alternative policy options were considered to be suitable.

Will the policy be reviewed? It will not be reviewed. **If applicable, set review date:** N/A

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** No	**< 20** No	**Small** No	**Medium** No	**Large** No
What is the CO_2 equivalent change in greenhouse gas emissions? (Million 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: ***Jane Ellison*** Date: ***1 July 2015***

Summary: Analysis and Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: £0.086	**High: £0.110**	**Best Estimate: £0.099**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A		N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	0		0	**0**

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

This is a removal of regulatory burden, and requires no cost on part of central Government

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

There will be a cost to individual Local Authorities in purchasing naloxone. This is likely to come from public health grants. It is not included as it is beyond the scope of a validation impact assessment.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0		£0.010m	**£0.086m**
High	0		£0.013m	**£0.110m**
Best Estimate	0		£0.011m	**£0.099m**

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

These amendments will open up the market for producers of naloxone kits, thereby increasing the profits of the companies that currently manufacture naloxone and of the companies that distribute these kits. The impacts will be on-going because the naloxone kits have a three year shelf life and will also require replacement following use, loss or damage. A naloxone kit consists of a dose(s) of naloxone and injecting equipment.

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

The validation stage IA is principally concerned with the impact on business. However there will also be benefits in terms of lives saved due to the wider availability of naloxone.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

It is assumed that sales will increase in a similar manner to in Scotland, where regulation has already effectively been removed.

The high and low estimates provided come from sensitivity analysis of different possible replacement rates for naloxone kits.

The risk of misuse of naloxone or an increase in opiate misuse due to the creation of a "safety net" are considered small and are addressed in the final section of this impact assessment.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 0	**Benefits: 0.009m**	**Net: 0.009m**	Yes	OUT

1. The decision to deregulate naloxone has been recognised as applicable for "fast track" status. The economic case is therefore restricted to a consideration of the impact of the proposed policy on private and voluntary/third-sector organisations. While the potential impact on health is noted in passing, because health is 'out of scope' of the economic assessment no attempt is made at quantifying this impact.

2. The Regulatory Policy Committee validated the initial Regulatory Triage Assessment (RTA) by giving it a 'green' rating on 03/12/2014 (reference: RPC14-FT-DH-2285). This document is a validation stage impact assessment; it builds on the RTA by strengthening the evidence supporting the estimated Equivalent Annual Net Cost to Business (EANCB).

Rationale for intervention

3. Reducing drug-related deaths is a Government priority and over half of all deaths related to drug poisoning involved an opiate drug, such as heroin. This equates to 765 deaths involving heroin/morphine in 2013, an increase of 32% from the 579 deaths in 2012 in Engand & Wales.[1]

4. The existing regulatory position (the Human Medicines Regulations 2012) limits the organisations and individuals who can hold naloxone. In addition, injectable medicines such as naloxone can only be administered by, or in accordance with the directions of, independent prescribers such as doctors. Although there is an exemption from these restrictions which allows anyone to administer naloxone for the purpose saving life in an emergency, this does not extend to obtaining stocks of the medicine in advance of the emergency. In practice, this means that naloxone for emergency use is only likely to be available in certain settings such as hospitals or on board ambulances.

5. After considering the available evidence on naloxone, the Advisory Council on the Misuse of Drugs (ACMD), the independent body that advises government on drugs issues, recommend in their May 2012 report, 'Consideration of Naloxone', that making naloxone more widely available would help save lives.[2]

6. Subsequent to the ACMD report, the World Health Organisation published advice on the community management of opioid overdose which strongly recommended that, "people likely to witness an opioid overdose should have access to naloxone and be instructed in its administration to enable them to use it for the emergency management of suspected opioid overdose".[3]

7. The proposed amendments to the current regulations will mean that organisations, such as homeless hostels, and individuals, such as outreach workers, whose client base includes opiate users, will be able to hold naloxone to use to reverse the effects of an opiate overdose in a client.

8. Aside from increasing profits of manufacturers and distributors, it is expected that by increasing the number of services that can buy and stock naloxone, and therefore increasing the number of people who have access to naloxone, lives will be saved.

[1] Deaths Related to Drug Poisoning in England and Wales, 2013, ONS, http://www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/index.html

[2] Consideration of Naloxone, Advisory Council on the Misuse of Drugs, May 2012, https://www.gov.uk/government/publications/naloxone-a-review

[3] Community management of opiate overdose, WHO, 2014, http://www.who.int/substance_abuse/publications/management_opioid_overdose/en/

Description of options considered

9. The following options are under consideration:

   Option 0 - Do nothing

   Option 1 - Amend the Human Medicines Regulations 2012 to widen access to naloxone for use in an emergency in the UK

10. Policies and procedures are already in place for opiate users and those organisations and individuals who predominantly work with opiate users to have access to naloxone, for example, 'take-home' naloxone kits for use by opiate users or their family or carers (with written consent from the user) are already available. But they do not apply to those organisations and individuals whose client base, may include opiate users, but is not predominantly made up of opiate users, e.g. homeless hostels. It is believed that amending the current regulations is the only viable policy option which would allow these organisations and individuals to have access to naloxone.

Estimation of the impact on business

11. The anticipated impact on business is an increase in profits, as a result of the increase in sales that will occur due to more individuals and organisations having access to naloxone. In estimating this it is assumed that there is a given stock of naloxone in circulation, held by various organisations and individuals. This stock needs to be replenished as naloxone is either used to reverse an overdose, is lost or damaged, or reaches its expiry data (it has a shelf life of approximately 3 years). The proposed amendments are expected to cause an increase in this stock from its current level over the first few years before a higher steady-state stock level is reached. After this point sales will consist of the replenishment required to maintain this stock.

Current situation (option 0)

12. To estimate the impact of Option 1 it is necessary to first establish an estimate of the current situation regarding naloxone sales such that the amendments' incremental impact on business can be estimated. Under the existing regulatory position, holders of naloxone stocks can be split into three groups. The first is where naloxone is held for use by anaesthetists to control or reverse the effects of opiate based pain medication, in hospices and palliative care. Secondly, stocks will be held in medical settings such as hospitals and ambulances, for use in reversing opiate overdoses.

13. Thirdly naloxone can be prescribed to, and held by, individual opiate users. Injectable naloxone is a prescription only medicine (POM) and can therefore only be supplied to a person identified as 'at risk' of potential future opiate related overdose. It can be supplied to the family or carersof those identified as at risk, but only with the written consent from the person at risk. Prescriptions can be to a named individual and data shows that, in 2013/14, there were 717 naloxone prescriptions of this kind.[4] However this figure is likely to significantly underestimate the number of naloxone prescriptions as it excludes those from Patient Group Directives (PGDs), where prescriptions are written that allow naloxone to be distributed to individuals with certain characteristics i.e. drug users.

14. Estimating the current level of naloxone distribution in the UK is difficult due to the lack of good data and the wide variation between different Local Authorities (LAs). Birmingham is an example where, since autumn 2012, it has gradually become part of normal routine for training and a take-home naloxone (THN) kit to be provided to everybody coming into contact with drug treatment services in

[4] Data from Health & Social Care Information Centre, Prescribing & Primary Care Services

the city. This has led to 2171 THN kits being dispensed from January 2013 to January 2015.[5] Given the estimated 9,400 opiate users in the city[6] this equates approximately to providing 1 kit per 9 users each year.

15. These figures will be an overestimate if applied to the rest of the UK currently, as most LAs do not have any specific procedures in place for provision of naloxone, with only 1/3 providing THN kits at all.[7] However they are also likely to underestimate the potential levels of provision that could be reached following the proposed amendments, as the distribution is still restricted by the current regulations. Given these issues and the lack of detail in the data it is not considered appropriate to use in estimating the impact of the proposed amendments.

16. Data is also available from Scotland, where a National Naloxone Programme has been in place since 2011.[8] A letter from the Scottish Lord Advocate (the most senior legal official in the country) in March 2011 approved authorised prescribers to supply naloxone to individuals likely to come into contact with those at risk of opiate overdose, without risk of prosecution.[2] This effectively has the same regulatory impact as the proposed amendments considered here. It is therefore assumed that there will be no additional impact on Scotland, and all estimates are for England & Wales only.

17. Data on THN kits provided to individuals (not including anethetists, hospitals etc.) in Scotland has been collected each year since 2011/12. 3 years of data are currently available with the number of kits distributed recorded, as well as whether this was a “first-time” or “repeat” supply. If the kit is a “repeat” then the reason for this is also recorded. This data is used as the basis for the estimates that follow.

18. In 2011/12, the first year in which data was collected and the year immediately following the issue of the Lord Advocate’s guidance (issued March 2011), 386 THN kits were issued as “repeat” supplies. It is assumed that these “repeats” were issued to replenish stock held in 2010/11 that was either used/lost/damaged or expired. By estimating the replenishment rate, the percentage of stock that needs replacing each year, it is possible to estimate the stock in 2010/11, which can be used as the baseline stock.

19. Given naloxone’s shelf life of 3 years, approximately 1/3 of the stock will require replacement each year due to expiry alone. On top of this, replacement will be required due to use, loss and damage. Assuming a replacement rate of 40% (evidence below), the stock in 2010/11 is estimated as 970.

20. As support for this 40% replacement rate assumption, in 2012/13, 585 “repeat” supplies were issued for reasons other than expiry. This is equal to 15% of the estimated stock for 2011/12 (stock is estimated using the cumulative number of “first time” supplies, see figure 1). Similarly, in 2013/14, 1,164 “repeats” were issued for reasons other than expiry, equal to 17% of the stock for 2012/13. These figures suggest that approximately 15% of stock will need to be replaced for reasons other than expiry each year.

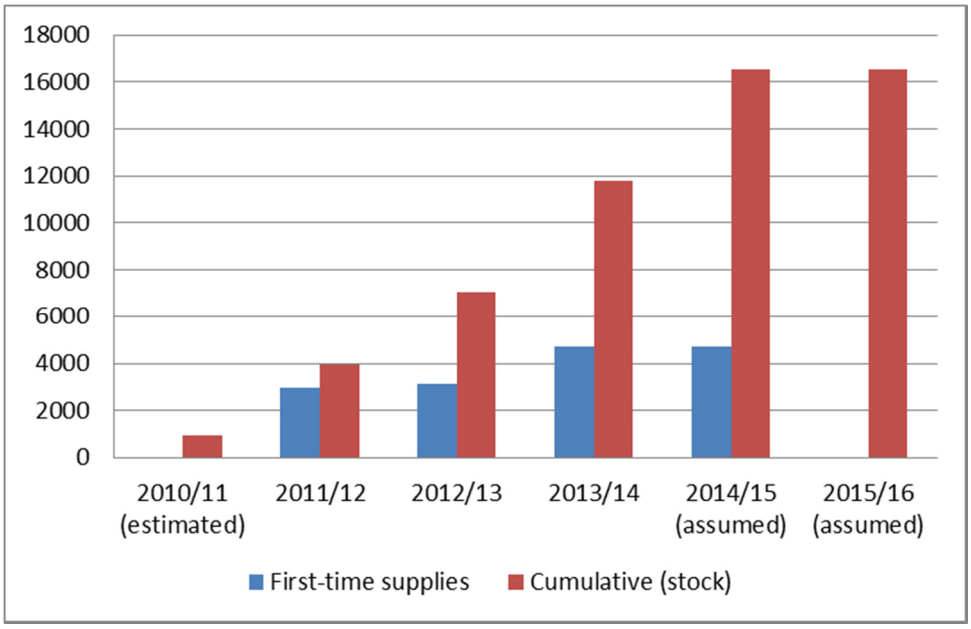
[5] From correspondence with Birmingham Local Authority

[6] Estimates of the Prevalence of Opiate Use and/or Crack Cocaine Use, 2011/12, Liverpool John Moores, http://www.nta.nhs.uk/uploads/estimates-of-the-prevalence-of-opiate-use-and-or-crack-cocaine-use-2011-12.pdf

[7] Public Health England briefing on provision of Naloxone, February 2015, http://www.nta.nhs.uk/uploads/take-home-naloxone-for-opioid-overdose-feb-2015.pdf

[8] National Naloxone Programme Scotland – naloxone kits issued in 2013/14 and trends in opioid related deaths, 28 October 2014, http://www.isdscotland.org/Health-Topics/Drugs-and-Alcohol-Misuse/Publications/2014-10-28/2014-10-28-Naloxone-Report.pdf

Figure 1 – Take Home Naloxone kits provided in Scotland



21. If the stock of naloxone were centrally managed so that all usage/loss/damage could be organised to come from kits close to expiry, then the replacement required would be no more than the 33% that is due to expiry. However in reality kits are spread amongst various holders meaning this is not possible. At the other extreme, usage/loss/damage could come entirely from new kits, in which case 33% of kits would need replacing due to expiry, and a further 15% due to usage/loss/damage, giving 48% in total. The actual replenishment rate will therefore be between 33% and 48%. The midpoint of this, 40%, is therefore justifiable as the estimated replacement rate.

22. As described above, applying this to the 386 "repeats" issued in 2011/12 gives an estimate of 970[9] for the stock in 2010/11, before the Lord Advocate's guidance was issued to effectively change the regulatory situation. This is approximately equal to 1.6% of the estimated population of opiate users in Scotland (60,000)[10]. Applying this proportion to the estimated number of opiate users in England & Wales (270,000)[4] gives an estimate of current naloxone stock of 4,400. This is used as the baseline stock in the analysis which, with a replacement rate of 40%, gives baseline yearly sales of 1,800.

Impact of proposed amendments

23. It is anticipated that the widening of access to naloxone will result in more stocks of naloxone being held, as well as more being used to reverse opiate overdoses. Considering each naloxone holding group in turn, it is firstly expected that there will be no impact on the amount held for use by anaesthetists in hospices etc. Use in this context is separate from that of reversing overdoses so will be unaffected by the amendments.

24. It is also assumed that there will be no impact on the stocks held or amounts used in medical settings such as hospitals and ambulances. It has been suggested that wider availability elsewhere could result in the displacement of naloxone stocks from these settings. However this is considered unlikely as naloxone would still need to be held as a precaution.

[9] All estimates are rounded to 2 significant figures and therefore may not sum

[10] Kerssens, J., et al., (2014) Estimating the National and Local Prevalence of Problem Drug Use in Scotland 2012/13, http://www.isdscotland.org/Health-Topics/Drugs-and-Alcohol-Misuse/Publications/2014-10-28/2014-10-28-Drug-Prevalence-Report.pdf

25. It is also possible that wider availability of naloxone elsewhere will reduce the use in these settings. For example an ambulance responding to an overdose might not need to use a naloxone kit as someone at the scene has already administered it. Again this is considered unlikely due, in part, to the temporary nature of the effects of naloxone. The effects last just 20-30 minutes meaning that, even where it has been administered at the scene, further doses from medical staff are still likely to be required to maintain the reversal of overdose. Data from a large homeless hostel in Birmingham supports this assumption as, in the 11 cases where naloxone was administered at the hostel before the arrival of an ambulance, in each case another dose was given by paramedics on their arrival.[5]

26. The wider availability and increased ease of prescribing is expected to increase the provision of naloxone to individual users. This may be through family & friends, outreach workers and needle exchanges, amongst others, who will have greater access to naloxone following the amendments.

27. To estimate the impact, data from Scotland is again used. By 2013/14 a cumulative total of 10,823 THN kits had been issued as "first time" supplies. This figure, added to the estimated initial stock of 970, is assumed to represent the stock of naloxone in that year (excluding that held in medical settings as described above), which is therefore 12,000. This is the latest year of data available, however it is anticipated that more "first time" supplies will be issued in 2014/15, given the rate of increase from previous years. It is therefore conservatively assumed that an additional 5000 "first time" supplies will be issued in 2014/15 (the same number as in 2013/14), taking the total stock total to 17,000. This is the estimated new steady state stock level and is equal to 28% of the estimated opiate user population.

28. Applying this proportion to the estimated opiate user population of England & Wales gives an estimated eventual stock of naloxone of 75,000. It is assumed that this level will be reached 4 years following implementation of the proposed amendments, and that the increase will be split equally across the 4 years, giving an increase in stock of 18,000 each year.

29. Therefore in year 1 18,000 kits will be sold to increase the stock level, with 1,800 sold to replace stock from year 0. In year 2, 18,000 kits will again be sold to increase the stock level, with 8,800 sold to replace stock from year 1. This pattern will continue until year 4 when the stock level reaches 75,000. From year 5 onwards sales will be equal to the 30,000 required to replenish this stock each year. Table 1 shows the estimated stock level and yearly sales of naloxone under option 0 and option 1.

Table 1 – estimated naloxone stock & sales in England & Wales

Year		Stock		Sales	
		Option 0	Option 1	Option 0	Option 1
2014	Year 0	4400	4400	-	-
2015	Year 1	4400	22000	1800	19000
2016	Year 2	4400	40000	1800	27000
2017	Year 3	4400	57000	1800	34000
2018	Year 4	4400	75000	1800	41000
2019	Year 5	4400	75000	1800	30000
2020	Year 6	4400	75000	1800	30000
2021	Year 7	4400	75000	1800	30000
2022	Year 8	4400	75000	1800	30000
2023	Year 9	4400	75000	1800	30000
2024	Year 10	4400	75000	1800	30000

30. An additional impact of the proposed amendments is that homeless hostels will be able to hold naloxone for use in emergencies. This will lead to an increase in naloxone sales as it is likely that many such hostels will choose to hold some naloxone in stock. However the magnitude of this is likely to be small. Assuming every homeless hostel bought 2 THN kits each year, given that there are between 200 and 1,300 hostels in England,[11] this would give 400 to 2,600 additional sales per year. However use from this stock would reduce use of stocks held by individuals to some degree. Given this small magnitude and the considerable uncertainty surrounding the estimate this increase in sales is not included in the business NPV or EANCB calculations.

31. In the RTA an estimate was provided of naloxone sales of between 10,000 and 90,000 kits per year.[12] The upper bound represents every opiate user having a THN kit and replacing it every 3 years. The estimate of sales and proportion of opiate users reached derived in this impact assessment are consistent with, and towards the lower end of, this range.

Price & profit margins

32. The above is an estimate of the increase in annual sales of naloxone under option 1; however the relevant benefit for business is increased profits. To estimate this it is necessary to know the average price of a naloxone kit, as well as the profit margin a producer can expect to make on this.

33. Price information is taken from the British National Formulary (BNF).[13] The BNF provides prescribing data, including prices, for many medicines available on the National Health Service (NHS). Prices are listed for non-proprietary naloxone, Minijet naloxone produced by UCB Pharma, and Prenoxad produced by Martindale Pharma. The average of the listed prices is £18.30 and this is the price used in the calculation of profits in the estimate. These prices are for kits containing 5 doses (1 dose is 400 micrograms[13]), either as a 1milligram/ml 2ml pre-filled syringe or a 400microgram/ml 5ml pre-filled syringe. Other sizes are available and may be provided by different LAs, however this is the size that has been used in Scotland, so is most appropriate for this analysis.

34. Naloxone is out of patent, so it is assumed that the profit margin for producers is 10%. This is approximately consistent with profit margins for generic medicines producers. For example, Teva Pharmaceutical, a generic drug producer reported a profit margin of 6% in the 2014 financial year. Mylan Pharmaceutical, another generic medicines producer, had a profit margin of 9% whilst Sagent Pharmaceutical, a producer of generic injectable drugs had a profit margin of 10%. Similarly, Akorn Pharmaceutical reported a profit margin of 15%.[14] As well as producers of naloxone, distributors and pharmacies may also benefit from increased sales, along with producers of inputs such as syringes and packaging. However, in the absence of more detailed data, it is assumed that these benefits are covered by the 10% margin.

35. Only benefits that fall on businesses operating in the UK are relevant and should be included in the estimated benefits. In estimating the proportion of economic activity that is UK based, information on licensed products from the Medicines and Healthcare Products Regulatory Agency is used.[15] This shows that, of the 9 naloxone products licensed by MHRA[16], 2 are manufactured in the UK. Many of the manufacturers also have head office operations located in the UK to some degree[17]. It is not clear which of these manufacturers will benefit from the increase in sales following the amendments as LAs will be free to choose which naloxone kit they provide. Given this information, it is assumed

[11] Support for Single Homeless People in England, Annual Review 2014, Homeless Link, http://www.homeless.org.uk/sites/default/files/site-attachments/Support%20for%20Single%20Homeless%20People.pdf

[12] Based on correspondence with Martindale Pharmaceutical, a manufacturer of take-home naloxone kits

[13] Joint Formulary Committee. British National Formulary (online) London: BMJ Group and Pharmaceutical Press <http://www.medicinescomplete.com> [Accessed on [05/03/15]]

[14] Figures from www.benzinga.com, article "5 drug companies profiting from generics", 4th August 2014

[15] Information from correspondence with MHRA

[16] There are 10 naloxone products licensed but 1 is a weaker solution (20micrograms/ml) not intended for use in reversal of opiate overdose

[17] Information taken from manufactuers' websites

that 22% (2/9) of the estimated benefits occur in the UK. The estimated increase in profits each year is therefore multiplied by 22% to give the net benefit to UK business.

Business Net Present Value & EANCB

36. Putting all the above together the business net present value (BNPV) and equivalent annual net cost to business (EANCB) can be calculated. Table 2 shows the sales and profits per year under option 0 and option 1 and the calculation of the BNPV. BNPV is the total value of benefits over 10 years, where benefits occurring after year 1 are discounted by 3.5%[18] to reflect the lesser value placed on future benefits. The EANCB is the annual cost which, if it occurred every year, would give the same BNPV value, in 2009 prices and with 2010 used as the base year for discounting.

37. Profit in each year is equal to the estimated number of sales, multiplied by the assumed price (£18.30), profit margin (10%) and proportion that is UK based (22%). The difference between the profits under option 0 and option 1 represents the benefit to business. Table 2 shows yearly sales and profits under each option, as well as the present value of the benefit. The total NPV over the 10 year period is estimated to be £99,000. The corresponding EANCB is -£8,600[19], indicating a benefit to business equivalent to £8,600 each year.

Table 2 – estimated profits from Naloxone sales in England & Wales

Year		Stock		Sales		Profit			Business NPV (UK based)	
		Option 0	Option 1	Option 0	Option 1	Option 0	Option 1	Difference	Discount factor	Present Value
2014	Year 0	4400	4400	-	-	-	-	-	-	-
2015	Year 1	4400	22000	1800	19000	£3,200	£36,000	£32,000	1.00	£7,000
2016	Year 2	4400	40000	1800	27000	£3,200	£49,000	£45,000	0.97	£10,000
2017	Year 3	4400	57000	1800	34000	£3,200	£62,000	£58,000	0.93	£12,000
2018	Year 4	4400	75000	1800	41000	£3,200	£74,000	£71,000	0.90	£14,000
2019	Year 5	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.87	£10,000
2020	Year 6	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.84	£10,000
2021	Year 7	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.81	£9,000
2022	Year 8	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.79	£9,000
2023	Year 9	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.76	£9,000
2024	Year 10	4400	75000	1800	30000	£3,200	£55,000	£52,000	0.73	£8,000
Total										**£99,000**

Sensitivity analysis & assumptions

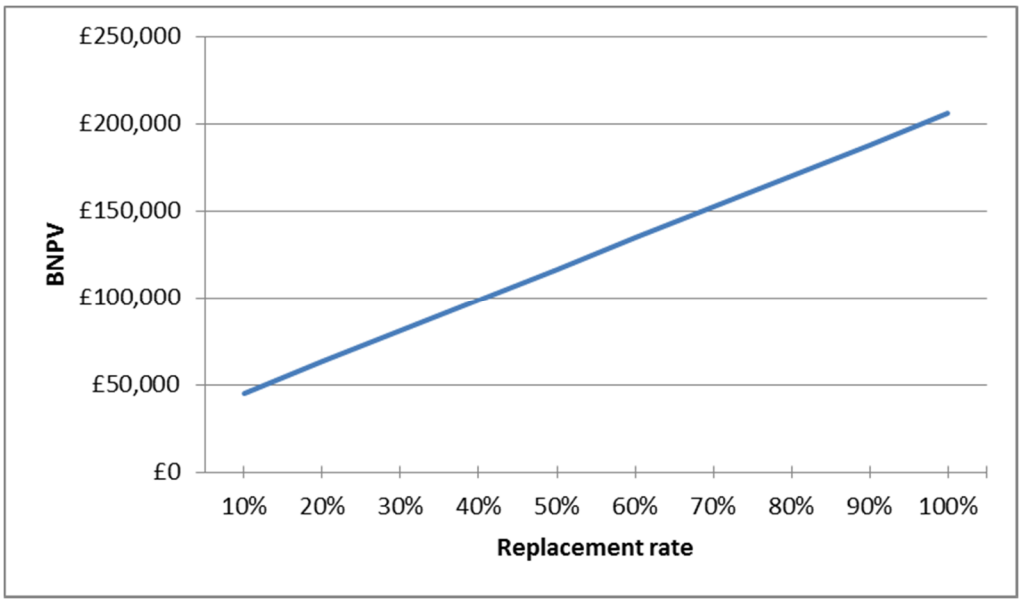
38. A number of assumptions made in estimating the impact are subject to uncertainty. These assumptions are discussed and one-way sensitivity analysis performed on some key variables to test the impact this might have on the estimated benefits.

[18] Following Green Book guidance

[19] This value has been calculated using the BIS Impact Assessment Calculator which was updated for publication on 23 January 2015. The calculator uses data sets that are updated regularly. The calculator is used so that the EANCB value can be compared against other EANCB values using the same calculator. It is known that there are some inconsistencies with the use of financial year and calendar year data in the calculator and that these inconsistencies can cause small differences in the precise EANCB value calculated.

39. The replacement rate indicates the proportion of the stock of THN kits that will expire, be used or lost, and will need replacing the following year to maintain stock levels. It is estimated to be 40%. It is possible that it could be as low as 33%, if only expired kits needed replacing. Under this scenario the BNPV decreases by 13% to £86,000. It could also be higher than 40%, if usage additional to expired kits is higher than estimated. If 48% of the stock of kits required replacement each year, the NPV would increase by 14% to £110,000. These scenarios provide the high and low estimates included on the summary sheet. Figure 2 shows BNPV at different replacement rates.

Figure 2 – estimated business net present value at different replacement rates



40. Another key assumption made in the analysis is that there will be a further increase in stock, for one year beyond what has already occurred in Scotland. If this assumption is removed, and the stock level doesn't increase from the level observed in the most recent data, then the stock level in England & Wales will increase to 20% of the estimated opiate user population. This means that over the first 3 years the stock level increases up to 54,000 after which sales consist of the replenishment required to maintain this. The BNPV under this scenario is 26% lower at £73,000.

41. Alternatively the assumption could be too conservative, and the stock level will in fact increase more than is estimated. Under the assumption that there are 2 further years of stock increase, to a level equal to 36% of opiate users, there would be an BNPV 23% higher at £120,000.

42. Another assumption is that all THN kits provided will be replaced when they expire or are used, lost or damaged. In practice this is unlikely to be true, as there will be individuals who, having received a THN kit, choose not to replace it. The cumulative first time supplies may therefore be an overestimate of the actual stock level of naloxone.However it is expected that, whilst not every kit will be replaced, a high percentage will be as the potential life-saving benefits of carrying naloxone make it worthwhile.

43. The assumption of a 40% replacement rate of stock each year is based on the shelf life of 3 years, leading to the assumption that one third of the stock will need replacing each due to expiry, with additional replacement required due to use, loss or damage. This is a simplification as in reality the replacement required will be less evenly spread. In the first few years, as new kits are bought in to increase the stock level, replacement due to expiry is likely to be lower as the stock is mostly made up of relatively new kits. However this is balanced by the higher replacement rate which is likely in later years, as all these kits reach expiry. Due to the added complexity of modelling this varying replacement rate, compared to the small benefit of such an approach, this simplifying assumption was made.

44. There is also uncertainty around the proportion of the benefit that is UK based. This is estimated as 22%, based on the proportion of licensed naloxone products that are manufactured in the UK. This may be an overestimate if the increased sales are predominantly of non-UK manufactured naloxone. Prenoxad, a non-UK manufactured kit, is provided in Scotland and may initially be preferred by LAs in England & Wales. However this is not certain as LAs will be free to provide kits of their choosing and furthermore the most popular kits may change over the period under consideration. It could also be an underestimate as even products not manufactured in the UK will involve some UK based economic activity e.g. head office operations, distribution etc. The BNPV will vary in proportion to this estimate, from £0 if none of the benefits occur in the UK, up to £440,000, if the entire benefit is UK based.

45. Finally, by applying the findings from Scotland to England & Wales the assumption made is that the provision of naloxone will be similar (relative to the number of opiate users) following the regulation changes. As Scotland has implemented a National Naloxone Programme, alongside the guidance issued by the Lord Advocate, it is possible that the increased naloxone provision observed there will be proportionally greater than will occur in England & Wales, where there will be no such national programme. However other levers in England & Wales are likely to increase provision of naloxone, to at least the levels seen in Birmingham. Drivers for increased naloxone provision in England & Wales include: PHE has issued advice to LA commissioners and service providers; an update to the UK Guidelines on the Clinical Management of Drug Misuse & Dependence in 2016 will highlight the importance of naloxone; coroners may start making S.28 recommendations that local areas increase the availability of naloxone; and the relevant professional bodies may require their members to be more pro-active in dispensing naloxone. It is therefore feasible that similar increases to Scotland will occur following the proposed changes in October 2015.

Wider impacts

46. Whilst this impact assessment considers only the costs and benefits to business, the primary objective of the proposed policy is to widen access to naloxone so that it can be used to save lives in the event of an opiate overdose.

47. It is expected that the amendments will increase the chance of naloxone being available to be administered when an overdose occurs. This should lead to a reduction in the number of lives lost due to drug misuse. It is beyond the scope of this impact assessment to quantify or monetise this health impact, but it is hoped that it will be significant.

48. There will also be a cost of purchasing more THN kits for provision. Based on the increased sales and average price used in the above estimates the average annual cost will be £520,000(see table 3). Responsibility for providing kits would fall on LAs, using funds from the public health grant, and will therefore displace other spending on public health. It is assumed that spending on public health generates 1 Quality Adjusted Life Year (QALY) per £15,000 spent (consistent with treatment spending in the NHS).[20] Given this opportunity cost, approximately 35 QALYs would need to be saved each year for the additional spending on naloxone to be cost-effective. It is considered that this QALY gain is a fairly conservative estimate of what could be achieved with increased access to naloxone.

49. Training may also need to be provided to new holders of naloxone so that they are able to administer it correctly in an emergency. This could create an additional cost of naloxone provision. However the level of training required to administer naloxone is low and resources are readily available online meaning this cost is likely to be small.[21]

[20] The Department of Health Guidance Manual to Impact Assessments

[21] Information from http://naloxone.org.uk/index.php/resources/training/videos

Table 3 – estimated additional cost of provision of naloxone under option 1

Year		Additional Sales	Cost of provision	Potential QALYs
2015	Year 1	18000	£320,000	22
2016	Year 2	25000	£450,000	30
2017	Year 3	32000	£580,000	39
2018	Year 4	39000	£710,000	48
2019	Year 5	28000	£520,000	35
2020	Year 6	28000	£520,000	35
2021	Year 7	28000	£520,000	35
2022	Year 8	28000	£520,000	35
2023	Year 9	28000	£520,000	35
2024	Year 10	28000	£520,000	35
Average		**30000**	**£520,000**	**35**

Risks

50. In their feedback on the Regulatory Triage Assessment preceding this impact assessment, the Regulatory Policy Committee requested that the risks to the public of the amendments be considered. The following section addresses these potential risks.

51. It is considered highly unlikely that there will be adverse effects from widening the access to naloxone. Naloxone does not produce pleasurable effects (e.g. euphoria, relaxation, hallucinations, etc.) and it does not act as an image or performance enhancer (e.g. it will not improve memory, reduce wrinkles or build muscle mass). There is therefore no apparent reason for it to be diverted onto the black market or into 'the wrong hands'.

52. Concerning patient safety, a high dose of naloxone does carry a small risk of triggering cardiac problems in susceptible people (usually older people who are taking an opiate based pain medication). However, given that naloxone will be given to an individual experiencing a possibly fatal opiate overdose this small risk of triggering a cardiac problem is considered negligible compared to the potential number of lives saved.

53. There is a very slight possibility that an individual may want to use the injecting equipment in the naloxone kit to inject other drugs, e.g. heroin. However, this is highly unlikely given that it is much easier to access injecting equipment via the national Needle and Syringe Programmes (which provide injecting equipment free of charge).

54. There is a concern held by some that by widening access to naloxone and providing a 'safety net', it may encourage increased or riskier use or opiates. However, the available evidence, as highlighted in the ACMD's report 'Consideration of Naloxone'[2], does not support this concern and some evidence suggests that increasing access to naloxone may decrease drug use by giving users "more insight in relation to personal safety and health".

55. The above risks will be minimised via appropriate training and monitoring of the individuals who have access to naloxone and Public Health England are addressing this as part of their work in getting services ready for when the amended regulations come into effect.

56. In theory it is possible that an opiate user may use naloxone to induce a degree of withdrawal, so that they can take another dose of opiate and experience the associated high. It is also a theoretical possibility that an individual may use naloxone maliciously; to throw a dependent opiate user into immediate withdrawal or to reverse the effects of an opiate based pain medication or to trigger a cardiac problem in a susceptible person. However, these scenarios are considered to be extremely unlikely. Also, the ACMD considered most of these scenarios and could not find “published evidence which has found an increased risk of inappropriate or malicious use of naloxone”. In addition, the MHRA’s Commission on Human Medicine considered the issue of public risk and did not identify any major concerns from widening access to naloxone.