

Title: PROPOSAL TO INTRODUCE INDEPENDENT PRESCRIBING BY PARAMEDICS IA No: 5193 Lead department or agency: NHS England Other departments or agencies: MHRA College of Paramedics Devolved administrations	Impact Assessment (IA)		
	Date: 01/02/2015		
	Stage: Consultation		
	Source of intervention: Domestic		
	Type of measure: Primary legislation		
Contact for enquiries: enquiries@ahp.nhs.net			
Summary: Intervention and Options			RPC Opinion: Not Applicable

Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Two-Out? Measure qualifies as
- £1.4m	£m	£m	No NA

What is the problem under consideration? Why is government intervention necessary?
 Demand for primary and urgent health care has increased. UK wide, health care supply is restricted by government regulation on who can prescribe medicines. There are potential efficiencies, equity gains and improvements in patient outcomes and experience from expanding the range of health care professionals who can prescribe within their competency. Efficiency is restricted by patients having to consult doctors when they could be managed by other health care professionals. This delays access to doctors for patients who require their skills. Equity of access to medicines is also restricted for patients whose non-complex care needs can be managed in the community.

What are the policy objectives and the intended effects?
 The three objectives are: a) to decrease GP appointments and telephone calls to access medicines following consultation with a paramedic; b) to increase the episodes of care completed by advanced paramedics, c) to enhance equity, patient outcomes and patient experience resulting from a higher proportion of patients accessing medicines outside GP/A&E settings. Intended effects are: health gain from timely access to medicines and from earlier access to doctors for patients with complex needs; lower costs by paramedics relieving the pressure from doctors for patients with non-complex prescribing needs; fewer GP appointments and A&E attendances; greater satisfaction with healthcare setting and choice.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)
 Option 1 - No Change
 Option 2 - Independent prescribing for any condition from a full formulary
 Option 3 - Independent prescribing for specified conditions from a specified formulary
 Option 4 - Independent prescribing for any condition from a specified formulary
 Option 5 - Independent prescribing for specified conditions from a full formulary

Will the policy be reviewed? It will be reviewed. If applicable, set review date: Month/Year					
Does implementation go beyond minimum EU requirements?			No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro No	< 20 Yes/No	Small Yes/No	Medium Yes/No	Large Yes/No
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded:		Non-traded:

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
 SELECT SIGNATORY:

Date: _____
 e: _____

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2014	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -£15.1m	High: £55.7m	Best Estimate: - £1.4m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	£14.7m
High	Optional	Optional	£17.9m
Best Estimate			£14.7 m

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

The upfront cost is the independent prescribing programme for those who currently have no prescribing qualifications offered only where there is an identified service need and commenced on a voluntary basis. The financial cost would be met in general by the employer or education commissioners, although may be met by the individual if working within the independent sector. Time commitment for advanced paramedics to attend educational programmes is also included.

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

On-going cost of additional clinical supervision above current supervision arrangements
Salary increments related to independent prescribing role.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	£2m
High	Optional	Optional	£70.4m
Best Estimate			£13.3m

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

Reduction in follow-up GP appointments /A&E visits.
Early intervention with correct medication preventing worsening of conditions and the need for admission or transfer to A&E after seeing an advanced paramedic.
Reduction in paramedic telephone consultations with doctors requesting a prescription / medical review only.

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

Health benefit from more timely access to medicines needed, reduced risk of hospital admission and avoidance of hospital-acquired morbidity (falls, infections etc). Improved patient experience from early treatment and preventing unnecessary appointments and health care encounters. More choice of health care provider and health care setting. Greater clarity on the accountability and responsibility for prescribing decisions made.

Key assumptions/sensitivities/risks	Discount rate	3.5%
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Inappropriate, unsafe or over prescribing.

Communication of information on the patient's drug history and past medical history as such information is dependent upon availability of and access to medicines history in electronic systems or on accurate recall and honesty by the patient or carer.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs:	Benefits:	Net:	No	NA

Evidence Base (for summary sheets)

Policy background

The *Review of Prescribing, Supply and Administration of Medicines*¹ in 1999, chaired by Dr June Crown, proposed that prescribing rights be extended to a range of health professionals in order to improve services to patients, make better use of the skills of professional staff and thus make a significant contribution to the modernisation of the health service¹. Following the review, revised regulations have enabled an expansion of non-medical prescribing so that experienced nurses, optometrists, pharmacists, physiotherapists and podiatrists can train to independently prescribe medicines within their clinical competence. In 2005 *Taking Healthcare to the Patient: Transforming NHS Ambulance Services*² recognised that work should be undertaken to consider the need for independent prescribing by eligible paramedics, and that investing in the clinical development of the frontline ambulance clinicians would yield significant benefits for both patient outcomes and the health economy.

*Equity and Excellence: Liberating the NHS*³ stated that the government is committed to putting patients and the public at the heart of everything they do. Introducing independent prescribing for eligible paramedics enables them to maximise their ability to improve the patients care, experience and safety. In 2011, *Taking Health Care to the Patient 2, a review of 6 years progress*⁴ undertaken by the Association of Ambulance Chief Executives reported that significant reductions in conveyance rates to Accident and Emergency had been achieved through the introduction of specialist and advanced paramedic roles. However, the review also identified that the extension of independent prescribing to eligible paramedics could further enhance their effectiveness. The *Urgent and Emergency Care Review - end of phase 1 report*⁵ recognised ambulance services as being fundamental to providing a highly responsive service that delivers care as close to home as possible for patients with urgent care needs. The vision to develop 999 ambulance services into community-based mobile urgent treatment services, requires highly skilled paramedics with the ability to 'see and treat' more patients at the scene, as opposed to being viewed solely as a means of transportation. This in turn requires paramedics to have appropriate prescribing responsibilities.

Independent prescribing by eligible paramedics is consistent with the government's *NHS Outcomes Framework (2013/14)*⁶ to focus on improved outcomes for all, and the *5 Year Forward View*⁷ as this highlights that the traditional divide between primary care, community services and hospitals has been largely unaltered since the birth of the NHS. This increases the barrier to the personalised and coordinated health service patients need. Independent prescribing by eligible paramedics also supports the achievement of a number of ambitions across the devolved

¹ Department of Health (1999) *Review of Prescribing, Supply & Administration of Medicines*, London.

² Department of Health (2005) *Taking Healthcare to the Patient: Transforming NHS Ambulance Services*. London.

³ Department of Health (2010) *Equity and Excellence: Liberating the NHS*. London

⁴ Association of Ambulance Chief Executives (2011) *Taking Health Care to the Patient 2, a review of 6 years progress*. London

⁵ NHS England (2013) *Urgent and Emergency Care Review - end of phase 1 report*. London

⁶ Department of Health (2012) *NHS Outcomes Framework (2013/14)*. London

⁷ NHS England (2014) *Five Year Forward View*, London

administrations such as, *Transforming Your Care: A Review of Health and Social care in Northern Ireland*⁸, *Transforming Your Care: Strategic Implementation Plan*⁹, *Improving Outcomes by Shifting the Balance of Care: Improvement Framework*¹⁰, *Achieving Sustainable Quality in Scotland's Healthcare: A '20:20' Vision*¹¹, *Together for Health: A Five Year Vision for the NHS in Wales*¹² and *Achieving Excellence: The Quality Delivery Plan for the NHS in Wales*¹³. These documents set out the vision for the future of the NHS which no longer sees expertise constrained by traditional boundaries, fragmented services or patients having to visit multiple professionals for multiple appointments.

The *5 Year Forward View*¹⁴ states that in the next five years the NHS will need to dissolve these traditional boundaries, and that urgent and emergency care services will be redesigned, and new models of care developed to integrate between A&E departments, GP out-of-hours services, urgent care centres, NHS 111 and ambulance services.

Problem under consideration

Demand for primary care and urgent and emergency care has increased. There is potential to enhance efficiency by reducing costs and improving health outcomes by using the skills of allied health professionals with advanced skills and training. Paramedics already supply and administer some medications in urgent and emergency care settings. They are constrained by the restriction of not being able to prescribe; meaning that they can only supply and administer in specific situations, and frequently have to refer patients to their GP or A&E to access the medicines they need, even for non-complex health care needs.

There is a potential welfare loss due to unnecessary waiting time for symptom relief after consulting a paramedic if a prescription cannot be issued right away. There is also potential welfare gain from reducing unnecessary consultations with doctors for access to prescriptions for non-complex conditions and freeing up their time to see more patients who require their skills. The lack of timely and appropriate access to medicines by patients who do not consult health care professionals, who are independent prescribers may also exacerbate inequalities in access to health care and reduce choice of health care setting. It can also worsen patient experience by requiring unnecessary health care visits to access medicines.

Rationale for intervention

There is scope to increase efficiencies in the health system by improving access to medicines, reducing costs, improving patient experience and extending choice. In the

⁸Northern Ireland Department of Health, Social Services and Public Safety (2011) *Transforming Your Care: A Review of Health and Social Care in Northern Ireland*, Belfast

⁹ Northern Ireland Department of Health, Social Services and Public Safety (2013) *Transforming Your Care: Strategic Implementation Plan*, Belfast

¹⁰ NHS Scotland (2009) *Improving Outcomes by Shifting the Balance of Care: Improvement Framework*, Edinburgh

¹¹ NHS Scotland (2011) *Achieving Sustainable Quality in Scotland's Healthcare: A '20:20' Vision*, Edinburgh

¹² NHS Wales (2011) *Together for Health: A Five Year Vision for the NHS in Wales*, Cardiff

¹³ NHS Wales (2012) *Achieving Excellence: The Quality Delivery Plan for the NHS in Wales*, Cardiff

¹⁴ NHS England (2014) *Five Year Forward View*, London

short-term, earlier access to medicines to treat medical conditions could improve patient health. Also, a reduction in demand for appointments to obtain a prescription only (GP appointments or A&E attendances) could free up resources and improve access to health care for other patients, and improve health. In the medium to long-term, if there is a change in skill mix in primary care or urgent and emergency care teams, this will reduce costs and facilitate service redesign.

Paramedics work with medicines from the day they qualify, and as their experience increases, they take on a more independent role in the supply and administration of medicines. The Urgent and Emergency Care Review - end of phase 1 report recognised paramedics have a role in providing responsive services that deliver care as close to home as possible for patients with urgent or non-complex care needs. The vision of this report is to develop paramedic services into community-based urgent treatment services both mobile and in-clinic, and this will require a highly skilled paramedic workforce with the ability to complete more patient episodes without having to refer on to other services. This requires a cadre of paramedics to work at an advanced level and take on prescribing responsibilities.

In 2010, the Department of Health (DH) began preliminary work investigating the possibility of extending prescribing rights to appropriately trained paramedics, but this work was not progressed to a public consultation at that time primarily due to capacity and resource issues. Due to the increased demand for urgent and emergency care highlighted by the *Urgent and Emergency Care Review – end of phase 1 report*¹⁵, there is now a need to ensure that proposals for paramedic independent prescribing are strategically aligned with the wider urgent and emergency care system. The paramedic profession has also continued to evolve since 2010, and this has allowed the development of a cadre of experienced specialist paramedics to undertake educational pathways to allow them to work at an advanced level. As the evolution from specialist paramedic to advanced paramedic takes time, it is only now that there are a sufficient number of advanced paramedics available to undertake this training, as only paramedics working at an advanced level will be eligible to apply for an independent prescribing course.

Demand for independent prescribing by paramedics working at an advanced level with appropriate skills and training is forecast to be very high. The College of Paramedics estimates that 50% of eligible paramedics would require access to an independent prescribing training programme. In 2012 The Centre for Workforce Intelligence (CFWI) identified that there were approximately 780 registered paramedics in England working at either an advanced or specialist level, and this number increases year on year. Using these figures it is forecast that around 390 paramedics would look to undertake independent prescribing training if permitted in the future. This equates to approximately 2% of the overall paramedic workforce in England.

There are currently 44 Higher Education Institutes (HEIs) in the UK who provide Independent Prescribing Courses approved by the Health and Care Professions Council (HCPC). A telephone survey of Higher Education Institutes already providing independent prescribing courses for allied health professionals, conducted by the

¹⁵ NHS England (2013) *Urgent and Emergency Care Review - end of phase 1 report*. London

College of Paramedics, has indicated that capacity will increase to meet this level of demand for training.

Policy objective

The objective of introducing independent prescribing for paramedics is a) to increase the capacity for Urgent and Emergency Care within the NHS to meet health care needs; b) to improve equality of access; c) enhance patient experience.

All paramedics are legally entitled to supply and administer medicines from a limited and specified list from the day that they qualify and register to practice. However there is an identifiable group of experienced paramedics who already operate at an advanced level and it is proposed that this group of advanced professionals move into independent prescribing roles.

Description of options considered

The options considered below capture and quantify the changes in costs and benefits as they relate to current service configuration, that is, the short-term where the only change quantified is that advanced paramedics can independently prescribe. In the medium to long-term, this change in regulation will impact on how services are developed locally. There is a separate section below that describes possible changes in service configuration and the likely direction of change in costs and benefits but the costs and benefits of a change in service configuration has not been quantified due to the speculative nature of the assumptions.

Option 1 – No Change.

Registered paramedics would continue to supply and/or administer medicines under Patient Group Directions (PGD), Patient Specific Directions (PSD) and Exemptions.

Benefits

In some clinical pathways, the scope of the existing legislation fits well with the needs of patients and enables optimal care. For example, current mechanisms for the supply and administration of medicines by paramedics work well for patients with emergency life-threatening conditions such as cardiac arrest or major trauma.

Limitations

Existing arrangements may not best support the needs of patients, particularly those with urgent care needs who make up over 2/3 of the patients that paramedics encounter¹⁶. Where patients require medicines management, which falls outside that specified in a Patient Group Direction, or outside the specific exemptions in medicines legislation available to paramedics, they would continue to have to visit another healthcare professional, be referred onto other services, or even be conveyed to hospital to receive the treatment required. The existing arrangements result in unnecessary delays, put patients at risk (especially vulnerable groups such as the elderly) and are costly to administer.

Under this option, the creation of innovative new care pathways will continue to be limited by a lack of flexibility in making use of the healthcare workforce to improve

¹⁶ Health and Social Care Information Centre (2013) Ambulance Services, England 2012-13, London

service delivery, which will in turn, create less choice and ongoing unnecessary costs for commissioners. Consequently, an opportunity to improve outcomes for patients would be missed.

Option 2 - Independent prescribing for any condition from a full formulary (list of medicines).

Appropriately trained paramedics would be permitted to prescribe independently any medicine for any condition within their competence.

Benefits

Patients in contact with appropriately trained paramedics would be able to receive the care and medicines they need, without having to make additional appointments with other prescribers. A greater number of patients could benefit from improved care, first time and in the right place. The responsibility for prescribing within competence would be clearly with the eligible paramedic themselves. This option would be consistent with all other non-medical independent prescribers including nurse and pharmacist independent prescribers and more recently, physiotherapist independent prescribers and podiatrist independent prescribers.

Limitations

This option has no obvious limitations.

Option 3 - Independent prescribing for specified conditions from a specified formulary
Appropriately trained paramedics would be permitted to prescribe independently from a list of specified medicines for a specified list of conditions.

Benefits

This option could benefit patients provided that their condition and the drugs they need, are listed.

Limitations

Patient's whose condition or medicines needs do not appear on the lists of specified medicines able to be prescribed for specified conditions, would not be able to benefit. As paramedics encounter a vast range of patient groups, either the lists of conditions and medicines would need to be extensive, or certain groups of patients would be excluded. As a result, the patient requires an additional appointment to obtain their prescription. In addition, a limited formulary and list of conditions would need updating regularly, to support ongoing current best practice. This would require lengthy administrative and legislative processes and may not be responsive to the needs of patients or developments in clinical care.

Option 4 - Independent prescribing for any condition from a specified formulary
Appropriately trained paramedics would be permitted to prescribe independently for any condition *within their competence* but only from a list of specified medicines.

Benefits

A wider range of patients could benefit from this option, more than could under option 3.

Limitations

Patients whose medicines needs do not appear on the specified list of medicines able to be prescribed would not be able to benefit fully and would require an additional appointment to obtain their prescription. As with option 2, the lists would quickly become out of date and difficult to administer. This option would be potentially unresponsive to the needs of patients and current best clinical practice. There would also be limitations as described in option 2 concerning updating the list.

Option 5 - Independent prescribing for specified conditions from a full formulary
Appropriately trained paramedics would be permitted to prescribe independently any medicine *within their competence*, but only for specified conditions.

Benefits

A wider range of patients would benefit from this option, than could benefit under option 3.

Limitations

Patients with a condition that does not appear on the list would not be able to benefit fully, and as a result the patient would require an additional appointment to obtain their prescription. As with option 3, the lists would be difficult to administer and keep up-to-date. This option would potentially be unresponsive to the needs of patients and current best clinical practice.

Monetised and non-monetised costs and benefits of each option

Overview of costs and benefits associated with all options:

Costs:

All options apart from Do Nothing will require advanced paramedics to be trained in independent prescribing (there are no supplementary prescribers in the profession therefore no conversion courses are required) which incurs a cost per participant. Training will require participants to be away from work for up to 26 days. Work shifts may need to be backfilled so this cost is also included here.

Benefits:

Cost savings will result from a reduction in demand for GP and A&E attendance following a consultation with an advanced paramedic who will be in a position to 'see and treat', and therefore complete more episodes of care if they have the ability to independently prescribe medicines. GP access is currently via face-to-face appointments or telephone consultation and may occur out of hours.

Health benefits resulting from improvements in health due to marginally earlier access to a prescription (hours or days) have not been quantified as they are speculative.

Cost savings and health benefits associated with changes in service configuration have not been quantified as the assumptions required to monetise these benefits are speculative.

Additional risks associated with independent paramedic prescribing are not quantified due to the lack of data. Actions to mitigate additional risk are addressed in the section below.

Monetised costs

Option 2: Independent prescribing for any condition from a full formulary

Financial cost of training:

The College of Paramedics estimates that the expected uptake by advanced paramedics for independent prescribing courses in year 1 would be between 60 to 80 individuals. As this section of the workforce is predicted to increase to enable the delivery of the urgent and emergency care agenda a consistent uptake of similar numbers is predicted for the next 5 years. After that, a 5% renewal rate is projected. It is assumed that staff turnover of the advanced paramedic workforce would be around 5% per year. There are estimated to be 780 paramedics working at specialist and advanced level in the UK. The cost of a 30-credit training programme for independent prescribing is estimated to be £1750 which is the average price quoted in a survey of higher education institutions course prices.

The yearly financial cost of an independent prescribing course for the current cadre of advanced paramedics is set out in table 2, assuming 60 to 80 entrants on to training courses in the first year. After that, a 5% renewal rate is projected.

The training will be part-time for approximately 26 days over 16 weeks. There is no anticipated additional cost related to staff backfill as the release of staff to undertake an independent prescribing course will be staggered over each academic year and as a result the study/contact days at the universities would be known several months in advance. Backfill is determined locally, but this insight will allow employers to plan the staff abstractions required in advance.

The total discounted 10-year financial cost of training is estimated to be between £759,000 and £923,000 depending on uptake of training in the first five years, (Appendix, table 2).

Financial cost of staff replacement while on training:

Even though staff may not be replaced while on training, there is an economic value of their lost time as it will be reflected in diminished service provision or otherwise; this cost is proxied by assuming full back-cover. The educational programme is estimated to take advanced practitioners out of service for 26 days of the year and it is assumed that these days would be covered by equivalent Band 6 or 7 paramedics, and for the purpose of this impact assessment a shift length of 12 hours has been applied. The hourly cost of staff covering colleague's absence is assumed to be lower as overheads do not have to be included as there are no (or marginal) capital or management costs.

The total discounted 10-year cost of staff replacement while training was estimated to be between £2.9 million and £3.5 million, depending on uptake of training (Appendix, table 3).

Total financial costs and opportunity costs:

The financial cost of training over ten years of training and backfill was estimated to be between £3.7 million and £4.5 million (Appendix, table 4).

Given the NHS budget constraint, both the cost of the training and the cost of staff backfill will inevitably displace health services that would have been provided to patients; this is the opportunity cost of the proposal. Following current DH guidance, the opportunity cost is calculated at one Quality Adjusted Life Years (QALY) per £15,000. The stream of QALYs foregone is then discounted at a rate of 1.5% per year. The social value of the displaced QALYs is re-monetised at a value of £60,000 per QALY, representing the social value of a QALY (what people are on average willing to spend to improve their healthy life expectancy by one QALY).

DH guidance advises that each QALY could also generate on average £14,000 of wider societal benefit (for example by reducing dependency). In this consultation draft, the wider societal benefit has not been presented.

The total opportunity cost of training and staff backfill was between £14.7 million and £17.9 million. The best estimate was assumed to be the lowest estimate (Appendix table 4)

Option 3 - Independent prescribing for specified conditions from a specified formulary

The costs of training would be the same, as courses provided by higher Education Institutes are multidisciplinary and meet the prescribing training needs of a range of health professionals including allied health professionals, nurses, pharmacists and optometrists.

All other options (options 3 to 5) would incur the same training costs.

Non-monetised costs

Option 2: Independent prescribing for any condition from a full formulary

Enhanced clinical supervision - No changes are anticipated regarding clinical supervision.

Increase in salary — It is not expected that an automatic increase will result from the completion of training to be an independent prescriber. Some advanced paramedics who have completed training may move into new roles or take on new responsibilities depending on the needs of the service and why a role for independent prescribers was identified in the first place. On its own, independent prescribing may not be sufficient grounds for a salary upgrade.

Paperwork and writing to GPs: Writing the letter to the GP and/or updating the patients summary care record is part of standard best practice of every patient encounter whether you are able to prescribe or not, but it might require 5 to 10 minutes on scene maximum but it is not anticipated that this time will increase due to independent prescribing. .

The risks associated with prescribing: the discussion of service measures to mitigate the risks is set out in a separate section below.

Monetised benefits

Option 2: Independent prescribing for any condition from a full formulary

Short-term financial cost savings: reduction in demand for GP/A&E follow-up for a prescription after consultation with a paramedic

The monetised benefits of enhanced prescribing in the short-term (paramedics operating within their current roles) are defined in terms of cost savings to the NHS; health benefits are described in the section below on non-monetised benefits and an explanation for why these benefits are not monetised is given.

There are quantifiable health care resource savings that could be realised from extending prescribing rights to advanced paramedics. These are:

- i) Reduction in demand for additional GP appointments and/or A&E visits, after seeing a paramedic;
- ii) Improved timely access to medications to prevent deterioration of condition
- iii) Reduction in demand for telephone follow-up between the paramedic and GP to discuss or obtain a prescription

A survey of paramedics by the College of Paramedics in 2013 found that over three-quarters of the respondents surveyed (n=77) needed to contact a GP, or other non-medical prescriber to write a prescription due to current mechanisms (such as PGDs being insufficient to provide the patient with the medication most suitable to their needs) up to three times in any given week, and for the same reasons 3% required a prescription to be written 10 or more times (Appendix table 5).

The demand for a prescription for a medicine that cannot be supplied by a specialist and advanced paramedic under the current supply and administration mechanisms available to paramedics has been estimated. Using a low estimate that 25% of the demand for a prescription could be met by an advanced paramedic with independent prescribing rights (i.e., it was within their competency to prescribe in that clinical situation), it was estimated that approximately 10,500 to 45,000 encounters with a GP or other independent prescriber could be avoided per year. Using a high estimate and assuming that 50% of demand for prescriptions could be met by advanced paramedics, it was estimated that between 21,000 and 91,000 GP encounters could be avoided per year. The best estimate assumed a midway point of 51,000 between the lowest estimate (10,500) and the highest estimate (91,000) (Appendix, table 6).

To convert avoidable health service use into cost savings, different scenarios were explored. The estimated value of the health service savings depends on how the patient accessed the urgent care system. The highest cost is Accident and Emergency which is a more common means of patients accessing the system. The least cost option is a telephone call with an independent prescriber. This would usually be the patient's GP during office hours (Appendix, table 7).

To estimate the ten-year costs for a proportion of advanced paramedics, first the theoretical health service impact had to be calculated as if all advanced paramedics were independent prescribers (which in reality would not be the case as only those where there is an identified role for them to prescribe would be eligible to undertake the training; then, the actual yearly cost could be calculated by multiplying this value by the cumulative proportion of advanced paramedics who completed their training as independent prescribers. The total discounted ten-year benefit was calculated to be between £478,000 and £16.1 million depending on where patients would otherwise have accessed their care. The best guess estimate was £3 million (Appendix, table 8).

Opportunity cost of savings in health service utilisation

Following current DH guidance, the opportunity cost is calculated at one Quality Adjusted Life Years (QALY) per £15,000. The stream of QALYs foregone is then discounted at a rate of 1.5% per year. The social value of the displaced QALYs is re-monetised at a value of £60,000 per QALY, representing the social value of a QALY (what people are on average willing to spend to improve their healthy life expectancy by one QALY).

DH guidance advises that each QALY could also generate on average £14,000 of wider societal benefit (for example by reducing dependency). In this consultation draft, the wider societal benefit has not been calculated.

The discounted opportunity cost over ten years was estimated to be between £2 million and £70.4 million with a best estimate of £13.3 million (Appendix, table 8).

Options 3 to 5:

For all other options under consideration (options 3 to 5, prescribing for a restricted list of conditions and/or a restricted list of medicines), the cost savings would be lower as fewer GP appointments, out of hours visits, or A&E attendances would be avoided. It was not possible to quantify the reduction in cost savings associated with each option given the lack of published data; expert opinion was that a detailed audit would be required of all medicines that could be included in a specific formulary, alongside a list of all conditions they could be used for to arrive at robust estimates of the proportionate reduction for each option.

Non-monetised benefits

Option 2: Independent prescribing for any condition from a full formulary

The other benefits that have been identified but not quantified are:

- less stress to patients, families and carers from unnecessary GP appointments or A&E visits, and a reduced risk of unnecessary investigation and admittance to hospital as a consequence of attending A&E (for example where emergency staff do not have access to long-term shared care plans),

- time away from work/ school avoided to attend urgent follow-up GP appointments to access the medicines they require,
- more satisfaction with place of care for elderly and vulnerable patients who can be seen and treated by paramedics at home,
- less risk of hospital acquired morbidity such as falls and infection.

Net present value

The net present value is calculated as the difference between the social value (opportunity costs) of the health service savings and the social value of the costs. This estimate does not take into account any change to service configuration which could potentially bring about greater costs or savings.

The ten year discounted net benefit is estimated to be minus £15.1 million and £55.7 million, reflecting the wide uncertainty in the estimates. The best guess estimate of net present value was minus £1.4 million (Appendix, table 9). A description of the estimates assumed for the highest, lowest and best guess estimates of net present value are presented with the table in the appendix.

Longer term changes in local service configuration

Advanced paramedics can currently be found working within a variety of healthcare settings and models of service. However, if independent prescribing was introduced, these existing models of service could be developed further, and new models of service configuration created allowing advanced paramedics to become more effective in their practice. For example, paramedic independent prescribers could become a more effective component within multidisciplinary teams and, undertake an increased number of home visits or run clinics to contribute to relieving the pressure off both in and out of hours GP's. They could also provide and manage clinics within accident and emergency departments, walk in centres, and minor injury units. Independent prescribing by advanced paramedics could free up doctors' time to see patients with more complex healthcare needs who require the detailed knowledge, understanding and skill set provided by a doctor. This could reduce waiting times in primary, community and accident and emergency care, and extend the range and breadth of services that can be offered in people's homes.

No robust estimate of the costs or savings that would result from service reconfiguration have been identified for this IA as this would require multiple assumptions about the future delivery of health care beyond the scope of this proposed change in regulations.

Rationale and evidence that justify the level of analysis used in the IA (proportionality approach);

More effort has been made to establish whether there is a short-term cost saving from a reduction in demand for additional clinical contacts than in quantifying the longer-term cost savings, or health benefits as forecasting the effects of service changes requires many more assumptions than impacts on current service configurations. Where there is a net benefit in the short term, any longer term health benefit or cost savings represent additional cost-effectiveness over and above the short-term gains.

Risks and assumptions;

Inappropriate and over-prescribing:

Theoretical risks (not observed in practice) associated with non-medical prescribing have been identified and are reported here. They are presented as changes in health care provider behaviour and changes in patient/carers behaviour:

Change in health care provider behaviour:

Clinicians granted prescribing rights but who do not have budgetary responsibility for prescribing costs do not face the same disincentives to prescribe as prescribers with budgetary responsibility. Therefore, the rate and cost of prescribing could increase overall. However, paramedics are likely to be prescribing in situations where another independent prescriber e.g. the patient's GP would otherwise prescribe, and therefore the overall increased rate and cost of prescribing is anticipated to be minimal.

Training and service standards to alleviate identified health care provider-side risks:

There are strict eligibility criteria for paramedics to access education programmes to become an independent prescriber. Only paramedics working at an advanced level will be eligible to access the training to become an independent prescriber, and there will need to be an identified role for the individual to independently prescribe within their practice. The present multi-professional non-medical prescribing training is provided as an integrated Higher Education programme for independent and supplementary prescribers. It is the relevant legislative framework which defines the mechanism(s) available to each profession and thus the assessment of course participants. The Health and Care Professions Council (HCPC) have the authority to approve education programmes for the provision of paramedic independent prescribing training. A *Draft Outline Curriculum Framework for Education Programmes to Prepare Paramedics as Independent Prescribers* has been developed.

To alleviate the risk of prescribing errors or adverse interactions as a result of polypharmacy, the paramedic independent prescriber should be aware of the medication the patient is currently taking including over-the-counter and herbal preparations before prescribing new medicines. They should take steps to ensure they have access to the primary source of prescribing information, which is likely to be in the patient's medical records, the summary care record, or equivalent. Prescribing is not an activity that occurs in isolation. Prescribing information must be shared with other health professionals who need to know the information for the benefit of the patient and this will include the patient's GP. Where possible, the paramedic prescriber should have access to other professionals' prescribing decisions where they impact

upon their own decisions. This will include communication across NHS-private practice boundaries where it is necessary to ensure that clinicians have appropriate information to inform their prescribing practice.

Change in patient/carer behaviour:

Once patients and their carers know that health care professionals other than doctors can prescribe, this could affect how they access health care. For example, a patient might choose to call 999 or 111 rather than wait to see their GP to access medicines, potentially increasing the cost of care since a 999 call-out is more expensive than a GP appointment, and reducing the capacity of the ambulance service to respond to urgent or emergency call-outs, thus reducing the effectiveness of the service. A patient or carer may also try to obtain additional courses of prescribed medicines that their GP was unprepared to provide.

Training and service standards to alleviate identified patient/carer-side risks:

Patients and carers will need to be educated that dialling 999 or 111 is not the correct way for them to access a prescription, and the paramedic independent prescriber must make it clear to the patient that prescribing activity cannot be undertaken in isolation. The prescriber will inform anyone else who may be in a position to prescribe for that patient of their actions to avoid prescribing errors, and to prevent two prescriptions for the same condition being obtained. This is most likely to be the patient's general medical practitioner, but may also include other health and social care professionals. If the patient refuses to consent to sharing such information the paramedic prescriber should offer an explanation of the risks of not doing so. If the patient continues to refuse to give consent, the paramedic prescriber should consider which course of action, including not prescribing, would be in the best interests of the patient. This must be documented in their records.

Monitoring and evaluation

As part of the work to take forward independent prescribing by physiotherapists and podiatrists, the project team worked with the Research and Development Directorate at the Department of Health (DH) to agree funding and a specification for an evaluation. DH initiated an open tender process and the University of Surrey was awarded the contract to undertake an evaluation of independent prescribing by physiotherapists and podiatrists. The study has commenced and is expected to be completed in early 2016. We intend to follow a similar approach in respect of independent prescribing by advanced paramedics.

Summary and preferred option with description of implementation plan

This section is to be completed after consultation only.

Appendix – Paramedics

Option 2. Independent prescribing for all conditions from the full formulary

Demand for training

Estimates of values and assumptions:

The number of participants per year is an estimate of demand provided by the College of Paramedics that estimated that 60 to 80 advanced paramedics would attend training per year in the first 5 years and a 5% turnover of the workforce annually.

Table 1. Demand by advanced paramedics for training courses in independent prescribing per year

Specialist and Advanced paramedics N=780	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total trained
No. training per year (low estimate)	60	60	60	60	60	39	39	39	39	39	495
No. training per year (high estimate)	80	80	80	80	80	39	39	39	39	39	595

Discounted financial costs of training

Estimates of values and assumptions:

The basis of the cost is the mean estimated price of the training course provided by two Higher Education Institutes (2,000 and £1,500 per participant) Source:

College of Paramedics telephone survey of Higher Education Institutes (mean = £1750).

Assumes 60 participants per year (higher estimate 80) for the first 5 years and then a renewal rate of 5% per year from years 6 to 10.

Assumes paramedic hourly pay rate including on-costs of £23.69 (mid-point on Grade 7 Agenda for Change salary scale plus 30% on-costs).

Annual course fees calculated by multiplying the number of paramedics in training by the course fees. Discount rate 3.5%

Table 2: Financial costs of training for advanced paramedics

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cumulative % trained in independent prescribing	8%	15%	23%	31%	31%	31%	31%	31%	31%	31%	
Discounted cost (low)	£105,000	£101,449	£98,019	£94,704	£91,501	£57,465	£55,521	£53,644	£51,830	£50,077	£759,210
Discounted cost (high)	£140,000	£135,266	£130,691	£126,272	£122,002	£57,465	£55,521	£53,644	£51,830	£50,077	£922,768

Discounted financial costs of staff backfill while on training courses

Estimates of values and assumptions:

Cost of backfilled staff is estimated at £22 per hour, based on Personal Social Services Research Unit (PSSRU) (2014) Unit costs for Band 6 staff, excluding qualifications and overheads. Total time for backfill is based on a 12-hour shift and 26 training days per advanced paramedic. Cost of replacement per trainee calculated to be approximately £6,732. Annual cost of backfill is calculated as the cost per trainee x number of trainees per year. Discount rate 3.5%

Table 3. Financial cost of staff time on training

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cost replacements (low uptake)	£403,945	£390,285	£377,087	£364,335	£352,015	£221,072	£213,596	£206,373	£199,394	£192,651	£2,920,752
Cost replacements (high uptake)	£538,593	£520,380	£502,782	£485,780	£469,353	£221,072	£213,596	£206,373	£199,394	£192,651	£3,549,974

Total discounted financial costs and opportunity costs by year

To estimate the opportunity cost of health care displaced by training and staff replacement, the financial cost (actual spend) was translated into quality adjusted life years (QALYs) at a rate of £15,000 per QALY. The social value of the health benefit displaced

by paramedic training (course fees and backfilled time) was calculated by re-monetising the QALYs displaced at a rate of £60,000 per QALY

Table 4. Total discounted financial costs and opportunity costs by year

Total financial cost (low uptake)	£508,945	£491,734	£475,105	£459,039	£443,516	£278,537	£269,117	£260,017	£251,224	£242,729	£3,679,963
Total financial cost (high uptake)	£678,593	£655,645	£633,474	£612,052	£591,355	£278,537	£269,117	£260,017	£251,224	£242,729	£4,472,742
Total opportunity cost (low uptake)	£2,035,779	£1,966,936	£1,900,422	£1,836,156	£1,774,064	£1,114,146	£1,076,470	£1,040,068	£1,004,896	£970,914	£14,719,851
Total opportunity cost (high uptake)	£2,714,372	£2,622,582	£2,533,895	£2,448,208	£2,365,418	£1,114,146	£1,076,470	£1,040,068	£1,004,896	£970,914	£17,890,970

Option 2. Independent prescribing for all conditions from the full formulary

Health service cost savings

Table 5: Responses to a survey undertaken by the College of Paramedics on rate of prescribing per week (College of Paramedics Membership 2013, N=79)

On average, how many times each week do you find that your patient indicated for a medicine based on the evidence base, but the patient is outside the PGD criteria?		
	Responses	Percentage
0 to 3	60	77.92%
4 to 9	15	19.48%
10 or more	2	2.60%
Total	77	

Estimated total demand in the NHS for a prescribing clinician that could be avoided by introducing enhanced prescribing for specialist paramedics

Estimates of values and assumptions:

Most and least favourable estimates calculated by multiplying the highest and lowest values in column 1 of table 3 by the total number of eligible paramedic prescribers, by the percentage of responders to the survey. The values in the first line of table 4 under demand for prescribing for example are 0 (=0 x 780 x 77.92%) and 1,823 (= 3 x 780 x 77.92%) in the low estimate and high estimate columns. The value used for the best estimate is the midpoint between the low estimate/ low % substitution value and the high estimate/ high % substitution value (i.e. $[10,537 + 90871]/2$). In the "10 times or more" category, it was assumed that a prescription is required up to 15 times per week per advanced paramedic in order to estimate demand for prescriptions in this category.

Table 6. Estimated total demand in the NHS for a prescribing clinician that could be avoided by introducing enhanced prescribing for specialist paramedics

No. advanced and specialist paramedics who could be eligible to prescribe	780	Demand for a prescribing clinician		Best estimate
		Demand for a prescriber per week	Percentage	
Up to 3 times	77.92%	0	1,823	
4 to 9 times	19.48%	607	1,367	
10 times or more	2.60%	202	304	
Total per week		811	3,495	
Total per year		42,150	181,741	
Estimated demand (25% prescriptions can be supplied by advanced paramedics)	25%	10,537	45,435	
Estimated demand (50% prescriptions can be supplied by paramedics)	50%	21,075	90,871	50,704

Financial savings from advanced paramedic prescribing

Estimates of values and assumptions:

GP appointments cost: £38, Source: Unit cost of health and social care 2013/14, for a GP face to face appointment lasting 11.7 minutes (based on (PSSRU) 2014)

GP telephone appointment lasting 7 minutes (ibid.), £23

GP home visit including call-out time (ibid): £95

A&E attendance: £90. Source A&E cost. NHS Reference cost 2013. Weighted average cost per attendance for patient with category 1 investigation and no treatment, and a patient discharged with no investigation or treatment

Lowest and highest estimates are calculated by multiplying lowest and highest estimates of demand reported in table 4, by the unit costs of health services.

Table 7. Estimated annual financial value of health service use per year that could be avoided if all advanced paramedics were independent prescribers, by different current options for accessing a prescription

Approx. 780 paramedics eligible to become independent prescribers	Lowest estimate	Highest estimate	Best estimate
GP appointment	£400,425	£3,453,084	£1,926,754
GP telephone	£242,362	£2,090,024	£1,166,193
50% GP telephone/face-to face appointment	£321,393	£2,771,554	£1,546,474
A&E	£947,380	£8,169,781	£4,558,580

Total financial savings and opportunity cost released from health service use avoided

Estimates of values and assumptions

Most favourable estimate assumes: all patients would have gone to A&E, highest estimate of demand reported in table 4;

Least favourable estimate assumes: all patients would have telephoned the GP and assumes lowest estimate of demand reported in table 4.

Best guess estimate assumes: 50% telephone GP, 50% GP appointment and assumes midpoint estimate of demand reported in table 4.

Annual benefit calculated by multiplying proportion paramedics in training the year before by the estimated cost of health service use reported in table 6 above

Following DH guidelines, the opportunity cost of savings in health care utilisation was estimated by converting the financial cost (actual spend) into health benefits as quality adjusted life years (QALYs) at a rate of £15,000 per QALY. The social value of freeing up health services to treat other people was calculated by re-monetising the QALYs displaced at a rate of £60,000 per QALY. Re-monetised QALYs were discounted at a rate of 1.5% per year.

Table 8. Discounted ten-year financial saving and opportunity cost of advanced paramedic prescribing, by proportion of trained paramedics in the workforce, assuming a conservative estimate of 25% of prescriptions for patients seen by a paramedic are within the paramedic's competency to prescribe

Year	1	2	3	4	5	6	7	8	9	10	Total
Financial savings- least favourable	0	£18,643	£36,026	£52,211	£67,261	£64,986	£62,788	£60,665	£58,614	£56,632	£477,825
Financial savings – most favourable	0	£628,445	£1,214,386	£1,759,979	£2,267,284	£2,190,613	£2,116,534	£2,044,961	£1,975,807	£1,908,993	£16,107,002
Financial savings - best estimate	0	£118,960	£229,873	£333,150	£429,179	£414,665	£400,643	£387,095	£374,004	£361,357	£3,048,926
Opportunity cost - least favourable	0	£74,573	£146,942	£217,155	£285,262	£281,046	£276,893	£272,801	£268,769	£264,797	£2,088,237
Opportunity cost– most favourable	0	£2,513,779	£4,953,259	£7,320,086	£9,615,877	£9,473,771	£9,333,764	£9,195,827	£9,059,928	£8,926,037	£70,392,327
Opportunity cost - best estimate	0	£475,838	£937,612	£1,385,633	£1,820,208	£1,793,308	£1,766,806	£1,740,696	£1,714,971	£1,689,627	£13,324,701

Option 2. Full prescribing for all conditions from the full formulary

Cost-benefit analysis (using opportunity costs for costs and benefits)

Ten- year net benefit assuming 25% of demand for prescriptions could be managed within the competency of an advanced paramedic with independent prescribing rights.

Estimates of values and assumptions:

Assuming 25% (low estimate, 50% high estimate) of prescriptions required by people seen by a paramedic are within the competency of an independent paramedic prescriber. All benefits of training accrue in the following year. High cost estimates of benefit assume 100% patients attend A&E for a prescription after seeing an advanced paramedic. Low cost estimate of benefit also assumes 100% of patients obtain a prescription by telephoning the GP. The best estimate assumes 50% see their GP for a face to face appointment and 50% telephone their GP

Costs and cost savings discounted at 3.5%.

Highest estimate assumes low demand for prescribing and all patients would otherwise attend A&E to access prescriptions

Lowest estimate assumes high demand for prescribing and all patients would access prescriptions by telephoning the GP

Best guess estimate assumes midpoint demand (reported in table 5) and that patients currently access medicines via their GP (50% access GPs by telephone, 50% by appointment)

Training uptake is assumed to be the lower estimate for all net benefits calculated

The net benefit is the difference in social value (measured as opportunity cost not financial costs) between benefits and costs.

Table 9. Ten- year net benefit assuming 25% of demand for prescriptions could be managed within the competency of an advanced paramedic with independent prescribing rights.

Net benefit (low uptake training)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Lowest estimate	-£2,035,779	£546,842	£3,052,837	£5,483,930	£7,841,813	£8,359,624	£8,257,294	£8,155,759	£8,055,032	£7,955,123	£55,672,476
Highest estimate	-£2,035,779	-£2,548,009	-£2,386,953	-£2,231,053	-£2,080,157	-£833,100	-£799,577	-£767,267	-£736,127	-£706,117	-£15,124,139
Best guess	-£2,035,779	-£1,491,098	-£962,810	-£450,523	£46,144	£679,162	£690,336	£700,628	£710,075	£718,713	-£1,395,150