

Explanatory Memorandum to the Non Commercial Movement of Pet Animals Order 2011

This Explanatory Memorandum has been prepared by the Office of the Chief Veterinary Officer and is laid before the National Assembly for Wales in conjunction with the above subordinate legislation and in accordance Standing Order 27.1.

Minister's Declaration

In my view, this Explanatory Memorandum gives a fair and reasonable view of the expected impact of The Non Commercial Movement of Pet Animals Order 2011. I am satisfied that the benefits outweigh any costs.

John Griffiths

Minister for Environment and Sustainable Development, one of the Welsh Ministers

5 December 2011

1. Description

- 1.1 The derogations to EC Regulation 998/2003, which have until now allowed the UK to retain additional rabies controls for pets entering from other Member States and listed third countries end on 31 December 2011. The additional controls were a blood test, a 6 month waiting period, tick and tapeworm treatment and quarantine for pets entering the UK from unlisted third countries.
- 1.2 The UK must now implement the requirements of EC Regulation 998/2003 as it currently applies across the EU with effect from 1 January 2012. This means that the additional controls for pets entering the UK from other Member States and listed third countries will no longer apply. The UK is allowed to retain pre-entry tapeworm controls for pet dogs. Pets from unlisted third countries will be able to enter the UK without the need for quarantine provided they meet very strict entry controls (which have applied for entry to other Member States since 2003).

2. Matters of special interest to the Constitutional and Legislative Affairs Committee

- 2.1 The Order is being made in exercise of powers contained in section 2(2) of the European Communities Act 1972 and section 10 of the Animal Health Act 1981. The Order will be made by the Welsh Ministers and the Secretary of State for Environment, Food and Rural Affairs acting separately but within a single composite legal instrument. The Secretary of State will act in relation to England and Scotland.
- 2.2 The Welsh Ministers may exercise powers under section 2(2) of the European Communities Act 1972. Section 59(2) of the Government of Wales Act 2006 empowers the Welsh Ministers to exercise the section 2(2) powers if they have been appropriately designated for the purposes of section 2(2). The Welsh Ministers have been designated in relation to the common agricultural policy and in relation to measures in the veterinary and phytosanitary fields for the protection of human health. The relevant Designation Orders are SI 2010/2690 and SI 2008/1792
- 2.3 The powers under section 10 of the Animal Health Act 1981 may be exercised to prevent the introduction or spread of disease into Great Britain by importation. They vest in the Welsh Ministers by virtue of the National Assembly for Wales (Transfer of Functions) Order 1999 (SI 1999/672) and by operation of section 162 of and paragraph 30 of Schedule 11 to the Government of Wales Act 2006.
- 2.4 Section 2(2) of the European Communities Act 1972 will be relied upon to implement our EU obligations under EU Regulation 998/2003. Section 10 of the Animal Health Act 1981 will be relied upon to make consequential amendments to existing legislation.
- 2.5 A composite instrument is likely to minimise the differences of approach between administrations. Further, the order will be implemented across Great Britain by the Animal Health and Veterinary Laboratories Agency and a single instrument with wholly common provisions is for more advantageous to the Agency. Defra and the Welsh Government consider the consistent policy and implementation dates and enforcement coordination achieved by a composite statutory instrument are desirable for all three administrations and for those affected by the Order who may otherwise have to consult 2 or 3 pieces of legislation.
- 2.6 As this instrument is also subject to a Parliamentary procedure it is not considered reasonable or practicable for them to be made bilingually.

- 2.7 The Welsh Ministers are to determine whether an instrument made in exercise of the section 2(2) powers is to be subject to the negative or affirmative procedure. They are of the view that the negative procedure is appropriate for the nature of this Order because it gives effect to directly applicable EU obligations which the Welsh Ministers have no discretion to change. In addition it does not impose any new financial burden, does not introduce new criminal offences and does not amend primary legislation

The Order will:

- (a) update the GB-wide Rabies (Importation of Dogs, Cats and Other Mammals) Order 1974 ("the Rabies Order") to:

- update references to the relevant EU instruments;
- require that pet animals that fail to meet the requirements on rabies and, where relevant, tapeworm when entering Great Britain, be detained in quarantine and their release prohibited until they comply with those requirements;
- consolidate the provisions in the Rabies Order that have been amended by the separate administrations on the basis that the Order now extends to Great Britain;
- remove certain provisions in the Rabies Order which will conflict with the relevant EU instruments after 31 December 2011;

- (b) amend the Zoonoses Order 1989 to include a requirement to notify the appropriate authority if an animal (any mammal except man) is known or suspected to be infected with the tapeworm *Echinococcus multilocularis* in Great Britain.

- 2.2 The Order is also made under domestic powers in section 10 of the Animal Health Act 1981, relating to the prevention of disease into Great Britain through the importation of animals, to make the following amendments to the Rabies Order which are not related to EU obligations:

- Include an exemption from quarantine for any animal of the Order *Rodentia* or *Lagomorpha* that is imported into Great Britain under licence for use at a research premises in connection with scientific research or to a zoo licensed under the Zoo Licensing Act 1981;
- Reduce the quarantine period for rabies-susceptible animals (other than a pet animal subject to EU Regulation 998/2003) from 6 months to 4 months and to amend references to this period throughout the Rabies Order;
- Grant discretionary powers to Ministers to reduce or waive the 4-month quarantine period for a rabies-susceptible animal (other than a pet animal) if satisfied that the release of the animal from quarantine will present negligible risk of the introduction of rabies into Great Britain.

- 2.3 The Order applies to Great Britain. It is executed by the Secretary of State in relation to England and Scotland and by the Welsh Ministers in relation to Wales exercising their powers in a single composite legal instrument. Separate legislation will be introduced in Northern Ireland and the Channel Islands.

3. Legislative background

Rabies

- 3.1 Regulation (EC) No 998/2003 lays down rabies import requirements which pets (dogs, cats and ferrets) must comply with when travelling between Member States and from third countries. Since 2004, that Regulation has included a derogation to enable the UK to apply more stringent import conditions for pets, these additional controls were permitted because of the UK's status as a rabies free country. The derogation expires on 31 December 2011, reduced incidence of rabies across the EU mean that those

additional controls can no longer be scientifically justified. From 1 January 2012, the EU-wide rabies import requirements under Regulation 998/2003 are directly applicable to the UK. This Order provides for the administration and enforcement of those requirements in Great Britain.

- 3.2 Unless an import licence has been granted in advance by the appropriate authority, it is an offence under the Rabies Order to land a pet dog, cat or ferret in Great Britain which fails to meet the requirements of Regulation 998/2003 and/or is transported into Great Britain on a carrier that has not been approved under the Order. Recognised assistance dogs as well as dogs, cats and ferrets travelling from the Republic of Ireland do not have to travel via an approved carrier. Pet dogs, cats or ferrets that fail to meet the rabies requirements when entering Great Britain are required to be detained in quarantine until such time as they comply with those requirements.

Tapeworm (Echinococcus multilocularis)

- 3.3 As well as rabies controls, the UK has also had a derogation under Regulation 998/2003 to apply additional import conditions on pet cats and dogs to protect against certain tick-borne diseases and the tapeworm *Echinococcus multilocularis*. This derogation also expires on 31 December 2011. From 1 January 2012, there will be no import controls for the UK relating to tick-borne diseases and the Order reflects that. Import controls relating to tapeworm have been revised and are implemented under a separate Commission Delegated Regulation. Under that Regulation, the new tapeworm import requirements, for dogs only, can be applied by Member States that are tapeworm-free, currently the UK, Ireland, Malta and Finland. The Order provides for the administration and enforcement of those tapeworm requirements in Great Britain.
- 3.4 It is an offence under the Rabies Order to land a pet dog in Great Britain which fails to meet the tapeworm import requirements in the Delegated Regulation unless an import licence has been issued in advance. Dogs that fail to meet the tapeworm requirements will be required to be detained in quarantine until they comply with the requirement (as well as any rabies import requirements that may apply).
- 3.5 In order to apply additional tapeworm controls under the Delegated Regulation, the UK is required to legislate to make *Echinococcus multilocularis* infection in host animals a notifiable disease. The Zoonoses Order 1989 is therefore amended to require notification of infection or suspected infection in Great Britain and failure to do so is made an offence.

Highly Pathogenic Avian Influenza

- 3.6 The Order enforces Commission Decision 2007/25/EC as regards certain protection measures that apply to the import of pet birds accompanying their owners into Great Britain to protect against the incursion of highly pathogenic avian influenza. If a pet bird is imported into Great Britain under the Order but does not comply with the obligations in the Decision, the appropriate authority has the option to serve notice on the pet owner requiring it to be re-exported, quarantined or destroyed. The Order creates a new criminal offence if the owner of the bird fails to meet the terms of such notice.

Nipah and Hendra

- 3.7 This Order enforces Commission Decision 2006/146/EC as regards certain protection measures that apply to the import of dogs and cats from Malaysia (Peninsula) to protect against the incursion of Nipah disease into Great Britain and the import of cats from Australia to protect against the incursion of Hendra disease into Great Britain. The Rabies Order has been amended to ensure that dogs and cats from Malaysia and cats from Australia which fail to meet the conditions in accordance with that Decision are prohibited from entering Great Britain and it is offence under that Order to land a dog or cat in Great Britain which fail to meet those conditions.

Pet Movements

- 3.8 The relevant EU instruments are directly applicable, so their provisions are not spelled out in the Order. Pet dogs, cats or ferrets brought into Great Britain from Northern Ireland, the Channel Islands and Isle of Man are not subject to the health requirements in the relevant EU instruments and are exempt from the provisions of the Rabies Order.
- 3.9 When the rules change on 1 January 2012, it will remain a requirement for pet dogs, cat and ferrets to enter Great Britain via an approved transport company ("carrier"). The responsibilities of carriers, such as carrying out identity and documentary checks on pets, are laid down in the terms and conditions of their approval. The Order requires carriers to comply with the conditions of their approval and sets out the general duties of carriers in this respect. The Secretary of State acting in relation to England or Scotland or Welsh Ministers acting in relation to Wales may suspend or withdraw an approval if satisfied the carrier has failed to comply with the terms of its approval. A carrier has the right to make representations against a suspension or withdrawal. It is an offence under the Order for a carrier to fail to comply with the conditions of its approval or to transport pets to Great Britain without an approval.

4. Purpose & intended effect of the legislation

- 4.1 From 1 January 2012, the UK will implement a revised Pet Travel Scheme to align its rabies import requirements with those currently applied by other Member States under European Regulation (EC) No 998/2003.
- 4.2 As well as rabies import requirements, the UK must also enforce requirements under separate EU legislation that protect against the risk of other diseases entering the UK via pet movements: highly pathogenic avian influenza (pet birds), Nipah disease (dogs and cats from Malaysia), Hendra disease (cats from Australia) and the tapeworm *Echinococcus multilocularis* (dogs).

The Non-Commercial Movement of Pet Animals Order 2011 ("the Order") enforces the following EU instruments in Great Britain:

- Regulation (EC) No 998/2003 on the animal health requirements applicable to the non-commercial movement of pet animals (rabies).
- Commission Decision 2006/146/EC on certain protection measures with regard to certain fruit bats, dogs and cats from Malaysia (Peninsula) and Australia (Nipah and Hendra)
- Commission Decision 2007/25/EC as regards certain protection measures in relation to highly pathogenic avian influenza and movements of pet birds accompanying their owners into the EU.
- Commission Delegated Regulation [2011/1152] on the preventative health measures for the control of *Echinococcus multilocularis* infection in dogs.

The Order also amends the Rabies (Importation, of Dogs, Cats and Other Mammals) Order 1974 and the Zoonoses Order 1989 (see paragraph 4.5 below).

- 4.3 Approximately 100,000 pet dogs, cats and ferrets enter the UK each year under the Pet Travel Scheme. From 1 January 2012, the entry rules for pets from other Member States and listed third countries will be simpler so it is expected that the number of pets entering the UK from those countries may increase. The simpler Pet Travel Scheme rules will also be of importance to pet owners in the UK so the number of UK pets travelling abroad is likely to increase. We will also expect to see pets entering the UK from unlisted third countries, which have previously been required to go into quarantine, but they will have to meet strict entry rules (including vaccination against rabies, a blood test and a 3 month waiting period). It is not expected that the numbers of pets entering from those countries

will be large (around 1,300 pets usually enter UK quarantine from those countries each year although this number reduced to around 750 in 2011). There are currently no authorised PETS entry routes in Wales.

- 4.4 Whilst the Pet Travel Scheme rules are being simplified, they will continue to provide control measures to protect human and animal health against the risk of disease entering the UK via the movement of pet animals. This is also significant to the broader UK population, e.g. those without pets and those with pets but who do not intend to take them abroad. Pets entering the UK will need to be identified and vaccinated against rabies and undergo a waiting period after vaccination. Dogs will need to be treated against tapeworm. Pets coming from non-listed third countries will need to satisfy much stricter conditions. Although an increased number of pets entering the UK under the new system are expected, the UK will continue to maintain its current system of ensuring that every pet is checked before it enters the UK to ensure that it meets the necessary animal health rules. If a pet does not meet the rules it will not be allowed to enter the UK unless it is placed into quarantine.
- 4.5 The Order also makes health rules on the import of five or less pet birds from third countries and requires dogs and cats from Malaysia to be accompanied by proof that they are protected against Nipah disease. For pet birds, a very small number of pet bird licences are issued each year. In terms of the number of dogs and cats entering from Malaysia, again this is very small.

5. Consultation

- 5.1 A formal consultation has not been undertaken as the changes to the Pet Travel Scheme are required by EU legislation and are directly applicable in the UK from 1 January 2012. The Order provides for the administration and proper enforcement of those directly applicable requirements. However, between May and August 2011, Defra and the Animal Health & Veterinary Laboratories Agency (AHVLA) held a number of meetings with relevant industry stakeholders, in particular veterinary organisations, quarantine owners and the transport sector, to discuss the changes and their effect and impact. Given that there are no authorised PETS carriers in Wales and only a very limited quarantine sector, Welsh Government officials agreed to DEFRA and AHVLA leading on these discussions, which were held on a GB basis. Meetings have also been held with the zoo industry to consider the implications of changes to the quarantine period for non-pet animals (i.e. those not covered by EC Regulation 998/2003).

6. Regulatory Impact Assessment (RIA)

<p>Title: Changes to the UK Pet Travel Scheme and subsequent amendments to the Non-Commercial Movement of Pets Regulation</p> <p>IA No: Defra 1370</p> <p>Lead department or agency: Defra</p> <p>Other departments or agencies: DH, Devolved Administrations, AHVLA</p>	Impact Assessment (IA)	
	Date: 05/10/2011	
	Stage: Final	
	Source of intervention: EU	
	Type of measure: Secondary legislation	
Contact for enquiries: Tonima Saha (policy) 0207 238 1811 Bob Young (economics) 0207 238 3248		
Summary: Intervention and Options		RPC: GREEN

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, One-Out? Measure qualifies as One-Out?
£73.3m	£m	£m	No NA

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

EU Regulation 998/2003 lays down the conditions with which pets must comply when being moved between Member States and from third countries. This has the objective of protecting public and animal health from the risk of rabies. The UK has two temporary derogations under Regulation 998/2003 to apply more stringent measures to protect against rabies, and additional controls to protect against tick-borne diseases, and the tapeworm *Echinococcus multilocularis* (EM). Both derogations expire on 31 December 2011, although the UK is seeking to retain controls on tapeworm beyond that date. Legal and practical changes are required to bring the UK's Pet Travel Scheme in line with EU Regulation 998/2003.

What are the policy objectives and the intended effects?

The aim is the protection of public health, whilst ensuring that our domestic legislation will be fully up to date, consistent with EU law, and fit for purpose. From 1 Jan 2012 the UK will implement a revised Pet Travel Scheme to align its entry requirements with the standard pet movement controls for rabies required under Regulation 998/2003. Not implementing the changes will expose the UK to the risk of infraction. The Non-Commercial Movement of Pet Animal (England) Regulations 2004 will be revoked and replaced with GB-wide legislation to reflect the changes.

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

Option 0 – Maintain current UK Pet Travel Scheme. This would be in breach of our legal obligations under 998/2003 and lead to risk of infraction and a breakdown of the scheme on the ground as private sector partners are unlikely to continue to operate the scheme without a sound legal basis to do so.

Option 1 - harmonise fully with the EU scheme for rabies and with no controls on tapeworm or ticks. This is the 'legal default' when the UK's current derogations expire. However to abandon controls on tapeworm would put public health at risk so is not the preferred option. However, this may be the final outcome if the UK is unsuccessful in securing agreement to ongoing tapeworm controls.

Option 2 –harmonise with the EU controls on rabies, do not maintain tick controls, but seek to maintain tapeworm controls . This is the preferred option as it continues to protect public health from the most serious risks, whilst ensuring we meet legal requirements with respect to rabies controls.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 01/2017

Does implementation go beyond minimum EU requirements?	Yes				
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro Yes/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:
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Summary: Analysis & Evidence Policy Option 1

Description: Full Harmonisation with the EU (bringing the rabies controls into line with the EU and dropping compulsory entry requirements on tapeworm and ticks)

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2012	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: £60.8m	High: £70.4m	Best Estimate: £65.6m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate		£2.67m	£20.81m

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

There is a cost (£10,000 a year on average) associated with controlling a rabies incursion. The cost is very small because the risk of a rabies outbreak occurring in the UK is tiny. The costs would accrue mainly to the Government and pet owners. The disease cost of human tapeworm infection (AE) is estimated to be about £2.66m a year which would accrue mainly to those members of the public who are infected and the NHS. This option is on the whole deregulatory.

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

The costs of discomfort, pain and anxiety associated with human tapeworm infection have not been measured. These would accrue to those who are infected and their families. The transitional adjustment costs falling to the quarantine sector as it downsizes have not been measured. Where tick infestations occasionally arise in dwellings etc the costs of eradication have not been included – these costs would probably fall on households.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	£9.48m	£81.60m
High	Optional	£10.60m	£91.24m
Best Estimate		£10.04m	£86.42m

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

Benefits would accrue to pet owners returning to the UK and those arriving to reside in the UK with their pets. These would arise from saving the costs of blood tests for their pets (£4.3m a year), tick and tapeworm treatments (£2.8m a year) and quarantine costs (£3m a year). The range in benefits arises from using a range for the cost of tick and tapeworm treatments.

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

Reduction in waiting time following rabies vaccination.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
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Key assumptions relate to the risk of a rabies outbreak and the risks of human diseases. The risk of a rabies incursion is well evidenced through a quantitative risk assessment. The risks of the brown dog tick and EM establishing in the UK (and the implications for the human diseases AE and MSF) are assessed through formal qualitative risk assessments.

The analysis assumes that the number of travelling pets will be similar to the numbers recorded in 2010.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:	In scope of OIOO?	Measure qualifies as
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Costs:	Benefits:	Net:	No	NA
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Summary: Analysis & Evidence Policy Option 2

Description: Harmonise with EU controls on rabies, drop tick controls but maintain tapeworm controls (albeit with a 1 to 5 day treatment window instead of 24 to 48 hrs).

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2012	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: £70.9m	High: £75.7m	Best Estimate: £73.3m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate		£0.10m	£0.87m

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

The cost of controlling a rabies incursion is the same as option 1 (£10,000 a year on average). In addition there is a small cost (£30,000 a year) for tapeworm treatment falling to pet owners for pets arriving from unlisted third countries. The costs of additional veterinary surveillance of £60,000 a year falls to government/taxpayers.

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

There are no human disease costs associated with this option and therefore the costs of pain etc do not arise. As in option 1 the transitional adjustment costs falling on the quarantine sector as it downsizes have not been monetised and neither have the small costs of clearing up tick infestations.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	£71.78m
High	Optional	Optional	£76.61m
Best Estimate			£74.20m

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

As option 1 except that the savings to pet owners for tapeworm treatments (£1.4m a year) would not be realised because the requirement to treat for tapeworm is retained.

The range in benefits arises from using a range for the cost of tick treatments.

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

As option 1.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

As option 1 except that the risks of AE are significantly reduced by the retention of the tapeworm controls.

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

Evidence Base (for summary sheets)

The problem and rationale for intervention

1. Compulsory entry conditions for domestic pets are a risk mitigation measure intended to reduce the chances of serious diseases entering the UK which could impact on both human and animal health. The main risks that controls currently mitigate are rabies, tick-borne diseases such as Mediterranean Spotted Fever and Alveolar Echinococcosis (i.e. infection by the tapeworm *Echinococcus multilocularis*).
2. Human and animal health externalities provide the economic rationale for these entry conditions and controls. If introduced into the UK these serious diseases could spread (and even become established) imposing costs on the public and the National Health Service and yet individuals arriving in or returning to the UK with their pets face insufficient incentives to ensure they are disease free - hence compulsory controls are needed. The rationale for the specific measures considered in this Impact Assessment, which on the whole are deregulatory making it easier and less costly for travelling pet owners, is about proportionality – achieving a better balance of costs and benefits taking account of the risks to human and animal health.
3. Rabies is a serious disease which affects all warm-blooded animals, including humans, and is almost invariably fatal once symptoms have developed. Transmission occurs usually through saliva via the bite of an infected animal. Human infection by the *Echinococcus multilocularis* tapeworm results in a serious chronic disease with symptoms similar to those of liver cancer and cirrhosis of the liver. It is treatable but is likely to result in death if left untreated. Mediterranean Spotted Fever is a serious disease in humans causing a variety of non-specific symptoms. Without early treatment it can result in serious complications or even death.
4. Our approach to dealing with the risks of disease incursion has changed as our understanding of the diseases and control measures has increased over recent years. Mandatory 6 month quarantine was introduced in the late 19th century for pets coming into the UK. In 1998 the Government published a report by Professor Ian Kennedy (*Rabies and Quarantine: a Reappraisal*) which recognised improvements in the effectiveness of rabies vaccines and reduction in rabies incidence in a number of countries. The report also considered the risks of *Echinococcus multilocularis* and Mediterranean Spotted Fever. The report made a number of recommendations for a reform of the UK quarantine system and paved the way for the introduction of the UK Pet Travel Scheme (PETS).
6. The Pet Travel Scheme pilot was launched in the UK in February 2000 and allowed cats, dogs (and later ferrets) from Member States and certain Third countries to avoid quarantine if they implemented other disease control

measures. The scheme also included a requirement to treat all animals against ticks and tapeworm. The rules also applied to pets going abroad and coming back into the UK. The Non-Commercial Movement of Pets Regulation (2004) provided the practical, administrative and enforcement provisions to support the regime.

7. In 2003 the EU brought in its own pet travel scheme, which may be considered a simplified version of the UK Pet Travel Scheme. There is no requirement for tick or tapeworm treatment under the EU Scheme. The Non-Commercial Movement of Pet Animals (England) Regulations 2004 provide the practical, administrative and enforcement provisions to apply the regime in England although the UK has two temporary derogations to retain its pre-existing pet movement controls in relation to rabies and also tick and tapeworm. Over the past few years the derogations have been extended but they are now due to expire at the end of December 2011.
8. Over ten years since the introduction of the Pet Travel Scheme would, in any case, be a good time to re-visit our controls, and there are sound legal and administrative arguments for the UK to move towards the harmonised EU regime. Most important is the very significant reduction in the incidence of rabies across EU Member States. It is important that where appropriate we revise our rules to reflect the reality of the disease situation across the EU. The standard EU Pet Travel Scheme has been highly successful in preventing the spread of rabies, with not a single reported case of rabies associated with the legal movement of pets since the EU scheme was introduced in 2003.
9. Whilst the incidence of rabies has dramatically reduced, incidence of the tapeworm *Echinococcus multilocularis* seems to be on the increase in continental Europe, with approximately 300 cases per year reported in humans. Our current entry controls require tapeworm treatment 24-48 hours before embarkation to the UK to mitigate the risk of introducing the tapeworm into the UK. The European Commission has come forward with proposals that would allow the UK to retain additional tapeworm controls by way of a delegated act as provided for in Article 5 of Regulation 998/2003. The proposal would require tapeworm treatment 24-120 hours before embarkation and imposes additional surveillance for the tapeworm in the UK. The proposal of a treatment window of 24-120 hours will ensure that the risk of this tapeworm entering the UK from pets remains low. The slightly wider treatment window balances the need to manage risks in a proportionate way, whilst helping to increase compliance thereby reducing the risk of untreated animals entering the UK. For example, the current 24-48 hour treatment window makes it practically difficult for pet owners travelling over the weekend to comply with these rules. The proposal is currently with the European Parliament and Council for consideration.

10. Under the current UK scheme, tick treatment is also required 24-48 hours before embarkation for the UK to mitigate the risk of a range of tick-borne diseases. The risk of introduction of the brown dog tick under harmonised rules could increase from the current low risk level to medium risk, however the likelihood of these becoming established in the UK environment in the long-term is negligible. We therefore do not intend to continue to require mandatory tick controls beyond 31st December 2011.

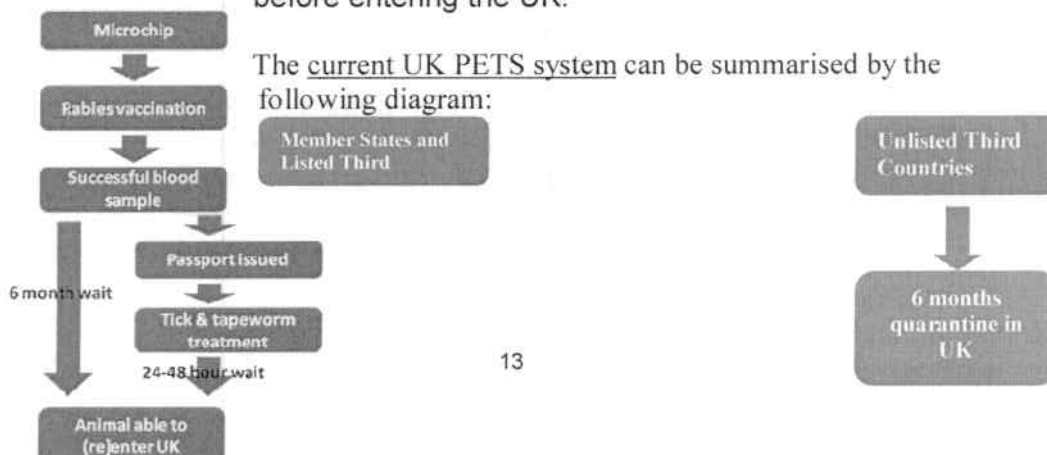
Policy Objective

11. The ultimate aim of this policy is to continue to protect public health, whilst ensuring that our domestic legislation will be fully up to date, consistent with EU law, fit for purpose and cost effective. From 1st January 2012 the UK will implement a revised Pet Travel Scheme to align its entry requirements with the standard harmonised pet movement controls for rabies required under Regulation 998/2003 and to avoid the risk of infraction. The Non-Commercial Movement of Pet Animals (England) Regulations 2004 will be amended to reflect the change on a GB basis, notably the enforcement regime, the responsibilities on private sector partners under the new scheme, and additional control measures for other diseases (e.g. Tapeworm)

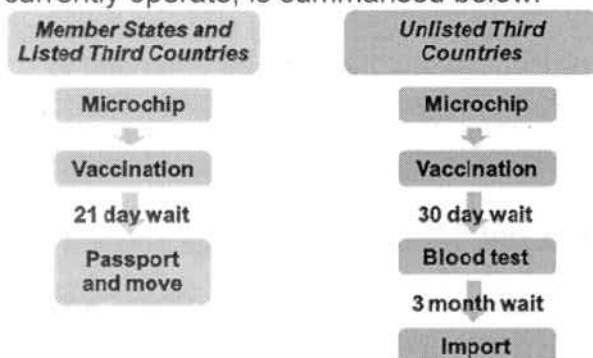
Comparison of the current UK system and the EU system to be applied from 2012

12. Under the UK's current Pet Travel Scheme, pets from Member States and listed third countries (e.g. Australia, Canada) can currently enter (or re-enter) the UK without quarantine provided they meet certain criteria (microchip, rabies vaccine, blood test, and six month waiting period before entering the UK). Tick and tapeworm treatment must be administered 24-48 hours before embarkation to the UK. Pets from unlisted third countries (e.g. India, Sri Lanka) must spend a compulsory six months in quarantine before entry into the UK.

13. The EU scheme requirements do not include a blood test for pets from Member States or listed third countries, and there is a much shorter waiting period after vaccination (21 days). Pets from unlisted third countries may enter the UK without quarantine provided they meet certain criteria (microchip, vaccine, blood test, 3-month waiting period). Moreover, under EU harmonised measures, pets do not require tick and tapeworm treatment before entering the UK.



The UK system from 2012, and that which other European Member States currently operate, is summarised below:



14. The EU Pet Travel Scheme does not provide for additional controls for diseases other than rabies. The UK is seeking to maintain mandatory tapeworm treatment of pets in addition to the standard harmonised EU controls for rabies. We are currently in discussion with the European Commission with regard to the long-term tapeworm treatment requirements for pets entering the UK, and the current working assumption is that this treatment will be required 24 to 120 hours before entry to the UK.

Background on the diseases and their risks

15. Currently approximately 100,000 animals per year travel through the UK PETS scheme. A large majority (60%) have UK pet passports, and another (20%) enter from our nearest neighbours in the European Union (France, Germany, Spain and The Netherlands), which are rabies free.
16. Under the current UK Pet Travel Scheme, around 2,500 animals per year enter into quarantine. This may be a result of a requirement for 6 months quarantine if the pet is entering the UK from an unlisted 3rd country; or if the owner has chosen to put their pet into quarantine rather than meeting the Pet Travel Scheme requirements (e.g. if they have had to relocate

quickly); or if the pet is found to be non-compliant with the entry requirements on entry to the UK, (in which case it may be held in quarantine premises at the owners expense until it is compliant). There are currently 27 centres authorised as quarantines in the UK, most of which also run boarding kennels or provide other pet services.

Rabies

17. Rabies is a serious disease which affects all warm-blooded animals and is invariably fatal once symptoms have developed. It can be passed between species including to humans and it is normally passed on through a bite by an infected animal.

The United Kingdom is officially classified as free from terrestrial rabies, but rabies persists in most continents across the World.

Rabies occurs in two epidemiological cycles, the urban and wildlife cycles. In the urban rabies cycle, dogs are the main reservoir host. This cycle is predominant in much of Africa, Asia, and Central and South America, where the proportion of unvaccinated and semi-owned or stray dogs is high. It has been virtually eliminated in North America and Europe.

18. The sylvatic (or wildlife) cycle is the predominant cycle in Europe and North America. In some EU Member States, the disease is still present in wildlife. Since the 1980's oral vaccination programmes have been used across the EU to control sylvatic rabies. Incidence levels in EU "equivalents" (e.g. Switzerland, Iceland) and listed third countries are more variable. Most are demonstrably disease-free (e.g. Australia, New Zealand, Norway). Some have quite significant incidence levels in wildlife and some disease in the domestic pet population, but have put vaccination programmes in place, which over time should steadily get the disease under control (e.g. Russia), while a number have low-level rabies incidence in wildlife but very low levels in domestic pets coupled with extremely well-established domestic animal vaccination programmes. (E.g. USA, Canada).

A quantitative risk assessment (QRA) was commissioned in 2010 to consider how the risk of rabies introduction to the UK via travelling pets would change were the UK to apply the current harmonised EU rules for the non-commercial movement of pets.

19. The results of the QRA, assuming 100% compliance with all regulations, suggest that under the harmonised EU scheme the annual risk of rabies introduction from non-UK cats/dogs would increase from an average of 7.79×10^{-5} (90% confidence range: 5.90×10^{-5} to 1.06×10^{-4}) to 4.79×10^{-3} (4.05×10^{-3} to 5.65×10^{-3}). This is equivalent to importing a rabid pet into the UK every 211 years. Under the EU scheme the highest mean risk is

from listed third countries, and there is actually a decrease in the mean risk of rabies entry to the UK from unlisted third countries - largely due to the use of a serological test with a high specificity.

20. This solely reflects the risk of a rabid pet animal entering the UK. The absolute level of risk is extremely low, but the risk of human infection (or longer term disease establishment in the UK) will be much lower still. Defra and the Welsh Government's Rabies Control Strategy outlines the animal control measures that would be taken should an outbreak of rabies occur. This is supported by the Health Protection Agency's Human Health Strategy for Rabies which addresses potential public health issues.
21. Considering information from cases in other parts of Europe (Johnson *et al.* 2011) rabies experts advised that approximately 90% of cases will be "minor". That is to say that the primary case of infection is identified swiftly and its history is known. This means that there are likely to be few, if any cases of humans exposed to rabies, and few control measures may need to be applied. Furthermore, post-exposure vaccines for humans are highly effective and therefore the likelihood of human deaths caused by rabies is very low.

Tapeworm

22. *Echinococcus multilocularis* is a cyclophyllid tapeworm that produces the disease known as echinococcosis in certain mammals. The typical transmission cycle of *E. multilocularis* in Europe is wildlife based, involving red foxes as the main final host, and rodents as intermediate hosts. It is widespread in Europe, and although surveillance is limited, where longitudinal data exist, there appears to be an increase in parasite prevalence over time and there are indications that the parasite is extending its geographic range¹
23. Domestic cats and dogs can be infected by ingesting infected intermediate hosts, and the increasing numbers of pets moved around the EU presents a major risk pathway for introduction of *E. multilocularis* into free areas. Whilst these risks are difficult to quantify, evidence² suggests that without tapeworm treatment, for every 10,000 dogs travelling to Germany and back to the UK, there is greater than 98% chance of at least one animal returning to the UK infected with the tapeworm.
24. As with the risk of rabies discussed in the risk assessment, this reflects the risk of incursion and not of human infection. However once introduced into a clean area the likelihood of *E. multilocularis* becoming established,

¹ EFSA 2006 Assessment of the risk of rabies introduction into the UK, Ireland, Sweden, Malta, as a consequence of abandoning the serological test measuring protective antibodies to rabies. The EFSA journal, 446, 1-54

² Risk assessment of importation of dogs infected with *Echinococcus multilocularis* into the UK, P. R. Torgerson, and P. S. Craig, Sept 2009.

is high. There are no clinical signs of infection by the tapeworm in dogs or foxes, and in humans infection with AE may not produce any symptoms for many years. Options such as mass treatment of urban foxes using anthelmintic bait or culling of foxes are not considered cost effective³.

25. Humans may become accidentally infected by ingesting eggs excreted by the infected definitive hosts, either foxes or dogs. There are now approximately 300 cases each year in Europe⁴. Human infection by the tapeworm *Echinococcus multilocularis* results in the serious disease called alveolar echinococcosis. Alveolar echinococcosis (AE) is characterised by tumour-like or cyst-like tapeworm larvae growing in the body. Because the cysts are slow-growing, infection with AE may not produce any symptoms for many years. Pain or discomfort in the upper abdominal region, weakness and weight loss may occur as a result of the growing cysts. Symptoms may mimic those of liver cancer and cirrhosis of the liver. It is treatable but is likely to result in death if left untreated.
26. Treatment is long-term and expensive often consisting of surgery and long-term medication. Often, chemotherapy has to be continued for the lifetime of the patient, and without it the 10-year survival rate is around 10 %⁵. It has been estimated that the global burden of AE, in terms of Disability Adjusted Life Years⁶ (DALYs) is 666,500 per annum, which is on par with other parasitic infectious diseases. Costs of treatment (based on Swiss, Japanese and French statistics) can be as high as £100,000 per patient (based on average ten year survival).

Tick-borne diseases

27. Ticks are recognised as important reservoirs and potential vectors of numerous diseases of both animal and public health importance. The presence of ticks and most of the diseases they transmit are not notifiable or reportable in most countries in the EU or elsewhere and systematic and comparable surveillance data are lacking. Available information on the spatial distribution of both the diseases and the vectors is limited in many EU member states and prevents an accurate quantification of the increase in risk, however the UK has high quality surveillance evidence indicating the UK remains free of

³ Eckert J, Deplazes P. Biological, epidemiological, and clinical aspects of echinococcosis, a zoonosis of increasing concern. *Clin Microbiol Rev.* Jan 2004;17(1):107-35.

⁴ Torgerson et al. 2010

⁵ Eckert and Deplazes. 1999 Alveolar echinococcosis in humans: the current situation in central Europe and the need for countermeasures. *parasitology today* 15, 315-319

⁶ The disability adjusted life year is a measure of disease burden which expresses the number of years lost due to ill-health, disability or premature death. For a specific disease DALYs are calculated by summing the number of years of life lost with the number of years lived with disability.

the *Rh. sanguineus* except for the occasional report from quarantine kennels.

28. The 'Brown Dog Tick' *Rh. sanguineus* has a global geographic distribution from the Americas, to Africa, Asia and Europe between 35° S and 50° N. It has been implicated as a vector of several human and animal pathogens including *R. conorii*, the causal agent of Mediterranean spotted fever. Mediterranean spotted fever is a serious though treatable disease in humans causing a variety of non-specific symptoms. Without early treatment it can result in serious complications or even death. As the name suggests, Mediterranean Spotted Fever continues to have a limited distribution around the Mediterranean basin, although the epidemiological factors behind this are not fully understood.
29. Defra, DH and HPA have carried out a qualitative risk assessment considering the risk of incursion of tick-borne diseases if the current control measures were abandoned in 2012. It focused in particular on Mediterranean Spotted fever carried by the tick *Rh. sanguineus*. In summary this concluded:
 - The risk that *Rh. sanguineus* potentially infected with MSF are being introduced to the UK by travelling pets under the current regime is considered to be low.
 - The risk of *Rh. sanguineus* being introduced on untreated pets travelling under harmonised EU pet travel rules would increase to medium. A proportion of the *Rh. sanguineus* ticks (generally < 15%) could be infected with MSF.
 - On establishment of the tick vector in the UK environment the risk of this occurring in current climate conditions is negligible. However the risk that the *Rh. sanguineus* tick, could become established within households, leading to possible dissemination between households and kennels is medium.
 - Therefore, the combined risk level for release and exposure (based on introduction and establishment) would be negligible for long-term establishment of the tick in the UK under current conditions, but for short term establishment in UK households and kennels it would be non-negligible and possibly low.

Again this reflects the risk of the disease arriving in the UK, and not the likelihood of human infection.

Consideration of Options

30. In considering the possible options for pet movement controls beyond 31st December 2011, our primary consideration is the continued protection of public health. However we are also bound in part by legislative constraints. The extension of our current derogations until 2012 was an extension of what was considered a "transitional regime". This is to be replaced with harmonised measures under EU regulation 998/2003, which does not provide explicitly for the current rabies controls to be revisited.

However the Regulation does provide for Member States to apply to the Commission for additional controls for "other diseases", which allows us to present a case to maintain our tapeworm controls.

Option 0 – maintain current UK Pet Travel Scheme. This would breach our legal requirements to harmonise with the EU scheme under 998/2003 and lead to risk of infraction and a breakdown of the current scheme on the ground as private sector operators are unlikely to apply current requirements without a sound legal basis to do so. We do not have evidence to justify keeping our current rabies controls as the EU harmonised system for rabies has been shown to be effective, and continued tick treatment is no longer considered to be proportionate to the risks posed. This option is the do nothing baseline for the cost benefit analysis against which other options are compared although for this purpose the likely breakdown of the scheme and infraction proceedings have been ignored.

Option 1 - harmonise fully with the EU scheme (bringing the rabies controls into line with the EU and dropping compulsory controls on tapeworm and ticks). This is the 'legal default' when the UK's current derogations run out. However to abandon controls on tapeworm would put public health at risk so is not the preferred option. However, this may be the final outcome depending on whether UK is successful in securing agreement to ongoing tapeworm controls.

Option 2 –harmonise with the EU controls on rabies, drop tick controls but seek to maintain tapeworm controls (albeit with a 24 to 120 hour window for treatment instead of 24 to 48 hours) This is the preferred option, despite going beyond EU minimum requirements, as it continues to protect public health from the risk of tapeworm, whilst ensuring we meet legal requirements with respect to rabies controls.

Option 1 - Detail

31. This section considers option 1 in detail. The policy changes, benefits, risks and costs of the separate elements of harmonisation (rabies according to origin of pet import, ticks and tapeworm) are summarised in table 1 below to give an overall picture of the changes relative to option 0.

Table 1: Pet Travel Scheme Full Harmonisation : description of costs and benefits

Policy Area	Policy Change	Benefits	Change in Risk	Potential Disease Costs	Comments/distributional effects
RABIES: EU	Blood test no longer required; Wait reduced from 6 months to 21 days	<u>To pet owners:</u> saving cost of blood test. Reduced wait implies greater convenience. <u>To AHVLA:</u> admin savings	Based on VLA Quantitative Risk Assessment (QRA)	<u>To Defra and public:</u> cost based on scenarios of possible disease incursions with associated probabilities	
RABIES: Listed TCs	Blood test no longer required; wait reduced from 6 months to 21 days	As Rabies EU.	VLA QRA	As Rabies EU above.	
RABIES: Unlisted TCs	Microchip, vaccination and blood test required; quarantine not required but 3 month wait before import	<u>To pet owners:</u> net saving on cost of quarantine which is no longer necessary offset by additional costs of microchip and blood test <u>To AHVLA:</u> Saving on inspection of quarantine premises.	VLA QRA	As Rabies EU above	Possible serious consequence for future viability of the private-run quarantine sector although resources released by this sector would be expected to redeploy elsewhere. (Note that many affected businesses are likely to be small or micro.)
TICKS: EU/Listed TCs (1)	Removal of controls (ie treatment 24 to 48 hrs before entry to UK)	<u>To pet owners:</u> saving of treatment cost and inconvenience of treatment window	Increase in risk that exotic ticks introduced to UK but unlikely to become established (Defra Qualitative Risk Assessment)	Ticks may become established in the short term in kennels and households if tick treatment is not habitually applied, so there would be an increase in disease risk to people in such households	There may be a small cost involved for pet owners where ticks become established in the household and furniture requiring treatment. However the number of households and the costs of such treatment are not known.
TAPEWORM: EU/Listed TCs (1)	Removal of controls (ie treatment 24 to 48 hrs before entry to UK)	<u>To pet owners:</u> saving of treatment cost and inconvenience of treatment window	Increase in risk of tapeworm establishing in UK (Torgerson & Craig article suggests that for 10,000 dogs entering from Germany without controls 98% probability of at least one returning infected.)	<u>To NHS and public:</u> Over time it is assumed that tapeworm will become established in UK leading to human disease incidence.	

(1)There is no requirement for unlisted third country pets entering quarantine to undertake treatments for tick and tapeworm.

The following sections consider the benefits, disease risks and costs of harmonisation in more detail.

Benefits

32. The benefits to pet owners from harmonisation are set out in table 2. Pet numbers are based on administrative data for 2010 from the AHVLA database. 2010 is thought to be a reasonably typical year. Pets are recorded according to where their passports have been issued although those entering quarantine from unlisted third countries are recorded separately. The table below shows the benefits to **all pet owners** but only those **who are resident in the UK are relevant to the cost benefit analysis** as shown in the pie chart below.

Table 2: Annual Benefits to Pet Owners from Harmonisation of Pet Travel Scheme

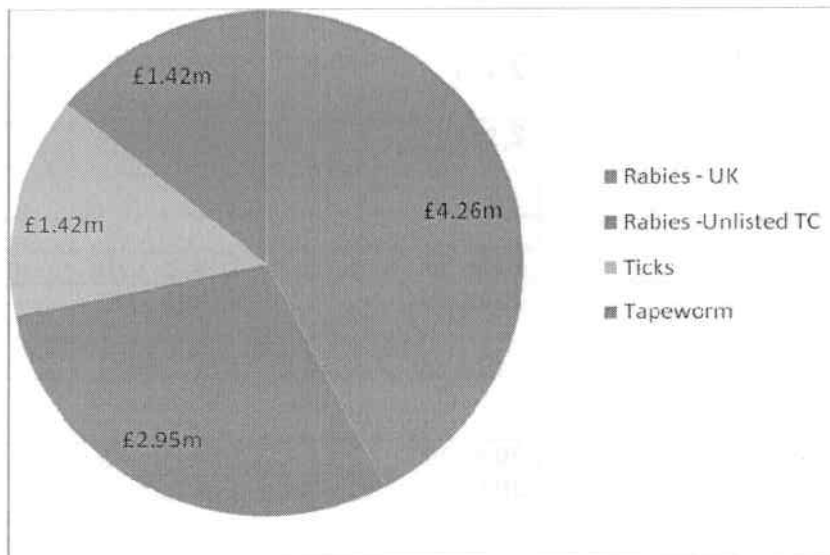
	Pet Numbers (according to origin of passport)	Unit Benefit (£/pet)	Total Benefit (£m pa)
Rabies controls	(1)	(2)	(1)x(2)
UK	56,769	75	4.26
EU/Equivalents and Listed Third Countries	37,252	75	2.79
Unlisted Third Countries - Dogs	709	2,475	1.75
Unlisted Third Countries – Cats and Ferrets	550	2,175	1.20
Tick Treatment			
UK	56,769	20 to 30	1.14 to 1.70
EU/Equivalents and Listed Third Countries	37,252	20 to 30	0.75 to 1.12
Tapeworm Treatment			
UK	56,769	20 to 30	1.14 to 1.70
EU/Equivalents and Listed Third Countries	37,252	20 to 30	0.75 to 1.12

Notes: unit benefits are the approximate prices (at 2011 levels in the UK) charged by vets for preparing pets for travel (e.g. for blood test and tick and tapeworm treatments) or by quarantine providers for quarantine services. The source for this information has been veterinary advice. Ranges are given for tick and tapeworm treatment prices to reflect the variability in prices charged. UK, EU and Listed Third Country pet numbers are based on origin of pet passports. UK pet passport holders are assumed to reside in the UK as are owners of third country pets entering 6 months quarantine. EU and listed third country passport holders are assumed to be non-resident.

33. The benefits from the changes to the rabies controls arise from cost savings to travelling pet owners. These are the costs of quarantine (net of additional costs for microchip, vaccination and blood test) for those entering from unlisted third countries and the cost of a blood test for those entering from everywhere else. These are estimated to amount to about £10m a year in total with about £7.2m accruing to UK residents (£4.26m to

UK pet passport holders plus £1.75m and £1.20m unlisted third country dogs and cats respectively). Those entering from unlisted third countries are assumed to be intending to reside in the UK because their pets currently spend 6 months in quarantine. The balance (£2.79m) mainly accrues to foreign holidaymakers who will be returning home at the end of their holiday. The reduction in waiting periods is also a benefit to pet owners but this has not been monetised. The benefits from not having to undertake treatments for tick and tapeworm before travelling accrue to pet owners in the form of lower costs and greater convenience. Taking the mid-points from the ranges above the reduction in costs would amount to about £4.7m of which about £2.8m (£1.4m for tick treatments and £1.4m for tapeworm treatments) accrues to UK residents. The breakdown of measured **benefits to UK residents** is shown in the pie chart below.

Chart : Annual Benefits to UK Residents from Harmonised Pet Travel Controls



34. As stated above these benefits are based on the numbers of pets travelling in 2010 (a typical year). AHVLA do not have data for enough years to enable reliable trends to be estimated but obviously if the number of pets travelling in the future were to change then the aggregate benefits to pet owners would also change. The change would be broadly pro rata. For instance if there were a 5% increase across all categories of pets travelling (eg as a result of future economic growth and rising incomes) there would be a 5% increase in UK benefits (about £500k a year). However this would apply only to those pet owners who would have been willing to pay the current costs of preparing their pet for travelling. Some pet owners who would previously have been unwilling to travel with their pets may in the future be induced to travel because it is simpler

and cheaper under the new arrangements. These pet owners would not enjoy the full benefits as measured above (because they were put off travelling under the former regime). On average we assume that such pet owners would enjoy about half the unit benefits measured above in table 2. In this case every additional 1,000 UK pet owners induced to travel with their pets would increase benefits by £63k⁷.

Disease Risks

35. The risks associated with changing the border controls on pets entering the UK relate to rabies, certain tick borne diseases and alveolar echinococcosis (tapeworm). These are diseases that can affect humans as well as animals.

36. **Rabies:** As mentioned in the background section the Animal Health and Veterinary Laboratories Agency (formerly the Veterinary Laboratories Agency) undertook a quantitative risk assessment⁸. This measured the risk of a pet entering the UK with rabies under both the current pet travel arrangements and the new harmonised scheme. Although there will be an increase in the risk under the harmonised scheme the absolute level of risk will remain very low. Assuming 100% compliance with the rules one pet with rabies is expected to enter the UK on average every 211 years. Of course the pet's illness may be recognised and identified without it going any further but if it leads to further spreading of the disease there are a range of possibilities (see costs section following)⁹.

37. The important question of non-compliance needs to be taken into account. There are two types of non-compliance. Known non-compliance occurs when a pet fails a check and steps are taken to rectify the situation e.g. the pet is not allowed entry to UK or it is taken into quarantine for a period until it can comply. In effect this has no impact on disease risks to the UK. AHVLA records that known non-compliance is about 4%. The other kind of non-compliance is that which is unknown and relates to pets being smuggled into the UK without being detected. By definition we do not know how many of these animals there are but it is thought to be very low. The VLA study did not estimate unknown compliance but it did estimate the risks under various assumptions about compliance with respect to vaccination, serological testing and checking on entry. Simulations were undertaken where the compliance level was 90% and 80% for each of these as shown in the tables below:

⁷ In economic terms the two examples of sensitivity analysis given in this para correspond to a shift in the demand curve for pet travel preparation services (e.g. as a result of an increase in income) and a movement along the curve (as a result of pet travel preparation services becoming cheaper).

⁸ A quantitative risk assessment on the change in likelihood of rabies introduction into the UK as a consequence of adopting the existing harmonised Community rules for the non-commercial movement of pet animals (VLA, August 2010)

⁹ The chances of a human fatality resulting from the importation of a rabid pet are however vanishingly small. Interpretation and contextualisation of rabies risks by Det Norske Veritas (Interpretation of Risk Assessment – May 2011) shows that, by building on the VLA study and making reasonable assumptions about the transmission of rabies from an infected pet to a human, the risk of an individual in the UK dying from such a rabies infection would be 70,000 times less likely than death from lightning strike or 11 million times less likely than the current average risk of a pedestrian being fatally struck by a road vehicle. In practical terms therefore the chances of a human fatality resulting from the importation of a rabid pet is virtually zero.

Table 3: Option 0: The current scheme of PETS and quarantine: number of years between incursions

Compliance level	Overall	EU MSs	Listed 3rds	Unlisted 3rds*
100%	13272 (9408, 16940)	149129 (62683, 291248)	43942 (21299, 75973)	23302 (20738, 25557)
90%	761 (632, 894)	1928 (1287, 2731)	1362 (1173, 1564)	23301 (20753, 25534)
80%	408 (337, 482)	1008 (671, 1420)	724 (623, 831)	23302 (20757, 25558)

* Entries from unlisted countries are unaffected by compliance in this scenario as it is assumed that these still all go through quarantine
90% confidence intervals in parenthesis

Table 4: Option 1: EU Pet Movement Policy: number of years between incursions

Compliance level	Overall	EU MSs	Listed 3rds	Unlisted 3rds
100%	211 (177, 247)	517 (359, 708)	366 (317, 419)	50440 (19792, 105590)
90%	170 (146, 195)	484 (336, 665)	342 (297, 391)	1200 (1071, 1315)
80%	144 (125, 163)	456 (314, 627)	321 (278, 367)	638 (570, 699)

90% confidence intervals in parenthesis

Source: AHVLA

38. As the regime is becoming less restrictive it is quite possible that the extent of non-compliance could decline as pet owners find compliance easier. For the cost benefit analysis 90% compliance from the VLA study has been assumed as a proxy for all non-compliance including smuggling. The above tables show the level of risk under the existing and the proposed regimes whereas the cost benefit analysis is exploring the change in the regimes and therefore it is the change in risk that is relevant. The change in risk in moving from an incursion every 761 years to one every 170 years is equivalent to an increase in risk of an incursion once every 219 years. Therefore for the cost benefit analysis it has been assumed that there would be an additional rabies incursion every 219 years¹⁰. The range, derived from the confidence intervals shown in parenthesis in tables 3 and 4, would be an additional outbreak every 190 to 249 years.

39. **Tapeworm:** as mentioned above in the background section a quantitative risk analysis by Torgerson and Craig¹¹ showed that if tapeworm treatment of dogs on importation into the UK is abandoned then it is almost inevitable that EM will be introduced. The paper also cites the example of Reuben Island (Northern Japan), an island that was previously disease free, where the first human AE cases were diagnosed within 12 years of the introduction in 1924/26 of 24 red foxes from Russia. Although surveillance data of EM is limited, where

¹⁰ VLA estimate that risk would increase from one incursion every 761 to one every 170 years. Therefore, under the new harmonised regime there would be 4.476 incursions every 761 years (761/170). That is an **additional** 3.48 incursions every 761 years since under the former regime there was only one incursion during this period. 3.48 incursions every 761 years is one incursion every 219 years (761/3.48) so the cost analysis is based on one additional incursion every 219 years.

¹¹ Risk Assessment of importation of dogs infected with Echinococcus Multilocularis into the UK, P R Torgerson and P S Craig, Veterinary Record, September 26, 2009

longitudinal data exist, there appears to be an increase in parasite prevalence over time and there are indications that the parasite is extending its geographic range¹². Defra has also undertaken a qualitative risk assessment (see annex for reference) which argues that there would be an increase in risk from negligible to low of EM being introduced into the UK by a legal pet movement as a consequence of dropping the current tapeworm controls. The European Food Safety Authority also advised that if national controls (for tapeworm) were abandoned, there would be a greater than negligible risk of introducing EM into free countries through the movement of pets. The current controls require treatment of pets with Praziquantel or Epsiprantel. These drugs have an efficacy near 100% against mature and immature forms of the EM tapeworm in a single administration and therefore treatment of pets in this way is an effective means of ensuring pets are free of tapeworm when entering the UK.

40. To undertake a cost benefit analysis the evidence from these sources needs to be translated into the number of human cases of AE that might be expected once controls are lifted. If we were to abandon tapeworm controls the expectation is that we would occasionally import a dog infected with EM and that sooner or later we would end up with EM becoming established in the UK and being spread by small rodents and foxes. The problem is that once established it is very unlikely that we would be able to eliminate EM from the wildlife population. The results of recent studies suggest the role of the dog as a risk factor to the occurrence of human infection is more important than was formerly accepted¹³. Very rarely humans would become infected and at some stage humans would begin to present with AE and health and other costs would be incurred. It is difficult to predict the exact course of events and the possible number of cases of AE that might occur. The incidence of AE in France and Germany is respectively about 0.017 and 0.036 per 100,000 people whereas in Latvia the rate is 0.26 per 100,000. Applied to the UK population size this translates to about 10 to 20 cases a year at the French/German rate but 160 at the Latvian rate. The most recent data (2009) suggest 26 cases in France, 24 in Germany, 14 in Belgium and 10 in Lithuania. Many European countries however record zero incidence.

41. **Ticks:** As described in the background section above the risks of long-term establishment of the tick *Rh sanguineus* in the UK is negligible but for short term establishment in UK households and kennels it would be non-negligible and possibly low. It should also be noted that many pet owners routinely treat pets for a range of (endemic and exotic) ticks as part of animal welfare best practice, and vets will continue to advise them to do so. This further reduces any risk of ticks establishing in the UK environment long-term. We need to translate this

¹² EFSA 2006 Assessment of the risk of rabies introduction into the UK, Ireland, Sweden, Malta, as a consequence of abandoning the serological test measuring protective antibodies to rabies. The EFSA journal, 446, 1-54

¹³ e.g., Romig et al., 2005. Kern, P. and others, (2004) Risk factors for alveolar echinococcosis in humans. Emerging Infectious Diseases 10: 2088-2093.

Morgan, E. (2008) Echinococcus multilocularis in veterinary practice in Europe. EJCAP 18: 255-258.

qualitative risk into the number of human cases of Mediterranean spotted fever in order to undertake the cost benefit analysis. It is not expected that the UK would suffer many cases of MSF because the tick that carries the disease is not expected to become properly established although it is possible that there may be an occasional case from time to time.

Disease Costs

42. **Rabies** : the VLA study described above established that a rabies incursion into the UK would be a very rare event. Defra's Rabies National Expert Group¹⁴ has been examining the nature and extent of a possible rabies incursion in the UK. They have identified 4 scenarios for incursion and spread of the disease. These may be characterised as:

Scenario 1: Localised – a small, probably urban, rabies outbreak affecting a limited number of domestic pets in a localised area;

Scenario 2: Major – a potential widespread scenario with disease having spread to other domestic animals, either within the same locality or more widely across the country;

Scenario 3: Wildlife – as per major outbreak scenario but with the unlikely circumstance that the disease spreads into foxes and other wildlife;

Scenario 4: Minor – Most likely scenario. A single infected pet enters UK, the case is identified swiftly in a domestic pet dog or cat, history of movements is known and no other cases are identified although contacts will be identified and controlled.

More detail including how such outbreaks would be handled can be found in Defra and the Welsh Government's Rabies Disease Control Strategy (see annex for reference)

43. The following table shows the probability of occurrence of these scenarios based on the judgement of the Expert Group and an estimated cost for each scenario. Costs are based on the impact of the disease (including human disease costs) and the costs of controlling and eliminating it and have been estimated by Defra economists. These outbreak cost estimates are broad brush

¹⁴ The Rabies Experts Group is chaired by the UK Deputy Chief Veterinary Officer and includes: veterinary and epidemiological experts from Defra and the Devolved Administrations; experts from the Animal Health Veterinary Laboratories Agency (which includes the UK's National Reference Laboratory for rabies, and the World Animal Health (OIE) Reference Laboratory for the characterisation of rabies and rabies related viruses); and wildlife experts from the Food and Environment Research Agency (who lead on UK contingency plan for rabies in wildlife).

but changes to them will barely affect the expected annual cost as the risk of a rabies incursion is so small.

Table 5 : Rabies Outbreak Scenarios

	Scenario 1 Localised	Scenario 2 Major	Scenario 3 Wildlife	Scenario 4 Minor
Estimated likelihood of each scenario	9%		1%	90%
Costs associated with outbreak (Provisional)	£10m		£40m	£1m
Mean cost of disease outbreak (1)	£2.2m			
Expected annual cost of rabies incursion in UK (2)	About £10,000			

(1) $(0.09 \times £10m) + (0.01 \times £40m) + (0.9 \times £1m) = £2.2m$

(2) $£2.2m / 219 \text{ years} = £10,000$

44. The annual expected cost of rabies (including the costs of eliminating rabies from the UK) is about £10,000 a year. This is based on an additional incursion every 219 years combined with the rabies scenarios described by the Expert Group and the estimated costs of those outbreaks. Using the 90% confidence interval at para above 38 above derived from tables 3 and 4 (ie a range of 190 to 249 years) combined with the expected cost from table 5 produces a range of cost from £8,800 to £11,600 a year.

45. **Ticks and Tapeworm:** in 2008 the Health Protection Agency undertook an analysis of the health costs of Alveolar Echinococcosis and Mediterranean Spotted Fever. Its estimates were based on the formula:

Cost per case = Loss of Earnings + Cost of Hospitalisation + Cost of Long-Term Care + Cost of Fatalities

Where,

1. Median earnings per day is taken as £91.4 for men and women.
2. Cost of hospitalisation with complication taken as £990 per day (adult ICU of low severity from HHS reference costs). For AE the percentage hospitalised and the number of days ill/hospitalised was 60 and 35 respectively. For MSF the percentage hospitalised and number of days ill/hospitalised was 22 and 6.

3. For AE the cost of long-term care per case taken as £95,400. Long-term care was not assumed to be necessary for MSF. 11% of cases of AE were assumed to need long-term care.
4. The fatality rate was assumed to be 2% for MSF and 11% for AE. The cost of a fatality was taken as £1.65m (Department of Transport 2005) inflated to 2008.

The costs of discomfort, pain and anxiety associated with these two diseases were not included. We have used these HPA estimates in this analysis updating them using the RPI so that they broadly reflect 2011 costs. This gives an estimate for MSF of £38,000 per case and for AE of £231,000 per case¹⁵.

Other Costs

46. There are certain other costs that may arise which have not been monetised. For instance the carriers (ferries and airlines that transport pets) undertake documentation checks under the current regime. They will continue to do this under the new harmonised rules although there may be some changes to the detail of what is expected of them. The impact on them however is expected to be broadly cost neutral relative to the current regime. There may be some changes in the way the regime is administered by the AHVLA but the impact is also expected to be broadly cost neutral – there may even be some small savings resulting from not needing to inspect so many quarantine premises and issue licenses. Finally, in the event of occasional infestations of ticks of kennels, domestic properties or other buildings there will be a small cost associated with eradication. The number of infestations is not expected to be large and the total cost is therefore expected to be small.

Bringing the analysis together for Option 1

47. This section draws together the analysis and presents overall costs and benefits and benefit cost ratios for rabies, MSF and AE.

48. **Rabies:** the annual benefits of reduced controls to travelling pet owners are £7.2m (£4.26m for UK passport holders plus £2.95m for pets that would formerly have entered quarantine – see pie chart and table 2 above). The mean cost of a rabies outbreak (taking account of different disease scenarios) would be £2.2m. But compared to the baseline an additional rabies outbreak would be expected to occur only about every 219 years (taking into account an assumed level of non-compliance with the regulations). The expected annual cost of a rabies outbreak would therefore be about £10,000 (£2.2m divided by 219 years). The annual benefit cost ratio would be £7.2m/£10k or 720:1. This is a very favourable benefit cost ratio implying the policy changes are beneficial to the UK. Discounting costs and benefits (at 3.5%) over 10 years gives a net present value benefit of £62m.

¹⁵ The cost of AE at £231,000 is significantly higher than the treatment cost of £100,000 based on Swiss, Japanese and French data described at para 26. The methodology used in the latter costing is not known but it probably excludes the costs of long-term care and the costs of fatalities included in the HPA analysis.

49. **Ticks:** the best estimate of annual benefits to pet owners from not having to undertake tick treatment before arrival in the UK is about £1.4m. We do not know how many cases of MSF will arise in the future. However the disease is extremely rare in other countries at a similar latitude to the UK. Pets move freely across mainland Europe without tick treatment, but the disease itself remains restricted to the Mediterranean basin. Therefore we do not expect *Rh sanguineus* to become established in the UK and we have assumed there will not be any cases here even if we relax the controls. It might be noted however that the annual breakeven level (above which costs as measured by the HPA will exceed benefits) is about 35 cases. It should also be remembered that the costs of MSF used here do not take any account of the pain, discomfort and anxiety suffered by those who contract the disease. If we were able to monetise such costs the breakeven number of cases would of course be lower.

50. **Tapeworm:** the annual benefits to pet owners from not having to undertake tapeworm treatment before arrival in the UK is about £1.4m. The establishment of EM in the UK and its appearance as AE in people if controls are not maintained is likely to take only a few years but once EM becomes established in the UK it will be irreversible. After a period which appears disease free there could be a gradual build up of the number of cases and hence costs. The annual breakeven number of cases (after which measured costs exceed benefits) is about 6 a year but the recent incidence in France and Germany is well in excess of this (see para 40 above). For the purposes of the cost benefit analysis we have assumed the number of human cases will first occur in 2016 and then build up to 2021 peaking at 30 cases a year at the end of the ten year analysis period. The symptoms of the disease in humans develop slowly so sufferers may not become aware of the problem for some years. As with MSF above it is also the case here that the discomfort, pain and anxiety associated with EM is not monetised but these could be significant. The likelihood of this disease appearing in the UK and the increasing future cost burden it would create mean that discontinuing the tapeworm controls is not thought to be a desirable policy – see option 2 below which retains tapeworm controls.

51. **Option 1 – summary:** measured costs and benefits for the 3 elements of this option (rabies, ticks and tapeworm) show an overall net present benefit of £66m over 10 years. This comprises £62m benefits for the changes to the rabies controls, £13m benefit for ticks and a net cost of £9m for tapeworm.

52. The following table sets out the costs and benefits of this option.

Table 6: Benefits and Costs of Option 1 (£m)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Benefits	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	100.4
Costs	0.01	0.01	0.01	0.01	1.17	2.32	4.63	5.79	5.79	6.94	26.6

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Net Benefit	10.03	10.03	10.03	10.03	8.87	7.72	5.41	4.25	4.25	3.10	73.72
Present value of net benefit	10.03	9.69	9.36	9.05	7.73	6.50	4.40	3.34	3.23	2.27	65.62

Notes: annual benefits comprise £4.26m (rabies –UK)+ £2.95m(rabies – unlisted third countries)+£1.42m (tapeworm treatments)+ £1.42m (tick treatments) – see pie chart above
Annual costs comprise £0.01m rabies control costs and from 2016 AE health costs start to build up eg 2016: 5 casesx£231k and by 2021: 30 casesx£231k.

Option 2 – Detail

53. Option 2 is the same as option 1 except that the tapeworm control is retained - albeit with a longer treatment window (24 to 120 hours instead of 24 to 48). The costs and benefits with respect to rabies and ticks will be the same as option 1. With respect to tapeworm the control measures are expected to be effective in preventing the introduction of EM into the UK and we would not expect there to be any cases of AE in the human population (for instance we know the current tapeworm controls have kept the UK free of AE). Costs and benefits with respect to tapeworm will be virtually the same as in the baseline (option 0) except that it will be slightly more convenient for pet owners who would have a longer window in which to treat their pets. There is also a very small increase in the cost of tapeworm treatment (of around £30,000 a year) because pets entering from unlisted third countries would be required to have the treatment. This is not required currently for those pets which enter 6 months quarantine in the UK.

54. Tapeworm controls will be maintained through a delegated act as provided for in article 5 of Regulation 998/2003. This new legislation is expected to be agreed by the European Parliament and Council by the end of November 2011 and will be in place by 1st January 2012 and apply directly in the UK. In the unlikely event that this legislation is not agreed then option 1 above would apply. In order for the UK to keep the requirement of tapeworm treatment upon entry the EU requires the demonstration of continued freedom from *E. multilocularis*. This would entail a programme of formal veterinary surveillance carried out on a yearly basis. Definitive hosts of the parasite (foxes in particular) are considered to be the best target in a survey for the early detection of the introduction of EM to a free territory. The requirement is to design the survey with a sample size that is sufficient to detect a true prevalence of not more than 1% at a confidence level of at least 95%. As the UK fox population is estimated to be between 254,000 and 500,000, this requires the sampling of at least 300 foxes annually. Testing of the samples would be carried out at the Food and Environment Research Agency (FERA) by the egg isolation and PCR method. Such surveillance is expected to cost around £60,000 a year.

55. The following table sets out the costs and benefits of this option.

Table 7: Benefits and Costs of Option 2 (£m)

	201 2	201 3	201 4	201 5	201 6	201 7	201 8	201 9	202 0	202 1	Total
Benefit s	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62	86.2
Costs	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.00
Net Benefit	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	85.2
Present value of net benefit	8.52	8.23	7.95	7.68	7.42	7.17	6.93	6.70	6.47	6.25	73.3 2

Notes: annual benefits comprise £4.26m (rabies – UK)+£2.95m (rabies – unlisted third countries)+£1.42m(tick treatment)
Annual costs comprise: £0.01m (rabies control costs)+£0.03m(additional tapeworm treatments)+£0.06m(EM surveillance costs)

For option 2 the present value of net benefits from rabies control and ticks are the same as option 1 (£62 and £13m respectively). The benefits of the tapeworm controls are the same as the baseline option 0 ie disease freedom (but no measured benefit) but the costs are slightly higher owing to the additional surveillance costs and additional costs of tapeworm controls on dogs that would formerly have been quarantined. Over 10 years the discounted net benefit therefore comes to £73m.

Preferred Option

56. A comparison of monetised costs and benefits shows option 2 is better than option 1 (a central net present value benefit of £73m compared to £66m) . Option 1 discontinues the tapeworm controls but is likely to result in a costly human disease burden in the UK which outweighs the benefits it confers. Option 2 retains the tapeworm controls and thereby protects the UK from AE. Both options drop the requirement for tick controls and as noted above the reductions in rabies controls are highly beneficial overall - and are also the same for both options. Hence **option 2 is preferred** for the protection it affords against AE.

57. Looking at the range of net benefits the 'low' for option 2 is nearly the same as the 'high' for option 1 (£70.9m compared to £70.4m). (The ranges themselves derive from the different prices for tick and tapeworm treatments (see table 2).) It could be argued therefore that options 1 and 2 nearly overlap. An important point to remember however is that if the EM tapeworm becomes established in the UK it will be irreversible because it will not be possible to eradicate it from the wildlife reservoir (foxes and rodents). Over time cases of AE will appear in people and this will also be ongoing. The analysis in this IA is for convenience truncated after 10 years but given an incidence of AE above the break-even level of 6 cases a year (quite a low number compared to recent incidence in France and Germany for instance) then annual costs will continue

to exceed annual benefits beyond 10 years reducing the overall net present benefit of option 1. This simply reinforces the government's preference for option 2.

Business Costs and Revenues

58. This IA relates to policy changes that are, on the whole, deregulatory.

59. The measures do however have an indirect impact on businesses (those that provide pet quarantine services and some veterinary practices). The providers of quarantine services will be affected, perhaps severely, not by an increase in regulatory cost but by a reduction in revenues as the requirement for pets from unlisted third country to enter 6 months quarantine will no longer apply. The saving by unlisted third country pet owners of around £3m a year translates to a reduction in revenue for this sector. This is likely to lead to a decline in the size of the sector which currently comprises about 27 businesses. Many of these businesses also run boarding kennels which will not be directly affected by the changes and some may develop this side of their businesses further or adapt completely to this kind of facility in order to compensate for the changes. There will probably also continue to be those pet owners who, for one reason or another, voluntarily place their pets in quarantine. In addition as the pet travel rules become more relaxed there is a reasonable expectation that more pets will travel and quarantine facilities will still be required to house any pets that are checked and fail to comply with the new rules. Many of the adversely affected quarantine businesses will be small or micro in size (less than 20 and 10 full time employees respectively).

60. The savings in the cost of blood tests and tick treatment also translates into reduced revenues for veterinary practices (which typically are also small or micro businesses), although vets may see an overall increase in business due to the greater number of pets expected to travel when the rules are relaxed. The decline in revenue from tick treatments will affect overseas vets but the decline in blood tests for UK pet passport holders will usually affect UK veterinary practices.

61. These effects (on the quarantine sector and UK vets) are not counted as costs to society in this cost benefit analysis on the usual assumption that the labour and capital resources affected will redeploy in the long run to more productive uses. In the short term there may be some transitional costs as the quarantine sector adjusts its capacity to the new circumstances (e.g. possible redundancy payments, writing down of capital prematurely and retraining costs for individuals seeking alternative employment) but it has not been possible to measure these costs as the way the sector will actually adapt and the numbers of people affected is not known. It is expected that these transitional costs would however be relatively small and short-lived in comparison to the benefits of deregulation identified above. Many quarantine providers are located in the SE of England including quite a number in a wide circle around London and this ought to provide reasonable opportunities for re-employment (at least in normal

times). The rest are quite widely spread throughout the country so it is not expected that there would be major impacts on local economies following any down-sizing of the sector.

Consultation and Proportionality of Analysis

62. An informal consultation approach was adopted on this policy whereby meetings were held with key stakeholder groups to discuss the changes and the potential impacts. The transport companies were broadly content with the changes and we are continuing to work with them regarding implementation on the ground. The quarantine sector were more obviously concerned about the changes and highlighted that there would be impacts on their businesses. It was also recognised that there was still uncertainty in aspects of the legislation, and it was difficult to predict the future numbers of pets that would enter quarantine from 2012, and more detailed transitional costs for quarantine sector have not been quantified.

63. A rabies outbreak in the UK would be a serious matter and hence considerable effort has been put in to estimating the risk of a rabies incursion under the proposed EU control regime including commissioning a quantitative risk assessment from the VLA. The other public health concerns (MSF and AE) are also important and HPA estimated the costs per case of these diseases and also looked at incidence in other countries. Defra also undertook qualitative analyses of the risks of the brown dog tick and EM becoming established in the UK. However, none of these analyses are able to tell us how many cases of human disease might occur and therefore it has been necessary to use expert judgement and reasonable assumptions in order to complete the cost benefit analysis and draw conclusions on a preferred option.

64. Department for Health and the Health Protection Agency have been engaged in developing our evidence base on cases of AE and MSF, and we have searched international source of evidence and published papers for further information. Data is limited and this was recognised by EFSA who reported that "As there are currently no harmonised rules or recommendations for reporting and monitoring of *Echinococcus* spp., *Trichinella* spp., (*Cysticercus* spp. and *Sarcocystis* spp.) in the European Union (EU), the data obtained is often difficult to analyse and interpret."¹⁶

Post Implementation Review

65. The overall aim will be to ensure implementation of a successful scheme which leads to no disease entering the UK as a result of the changes, a high level of understanding and compliance among people travelling to the UK with

¹⁶ Development of harmonised schemes for the monitoring and reporting of *Echinococcus* in animals and foodstuffs in the EU (2010) Franck Boué et al

pets, and effective means of dealing with pets that fail to meet the entry requirements.

66. The new SI stipulates a review 5 years after implementation and then every subsequent 5 years, which is based on the precedent for Directives provided by the BRE. A 1 year review will also explore the implementation of the policy, levels of compliance etc. Longer term review will check that the legislation is tackling the disease concern risks effectively.

Baseline data is available on the current situation, including data on numbers of pets entering under the current scheme and compliance rates, UK's rabies free status and disease information from the rest of Europe, social research on public attitudes to the current scheme and potential changes. Going forwards AHVLA will continue to collect data on numbers of animals entering the UK, country of origin, failure rate etc. This data will be reviewed to assess levels of compliance and consideration will be given as to the appropriate level of compliance checks required in future. The quarantine sector will also be closely monitored and policy with regards to quarantine reviewed if the sector looks to change significantly in future. The disease situation in continental Europe will also be considered

Annex - References

The following publications (many of which are cited above) relate to the relevant legislation and the risk analyses for this impact assessment:

Regulation (EC) Number 998/2003 on the animal health requirements applicable to the non-commercial movement of pet animals – http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003R0998:20100618:EN:PDF
Non Commercial Movement of Pet Animals (England) Regulations 2004 - http://www.legislation.gov.uk/ukxi/2004/2363/contents/made
European Commission proposal for delegated Regulation on tapeworm – Commission Delegated Regulation of 14.7.2011 supplementing Regulation (EC) Number 998/2003 of the European Parliament and of the Council as regards preventive health measures for the control of <i>Echinococcus multilocularis</i> infection in dogs.
A quantitative risk assessment of the change in likelihood of rabies introduction into the UK as a consequence of adopting the existing harmonised community rules for the non-commercial movement of pet animals (Veterinary Laboratories Agency, August 2010)
The change in likelihood of <i>Echinococcus multilocularis</i> (Alveolar Echinococcosis) introduction into the UK as a consequence of adopting harmonised Community rules for the non-commercial movements of pet animals (Defra, November 2010)
Risk of incursion and establishment of certain exotic diseases and tick species to the UK via international pet travel (Defra, March 2011)
Scientific opinion of the scientific panel on animal health and welfare on a request from the Commission regarding the assessment of the risk of echinococcosis introduction into the

UK, Ireland, Sweden, Malta and Finland as a consequence of abandoning national rules.
(EFSA, 2007) <http://www.efsa.europa.eu/en/scdocs/doc/441.pdf>

Rabies Disease Control Strategy (Defra, June 2011)

<http://www.defra.gov.uk/publications/files/pb13585-rabies-control-strategy-110630.pdf>

