Department
for Environment
Food & Rural Affairs

Animal Health Policy and Implementation Evidence Plan

Policy portfolio: Animal Health and Welfare: Disease control

Policy area within portfolio: Animal Health Policy and Implementation

Timeframe covered by Evidence Plan: 2013/14-2017/18

Date of Evidence Plan: March 2013

This evidence plan was correct at the time of publication (March 2013). However, Defra is currently undertaking a review of its policy priorities and in some areas the policy, and therefore evidence needs, will continue to develop and may change quite rapidly. If you have any queries about the evidence priorities covered in this plan, please contact StrategicEvidence@defra.gsi.gov.uk.

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1. Policy context

What are the key policy outcomes for the policy programme/area?

A current Defra Business Plan priority is to "support and develop British farming and encourage sustainable food production". The key policy outcomes associated with this priority are to "enhance the competitiveness and resilience of the whole food chain including farms and the fishing industry, to ensure a secure, environmentally sustainable and healthy supply of food with improved standards of animal welfare". Ministers have identified that controlling animal diseases is a key priority for Defra. The need to proactively safeguard animal health by monitoring animal disease threats and increasing the UK's resilience to deal with disease outbreaks is recognised as a priority for Defra to deliver economic growth.

The Animal Health Policy and Implementation teams (AHPI) are responsible for:
- preparedness for notifiable exotic diseases
- livestock/equine identification and movement policy
- livestock cloning policy
- Animal Health and Welfare Board for England secretariat

The Exotics policy team covers a large number of threats and exotic diseases that could cause a significant impact on United Kingdom (UK) agriculture. The work of the Livestock and Equine Identification and Movements team, which provides the capability to track and trace movements in England, underpins the work carried out by the Exotics team. It also underpins a range of other Government policies where animal identification and movement tracking is essential such as provision of Food Chain Information and management of endemic diseases.

Within this policy area, only exotic disease policy has a substantial evidence component which is covered by this evidence plan. Some of the notifiable exotic diseases are already high profile (Foot and Mouth Disease, Rabies, Avian Influenza) but there is also a significant threat posed by newly emerging or evolving pathogens (including a number of vector borne diseases such as Bluetongue Virus, BTV). Whilst the exotic disease evidence programme is set up to ensure a supply of expertise and capability in respect of the priority notifiable diseases, it also needs to be reactive to newly emerging exotic conditions to monitor the risk and impact of these.

The Animal Health and Welfare (AHW) research budget is held by Defra on behalf of GB administrations. The same is true of the statutory and notifiable diseases surveillance budget. The Welsh Government is committed to "improved animal health and well-being through environment, countryside and planning initiatives and decision-making in Wales". In Scotland, ensuring well-treated and healthy farm (and domestic) animals, contributes towards the Scottish Government's strategic objective of a 'Healthier, Wealthier and Fairer' Scotland.

The costs of notifiable exotic disease incursions can be very large both to taxpayers and the livestock industry therefore a programme of work reducing the risk of incursion and the impact of exotic animal disease outbreaks is a sensible investment. There have been over fourteen exotic notifiable disease outbreaks since 2001 including Foot and Mouth Disease, Avian Influenza and BTV. The costs of each of these disease outbreaks typically range from £2 million to over £3 billion with knock-on effects in other economic sectors as well as having significant animal welfare and social components.

Our national herds and flocks of livestock, poultry and horses are inevitably vulnerable to exotic diseases. The risk of exotic disease incursion is low but continually present with increased trade and movement of livestock and livestock products across borders. It is important to note that the nature of these threats means we are facing a constantly developing challenge with evolution of known pathogens and emergence of novel threats. Changing climate may also contribute to the risk of incursion of exotic diseases. Indeed, disease vector distributions are changing, for example north African/southern European disease vectors are moving into areas of northern Europe (as seen with BTV). Also climate change may play a role in allowing UK vectors competent to transmit diseases for the first time in the UK.

The exotic disease policy area described here specifically covers the policy for England, although Defra works very closely with the other administrations, as any disease situation is likely to have cross-border implications. While there are some differences in emphasis between the administrations in the UK, there is a common approach to dealing with diseases of major importance by all administrations. With regards to European policy it co-ordinates policy development for the UK. Furthermore, the exotic disease evidence programme supports the necessary infrastructure to provide the UK capability to meet our statutory EU obligations with regards to surveillance for particular exotic diseases. The Livestock and Equine Identification and Movements policy area is specifically confined to England, though the other administrations have a similar focus.

The policy areas contribute to all 3 priorities of Defra's Structural Reform Plan, but most particularly to priority 1: "to support and develop British farming and encourage sustainable food production", as well as outcomes 1, 2 and 4 in the Animal Health and Welfare Board for England's Animal Health and Welfare Strategy for England:

− "The risks of incursions of exotic diseases should be reduced; but when they occur they must be quickly eradicated"
− "Best practice on disease prevention and animal welfare embedded across all sectors. Good animal health and welfare of all kept animals which in turn can improve the competitiveness of livestock keepers and benefits the wider industry and society"
− "Sustained consumer confidence in food we produce from livestock"

Key benefits (outcomes) of the policy area will be:
▪ Enhanced competitiveness, sustainability and resilience of the food chain
▪ Increased industry responsibility and best practice

- Enhanced protection of public and animal health
- Reduced economic, social and environmental impact of any disease outbreak, including lower taxpayer costs for disease control
- Compliance with law, including EU law and promoting better regulation

2. Current and near-term evidence objectives

What are the current and near-term objectives for evidence and how do they align to policy outcomes?

The evidence plan aims to deliver evidence to support delivery of the following policy outcomes:

i) Policy preparedness for exotic diseases so that we know what we should do should disease occur, including:
  - Greater regulatory simplicity with a strong focus on outcomes rather than process and with flexibility to manage disease threats using a risk and science based approach
  - Better balance between responsibilities of government and others in a way which drives behaviour change and potentially reduces the level of risk.
  - Livestock identification and movement arrangements that support efficient and effective tracing and disease control strategies (both exotic and endemic) in England.
  - Effective equine identification which is robust and contributes directly to the protection of the human food chain.
  - Accurate registration arrangements for all livestock keepers, the land that they farm and the species they keep.

ii) Capability of Defra, Scottish Government and Welsh Government and delivery/ operational partners (including industry) to respond to exotic disease is optimal, for the resources available.

iii) A strategic approach to cross-cutting animal health issues.
  - This includes initiatives led by the Animal Health and Welfare Board for England (AHWBE). The AHWBE brings together independent people with the relevant knowledge and skills, and senior government officials. AHWBE makes direct recommendations to Defra Ministers on strategic policy affecting the health and welfare of kept animals in England.

iv) Responding to exotic animal disease as suspect cases/ outbreaks arise.

Key to the delivery of the exotic disease policy area is an effective and efficient animal health infrastructure in the UK. This includes provision of expertise and capability to deal with a wide range of major exotic notifiable disease threats without which our ability to trade effectively would be severely impaired. Such expertise is primarily provided through

funding of containment laboratories via the research and surveillance arms of the evidence programme through contracts with AHVLA and The Pirbright Institute. Additional research organisations and universities supply expertise and evidence, in more cross cutting areas such as epidemiology and modelling.

Supporting evidence from a variety of sources allows Defra to investigate specific problems, to develop policy options, to implement solutions, to assess their effectiveness and to enable and improve future responsiveness to disease outbreaks.

The exotic disease policy area supports research and surveillance activities to cover around thirty diseases that are notifiable by law and a number of cross cutting thematic areas (see table 1). Whilst the disease specific evidence activities meet policy requirements for the priority pathogens, the thematic areas also allow for expertise to be applied to new and emerging threats. Given the breadth and scope of the potential threat posed it is not feasible to support expertise in every area, a balance is met by directing our capability in key areas and working in partnership as necessary (both nationally and internationally). Both research and surveillance streams underpin UK, OIE and World reference laboratory functions for notifiable exotic diseases such as Foot and Mouth Disease, Rabies, Avian Influenza, Newcastle Disease, Classical Swine Fever, African Swine Fever, African Horse Sickness and Contagious Agalactia.

The exotic disease policy area also relies on international evidence of exotic disease outbreaks throughout the world. This information allows us to monitor and evaluate the spread of exotic diseases (thereby the likelihood of their introduction to the UK through various risk pathways) and learn from other countries on how to handle them. We also share our own information and evidence with Member States, the European Commission (EC) and global animal health organisations e.g. the World Organisation for Animal Health (OIE) and the Food and Agriculture Organisation (FAO).

Given the broad nature of the diseases covered by this evidence plan and the necessity to maintain key capability/expertise to respond to emerging/evolving disease threats, adaptability is key when prioritising evidence needs. With this in mind and with consideration of limitations in Government finances, R&D within this programme has undergone and continues to undergo, consolidation and prioritisation. Evidence needs (both current and future) highlighted in this document are often broad reflecting the nature of this evidence plan and rank as high priority activities necessary to maintain expertise and capability across disease areas and to deliver policy outcomes.

Other evidence used by the Animal Health Policy Implementation area, but not covered by this specific evidence budget includes:

- Internal input from veterinary advisors, statisticians, economists, social researchers, epidemiologists, lawyers.
- Policy specific analysis from the Animal and Plant Health Evidence and Analysis (Aphea) team economists, statisticians and social researchers to understand the costs of disease outbreaks and the relative benefits of control strategies.

- Evidence from the new and re-emerging diseases policy area which enables Defra to respond promptly to new and re-emerging diseases of animals and which can act as a platform for further research through the exotic disease research programme.
- Data such as reports of domestic reports of suspected cases of notifiable diseases, international disease monitoring from Defra and from international organisations (EU, OIE, FAO, WHO).
- European Food Safety Authority scientific reviews and opinions.
- Scientific information published in literature and accessed through AHVLA Library and various catalogue subscriptions etc.
- D2R2 decision support tool[1] to inform discussion on potential risks to public health, animal welfare, international trade or wider society.
- Ad hoc research and industry expert advice to provide input into domestic and EU policy development on livestock/equine identification and movement policy and livestock cloning policy.
- Evidence base to aid development of Livestock and equine identification and movement policy to fulfil EU statutory obligations and to keep pace with technical developments on Livestock and Equine identification. Includes evidence to inform policy decisions on Bovine EID (with consideration of implementation costs and technical standards) and developing and maintaining standards for the approval of livestock identifiers.
- Surveillance reviews (by the independent Surveillance Advisory Group (SAG) on surveillance in England and Wales, and the Kinnaird Review of Veterinary Surveillance in Scotland[2]) including recommendations on how to enhance both value for money and impact.
- Evidence from human epidemiology studies, recognising the importance of a 'one health' approach and the interdependence of human, animal and ecosystem health and the need for an international, multi-disciplinary approach to the surveillance, control and prevention of emerging diseases.

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[1] The D2R2 decision support tool was created to help prioritise animal health issues so that government efforts to detect and control animal diseases are directed at those which are likely to have the greatest risk and impact on society. It uses validated objective evidence to rank animal diseases on the basis of their relative importance in the context of the four reasons for government intervention (RFI), as defined by the GB Animal Health and Welfare Strategy. These are to protect public health, to protect and promote the welfare of animals, to protect the interests of the wider economy, environment and society and to protect international trade. It also provides disease briefing from a profile created for each disease and a means of risk assessment which reflects the level or likelihood of disease and current control measures.

[2] Independent Surveillance Advisory Group (SAG) on surveillance in England and Wales (http://vla.defra.gov.uk/science/docs/sci_sag_final_report.pdf) and the Kinnaird Review of Veterinary Surveillance in Scotland (http://www.scotland.gov.uk/Publications/2011/11/09091744/0)

Policy Objective	Current/ Near-term Evidence needs	Future Evidence needs
Policy preparedness for exotic diseases.	• A multi-disciplinary programme of research and surveillance in-line with policy objectives on a range of notifiable exotic diseases such as Foot and Mouth Disease (FMD), Avian Influenza (AI), Newcastle Disease (ND), Classical Swine Fever (CSF), African Swine Fever (ASF), Rabies, infectious diseases of horses, Vector-Borne Diseases (VBDs, such as Bluetongue (BTV) and African Horse Sickness (AHS)) and notifiable mycoplasma diseases of livestock. • Improved control tools (for example developing improved diagnostic tests and developing vaccines) where this would offer a clear benefit to our response to exotic disease e.g. to develop a diagnostic test that reduces the economic burden of our control measures by reducing the length of time that premises with a suspect case of disease are held under restrictions. Including establishing the economic case for control changes. Includes current research on development of improved diagnostic tests for FMD, lyssavirus, ASF and VBDs (e.g. BTV) and FMD, AHS and ASF vaccine development. • Research on epidemiology and understanding virus survival (in commodities and the environment) to inform policy development, disease control strategies and to enable provision of advice and guidance to stakeholders. Includes current research on epidemiology for FMD, VBD (e.g. BTV)	• Continued provision of expertise and capability to inform on a wide range of exotic disease threats and address policy specific evidence questions as they arise. • Continued improvement in control tools (diagnostic tests and developing vaccines) where there is a clear benefit to our preparedness and response to exotic diseases. • Social science to support preparedness, particularly focused on decision making under uncertainty and response to risk situations. • Social science and statistics to support better understanding of the socio-economic implications for and impacts of mitigation and outbreak controls (for example modelling the net impact on exports affected by outbreak bans and assessing the true cost of movement controls).

and research on the survival and persistence of AI, ND and CSF.

- Surveillance programmes to address statutory requirements at both EU and national levels to monitor disease (including notifiable disease) prevalence / spread. Includes surveillance programmes for diseases such as: FMD, AI, ND, CSF, ASF, Rabies, infectious diseases of horses, VBDs such as BTV and AHS and notifiable mycoplasma diseases of livestock). The surveillance programme includes, but is not limited to, providing the capability for early detection of disease in livestock, provision of emergency response in the event of detection of an exotic disease, the capacity for rapid disease diagnosis and support for the use of up-to-date diagnostic techniques and provision of scientific expert advice.

- National and international disease modelling to inform risk analysis of disease incursion to the UK.

- Advice from Expert and Core Groups that comprise independent scientific experts and industry representatives respectively, on exotic disease policy and disease controls.

- Mathematical disease models. The research programme supports the development of models to enable retrospective analyses of disease dispersal patterns as well as models to inform economic analysis of disease control scenarios. Examples include an atmospheric dispersion model to predict insect and particle (e.g. FMD virus) movement as well as

	models to understand the epidemiology and control of VBDs such as BTV and AHS. • Multi-discipline evidence making use of economics, statistics, social research and science to inform more robust estimates of probability, scale and cost of outbreaks of specified animal diseases in a systematic and transparent way including consideration of the assessment and communication of uncertainty.	
Capability of Defra, Scottish Government and Welsh Government and delivery/ operational partners (including industry) to respond to exotic disease.	• Continued surveillance to address statutory requirements at both EU and national level for notifiable diseases such as FMD, AI, ND, CSF, ASF, Rabies, BTV and AHS by support for national and international reference labs* on notifiable diseases. • Continued provision of scientific and disease specific information to maintain expertise and consultancy advice to the UK to inform policy on exotic diseases. Includes expert representation at international forums such as EFSA, OIE and the EU to influence the development of international policies and guidelines. • Advice from Expert and Core Groups during outbreaks on disease controls. • Maintenance of existing quantitative disease models. The main use of the models is towards the development and modification of disease control policy (proactively and in response to an emergency). However, models could be used	• Provision of data to fulfil our statutory obligations on disease surveillance (disease prevalence and spread) through support for reference laboratories with recognition of the underpinning nature of research activities on reference laboratory function. • Continued provision of scientific and disease specific expertise and consultancy to respond to exotic disease threats.

	to help evaluate risks and vulnerabilities and assist development of disease prevention measures across policy areas. Includes epidemiological, resource, economic and integrative modelling for FMD for use at short notice in the event of an outbreak. • Continued access to information on disease prevalence and spread at a European (and wider) scale.	
A strategic approach to cross-cutting animal health issues.	• A cross cutting research programme on vector-borne diseases to develop diagnostics and molecular epidemiological studies and to investigate vector competence. • A wide ranging evidence base on wildlife (both surveillance and research) working with other policy (including bovine TB and biodiversity/ wildlife management) areas. From an exotic disease policy perspective this informs policies on the control of mammalian vectors of rabies and related viruses but also has a cross cutting impact on other policy areas. • Evidence to inform and develop biosecurity strategies including consideration of the impact of biosecurity measures to inform policy development and guidance to industry. • Development of epidemiological approaches to investigate disease spread. Research and surveillance streams inform understanding of disease epidemiology and look to develop improved methods of investigating disease spread. • Developing mathematical disease models to predict disease	• To continue to seek opportunities to undertake cross cutting approaches on animal health issues. • To optimise outputs on evidence streams for wildlife working in collaboration with other policy areas. • Research to support a behavioural approach to policy design (e.g. for bio-security) on animal health issues which will emerge from short term in-house reviews

	spread (including short and long range movements) and control. This includes collaborative work with the Met Office to look at wind dispersion of both virus and arthropod vectors. • Evidence base working in collaboration with the new and re-emerging disease policy area on new and emerging strains of known exotic diseases to inform policy development, disease control strategies and to enable provision of advice and guidance to stakeholders. Includes current research on disease transmission (for example AI, ND and lyssaviruses).	
Responding to exotic animal disease as suspect cases/ outbreaks arise	• The use and secondary analysis of evidence and capability highlighted above to respond to exotic animal disease as suspect cases/ outbreaks arise.	• To continue to use and analyse evidence to ensure a rapid and proportionate response to exotic animal disease as suspect cases/ outbreaks arise.

* Reference labs include NRL (National Reference Laboratory), CRL (Community Reference Laboratory of EU), WHO (World Health Organisation WHO collaborating centre), OIE (Regional Reference Laboratory of OIE) and FAO (World Reference Laboratory of FAO).

NRLs for: Foot and mouth disease, Rabies, Bluetongue, African horse sickness, Rift Valley Fever, West Nile, Avian Influenza, Newcastle Disease, African swine fever, Classical swine fever, Swine vesicular disease, Goat and sheep pox, Peste des petits ruminants, Rinderpest, Enzootic Bovine Leukosis, Equine viral arteritis, Teschen disease and Aujeszky's disease.

CRLs for: Foot and mouth disease, Bluetongue, Avian Influenza, Newcastle Disease and Swine vesicular disease.

WHO collaborating centre for Foot and mouth disease and Rabies.

OIE reference laboratory for: Foot and mouth disease, Rabies, Bluetongue, African horse sickness, Avian Influenza, Newcastle Disease, African swine fever, Classical swine fever, Contagious Agalactia, Swine vesicular disease, Goat and sheep pox, Peste des petits ruminants, Rinderpest, Enzootic Bovine Leukosis, Bovine Viral diarrhoea and Equine viral arteritis,

FAO reference laboratory for: Foot and mouth disease, Avian Influenza, Newcastle Disease, Peste des petits ruminants and Rinderpest

3. Future evidence needs

What are the longer-term evidence needs for the policy area/ programme?

The incursion of exotic diseases is recognised as a significant risk across the UK and the potential threat of new and emerging notifiable diseases is constant. There is continuing pressure to the UK from incursion of a number of exotic diseases such as FMD, ASF, influenza and vector borne diseases. Therefore, the maintenance of research expertise and diagnostic and surveillance capabilities and capacities are key to ensuring overall policy and operational preparedness for exotic disease risks and outbreaks.

There is significant interdependency between research, surveillance and reference laboratory function and research activities and funding underpin surveillance capability and reference laboratory function. Work to monitor these capabilities and plan for future requirements is on-going both internally within Defra and through EU initiatives considering scientific expertise and capability within Europe.

The broad, longer-term aim of this programme is to ensure provision of expertise and capability to deal with a wide range of exotic disease threats in addition to addressing policy specific evidence questions as they arise (see table for more detail). Due to the broad range of exotic diseases covered by this policy area and the unpredictable nature of emerging/evolving diseases, prioritisation is complex. However, maintaining the capability and capacity to respond to disease threats is a high priority for this policy area and is key to ensuring an appropriate and proportionate response to exotic disease outbreaks when they occur. The focus of future evidence needs is likely to be improving our control tools (such as diagnostic tests) to optimise our preparedness.

As the exotic diseases research programme underpins UK reference laboratory function for a number of notifiable exotic diseases (such as FMD, rabies, AI and ND, CSF, ASF, and Contagious Agalactia (CA), this expertise associated with reference laboratory function is essential to ensure Defra is best placed to understand and mitigate disease risks.

4. Meeting evidence needs

What approach(es) will be taken to meeting evidence needs?

Our overall approach to meeting our research needs is guided by standard Defra procedures.

The development of policy, prioritisation of evidence needs and execution of operations is made in conjunction with a number of key partners. Within the Defra family, these include the Exotics and Risks Team (International Disease Monitoring), key specialists in the Veterinary and Science Policy Advice Team of Animal Health and Veterinary Laboratories

Agency (AHVLA) and multidisciplinary evidence specialists across statistics, economics, social science and operational research (the Animal and Plant Health Evidence and Analysis (Aphea) team). Across the UK, key partners include: Devolved Administrations, the Animal Health & Welfare Board for England, Trade Associations, other industry experts and other Government Departments (including the Food Standards Agency and Public Health England). Key partners also include scientific experts and European and international institutions. Through discussions with key partners, consideration is given to the appropriateness of using the existing evidence base to answer policy questions.

During the year priorities are identified through the channels outlined above and meetings are held with members of exotic disease policy, representatives of the devolved administrations and evidence specialists, where the evidence gaps are ranked based on short term and long term policy need, scientific likelihood of success, whether they will significantly augment our existing evidence base or help maintain essential scientific capability and the estimated cost of any proposed new research.

The Animal Health and Welfare portfolio of R&D programmes is managed by a single Evidence Team, which enables very close working and easy identification of cross-cutting issues, which can be addressed in a complementary way. Amongst others, the Aphea team, the wider Defra Evidence & Analysis Community and procurement processes also facilitate identification of opportunities for working across the Department on issues that affect disparate policy areas.

Research needs thus identified will be procured either through open competition or direct commissioning with open competition as the default position. All applications are peer reviewed internally and externally regardless of procurement route. Peer review engages appropriate external academic experts as well as industry representatives to ensure there is both academic as well as operational justification and challenge to any proposed research. The majority of the research funded within the exotic diseases R&D programme is commissioned directly with identified research providers to maintain and develop expertise to support the prevention and control of diseases that pose the greatest threat to the UK. Given the breadth and scope of the potential threat posed it is not feasible to support expertise in every area, a balance is met by directing our capability in key areas and working in partnership as necessary (both nationally and internationally).

Quality assurance: The policy objectives which define evidence needs are regularly tested through animal disease outbreak exercises/ scenarios and through regular discussions with a number of key partners, including:
- Devolved Administrations
- Internal and external stakeholders through experts groups
- The Animal Disease Policy Group, the Livestock Information Strategy Group and Core Groups
- European and international institutions
- Other Government Departments

All of whom are key to policy development and implementation.

Partnership working: The existing links with our delivery partners and industry are vital and will be maintained and further developed. This will enable us to respond rapidly if an exotic disease outbreak occurs but more importantly help identify research needs and to develop policy going forward. We will continue to encourage industry to fund research projects which are beneficial to their sector and the UK.

Defra engages in a number of international fora for information exchange and research coordination. At an EU level, Defra participation in, for example, ERA-Net and the EU framework programme, has levered significant funds from EU and European member state funding organisations resulting in a total expenditure of more than €45M, of which Defra contributed approximately €5M. This kind of coordinated approach drives the formation of international research collaboration, thereby enhancing the connectivity and expertise of national research groups available to Defra and other GB administrations, and shares the cost of the research between several Member States, thereby offering almost unparalleled value for money. Strategic research agendas developed by these international fora also help to inform Defra's research procurement and prioritisation.

At a global level for example, Defra provides research funding to support UK involvement in the Global Foot-and-Mouth Disease Research Alliance (GFRA) the focus of which is to increase our knowledge of FMD, and to develop new tools to assist the control and eventual eradication of the disease. The programme also relies on international evidence of exotic diseases outbreaks throughout the world. This information allows us to monitor and evaluate the spread of exotic diseases and learn from other countries on how to handle them. We also share our own information and evidence with Members States, the European Commission (EC) and global animal health Organisations e.g. Office of International des Epizootes (OIE) and Food and Agriculture Organisation (FAO).

Defra builds and maintains strong relationships to ensure stakeholders contribute to the development of exotic disease capability and control strategies, understand the implications of disease and the measures taken to control it and work actively with the Programme to manage the risks in between and during outbreaks.

Risk Assessment: In managing risk pathways we work closely with the Exotics and Risks Team (International Disease Monitoring) and the Veterinary Risk Group (VRG) to ensure a flexible, risk-based strategy for monitoring and prioritising our risk management responses to both exotic and endemic disease issues. The VRG is a cross-directorate (and administration) disease monitoring and ranking group, reporting directly to the UK Chief Veterinary Officer and the CVOs in Scotland, Wales and Northern Ireland. It actively assesses new evidence and possible impacts of disease, suggesting management options for reducing the impact.

Where there is uncertainty over existing risks we commission formal risk assessments from veterinary specialists. Such risk assessments may also identify any parameters which

require more research. This will be discussed in the usual way (Science policy interface and Research Advisory Group meetings) and a decision made whether new research is required to fill in these research gaps.

5. Evaluating value for money and impact

What approach(es) will be taken to maximise and evaluate value for money and impact from evidence?

Research will be procured according to standard Defra procedures and is subject to internal expert input and external peer review that provides an independent scientific challenge. The process involves a feedback loop between policy and evidence providers along with embedded evidence teams.

The evaluation of evidence in Defra is an important and ongoing activity at project level and contributes toward ensuring that good quality, robust evidence is used to underpin departmental policy[3]. Evaluating the impact of evidence on policy development is complex and often only possible over the long term. Evaluation will necessarily be linked to Defra's Evidence Investment Strategy, which provides a strategic overview of how evidence fits with Defra needs. Programme level evaluation to assess the impact of evidence on policy will be explored (depending on available resource) following publication of the new Evidence Investment Strategy. It will be important that evidence currently being explored will have time to make an impact and for any new direction emerging from the new Evidence Investment Strategy to be tested and incorporated.

An effective multi- and inter-disciplinary approach to fulfilling evidence needs is ensured through use of relevant expertise, advisory bodies and collaboration with other funding bodies, both in GB and externally. There is also increasing engagement internally with teams such as Animal and Plant Health Evidence and Analysis (Aphea) team, which offers expertise in statistical data and analysis, social research and economic analysis. This alongside internal and external peer review ensures robust and high quality evidence.

Value for money will be ensured through peer review of all project proposals (value for money is a specific question we ask peer reviewers to consider) and close monitoring of projects.

Value for money is also ensured where possible through co-funding with the animal health industry or other UK research funders (e.g. BBSRC) and more recently with other European Member States and such strong links with other funders enable leverage of funds where possible.

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[3] http://archive.defra.gov.uk/corporate/docs/policy/evidence-policy-report.pdf

Project specific dissemination strategies are developed at the start of every project to ensure effective communication including how the evidence generated from the work will be used by policy, how stakeholders will be involved and how knowledge will be retained and promoted. Each project is also evaluated once completed with regard its delivery, timeliness and impact either through internal or external review.

Policy objectives and our ability to deliver them are regularly tested through animal disease outbreak exercises/ scenarios, regular discussions with internal and external stakeholders through our experts groups, the Animal Disease Policy Group, the Livestock Information Strategy Group and Core Groups. European and international institutions, other Government Departments and other Administrations are also used to inform policy development and implementation.

Evidence also has a wider, European and international impact, in part through the efforts of scientific experts funded by Defra through the various evidence streams which include participation and involvement in numerous international networks, and as part of their roles as EFSA, FAO and OIE experts in their respective fields. This engagement optimises the dissemination of information and methodology.