Department
for Environment
Food & Rural Affairs

Highly pathogenic avian influenza H5N8

Lessons identified from the December 2016 to June 2017 outbreak

September 2017

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Any enquiries regarding this publication should be sent to us at

APHA
Contingency Planning Division
Area 5c, Nobel House
17 Smith Square
London SW1P 3JR
Email: contingency.planning@apha.gsi.gov.uk

www.gov.uk/defra

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1. Executive summary

Following a report of suspicion of avian notifiable disease, and subsequent veterinary investigation the Chief Veterinary Officer (CVO) (UK) confirmed H5N8 Avian Influenza on 16 December 2016. Between December 2016 and June 2017 there were a further 12 confirmed infected premises (IPs), five of which were small non-commercial flocks (in the care of hobby keepers) and the remaining seven IPs were commercial poultry or game production premises. Of the 13 confirmed cases, 12 were in England and one in Wales. H5N8 was also found in wild birds in England, Scotland, Wales and Northern Ireland.

This outbreak is the first since 2007 where the UK Government has had to respond to an exotic disease incursion where activity has not been limited to one IP and its associated zones. Other than the cluster of IPs in Lancashire, concerning game birds, there were no identified links between IPs.

Avian Influenza had been circulating in Continental Europe for some time before the disease was confirmed in England in December 2016. Epidemiological investigations have determined that disease was most likely introduced to domesticated flocks in the UK through direct or indirect contact with wild bird populations.

This outbreak has demonstrated particular challenges because of the geographic variance of IPs, and the different nature of husbandry employed across different IPs. Animal and Plant Health Agency (APHA) resource managed the outbreak successfully whilst maintaining much of its business-as-usual activity.

The UK implemented a fast and effective disease control programme in response to the outbreak, following its notifiable avian disease control strategy. All control measures were carried out by APHA, the government veterinary service, in accordance with Council Directive 2005/94/EC.

As part of the winding up of the response stage of any exotic disease outbreak, the government sought to capture lessons to aid further continuous improvement to its response models and mechanisms. Many of the lessons and recommendations in this document may be applicable across other outbreak scenarios, but some are specific to a Highly Pathogenic Avian Influenza (HPAI) outbreak of this type. Some immediate actions have already been taken to implement improvements identified in these lessons. The table below highlights key lessons.

The key strategic lessons identified include:

1	Use of APHA's outbreak model
2	Understanding of Avian Influenza amongst non-commercial keepers
3	Data provision, use and interpretation
4	Government knowledge of game bird industry
5	Improvements to allocations planning reduced multiple visits to same premises
6	Centralised licensing service efficient and welcomed by industry
7	Data accuracy and value of the GB Poultry Register
8	Veterinary Heads of Field Delivery integration in Central Disease Control Centre (CDCC) improved veterinary understanding of disease control strategies at operational level
9	Liaison with Public Health England – prophylaxis provision
10	APHA resourcing
11	Positive working arrangements with operational partners, particularly local authorities.
12	Maintaining the relationship with National Emergency Epidemiology Group (NEEG) and Epidemiology, Population health and Infectious Disease Control (EPIC)
13	Communications

2. Background

On 15 December 2016, a private veterinarian reported suspicion of notifiable Avian Disease at a turkey farm near Louth in East Lindsey, Lincolnshire. The private veterinarian had previously treated the birds for a suspected bacterial infection but significantly rising mortality increased the level of suspicion. The Animal and Plant Health Agency (APHA) placed the premises under restriction and a veterinary inspection was undertaken and samples taken. On 16 December, preliminary sample results indicated the presence of Avian Influenza H5N8.

Following confirmation, the premises was declared an Infected Premises (IP) and a 3 km Protection Zone and 10Km Surveillance Zone were put in place around what would be referred to as IP1.

A National Disease Control Centre (NDCC) and a virtual Central Disease Control Centre (CDCC) were established along with a Forward Operations Base (FOB) at Lincoln. An epidemiological investigation, and tracings and surveillance activity began in earnest. By 17 December, all remaining birds were culled and the carcases transported to a rendering plant for disposal. Preliminary Cleansing and Disinfection (C&D) then took place.

On 3 January 2017, upon receipt of laboratory results, the CVO Wales confirmed HPAI H5N8 in a small flock on a smallholding in Meinciau, Carmarthenshire, West Wales and this premises became IP2. Late on 6 January 2017, the Deputy CVO UK also confirmed disease on a similar smallholding in Settle, North Yorkshire (IP3). FOBs were set up in Carmarthen and Preston. On 16 January 2017, the CVO UK confirmed disease at a second turkey farm, some 5km from IP1 in Lincolnshire, with this premises declared as IP4. Ten days later on 26 January 2017, a third turkey farm near Boston, Lincolnshire became IP6.

On 24 January, HPAI was also confirmed at a large game farm (IP5) in Pilling, Lancashire. Two additional game bird premises in that vicinity that are part of same commercial enterprise were also declared infected within the next week, and became IP7 and IP8. Some 80,000 mixed game birds were culled and transported for disposal.

On 13 February 2017 a 10km Temporary Control Zone (TCZ) was put in place around a broiler premises near Redgrave in Suffolk, following investigation into a further suspect case. A number of birds died and it was decided to humanely cull the remaining birds. A FOB at Bury St Edmunds was established to manage activity at the premises and in the zone. Positive sample results allowed the CVO to confirm disease the following day and this premises was designated IP9. The epidemiological investigation provided evidence that there may be disease at a contiguous premises. This premises was therefore depopulated as a dangerous contact.

Over the next four months, as zones and FOBs were progressively being closed down, disease was also detected in a number of smallholdings in different parts of the country. IP10 was declared in Haltwhistle, Northumberland on 23 February. IP11 and IP12 were declared on 4 and 6 May respectively near Thornton, Wyre, Lancashire and IP13 was declared on 3 June near Diss, South Norfolk.

After depopulation, all infected premises underwent cleansing and disinfection. Premises where thorough secondary cleansing and disinfection could not be carried out were put under official restrictions under Annex 6 of Directive 2005/94/EC to prohibit the entry of any persons, animals or things for a period of 12 months as an equivalent disease control measure. In these cases, the start date of this official restriction was taken as the date when C&D was completed.

Reports of suspicion of avian notifiable disease continue to be investigated as they are reported by either keepers or private veterinary surgeons.

Government's primary objective in tackling any outbreak of Avian Influenza is to eradicate the disease as quickly as possible and regain disease-free status. In doing so, government acts swiftly and decisively, in partnership with its operational partners, contracted services and stakeholders:

- to minimise the overall cost of the outbreak and burden on the taxpayer and public as well as the economic burden of the outbreak on the food, farming and tourism industries and the wider economy;
- to protect the health and safety of the public and those directly involved in controlling the outbreak.
- In delivering this objective, the disease control measures seek to:
    - minimise the number of animals that need to be culled either for disease control purposes or to safeguard animal welfare;
    - minimise adverse impacts on animal welfare, the rural and wider economy, the public, rural communities and the environment.

3. Evaluation and lessons identified process

This lessons identified report has been produced by APHA's Contingency Planning Division (CPD) as part of government's agreed outbreak response and recovery procedures. It has been produced by collating and assessing outputs from the following:

- Individuals: all outbreak participants were asked to complete templates recording learning points and offering potential solutions;

- Regional and national wash-up sessions: debriefing sessions held after the outbreak to allow for deeper consideration of outcomes. It is standard practice for teams to capture issues during an outbreak and these form the basis of team discussions;

- Lessons and issues were received from APHA staff at the FOBs, Customer Service Centres (CSCs), NDCC, CDCC and the Reference Laboratory in Weybridge. They were also received from Defra policy teams, the National Emergency Epidemiology Group (NEEG), devolved administrations, operational partners and stakeholders.

4. Scope

This report focusses on the high-level, strategic Lessons identified through the evaluation process and issues and lessons captured since the start of the outbreak.

5. Lessons identified

For each lesson identified, recommendations have been made which seek to either mitigate the issue or embed good practice identified.

Lesson 1: The APHA outbreak response model

An adapted APHA outbreak response model was successfully used in this outbreak several months before its expected implementation. The key feature of the model is the transfer of the transactional functions that formerly took place at the Local Disease Control Centre (LDCC) to centralised Customer Service Centres (CSCs) that sit within a virtual Central Disease Control Centre (CDCC). This aligns to the centralised approach of business as usual activity. The model also promotes remote delivery of APHA functions where this is practical and appropriate. The model takes account of a changing estate, and a reduced workforce that, as a whole, is less mobile but has better communication tools to hand.

Recommendation 1

Embed the outbreak response model within APHA, after taking account of feedback from this outbreak of what works well, and where, with adjustment, improvements can be made. As part of the embedding process develop instructions that reflect the tasks completed to support outbreak response, thereby adding extra context to already valid instructions within APHA's Operations Manual. There is also a need to communicate this model to devolved administrations, wider government and also operational partners and stakeholders. Some of these actions have already taken place.

Recommendation 2

Explore specifically the relationship and communication channels between Veterinary *Heads of Field Delivery (VHoFD) and the CDCC/NDCC, to foster a better local (FOB) understanding and engagement in disease control strategies, and in turn improve local stakeholder message management.*

Lesson 2: Understanding of Avian Influenza amongst non-commercial (hobby) keepers

Industry, local authorities and devolved administrations pointed to a lack of awareness of, or unwillingness or inability to comply with Avian Influenza control measures amongst non-commercial (hobby) flock keepers. Many commented that there was little evidence of redress exacted upon those who failed to comply with measures (such as a requirement to house/segregate poultry from wild birds) contained in the Prevention

Order. More generally, there was a fear that the non-commercial keeper community were not aware of or practising good routine biosecurity, and had little understanding of the impact that disease in their flock would have on other keepers in potential zones.

Recommendation 3

Government to examine cost-effective ways to communicate with and educate hobby flock keepers so control measures and orders, and biosecurity generally are better understood within the hobby keeper community. Defra communications to gather insight on backyard keepers and co-ordinate a biosecurity awareness campaign. Government to discuss with local authorities a strategy for dealing with non-compliance that has impact but is not resource exhausting.

Lesson 3: Data provision, use and interpretation

Accurate data is needed both to enable analysis which can then inform disease control strategy development, epidemiological investigations, enable modelling to predict the likely emerging disease picture, and which in turn can inform forecasting resource needs to mount the response. During this outbreak some issues were identified around data accuracy and the format of reports:

In addition Scottish Government expressed a desire that up to date information be shared with EPIC colleagues to aid consistency in developing veterinary risk assessments. Naturally, the sharing of information needs to be a two way process.

Recommendation 4

Revisit Defra (and devolved administration's) data requirements for outbreaks, and seek to define how existing reports can be used and manipulated to present the required information in a user-friendly form.

Lesson 4: Government knowledge of the game bird Industry

During the outbreak it was identified that policy and operational teams had limited detailed knowledge of the structure and integration of the game bird industry, including the behaviour of game birds in the wild. During the outbreak, this was mitigated through direct dealings with IPs and by engaging with and learning from stakeholder groups and trusted contractors. The seasonal and peripatetic nature of game bird production and downward supply chain affords a very short window for government vets and policy makers to observe and learn at first hand the idiosyncrasies of the industry.

Recommendation 5

Government to improve its knowledge of game bird production and supply by closer liaison with industry specific bodies, and individual businesses so that strategically and operationally there is a wider and better understanding of the sector and its production and dispersal methods.

Lesson 5: Improvements to planning the allocation of work reduced the number of multiple visits to same premises

In any outbreak, premises within zones have to be visited for surveillance and possibly tracings purposes. Depending on the conditions applied in zones and definitions applied to premises, it is possible that single premises are subjected to several visit types to satisfy all information requirements. Forward planning by the allocations team enables various visit types to be actioned in one combined visit, and lessens the burden and disruption for the keeper.

Industry bodies have, however, questioned the need for some types of visits to some premises, especially where samples are not required, as they see these visits as a biosecurity threat.

Recommendation 6

Ensure APHA instructions are accurately updated to take account of actions required to roll multiple visit types into one combined visit.

Lesson 6: Centralised licensing service efficient and welcomed by industry

Industry recognised the efficiencies and successes of the centralised licensing team based at Worcester. The dynamic approach to licensing was also praised and a wish expressed to use the EXD182 (movement to slaughter from a premises in a protection or surveillance zone) procedures more rapidly in future AI outbreaks. APHA noted that licensing was a scalable activity but relied on experienced and skilled veterinary resource to support the work of the licencing team. APHA recognise that there is a balance to be struck between maintaining experienced veterinary resource in this team and rotating to upskill others and improve resilience.

There is scope to discuss a subsidiarity principled approach to licensing decisions, thereby potentially alleviating delays caused by debate between NDCC/CDCC, but this would necessitate appropriately skilled staff being embedded within the central licensing team.

The APHA Advice Services Central Vet Pool will provide a rapid response function to the licencing and other CSCs in the early stages (up to 48 hours) of an outbreak, but after the first initial request, that veterinary resource is sourced from the wider business. However, as the Central Vet Pool is engaged with the CSCs as part of business as usual, the wider APHA veterinary group will be upskilled in CSC work as and when they rotate into the Central Vet Pool.

Some licence requests were received only hours before an intended move and more must be done to raise awareness that some requests will take time to process as individual circumstances have to be investigated and assessed. This is particularly relevant where consultation with other administrations is required to facilitate cross-border moves. The rapid turnaround of licenses in recent outbreaks might be creating an expectation in the industry that business as usual can be achieved. The legal restrictions are in place for a reason and the earliest possible resumption of international trade requires firm and effective control. Applications for licences for already scheduled moves should be made well in advance of need.

Recommendation 7

Defra and devolved administration exotic disease control policy teams and APHA veterinary and technical operations to continue to work with the Core Group to understand the disease risks being managed and the potential implications of control measures on industry to alleviate commercial pressures whilst maintaining and arresting control of disease. It is essential that industry are kept aware of the time required to assess risks and produce licences and understand that licences (especially for already scheduled moves) need to be requested as far in advance as possible.

Recommendation 8

Facilitate a discussion and review around how veterinary decision-making supports the issue of licences. Engage the APHA Central Vet Pool, VHoFD, NDCC vet and tech ops, and policy teams. Seek to build a cadre of skilled staff to support licensing activity.

Lesson 7: Data accuracy and value of the GB Poultry Register

The poultry sector is diverse, ranging from commercial units farming thousands of birds to non-commercial hobby keepers with just a handful or birds in their flock. Even within these definitions there are significant variations. APHA has reasonable knowledge and information about commercial poultry farming enterprises that are required to share information about their business, and are required to register a County Parish Holding (CPH) number with government agencies. All poultry keepers with 50 or more birds are legally required to provide details by signing up to the Poultry Register. Keepers with fewer than 50 birds are encouraged to voluntarily provide their details.

Five of 13 IPs confirmed in this outbreak have been small non-commercial flocks, of those five, three were not registered. Also, a number of premises containing over 50 birds visited by foot patrols were not registered, in breach of the legal requirement. In addition foot patrols discovered significant numbers of small flocks with fewer than 50 birds. Industry representatives have queried why there is no registration requirement for flocks with fewer than 50 birds.

Recommendation 9

Government to review the registration requirements of the GB Poultry Register with a specific analysis of how disease control would be improved or expedited if smaller flocks were required to register.

Recommendation 10

Registrations CSC in Cardiff to continue work started with the Core Group to explore how take up and accuracy of the GB Poultry Register can be improved across the whole poultry sector. This should include a review of the registration forms.

Lesson 8: Veterinary Heads of Field Delivery integration in CDCC improved veterinary understanding of disease control strategies at operational level

In an enhancement to the new outbreak model, Veterinary Heads of Field Delivery (VHoFDs) took responsibility for overarching veterinary leadership of all CDCC and FOB functions during the outbreak. This worked well and VHoFDs recommend that in future outbreaks the same practice should be followed. To accomplish this effectively, a VHoFD should also have consultative roles at critical NDCC meetings and have requested standing invitations to NEEG, CVO stocktakes and Animal Disease Policy Group (ADPG) meetings.

Veterinary Advisers Field Delivery (VAFD) should continue to be embedded in the FOBs as in the new outbreak model, to provide veterinary leadership, support and audit. They should also be embedded in the licensing and surveillance CSC teams to provide veterinary leadership, support and audit of the veterinary teams there. VAFD support should be available to the tracings CSC veterinary team but a permanent VAFD presence is not required there.

Recommendation 11

Confirm the veterinary roles already ascribed in the outbreak model, and ensure descriptions of responsibilities for those roles are published in consultation with VHoFD.

Lesson 9: Liaison with Public Health England (PHE) around prophylaxis provision

APHA and PHE worked well together with a good understanding of respective roles and responsibilities between both organisations. These collaborative working arrangements enabled risk assessments to be reviewed quickly and reduced the need for prophylaxis. In a small number of areas of England engagement activity outside outbreaks has slipped because of personnel and organisational changes.

Recommendation 12

APHA Safety and Health and Wellbeing (SHaW) team to support Resilience and Technical Advisers (R&TAs) to ensure engagement with local PHE contacts and local arrangements for the provision of advice, support and prophylaxis in the event of zoonotic disease incursions. A workshop on Avian Influenza with likely transmissibility to humans is also currently being planned between APHA, policy teams and public health agencies and is expected to take place in October 2017.

Lesson 10: APHA resourcing and contracts

There is a requirement on FOB managers to be responsible for and undertake tasks to ensure adequate resources ebb and flow according to operational need. Because much of this outbreak occurred in one operational unit there was an early expectation that resourcing would be marshalled by the usual management chain and NDCC human resources was not stood up soon enough.

Once stood up, NDCC human resources eased the burden on resourcing, though it has been noted that the tools used to capture resource needs are burdensome and time consuming to complete. Managers have acknowledged there is a need to ensure staff members are fully aware of their roles and responsibilities, and that succession planning is prioritised to build resilience in key delivery roles.

Non-permanent resource worked well when used, but a need has been identified for consistent induction material that supports quick integration of incoming non-APHA resource.

The Veterinary Delivery Partnership (VDP) agreement was invoked and appeared to work well to provide additional veterinary resource at pinch points in regular delivery.

There was no need to trigger the International Animal Health Emergency Reserve (IAHER) during this outbreak, although that facility was significantly exercised within the last year.

There is a potential need to review and explore the ease with which staff can be brought in from other government departments. There may be particular merit in exploring the

potential value of the cross-government surge and rapid response team that sits within Cabinet Office and provides skilled administrative staff.

APHA's new technical services framework was successfully used during this outbreak. The use of one rendering plant, provided a single location for plant hire and manual labour, which worked well. APHA was able to use equipment held by the rendering plant for the IP at a reduced cost and deploy it more quickly. However, in some areas there a number of areas there are limited contracted resources, specifically contracted CGU capability and catching teams.

Recommendation 13

NDCC human resources to always be stood up in the event of an outbreak. APHA to revisit expectations of how Defra human resources should support outbreaks.

Recommendation 14

CPD to examine and revise induction material for non-APHA staff working on outbreaks.

Recommendation 15

Defra human resources to review current arrangements for outbreak response across the wider Defra group and other government departments and explore new avenues for extra resource.

Recommendation 16

APHA contracts team to review the current technical services framework contract and look at options to increase contractor capability, including releasing CGUs not currently in operation into the industry and single location options for plant and labour.

Lesson 11: Positive working arrangements with Operational Partners, particularly Local Authorities.

Operational partners contribute significantly to outbreak response. In all areas relationships with local authorities are good. The recently appointed Resilience and Technical Advisers have been charged with forging and maintaining operational partner engagement. Where minor issues were identified the close working relationship between APHA, and Association of Chief Trading Standards Officers (ACTSO) and the National Animal Health and Welfare Panel (Of local authorities) (NAHWP) aided a prompt and meaningful solution.

Operational partner colleagues have however still expressed concerns about their ability to support future (possibly larger) outbreaks against constrained resource.

Recommendation 17

Continue to maintain existing engagement strategy with operational partners.

Lesson 12: Maintaining relationship with NEEG and EPIC

Scottish Government have requested that NEEG and EPIC continue to work together to foster good understanding of the epidemiology of the disease, which in turn can increase the likelihood of a common and consistent approach, especially where veterinary risk assessments are concerned.

Recommendation 18

NDCC Management Information (MI) team to facilitate discussions to fully understand the data needs of NEEG and EPIC and develop a protocol of best practice for sharing that data.

Lesson 13: Communications

Many contributors to this process commented that communications, internal and external, are crucial to the effective delivery of a response, and key to building understanding and cooperation of industry, non-commercial keepers, and the public.

Defra, devolved administrations and APHA communications teams took a number of actions throughout the outbreak to ensure communications channels remained open, including chairing a regular outbreak communications group of all relevant government agencies and engaging with industry through the Core Group. This allowed clear key messages to be quickly agreed.

Defra and APHA communication teams took a proactive approach to communications with the wider public, with CVOs and local APHA vets undertaking interviews with national, regional and local media around new outbreaks or major developments to inform, reassure and issue calls to action. APHA press officers attended IPs to manage media interest on the ground.

GOV.UK provided a central location for key advice and information about the outbreak and content received very high levels of engagement. Advice leaflets were developed for backyard keepers in association with the British Veterinary Association (BVA) and others, shared on social media and sent to BVA, BVPA, and RCVS members. Videos and infographics offering practical biosecurity advice tailored to backyard keepers were shared on Facebook and Twitter.

The approach to communications evolved through the outbreak to respond to the demand for different forms and types of information. APHA text alerts were used later in the outbreak to notify poultry keepers immediately when Prevention Zones were

renewed and advice issued. Scottish Government received very positive feedback from game keepers who said text alerts were the single best notification system for them.

Areas where communication could be improved have been noted and include:

- Between NDCC, CDCC and Operations.
- Between Defra and devolved administration policy teams.
- Between NEEG/NDCC Management Information (MI) and EPIC.
- Between government and industry/stakeholders/non-commercial keepers.
- Between government and non-commercial (hobby) keepers.

Recommendation 19

APHA to review the value of its disease alert service, examine the accuracy of the contact information in its datasets, and determine where improvements in the GB Poultry Register may contribute to enhancing contact information.

Recommendation 20

Defra and devolved administrations to develop a plan for communicating with backyard poultry keepers in an outbreak. A campaign targeting backyard flock keepers to encourage biosecurity and the risk of Avian Influenza is already underway.

Recommendation 21

Defra communications to examine approaches to maintain resilience across the Defra Group's press offices to enable deployment to IPs where required. This work is already underway, including incident training for the communications directorate.

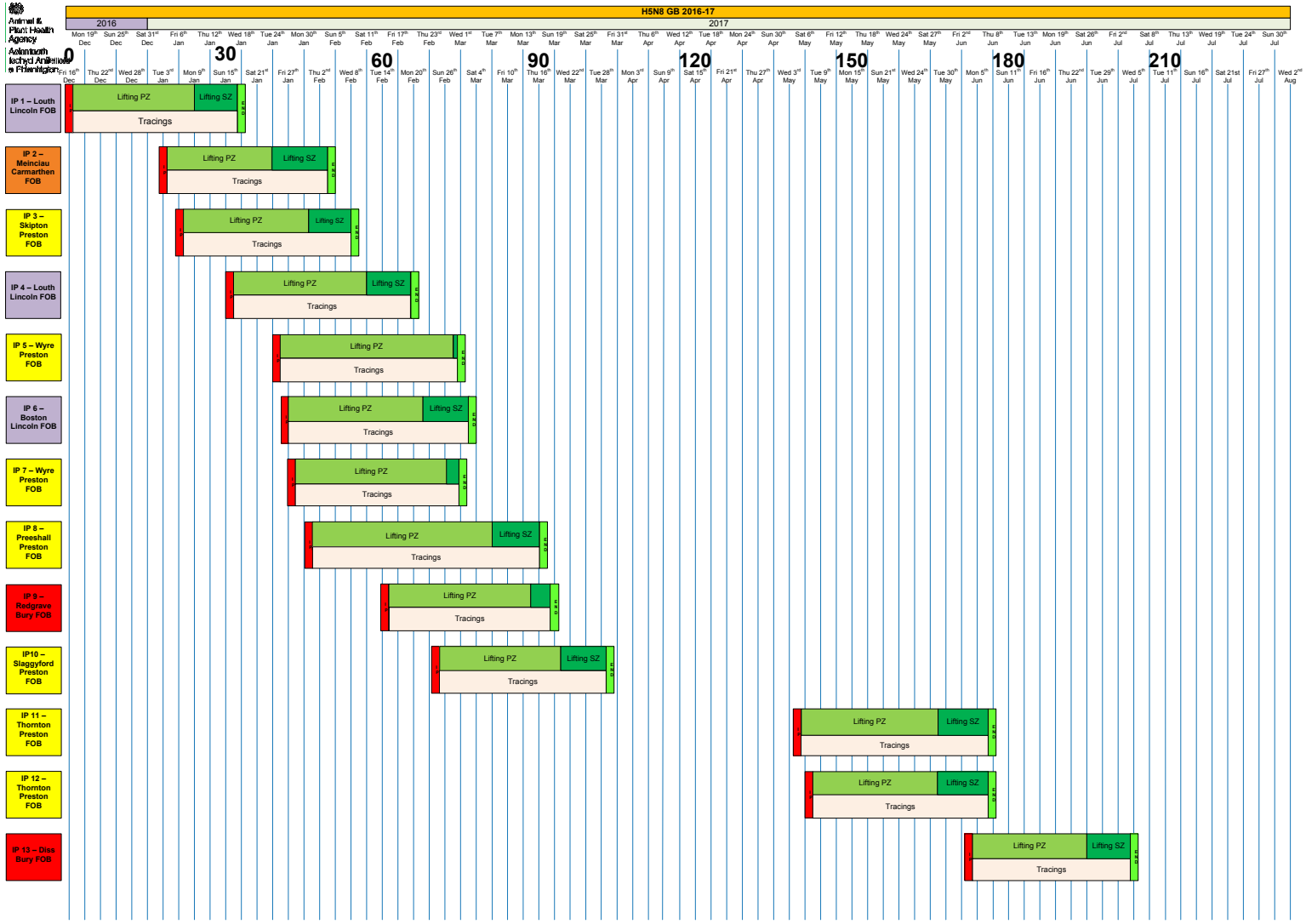
6. Conclusion and next steps

The 13 lessons and 21 recommendations in this report have captured areas of improvement in governments' response to exotic notifiable disease outbreaks and will form part of the continuous improvement process for learning lessons to help government refine better ways to respond. The primary recommendation must be to adopt a collaborative and inclusive approach to continually improve our readiness, resilience and response to exotic notifiable animal disease.

Progress towards resolving any outstanding issues will be monitored on a regular basis.

Annex A – Outbreak overview map

Annex B – Outbreak Overview Timeline



Annex C - Table of recommendations

Recommendation	Lesson Identified	Description	Owner
1	Lesson 1: The APHA Outbreak Response Model	*Embed the outbreak response model within APHA, after taking account of feedback from this outbreak of what works well, and where, with adjustment, improvements can be made. As part of the embedding process develop instructions that reflect the tasks completed to support outbreak response, thereby adding extra context to already valid instructions within APHA's Operations Manual. There is also a need to communicate this model to devolved administrations, wider government and also operational partners and stakeholders. Some of these actions have already taken place.*	APHA
2	Lesson 1: The APHA Outbreak Response Model	*Explore specifically the relationship and communication channels between Veterinary Heads of Field Delivery (VHoFD) and the CDCC/NDCC, to foster a better local (FOB) understanding and engagement in disease control strategies, and in turn improve local stakeholder message management.*	APHA

3	Lesson 2: Understanding of Avian Influenza amongst Hobby Keepers	*Government to examine cost-effective ways to communicate with and educate hobby flock keepers so control measures and orders, and biosecurity generally are better understood within the hobby keeper community. Defra communications to gather insight on backyard keepers and co-ordinate a biosecurity awareness campaign. Government to discuss with local authorities a strategy for dealing with non-compliance that has impact but is not resource exhausting.*	Government Exotic Disease Policy Teams
4	Lesson 3: Data Provision, use and interpretation	*Revisit Defra (and devolved administration's) data requirements for outbreaks, and seek to define how existing reports can be used and manipulated to present the required information in a user-friendly form.*	APHA
5	Lesson 4: Government Knowledge of the Game Bird Industry	*Government to improve its knowledge of game bird production and supply by closer liaison with industry specific bodies, and individual businesses so that strategically and operationally there is a wider and better understanding of the sector and its production and dispersal methods.*	Government Exotic Disease Policy Teams
6	Lesson 5: Improvements to allocations planning reduced multiple visits to same premises	*Ensure APHA instructions are accurately updated to take account of actions required to roll multiple visit types into one combined visit.*	APHA

7	Lesson 6: Centralised licensing service efficient and welcomed by industry	*Defra and devolved administration exotic disease control policy teams and APHA veterinary and technical operations to continue to work with the Core Group to understand the disease risks being managed and the potential implications of control measures on industry to alleviate commercial pressures whilst maintaining and arresting control of disease. It is essential that industry are kept aware of the time required to assess risks and produce licences and understand that licences (especially for already scheduled moves) need to be requested as far in advance as possible.*	Government Exotic Disease Policy Teams and APHA
8	Lesson 6: Centralised licensing service efficient and welcomed by industry	*Facilitate a discussion and review around how veterinary decision-making supports the issue of licences. Engage the APHA Central Vet Pool, VHoFD, NDCC vet and tech ops, and policy teams. Seek to build a cadre of skilled staff to support licensing activity.*	APHA
9	Lesson 7: Data accuracy and value of the GB Poultry Register	*Government to review the registration requirements of the GB Poultry Register with a specific analysis of how disease control would be improved or expedited if smaller flocks were required to register.*	Government Exotic Disease Policy Teams
10	Lesson 7: Data accuracy and value of the GB Poultry Register	*Registrations CSC in Cardiff to continue work started with the Core Group to explore how take up and accuracy of the GB Poultry Register can be improved across the whole poultry sector. This should include a review of the registration forms.*	APHA

11	Lesson 8: Veterinary Heads of Field Delivery integration in CDCC improved veterinary understanding of disease control strategies at operational level	*Confirm the veterinary roles already ascribed in the outbreak model, and ensure descriptions of responsibilities for those roles are published in consultation with VHoFD.*	APHA
12	Lesson 9: Liaison with Public Health England – prophylaxis provision	*APHA Safety and Health and Wellbeing (SHaW) team to support Resilience and Technical Advisers (R&TAs) to ensure engagement with local PHE contacts and local arrangements for the provision of advice, support and prophylaxis in the event of zoonotic disease incursions. A workshop on Avian Influenza with likely transmissibility to humans is also currently being planned between APHA, policy teams and public health agencies and is expected to take place in October 2017.*	APHA
13	Lesson 10: APHA Resourcing and Contracts	*NDCC human resources to always be stood up in the event of an outbreak. APHA to revisit expectations of how Defra human resources should support outbreaks.*	Defra HR
14	Lesson 10: APHA Resourcing and Contracts	*CPD to examine and revise induction material for non-APHA staff working on outbreaks.*	APHA

15	Lesson 10: APHA Resourcing and Contracts	*Defra human resources to review current arrangements for outbreak response across the wider Defra group and other government departments and explore new avenues for extra resource.*	APHA
16	Lesson 10: APHA Resourcing and Contracts	*APHA contracts team to review the current technical services framework contract and look at options to increase contractor capability, including releasing CGUs not currently in operation into the industry and single location options for plant and labour.*	APHA
17	Lesson 11: Positive working arrangements with Operational Partners particularly Local Authorities.	*Continue to maintain existing engagement strategy with Operational Partners.*	APHA
18	Lesson 12: Maintaining relationship with NEEG and EPIC	*NDCC Management Information (MI) team to facilitate discussions to fully understand the data needs of NEEG and EPIC and develop a protocol of best practice for sharing that data.*	APHA and NEEG
19	Lesson 13: Communications	*APHA to review the value of its disease alert service, examine the accuracy of the contact information in its datasets, and determine where improvements in the GB Poultry Register may contribute to enhancing contact information.*	Defra Communications

20	Lesson 13: Communications	*Defra and devolved administrations to develop a plan for communicating with backyard poultry keepers in an outbreak. A campaign targeting backyard flock keepers to encourage biosecurity and the risk of Avian Influenza is already underway.*	Defra and Devolved Administrations Communications Team
21	Lesson 13: Communications	*Defra communications to examine approaches to maintain resilience across the Defra Group's press offices to enable deployment to IPs where required. This work is already underway, including incident training for the communications directorate.*	Defra Communications

Annex D – Glossary

ABPR	Animal By-Products Regulations
ACPO	Association of Chief Police Officers
ACTSO	Association of Chief Trading Standards Officers
ADPG	Animal Disease Policy Group
ADR	International Carriage of Dangerous Goods by Road (UN Regulation)
APHA	Animal and Plant Health Agency
AHWBE	Animal Health and Welfare Board for England
BVA	British Veterinary Association
C&D	Cleansing and Disinfection
CCS	Civil Contingencies Secretariat (Cabinet Office)
CDCC	Central Disease Control Centre
CG	Communications Group (Defra)
COBR	Cabinet Office Briefing Rooms
Comms	Communications
COV	Contingency Official Veterinarian
CPD	Contingency Planning Division (APHA)
CPH	County Parish Holding (number)
CRIP	Commonly Recognised Information Picture
CSA	Chief Scientific Adviser (Defra)

CVO	Chief Veterinary Officer
D2R2	Disease Briefing, Decision Support, Ranking and Risk Assessment Database
DA	Devolved Administration
DAERA NI	Department of Agriculture, Environment and Rural Affairs, Northern Ireland
DC	Dangerous Contact – These are animals of susceptible species where the risk of exposure to infection is considered to be very high.
DCLG	Department of Communities and Local Government
DCVO	Deputy Chief Veterinary Officer
Defra	Department for Environment, Food and Rural Affairs
DERC	Disease Emergency Response Committee
DG	Director General
DCG	Defra Group Commercial
DRT	Disease Reporting Team
EA	Environment Agency
EAs	Emergency Actions (APHA emergency instructions)
EC	European Commission
EDP	Exotic Diseases Policy
EDPRT	Exotic Disease Policy Response Team (Defra)
EET ED	Emergency Executive Team Exotic Diseases
EFRA	Environment, Food and Rural Affairs (Select Committee)

EPIC	Epidemiology, Population health and Infectious disease Control (funded by Scottish Government)
ERMAS	Emergency Readiness Management Assurance Scheme
EU	European Union
Final (Secondary) Cleansing and Disinfection	After preliminary cleansing and disinfection, the cleansing (including disposal of manure, bedding etc.), degreasing, washing and disinfecting of premises to remove the infective agent, reduce the level of it, such that recrudescence will not occur on restocking.
FOB	Forward Operations Base
FSA	Food Standards Agency
GB	Great Britain
GBPR	Great Britain Poultry Register
GIS	Geographic Information Systems
HQ	Headquarters
HR	Human Resources
IAHER	International Animal Health Emergency Reserve
IMT	Information Management and Technology
IP	Infected Premises
LA	Local Authority
LGR	Local Government Regulation
LRF	Local Resilience Forum
MI	Management Information

NAHAWP	National Animal Health and Welfare Panel (of Local Authorities)
NDCC	National Disease Control Centre
NDOMS	Notifiable Disease Outbreak Management System
NE	Natural England
NEG	National Experts Group
NEEG	National Emergencies Epidemiology Group
NFU	National Farmers Union
NI	Northern Ireland
NSC	National Security Council
NSC(THRC)	National Security Council (Threats, Hazards, Resilience and Contingencies)
OCG	Outbreak Coordination Group
ODS	Operations Director Scotland (APHA Scotland)
OEP	Ornithological Expert Panel
ODW	Operations Director Wales (APHA Wales)
OFFC	Export Policy and Official Feed and Food Controls (Defra)
OGD	Other Government Department
OIE	World Organisation for Animal Health (known as Office International des Epizooties until 2003)
OM	Operations Manual
ORB	Outbreak Readiness Board

PERT	Procurement Emergency Response Team
PR	Public Relations
Preliminary Disinfection	Biosecurity procedures put in place during the culling and disposal of animals and the initial treatment of contaminated areas of a premises with disinfectant.
PZ	Protection Zone
RADAR	Rapid Analysis and Detection of Animal-Related Risk
RCC	Records Control Centre
RCVS	Royal College of Veterinary Surgeons
RSPB	Royal Society for the Protection of Birds
RSPCA	Royal Society for the Prevention of Cruelty to Animals
RSR	Rapid Support Register
RZ	Restricted Zone
SAGE	Science Advisory Group for Emergencies
SAM	The core APHA IT system that stores all customer information
SCG	Strategic Co-ordinating Group
SEPA	Scottish Environment Protection Agency
SG	Scottish Government
SI	Statutory Instrument
SIR	Security, Intelligence and Resilience Directorate (Cabinet Office)
SOP	Standard Operating Procedure

SoS	Secretary of State
SZ	Surveillance Zone
TAG	Tactical Advisory Group
TCG	Tactical Control Group, created in an emergency by Local Resilience Fora
TCZ	Temporary Control Zone
UK	United Kingdom
UKREP	United Kingdom Permanent Representation to the European Union
VA	Veterinary Adviser
VENDU	Veterinary Exotic Notifiable Diseases Unit (APHA)
VO	Veterinary Officer
VHoFD	Veterinary Head of Field Delivery
VSM	Veterinary Services Manager
WG	Welsh Government