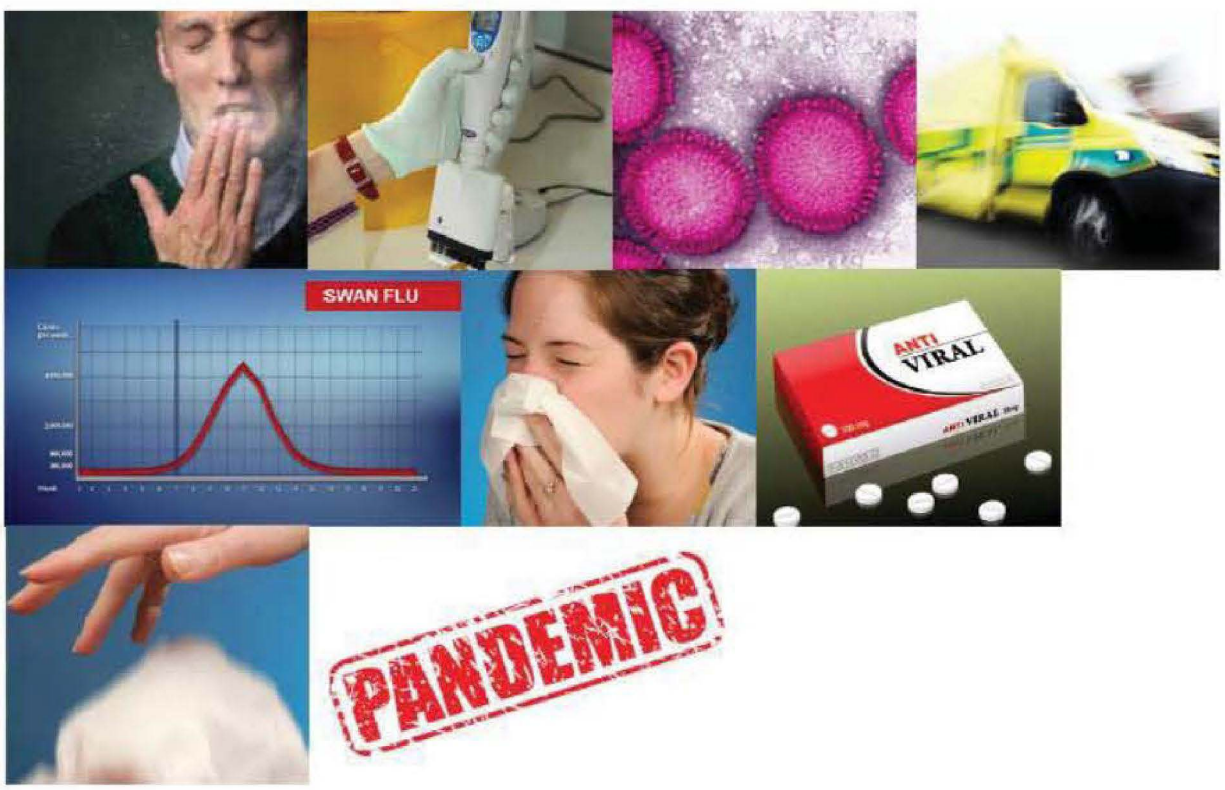
Public Health England

Protecting and improving the nation's health

Exercise Cygnus Report

Tier One Command Post Exercise
Pandemic Influenza
18 to 20 October 2016



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About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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About the Emergency Response Department

Emergency preparedness specialists throughout Public Health England play an important role in training and exercising the healthcare community and its Emergency Response Department (ERD) works with national and international partners to ensure that healthcare professionals are able to respond to emergencies, including the deliberate or accidental release of chemical, biological, radiological or nuclear substances. On behalf of the Department of Health, training courses and exercises are delivered every year throughout England to develop resilience across healthcare organisations. In addition, the team works with the European Commission, the European Centre for Disease Prevention and Control and the World Health Organisation.

This document is available in other formats on request. Please call [redacted] or email [redacted]

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Skills for Health Quality Mark
Awarded for the delivery of education and training to the health sector

Public Health England Emergency Response Department's Training and Exercises Team has achieved the 'gold standard benchmark' for training and exercises delivery providers awarded by the Skills for Health and the National Skills Academy

Introduction

Exercise Cygnus was a command post exercise delivered by Public Health England on behalf of the Department of Health. This was part of the Public Health England funded programme directed by the Emergency Preparedness, Resilience and Response Partnership Group chaired by the Department of Health.

The exercise was designed to assess the United Kingdom's preparedness and response to a pandemic influenza outbreak. It was aimed at responders in Local Resilience Forums, NHS England and Public Health England at local, regional and national level, the Department of Health and other government departments, the Health Departments of Scotland, Wales and Northern Ireland and NHS Wales. This report identifies lessons relevant to all of the participating organisations and is not restricted to lessons reflecting only the experience of health organisations.

The lessons identified in the report are not therefore necessarily PHE's corporate position; they are evidenced on the information gathered during the exercise and interpreted in the context of the Emergency Response Department's experience and judgement. It is suggested that the lessons identified are reviewed by the appropriate organisations to assess if any further action is appropriate.

Director for Health Protection & Medical Director
Public Health England

13 July 2017

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The report on Exercise Cygnus

Exercise Cygnus was a Tier 1 (national level) pandemic influenza exercise which took place from 18 - 20 October 2016.

Over 950 representatives from the Devolved Administrations, the Department of Health and 12 other government departments, NHS Wales, NHS England, Public Health England, eight Local Resilience Forums and six prisons took part in the exercise.

Pandemic influenza is one of the most severe natural phenomena to affect the UK[1] and the most severe civil emergency risk[2]. As such pandemic influenza remains at the top of the UK Government National Risk Register. During the exercise, participants considered their capacity and capability to operate at the peak of a pandemic affecting up to 50% of the UK's population and which could cause between 200-400,000 excess deaths in the UK.

The aim of the exercise was to assess the UK's preparedness and response to a pandemic influenza that was close to the UK's worst case planning scenarios. Exercise Cygnus was set in week seven of the UK's response to a pandemic influenza. At this point pandemic vaccine had been ordered but was not yet available. The scenario encouraged participants to examine what their response and capacity would be.

The response to an influenza pandemic is divided into five phases: Detection, Assessment, Treatment, Escalation and Recovery. Exercise Cygnus focussed on the Treatment and Escalation phases of the pandemic response. During these stages the emphasis is on considering the enhancement of public health measures to disrupt transmission and the escalation of surge management and triage of service delivery in order to maintain essential services[3].

Exercise Cygnus was run as a Command Post Exercise (CPX). Participants were based, as much as practicable, where they would usually work during a pandemic response. They communicated with each other by email and telephone and attended meetings in real-time. COBR meeting times were set by the exercise national planning team but all other meetings were set-up by the participants as part of exercise play. The exercise activity was based around four simulated COBR meetings which took place over the three days. The meetings were attended by Ministers and Officials from the Devolved Administrations and participating UK government departments. On the 18 October 2016 all of the organisations took part in the exercise and prepared for a COBR(O) meeting. On the morning of the 19 October 2016 the Secretary of State for Health chaired a meeting of the COBR(M). The results of that meeting were communicated back to participants through the chain-of-command. On the 20 October

[1] Cabinet Office, Department of Health, Home Office, Ministry of Justice, and Department for Communities and Local Government. Emergencies: preparation, response and recovery. https://www.gov.uk/guidance/pandemic-flu
[2] Cabinet Office. National Risk Register for Emergencies 2015 edition. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/419549/20150331_2015-NRR-WA_Final.pdf
[3] UK Influenza Pandemic Preparedness Strategy 2011

2016 a further two meetings took place: a COBR(O) in the morning and a COBR(M), chaired by the Minister for the Cabinet Office, in the afternoon.

Planning for Exercise Cygnus started in 2014 and was postponed due to the Ebola response. This report covers activities undertaken from the recommencement of planning in December 2015 to the delivery of Exercise Cygnus in October 2016. During this time some participating organisations undertook separate workshops and exercises to prepare for Exercise Cygnus. As part of the build up to Exercise Cygnus a national-level table-top exercise called Exercise Cygnet was run to help the Department of Health, NHS England and Public Health England prepare for the exercise. These activities informed the development and learning captured as part of the exercise.

Key Learning

The analysis of the evaluation reports from the organisations participating in the exercise indicate that the UK's command & control and emergency response structures provide a sound basis for the response to pandemic influenza. However, the UK's preparedness and response, in terms of its plans, policies and capability, is currently not sufficient to cope with the extreme demands of a severe pandemic that will have a nation-wide impact across all sectors. Exercise Cygnus demonstrated four key learning outcomes for the UK's preparedness and response capabilities, which are supported by 22 detailed lessons against the eight Exercise Objectives. Consideration should be given to reviewing the UK's Influenza Preparedness Strategy 2011 and individual government department pandemic influenza plans in the light of these findings.

Preparedness

1. The development of a Pandemic Concept of Operations would increase understanding of the UK's Pandemic Influenza Response. (Lessons identified: 1,2,3,4,10,12,13,17,21 and 22)
Exercise Cygnus emphasised the potential wide ranging impact of pandemic influenza. The complexity of the response and the importance of cross-government and multi-agency joint working were highlighted by all of the participating organisations. Consideration should be given to the development of an overarching pandemic influenza concept of operations, which would assist with the operationalisation of the response at a strategic and tactical level by describing the role of organisations in the pandemic influenza response, how those organisations interact and provide key guidance and plans for each of the response elements. Because the preparedness and response to an influenza pandemic covers multiple sectors and functions, a central repository of this information and overview of the entire response is required. Feedback from the planning and conduct of the exercise shows evidence of silo planning between and within some organisations and a lack of understanding about the potential impacts of a pandemic in which 50% of the population may be affected. The UK's plan for responding to a pandemic is contained in a wide variety of documents brought together by the Department of Health's UK Influenza Pandemic Preparedness Strategy 2011. This Strategy is published alongside at least eight other

[redacted]

1. The development of a Pandemic Concept of Operations would increase understanding of the UK's Pandemic Influenza Response. (Lessons identified: 1,2,3,4,10,12,13,17,21 and 22)

documents reviewing the scientific advice and lessons gathered from the H1N1 pandemic of 2009. It also points readers to HM Government Emergency Response and Recovery Guidance[4]. However, throughout the planning process and the exercise it became clear that there is no overview of pandemic response plans and procedures. In some cases plans or organisations referred to in the 2011 strategy no longer exist or require updating. In some organisations there are no plans but rather agreements, procedures or practices which are not documented and which rely on corporate memory for their enactment.

Feedback from the exercise planning and delivery indicated that, in England at the local level, there is a variable understanding of current response arrangements and that individual organisations' responses rely on a corporate memory of the 2009 H1N1 response which is currently being lost. Some organisations took part in Exercise Cygnus with plans missing, or plans that had been produced in the months leading up to the exercise which meant that they had not been trained to. It is acknowledged that, given the wide number of organisations involved in a pandemic influenza response, plans will inevitably be at different stages of development or may not have been trained to when an incident occurs. However, this risk may be reduced by the adoption of a tighter, cross-government approach to pandemic influenza planning and concept of operations.

The Devolved Administrations have their own response plans which were not examined at the local level during the exercise: Wales had already tested their local response arrangements following Exercise Cygnet held earlier in the year.

2. The introduction of legislative easements and regulatory changes to assist with the implementation of the response to a worst case scenario pandemic should be considered (Lessons identified: 2,3,4,5,6,7,15,16,19,20,21 and 22)

Understanding across Whitehall about the possible impacts of pandemic influenza should be improved and the government should review the legislative options, which might include easements and regulatory changes, that would assist with the operationalisation of health care surge arrangements and keeping essential services running. These legislative options would form part of pandemic influenza planning assumptions. The Devolved Administrations should consider developing equivalent legislation in areas of devolved competence and should be involved in the development of requirements for pandemic specific legislation.

Previous work delivered by DH provided a good understanding of regulatory changes that were needed to improve the ability of the health sector and other sectors to cope with an outbreak of pandemic influenza. Any legislative review should set out the powers which already exist to permit more flexibility in a pandemic response. The work that was done during the exercise to present a list of requirements of any legislation dealing specifically with the exercise scenario should be built upon.

This process highlighted the importance of a large number of statutory restrictions that, if lifted, would be of significant assistance to local and national government departments and agencies in responding

[4] HM Government Emergency Response and Recovery: Non-statutory guidance accompanying the Civil Contingencies Act 2004 5th edition https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253488/Emergency_Response_and_Recovery_5th_edition_October_2013.pdf

[redacted]

2. The introduction of legislative easements and regulatory changes to assist with the implementation of the response to a worst case scenario pandemic should be considered (Lessons identified: 2,3,4,5,6,7,15,16,19,20,21 and 22)

to a pandemic. This legislation could be quickly tailored and amended to suit the live situation and could be prepared with input from all departments to include the most important variations and additions to existing legislation that may be needed during an event of this nature.

3. The public reaction to a reasonable worst case pandemic influenza scenario needs to be better understood (Lessons identified: 5,6,7,8,10,11,12 and 15)

The Exercise Cygnus scenario and the responses of participants during the exercise play were based on unsubstantiated assumptions about the reaction of the public to a pandemic of this magnitude. This may be in part due to the limitations of the exercise; for example, there was no live rolling media broadcast coverage as there might have been in a real pandemic.

Feedback from the exercise indicates that, in a number of areas, the reaction of the public to a pandemic approaching the severity of the one described in the Cygnus scenario was not well understood. There was no evidence that the possible reaction of the public was factored into some of the key decisions taken, and communications strategies used, by participants during the exercise. These decisions were based on technical information and in many cases failed to adequately communicate the wider impacts, including the possible public responses, to their implementation.

This was particularly evident around consideration of mass burials and the potential use of population triage by the NHS. Both issues raised moral and ethical questions in addition to those about the potential response of the general population upon hearing that such measures were being considered or used.

Research into the potential impact on the public perception of and reaction to an influenza pandemic which matches the UK's worst case planning scenarios would assist with the development of emergency plans and the communication strategies that would be used to help implement them.

Response

4. An effective response to pandemic influenza requires the capability and capacity to surge resources into key areas, which in some areas is currently lacking. (Lessons identified: 2,3,5,6,9,14,16,17,18,19,20 and 21)

A national level Pandemic Concept of Operations must consider the operationalisation of local level pandemic flu plans. Indications from Exercise Cygnus are that Pandemic Influenza planning in the UK is based around national strategic documents which inform plans developed by individual organisations and LRFs. However, the lack of joint tactical level plans was evidenced when the scenario demand for services outstripped the capacity of local responders, in the areas of excess deaths, social care and the NHS. Consideration should be given to providing more detailed national guidance which could be applied at the operational level during a response and to arrangements for 'scaling up' the local response to pandemic influenza in a manner that recognises its impact nationally. Planning at a regional, rather than LRF, level for key components of the pandemic influenza response - such as excess deaths - may assist in developing multi-agency working at the local level.

[redacted]

4. An effective response to pandemic influenza requires the capability and capacity to surge resources into key areas, which in some areas is currently lacking. (Lessons identified: 2,3,5,6,9,14,16,17,18,19,20 and 21)
Local responders also raised concerns about the expectation that the social care system would be able to provide the level of support needed if the NHS implemented its proposed reverse triage plans, which would entail the movement of patients from hospitals into social care facilities. The local responders reported that a multi-agency response was essential and the current concept of operations provided the framework for them to achieve this. However, because of the complexity and potential impact of a pandemic influenza response, which draws in actors from across the public and private sectors, consideration should be given to developing support to the local response in the following areas: excess death planning, social care and health. In more complex areas of the response, such as excess deaths, LRFs reported that they were reliant on subject matter experts to carry out their response. These experts, who are not usually part of the standing LRF membership, provided specific technical advice to help colleagues understand the various elements of the response. Where these specialists were available, the Strategic Coordinating Group (SCG) structure allowed them to contribute fully. However, the exercise did raise questions about whether, in a real-time pandemic, when the effects were felt across the country that the same level of support would be sustainable. This is particularly relevant when subject matter experts would be required to support more than one SCG.

Report Annexes

The detailed learning from Exercise Cygnus is set out in the following manner. High-level learning impacting on all participants has been captured in the main body of the report as Key Learning Identified. A more detailed analysis of the Lessons Identified under each of the eight Exercise Objectives is contained in **Annex A**. The lessons have been illustrated with comments and material received from exercise planners, participants and evaluators.

As part of the exercise planning programme, in August 2016 the Department of Health ran a health table-top exercise called Exercise Cygnet to prepare health elements for the main exercise. The findings from Cygnet have been incorporated in this report and the exercise final report is at **Annex B**.

A description of the exercise planning, evaluation and participant feedback on the exercise are contained in **Annexes C** and **D** respectively.

[redacted]

Annex A Lessons Identified by Objective

A.1 To exercise organisational pandemic influenza plans at local and national levels in the United Kingdom

LESSON IDENTIFIED 1: Organisations should ensure that their Emergency Preparedness Resilience and Response training and exercising is consistent with best practice.

Across the participating organisations the level of planning, training and preparation for Exercise Cygnus was mixed. The planning team engaged with potential participants from the start of the planning process in January 2016. Because of the complexity of the scenario and the response it was felt by the Planning Team that participants would benefit from the time to familiarise themselves with the scenario and train to it. Best practice is that staff should be trained in the use of plans and procedures before an exercise[5]. Some of the participants had completed extensive preparatory training for the exercise: Wales ran Exercise Cygnus in 2014 and a national workshop as part of the work-up for Exercise Cygnus in 2016; and many of the LRFs reported that they had run workshops and exercises in the lead-up to Exercise Cygnus. However, some plans and procedures that had been recently developed or were in draft form were tested as part of the exercise which meant that there had not been time to train to them. Examples of the former include: DH Pandemic Flu Communications Guidance, [redacted], and Social Care Situation Report. Other plans and guidance, although tested as part of the exercise, are still being developed such as: NHS England Surge and Escalation Guidance and an Antiviral distribution plan and Revised Home Office Excess Deaths Guidance. There are also examples of organisations trialling new response arrangements during the exercise. These new arrangements have highlighted useful learning for the organisations involved. Whilst the exercise highlighted areas for development, the lack of plans or the fact that staff may not have been trained to should be borne in mind when considering the exercise evaluation.

A.1.1 The response at the SCG and local level

LESSON IDENTIFIED 2: Pandemic Influenza Planning should be considered a multi-agency responsibility. Specialist advice from all stakeholders needs to be available to SCGs in order for them to respond appropriately. During an influenza pandemic the manner in which specialist technical and sector specific advice is provided to local responders should be 'scaled up' so that support can be provided to multiple LRFs.

At the individual LRF level it was reported that the exercise showed that the multi-agency Pandemic Influenza Preparedness Strategy 2011 and CCS's LRF Pandemic Planning Guidance 2013 provide a solid foundation and contains all the necessary key information for the LRF to establish its multi-agency response. Six of the eight LRFs taking part in the exercise have exercised their pandemic flu plans since 2014 and most had revised and exercised their plans in the run-up to Exercise Cygnus.

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[5] Cabinet Office and National Security and Intelligence. 2014. Emergency Planning and Preparedness: Exercises and Training. Accessed at https://www.gov.uk/guidance/emergency-planning-and-preparedness-exercises-and-training#emergency-preparedness-training 17 Dec 2016

[redacted]

However, there is evidence presented by the LRFs that the response to a pandemic influenza on the scale of that described in the Cygnus scenario is not well understood and that at all levels a better understanding is required of the constituent parts of the flu response. In particular, development of planning is required in the following areas: excess death planning (see below), social care and health and justice which were exercised for the first time in Cygnus with procedures that had not been trained to by the participants.

"There are too many plans [and] there is a question about how up to date all the plans are and whether there are contradictions between [them]". [redacted]

"[The exercise was a] useful opportunity to get everyone together to look at plans, especially excess deaths and prisons. [It] Highlighted that lots of plans [are] out of date. [It] Opened eyes to non-health that pan flu is everyone's problem". [redacted]

"multi-agency collaboration worked really well, exercise increased the understanding of non-health partners about the possible wider societal impacts of pandemic influenza. Raised lots of questions about social care, particularly about providers' business continuity challenges. The [redacted] *local authorities within the LRF each have an excess deaths plan, but there is no overarching plan".* [redacted]

SCGs relied upon the detailed knowledge of particular specialists (for example death management) to help them deal with issues raised during the exercise. The current pandemic planning guidance was a useful tool for achieving this input and the co-location of responding partners at the SCG is reported by many as best practice which should be continued. In some cases Directors of Public Health (DsPH) chaired the SCG and one evaluator suggested that the SCG should be chaired by PHE. The use of these experts appears to have been two-fold: (1) to understand the various elements of the response, particularly where procedures are complex; and (2) to provide technical advice. However, the feedback also indicates that if these specialists are not present then these subjects may not be addressed. This could indicate an over-reliance on corporate memory invested in too few people.

In some cases, staff from NHS England and PHE, who form part of the standing LRF membership, were called upon to support more than one SCG. Regional or national provision of specialist advice and the instigation of mutual support plans in NHS England and PHE may help to address this issue.

"Further consideration is required as to where and how PHE Centres engage within LRF strategic and tactical groups. In the exercise PHE Emergency Managers were able to cover the SCGs and the Health Cells at the [redacted] *LRFs playing, but in practice we would have* [redacted] *LRFs to engage with in a real pandemic. Capacity to engage at the level we did for the exercise would not be available. Consideration needed as to whether PHE should be formal members of health cells, and if so, how we would engage across the* [redacted] *LRF areas covered"* [redacted]

[redacted]

A.1.2 The link between the local and national levels during the response

The current concept of operations provides responders with a robust framework through which to enact an effective response. However, evidence from Exercise Cygnus indicates that during a reasonable worst case influenza pandemic it is likely that responders will struggle to maintain a response using the existing framework.

LESSON IDENTIFIED 3: National level planning which considers the operationalisation of local level pandemic flu plans should be undertaken.

Indications from Exercise Cygnus are that Pandemic Influenza planning in the UK is based around national strategic documents which inform plans developed by individual organisations, Local Health Resilience Partnerships (LHRPs) and LRFs. However, the lack of joint tactical level plans was evidenced when the scenario demand for services outstripped the capacity of local responders, in the areas of health surge planning, excess deaths and provision of social care. The lack of centrally produced advice to local authorities on excess deaths and body management was considered a major issue by local responders who also raised concerns about the expectation that the social care system would be able to provide the level of support needed if the NHS implemented its proposed reverse triage plans.

"It is believed, following the exercise, that LRFs would have difficulty operating their plans and capabilities at this scale [of response]. The coordination of resources at the national level may be required in some scenarios." [redacted]

"More focus and coordination on pan flu preparedness [is] needed nationally, departmentally and within Resilience and Emergencies Division Operations Centre itself". [redacted]

"Given the pressures on dealing with excess deaths there should be central policy guidance provided on the use of body holding arrangements being developed, including communications and body transportation where local capacity is exceeded." [redacted]

A.1.3 The Four Nations response

LESSON IDENTIFIED 4: Meetings of the four health ministers and CMOs should be considered best practice and included as part of the response 'battle rhythm'.

There was an indication throughout the exercise that each of the countries of the UK should, where possible, enact the same responses within similar timeframes. This would be facilitated by DH hosting meetings of the four Chief Medical Officers (CMOs) and a Health Tri-partite (DH, NHS England and PHE) meeting, to which the Devolved Administrations should be invited in preparation for each of the anticipated COBR meetings. The use of these meetings should be considered best practice and be continued and would build on existing strong cooperation between the Administrations; however, due to exercise limitations the Devolved Administrations were not invited to attend and this was an oversight.

"DH, NHS England and Public Health England held a Health Tripartite Meeting before each COBR(O) or COBR(M). These sessions allowed the senior officials, supported by their respective incident management teams, to gain a full understanding of the current situation and the response prior to

[redacted]

COBR. These meetings were useful in developing a joint position and supported strategic decision making." [redacted]

"The meetings between the CMOs supported strategic decision making by allowing a consensus to be developed between the attending CMOs prior to advising their respective Governments." [redacted]

It was agreed during the exercise planning phase that for logistical reasons it would not be possible to schedule meetings of the four Health Ministers, contrary to the established best practice[6]. Instead it was agreed that the Devolved Administrations would contribute directly to the COBR discussions. However, the Devolved Administrations reported that they felt they had been left out from some key decisions taken during the exercise, such as the decisions around activating the Relenza stockpile.

"The UK decision making processes at 4 Nations level requires clarification and should be documented as during the exercise it appeared that a decision [was] made by PHE on [the] release of Relenza without full consultation with other UK countries. A similar situation appears to have occurred with the release of UK antibiotic stockpiles without consultation with all 4 UKC". [redacted]

Given the importance of the Devolved Administrations and England working together during an influenza pandemic response, consideration should be given to developing a mechanism to enable shared preparedness policies and plans to be developed on issues relating to surge and excess death management.

A.1.4 Health surge planning

The exercise highlighted the following lessons around Health surge planning:

LESSON IDENTIFIED 5: Further work is required to inform consideration of the issues related to the possible use of population-based triage during a reasonable worst case influenza pandemic

Population Based Triage is a provision that should be used only when the resources and staffing required to support normal working practices are no longer available. This is defined as when: decision criteria about the allocation of treatment require that those selected to benefit from the limited resources must have a likelihood of medical success, yet the selection must not impede the conservation of scarce resources for those equally in need.[7]

On the first day of the exercise a decision was made to consider introducing an alternative model of care (population-based triage) to manage capacity and respond to the excessive demand for hospital

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[6] Dame Deidre Hine. 2010. The 2009 Influenza Pandemic: An in review of the UK response to the 2009 influenza pandemic

[7] Burkle FM. Triage. In: Burkle FM, Sanner PH, Wolcott BW, eds. Disaster Medicine. New York: McGraw-Hill (originally published under Medical Examination Publishing Co., Inc, New York), 1984, pp. 45–80. Quoted in Frederick M. Burkle Jr., MD, MPH. Population-based Triage Management in Response to Surge-capacity Requirements during a Large-scale Bioevent Disaster Academic Emergency Medicine Volume 13, Issue 11, Version of Record online: 28 June 2008

[redacted]

care as set out by the exercise scenario. Draft proposals developed by NHS England prior to the exercise - and shared with the Devolved Administrations - were considered during Exercise Cygnus.

Since the exercise further work and socialisation of planning around the use of population-based triage has been undertaken. Further work in this area is required which should involve the Four Nations CMO meeting and consider:

- How population triage would be enacted across the four nations
- The likelihood of the medical profession complying with this step
- Likely ethical issues that might arise
- Whether and how emergency measures would be enacted
- Triggers for a move to population triage
- Who would make the decision to move to population-based triage and in what circumstances the decision would be made at a national or local level.
- Data to help assess the potential impact of various options to manage the demand for health and care services in different pandemic influenza scenarios given the available options
- Alternatives to population triage
- A communications package for internal and external stakeholders, to explain the rationale and benefits of moving to population-based triage

LESSON IDENTIFIED 6: Further work is required to consider surge arrangements for a reasonable worst case scenario pandemic. This work should be led by NHS England (on operational aspects), with DH providing oversight, assurance and policy direction with input from the Four Nations CMO meeting.

An NHS surge plan is currently being developed. Findings from both Exercises Cygnet and Cygnus suggest that the following areas should be addressed:

- Fully modelling the impact of service closures and triage systems to identify lives saved or lost through each service change to support decision making
- Developing supporting plans for community treatment of flu and non-flu patients including: the development of a rapid discharge protocol so that the health and social care sectors can make a quick decision on whether someone stays in hospital, or is discharged to residential care, community care or their home for treatment or care
- Development of a communications plan to support communication of service changes to public and professionals
- Agreement of a clinical and ethical framework to support the management of service changes during a pandemic.

The pressure on health services caused by a pandemic may be unevenly distributed across the country in a series of flu 'hot-spots'. Mitigation plans should be considered which could include:

- Developing a plan to move staff around the country to support delivery of care in 'hot-spot' areas and 'pinch-point' capabilities using NHS staff passport toolkit
- Considering issues surrounding the provision of paediatric services using adult staff and facilities.

[redacted]

- Considering changes to staff working practices and support to assist NHS staff who are carers who may wish to make themselves available to support the pandemic response.
- Arranging to engage with and disseminate the NHS surge escalation and triage guidance to NHS and professional stakeholders to secure their support for the approach.

To facilitate and speed up the decision-making process about whether people remain in hospital or are discharged residential care, community care or their home work is required to:

- Develop a rapid discharge protocol for use in the community
- Ensure funding is available to allow for these provisions to be enacted quickly. For example: by purchasing equipment from stockpiles to make 'satellite care' in someone's home a real possibility.

A.1.5 Antivirals

LESSON IDENTIFIED 7: The DH should work with partners to further develop the strategy for the use of antivirals during a pandemic.

Oseltamivir (Tamiflu®) and zanamivir (Relenza®) are the two antiviral (AVs) products currently licensed for use in the United Kingdom[8]. [redacted]. The response adopted by health authorities in the exercise scenario was to treat all symptomatic case which was informed by Scientific Advice[9]; however, plans and guidance are needed to determine how AVs should be targeted once stocks start to run low and whether alternative medicines might be used. There was discussion at COBR about the policy of using AVs at the peak of a pandemic curve - when stockpiles would be low - for cases that had been diagnosed symptomatically rather than being confirmed by laboratory testing and what, if any, benefit there might be of administering AVs later to confirmed cases.

As part of the planning around the use and distribution of AVs the following should be considered:

- Further modelling to examine the effectiveness of AVs if prescription is delayed to allow for laboratory confirmation rather than symptomatic diagnosis of influenza.
- Security at hospitals, pharmacies, doctor's surgeries and possibly government working sites.

LESSON IDENTIFIED 8: PHE and NHS England should continue working together to further develop the existing community protocols for delivery of antivirals with particular consideration being given to the manner in which these arrangements are communicated to NHS Emergency Preparedness staff at the local level.

The protocols should describe in detail the operationalisation of the end-to-end flow for antivirals delivery. NHS England continues to work with partners to agree terms for the delivery of the ACP function in a future pandemic. The current model is based around use of community pharmacies. This reflects feedback from the public, patients and the NHS from the 2009 H1N1 outbreak that community pharmacies were the preferred location. [redacted].

[8] Department of Health May 2014 The use of antivirals in an Influenza Pandemic
[9] SPI-M 2013

[redacted]. At such a time, further clarification can be shared with LRF colleagues as to which sites have been identified locally. Arrangements for security at Antiviral Collection Points (ACPs) should be considered in anticipation that competition for a limited amount of AVs may lead to public disorder.

A.1.6 Business Continuity Planning

LESSON IDENTIFIED 9: All organisations should examine the issues surrounding staff absence to provide greater clarity for planning purposes

Most of the organisations participating in Exercise Cygnus used the opportunity to examine their Business Continuity Plans (BCP) arrangements. The main issue highlighted by participating organisations was their ability to maintain functionality in the light of high levels of staff absenteeism. The scenario did not consider the possible reactions of the population to a reasonable worst case scenario pandemic.

The UK Influenza Preparedness Strategy 2011 assumes illness-related absence from work of 50% during the course of the pandemic[10]. For the purpose of the exercise participants were asked to plan for absenteeism levels of ~30-35%, at any one time, based on SPI-M figures[11]. During the exercise NHS representatives estimated that, given the number of staff with caring responsibility, absenteeism could be as high as 40% and the DWP based their exercise response on a figure of 50%.

"We may be facing up to 40% absenteeism as parents and carers stay at home to look after children and vulnerable individuals. Is this likely? And what does this do to sector resilience? There may be a need to revisit the planning assumptions in this regard". [redacted]

Business Continuity Plans for all organisations should be significantly enhanced, with protocols put in place for review of BCPs specifically once a pandemic (and its specific epidemiology) is confirmed. This may include review of HR policies regarding the possibility of moving staff as well as infection control guidance. Consideration should be given to the ability of staff to work from home. This was noted as a particular issue for those who needed access to secure computer systems.

[10] Department of Health UK Influenza Pandemic Preparedness Strategy 2011
[11] Scientific Pandemic Influenza Advisory Committee (SPI): Subgroup on Modelling [insert web address]

[redacted]

A.2 To exercise coordination of messaging to the public

A.2.1 Communications – General

All of the organisations that participated in the communications element of the exercise agreed that the communications coordination meetings (which acted as a virtual News Coordination Cell) were invaluable. The Devolved Administrations also reported that they found the communications coordination meetings useful for aligning messaging. However, whilst messages issued at the local level and by some government departments provided useful advice to the public, the health messaging at the national level did not achieve the same effect.

A.2.2 Health communications at the national level

LESSON IDENITIFED 10: Pandemic communications plans should be developed to ensure that they provide necessary reassurance, provide adequate levels of information to the public across the UK and are tailored for specific policy interventions where required.

Health Communications at the national level within England was guided by draft version 10 of "A Pandemic Influenza Communications Plan for England" which was issued in September 2016 and the Communications chapter of the "Health Tri-partite ConOps". There is also a Tri-partite Emergency Preparedness and Response Communications Plan which is in draft form. Information released from Health at the national level tended to be clinical and generic and failed to react to the exercise pseudo media stories that were posted on PHE ERD's [redacted][12] site. There was no communications strategy to accompany the key policy decision of the exercise which was to introduce population based triage. Communications briefing at COBR concentrated on methods of developing and delivering messages rather than supporting public understanding of specific policy issues.

Health messaging at the national level within England failed to provide specific advice to the public or responding organisations. There seemed to be little consideration of pre-prepared messages for the public other than very basic health advice and technical messages, reporting that organisations were responding. They did not provide any context or additional information around the announcement of the move to population triage; for example it could have explained what this meant, its potential impact on the public and an explanation as to why it was necessary.

"During the exercise, a lot of material was provided on lines to take for media and communications teams. Most of this material was quite clinical in its terms and approach. It is believe that in a real life scenario, the lines would not have passed clearance with No10 due to their clinical nature. There was substantial work done during the 2009 response. This work could be built upon to support messaging and lines to take. The Hine's report details the lessons identified further". [redacted].

From the first exercise generated press release on the evening of 17 October through to the second release on 18 October, NHS England communicated that all elective surgery would be cancelled to allow capacity within the NHS to deal with influenza pandemic.

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[12] [redacted]' is PHE ERD Exercises Team's web based, interactive pseudo media news portal that used extensively during Exercise Cygnus to simulate 'the media'.

[redacted]

> *"NHS England has today taken the decision to suspend all planned surgery in response to unprecedented demand since the outbreak of 'swan flu' in the last 7 weeks.* [redacted] *, said: "The NHS is continuing to see a significant and sustained increase in demand for all services, and a continuing increase in hospital admissions. Contingency measures have created extra capacity but we are now expecting hospitals to become full in the next few days as well as far higher staff absences due to 'swan flu' sickness"* [redacted].

The messages which sought to reassure the public in line with the guidance were those expected in the initial stages of an acute response. They reassured the public that the NHS and PHE were responding but failed to deal with the issue raised by the scenario of the impact of the peak of the pandemic. For example: in response to the Day 1 [redacted] article[13] *Health Bosses Accused of "Dangerous Naivety"* PHE's reply on Day 2 of the exercise simply reiterated their original messages:

> *"Public Health England continues to monitor the situation with the Swan flu pandemic closely. We consider our advice carefully in light of new information and make appropriate changes if necessary."* [redacted]

Another example is a reassurance message from PHE North West 18 October 11.10am posted on [redacted][14] and '[redacted]' by DH and the PHE Regions.

> *"The UK is well prepared for Swan Flu and have (sic) robust plans in place"* [redacted].

LESSON IDENTIFIED 11: Procedures for coordination of messaging to the public should be re-enforced and practised by DH, NHS England and PHE national teams alongside colleagues from the Devolved Administrations

Conflicting messages from PHE and NHS England may have led to confusion for the public. For whilst there was no requirement to change the advice for infection, prevention and control communicated by PHE on learning the exercise 'news' on 18 October regarding the coming peak of the pandemic, the public perception of risk may have changed. Given the possible severity of the impact on the NHS, DH and PHE might have tried to give reassurance messages acknowledging the coming peak and how this may be reduced by good infection control measures. These messages should be consistent across the four Nations. PHE did not appear to gauge the public's reaction to the NHS's announcement about the introduction of population-based triage and to the news of the coming peak of the pandemic.

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[13] [redacted]' is PHE ERD Exercises Team's web based, interactive pseudo media news portal that used extensively during Exercise Cygnus to simulate 'the media'.

[14] [redacted]' is PHE ERD Exercises Team's web based, interactive pseudo social media portal that used extensively during Exercise Cygnus.

[redacted]

The response from DH to inquiries about the discrepancies in advice between PHE and NHS was:

> *"PHE has not said that it is business as usual, and while the two bodies have different roles (PHE provide advice to the public and NHSE run NHS services) they are both doing what is necessary to prepare for this outbreak, and advise the population accordingly"* [redacted].

People are more likely to understand and accept the need for, and the consequences of, difficult decisions if these have been made in an open, transparent and inclusive way (UK Influenza Pandemic Preparedness Strategy p30). NHS England signalled that the health system was under pressure and this could pave the way in weeks ahead where difficult decisions may have to be taken. However PHE's lack of acknowledgment of the impact on the health system may have confused the public and undermined this strategy.

A.2.3 Communications at the local level

LESSON IDENTIFIED 12: The communications response to a pandemic is supported by involving a wide-range of stakeholders in its development and implementation.

Communications at the local level appeared to be more attuned to the requirements of their audiences. This may reflect the fact that local level communications staff were drawn from a number of organisations and so were able to provide more nuanced messaging that seemed to take account of public sensibilities:

> *"The exercise highlighted the importance of multi-agency co-operation when it came to communication. A wider range of sectors may need to be involved in public communication (e.g. businesses, schools, higher education, voluntary agencies, etc.) to ensure that messages are not only disseminated by as many channels and existing networks as possible, but also remain consistent in terms of content."* [redacted]

Adult Social Care information for each LRF was forthcoming through communications leads. This was an example of risk communications that was transparent, was in touch with their stakeholders and community, and showed they had good planning in place to deal with these eventualities. It also built trust with the journalists and resulting stories reflected this positive relationship.

A spokesman for the [redacted] explained the role of "Flu-Friends":

> *"We all have a role to play. We can do this by supporting friends, family and neighbours who may need assistance with day to day activities such as shopping, picking up medication or simply calling in on them to check they are OK. Why not become a "Flu Friend" to your relative or friend? Flu Friends are volunteers who kindly assist with collection of medication and other essentials for people who have flu."* [redacted]

[redacted]

[redacted] on excess deaths again showed transparency and humanity in this response:

> *"We understand how distressing it is for family and friends when a loved one dies and we are working together across health and social care organisations and local undertakers to ensure that all those who pass away are treated with dignity and respect".* [redacted]

A.2.4 Observations on the use of Social Media

The Department of Work and Pensions (DWP) social media contributor engaged in a dialogue with their audience indicating that they knew and understood the online community they were engaging with. Similarly, [redacted] communications staff using PHE ERD's [redacted] system appeared to understand their communities and tailored social media messaging accordingly. In contrast, whilst the national health social media messages were consistent, clear and coordinated they raised awareness of key messages in a linear fashion of issuing statements that did not show engagement with the audience. This is in line with NHS England social media policy which does not engage in conversation with individual Tweeters in order to safeguard against exposing personal information. Although there was consistency of messaging and awareness raising through repetition, the lack of context regarding the severity and potential loss of life in the coming weeks may have rendered the messaging ineffective.

A.2.5 Communications Focus Group

As part of the communications evaluation of Exercise Cygnus, PHE ran a focus group to evaluate some of the messages generated by the participants during the exercise. These were public messages that had been issued to and then interpreted and published by the pseudo-media journalists. The focus group was run by PHE's public engagement team and the group were recruited through PHE's people's panel. Although this study was run as a pilot to establish the validity of using members of the public to evaluate communications messages it was thought useful to share the findings of the focus group as part of the Cygnus report.

The exercise scenario was explained to the participants who were then provided with four articles generated as part of exercise play. The group was asked to consider the impact of the message and their level of trust in the person or organisation providing that message. They re-iterated a number of lessons which have already been identified through the 2009 H1N1 pandemic around: a lack of trust in projections, the requirement of messages to avoid jargon, the choice of spokespeople and the desire for information to allow the public to make decisions about how best to protect themselves. The key findings from the group that related directly to the exercise were:

- Consistency in messaging was important – the group understood that some people might be confused by the apparent contradiction of PHE saying 'carry on as normal' (i.e. keep schools open) compared to NHS / hospitals cancelling planned surgery. They thought that some people might think this inconsistency was a conspiracy in that 'the truth is being covered up' and either the pandemic is worse than the official message or that the NHS is using it as an excuse for cancelled operations.

[redacted]

- The role of the voluntary sector should be more apparent in pandemic plans and communications activities. If the health and social care sector is under strain, organisations such as Age UK or the Red Cross might help. People who are well or immune to the flu should be able to volunteer their services.

A.3 To exercise strategic decision-making processes around managing the wider consequences and cross-government issues at both local and national levels during an influenza pandemic

The lessons identified in this section refer to elements of the national level organisations. Lessons identified at the local level have been included under paragraph 6.4.

LESSON IDENTIFIED 13: A cross-government working group should be established to consider carefully the information required to guide the response. The method of situation reporting should be considered with a view to simplifying the process and avoiding duplication of effort.

During the planning process the LRF planning group discussed the SitReps that should be used in the exercise. A Social Care SitRep template was developed as part of this process which was trialled during the exercise. This SitRep template was not the same as those normally used by the LRFs. Although Exercise Cygnus was conducted with advance notice and with a restricted scenario – and in this respect differed from a real response - participants reported that the demand for them to produce information was overwhelming: the amount of information they were asked for was unrealistic (and in some cases unobtainable) in the time frame required and there was a lack of clarity about what information was required. Whilst it is acknowledged that the exercise was run to a tight timetable, the process of reporting of information up and down the chain of command should be examined in the light of these findings. [redacted] has developed, and uses, a Common Operational Picture which might which may be considered as a template.

For Exercise Cygnus each of the participating SCGs was allocated a Government Liaison Officer (GLO) in line with best practice. These GLOs assisted the SCGs in producing a SitRep for DCLG who in turn collated the information for COBR. However, despite this it was difficult for DCLG to provide a coherent picture because

- SCGs reported that they were unclear about what information they should be providing to the national level
- DCLG reported that they were overwhelmed with information from the eight SCGs and that the information provided was so inconsistent that they struggled to create from it a coherent picture.
- SCGs reported that the lack of information coming back from 'the Centre' would have impeded their ability to act.

"Much of the information coming in from LRFs was conflicting, ranging from the situation being under control, to near catastrophic, and it was difficult to pull this together into one coherent picture. The level of detail provided also varied hugely, making it hard to pull out relevant information." [redacted]

[redacted]

PHE participants also reported a disconnect between the National level and the local PHE Centres. In some cases the concept of operations was unclear because staff were using new plans - trialled during the exercise - which they had not been trained in. In other cases the information requirement was not well explained or understood.

"The failure of the corporate centre to have a proper appreciation of front line Health Protection activity and service delivery." [redacted]

"The need for clear lines of communication between the NICC and local centres. Frustration was expressed by participants of the instructions given to complete a situation report. This should have been a straight forward, but the absence of a template, conflicting advice on FES' role made it unnecessary complex." [redacted]

LESSON IDENTIFIED 14: The Department for Education, in liaison with colleagues in the Devolved Administrations, should study the impact of school closures on society.

DfE should study the impact of school closures and also examine the possibility of keeping schools open by getting retired teaching staff to return to support the profession and by the temporary upskilling of students. Any plans should include safe-guarding procedures, the allocation of appropriate roles and the legislation that may be required to allow staff to return to the profession.

LESSON IDENTIFIED 15: Consideration should be given to the impact of a pandemic influenza on British Nationals Overseas.

Because the Foreign and Commonwealth Office and the Department for International Development were not involved in the exercise this theme was not explored as part of the injects. Planning around British Nationals overseas should consider: how this pandemic would affect British Nationals both visiting and living overseas; the possibility of British Nationals returning to the UK specifically to access higher levels of health care should be considered alongside the policies of the UK and other nations regarding treatment of foreign nationals in domestic hospitals and health services. A policy regarding the repatriation of bodies may need to be generated considering the numbers expected in this scenario.

LESSON IDENTIFIED 16: Expectations of the Ministry of Defence's capacity to assist during a reasonable worst case scenario influenza pandemic should be considered as part of a cross-government review of pandemic planning.

During the exercise COBR meetings, a lot of expectations of support were placed upon the military, from providing additional health personnel, field hospitals, drivers, prison officer backfill and administrative support to providing support to the police for public order in hospitals, chemists and surgeries and for general public order duties including public order support should violent or disorderly behaviour become evident and there is a need to provide security. The use of the Military Assistance to the Civil Authorities provisions (MACA) are predicated on the conditions that no other reasonable resources or actions can be taken other than to use the military, and that use is proportionate and reasonable in the circumstances. During an influenza pandemic the military and their families may also experience a high rate of sickness and absenteeism given their close living proximity. Another consideration about using the military is the public perception of using service personnel to prevent citizens from undertaking certain activities, such as access to pharmacies. Strategic decision-makers

should consider identifying the extraordinary skills and resources that could be required during a response and identifying other sectors or agencies that would be more suitable to assist, such as private contractors or voluntary service agencies.

Although not addressed as part of Exercise Cygnus the debriefing process has identified a requirement to consider the impact of a pandemic influenza on British Forces overseas and the ability to sustain them.

A.4 To exercise the provision of scientific advice, including SAGE

The SAGE element of Exercise Cygnus was exercised as part of the exercise preparations in 2014 and a mock SAGE was held. The outputs from that meeting were used to develop the 2017 exercise scenario. A record of the 2014 mock SAGE meeting is held by DH.

There was limited feedback about the provision of scientific advice during the exercise. At the national level participants used the scientific advice contained in the scenario documents. LRFs received scientific advice during the exercise from their local PHE colleagues. There were no reports of LRFs experiencing difficulty in accessing this information.

During the planning phase and Exercise Cygnet it was noted that there was a lack of clarity about where modelling data could be accessed from for planning purposes. There were also questions about how the various teams providing data would work together in a response, in what form data would be provided to responders and how it could be used.

LESSON IDENTIED 17: The process and timelines for providing and best presenting data on which responders will make strategic decisions during an influenza pandemic should be clarified.

In Exercise Cygnet participants reported that they were unclear about how epidemiological information would be produced and disseminated to responding organisations. Timelines for the production of this data should also be reviewed to ascertain if they can be shortened.

During Exercise Cygnus, participants at the SCG were using at least three sets of figures as a basis for planning. All the figures for the exercise were generated from the same data-set. The scenario development for Exercise Cygnus relied heavily on input from modelling teams in PHE and NHS England. The PHE data for the scenario was provided by the Emergency Response Department's Bioterrorism and Emerging Disease Analysis Team. This provided national level data which the LRF planners then had to adapt to reflect the local picture. The Analytical Services Team from NHS England's Operation and Information Directorate used the PHE data to provide an NHS National SitRep for the scenario and a local breakdown of hospital occupation. SCGs were also provided with epidemiological modelling data provided through PHE's Field Epidemiology Service based in the National Infection Service.

[redacted]

A.5 To explore the social care policy implications

Exercise Cygnus examined the implications of a pandemic influenza response on the social care system. This aspect of the exercise was also examined during Exercise Cygnet. In general, feedback from both exercises indicated that further planning was required in order to operationalise current thoughts about how the social care system might cope during a pandemic. The approach adopted during Exercise Cygnus was that social care facilities could be used to support clients who were discharged from hospital as part of the health sector's surge capacity arrangements and to help reduce the demand on NHS-provided care by maintaining health services in the community. As such the exercise raised two main questions around social care: the first was how to ascertain capacity within the social care system; the second was how that system could be expanded to cope with the excess demand during a pandemic response.

LESSON IDENTIFIED 18: A methodology for assessing social care capacity and surge capacity during a pandemic should be developed. This work should be conducted by DCLG, DH and Directors of Adult Social services (DASS) and with colleagues in the Devolved Administrations

In order to attempt to assess adult social care capacity the Department of Health devised a SitRep template that could be used by the SCGs to report on capacity within the social care system. During the exercise the task of collating the SitReps, including the social care element, lay with DCLG. There was a lack of clarity about whether the responsibility for reporting on social care capacity lay with DH or DCLG. During the exercise the LRFs sent the social care SitRep to DCLG and copied to DH; however, this is not a standard practice.

LRFs reported that it was not possible to collate an accurate picture of social care capacity because much of that capacity lies with private providers. It is likely that there will be vulnerable people who are reliant on private support which might not be available at the time of a pandemic (those reliant on families and friends for example).

"Collecting] information [for the social care SitRep] on a regular basis was a massive amount of work … some of this might be impossible --- it is very difficult to find information about people who resource care from the independent sector." [redacted]

"…there needs to a working group to look at how you can access this information (about social care capacity and requirements) there might be 100s of vulnerable people who won't get the help that they want or need and won't be identified." [redacted]

"[there needs to be] a greater understanding about pan flu in the social care sector … they can't allocate the extra places." [redacted]

[redacted]

LESSON IDENTIFIED 19: The possibility of expanding social care real-estate and staffing capacity in the event of a worst case scenario pandemic should be examined

There were discussions during Exercises Cygnet and Cygnus about the possibility of using hotels, military establishments and other real-estate to expand the bed capacity of adult social care services during a pandemic. Such an expansion of capacity would need to be accompanied by the recruitment or redeployment of additional staff to support the increased demand. A methodology for the recruitment and tasking of staff should be considered alongside options for real-estate expansion. The following should be considered:

- Developing a clear methodology for assessing local out-of-hospital capacity in community services, residential and domiciliary care. This should be aligned with the population-based triage protocol described in Lesson Identified 5. This would effectively relate to NHS funded step-down care, so the NHS should be involved in assessing local hospice provision and capacity – with the aid of the third sector.
- Extending 'spill-over' capacity by putting contracts in place with large hotel chains, reopening closed facilities or purchasing extra capacity in some of the care homes which form part of the 'Top 50' providers. The size of the companies which own these care homes would mean they were more easily able to enter into contingency contracts than smaller providers with less administrative capacity and/or fewer beds to offer.
- Ring-fencing funds to deal with a pandemic influenza emergency that would enable adult social care to provide capacity for excess demand in NHS acute care settings. These funds could be allocated direct to the NHS who, with the support of local councils, could purchase capacity from adult social care providers.
- Bringing back recently retired nurses and care workers to deal with the extra strain on the system: these staff could be involved in vital tasks such as keeping a presence at ACPs, opening up more distribution points for Personal Protective Equipment (PPE) and working on essential communications to the public.

A.6 To explore the use of the 3rd sector to support the response

LESSON IDENTIFIED 20: DH, NHS England, CCS and the Voluntary Sector and relevant authorities in the Devolved Administrations should work together to propose a method for mapping the capacity of and providing strategic national direction to voluntary resources during a pandemic. Given the experience of Exercise Cygnus, it is recommended that this work draws on the expertise of non-health departments and organisations at national and local level.

It is understood that the Social Care sector is currently under significant pressure during business as usual. There was little attention paid to this sector during COBR meetings or the discussions that fed in to those meetings for decisions to be made. Any extra pressure on the Social Care sector (especially with a 20-40% absenteeism rate and with illness among vulnerable sections of society) could be very challenging. While it may be worth looking to the voluntary sector for support, the assumption made during the exercise that there would be enough capacity in the voluntary sector to provide that support should be challenged. To support strategic decisions during an event of this nature, more assurances would be needed about the level of engagement with the voluntary sector in advance as well as their capacity to assist in this event.

[redacted]

Including this objective as part of the exercise was optional for the LRFs and little learning was identified at the local level. The LRFs reported that more work needed to be done to ascertain the type of support that might be expected from the sector, how better to engage with its representatives and embed the voluntary sector into local resilience arrangements. This would help to coordinate the activity of the voluntary sector within the local command and control of the response. As a minimum, a Local Resilience Forum sub-group should be formed to share information about vulnerable persons between local government, health, voluntary and utilities sectors to ensure a collaborative effort on provision of support.

At the national level the learning around the voluntary sector was gathered during Exercise Cygnet. Feedback from that exercise indicated that there is no national mechanism for coordinating voluntary sector resources which tend to be highly localised. The extent to which these resources could be shared across LRF boundaries is also unclear.

A.7 Exercise the coordination of resources to cope with excess deaths in the community

LESSON IDENTIFIED 21: Cabinet Office, Home Office, DCLG, MOD, DWP, MOJ and DH should work together to review the capabilities for managing excess deaths during an influenza pandemic, make recommendations for defining the required level of capability and the means to achieve it. This work should include provision within Wales.

The scenario was based on an attack rate of 50% with a Case Fatality Rate (CFR) of 1.5% which was adjusted from the worst case scenario planning figure of 2.5%, to take account of the effect of antivirals. This CFR could be expected to cause in the region of 450,000 excess deaths across the course of the pandemic[15]. The scenario overstretched the resources available to deal with excess deaths locally and the local responders were forced to seek guidance and support from the national level.

Currently, the management of excess deaths is handled primarily at the local level (with some strategic national level support) and this position would be maintained during a national level incident of this scale. Specific guidance on unforeseen issues relating to excess deaths (such as the use of body bags over coffins) has been issued by Government for local level response agencies and LRFs. A ministerial decision was made in 2010 to allow local responders to work to a lower level of excess deaths than the national planning assumptions. Central Government easements are still available in this scenario to assist with simplifying and speeding up the process. It is believed, following the exercise, that LRFs would have difficulty operating their plans and capabilities at this scale. The coordination of resources at the national level may be required in some scenarios.

At the local level the LRFs reported that they required further guidance from the national level particularly around the ethical and moral questions that might arise from dealing with a high number of deaths nationally. The possible reaction of the public to mass burials or the use of body bags is not well understood. [redacted] LRF also reported the need to include faith leaders in excess deaths planning. Other LRFs reported that further guidance and training was required on the issue of excess deaths

[15] Home Office Planning for a Possible Influenza Pandemic: A Framework for Planners Preparing to Manage Deaths

[redacted]

because it is a complicated process involving a number of stakeholders and detailed knowledge of that procedure is vested with only a few people.

Feedback from [redacted] also indicated support for the need for central policy guidance on the use of body holding arrangements and transportation where local capacity is exceeded.

The following needs to be reviewed following Exercise Cygnus:

- The planning assumptions for excess deaths including body storage
- The process for dealing with deaths in custody
- The capability of local responders and guidance they require
- The effectiveness of national arrangements to support local responders, including the time that would be required to deploy them
- The ethical and cultural issues that arise from dealing with a high level of deaths nationally

"Excess deaths plan – some good guidance out there but still need further to support both national and local consideration of the options". [redacted]

"[There is a] lack of required knowledge in excess deaths for their SCG, highlighted that it's very in depth and complex issue." [redacted]

"Excess death plan is very good and is reviewed every year; however there are very few people who understand it … need some guidance on the ethical and moral aspects from the centre – the question of body storage – very early we would have gone to ask for excess storage --- need information about deaths in custody, role of the funeral industry and body storage – need to have a cultural and moral discussion about accepting deaths at this level." [redacted]

A.8 Identify issues raised around the impact of influenza in the prison population

Exercise Cygnus was the first large-scale national exercise involving infectious disease in prisons in England. It provided a test of the national system and raised the profile of the issues that would be faced by prisons in a pandemic. Exercise Cygnus was designed to test strategic-level processes and as such there was limited learning around the operational response to outbreaks in prisons.

LESSON IDENTIFIED 22: Further work is required in the development of pandemic contingency plans and related procedural guidance.

Exercise Cygnus demonstrated that there was effective collaboration within PHE and across partner organisations in planning and delivering the exercise. The PHE Guidance for Prisons and Approved Places for Detention was considered as best practice and should be embraced by National Offender Management Service (NOMS) as guidance for all prisons. The advice should also inform revised procedural requirement by way of Prison Service Instructions (PSI) which are yet to be developed.

At a national level it was reported that the exercise confirmed the key role of PHE's National Health & Justice Team as an expert resource for PHE as well as partner organisations and other Government Departments. This arrangement needs to be formalised into PHE planning and response arrangements.

[redacted]

Although well understood between NOMS and the Health and Justice team, this arrangement was less well understood by other PHE colleagues.

> *"The relationship between PHE and NOMS on a national level is excellent. Pandemic planning guidance and the understanding of local relationships between PHE and Prison Governors needs to be developed in line with pandemic contingency plans."* [redacted]

At the local level the four SCGs who worked alongside colleagues from the prison service described a positive experience. Exercise Cygnus did not test the tactical and operational responses to outbreaks in prisons and this should be considered as an area for development. LRFs and prisons should work together to ensure that their communications systems are aligned.

> *"Prisons had not been represented at SCG before, and their input was both useful and informative. The exercise has resulted in us making some good contacts with the prison service"* [redacted]
>
> *"… this exercise and involvement of prisons has enabled PHE NW to develop a workshop for all NW prisons including peer feedback from prisons that played in Cygnus so wider prison community will benefit from Exercise Cygnus".* [redacted]

A.9 Summary of Lessons Identified

Exercise Cygnus provided participants with an opportunity to assess the UK's response to a pandemic influenza scenario that was close to the worst case scenario planning assumptions. It is acknowledged that exercise artificiality did impact on some of the procedures used during the exercise and that the scenario, although wide ranging for an exercise, will not have reflected the exact conditions that could be expected in the UK during an event of this kind. However, the exercise did show that the UK's capability to respond to a worst case pandemic influenza should be critically reviewed. The response planning system is robust; the concept of operations provided a framework for a multi-agency response that in the short time frame of the exercise allowed for key issues to be identified, if not addressed.

The exercise highlighted the wide-ranging impact that a pandemic influenza might have on the UK. Findings from the exercise indicate that this risk should be considered to be one that requires cross-government planning given the potential impact on every sector. The current level of preparedness planning guidance is substantial, however it is spread across various guidance documents, organisational plans and other less formal arrangements. There is a need to rationalise this guidance to aid response management and undertake further work to engage the public and wider stakeholders on preparedness planning arrangements.

Any future guidance or plans should be developed with the potential response of the public in mind. Findings from Exercise Cygnus indicate that the potential reaction of the public to the impact of a worst case scenario pandemic or of the ethical dimensions surrounding a pandemic

[redacted]

of this severity deserve further consideration. The impact on the public of the full range of responses available to the government during such a pandemic also needs to be examined. A better understanding of the likely public reaction would help the development of a robust communications strategy to assist the response.

Exercise Cygnus achieved the aim of assessing the UK's response to a pandemic influenza and demonstrated the complexity of the response. It confirmed the robustness of the response arrangements that the UK currently has in place and also identified a number of aspects of the response that could be strengthened further particularly with respect to surge and triage management in the health and care system, management of excess deaths and business continuity.

[redacted]

Appendix 1 to A –Table of Lessons Identified

4x Key Learning (KL) against the exercise aim: to assess preparedness and response to an influenza pandemic in the United Kingdom
Preparedness:
KL 1. The development of a Pandemic Concept of Operations would increase understanding of the UK's Pandemic Influenza Response.
KL 2. The introduction of legislative easements and regulatory changes to assist with the implementation of the response to a worst case scenario pandemic should be considered.
KL 3. The public reaction to a reasonable worst case pandemic influenza scenario needs to be better understood.
Response:
KL 4. An effective response to pandemic influenza requires the capability and capacity to surge resources into key areas, which in some areas is currently lacking.
22 x Lessons Identified (LI) against the eight exercise strategic objectives
Obj 1. To exercise organisational pandemic influenza plans at local and national levels in the UK
LI 1: Organisations should ensure that their Emergency Preparedness Resilience and Response training and exercising is consistent with best practice.
LI 2: Pandemic Influenza Planning should be considered a multi-agency responsibility. Specialist advice from all stakeholders needs to be available to SCGs in order for them to respond appropriately. During an influenza pandemic the manner in which specialist technical and sector specific advice is provided to local responders should be 'scaled up' so that support can be provided to multiple LRFs.
LI 3: National level planning which considers the operationalisation of local level pandemic flu plans should be undertaken.
LI 4: Meetings of the Four Nations Health Ministers and CMOs should be considered best practice and included as part of the pandemic response 'battle rhythm'.
LI 5: Further work is required to inform consideration of the issues related to the possible use of population based triage during a reasonable worst case influenza pandemic
LI 6: Further work is required to consider surge arrangements for a reasonable worst case scenario pandemic. This work should be led by NHS England (on operational aspects), with DH providing oversight, assurance and policy direction with input from the four-nations CMO meeting
LI 7: The DH should work with partners to further develop the strategy for the use of antivirals during a pandemic
LI 8: PHE and NHS England should continue working together to further develop the existing community protocols for delivery of antivirals with particular consideration being given to the manner in which these arrangements are communicated to NHS Emergency Preparedness staff at the local level.
LI 9: All organisations should examine the issues surrounding staff absence during a pandemic to provide greater clarity for planning purposes

LI 10: Pandemic communications plans should be developed to ensure that they provide necessary reassurance, provide adequate levels of information to the public across the UK and are tailored for specific policy interventions where required.
Obj 2. To exercise coordination of messaging to the public
LI 11: Procedures for coordination of messaging to the public should be re-enforced and practised by DH, NHS England and PHE national teams alongside colleagues from the Devolved Administrations
LI 12: The communications response to a pandemic is supported by involving a wide-range of stakeholders in its development and implementation.
Obj 3. To exercise strategic decision-making processes around managing the wider consequences and cross-government issues at both local and national levels during an influenza pandemic
LI 13: A cross government working group should be established to consider carefully the information required to guide the response. The method of situation reporting should be considered with a view to simplifying the process and avoiding duplication of effort.
LI 14: The Department for Education, in liaison with colleagues in the Devolved Administrations, should study the impact of school closures on society.
LI 15: Consideration should be given to the impact of a pandemic influenza on British nationals overseas.
LI 16: Expectations of the MoD's capacity to assist during a worst case scenario influenza pandemic should be considered as part of a cross government review of pandemic planning.
Obj 4. To exercise the provision of scientific advice, including SAGE
LI 17: The process and timelines for providing and best presenting data on which responders will make strategic decisions during an influenza pandemic should be clarified.
Obj 5. To explore the social care policy implications
LI 18: A methodology for assessing social care capacity and surge capacity during a pandemic should be developed. This work should be conducted with Directors of Adult Social Services and with colleagues in the Devolved Administrations
LI 19: The possibility of expanding social care real-estate and staffing capacity in the event of a worst case scenario pandemic should be examined.
Obj 6. To explore the use of the 3rd sector to support the response
LI 20: DH, NHS England, CCS and the Voluntary Sector and relevant authorities in the Devolved Administrations should work together to propose a method for mapping the capacity of and providing strategic national direction to voluntary resources during a pandemic. Given the experience of Exercise Cygnus, it is recommended that this work draw on expertise of non-health departments and organisations at national and local level.
Obj 7. To exercise the coordination of resources to cope with excess deaths in the community
LI 21: CO, HO, DCLG, MOD, DWP, MOJ and DH should work together to review the capabilities for managing excess deaths during an influenza pandemic, make recommendations for defining the required level of capability and the means to achieve it. This work should include provision within Wales
Obj 8. To identify issues raised around the impact of influenza in the prison population
LI 22: Further work is required in the development of pandemic contingency plans and related procedural guidance.

[redacted]

Annex B – The report on Exercise Cygnet

1. Background

Exercise Cygnet was a discussion based exercise held on 2 August 2016 in the Central Hall, Westminster in London. It was part of the build up to Exercise Cygnus, the Tier 1 pandemic flu exercise on 18-20 October 2016. The exercise was delivered by PHE ERD's Exercises Team with support from DCLG and DH colleagues.

2. Exercise Aim and Objectives

The aim of Exercise Cygnet was to provide an opportunity for colleagues from the health and social care sectors to consider the national, strategic health and social care responses to a pandemic-influenza outbreak ahead of the broader Exercise Cygnus Tier 1 CPX. It had the following strategic objectives;

1. Provide an overview of the agreements made at the Exercise Cygnus Health Delivery Board meeting in May 2014 (Exercise Cygnus Phase 1 Exercise)
2. Discuss Hospital Surge and Social Care elements of the pandemic response
3. Identify issues requiring resolution / further work before Exercise Cygnus

3. Exercise Participants

Senior representatives from: DH; NHS England; PHE; the Social Care sector; and, the voluntary sector. Observers from the Cabinet Office and Devolved Administrations also attended.

4. Exercise Scenario and Format

Exercise Cygnet used the pandemic influenza scenario developed for Exercise Cygnus, but focussed on an earlier period in the pandemic timeline. The scenario was based in week four of the UK response to the pandemic.

The day was divided into two sessions. At the start of each session the participating organisations met separately to consider their response to the scenario and to prepare a briefing for the Health Delivery Board (HDB). Representatives from each organisation then met for a HDB co-chaired by the DCMO and DH's Director of Emergency Preparedness and Health Protection Policy.

Since, at this point in the scenario there was insufficient data available to model the course of the disease in the UK; participants were asked to consider their response to a 'moderate' influenza pandemic in the first session and a 'severe' pandemic in the second session. Both HDBs concentrated on, but were not limited to, arrangements for social care and hospital surge capacity.

5. Issues identified

All the participating organisations had plans in place to address both scenarios. However, there was a lack of detail around the operationalisation of these plans. The following issues were identified that would benefit from further work / resolution before Exercise Cygnus

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a. **The provision of epidemiological data.** The way in which epidemiological data is produced and disseminated to responding organisations requires clarification. PHE was requested to produce a report listing the steps they would go through to provide information about the disease and the

[redacted]

timelines for producing this information. They should also consider how these timelines can be reduced to provide the most rapid situation assessment to the response.

b. Primary Care Management. NHS England was requested to examine the impact of a pandemic influenza on the primary care system and describe how they can be mitigated. This should include:

- Mechanisms for the real time assessment of the impact and efficacy of the National Pandemic Flu Service (NPFS) once activated;
- Assessment of where local pressures are being experienced (both within individual NHS organisations and geographically).

c. Maintaining routine vaccination programmes. PHE and NHS England should identify the circumstances in which they would prioritise healthcare workers and other essential services over other risk groups for vaccination. They should also consider the implications for the delivery of routine vaccination programmes during a pandemic.

d. Distribution of antivirals. PHE and NHS England should work together to further develop the existing protocols for delivery of antivirals with particular consideration being given to arrangements in the event that a high demand for antivirals means that the stockpile becomes depleted and potentially scarce. The protocols should describe in detail the operationalisation of the end to end flow for antivirals delivery.

e. Providing Secondary and Community Care. The planning around critical care is detailed and clear however, it would be useful to develop a similar level of detail around other secondary care services and supporting community care services. This work should consider:

- The possible roles for community nurses and the ambulance service in delivering care during a pandemic, including to people in residential care.
- How NHS England can work with others to mobilise and deploy retired and off-duty medical / nursing staff and /or allied health professionals to support primary care.
- Increasing capacity across community-based care.
- The potential for use of alternative accommodation for patients discharged from hospital and for whom care at home is not available, including use of accommodation available via private providers and third sector.
- The use of innovative approaches such as telephone triage and possibly mobile device apps to reduce the amount GP contacts and optimise use of staff.
- Ambulance service to agree 'no send' and 'non-conveyance' protocols for attending crews to use in a severe pandemic.
- Primary care diverting to alternative services except for pregnant women, under Ones, serious and chronic condition.
- How NHS England, PHE the CQC and LAs can develop a whole system approach to the distribution of PPE to health and care staff.
- PHE to define and communicate who will receive PPE from national stockpiles and which parts of the private and voluntary sectors are expected to make their own arrangements to safeguard their workers in the event of an influenza pandemic.
- Extend the escalating surge and triage guidance to services beyond critical care.

f. Impact of pandemic on secondary care. The pressure on services caused by a pandemic may be unevenly distributed across the country in a series of flu 'hot-spots'. Mitigation plans should be considered. These could include:

- Developing a plan to moving staff around the country to support delivery of care in 'hot-spot' areas and 'pinch-point' capabilities using NHS passport.

- Considering issues surrounding the provision of paediatric using adult staff and facilities.
- Considering changes to staff working practices and support to assist NHS staff who are carers to come to work.
- Arrange to engage with and disseminate the NHS surge escalation and triage guidance to NHS and professional stakeholders to secure their support for the approach.

g. A strategic national planning capacity for the voluntary sector. As for the social care sector, the voluntary sector is driven by planning and organisation at the local level. DH, NHS England, CCS and the voluntary sector should work together to propose a method for providing strategic national direction to voluntary resources during a pandemic.

h. A strategic approach to mapping social care priorities. DH should work with social care partners to develop a strategic approach for prioritising local authority social care services during a pandemic. The following issues should be considered as part of this planning:

- How the National Quality Board can assist this process;
- How the Association of Directors of Adult Social Services and the voluntary sector can assist with the delivery of services during a pandemic;
- How to carry out a risk assessment of service users to ensure they receive proper support once discharged;
- A clear articulation of the support that will be required by social care to deliver a response – for example military command and control;
- Consider relaxation of CQC registration of premises during pandemic.

i. Ethical Issues. It may be necessary to reduce services or levels of care in order to maintain key services, particularly at the peak of an extreme pandemic. NHS England should produce guidance for surge, escalation and triage during a pandemic which reflects CEAPI[16] guidance on ethical aspects.

j. Communications. DH, PHE and NHS England need to continue to develop a pandemic influenza communications plan and supporting resources, ensuring the following communications aspects are addressed:

- Communications with health professionals during an influenza pandemic.
- How the public can help themselves – including information packages to those people who will have to look after relatives.
- How the public can best use the NHS.
- The steps that the government is taking.
- Use of social media and other digital channels.
- Engagement of Academy of Royal Colleges, allied health bodies, volunteering groups and other key stakeholder groups who would be conduits for cascading communication messages.
- Communication messages needed in the event of a severe influenza pandemic resulting in excess deaths and the need to discharge patients into the community who would otherwise be in healthcare facilities.

[16] Committee on Ethical Aspects of Pandemic Influenza

[redacted]

k. Four Nations planning. DH, NHS England and PHE should continue to work with colleagues in the Devolved Administrations to ensure consistency in planning and the response arrangements across the UK.

6. Summary

The health care framework to respond to a pandemic is robust especially for critical care provision. More planning and briefing of those plans for primary care and social care would be beneficial preparation for Exercise Cygnus. In their planning for the Tier 1 exercise all participating organisations need to remain cognisant of the need to provide Ministers with the appropriate information to enable them to concentrate on societal and strategic decisions.

Annex C – Exercise Planning

1 Aim and Objectives

1.1 Aim

Exercise Cygnus is to assess preparedness and response to an influenza pandemic in the United Kingdom.

1.2 Objectives

1. To exercise organisational pandemic influenza plans at local and national levels in the United Kingdom
2. To exercise coordination of messaging to the public
3. To exercise strategic decision-making processes around managing the wider consequences and cross-government issues at both local and national levels during an influenza pandemic
4. To exercise the provision of scientific advice, including SAGE
5. To explore the social care policy implications
6. To explore the use of the 3rd sector to support the response
7. To exercise the coordination of resources to cope with excess deaths in the community
8. To identify issues raised around the impact of influenza in the prison population

1.3 Additional Objectives

The participating organisations were invited to consider additional objectives which they would use Exercise Cygnus to address. The report does not consider these objectives specifically except where they contribute to learning at the tactical and strategic level. For reference they are contained at **Appendix 1**.

2. Scenario

2.1 Scenario outline

Exercise Cygnus was set in week seven of the UK's response to a pandemic influenza. The scenario was designed to encourage participants to examine their response and capacity at the peak of the pandemic. The response to an influenza pandemic is divided into five phases: Detection, Assessment, Treatment, Escalation and Recovery. Exercise Cygnus focussed on the Treatment and Escalation phases of the pandemic response. During these stages the emphasis is on considering the enhancement of public health measures to disrupt transmission and the escalation of surge management and triage of service delivery in order to maintain essential services[17]. At this point of the pandemic response modelling had been produced indicating that the scale of the pandemic could be close to the government's worst case planning scenarios.

[17] UK Influenza Pandemic Preparedness Strategy 2011

2.2 The scenario at the Start of the Exercise (StartEx)

Before the start of the exercise the participants were presented with a StartEx pack providing them with material simulating the situation on the morning of 18 October 2016. The pack contained a Commonly Recognised Information Picture (CRIP) and Actions from a notional Cabinet Office Briefing Room (COBR) meeting held on 17 October 2016. This notional COBR had met in response to details of predicted case and mortality rates produced for Scientific Advice to Government in Emergencies (SAGE) by the Scientific Pandemic Influenza Subgroup on Modelling (SPI-M). These figures indicated that the number of cases and mortality rates in the current pandemic would be close to the UK's worst case planning figures. As a result COBR had asked that organisations review their arrangements to cope with the predicted effects of the influenza pandemic. Two Officials' COBRs (COBR(O)s) and Ministerial COBRs (COBR(M)s) would be held over the coming days to address this issue. A more detailed outline of the scenario and the key assumptions that participants were made aware of is at **Appendix 2**.

3 Exercise Planning

3.1 Background

Planning for Exercise Cygnus originally started in 2014. The exercise was postponed due to the response to the Ebola crisis in the autumn of 2014. In December 2015 the planning for Cygnus was reinvigorated and planning was continued based on the original scenario and concept. Because of the size and complexity of the exercise the following groups were established to assist with the planning process:

a. **Steering Group (SGp)**: made up of senior staff from CO, DH, DCLG, PHE and NHS England. The SGp was accountable for the overall strategic direction of the exercise, and ensuring that the exercise met the needs for the wider UK. The group met three times during the planning process.
b. **National Planning Team**: a cross-government group met monthly to manage development and delivery of the exercise.
c. **Design and Delivery Team**: comprising staff from PHE ERD's Exercises Team and the DH Emergency Preparedness and Response department. The team was responsible for the detailed planning, design, delivery and evaluation of the exercise.
d. **Local Resilience Forums**: this group contained the eight participating LRFs and was led by staff from DCLG. During the planning process this group met every two weeks and held two workshops to discuss planning and exercise materials.
e. **Prisons**: staff from the National Offenders Management Service and PHE Criminal Justice team contributed to the material for the prisons aspects of the exercise.
f. **Science and Technical Sub-Group (STSG)**: made up of staff from DH, NHS England and PHE, this group met in December 2015 and January 2016 to agree the modelling assumptions used in the exercise scenario.

3.2 Exercise staff provided by participating organisations

Each organisation participating in the exercise was asked to provide a member of staff who would provide input to the planning process. They were also responsible for providing Controllers and Evaluators for the exercise.

3.3 Preparation activities and exercise documentation

The draft exercise scenario and supporting documents were made available to planners in January 2016 to allow them to prepare for the exercise. A number of the LRFs reported that they had run

briefings and workshops based on the scenario information. At the request of the Chief Medical Officer the exercise design team ran a table-top exercise (Exercise Cygnet) in August 2016. In July all the exercise material was moved into two documents which were issued to exercise planners in August 2016: a Master Briefing Document explaining how the exercise would run and the Master Events List that outlined the exercise injects. These were made available to planners using a SharePoint site and by email. A separate website was set up for participants which contained the scenario details. Updates to this information were provided on the 15 September and 30 September 2016 following the controller and evaluator briefs.

The Exercise Design Team ran two identical face-to face briefings for all exercise controllers, evaluators, communications staff and planners in London on 12 and 14 of September 2016. This was followed on 15 September by a webcast version of the same briefing for those who were not able to attend the London briefings. This webcast was recorded and made available to exercise staff on request. Based on the briefings and printed material exercise planners and controllers were asked to prepare the participants from their organisations to take part in the exercise.

4 Exercise Format

4.1 Exercise Style

Exercise Cygnus was run as a Command Post Exercise (CPX). Participants were based where they would usually work during a pandemic response. They communicated with each other by email and telephone and attended meetings in real-time. COBR meeting times were set by the national planning team but all other meetings were set-up by the participants as part of exercise-play. On 18-19 October 2016 all of the organisations took part in the exercise. On the 20 October 2016 activity was concentrated around a COBR(O) in the morning and a COBR(M) in the afternoon. There was no other planned activity for this day, although participants were asked to make a point-of-contact available to answer any questions which might arise during the course of the COBR meetings. An illustration of the exercise activity is shown in the Exercise Battle Rhythm at **Appendix 3**.

a. **COBR Meetings**. The exercise was based around four simulated COBR meetings which were run by the CCS and to which Officials and Ministers were invited.
b. **SAGE Meetings**. There were no SAGE meetings during the exercise. A simulated SAGE meeting was held to inform Exercise Cygnet in 2014. This information from this meeting was contained in the Cygnus StartEx material. The intent was to give participants as full a picture of the exercise scenario as possible. The lack of a SAGE in the exercise is acknowledged as an exercise artificiality.
c. **Chief Medical Officer meetings and Health Meetings**. DH held Four Nation CMO meetings and Health Tri-partite meetings (for DH, NHS England and PHE) during the exercise.
d. **Strategic Coordinating Groups**. On the 18-19 October 2016 each of the LRFs simulated an SCG.
e. **News Coordination Centre (NCC).** The NCC was replicated by teleconferences hosted by the Cabinet Office.

4.2 Overview of activity during the Exercise

a. **Day 1: 18 October 2016.** On Day 1 the participants prepared reports for COBR assessing the likely impacts of the predicted numbers of cases and steps that could be taken at local level to

[redacted]

address them. Each LRF ran a simulated Strategic Coordinating Group (SCG). Other organisations participated according to their battle rhythm. COBR(O) met at 1800hrs on Day 1.

b. **Day 2: 19 October 2016**. COBR(M) met in the morning. This meeting was informed by the activity during Day 1. Following COBR(M) the regional and local participants produced a second SitRep for COBR sitting on Day 3.
c. **Day 3: 20 October 2016**. COBR(O) met in the morning to discuss the previous day's activity. COBR(M) met in the afternoon. There were no SCG meetings held, some government departments maintained their control rooms during the day. The exercise ended at 1700hrs after the COBR(M).

4.3 Master Events List and Injects

The MEL (Master Events List) is a timetable detailing every action which needs to be carried out in order for the exercise to be delivered. It was made available to exercise planners in September 2016 as part of their briefing pack. Information was passed to participants using injects; injects simulate the different types of information received during a real-life response. Injects included the StartEx Material and any additional information generated during the exercise (e.g. simulated media stories contained on PHE ERD's [redacted] pseudo media website, the responses to requests for information, information resulting from participant actions generated by ExCon and 'hot injects' developed by the subject matter experts as part of ExCon).

4.4 Additional injects developed by ExCon

Additional injects were put into the exercise by ExCon on the evening of Day 1 with an expected delivery time of the End of the Exercise (EndEx). These injects aimed to encourage Government Departments to liaise with other organisations in order to address the issues raised.

4.5 Additional injects developed by participants

All organisations taking part in the exercise were asked to provide additional injects that would help them explore their own objectives. Where these were provided to the Exercise Design Team they were incorporated into the MEL and injects generated by ExCon. Some organisations elected to run their own injects. Organisations that did not provide injects received the StartEx Material and pseudo media enquiries only, plus any information or requests for information from other organisations generated through the course of exercise play.

4.6 Pseudo-media

Messaging to the public was exercised using PHE ERD Exercises Team's web-based platform called [redacted] which replicated traditional media outlets and "[redacted]" that simulated social media, such as 'Twitter'. Eight pseudo-journalists, which were a part of and controlled by EXCON, were engaged to exercise the response of the participating organisations and evaluate the coordination of public messages. The journalists contacted the participants directly requesting updates on the response to the pandemic. Based on their interactions with participants they wrote news stories and posted messages to social media. Participants could influence the media coverage and their public messaging through the "[redacted]" platform (which allows participants to post directly), by preparing statements for public release which were then posted on [redacted] or by interacting with the journalists. Based on this interaction the pseudo-journalists wrote stories designed to replicate the media response to the scenario. As the exercise scenario was based in the seventh week of the UK's response to an influenza pandemic scenario material by way of news reports, and articles on [redacted] and posts on [redacted] were available from early September. Participants were encouraged to log in to view this material.

[redacted]

4.7 Interaction with the pseudo-media

Communications staff received telephone calls from the pseudo-media staff asking questions and writing stories based on the information gathered from those telephone exchanges. These stories were posted on [redacted] and communications staff were briefed to monitor these stories and react to them if required.

4.8 Media tools

The media tools were tested with participating communications staff before the exercise. The tools used in Exercise Cygnus to replicate the media were:

a. [redacted]. [redacted] is PHE ERD Exercises Team's web-based platform that carries video, audio, written articles to simulate TV, radio and print media. There is also a facility for communications staff to post their own press releases or announcements that they would make on their web sites.
b. [redacted]. [redacted] is PHE ERD Exercises Team's web-based platform that replicates social media, such as Twitter. "[redacted]" is interactive so staff can post, reply to and [redacted].
c. **News Clips**. News clip videos describing the scenario were made available on [redacted] on 5 September 2016 and at the start of the exercise. Articles and social media '[redacted]' were also posted from 5 September to allow the participants to read in.

4.9 Participant Groups

It is estimated that 957 people took part in the command post exercise representing national, regional and local level multi-agency responders. The organisations represented are contained in Table 1. Feedback about the exercise from the participants is at **Annex D**.

a. **At national level**. The Health Departments in the Devolved Administrations, Government Departments, Public Health England and NHS England contributed to the COBR meetings.
b. **At local and regional level**. The eight participating Local Resilience Forums held meetings representative of their Strategic Coordinating Groups. They provided information feeds through Government Liaison Officers to DCLG. NHS England local teams and PHE local Centres provided information to their regional bodies and national coordination centres. Representatives from four prisons were located with four of the SCGs.
c. **At International level**. At 1400hrs on the 19 October 2016 there was a meeting of the Global Health Security Action Group's Health and Security Group.

4.10 Exercise Control (ExCon)

Exercise Control (ExCon) was led by the PHE Exercises Team with support from colleagues in CCS and staff provided by participating organisations to act as exercise controllers.

a. **Forward ExCon**. A forward ExCon was based with the CCS [redacted]. Their role was to oversee the running of the exercise and collect feedback from the COBR meetings. The CCS team ran the COBR meetings.
b. **Rear ExCon**. A rear ExCon was based at PHE [redacted]. This team was responsible for sending the exercise injects and capturing information generated by the participants. It also provided the base for the pseudo-media team.
c. **Controllers**. Exercise Controllers were based at each of the participating locations. In DH, NHS England, PHE and DCLG national control rooms these controllers were supported by staff from the PHE Exercises Team. The Controllers were responsible for running the exercise at their location.

[redacted]

d. **Evaluators**. Each participating organisation was asked to provide an Exercise Evaluator whose role was to evaluate the actions of their organisation.

Table 1: Exercise Cygnus Participating Organisations

National Level	National level	NHS England	Public Health England	Local Resilience Forums
Department of Health, Northern Ireland	Department for Transport	Coordination Centre (National)	National Incident Coordination Centre	Essex LRF (with Chelmsford prison)
Scottish Government Health and Social Care Directorate	Department for Work and Pensions (with Health and Safety Executive)	North Regional	National Infection Service	Hertfordshire LRF
Welsh Government's Department of Health and Social services	Government Office for Science	Midlands & East Regional	East of England Centre	Kent LRF (with Cookham Wood, Maidstone and Elmley prisons)
Civil Contingencies Secretariat, Cabinet Office	General Registry Office (part of Home Office)	London Regional	East Midlands Centre	Leicestershire LRF (with Leicester Prison)
Department for Communities & Local Government	Her Majesty's Treasury	South Regional	London integrated Region and Centre	London LRF
Department for Culture, Media & Sport	Ministry of Defence	Central Midlands Regional	North West Centre	Merseyside LRF (with Liverpool and Altcourse prisons)
Department for Education	Ministry of Justice & National Offenders Management Service	Cheshire & Merseyside	South East Centre	Northamptonshire LRF
Department for Environment, Food & Rural Affairs		Essex	Yorkshire & The Humber	South Yorkshire LRF
Department of Health		Yorkshire and the Humber		

5. Exercise Evaluation

5.1 Information capture.

This report is based on the following information captured as part of the evaluation strategy. A list of the evaluations provided by organisations is at **Appendix 4.**

a. **Evaluator reports.** Each organisation assigned an evaluator to evaluate their performance against criteria based on the exercise objectives. The criteria for evaluation were contained in a questionnaire specifically developed for Exercise Cygnus by the Exercise Design Team.

a. **Organisation hot and cold debriefs**. Controllers were asked to conduct hot debriefs immediately following the exercise and cold debriefs within 10 days of the exercise ending, with all of the exercise participants.

b. **Participant evaluation.** Each participant was asked to complete an evaluation sheet on which they listed the main issues they felt had been highlighted by the exercise.

c. **Group debriefs**. Group debriefs were run by the PHE ERD's Exercises Team for the LRF planners, the Devolved Administrations and Government Departments. Staff from the Exercises Team also attended the PHE organisational debrief held on 8 December 2016.

d. **Material produced during the exercise.** Information and answers produced by the participants for the exercise was saved and has been viewed in the evaluation process.

e. **Feedback from the pseudo-media team.** The Exercises Communications lead conducted a debrief with the pseudo-media team.

f. **Communications focus group.** ERD's Exercises Team, ERD's Behavioural Science Team and PHE Communications ran a focus group with members of the PHE People's Panel to assess some of the messaging produced during the exercise. The primary objective of the focus group was to assess the viability of using the public as part of future exercises. The feedback should not be considered representative of the public's response to messages generated during a pandemic influenza.

Appendix 1 to Annex C – Organisational Objectives

The following organisations identified objectives in addition to the over-arching exercises objectives.

Organisation	Objective
Scotland	• Support Scotland's pandemic preparedness by exploiting lessons any lessons identified
Wales	• To implement the pan-Wales Response Plan against a pandemic influenza scenario in order to exercise the strategic decision-making processes at both the local and national levels in Wales. • To activate the operation of the Emergency Co-ordination Centre (Wales) and exercise the linkages and interdependencies required with the local level in Wales and with the UK response protocols • To test the four LRF pandemic influenza plans to ensure that they are fit for purpose.
Northern Ireland	• To exercise organisational pandemic influenza plans at Health Gold and Silver levels in Northern Ireland, specifically: (1) By exercising the 4 Nations interface and Health Ministers decision-making process (2) By exercising the interface between NI Health Gold and HSC Silver • To exercise strategic decision-making processes around managing the wider consequences and cross-government issues at local level during an influenza pandemic (such as excess deaths), including the activation of the NI Central Crisis Management Arrangements • To exercise coordination of messaging to the public by DHSSPS, HSC Silver and EIS protocols • To exercise the consideration and decision making process in relation to receipt of scientific advice, including SAGE, during an influenza pandemic.
DCLG	• To test internal DCLG crisis response arrangements. • To test situation reporting arrangements between central government and localities through LRFs. • To exercise GLO engagement with LRFs at Strategic Co-ordinating Groups. • To explore and identify social care and excess deaths policy implications during a pandemic.
DfT	• To update the Department's knowledge of pandemic flu planning within the transport sector • To test internal DfT crisis response arrangements
DWP	• To exercise DWP plans and planning against the potential for rapidly rising absence rates • To explore HR and Health & Safety implications of maintaining frontline service delivery across the job centre network • To consider the impact of rising mortality rates on Funeral Payments and

[redacted]

Organisation	Objective
	Bereavement Benefits • To examine the Health and Safety issues around an employer's duty of care to staff in specific sectors (e.g. healthcare, prisons, poultry workers), including provision of appropriate PPE where relevant.
NOMS	• Test current NOMS pandemic flu plans and guidance • Test Criminal Justice System Strategic Command operations
Hertfordshire LRF	• Verify the mechanisms for a Strategic Co-ordinating Group (SCG) to direct the multi-agency response in coordination with a Health Economy Tactical Coordination Group (HCG)
Northamptonshire LRF	• Validate the assumptions in the Northamptonshire Mortuary Plan
Leicestershire LRF	• Excess deaths including interaction with multi-faith community • Mutual aid • Education • Impact on local businesses
London LRF	• Examine London wide coordination protocols and procedures for responding to an influenza pandemic. • Test the ability of the new London Situational Awareness Tool to support shared situational awareness across the Partnership.
Merseyside LRF	• To validate the MRF Flu Pandemic Plan and MRF Extra Deaths Plan. • To exercise co-ordination of messaging to the public. • To explore and identify issues around the impact of flu in various settings: - A local prison; - care homes; - Higher Education. • To explore the social care policy implications during a pandemic. • To explore the impact on supply chains, tourism and mass gatherings/events in Merseyside. • To update understanding of the use of the third sector to support the response. • To test the business continuity arrangements of multi-agency partners. • Exercise the multi-agency co-ordination of resources to cope with excess deaths in the community. • To explore MACA capabilities and procedures during a pandemic scenario.
South Yorkshire LRF	• To exercise the LRF Pandemic Influenza Framework and alignment with organisational plans (including command, control and coordination structures and reporting arrangements)

[redacted]

Appendix 2 to Annex C – Outline of Scenario

Scenario assumptions and overview as at 18 October 2016: StartEx

Date	Key Events
June	Virus emerges in [redacted]
July	Virus isolated by [redacted] H2N2. WHO declares PHEIC
5-12 Sep	FF100 opened 5 Sep closed 19 Sep 16
12 Sep	UK anti-viral stockpile activated
21 Sep	SAGE advises treat all algorithm
26 Sep	WHO declares pandemic
26 Sep	Ordering arrangements in place for respirators and PPE
26 Sep	Stocks of anti-biotics made available to secondary care
26 Sep	Stop prophylaxis treatment of household contacts
10 Oct	NPFS live in England Scotland and Wales

School closures

- Government advice is for schools to remain open
- 250 schools (1%) across England have taken the decision to close

Public Transport

- 'Business as usual' as far as practicable

Fuel Supplies

- Fuel supplies are expected to be maintained throughout the pandemic

Utilities

- Gas / Electricity and Water supplies are expected to be maintained throughout the pandemic
- Non-urgent work may be curtailed

Refuse Collection

- Collection is expected to continue subject to staff absences
- There may be some short-lived disruption during peak of the pandemic

Absence Rate

- Observed workforce absences are currently in the range of 3% = Percentage of the workforce that are additionally absent. This is in addition to normal absence rates which are accepted to be normally approximately 15%. The workforce absence percentage is expected to rise to ~20% at the peak of the pandemic.

[redacted]

- There is higher than expected sickness levels and mainly due to public anxiety and childcare commitments

Deaths

- International and UK data suggesting a high clinical attack rate of between 25 - 40% and case fatality rate of ~ 1.5% in UK and 2% to 3% internationally

Military

- All areas of the military are coping and can be approached for support through the normal channels

Appendix 3 to Annex C – Exercise Cygnus Battle Rhythm

Organisation	Mon 17 Oct 16 Final exercise briefings and set-up	Tue 18 Oct 16 **Exercise Cygnus Day 1** Local / Regional / National			Wed 19 Oct 16 **Exercise Cygnus Day 2** All participants fully active			Thu 20 Oct 16 **Exercise Cygnus Day 1** Phased end	
		AM	PM		AM	PM		AM	PM
EXCON	Final comms tests			NO OVERNIGHT PLAY			NO OVERNIGHT PLAY		
COBR			COBR(O) 17:50 to 19:00		COBR(M) 10:20 to 11:30 CRIP and Action List produced by 12:30			COBR(O) 10:50	COBR(M) 15:50
DAs			Included in COBR (O) Sitrep due by 15:00		Included in COBR (M)	Sitrep due by 20:00		Included in COBR (O)	Included in COBR (M)
Govn Dept			Sitrep due by 15:00		*	Sitrep due by 20:00		Available to respond to COBR requests	
NHS England National					*	Sitrep due by 20:00		Available to respond to COBR requests	
PHE National					*	Sitrep due by 20:00		Available to respond to COBR requests	
NHS England Region & DCOs						Sitrep due by 19:00		Available to respond to COBR requests	
PHE Centres						Sitrep due by 18:00		Available to respond to COBR requests	
LRF / SCG						Sitrep due by 18:00		Available to respond to COBR requests	
Exercise Timings	EXCON only	08:00 to 20:00			08:00 to 20:00			08:00 to 17:00	

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Appendix 4 to Annex C Evaluation Received

Participating Organisations	Hot Debrief Notes Participant Feedback	Cold Debrief Notes	Attended PHE Exercises Team led structured debrief	Evaluator Questionnaire
Scotland	✓		✓	✓
Wales			✓	✓
Northern Ireland			✓	✓
CCS			✓	✓
DCLG	✓	✓	✓	✓
DCMS				
DEFRA	✓		✓	✓
DfE				
DH			✓	✓
DfT				
DWP	✓		✓	✓
General Registry Office				
GO Science	✓			✓
HMT				
MoD				✓
MoJ / NOMS	✓		✓	✓
NHS England National	✓			✓
NHS England North Region	✓			✓
NHS England Midlands and East Region	✓			✓
NHS England London Region	✓	✓		✓
NHS England South Region				✓
NHS England Central Midlands	✓			✓
NHS England Cheshire and Merseyside	Included with LRF			Included with LRF
NHS England Essex	Included with LRF			Included with LRF
NHS England Yorkshire and the Humber	Included with LRF			Included with LRF
PHE National	✓			✓
PHE NIS	✓			✓
PHE North East				
PHE North West	✓	✓		✓
PHE Yorkshire & Humber	✓			✓
PHE East of England	✓	✓		✓
PHE East Midlands	✓	✓		✓
PHE West Midlands				
PHE London	Included with LRF			✓
PHE South East	✓			✓

[redacted]

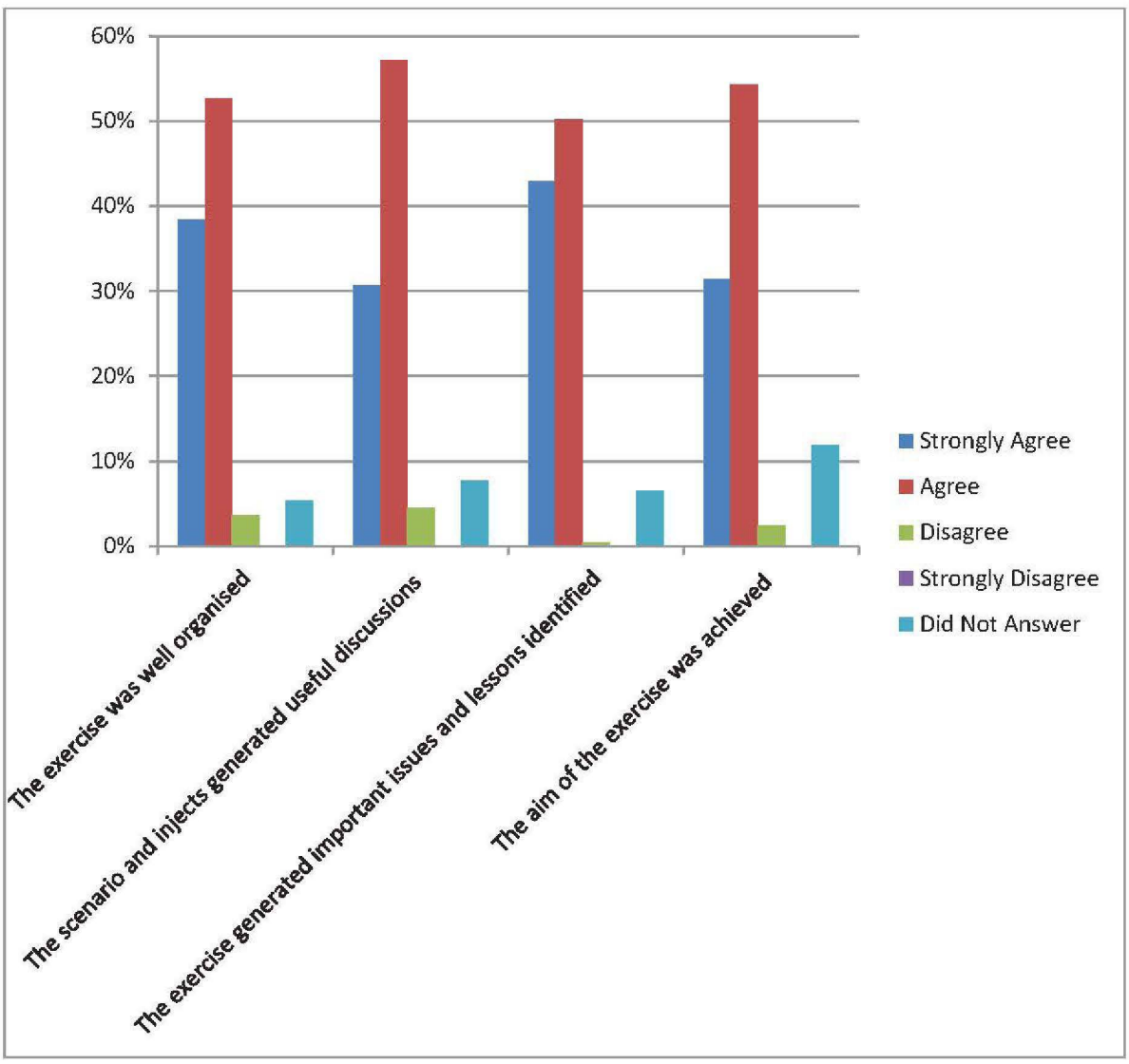
Participating Organisations	Hot Debrief Notes Participant Feedback	Cold Debrief Notes	Attended PHE Exercises Team led structured debrief	Evaluator Questionnaire
PHE South West	✓			
Essex LRF	✓	✓	✓	✓
Hertfordshire LRF	✓	✓	✓	✓
Kent LRF	✓	✓	✓	✓
Leicestershire LRF	✓			✓
London LRF	✓			Included with PHE London
Merseyside LRF	✓		✓	✓
Northants LRF	✓			✓
South Yorkshire LRF	✓		✓	✓

[redacted]

Annex D – Participant feedback

Overall participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**38%**	**53%**	**4%**	**0%**	**5%**
The scenario and injects generated useful discussions	**31%**	**57%**	**4%**	**0%**	**8%**
The exercise generated important issues and lessons identified	**43%**	**50%**	**0%**	**0%**	**7%**
The aim of the exercise was achieved	**31%**	**54%**	**2%**	**0%**	**12%**



[redacted]

Government Department participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**22%**	**78%**	**0%**	**0%**	**5%**
The scenario and injects generated useful discussions	**31%**	**57%**	**4%**	**0%**	**8%**
The exercise generated important issues and lessons identified	**43%**	**50%**	**0%**	**0%**	**7%**
The aim of the exercise was achieved	**31%**	**54%**	**2%**	**0%**	**12%**

NHS participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**45%**	**45%**	**9%**	**0%**	**1%**
The scenario and injects generated useful discussions	**36%**	**64%**	**0%**	**0%**	**0%**
The exercise generated important issues and lessons identified	**55%**	**45%**	**0%**	**0%**	**0%**
The aim of the exercise was achieved	**18%**	**55%**	**9%**	**0%**	**18%**

PHE participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**30%**	**60%**	**7%**	**0%**	**3%**
The scenario and injects generated useful discussions	**23%**	**56%**	**12%**	**0%**	**9%**
The exercise generated important issues and lessons identified	**37%**	**55%**	**1%**	**0%**	**7%**
The aim of the exercise was achieved	**24%**	**56%**	**1%**	**0%**	**19%**

[redacted]

Local Resilience Forum participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**46%**	**46%**	**2%**	**0%**	**6%**
The scenario and injects generated useful discussions	**36%**	**57%**	**4%**	**0%**	**7%**
The exercise generated important issues and lessons identified	**44%**	**49%**	**0%**	**0%**	**7%**
The aim of the exercise was achieved	**38%**	**52%**	**3%**	**0%**	**7%**

Devolved Administration participant feedback

	Strongly Agree	Agree	Disagree	Strongly Disagree	Did Not Answer
The exercise was well organised	**20%**	**60%**	**0%**	**0%**	**20%**
The scenario and injects generated useful discussions	**20%**	**60%**	**0%**	**0%**	**20%**
The exercise generated important issues and lessons identified	**40%**	**40%**	**0%**	**0%**	**20%**
The aim of the exercise was achieved	**20%**	**60%**	**0%**	**0%**	**20%**

[redacted]

Glossary

ACP	Anti-viral Collection Point
AV	Anti-viral
CCS	Civil Contingencies Secretariat
CQC	Care Quality Commission
COBR (O) or (M)	Cabinet Office Briefing Room (Officials) or (Ministerial)
CMO	Chief Medical Officer
CPX	Command Post Exercise
CRIP	Commonly Recognised Information Picture
DA	Devolved Administration
DASS	Director of Adult Social Services
DCLG	Department for Communities and Local Government
DfE	Department for Education
DH	Department of Health
DPH	Director of Public Health
EPRR	Emergency Preparedness Resilience and Response
GLO	Government Liaison Officer
GO Science	Government Office for Science
HR	Human Resources
LHRP	Local Health Resilience Partnership
LRF	Local Resilience Forum
NCC	News Coordination Centre
PHE	Public Health England
SAGE	Scientific Advisory Group for Emergencies
SCG	Strategic Coordinating Group
S-Gp	Steering Group
SPI-M	Scientific Pandemic Influenza sub-group on Modelling
[redacted]	A web-based platform used to simulate news output

[redacted]

Acknowledgements

Exercise Planning Team:

Organisation	Name	Email
Northern Ireland	[redacted]	[redacted]
	[redacted]	[redacted]
Scotland	[redacted]	[redacted]
Wales	[redacted]	[redacted]
CCS	[redacted]	[redacted]
DCLG	[redacted]	[redacted]
	[redacted]	[redacted]
DCMS	[redacted]	[redacted]
DfE	[redacted]	[redacted]
DEFRA	[redacted]	[redacted]
DH	[redacted]	[redacted]
DfT	[redacted]	[redacted]
DWP	[redacted]	[redacted]
GO Science	[redacted]	[redacted]
GRO	[redacted]	[redacted]
HMT	[redacted]	[redacted]
MOD	[redacted]	[redacted]
MOJ	[redacted]	[redacted]
NOMS	[redacted]	[redacted]
NHS England	[redacted]	[redacted]
PHE	[redacted]	[redacted]
	[redacted]	[redacted]
Essex LRF	[redacted]	[redacted]
Hertfordshire LRF	[redacted]	[redacted]

[redacted]

Organisation	Name	Email
Kent LRF	[redacted]	[redacted]
Leicestershire LRF	[redacted]	[redacted]
London LRF	[redacted]	[redacted]
Merseyside LRF	[redacted]	[redacted]
Northamptonshire LRF	[redacted]	[redacted]
South Yorkshire LRF	[redacted]	[redacted]

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Distribution list

Devolved Administrations:
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    HPMD
    ERD

NHS England Corporate

Exercise Cygnus Planners:
    As listed in Acknowledgements

[redacted]

Disclaimer

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This report has been compiled from the comments made by the participants during the exercise and the observations of facilitators, evaluators and note-takers. The report's author has tried to assimilate this information in an impartial and unbiased manner to draw out the key themes and lessons; it is not a verbatim account of the exercise. The report is then quality checked by the senior management within PHE's Emergency Response Department before it is released to the commissioning organisation.

The lessons identified in the report are not therefore necessarily PHE's corporate position; they are evidenced on the information gathered at the exercise and interpreted in the context of ERD's experience and judgement. It is recommended that the lessons identified are reviewed by the appropriate organisations to assess if any further action is required.