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

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.

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.

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]". Essex – Evaluation

"[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". Kent during the PHE led debrief

"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 four local authorities within the LRF each have an excess deaths plan, but there is no overarching plan". South Yorkshire LRF during the PHE led debrief

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 2 LRFs playing, but in practice we would have 5 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 5 LRF areas covered" PHE East Midlands Centre

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." Cabinet Office – Evaluation

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

"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." Welsh Government – Evaluation

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