Department of Health & Social Care

Pandemic Preparedness Meeting

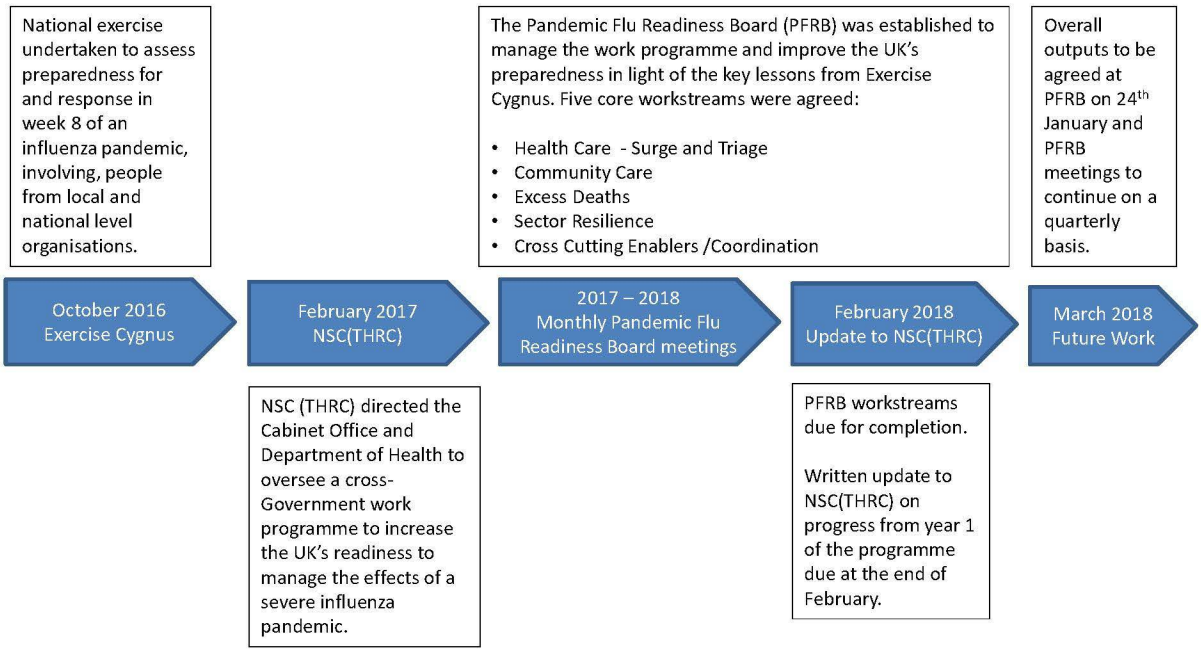
25th January 2018

Agenda

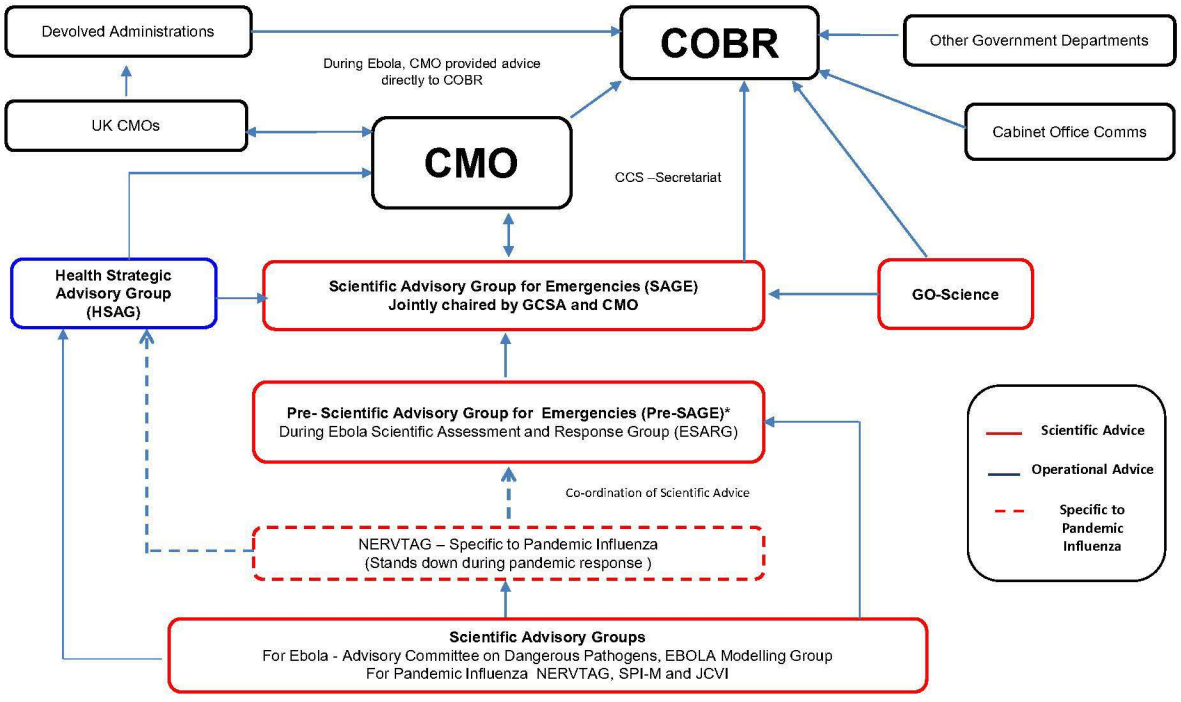
Slide	Item	Lead
Slide 3	Actions	Clara Swinson
Slide 4	Cross-government Pandemic Preparedness – NSC (THRC)	Kevin Dodds
Slide 5	Governance During Response Mode	Clara Swinson & CMO
Slide 6-7	Situation Report	DCMO
Slide 8	Steps towards vaccine preparedness	DCMO
Slide 9-10	PPV Modelling	Kevin Dodds/Peter Grove
Slide 11-14	Inventory of Assets	Kevin Dodds & DCMO

Action	Progress
CSA invite JVT to present to the security meeting	DCMO to attend on the 8 February
Revisit and update the governance structure in light of discussion points.	Slide 5
Coordinate an inventory of physical assets and personnel that would be utilised in the event of a pandemic outbreak. To also make an assessment on capacity and capability and actions that could be taken to mitigate any risks.	Ongoing Slide 14-11
Set out what the H7 situation is and analysis of current preparations made by others such as USA and Australia. This advice should also include historical action we have previously taken on other strains of flu.	On going Slides 6-7
Explore the viability of both PPV models to cover either <10% or c.45% of UK population including the possible ethical implications of prioritising particular groups for vaccination and who those groups would be.	On going Slide 9-10
Undertake a longer piece of work to determine what our trigger points are, including economic and reputational, for escalating the response to increased risk and what the response should be and what other considerations need to be taken.	On going
CSA noted the importance of discussing antibiotics in future meetings and asked for this to be included on a future agenda.	Slide12

Cross-government Pandemic Preparedness – NSC (THRC) - Kevin Dodds



Governance During Response Mode – Clara Swinson & CMO



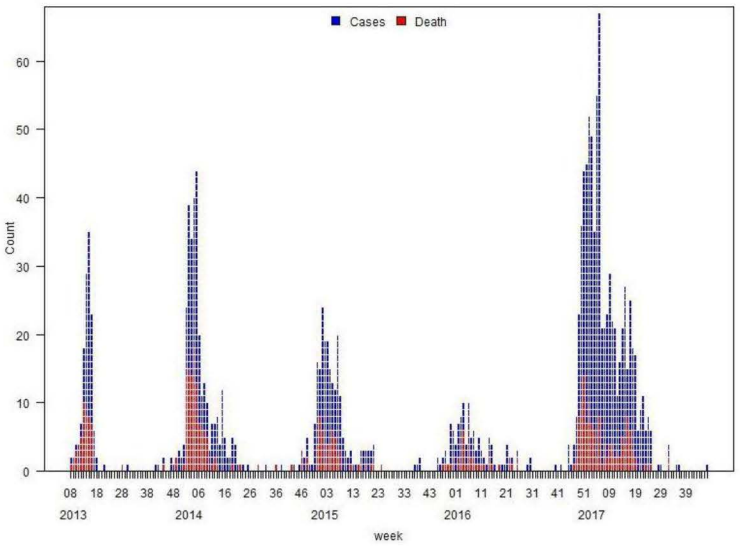
- If PHE surveillance indicated that a pandemic might be imminent/other areas of the world were experiencing an epidemic caused by a novel influenza virus ,Pre-SAGE group would be convened. Pre-SAGE do not provide clinical/operational advice

Table: Human infections, deaths and case fatality rate (CFR) by epidemic wave

	Cases	Deaths	CFR (%)
First wave (weeks 7/2013–40/2013)	135	43	32%
Second wave (weeks 41/2013–40/2014)	320	134	42%
Third wave (weeks 41/2014–40/2015)	223	98	44%
Fourth wave (weeks 41/2015–40/2016)	120	45	38%
Fifth wave (weeks 41/2016-40/2017)	766	292	38%
Sixth wave (weeks 41/2017 onwards)	2*	-	-
Cumulative number of cases (weeks 7/2013– to date)	1566*	612	39%

*Data up until 18 January 2018. One of these cases is not yet confirmed by WHO.

Figure: Cases of human infection with avian influenza A(H7N9) March 2013 – 7 December 2017 (Source: WHO).



This report is usually published on a monthly basis during the avian flu season,. WHO has not yet published a report for January 2018.

Situation Report H7N9 – DCMO

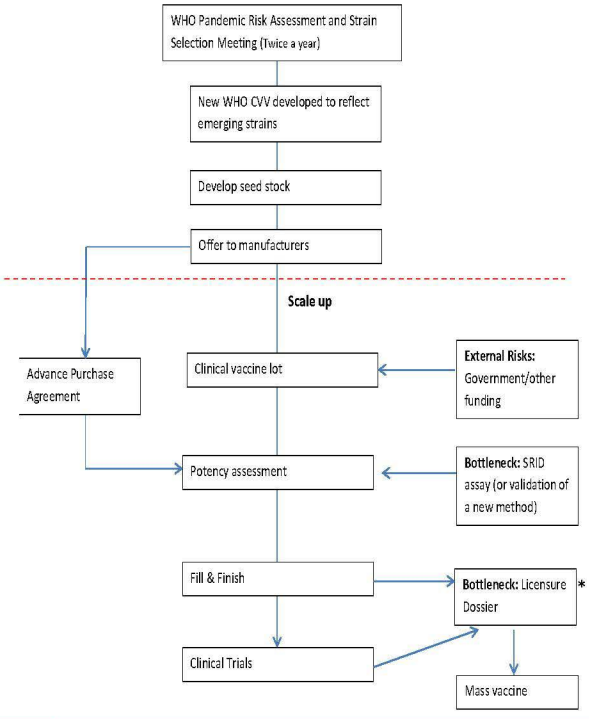
Confirmed H7N9 human cases have been reported in the following countries / areas		Cumulative number of cases in all waves	Cumulative number of cases in the 6th Wave (Since 1 October 2017)
Mainland China	Zhejiang Province	310	0
	Guangdong Province	258	0
	Jiangsu Province	252	0
	Fujian Province	108	0
	Anhui Province	99	0
	Hunan Province	95	0
	Shanghai Municipality	57	0
	Jiangxi Province	52	0
	Sichuan Province	38	0
	Beijing Municipality	35	0
	Guangxi Zhuang Autonomous Region	31	0
	Hubei Province	31	0
	Hebei Province	29	0
	Henan Province	28	0
	Shandong Province	28	0
	Guizhou Province	20	0
	Xinjiang Uygur Autonomous Region	13	1*
	Chongqing Municipality	9	0
	Shaanxi Province	7	0
	Yunnan Province	7	1
	Gansu Province	5	0
	Liaoning Province	5	0
	Tianjin Municipality	5	0
	Jilin Province	3	0
	Shanxi Province	3	0
	Tibet Autonomous Region	3	0
	Inner Mongolia Autonomous Region	2	0
Hong Kong		21	0
Taiwan		5	0
Canada		2	0
Macao		2	0
Malaysia		1	0
Total		1564	2
Total across all waves:		1566	

*This case not yet confirmed by WHO

- Human cases of H7N9 have been confined to regions of China with the exception of a small number of imported cases reported in people with a travel history to China.
- The fifth wave was notable for an increase in the number of cases reported, and the wider geographic spread of cases within China.
- Despite the number of cases in the fifth wave, there has been no significant change in the epidemiology of human cases.
- So far in the sixth wave there have been two cases reported (the second case has not yet been confirmed by WHO).
- H7N9 has not been detected in wild birds, or in poultry outside of China.
- In 2017 China began a mass poultry vaccination campaign against H7N9.

Steps Towards Vaccine Preparedness – DCMO

Scale-up and bottlenecks in pandemic vaccine manufacture



A number of steps that would be necessary for the development of an H7N9 vaccine have already been completed

- New influenza strain identified and cultured in source country and sequence and virus shared with other countries
- Seqirus produced "working seed stocks" in eggs and has produced bulk antigen which is available for procurement

- PHE proposed options for research proposals related to H7N9 vaccine preparedness at the January PIPP board for consideration by DH.
- A human clinical trial, conducted in the UK was recommended as the most useful option for improving global preparedness and risk management for H7N9 for the current situation and should be carried out in conjunction with bulk antigen from the current APA provider.
- Further discussions with US are underway to identify gaps in clinical research.

*Can be fast tracked within 5 days – Current APA can use fast track procedure

Pre-Pandemic Vaccine – Kevin Dodds

- **USA -** The H7N9 stockpile (to vaccinate 20M citizens and would be prioritised for high risks groups, healthcare workers and those involved with critical infrastructure such as first responders. We estimate this to be 6% population coverage. Processes underway to replace the current H7N9 stockpile after the emergence of the Yangtze River Delta strain (previous H7N9 vaccine having low cross-reactivity).

- **Australia-** APA with Seqirus and has a current H7N9 stockpile of 1.2 million doses. The Australian Government can opt to select a different strain each year (approximately April), depending on circulating strains with pandemic potential. This provides roughly 2-3% population coverage.

- **Wider Global Health Security Initiative (GHSI) Group –** Canada, Germany, France, Italy, Japan, Mexico do not hold any PPVs (as of October 2017)

Cost-effectiveness

- A large stockpile (c.45% population coverage) could be cost effective under certain conditions and assumptions. Ballpark costs of £460m
- A small stockpile for <10% population for general use – would not be cost effective

- The key variables for whether a stockpile would be cost effective are:
  - Whether the scale is sufficient to interrupt transmission
  - Assumed shelf life of the vaccine
  - Likelihood of H7 pandemic (against a low, generic background likelihood)
  - Whether any spending displaces other DH / health spending (which is assumed to be highly cost effective)

Pre-Pandemic Vaccine – Peter Grove

Vaccinate health care workers with PPV

- Cost effectiveness of small stockpiles of PPV for NHS and social care workers (1.5M individuals and 3M doses of vaccine) – assuming pandemic severity similar to those experienced in the 20th century.
- Similar results if vaccination scaled up to 10% of population to include other key workers as there is little impact on transmission.

		Probability H7 pandemic in next 10 yrs	Vaccine shelf-life (years)								
			2	3	4	5	6	7	8	9	10
Probability pandemic "H7 like"	10%	3%									
	25%	7%									
	50%	14%									
	75%	20%									
	100%	26%									

Net benefits if expenditure on H7N9 PPV does not displace other health expenditure (i.e. money comes from HMT). NHS workers, pandemics similar severity to 20th century.

Next Steps

- Consider factors other than traditional cost-effectiveness which may influence the decision for a PPV (eg research value)
- OGD view on 'key workers'
- Validate information on other GHSI countries' preparedness
- Consider whether this is an option that should be presented to Ministers

Inventory (overview) - Kevin Dodds and DCMO

Compared to other countries we are well prepared in terms of countermeasures.

- Ongoing work with CCS on wider national inventory will be brought to the April PIPP Board.
- Advanced Purchase Agreement (APA) contract with Seqirus for the reservation of manufacturing production capacity and supply of **pandemic specific vaccine** (c£40m pa). Treasury has approved the extension of the current APA contract with Seqirus until May 2022.
- Provides UK with the option of ordering 20m - 105m doses of Pandemic Specific Vaccine (PSV), and a maximum of 75% of the UK population (with 2 doses of vaccine), available 4- 6 months after the emergence of a pandemic virus and triggering of the contract.

Antivirals

- The volumes of antivirals held in the stockpile are based on the requirements to meet the 'treat all' policy using the Reasonable Worst Case planning assumption, therefore sufficient treatment courses for 50% of the United Kingdom (UK) population (based on the Office for National Statistics population data for 2013).
- New antiviral contracts are currently being procured for award in November 2018. Antiviral volumes will then be increased in 2019 to meet increases in the UK population

Description	50% Population (68% Tamiflu 32% Relenza)	
	Treatment courses	Units
Tamiflu 75mg capsules	18,319,540	18,319,540
Tamiflu 45mg capsules	1,557,000	1,557,000
Tamiflu 30mg capsules	2,864,000	4,953,500
Oral solution	387,500	387,500
Relenza	8,620,960	8,620,960
Total	31,749,000	33,838,500

Private information suggested Japan has a stockpile on antivirals for 45% of their population; Germany and the Netherlands hold stocks of both Tamiflu and Relenza for around 30% of their population; the USA, Sweden and France have stocks for between 20 and 25% of their populations.

11

Can we check whether, if you need 2 doses, we can still cover 75% of population under APA?

Inventory – Antibiotics –DCMO

- Most complicated expiry profile out of all the products held in the UK stockpile as the shelf life profile varies depending on the type of antibiotic and for each antibiotic formulation, and the manufacturer. The range of maximum shelf lives is between two and five years.

- Working on potential buffer stock arrangements with suppliers in order to increase the volumes of infusion products available in a pandemic. This is to help avoid large orders made for stockpiling from impacting on crucial business as usual (BAU) supplies.

- There is also a stockpile of intravenous (IV) fluids, IV admin sets and IV needles held in volumes that are consistent with the antibiotic infusion products

Description	Eaches per course	UK target volume treatment courses	UK target volume eaches
Co-amoxiclav tablet 500/125mg	1	3,210,713	3,210,713
Co-amoxiclav suspension 250/62mg	1	786,530	786,530
Co-amoxiclav suspension 125/31mg	1	797,239	797,239
Co-amoxiclav powder for infusion 1.2g	9	120,025	1,080,225
Doxycycline capsules 100mg	1	2,995,889	2,995,889
Clarithromycin tablet 500mg	1	88,404	88,404
Clarithromycin suspension 250mg/5ml	1	91,867	91,867
Clarithromycin suspension 125mg/5ml	1	93,118	93,118
Clarithromycin powder for infusion 500mg	6	155,301	931,806
Cefuroxime powder for infusion 1.5g	9	12,581	113,229
Co-amoxiclav powder for infusion 600mg	9	22,695	204,255
Sub-total		8,374,362	10,393,275

Inventory – Other DCMO

Consumables
The volume requirements for pandemic preparedness consumable products, including personal protective equipment, are managed in a number of ways in order to provide the best value. In addition to 'Just in Case' (JIC) stocks that are held in the stockpile, it includes:
Just in Time (JIT) frameworks that will be used to purchase a proportion of the overall volume requirements at the time of the pandemic

A procurement approach, consisting of just in time and product cycling solutions is being developed to increase the volumes of aprons and gloves to uplift volumes so that they are consistent with FRSM (facemasks) and FFP3 respirators.

Procurements are planned for FRSM and FFP3 later in 2018 to replace stocks in 2019/20.

Other consumables
In addition to PPE and IV equipment, other consumables that are held in the stockpile include:

- oxygen therapy products e.g. cannula and fixation dressings
- oral syringes for use with antiviral solution
- needles and syringes to use with pandemic specific vaccine
- liquid hygiene products e.g. floor detergent and hand gels
- general high use items including paper towels, waste sacks and sharp bins

Personal Protective Equipment	Just in case stockpile volume (million)	Just in time volume (million)	Total UK target volume (million)
Fluid Repellent Surgical Masks (FRSM)	180	0	180
FFP3 Respirators (valved and unvalved)	27.2	6.8	34
Safety glasses	31.5	2.5	34
Gloves (Nitrile small, medium and large)	99.2	44.5	143.7
Aprons	72.7	0	72.7

Inventory – Diagnostic Capability - DCMO

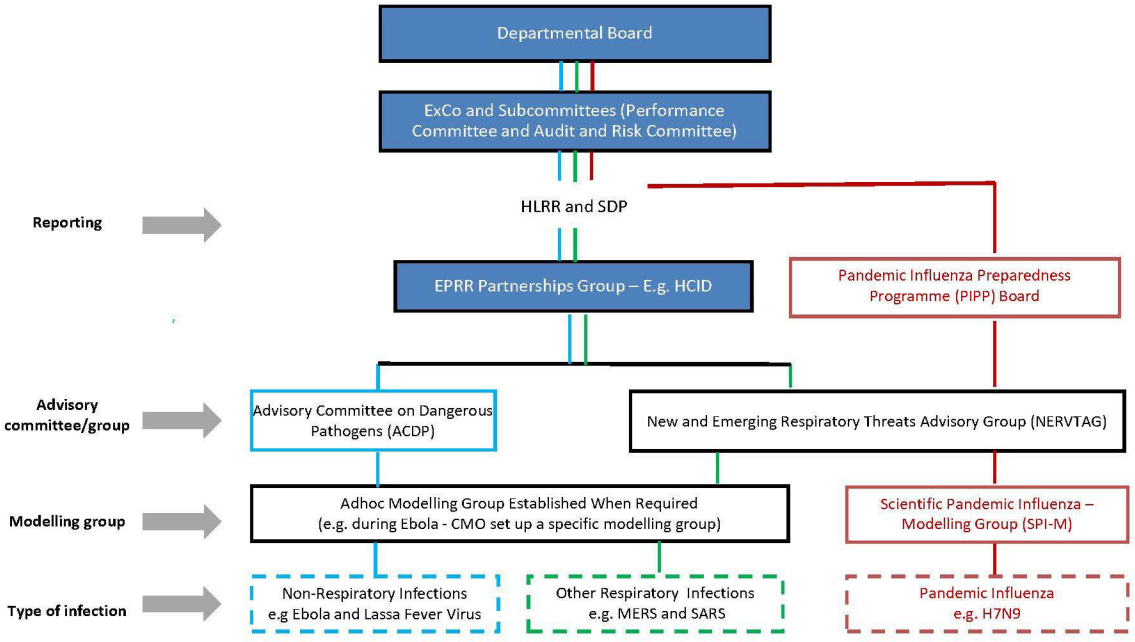
Diagnostic capability

The reference laboratory in Colindale has approximately 25 staff engaged in seasonal flu surveillance activities and development of diagnostics, including those needed for H7N9. During a pandemic, other staff in the Virus reference department (100 other staff) help to provide resilience.

Laboratory	Capability response
Leeds	Leeds has the capability of running a H7 assay and 12 staff are currently able to perform the test.
Birmingham	Birmingham laboratory can do the H7N9 PCR and have six staff members who are trained to do the test
Cambridge	The National Infection Service (NIS) laboratory has 14 staff currently assessed as competent to run the H7 assay. The laboratory estimate that they would be able to process up to 100 samples per day but this would pressurise other elements of the service delivered from Cambridge. Cambridge laboratory covers a relatively large geographical region in the East of England and provides testing for Greater London as the current host of the Public Health London service.
Southampton	Southampton has the capability to detect H7 although there have been no requests for some time. The Lab has three people who have this knowledge.
Manchester	Manchester currently provides H7 testing and cover is provided over weekends. There are at least 10 laboratory staff competent to process the H7 test.
Bristol	Bristol has four Clinical Scientists trained to deliver H7. One of those is very familiar and competent, the other three would need training. Plan to develop an ongoing training and competency cycle to increase our pool from one fully trained fully competent to seven. 18 BMS staff could all be fully competent within a week to 10 days.

Annex

Review governance and horizon scanning structures during 'peace time', with particular regard to managing the pandemic risk of non-respiratory infectious diseases – Clara Swinson



- Pandemic Influenza is the number one rated risk on the NRA based on likelihood and impact and therefore, additional governance arrangements are in place to ensure preparedness in the event of a pandemic.
- DH planning assumptions used for pandemic influenza would be used for other non-respiratory outbreaks.
- This diagram resents governance during 'peace time' - during 'response mode' governance arrangements will differ and will be co-ordinated across Government.