



Department
of Health &
Social Care

Minutes of SPI-M meeting on H5N1: 2 May 2024

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Meeting details

The meeting was held on 2 May from 10.30am to 11.30am on Microsoft Teams.

The co-chairs were Déirdre Hollingsworth (academic chair) and Thomas Waite (executive chair).

Attendees

From the Scientific Pandemic Infections group on Modelling (SPI-M):

- Daniela De Angelis
- Marc Baguelin
- Paul Birrell
- Declan Bradley
- Andre Charlett
- Louise Dyson
- John Edmunds
- Jessica Enright

- Neil Ferguson
- Thomas Finnie
- Christophe Fraser
- Michael Gravenor
- Ian Hall
- Thomas House
- Rowland Kao
- Adam Kucharski
- Steven Riley
- Nicholas Watkins

Additional participants:

- Edward Hill (University of Warwick)
- Oliver Pybus (University of Oxford)
- Mike Tildesley (University of Warwick)

Observers:

- Lucy Chappell (Department of Health and Social Care (DHSC))
- Robert Jenkins (UK Health Security Agency (UKHSA))
- Jillian Johnston (Northern Ireland Executive)
- Robert Jordan (UKHSA)

Presenters:

- Meera Chand (UKHSA)

- Rowland Kao
- Oliver Pybus

There were an additional 12 observers and 9 members of the secretariat whose names have been redacted.

Participant apologies:

- Ellen Brooks-Pollock
- Julia Gog
- Matt Keeling
- Chris Robertson
- Christopher Williams

Introduction

The executive chair welcomed members to the meeting and thanked participants for attending at short notice.

The executive chair introduced Professor Mike Tildesley (University of Warwick), Professor Oli Pybus (University of Oxford) and Dr Ed Hill (University of Warwick) who have been invited to the meeting to provide additional expertise and contribute to the discussion.

The executive chair acknowledged that the secretariat has re-circulated the draft minutes from the February meeting and asked members to provide any additional comments by email as soon as possible.

Overview and initial assessment of the H5N1 outbreak

Meera Chand, chair of the UKHSA Technical Group, presented a situational assessment of the H5N1 outbreak in cattle in the US. Participants noted that the early stage of the outbreak means a lot of information is still unclear. There have been

several infections in other mammalian species associated with the outbreak, and 1 case of conjunctivitis in a human. Severity of the virus seems to vary in mammalian species, with cattle generally experiencing mild symptoms and recovering after 2 weeks.

Transmission is suspected to be due to close contact between cattle and fomites. The UKHSA Technical Group are reviewing the H5N1 alert level, which is currently set at level 3. Currently, there is confidence in the UK diagnostic subtyping tests, and there is no evidence of antiviral resistance.

Rowland Kao presented key insights from DEFRA's Exotic and Emerging Animal Diseases (SAC- ED) subgroup. It is unknown whether this is still an avian adapted virus or has become a mammalian adapted virus, and both possibilities should be considered. Due to the spillover of the virus to other mammalian species, there should be caution regarding the proximity of cow farms to pig farms. How the virus jumped from birds to cattle is still an unknown. Reporting and data limitations mean the number of US states affected is probably higher than current estimates. The effectiveness of pasteurization for removing live virus from milk is unknown, although early test results from the US Food and Drug Administration are encouraging. Participants noted a US study that had tested 30 samples of ground beef obtained at retail stores in the affected states resulted in no H5N1 influenza virus particles found to be present.

Oliver Pybus presented a summary of the genetic data from the outbreaks in the US. The data suggests the cattle outbreaks are all from a single monophyletic clade. Provisionally, from the limited metadata available, there is a common ancestor towards mid January, so assuming a single jump to cattle this implies it was transmitting for a couple of months before detection. The data in the second half of February is consistent with an event that led to rapid transmission between herds and cattle movement. The human conjunctivitis case is a significant outgroup to the cattle cases. This could be the result of unsampled cattle outbreaks in Texas to which the human case is linked, or it could be a separate jump from birds.

The executive chair thanked presenters and summarised the request to SPI-M to understand where the data gaps currently exist and what data will be needed to fully understand the risk to the UK.

Committee discussion on H5N1 outbreak

The committee noted that H5N1 outbreaks have occurred in other mammalian species over the past one to two years and the significant uncertainty around the current outbreak in dairy cattle in the US.

Participants discussed the limitations of the data currently available from the US, including the lack of cattle movement data, and considered whether there would be significant differences in the pattern and speed of transmission should cattle in the UK be infected. It was noted that frameworks to model cattle disease and detailed livestock movement data are available in the UK but there is difficulty in parameterizing spread within herds due to the huge uncertainty.

The committee noted the encouraging evidence on pasteurisation, but reflected that animal health, human health and food safety should be considered together as one issue. They also noted the modelling challenge associated with the pooling of milk from different producers as part of food supply chains.

The committee agreed that data sharing arrangements should be put in place now to ensure government can rapidly share data with SPI-M participants in the event of an H5N1 outbreak or other infectious disease emergency in the UK. This would assist the committee with understanding and modelling the early stages of an outbreak.

Participants discussed wild bird migratory patterns and how these can be used to aid surveillance. They also discussed the potential benefits and limitations of different surveillance methods, including human surveillance and testing of wastewater.

The committee discussed the potential response to an early human outbreak in the UK. They suggested it would typically be picked up in farm workers who've been working with infected livestock, provided our surveillance systems were effective. Once a human case is detected this should be followed up with active surveillance of the individual's household contacts.

The committee discussed the pandemic risk posed by H5N1 and the fact this has increased over recent years due to the global spread of H5N1 in wild birds, poultry and some species of mammal.

Any other business

The executive chair highlighted that this meeting largely aimed to share data and information for committee members to get a better grasp of next steps and actions. The executive chair is keen to compile a list of unfiltered questions from SPI-M, to hear views on potentially different use cases for testing and surveys of farm workers, and to review what 'optimal' human surveillance and/or data sources can be used for both early detection and after human disease confirmation (with pros and cons of different

approaches). The executive chair proposed another meeting in 2 to 3 weeks when more information on the US outbreak and preparedness actions should be available.



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