

# Meeting details

The meeting was held on 16 May 2022 from 2pm to 4pm on Microsoft Teams.

The co-chairs were Graham Medley (academic chair) and Thomas Waite (government chair).

## Attendees

From 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
- Matt Keeling
- Adam Kucharski

- Edwin Van Leeuwen
- Ellen Brooks-Pollock
- Chris Robertson
- Anna Seale
- Nick Watkins
- Christopher Williams

Observers:

- Laura Bellingham (Cabinet Office)
- Anita Bhalla (Cabinet Office)
- Sarah Deeny (UKHSA)
- Simon Whitfield (GO-Science)

Apologies:

- Julia Gog
- Steven Riley (UKHSA)

## **Introduction and welcome to new members**

Tom Irving (DHSC) opened the meeting and introduced both co-chairs to the committee.

SPI-M-O, which stood up in response to the COVID-19 pandemic, are not currently meeting but will do so if required. SPI-M is a working group for the Department for Health and Social Care (DHSC) but is not a formal advisory committee. Its remit will be reviewed after 12 months.

The committee were reminded to complete and return their Code of Conduct and Declaration of Interest forms to the SPI-M Secretariat as soon as possible.

It was agreed that meetings will be held virtually, with the possibility of a single annual in-person meeting to be considered.

Each member of the committee gave a brief introduction.

## Agreement of Terms of Reference

The government chair noted that the draft Terms of Reference outline SPI-M's remit, governance and participants.

The draft Terms of Reference were discussed and reviewed by the committee. Several changes were proposed. The breadth of the remit was discussed; the government chair noted that the group's remit was in line with its expertise on the dynamics of infectious diseases.

The group agreed to the Terms of Reference, subject to the co-chairs signing them off once minor changes have been made.

Action:

SPI-M secretariat to address the proposed changes, and co-chairs to sign them off on behalf of the group.

## Flu pandemic countermeasures analysis

DHSC gave a presentation on the methodology used by the department for influenza pandemic preparedness analysis, proposed changes and plans for future procurements. It was noted that although DHSC are preparing for a wide range of different potential pandemics, this stream of work was specifically related to the procurement of influenza countermeasures.

DHSC's economic analysis for flu pandemics is based on epidemiological modelling conducted by the UK Health Security Agency (UKHSA), formally Public Health England (PHE), which was last reviewed by SPI-M in 2019. The scenarios modelled were based on the pandemics that have occurred since 1900:

- a mild pandemic based on the 2009 'Swine Flu'
- a severe pandemic based on the 1918 to 1919 'Spanish Flu'
- a high infectivity and low severity pandemic (1918 to 1919 like transmission and 2009 like severity)
- a low infectivity and high severity pandemic (2009 like transmission and 1918 to 1919 like severity)

It was noted that while reasonable worst-case scenarios are used for emergency planning, they are only used in cost-benefit analyses for sensitivity analysis.

UKHSA re-presented the 2019 pandemic influenza modelling. This is based on a 'Susceptible – Exposed – Asymptomatically Infected – Symptomatically Infected – Recovered' (SEIIR) model, with parameter values from literature to produce the 4 pandemic scenarios mentioned above. The model was used to explore the effect of vaccinating different target groups, changing vaccine uptake, different number of doses and variable vaccine efficacy.

The committee considered the range of scenarios previously used in influenza pandemic preparedness analysis and was questioned on whether these should still be considered appropriate. It was acknowledged that such scenarios could not be exhaustive, and that more severe influenza pandemics were possible (including the Reasonable Worst Case Scenario), but it was agreed that the scenarios were still appropriate for the economic appraisal of influenza pandemic countermeasures.

It was highlighted that the COVID-19 pandemic has shown that future pandemic preparedness planning needs to include the possibility that behaviour change (whether spontaneous or the result of non-pharmaceutical interventions (NPIs)) could change transmission; mortality rates could change over time depending on the level of pressure on healthcare services or improved treatments, and indirect costs (both health and economic).

The committee discussed 3 proposals for how transmission change could be incorporated into the influenza pandemic scenarios, based on the experience of COVID-19 epidemics. It was acknowledged that these scenarios could not be exhaustive, and that the impact of behaviour on a future pandemic would depend on its nature, as well as the government's response. It was agreed that the 3 proposed scenarios were appropriate.

The committee discussed how the mortality rate could change if pressure on the health service were so severe that normal levels of care could not be given. It was agreed that a 2-fold increase in mortality rate would be appropriate. Members of the committee agreed to provide work considering different assumptions on changes to the COVID-19 mortality rate over time.

Action:

Members who have looked at mortality rates of COVID-19 over time to share this with the SPI-M secretariat.

It was brought to the committee's attention that DHSC has previously published work estimating the indirect harms of COVID-19, and that this would be shared with SPI-M.

Action:

SPI-M secretariat to share work from DHSC on estimating indirect harms of COVID-19.

The committee discussed the length of time it took for behaviour to change following policy changes during the COVID-19 pandemic. A consensus view was agreed that behaviour is not back to pre-pandemic levels, and it is difficult to predict how long it will take for the behaviour level to return to steady-state.

The committee agreed that DHSC's analysis should contain extensive scenario analysis and include narrative sections including but not limited to:

- the possible interaction of a influenza pandemic with a seasonal (or pandemic) wave of Covid-19
- the effect of travel restrictions
- different probabilities of a flu pandemic
- different vaccine uptake and effectiveness

Action:

UKHSA to update epidemiological modelling, to be reviewed in the next SPI-M meeting.

## **Agenda items for future meetings**

The committee is aiming to review and sign off UKHSA's epidemiological modelling next month.

A future stream of work will be capturing lessons learned for pandemic preparedness from COVID-19 and its modelling.

The dates of the next SPI-M meeting were given.