

Summary of discussion: JBC Data Science Advisory Board Meeting 26th February 2021, 14:00-14:50 [held virtually]

Chair: Ewan Birney

1. Previous minutes were signed off and agreed.

2. JBC update

JBC updated the Board on its work including:

- Recent appearance at the Science and Technology Select Committee on the modelling behind the effectiveness of Test and Trace
- Surveillance of Variants of Concern (VoCs), following introduction of new rules for international arrivals from 15th February

3. General discussion:

The board discussed the importance of the legal and ethical considerations around data linkages in recent work on VoCs, and JBC discussed how these important considerations are being brought into the design of NIHP.

4. Epi ensemble modelling presentation:

James Hetherington presented work on Ensemble Modelling in the JBC. The overall purpose is to allow regular and automated running of a model ensemble to produce prevalence estimates and R value estimates. No new models being produced, rather existing models are integrated and run automatically. Understanding how the models complement one another key, and the presentation showed the rationale behind model selections, and which models are currently included in the ensemble.

The board discussed the challenges and the ambitiousness of this work. They highlighted the importance of data governance and data flows, and matching models with data effectively and consistently. The potential future utility of wastewater data was highlighted. A board member suggested that JBC think clearly about future epidemiological risk metrics and JBC staff discussed with them the search of metrics that signalled epidemiological phase transitions.

It was discussed how the work as it stands is looking for minimal change to existing models but that having a conversation around shifting to predict other metrics such as 'phase transition' points/tipping points in the pandemic (eg. healthcare system being overrun) would be interesting.

The challenges of model evaluation (assessing model skill) when models are estimating latent variables (e.g. R) was also discussed.

5. "Deep dives":

DSAB Secretariat gave an introduction to the proposed 'deep-dive' sessions. These are an additional, longer meeting (1.5 hours) held mid-month, where the board explores a specific question in depth. Not all DSAB members will be expected to attend, only those interested in that month's question. A discussion paper had been circulated in advance and the topics were prioritised.

6. Meeting outcomes:

The Board:

- Recommended that JBC consider ethical and legal considerations around data linkage in their work on Variants of Concern
- Offered their support to JBC's Epi Ensemble Modelling stripy team and suggested that JBC look to weather forecasting specialists for advice in operationalising model ensembles
- Suggested an additional 'deep-dive' topic to look at future epidemiological risk metrics

Attendance

Professor Daniela De Angelis	Professor of Statistical Science for Health, University of Cambridge, Deputy Director and Programme lead at MRC Biostatistics Unit
Dr Ewan Birney	Deputy Director General, European Bioinformatics Institute - Acting Chair
Dr Zeynep Engin	Urban Dynamics Laboratory, UCL
Professor Dame Wendy Hall	Professor, Associate Vice President (International Engagement) and Executive Director (Web Science Institute), University of Southampton
Dr James Hetherington	Chief Data Science Advisor, Joint Biosecurity Centre, Fellow – The Alan Turing Institute
Professor Chris Holmes	Programme Director for Health and Medical Sciences, The Alan Turing Institute
Dr Johanna Hutchinson	Director of Data & Data Science, Joint Biosecurity Centre
Professor Graham Medley	Professor of Infectious Disease Modelling, London School of Hygiene and Tropical Medicine
Professor Andrew Morris	Director, Health Data Research UK
Professor Mark Parsons	Professor, Director of Edinburgh Parallel Computing Centre (EPCC) and Associate Dean for e-Research
Professor Sylvia Richardson	Director, Chair of Biostatistics, University of Cambridge
Professor Simon Vosper	UK Meteorological Office
Charlie Dunstan-Rice	Joint Biosecurity Centre (Secretariat)

Dr Balint Stewart	Joint Biosecurity Centre (Secretariat)
Arinze Akitekwe	Joint Biosecurity Centre (Presenting)
Luke Bevan	Joint Biosecurity Centre (Presenting)
Robert Moore	Joint Biosecurity Centre (Presenting)
Dr Jasmina Panovska-Griffiths	Joint Biosecurity Centre (Presenting)
Josie Park	Joint Biosecurity Centre (Presenting)
Dmitry Semashkov	Joint Biosecurity Centre (Presenting)
Sam Williams	Joint Biosecurity Centre (Presenting)
Dr Tim Chadborn	Joint Biosecurity Centre (Observer)
Monica Doherty	Joint Biosecurity Centre (Observer)
Dr Nick Watkins	Joint Biosecurity Centre (Observer)