Contents
About the collaboration ............................................................................................................. 1
COVID-19 and epidemiological modelling .................................................................................. 2
How can the model be used? ...................................................................................................... 3
Where can this be used? ........................................................................................................... 4
Experts in our team ................................................................................................................... 5
Further information and contact ............................................................................................... 6

About the collaboration
We are pleased to announce a collaboration between Oxford Policy Management, the University of Oxford and the Covid-19 International Modelling Consortium to assist policy makers make evidence based decisions to contain the spread of COVID-19 based on mathematical and epidemiological modelling. Our group brings together top academic modellers, global public health specialists, local epidemiologists, and expert project management systems to provide whole package solutions.

Oxford Policy Management is committed to helping low- and middle-income countries achieve growth and reduce poverty and disadvantage through public policy reform. We work in all areas of social and economic policy and governance, including health, finance, education, climate change, and public sector management. We draw on the cross-cutting expertise of our dedicated data analysis and visualisation, monitoring and evaluation, political economy analysis, statistics, and research methods specialists. With over 40 years' experience and over 400 staff across a global network of offices, we work across the policy cycle to deliver projects that deliver real and lasting change.

The University of Oxford is one of the leading universities in the world. The Nuffield Department of Medicine (NDM) is a large multi-disciplinary department that links high quality clinical research with medical application. The underpinning motivation behind all research carried out by NDM is the pursuit of academic excellence and the positive impact of research on the health and wellbeing of the global community.

The CoMo consortium brings together experts at the University of Oxford, Cornell University and other academic institutions as well as disease and economic modellers in 30 countries across Africa, Asia, and the Middle East. This facilitates a direct link between the experts involved in developing the models, local in-country modellers, public health experts and policymakers in each country.
COVID-19 and epidemiological modelling

COVID-19 is spreading across the world at an alarming rate. Timely decisions made by Governments in affected countries including Ministries of Health are essential to curb the epidemiological and economic impact on societies. At present, as there are no treatments for the disease or vaccines to prevent COVID-19, behavioural change strategies such as self-isolation for symptomatic individuals, increased hand hygiene, social distancing, working from home where possible, and school closure are possible.

The CoMo consortium has developed an age-structured, compartmental Susceptible-Exposed-Infectious-Recovery (SEIR) model to estimate the trajectory of COVID-19 based on different scenarios, and assess the potential impact of the various behavioural change strategies as well as treatment and vaccines, when they become available. A user-friendly interface enables widespread use, while dashboards and visualisation tools allow policy makers to see changes in real time.

Figure 1: The baseline model structure representing the unmitigated epidemic spread scenario
How can the model be used?

The outputs of the model can enable policy makers to make data based decisions to inform the public health response, such as:

(i) the impact of the various mitigation strategies on transmission of the virus and mechanisms for “flattening of the curve” and which interventions will be more effective in their specific contexts;

(ii) the anticipated demand for hospital and ICU beds at various levels of the health system;

(iii) the quantity of tests, personal protective equipment, ventilators and other supportive tools needed in treating the diagnosis and treatment of patients, and

(iv) the cost of equipment needed.

Figure 2: Graphs showing the predicted effects of different combinations of public health strategies.
Where can this be used?

The model can be used in any context and country. Our group is on the ground in more than 30 countries where we have OPM country offices and CoMo consortium members. Because of our local presence and existing relationships with country-level stakeholders, we have the ability to play a strategic role in evaluating the impact of interventions being discussed and advising on the policy changes needed to implement the interventions.

The model is currently being used to facilitate policy discussions and shape intervention strategies around the world in its current form as well as being modified by in-country teams and used as a comparator with existing in-country models. For example, in Cameroon, our analysis has informed discussions of mitigation measures and health system response measures needed to curb the trajectory of the epidemic. In New York City, we supported the forecasting of the number of hospital and ICU beds and estimated of the supplies and equipment that would be needed to respond to the surge in patients. In the next step of advising on a health system response, we are currently advising the Ministry of Health in Nepal on the cost of various policy responses to COVID-19.
Experts in our team

Mike Naylor, Project Director
Mike is a highly experienced health management professional with over 35 years of experience in advising donors, recipient governments, and health service providers. Mike leads all OPM Fast Technical Assistance to DFID, was previously Chief Executive of an National Health Service Trust in the UK and CEO of Aga Khan Health Services in East Africa.

Professor Lisa White, Principal Investigator and CoMo Consortium lead
Lisa is a mathematical modeller with a focus on global health and policymaking. Her work combines within and between host infection models with multi-strain/species modelling to consider the characterisation, emergence and spread of antimicrobial drug resistance and containment.

Dr Rima Shretta, Co-Principal Investigator
Rima is a global health expert, with over 20 years of experience in over 25 countries in Africa and Asia in the areas of health systems strengthening, pharmaceutical management, economics and financing. Her current work focusses on using real-world epidemiological and economic and financial evidence to support integrated strategies for multiple diseases.

Dr Rashid Zaman, Co-Principal Investigator
Rashid is a medical epidemiologist with 17 years of experience in social, epidemiological and clinical research and technical assistance. Rashid is currently working on several projects on COVID-19 response and has previously worked on the Ebola response, US-CDC’s International Emerging Infections Programme, and has led several outbreak investigations in responding to 2009 influenza pandemic.

Dr Ricardo Aguas, Senior Modeller and CoMo Consortium Technical lead
Ricardo is a mathematical modeller of infectious diseases and currently leads the Analytical Tools for Malaria Elimination (AToME) group at the University of Oxford. Ricardo has previously developed genotype to phenotype mapping tools to identify host-species transition events such as MERS and SARS and has vast experience in modelling epidemic and pandemic outbreaks.

Dr Nicholas Letchford, Infectious Disease Modeller
Nicholas works on projects across a variety of sectors, most recently in health, nutrition, poverty and social protection, and energy and economic growth. Nicholas has worked in the Vaccine Impact Modelling Consortium, Imperial College London on developing vaccine impact and disease burden estimates for a range of diseases in various countries across the world.
Further information and contact

www.opml.co.uk

www.ndm.ox.ac.uk

https://comomodel.net

To discuss further, please contact HEARTforEACDS@opml.co.uk.