



Policy Modelling for COVID-19: Better Data for Better Decision- Making in LMICs



Policy choice for pandemics

- Wide interdependent policy choice set (health provision, public health, social care, humanitarian action, social protection, sectoral and macro-economic policy)
- Multiple objectives (health, productivity, poverty/equity, security)
- Short and long run trade-offs
- *Substantial and rapid*
- *Sectoral allocations flexible (to an extent)*
- *Continuously evolving, scarce, and localised data (4 months data available)*
- *Shift from private to public decision (externalities)*
- **High risk** (*high uncertainty and consequence*)

REVIEW

When an emerging disease becomes endemic

Graham F. Medley* and Anna Vassall

Critical research questions (1)

Understanding the balance between intervention, 'duration and peak', mortality, productivity/ poverty in LMICs.

- Epidemiology (co-morbidities and risk factors)
- Social contacts, households and mixing (8 LMICs)
- Health sector capacity – short run elasticity/cost/opportunity cost (TB/HIV, Vaccination)(Beds, HR, supplies)
- Intervention effectiveness and compliance
- Extent and distribution of household costs and coping
- Sectoral impacts
- Macro-economic (fiscal and monetary capacity)
- Social protection systems (UNICEF mapping)
- Secondary impacts (food security, emergency relief efforts, gender based violence)

Epidemiology

Public and private 'system capacity' – Supply side

Behaviour – Demand side

Critical questions (2)

- Optimal intervention design in LMICs
 - When should we start and exit social distancing?
 - How severe should it be, and in which groups? (Mitigation or suppression)
 - What testing/what forms of contact tracing/isolation/ quarantine are sufficient?
 - How best to shield the vulnerable?
 - Critical care/ protecting health care workers?
 - What forms of social protection?
 - New technologies
- Principles and processes
 - How do we balance costs and multiple consequences between populations? (Ethics/ process, VSL/J Value)
 - How to we ensure production and fair access to technologies required to address Covid - 19 across countries? Role of development financing/ debt relief.

What models do we have?

- In principle, models can be used to make sense of these complex decisions; 3 sets of models:
 - Infectious disease modelling (IDM) with broad estimates of resource use
 - Micro-economic evaluation models, combining the above with costs, to generate estimates of sectoral efficiency, with a limited societal perspective, possibly with some assessment of equity
 - Macro-economic modelling, that may estimate both sectors, productivity and health impact (but rarely linked to dynamic disease models)
- To date initial IDM results, and macro-economic models
- HIC focussed

Some useful resources:

- Walker P et al. <https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/2020-03-26-COVID19-Report-12.pdf>
- CMMID working group. <https://cmmid.github.io/topics/covid19/control-measures/EPI-suspension.html> https://cmmid.github.io/topics/covid19/current-patterns-transmission/reports/COVID10k_Africa.pdf.
https://cmmid.github.io/topics/covid19/severity/Global_risk_factors.html
- Barasa E. <https://www.medrxiv.org/content/10.1101/2020.04.08.20057984v1.full.pdf>
- Shlomai A et al. <https://www.medrxiv.org/content/10.1101/2020.03.30.20047860v1>
- Wang Q. <https://www.medrxiv.org/content/10.1101/2020.03.20.20039644v2.full.pdf>
- Karnon J. <https://link.springer.com/article/10.1007/s40258-020-00581-w>
- Greenstone et al. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561244
- **Coming soon**
- <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/covid-19-reports/>
- <https://www.lshtm.ac.uk/research/centres-projects-groups/chil>

3 months data, decades of health economics

- Process/ Principles/ Metrics
 - Adapt HTA/ evidence based deliberation/MCDA
 - Balancing value of life with opportunity cost/ societal perspective
 - Equity
 - DALYs and QALYs, VSL, catastrophic costs and poverty cases averted,
- Modelling:
 - IDM models group open source
 - Cross walk models
 - Local links
- Data/ analysis
 - Communicate data needs
 - Compilation/ review/ rapid - health systems capacity and costs, cost of illness/behaviours, values
- THANK YOU!