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

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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)
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:


• 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


• 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!