

PhD studentship proposal: Economic evaluation of policies and interventions to improve the capacity and efficiency of health systems

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Over recent years there has been growing pressure on health systems to improve their efficiency. This situation has been further exacerbated by the COVID-19 pandemic, where the increased strain on health systems has resulted in reduced capacity and longer waiting times. Policies and interventions are needed to help improve the capacity and efficiency of health systems. These could include, for example, alternative stratification approaches to prioritize certain patient groups, technological solutions (e.g. use of triage systems for reducing waiting times), increased staffing or task shifting.

To help inform decision-making, evidence on the resource requirements, costs, benefits and impacts on population health of the alternative policies is required. Economic evaluation provides a framework for helping to inform the decisions [1–3]. However, standard approaches may not be appropriate for the evaluation of the policies targeting improving health system delivery [3]. For example, they do not reflect multiple constraints on care (financial and non-financial) or interdependence of the different components of the system [4–6]. As a result, novel approaches to economic evaluation bringing in insights from other fields, such as operational research, should be considered so that evidence on the impacts on population health can be generated [7–10].

The aim of this PhD is to develop approaches to the economic evaluation of policies and interventions to improve the capacity and efficiency of health systems. The PhD could focus on a range of topics within this broad area including: evaluation of different policies in a specific setting, advancing the methods for modelling health systems for the purpose of economic evaluation, advancing the methods for characterising uncertainty and generalisability in health system models.

References

- 1 Briggs A, Claxton K, Sculpher M. *Decision Modelling for Health Economic Evaluation*. Oxford: : OUP 2006.
- 2 Drummond M, Sculpher MJ, Claxton K, *et al*. *Methods for the economic evaluation of health care programmes*. Oxford: : OUP 2015.
- 3 Walker S, Fox A, Altunkaya J, *et al*. Program Evaluation of Population- and System-Level Policies: Evidence for Decision Making. *Med Decis Making* 2021;:272989X211016427. doi:10.1177/0272989X211016427
- 4 Wright SJ, Newman WG, Payne K. Accounting for Capacity Constraints in Economic Evaluations of Precision Medicine: A Systematic Review. *Pharmacoeconomics* 2019 378 2019;37:1011–27. doi:10.1007/S40273-019-00801-9
- 5 van Baal P, Morton A, Severens JL. Health care input constraints and cost effectiveness analysis decision rules. *Soc Sci Med* 2018;200:59–64. doi:10.1016/J.SOCSCIMED.2018.01.026
- 6 Revill P, Walker S, Cambiano V, *et al*. Reflecting the real value of health care resources in modelling and cost-effectiveness studies—The example of viral load informed differentiated care. *PLoS One* 2018;13:e0190283. doi:10.1371/journal.pone.0190283
- 7 Aspland E, Gartner D, Harper P. Clinical pathway modelling: a literature review. <https://doi.org/10.1080/2047696520191652547> 2019;10:1–23.

doi:10.1080/20476965.2019.1652547

- 8 Saville CE, Smith HK, Bijak K. Operational research techniques applied throughout cancer care services: a review. <https://doi.org/10.1080/20476965.2017.1414741> 2018;**8**:52–73. doi:10.1080/20476965.2017.1414741
- 9 Arruda EF, Harper P, England T, *et al.* Resource optimization for cancer pathways with aggregate diagnostic demand: a perishable inventory approach. *IMA J Manag Math* 2021;**32**:221–36. doi:10.1093/IMAMAN/DPAA014
- 10 MR D, W K, R T. A System Dynamics Simulation Applied to Healthcare: A Systematic Review. *Int J Environ Res Public Health* 2020;**17**:1–27. doi:10.3390/IJERPH17165741