

Dr Pelham Barton MA, PhD

Reader in Mathematical Modelling
Director of the MSc programme in Health Economics and Health Policy

Health Economics

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About

Pelham Barton is a Reader in Mathematical Modelling in the Health Economics Unit and Director of the MSc programme in Health Economics and Health Policy. He has over 70 publications, of which around 50 are academic papers published in peer-reviewed journals. On almost all of these his contribution was to lead the economic and mathematical modelling aspects of the study.

Pelham is an internationally recognised expert in modelling applied to healthcare provision, both preventative and curative. He has been involved for over ten years in constructing, and supervising the construction of, decision-analytic economic models across a wide range of clinical areas from public health to management of chronic conditions. He is comfortable working with a wide range of model types from simple decision trees to complex discrete-event simulation models, choosing the appropriate model type according to the needs of real life decision makers such as the public health and technology appraisal programmes within NICE. His methodological work includes adoption of ideas from outside health economics to resolve the tension between adequacy, efficiency, and transparency of models.

Pelham has been heavily involved over the years in the development of the MSc in Health Economics and Health Policy and currently leads a dedicated module entitled Modelling for Health Economics.

Qualifications

- PhD in Operational Research, University of Birmingham, 1999
- Postgraduate diploma in Operational Research, University of Birmingham, 1995
- MA, University of Oxford, 1983 (converted from BA, Mathematics, 1979)

Biography

Pelham Barton read Mathematics at the Queen's College, Oxford from 1976 to 1979. After eleven years as a secondary school teacher, he came to Birmingham in 1994 as a taught postgraduate student in Operational Research, obtaining a Postgraduate Diploma with Distinction. He was funded on a Postgraduate Teaching Assistantship to complete a PhD thesis entitled "Extending System Dynamics".

He joined the Health Economics Unit (then called the Health Economics Facility) in 1998 and has progressed to the rank of Reader. His own applied research work in a wide range of clinical areas has involved being part of a multi-disciplinary team. In such a team, Pelham's job is to decide on the appropriate type of decision model to use, construct the model using suitable software, and then present and explain the results obtained from the model.

As his career within the Health Economics Unit has developed, Pelham has taken on a role in overseeing the modelling work produced by others in the unit. He is often involved in discussions as to the appropriate type of model, even if he is not a member of the project team.

Teaching

Teaching Programmes

- [MSc Health Economics and Health Policy \(/postgraduate/courses/taught/med/health-economics-policy.aspx\)](#)
- [Public Health MPH/Diploma/Certificate \(/postgraduate/courses/taught/med/public-health.aspx\)](#)

Postgraduate supervision

Pelham is interested in supervising doctoral research students in the following areas:

- Methodological issues to do with modelling for health economic evaluation
- Specific clinical questions where the choice of model type is a relevant issue

If you are interesting in studying any of these subject areas please contact Pelham on the contact details above, or for any general doctoral research enquiries, please email: [dr@contacts.bham.ac.uk \(mailto:dr@contacts.bham.ac.uk\)](mailto:dr@contacts.bham.ac.uk) or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our [Doctoral Research programme listings \(http://www.bham.findaphd.com/?es=y&apl=y&apit=&show\)](http://www.bham.findaphd.com/?es=y&apl=y&apit=&show).

Research

RESEARCH THEMES

Applied research: model-based economic evaluation across a range of clinical areas

Methodological research in two main areas:

Issues to do with uncertainty, including:

- Uncertainty in model construction
- Representing uncertainty in model results

Technical methods of modelling to improve accuracy and/or efficiency of model running, including:

- Methods from numerical analysis
- Methods for dealing with large decision spaces

RESEARCH ACTIVITY

Health Technology Assessment

The main emphasis of Pelham's applied research work over the last 10 years has been model-based health technology assessment across a wide range of clinical areas, including chlamydia screening, rheumatoid arthritis, prevention and treatment of cardio-vascular disease.

Other activities

- Member of the Scientific Advisory Group, Multiple Sclerosis Drugs Risk Sharing Scheme since 2006

Publications

H Maheswaran, **P Barton** (2012) Intensive case finding and Isoniazid preventative therapy in HIV infected individuals in sub-Saharan Africa: Economic model and value of information analysis. *PLoS ONE* 7(1):e30457.

TE Roberts, **PM Barton**, PE Auguste, LJ Middleton, AT Furnston, AK Ewer (2012) Pulse oximetry as a screening test for congenital heart defects in newborn infants: a cost-effectiveness analysis. *Archives of Disease in Childhood* vol 97 no 3 pp 221-226 DOI: 10.1136/archdischild-2011-300564

P Barton. (2011) Development of the Birmingham Rheumatoid Arthritis Model: Past, Present, and Future Plans. *Rheumatology* 50:iv32-iv38. DOI: 10.1093/rheumatology/KER244

P Barton, L Andronis, A Briggs, K McPherson, S Capewell (2011) Effectiveness and cost-effectiveness of cardiovascular disease prevention in whole populations: modelling study. *British Medical Journal*. 2011;343:d4044. DOI: 10.1136/bmj.d4044

S Bhattacharya, LJ Middleton, A Tsourapas, AJ Lee, R Champaneria, JP Daniels, T Roberts, NH Hilken, **P Barton**, R Gray, KS Khan, P Chien, P O'Donovan, KG Cooper and the International Heavy Menstrual Bleeding IPD Meta-analysis Collaborative Group. (2011) Hysterectomy, endometrial ablation and Mirena® for heavy menstrual bleeding: a systematic review of effectiveness and cost effectiveness analysis. *Health Technology Assessment*. vol. 15, no 19 [pp 1-246] DOI: 10.3310/hta15190

PE Auguste, **PM Barton**, CJ Hyde, TE Roberts (2011) An economic evaluation of positron emission tomography (PET) and positron emission tomography/computed tomography (PET/CT) for the diagnosis of breast cancer recurrence. *Health Technology Assessment*, vol 15, no 18 [pp 1-48] DOI: 10.3310/hta15180

P Barton (2011) What happens to value of information measures as the number of decision options increases? *Health Economics* vol 20 pp 853-863 DOI: 10.1002/hec.1651

K Malotki, **P Barton**, A Tsourapas, AO Uthman, Z Liu, K Routh, M Connock, P Jobanputra, D Moore, A Fry-Smith, YF Chen. (2011) Adalimumab, etanercept, infliximab, rituximab and abatacept for the treatment of rheumatoid arthritis after the failure of a TNF inhibitor: a systematic review and economic evaluation. *Health Technology Assessment*, vol 15 no 14 [pp 1-271] DOI: 10.3310/hta15140

