

Last Update: 2nd December 2010

Gianluca Baio

Curriculum Vitae

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Personal information and higher education

- Born: Agrigento (Italy), 14 August, 1973.
- High School Diploma: Liceo Scientifico ‘P. Gobetti’, Florence (Italy), 1992.
- Exchange Student, Sheffield Hallam University, Sheffield (UK), 1996 - 1997.
- MSc in Statistics and Economics, University of Florence (Italy). Thesis in Mathematical Statistics, titled ‘Statistical Forensic identification via DNA profiling: a Bayesian approach’, supervised by Prof Fabio Corradi, 1998.
- PhD in Applied Statistics, University of Florence (Italy); thesis titled ‘Decision-theoretic approach to causal inference: theory and applications’ supervised by Prof Fabio Corradi, 2002 - 2005.
- Visiting Scholar, MIT–Harvard Health, Science and Technology Division, Cambridge, Massachusetts (USA), 2003 - 2004.

Postgraduate training and development

- Short Course: *Advanced Methods for Pharmacoeconomic Evaluation*, Centre of Health Economics, University of York (UK), 2000.
- Short Course: *Bayesian hierarchical models and Spatial epidemiology*, Department of Epidemiology, Imperial College, London (UK), 2001.
- Short Course: *Analysis of Repeated Categorical Measurement Data*, Department of Statistics, University of Florence (Italy), 2003.

Work and academic experience

- Research Assistant, Faculty of Economics ‘Richard M. Goodwin’, University of Siena (Italy), 2000 - 2002.
- Research Associate, National Collaborative Centre for Acute Care, London (UK), 2005.
- Honorary Lecturer, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine (UK), 2005 - present.
- Honorary Lecturer, University of Milano Bicocca (Italy), Department of Statistics, 2005 - present.
- Research Fellow in the multidisciplinary research programme *Evidence, Inference and Enquiry: Towards an Integrated Science of Evidence* (general information at www.evidencescience.org), funded by the ‘Leverhulme Trust’, University College London (UK), 2005 - 2007.
- Part-time Lecturer, Department of Statistical Science, University College London (UK), 2007 - 2008.
- Lecturer, Health Care Evaluation Group, Department of Epidemiology and Public Health, University College London (UK), 2009 - 2010.
- Lecturer, Department of Statistical Science, University College London (UK), 2010 - present.

Teaching

- Assistant lecturer for the courses of ‘Industrial Organisation’ (Faculty of Economics), ‘Statistics’ (Faculty of Economics) and ‘Statistics and Quantitative Methods’ (Faculty of Engineering) in the University of Florence (Italy), 2001 - 2004 (Undergraduate level).
- Lecturer for the courses ‘Statistical methods for Health Economics’ and ‘Applied Health Economics’ — course material (in Italian) available at www.statistica.it/gianluca/HE.html, Department of Statistics, University of Milano Bicocca (Italy), 2005 - present (Masters level).
- Tutoring activity for the courses ‘Introductory Statistical Methods (6101)’ and ‘Introductory Statistical Methods (B) (6202)’, University College London (UK), 2005 - 2006 (Undergraduate level).
- Lecturer for the courses ‘Introductory Statistical Methods (6101)’ and ‘Introductory Statistical Methods (B) (6202)’, University College London (UK), 2007 - 2008 (Undergraduate level).
- Lecturer for one module of the course ‘Medical Statistics’, Department of Statistics, University of Milano Bicocca (Italy), 2008 (Undergraduate level).

- Lecturer for the course ‘Epidemiology’, Roehampton University London (UK), 2008 - 2009 (Masters level).
- Lecturer for the module ‘Introductory Statistics’ in the course “EPIDGS32”, University College London (UK), 2009 - 2010 (Masters level).
- Lecturer for the module ‘Analysing binary data: Random effects models and GEE models’ in the course “Longitudinal Data Analysis”, University College London (UK), 2010 (PhD students level).
- MSc students supervision, University of Milano Bicocca (Italy), 2008 - present.

I have organised a short course on ‘Introduction to Bayesian Models using WinBUGS’, with a module specifically focused on health economic evaluations (general information at www.statistica.it/gianluca/Decennale.html, University of Milano Bicocca, September 2008).

I have been involved for the last two years in teaching in the annual short course on “Causal Inference in Epidemiology” at the London School of Hygiene and Tropical Medicine, and have also taught in the short course “Introduction to graphical models and Bayesian networks for social scientists” organised at Imperial College London (November 2009).

Research grants

- Member of the Florence Research Unit of the Inter-University Project (PRIN-COFIN) ‘Bayesian networks and causal inference: methods and applications’, funded by the Italian Ministry of Higher Education, 2003 - 2005.
- Member of the Florence Research Unit of the Inter-University Project (PRIN-COFIN) ‘Analysis of complex problems under incomplete information: statistical methodology and applications’, funded by the Italian Ministry of Higher Education, 2005 - 2007.
- Member of the Milano Bicocca Research Unit in the Inter-University Project ‘EU ADR-Alert’, co-funded by the European Community (€4.5 million) — general information available at <http://www.alert-project.org/>, 2008 - present.
- Member of the Milano Bicocca Research Unit in the Inter-University Project ‘SOS Safety Of non-Steroidal anti inflammatory drugs’ co-funded by the European Community (€2.8 million) — general information available at <http://www.sos-nsaids-project.org/>, 2008 - present.
- Co-applicant in the Research Project ‘A review of effectiveness and cost effectiveness of interventions that aim to increase HIV testing among black African communities living in England’, funded by the Centre for Public Health Excellence, NICE (£62,000).

- Co-applicant in the Programme Grant application ‘Strategies to reduce the social gradient in bowel cancer screening: the ASCEND project. RP-PG-0609-10106’, submitted to the NIHR (£1.5 million — stage 1 cleared successfully; final application submitted in March 2010).

Research Interests

Bayesian statistics with applications in medical research, particularly in the economic evaluation of health systems and for cost-effectiveness analysis and evidence synthesis; decision-theoretic approach to causal inference from observational data; hierarchical models; philosophy and history of statistics.

Current research projects

- ‘Health economic evaluation of vaccination for the Human Papilloma Virus’, with Francesco Mennini (University of Rome, Italy), Mike Drummond (University of York, UK), Bengt Jönsson (Stockholm School of Economics, Sweden) and Peter Zweifel (University of Zurich, Switzerland).
- ‘Cost effectiveness analysis in regulatory systems: the case of statins’, with Pierluigi Russo (Italian Medicine Agency, Rome, Italy).
- ‘Regression discontinuity design in epidemiology’, with Sara Geneletti (London School of Economics, UK).
- ‘Health care inequalities in colorectal cancer screening’, with Rosalind Raine, Stephen Morris, Christian von Wagner and Jane Wardle (University College London, UK).
- ‘Inequalities in the provision of cardiovascular screening to people with severe mental illness in primary care’, with David Osborn, Kate Walters, Irene Petersen, Heather Limburg, Rosalind Raine and Irwin Nazareth (University College London, UK).
- ‘Increasing the uptake of HIV testing to reduce undiagnosed infection and prevent transmission among black African communities living in England’, with Stephen Morris, Ibidun Fakoya, Audrey Prost, Fiona Burns, Graham Hart (University College London, UK).

Academic activities

I serve as reviewer for international journals such as *Journal of Applied Statistics*, *Journal of Health Services Research and Policy*, *Value in Health*, *Health Economics*, *Biomedical Statistics and Clinical Epidemiology*, *European Journal of Health Economics* and *Pharmacoeconomics*, and have organised sessions at academic conferences and chaired meetings and workshops.

Professional activities

I am a member of the following scientific institutions: Royal Statistical Society, American Statistical Society, International Society of Pharmacoconomics and Outcome Research, Società Italiana di Statistica (Italian Statistical Society), International Society for Bayesian Analysis, Società Italiana di Statistica Medica (Italian Society for Medical Statistics).

Technical skills

- Programming skills and data analysis ability with statistical software such as R, WinBUGS, Stata, Matlab, SPSS, Hugin and Minitab.
- Very good knowledge of textprocessing in \LaTeX and great familiarity with both Linux and Windows operating systems, their common office applications and web-based teaching facilities, such as Moodle.
- Languages spoken: English (fluent, written and oral), Italian (first language), Spanish (good oral, sufficient written).

Talks and presentations

- *Handling Manipulated Evidence*. Presented at the International Conference of Forensics Statistics, Phoenix, Arizona (USA), March 2005.
- *Why Decision makers could prefer Bayesian Networks and Influence Diagrams over Decision Trees*. Presented at the American Conference of the International Society for Pharmacoconomics and Outcome Research, Washington, DC (USA), May 2005.
- *Are expert opinions telling us both sides of the story?* Poster presentation at the Eight Valencia International Meeting on Bayesian Statistics, Benidorm (Spain), June 2006.
- *Bayesian Latent Class Model to Measure Social Integration of Immigrants in Italy*. Presented at the European Population Conference, Liverpool, June 2006.
- *Probabilistic Sensitivity Analysis in Health Economics*. Presented at the Conference of the Society for Medical Decision Making, Birmingham, June 2006.
- *Statistical methods for Health Economics*. Invited talk at the Conference of the Italian Society for Medical Statistics and Clinical Epidemiology, Palermo (Italy), September 2007.
- *Bayesian hierarchical model for the prediction of football results*. Presented at the International Workshop on Statistical Modelling, Utrecht (Netherlands), July 2008.

- *Health Economic Evaluation of the treatment of osteoporosis in five Italian Regions*. Poster presented at the Bayesian Biostatistics Conference, Houston, Texas (USA), January 2009.
- *Mixing Econometrics and Epidemiology: the perfect job for Health Economics?* Invited talk at the Collaborative workshop on Mixing Econometrics and Epidemiology in the context of estimating treatment effects, Imperial College London, March 2009.
- *Centre sampling for migration surveys*. Presented at the Italian Conference on Survey Methodology, Siena (Italy), June 2009.
- *A Markov model for the economic evaluation of the treatment of osteoporosis*. Presented at the Conference of the Italian Society for Medical Statistics and Clinical Epidemiology, Pavia (Italy), September 2009.
- *A decision-theoretic framework for the application of cost-effectiveness analysis in regulatory processes*. Presented at the Conference of the Royal Statistical Society, Edinburgh, September 2009.

Recent publications

- Avillach, P., Mougin, F., Joubert, M., Thiessard, F., Pariente, A., Dufour, J., Trifirò, G., Polimeni, G., Catania, M., Giaquinto, C., Mazzaglia, G., Baio, G., Herings, R., Gini, R., Hippisley-Cox, J., Molokhia, M., Pedersen, L., Fourrier-Réglat, A., Sturkenboom, M. & Fieschi, M. (2009), 'A semantic approach for the homogeneous identification of events in eight patient databases: a contribution to the European eu-ADR project', *Studies in health technology and informatics* **150**, 190–194.
- Baio, G. (2010), *Metodi statistici per la valutazione economica in sanità [Statistical methods for health economic evaluation, in Italian]*. Forthcoming, Aracne Editore, Roma, Italy.
- Baio, G. & Blangiardo, M. (2007), An Introduction to Bayesian Modelling for Social Sciences, in J. Osborne, ed., 'Best Practice in Quantitative Methods', SAGE Publisher, Thousand Oaks, CA.
- Baio, G. & Blangiardo, M. (2010), 'Bayesian hierarchical model for the prediction of football results', *Journal of Applied Statistics* **32** (7), 253–264.
- Baio, G. & Corradi, F. (2007), 'Handling Manipulated Evidence', *Forensic Science International* **169**, 181–187.
- Baio, G. & Dawid, A. P. (2008), Probabilistic Sensitivity Analysis in Health Economics, Research Report 292/08, Department of Statistical Science, University College London, UK.

- Baio, G., Pammolli, F., Baldo, V. & Trivello, R. (2006), 'Object Oriented Influence Diagram for Cost Effectiveness Analysis of Influenza Vaccination in Italian Elderly Population', *Expert Review of Pharmacoeconomics and Outcomes Research* **6** (3), 293–302.
- Baio, G. & Russo, P. (2009), 'A decision-theoretic framework for the application of cost-effectiveness analysis in regulatory processes', *Pharmacoeconomics* **27** (8), 645–655.
- Blangiardo, G., Baio, G. & Blangiardo, M. (2010), 'Centre sampling technique in foreign migration surveys: a methodological note', *Journal of Official Statistics*. In press.
- Corrao, G., Scotti, L., Zambon, A., Baio, G., Nicotra, F., Conti, V., Manfredi, E., Tragni, E., Merlino, L., Catapano, A. & Mancina, G. (2010), 'Cost-effectiveness of enhancing adherence to therapy with statins in the setting of primary cardiovascular prevention. Evidence from an empirical approach based on administrative databases', *European Heart Journal*. Under review.
- Degli Esposti, E., Di Martino, M., Falasca, P., Novi, M., Baio, G., Buda, S. & Volpe, M. (2002), 'Long-term persistence with antihypertensive drugs in new patients', *Journal of Human Hypertension* **16**, 439–444.
- Degli Esposti, L., Degli Esposti, E., Valpiani, G., Di Martino, M., Saragoni, S., Buda, S., Baio, G., Capone, A. & Sturani, A. (2002), 'A retrospective, population-based analysis of persistence with antihypertensive drug therapy in primary care practice in Italy', *Clinical Therapeutics* **24**, 1347–1357.
- Mennini, F., Baio, G., Montagano, G., Cauzillo, G., Locuratolo, F., Marcellusi, A., Drummond, M., Jonsson, B. & Zweifel, P. (2010), 'Governance of preventive health intervention and on time verification of its efficiency in a region of Southern Italy: the GIOVE study', *Health Affairs*. Under review.
- Merito, M., Bonaccorsi, A., Pammolli, F., Riccaboni, M., Baio, G., Arici, C., Monforte, A., Pezzotti, P., Corsini, D., Tramarin, A., Cauda, R., Colangeli, V., Pastore, G. & I.CO.N.A. Study Group (2005), 'Economic evaluation of HIV treatments: the I.CO.N.A. cohort study', *Health Policy* **74**, 304–213.
- Pammolli, F., Riccaboni, M., Oglialoro, C., Magazzini, L., Baio, G. & Salerno, N. (2005), Medical Devices Competitiveness and Impact on Public Health Expenditure, Technical report, Enterprise Directorate-General, European Commission, Bruxelles, Belgium.
- Schachter, A., Ramoni, M., Baio, G., Thomas, R. & Finkelstein, S. (2006), 'A Bayes network model to predict late phase success of new molecular entities', *Value in Health* **10**(5), 377–385.

- von Wagner, C., Baio, G., Raine, R. and Snowball, J., Morris, S., Atkin, W., Obichere, A., Handley, G., Logan, R., Rainbow, S., Smith, S., Halloran, S. & Wardle, J. (2010), 'Disparities in colorectal cancer screening participation in an organized, national health service program: results from the first 2.6 million invitations in England', *British Medical Journal*. Under review.
- Zambon, A., Baio, G., Mazzaglia, G., Merlino, L. & Corrao, G. (2008), 'Discontinuity and failures of therapy with bisphosphonates: joint assessment of predictors with multi-state models', *Pharmacoepidemiology and Drug Safety* **17(3)**, 260–269.