

**Street Address**

Level 4, Medical Foundation Building  
92-94 Parramatta Rd  
Camperdown NSW 2050

**Postal Address**

Locked Bag 77  
Camperdown NSW 1450  
Australia

**Phone:**

+61-2-9562 5324  
+61-2-9562 5076  
**Fax:** +61-2-9562 5350

**email:** [bca@ctc.usyd.edu.au](mailto:bca@ctc.usyd.edu.au)**web:** [www.bca.edu.au](http://www.bca.edu.au)**Testimonials:** [www.bca.edu.au/studenttestimonials.html](http://www.bca.edu.au/studenttestimonials.html)

## Strategic Review of Health and Medical Research (McKeon Report)

### Relevant terms of reference:

1. The need for Australia to build and retain internationally competitive capacity across the research spectrum, from basic discovery research through clinical translation to public health and health services research.
6. Strategies to attract, develop and retain a skilled research workforce which is capable of meeting future challenges and opportunities.
8. Opportunities to improve national and international collaboration between education, research, clinical and other public health related sectors to support the rapid translation of research outcomes into improved health policies and practices. This will include relevant international comparisons.



Biostatistical expertise is internationally recognised as essential to assuring high quality health and medical research and practice. The importance of statistical expertise is increasing rapidly with the growing emphasis on prevention research and evidence-based healthcare, and the capacity to collect ever larger amounts of increasingly complex data, e.g. through health data linkage. This has helped change the perception of the discipline from that of an ancillary support group to one that is central to the integrity and quality of a very high proportion of research in the clinical and population health science. In Australia, the need for biostatistical expertise far exceeds the available supply.

The Biostatistics Collaboration of Australia (BCA) was founded a decade ago to meet this challenge. The BCA is a consortium of seven universities, with a mission to meet Australia's need for well-qualified biostatisticians and in so doing, raise the standard of much current research practice. It was formed in 2001 when the Australian government provided special innovation funding under the Public Health Education and Research Program (PHERP). The BCA used this funding to develop and commence delivering a high quality national program of postgraduate (Masters-level) courses in biostatistics. This program is unique in Australia (and internationally), as it pools the expertise of academics at several universities to teach an online course by distance learning. It has a rigorous governance structure and includes stakeholders from clinical fields, industry and government on its Steering Committee and Advisory Board, thus ensuring that it keeps in touch with emerging trends and priority areas. The consortium structure has enabled the BCA to provide the necessary pedagogical rigour. It has established an excellent reputation and has been highly successful. At the start of the 2012 academic year, 251 students had completed a course within the program, consisting of 126 Masters, 42 (Post)Graduate Diploma and 83 (Post)Graduate Certificate completions, and there had been 115 non-award (single unit) completions, many of these associated with PhD study. At the same time there were 261 students enrolled for study within the BCA. A significant number of BCA graduates are now engaged in important health and medical research.

We believe the BCA is an ideal model to provide solutions to the challenges laid out in the terms of reference noted above. The catch is that what makes it work on a national and international level creates a funding drag at the local level. While students pay fees to the universities to cover tuition, funding for the national coordinating office is not available through the normal competitive environment of tertiary funding because the BCA's collaborative model of program delivery is unique in Australia. *This funding anomaly is currently placing the BCA program under substantial pressure with respect to its long-term sustainability.*

Beyond the immediate issues facing the BCA, a key concern for this inquiry should be the broad issue of how to foster and develop core quantitative disciplines within the health and medical research effort. The rapidly changing landscape of research with respect to data and quantitative complexity is now well documented (e.g. for recent overviews focussing on genetics, see *Medical research doesn't have the numbers* [www.lifescientist.com.au/article/414864/comment](http://www.lifescientist.com.au/article/414864/comment), *Biostatistics: Revealing analysis* [www.nature.com/nature/journal/v482/n7384/full/nj7384-263a.html](http://www.nature.com/nature/journal/v482/n7384/full/nj7384-263a.html)), but the research community has no strategy for developing the necessary workforce. Australia has a weak academic tradition in biostatistics, with no dedicated academic departments in any of our universities.

The BCA provides a base that could be used for investment in doctoral and post-doctoral institutional training programs by the NHMRC, in a similar vein to successful NIH programs that were largely responsible for the establishment of biostatistics as a viable discipline in North America in the

latter part of the 20<sup>th</sup> century (DeMets et al, “Training of the next generation of biostatisticians: A call to action in the U.S.”, *Statistics in Medicine*, 2006; 25:3415–3429). Universities with appropriate credentials could be supported to invest in developing the research and teaching workforce that is needed to support modern biomedical and population health research into the future. There seems little alternative to conceiving of biostatistics training as an essentially postgraduate activity, given the continuing low numbers of students undertaking appropriate undergraduate training in mathematics and statistics. The BCA could become the foundation stone of outstanding doctoral programs in designated centres of excellence in biostatistics training given a relatively small targeted investment from the health and medical research area.

Professor Judy Simpson  
Chair, BCA Steering Committee  
Professor of Biostatistics, Sydney School of Public Health  
University of Sydney

Professor Andrew Forbes  
Chair, BCA Teaching Committee  
Professor, Head, Biostatistics Unit  
Monash University

Professor John Carlin  
Member, BCA Executive  
Professorial Fellow, Centre for Molecular, Environmental, Genetic and Analytic  
(MEGA) Epidemiology, Melbourne School of Population Health  
University of Melbourne

Professor Annette Dobson  
Former Chair, BCA Steering Committee  
Professor of Biostatistics, School of Population Health  
University of Queensland

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