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Workshop synopses

Epidemiology training and workforce competencies

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In recent years the AEA have been investigating epidemiology training in Australia through a series of workshops at successive AEA conferences, and the initiation of an epidemiology workforce working group. This activity has been prompted by concern across the profession about the size and capacity of the epidemiological workforce in Australia, with many senior AEA members expressing concern about a lack of 'higher-level' and 'research-capable' epidemiologists, and the 'industry-readiness' of current graduates.

The discussions to date have focussed on defining the issues around the epidemiological skills shortage in Australia, and the strategies and existing training models for building the epidemiology workforce. The most recent workshop at a lunchtime session at the 2008 Population Health Congress involved discussion of some of the key epidemiology training issues from the perspectives of employers and trainers, and the role the AEA might have in strengthening the epidemiology workforce. A summary of the workshop is described below.

The session commenced with a description of the experiences of Queensland Health. Through an industrial relations process to recognise epidemiology as a profession and thus a designated discipline in Queensland's newly created health practitioner career structure, some of the challenges to creating more formal career pathways in epidemiology were highlighted.

The first challenge was the requirement to identify and define the core competencies of epidemiologists in Queensland Health. Those responsible for doing so were unable to identify any Australian recommendations on agreed minimum skills and knowledge for the profession, so drew on the *Competencies for Applied Epidemiologists in Governmental Public Health Agencies* (US Dept of Health and Human Services, CDC and Prevention and Council State and Territorial Epidemiologists) in developing both core competencies and work-level statements. The latter statements were developed to take account of the level of

complexity and breadth of epidemiology positions at various levels of accountability within the organisation.

The second challenge was identifying mandatory entry level qualifications. This requirement highlighted the lack of specialisations in epidemiology in current undergraduate degrees. For example, agreement was reached on the mandatory entry level qualification being 'at least a tertiary degree (or equivalent) qualification in Science (Health Science) (major in Epidemiology or Biostatistics) or Bachelor of Public Health (major in Epidemiology)', however it became apparent that currently neither of these undergraduate qualifications are offered by any Australian Universities.

Few existing MPH degrees offer such a strong specialisation in epidemiology that provides the advanced training required to develop higher-level epidemiological theory and methods competencies. The workshop included a description of the experiences of the Melbourne School of Population Health in strengthening their specialised epidemiology programs. Following a review of their postgraduate program in Epidemiology (beyond core Master of Public Health (MPH) levels) in 2005, a new curriculum was developed as the core of a one-year Master of Epidemiology degree, and as the backbone of the Epidemiology specialisation in the MPH.

New graduate attributes were developed that encompass sound understanding of epidemiological theory, critical thinking, analytic methods, and the capacity to apply these in epidemiological research and practice. A Teaching and Learning Advisory Committee that included academic content specialists from across the School and University, and representatives of employers and students advised the curriculum review and renewal process. The revised curriculum, introduced in 2006, now incorporates a more integrated approach to the teaching and learning of introductory epidemiology and biostatistics as an induction into the program. Students learn analytic methods in the context of epidemiological issues and frameworks, and to interpret their statistical findings in the context of the problem at hand. As a result, assessment tasks now examine both a grasp of core concepts and skills in epidemiology and statistics independently, as well as a student's ability to integrate and apply these concepts and skills to the one health problem or task.

Another feature of the program is the creation of capstone subject, 'Epidemiology in Practice' designed to reinforce the inter-disciplinary skill development from the foundation epidemiology and statistics subjects. The capstone also provides a structured framework for students to draw together more sophisticated theory and methods from specialist epidemiological and analytic methods subjects, as well as ethics, meta-analysis, research design and communication skills. A sound understanding of theory and methods and a capacity to apply these in critical appraisal and decision-making in research and practice is critical to ensuring effective and judgement-safe graduates.

The challenges in defining epidemiology core competencies and providing effective training in advanced epidemiology theory were some of the key issues considered by the AEA workforce working group, which was the subject of the final presentation in this session.

The working group met in 2007 to consider the issues around the shortfall in epidemiology expertise in Australia and the role of the AEA in strengthening the workforce, with a focus on maximising epidemiology high-end training, that is, training beyond the level offered in most generalist MPH programs. The group recognised that it is specialist epidemiology coursework and epidemiology research higher degrees that offer the level of advanced epidemiology training that will help to address the critical higher-level skills shortage in Australia. However, this in turn relies on having a critical mass of both appropriately trained teachers and prospective students.

The following key areas of action were identified for the AEA:

- Quantifying the extent of the skills shortage in Australia
- Facilitating a formal epidemiology course survey to identify the current specialised training available and better understand the current student base
- Identifying and linking the critical mass of practitioners and researchers available for teaching specialist epidemiology courses and higher degree research supervision
- Providing guidance on the core higher-level epidemiology skills and competencies
- Developing a framework to benchmark specialised epidemiology courses and programs
- Expanding the promotion of epidemiology as a profession
- Providing a forum for discussion of workforce and other key issues for the discipline
- Advocating for specific funding initiatives like the NHMRC Capacity Building Grants in Population Health and Health Services Research

A detailed summary of the outcomes of the working group and previous workshops is available in another publication.¹

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References

1. **Rumbold AR, Bennett CM**, on behalf of the Australasian Epidemiological Association epidemiology workforce working group. The epidemiology workforce crisis – too little training, too late? (under review ANZJPH, submitted 23rd June, 2008)