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### Australian and New Zealand IC Databases

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#### Authors

Carol George *MBus (IT)*

Lynda Norton, *MPH*

Tracey Higlett, *MPH*

*Australian and New Zealand Intensive Care Society (ANZICS)*

[adult.data@anzics.com.au](mailto:adult.data@anzics.com.au)

<http://sas.anzics.com.au/Portal>

[www.anzics.com.au](http://www.anzics.com.au)

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This article describes the three intensive care resource and quality assurance projects managed by the Australian and New Zealand Intensive Care Society (ANZICS).

#### Adult Patient Database (APD)

The APD was established in 1992 (Stow et al. 2006) and currently holds over 560,000 records. Local data collection software is provided free by the Society to all Australian and New Zealand sites. Units submit electronic de-identified data quarterly and receive periodic reports comparing their performance against similar units. Annual reports are also periodically generated and published in the public domain (Bristow 2003; Bristow & George 2002; Victorian Data Review Committee 2005). The minimum dataset (ANZICS Adult Patient Database 2003) contains the required variables needed to use the APACHE II, SAPS II and APACHE III-J prognostic models. Recalibration of the APACHE II algorithm has been undertaken on the 2000 – 2003 central repository data (Bishop et al. 2004). Whilst better performance was achieved for APACHE II, APACHE III-J was found to be better calibrated with good discrimination and is now the main prognostic model used to benchmark performance (Bristow et al. 2004).

#### Paediatric Intensive Care Registry (ANZPIC)

ANZPIC was established by the ANZICS Paediatric Study Group (PSG) in 1997 with three aims:

M To describe paediatric intensive care practices and outcomes in Australia and New Zealand;

M To provide contributing units with efficacy and efficiency reports comparing performance against national and international standards;

M To facilitate research in paediatric intensive care. Participating hospitals (All 8 PICUs and 8 adult ICUs) maintain unit specific databases and submit electronic copies of de-identified data to the ANZPIC registry each quarter. Annual reports are generated for each participating unit and compare performance to that of other participating units. An aggregate annual report is published by ANZICS each year and is available at: <http://sas.anzics.com.au/Portal>. This report publishes data on the demographics of critically ill paediatric patients in Australia and New Zealand, and includes admission characteristics, length of stay and mortality.

#### Research Centre for Critical Care Resources (ARCCCR)

Established in 1993, ARCCCR catalogues the critical care resources and infrastructure in Australian and New Zealand. It aims to provide reliable information upon which healthcare providers, policy makers and government can base decisions to improve healthcare services. The research focus is quality-oriented and directed toward intensive care infrastructure, processes of care, critical care workforce (medical and nursing), demographics and international comparators. Over 95% of the 197 units in Australia and New Zealand submit data each year, and the annual surveys completed by ICU staff assist in monitoring trends in intensive care service delivery. Reports are available at <http://sas.anzics.com.au>.

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## Challenges

The geographical spread of the Australian and New Zealand populations has provided unique challenges to the development of ANZICS intensive care registries. Australia, with a population of approximately 20 million, covers an area of some 7.7 million square km, thirty two times greater than the UK (Australian Bureau of Statistics 2005). Lying over 2000 km to the east, New Zealand, with a population estimate of 4 million, occupies 270,500 sq km, similar in size to the UK (Statistics New Zealand 2000). See figure 1. The vast distances in Australia and across to New Zealand has challenged the provision of data collection training to ICUs, and the submission and reporting processes. Participation in educational workshops in regional centres and information sessions held at scientific meetings continues to be difficult for geographically isolated units. However, rigorous verification and validation are centrally undertaken at the time of data submission, and extensive data validation and training are conducted annually by independent auditors for the paediatric registry. In 2006, a pilot study will evaluate the feasibility of extending this to the 189 adult ICUs in Australia and New Zealand.

Web-based reporting software has recently been implemented for direct query and reporting access to previously submitted data to the ANZICS projects. Improved web access to the central data repository for authorised researchers and regional audit committees will facilitate epidemiological research and clinical audits. A key area of focus for the future is to integrate the information held by the adult and paediatric registries, together with that of the research centre.

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