

# Appendix 6: National Hospital Morbidity Database

The National Hospital Morbidity Database (NHMD) is a source of data for 18 of the indicators. This appendix provides overview information in relation to the accuracy of the NHMD data.

## Structures and processes relating to the NHMD

The National Hospital Morbidity Database (NHMD) is an annual compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals. Unit records of episodes of care are generated at the hospital level and the data are submitted to state hospital authorities. They include information on the characteristics of the patient and details of the hospital as well as comprehensive information relating to the health aspects of the episode of care, such as diagnoses, external causes of injury and poisoning and procedures.

The processes used to compile data for the NHMD can be summarised as follows:

- The data are supplied by hospitals to State health bodies, which aggregate the data and submit the data to the AIHW
- The National Minimum Data Set for Admitted Patient Care specifies the data to be supplied
- The data consist of details of the patient which are extracted from hospital records and information extracted from clinical records compiled by the doctors and other professional staff (for example, pathology staff)
- Clinical coding is the process used to generate the information from the clinical records in a pre-determined format
- Professionally trained clinical coders use the International Statistical Classification of Diseases and Related Health Problems, 10th edition, Australian Edition, which incorporates the Australian Coding Standards, to translate narrative descriptions of all significant diagnoses, external causes of injury and poisoning, and procedures
- The Classification is updated and published every 2 years by the National Centre for Classification in Health (NCCH).

The accuracy of clinical coding is a critical determinant of the accuracy of the data. There is a substantial investment in the training of clinical coders through Health Information Management undergraduate degrees at four universities and coding courses run by the Health Information Management Association of Australia and the Open Training and Education Network. Workshops are conducted by the states, the NCCH and individual hospitals.

Auditing of clinical coding is conducted by the states on hospital clinical records to test the quality of the data and provide feedback to coders (AIHW 2008c). Typically, such audits have a specific focus on the accuracy in coding of Diagnosis Related Groups (DRGs), which form part of a patient classification system relating the types of patient treated in a hospital to the resources required by the hospital to treat them. A nationally consistent audit of the quality and consistency of coded data has yet to be performed in Australia.

A potential weakness of the data capture arrangements relates to clinical records, which are the primary source for coding inpatient morbidity data. They include the discharge form, progress notes as well as all operation and anaesthetic reports and are supplemented with information on the outcomes of any diagnostic, pathology and imaging tests undertaken. Problems with coding arise when they are incomplete or are difficult to interpret.

### **Analyses of the quality of NHMD data**

In recent years, the Australian Hospital Statistics (AHS) has included an appendix dealing with technical issues. It provides comments on and analyses of the quality of the ICD-10-AM coded data. One form of analysis is the average number of additional diagnoses coded for each episode of care.

Diagnoses additional to the principal diagnosis include co morbidities and complications of the patient that may contribute to longer lengths of stay, more intensive treatment or the use of greater resources. The number of additional diagnosis records for a patient relates to the person's clinical condition and hence is not subject to administrative or technical limitations.

A study has assessed the variation among Australian states in the reporting and coding of additional diagnoses in public hospital data (Coory & Cornes 2005). It found variations amongst states and concluded that many patient records might have been documented or coded differently if the separation had occurred in another state (AIHW 2008c). Some state-specific coding standards exist to meet state reporting requirements. Such standards may be in addition to or instead of the relevant Australian Coding Standard, and may affect the comparability of ICD-10-AM coded data.

The methodology developed by the Coory and Cornes study has been used in the AHS to update the initial results obtained. The most recent results published in AHS (AIHW 2008c) confirm continuing variations between states but they are less than two years previously.

# References

- ACSQHC (Australian Commission on Safety and Quality in Health Care) 2007. *Information strategy* (September 2007). Viewed 31 August 2008, <<http://www.safetyandquality.org/internet/safety/publishing.nsf/Content/CommissionPubs#InformationStrategyPubAug2007>>
- ACSQHC (Australian Commission on Safety and Quality in Health Care) 2008. *Windows into Safety and Quality in Health Care 2008*. Sydney: ACSQHC
- AHRQ (Agency for Healthcare Research and Quality) 2008. AHRQ quality indicators Patient safety indicators Technical specifications. Viewed 10 July 2008, <[http://www.qualityindicators.ahrq.gov/downloads/psi/word/psi\\_technical\\_specs\\_v32.doc](http://www.qualityindicators.ahrq.gov/downloads/psi/word/psi_technical_specs_v32.doc)>
- AIHW 2004. Australian Institute for Health and Welfare: Health Data Standards Committee 2004. National Health Data Dictionary, Version 12 Supplement. Canberra: AIHW.
- AIHW 1997a. Australian Institute for Health and Welfare 1997. Australian hospital statistics 1993-95: an overview. Canberra: AIHW.
- AIHW 1997b. Australian Institute for Health and Welfare 1997. Australian hospital statistics 1995-96. Canberra: AIHW.
- AIHW 1998. Australian Institute for Health and Welfare 1998. Australian hospital statistics 1996-97. Canberra: AIHW.
- AIHW 1999. Australian Institute for Health and Welfare 1999. Australian hospital statistics 1997-98. Canberra: AIHW.
- AIHW 2000. Australian Institute for Health and Welfare 2000. Australian hospital statistics 1998-99. Canberra: AIHW.
- AIHW 2001. Australian Institute for Health and Welfare 2001. Australian hospital statistics 1999-00. Canberra: AIHW.
- AIHW 2002. Australian Institute for Health and Welfare 2002. Australian hospital statistics 2000-01. Canberra: AIHW.
- AIHW 2003. Australian Institute for Health and Welfare 2003. Australian hospital statistics 2001-02. Canberra: AIHW.
- AIHW 2004. Australian Institute for Health and Welfare 2004. Australian hospital statistics 2002-03. Canberra: AIHW.
- AIHW 2005. Australian Institute for Health and Welfare 2005. Australian hospital statistics 2003-04. Canberra: AIHW.
- AIHW 2006. Australian Institute for Health and Welfare 2006. Australian hospital statistics 2004-05. Canberra: AIHW.
- AIHW 2007. Australian Institute for Health and Welfare 2007. Australian hospital statistics 2005-06. Canberra: AIHW.
- AIHW 2008a. Australian Institute for Health and Welfare 2008. *Australia' Health 2008*. Canberra: AIHW.

- AIHW 2008b. Australian Institute for Health and Welfare 2008. A set of performance indicators across the health and aged care system. Canberra: AIHW.
- AIHW 2008c. Australian Institute for Health and Welfare 2008. Australian hospital statistics 2006-07. Canberra: AIHW.
- AIHW 2008d. Australian Institute for Health and Welfare 2008. Health expenditure Australia 2006-07. Canberra: AIHW.
- AIHW 2009. Australian Institute for Health and Welfare 2008. Measuring and reporting mortality in hospital patients. Canberra: AIHW.
- AIHW/ACSQHC 2007. Australian Institute of Health and Welfare and the Australian Commission on Safety and Quality in Health Care 2007. Sentinel events in Australian public hospitals 2004-05. Canberra: AIHW.
- Australian Orthopaedic Association National Joint Replacement Registry 2007. Annual Report. Adelaide: Australian Orthopaedic Association.
- Coory M and Cornes S 2005. Interstate comparisons of public hospital outputs using DRGs: Are they fair? *Australian and New Zealand Journal of Public Health* 29:143-8
- Donabedian A 1966. Evaluating the Quality of Care. *The Milbank Memorial Fund Quarterly*, Vol. 44, No. 3, Pt. 2, 1966: 166-203.
- Drösler S 1998. Facilitating cross-national comparisons of indicators for patient safety at the health-system level in the OECD countries. *OECD Health Technical Papers No. 19*. Paris: Organisation for Economic Co-operation and Development. Viewed 10 July 2008, <<http://www.oecd.org/dataoecd/24/48/40401929.pdf>>
- Duckett SJ 2007. *The Australian Health Care System*. Melbourne: Oxford University Press.
- Duckett SJ, Coory M & Sketcher-Baker K 2007. Identifying variations in quality of care in Queensland hospitals. *Medical Journal of Australia* 187:571-5.
- Duckett SJ, Collins J, Kamp M & Walker K 2008. An improvement focus in public reporting: the Queensland approach. *Medical Journal of Australia* 189:616-7.
- Fung CH, Lim YW, Mattke S, Damberg C & Shekell PG 2008. Systematic Review: The Evidence That Publishing Patient Care Performance Data Improves Quality of Care. *Annals of Internal Medicine* 148:111-23.
- Hibbard JH, Stockard J & Tusler M 2003. Does Publicizing Hospital Performance Stimulate Quality Improvement Efforts? *Health Affairs* 22:84-94.
- Institute of Medicine 2000. *To err is human: building a safer health system*. Washington, DC: National Academy Press.
- Jarman B, Gault S, Alves B, Hider A, Dolan S, Cook A, Hurwitz B and Iezzoni LI 1999. Explaining differences in English hospital death rates using routinely collected data. *British Medical Journal* 318:1515-20.
- Kelley E and Hurst J 2006. Health care quality indicators project conceptual framework paper. *OECD Health Working Papers 23*. Paris: Organisation for Economic Co-operation and Development.
- Last JM 2007. *A Dictionary of Public Health*. Oxford University Press. Oxford.
- Laws PJ, Abeywardana S, Walker J and Sullivan EA 2007. *Australia's mothers and babies 2005*. Perinatal statistics series no. 20. Sydney: AIHW National Perinatal Statistics Unit.

- Mant J 2001. Process versus outcome indicators in the assessment of quality of health care. *International Journal for Quality in Health Care* 2001: Volume 13, Number 6: 475-480.
- Marshall M, Klazinga N, Leatherman S, Hardy C, Bergmann E, Pisco L. 2006. OECD Health Care Quality Indicator Project. The expert panel on primary care prevention and health promotion. *International Journal for Quality in Health Care*: 21-5.
- Marshall MN, Shekelle PG, Leatherman S & Brook RH 2000. The Public Release of Performance Data. What Do We Expect to Gain? A Review of the Evidence. *JAMA* 283:1866-74.
- Marshall MN, Shekell PG, Davies HTO & Smith PC 2003. Public Reporting On Quality In The United States And The United Kingdom. *Health Affairs* 22:134-48.
- McKenzie K, Harding LF, Walker SM, Harrison JE, Enraght-Moony EL, Waller GS 2006. The quality of cause-of-injury data: where hospital records fall down. *Australian and New Zealand Journal of Public Health* 30:509-13.
- NCCH (National Centre for Classification in Health) 2008. The international statistical classification of diseases and related health problems, tenth revision, Australian modification (ICD-10-AM), Australian Classification of Health Interventions (ACHI) and Australian Coding Standards (ACS), 6th edn. Sydney: University of Sydney.
- NHPC (National Health Performance Committee) 2001. National health performance framework report: A report to the Australian Health Ministers' Conference. Brisbane: Queensland Health.
- Runciman B, Merry A and Walton M 2007. Safety and ethics in health care: a guide to getting it right. Burlington, VT: Ashgate.
- Scott IA & Ward M 2006. Public reporting of hospital outcomes based on administrative data: risks and opportunities. *Medical Journal of Australia* 184:571-5.
- South Australia Department of Health 2005. South Australian Incident Management System. <<http://www.safetyandquality.sa.gov.au/Default.aspx?tabid=67>>
- Victorian Auditor-General 2008. Patient safety in public hospitals. PP No 100, Session 2006-08. Melbourne: Victorian Government Printer.
- Werner RM & Asch DA 2005. The Unintended Consequences of Publicly Reporting Quality Information. *JAMA* 293:1239-44.

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