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# Avoiding hospitalisation: ambulatory care sensitive conditions

This *RESEARCH ROUNDup* examines the scope of ambulatory care sensitive conditions (ACSC) in Australia, and their reliability as a measure of primary health care (PHC) performance. Avoidable hospitalisation statistics for Australia, Victoria and New South Wales are presented. Complications of diabetes are the most common ACSCs encountered in Australia. Rurality and socio-economic disadvantage are linked to avoidable hospitalisation. *RESEARCH ROUNDup* is an abbreviated review of major citation databases and freely available literature.

## Introduction

Ambulatory care sensitive conditions (ACSCs);<sup>1</sup>

*"...represent a range of conditions for which hospitalisation should be able to be avoided because the disease or condition has been prevented from occurring, or because individuals have had access to timely and effective primary care."*

The terms 'avoidable' and 'preventable' hospitalisations are used interchangeably in the literature. However, 'preventable' hospitalisations present a broader view and refer to those admissions 'resulting from diseases preventable through population-based health promotion strategies, eg. alcohol-related conditions' and those 'avoidable through injury prevention (eg. road traffic accidents)'.<sup>1</sup> This approach has been adopted in New Zealand, where 'population preventable hospitalisations' have been examined alongside 'ambulatory-sensitive hospitalisations'.<sup>2</sup> The term most correctly applied to the approach used in Australia is ACSCs.

Area level hospital admission rates for ACSCs may reflect the local accessibility or effectiveness of primary care,<sup>3,4,5</sup> or highlight areas of most need. ACSC analyses may also be used to identify or evaluate interventions that are likely to be effective in fulfilling health needs.<sup>1,5,6</sup> Recently, the Council of Australian Governments (COAG) set nine performance benchmarks for the National Healthcare Agreement. The seventh of these aims to 'improve the provision of primary care and reduce the proportion of potentially preventable hospital admissions by 7.6 per cent over the 2006-07 baseline to 8.5 per cent of total hospital admissions', by 2014-15.<sup>7</sup>

## The problem

When investigating avoidable hospitalisations, context specific sets of 'suitable'<sup>8</sup> conditions are constructed often by consensus of expert physicians.<sup>8,9</sup> In 1992 in the USA, Weissman and colleagues<sup>10</sup> identified 12 conditions as potentially avoidable: 'immunizable conditions' were 'almost always avoidable', while the others, classified as either acute and chronic, were avoidable 'by a matter of degree'. One year later, Billings et al proposed 28 ACSCs in a pivotal study that examined the 'potential impact of differences in socioeconomic status on hospitalisation rates' in New York City.<sup>11</sup> Asthma and diabetes feature in many lists. Paediatric focused lists have also been developed.<sup>6</sup>

The Australian Institute of Health & Welfare (AIHW) ascertained that during 2008-09, 8.5% of all hospitalisations (30.6/1 000 persons) could have been avoided if managed effectively out of hospital,<sup>12</sup> with increases averaging 1.6% across 2004-05 to 2007-08.<sup>13</sup> Differences in reporting diabetes related conditions contributed to a substantial rate decrease of 7.9% since 2007-08,<sup>13</sup> resulting in artificial achievement of the COAG target. In 2008-09, potentially avoidable hospital separations associated with chronic conditions were 1.2 times more common than those for acute conditions, and 23.6 times more common than those for vaccine preventable conditions.<sup>12</sup> Dental problems and dehydration/gastroenteritis accounted for most of the acute ACSCs (both 2.8/1 000 persons), while **diabetes complications** (7.7/1 000 persons) and chronic obstructive pulmonary disease (2.6/1 000 persons) were the two most frequently encountered chronic ACSCs.

The 2004-05 report of the Victorian Ambulatory Care Sensitive Conditions study,<sup>14</sup> initiated in 2001,<sup>5</sup> showed that just ten acute and chronic ACSCs contributed to 89.5% of all potentially avoidable hospitalisations. Complications of diabetes accounted for half (50.3%) of the 'top ten' ACSC related admissions, (18.1/1 000 persons), the highest rate for any condition, and double that recorded in 2002-03 (9.6/1 000 persons).<sup>15</sup> This increase, however, can be attributed 'in part, to a change in coding practices'.<sup>14</sup> Victorian ACSC related hospitalisations increased from 21.7/1 000 persons in 1995 to 39.2/1 000 persons in 2004-05.<sup>14</sup> According to a New South Wales (NSW) Chief Health Officer (CHO) report, avoidable hospitalisations (for males) rose less steeply, from 24.9/1 000 persons in 1997-98 to 25.8/1 000 persons in 2006.<sup>16</sup>

Nationally,<sup>12</sup> during 2008-09, areas with the most **socioeconomic disadvantage** recorded the largest total of potentially avoidable hospitalisations (39.4/1 000 persons compared to 23.2/1 000 persons in the most advantaged areas). As for 2007-08, hospital separations for those experiencing the most socioeconomic disadvantage were more than double that of the most

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advantaged for the chronic conditions of angina, chronic obstructive pulmonary disease, diabetes complications and hypertension. Similar trends were noted in a South Australian study, where potentially avoidable public hospital separation rate ratios (quintile of most:least disadvantage) reached 2.7.<sup>17</sup> The very young and those aged over 75 years featured prominently in South Australia's more disadvantaged quintiles.

The AIHW (2008-09)<sup>12</sup> reported that as **remoteness** (Australian Standard Geographical Classification, 2006) increased, so did avoidable hospitalisations for most acute and chronic conditions. For example, potentially avoidable hospitalisation rates for acute conditions in the major cities were 12.5/1 000 persons, but more than doubled to 30.7/1 000 persons, in very remote areas. In the Victorian Ambulatory Care Sensitive Conditions study, potentially avoidable admission rates were higher in **rural** areas (42.6/1 000 versus 37.8/1 000 persons in metropolitan areas) during 2004-05.<sup>14</sup> For residents in very remote areas of NSW, potentially avoidable hospitalisation rates were 2.2 times higher than those of city dwellers.<sup>16</sup>

Stamp et al<sup>9</sup> identified higher incidences of ACSC hospital admissions and potentially avoidable procedures for Australian **Aboriginal and Torres Strait Islander** women and children aged under 50 years. Likewise, the rate of increase in potentially preventable hospitalisations for the New Zealand Maori and Pacific population was three times that of the European/other population.<sup>2</sup>

## Limitations of ACSC data

Reliability of ACSC data partially depends upon the quality of the hospital data from which potentially avoidable separations are derived.<sup>8</sup> In Australia, the International Classification of Disease codes selected to identify ACSCs vary amongst reports.<sup>1</sup> For example, rheumatic disease was included in the 2006 AIHW report but not in the 2004-05 Victorian Ambulatory Care Sensitive Conditions study or the 2004 NSW CHO report.<sup>1</sup> In the 2007 NSW CHO report, urinary tract infections were added and the coding of cellulitis was changed.<sup>16</sup> As seen in the AIHW report and the Victorian Ambulatory Care Sensitive Conditions study, diabetes definitions varied over time, limiting the ease of report comparisons and disrupting the longitudinal value of datasets.<sup>1</sup> Inclusion criteria for diabetes also changed in the 2006 NSW CHO report,<sup>16</sup> resulting in an apparent reduction in avoidable admissions for that disease and subsequently, chronic disease in that state.

Although ACSCs are considered to be indicators of PHC accessibility and effectiveness, other factors may confound their accurate quantification. For example;

- ⇒ hospital admission policies may vary between hospitals<sup>18</sup> and across geographic sites<sup>5</sup>
- ⇒ appropriate PHC interventions for different diseases are unlikely to impact equally upon health outcomes and unplanned hospital admissions<sup>11,18</sup> as some conditions are more avoidable than others,<sup>3,5</sup> and some are more amenable to PHC interventions<sup>11</sup>
- ⇒ disease prevalence varies<sup>3</sup> and can be influenced by a number of factors, including progression characteristics and the environment<sup>5,6</sup>
- ⇒ the magnitude of the impact of lifestyle factors (eg. alcohol) upon ACSCs differs markedly<sup>3,11</sup>
- ⇒ the uptake of PHC is not uniform but is influenced by variations in social support, transportation access<sup>19</sup> and /or cultural, educational, and financial factors<sup>5</sup>
- ⇒ age, rurality,<sup>6</sup> socioeconomic status<sup>3,11</sup> and ethnicity<sup>9</sup> also influence access to care.

## Conclusion

A number of limitations surround the unchecked use of ACSC data. Direct comparisons between studies may be misleading as selected conditions, definitions and coding criteria differ. Consensus for 'suitable' diseases and conformity in disease definitions may increase the value of this tool.

As conditions amenable to timely and effective PHC are limited, extending the scope of investigation to include population preventable hospitalisations, as undertaken in New Zealand, may be useful. Little is known about the elements that are essential to effective primary care, particularly those aspects that are most likely to assist the most disadvantaged.<sup>20</sup> Research examining the context of health and health care within communities as well as that exploring the factors contributing to improved PHC access may better inform hospital avoidance strategies.<sup>3</sup>

## References

- 1 Page A, Ambrose S, Glover J, Hetzel, D. (2007). *Atlas of Avoidable Hospitalisations in Australia: ambulatory care-sensitive conditions*. Public Health Information Development Unit, University of Adelaide.
- 2 Ministry of Health. (2003). *Health and Independence Report: Director-General's annual report on the state of public health*. Wellington, New Zealand.
- 3 Ansari Z, Barbetti T, Carson NJ, et al. (2003). The Victorian ambulatory care sensitive conditions study: rural and urban perspectives. *Soz-Präventivmed*, 48(1), 33-43.
- 4 Ansari Z. (2007). A review of literature on access to primary health care. *AJPH*, 13(2), 80-95.
- 5 Department of Human Services, & Public Health Division. (2001). *The Victorian Ambulatory Care Sensitive Conditions Study: Preliminary Analyses*. Melbourne, Victoria.
- 6 Ansari Z. (2007). The concept and usefulness of ambulatory care sensitive conditions as indicators of quality and access to primary health care. *AJPH*, 13(3), 91-110.
- 7 COAG Reform Council. (2010). *National Healthcare Agreement: Baseline performance report for 2008-09*. Report to the Council of Australian Governments.
- 8 Sanderson C, Dixon J. (2000). Conditions for which onset or hospital admission is potentially preventable by timely and effective ambulatory care. *J Health Serv Res Policy*, 5(4), 222-230.
- 9 Stamp KM, Duckett SJ, Fisher DA. (1998). Hospital use for potentially preventable conditions in aboriginal and Torres Strait Islander and other Australian populations. *Aust NZ J Public Health*, 22(6), 673-678.
- 10 Weissman JS, Gatsonis C, Epstein AM. (1992). Rates of avoidable hospitalization by insurance status in Massachusetts and Maryland. *JAMA*, 268(17), 2388-2394.
- 11 Billings J, Zeitel L, Lukomnik J, et al. (1993). Impact of socioeconomic status on hospital use in New York City. *Health Affairs*, 12(1), 162-173.
- 12 Australian Institute of Health and Welfare. (2010). *Australian hospital statistics 2008-09. Health services series no. 34. Cat. no. HSE 84*. Canberra: AIHW.
- 13 Australian Institute of Health and Welfare. (2010). *Australia's hospitals 2008-09 at a glance. Health services series no. 37. Cat. no. HSE 89*. Canberra: AIHW.
- 14 State Government of Victoria Department of Human Services, Chronic Disease Surveillance & Epidemiology Section. (2009). *ACSC 2004-05 Update*. Victoria.
- 15 State Government of Victoria Department of Human Services, Health Surveillance & Evaluation Section. (2005). *ACSC 2002-2003 Update*. Victoria.
- 16 Population Health Division. (2008). *The Health of the People of New South Wales - Report of the Chief Health Officer 2008. Summary Report*. Sydney: NSW Department of Health.
- 17 Banham D, Woollacott T, Gray J, et al. (2010). Recognising potential for preventing hospitalisation. *Aust Health Rev*, 34(1), 116-122.
- 18 Caminal J, Starfield B, Sanchez E, et al. (2004). The role of primary care in preventing ambulatory care sensitive conditions. *Eur J Public Health*, 14(3), 246-251.
- 19 Yang SC, Zwar N, Vagholar S, et al. (2010). Factors influencing general practice follow-up attendances of patients with complex medical problems after hospitalization. *Fam Pract*, 27(1), 62-68.
- 20 Clancy C. (2005). The persistent challenge of avoidable hospitalizations (editorial). *Health Serv Res*, 40(4), 953-956.