Avoidable Admissions and Repeat Admissions: What Do They Tell Us?

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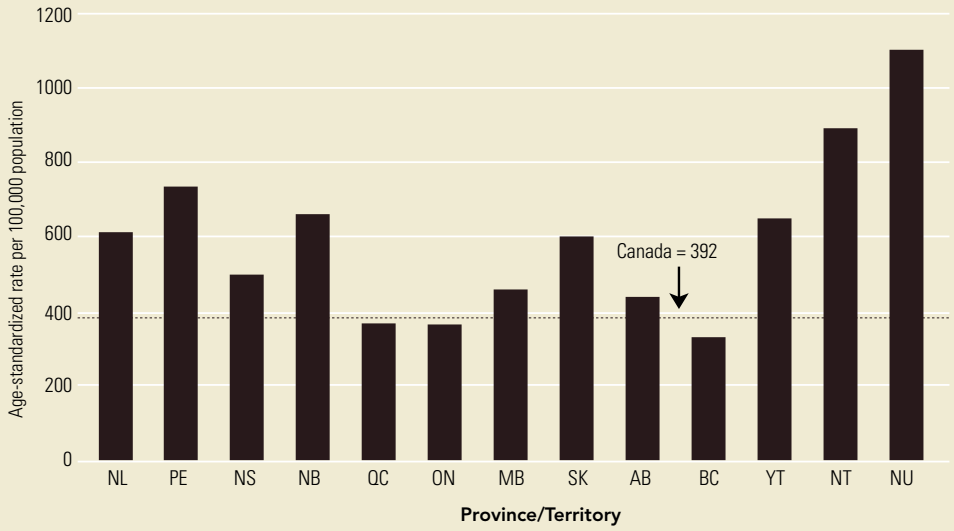
Ready access to primary healthcare is a desire of governments, healthcare providers and the public. One indicator that is recognized as an indirect measure of access to and quality of primary healthcare is the rate of hospitalization for ambulatory care sensitive conditions (ACSCs). An ACSC hospitalization, also known as a potentially preventable hospitalization, is one in which an individual is admitted for a condition that under most circumstances is manageable on an outpatient basis. While not all admissions for these conditions are avoidable, "timely and effective outpatient care can help to reduce the risks of hospitalization by either preventing the onset of an illness or condition, controlling an acute episodic illness or condition, or managing a chronic disease or condition" (Billings et al. 1993: 163). In this context, a disproportionately high rate may reflect problems in obtaining access to primary healthcare, differences in community- or hospital-based practice patterns or other factors. The conditions captured under this definition include angina, asthma, chronic obstructive pulmonary disease (COPD), congestive heart disease, diabetes, epilepsy and hypertension. This list is a subset of a larger selection of conditions developed by Billings et al. (1993) in a consultative process using a diagnostic framework for assessing hospital use. In 2004–2005, ACSC hospitalizations accounted for 5.1% of all acute care in-patient hospitalizations in Canada for persons less than 75 years of age at admission discharged alive, and ranged from 3.3% to 7.2% among the provinces and territories.

Figure 1. Age-standardized rates of hospitalization for ambulatory care sensitive conditions (ACSCs) among persons less than 75 years, by province/territory and Canada, 2004–2005



Rates are age-adjusted using a direct method of standardization based on the July 1, 1991, population. Rates are based on province/territory of residence, not province/territory of hospitalization.

Source: Hospital Morbidity Database, CIHI.

ACSC hospitalization rates for those under age 75 years and discharged alive vary across the country (see Figure 1 on previous page). The rates reflect both new cases and subsequent admissions for the same or another ACSC. More males than females were found to have had an ACSC admission (55.2%). Overall rates, as well as those for both genders, by health region, are available at www.cihi.ca/indicators.

Among provinces and territories, between 17.1% and 24.9% of total ACSC hospitalizations within 2004–2005 were repeat admissions. In comparison, US studies have reported multiple admission rates of 14% and 19%, although the conditions identified as ambulatory care sensitive are not identical to those under review here (Falik et al. 2001; Friedman and Basu 2004). In absolute terms, 15,364 individuals under the age of 75 years had at least two ACSC admissions in Canada in 2004–2005 (range 2–26 admissions).

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>
> *(Billings et al. 1993: 163).*

The majority of patients with more than one ACSC hospitalization returned with the same condition as the first or index admission (84.9%), while the remaining were readmitted with a different ambulatory sensitive condition (e.g., a first admission for angina but congestive heart failure at the repeat admission). Of those who had a repeat hospitalization, the condition appearing with the greatest frequency at the index admission was COPD (Table 1). When considering frequencies for COPD and asthma combined, 52.9% of the individuals who had a repeat admission were initially admitted with a respiratory condition.

Table 1. Distribution of admissions for an ACSC and those having a repeat admission for the same or another ACSC (%), by condition, Canada, 2004–2005

Condition	Total ACSC Admissions* by Condition (*n* = 124,971) %	ACSC cases† with a Repeat Admission by Condition at Index Admission (*n* = 15,364) %
Angina	17.6	11.4
Asthma	17.3	13.8
Congestive heart failure	11.8	14.7
Chronic obstructive pulmonary disease (COPD)	29.1	39.1
Diabetes	14.6	13.4
Epilepsy	6.8	6.3
Hypertension	2.8	1.4

ACSC = ambulatory care sensitive condition.

*Excludes transfers and includes repeat admissions where death occurred. An individual may be counted more than once.

†Unique individuals.

Source: Hospital Morbidity Database, CIHI.

Table 2. Median age of individuals having more than one admission and the median LOS for the index and second admission, by condition, Canada, 2004–2005

Condition	Median Age (years)	Median LOS Index Admission (days)	Median LOS Second Admission (days)
Angina	63	3	3
Asthma	16	2	2
Congestive heart failure	67	6	6
Chronic obstructive pulmonary disease (COPD)	67	5	6
Diabetes	45	4	4
Epilepsy	29	3	3
Hypertension	63	3	3

LOS = length of stay.

Source: Hospital Morbidity Database, CIHI.

Of those who returned one or more times, 42.4% were in the oldest age category (65–74 years) at the time of the index admission, a figure that is higher than the proportion among all persons, both single and repeat, who had an ACSC admission (34.3%). To further explore the relationship between age and repeated admission, the median age of patients stratified by condition was calculated (see Table 2 on previous page). Individuals with asthma and epilepsy tended to be younger than those with other conditions. Although not shown, median age by condition for those experiencing only one admission for an ACSC was similar to the median age for those who had multiple stays, with the exception of asthma, where the one-admission group was younger (11 years), and epilepsy, where they were older (36 years). There was little variation in length of stay between index and repeat admissions, except pertaining to COPD, where the median for the second stay was one day longer.

Not all repeat hospitalizations are avoidable based on current knowledge and practice. In one study, the parents of children admitted with an ACSC, the child's primary care provider and the attending hospital physician were surveyed as to whether they believed the visit was avoidable (Flores et al. 2003). Depending on whom was asked, the proportion of stays perceived to be avoidable varied from 13% to 46%.

Researchers have suggested a number of possible factors that may contribute to multiple stays for ACSCs. For example, some suggest that repeat admissions may be related to barriers to care access, particularly post-discharge follow-ups in the community (Weissman et al. 1992). Repeat hospitalization may also relate to discharge planning, coordination with primary care providers, natural history of the condition and patient compliance – factors independent of the availability of ambulatory care. Other possible explanations include non-compliance with medication schedules and post-discharge instructions, leading to deterioration of the individual's condition, a relapse requiring hospitalization and a variety of other factors. HQ

References

Billings, J., L. Zeitel, J. Lukomnik, T.S. Carey, A.E. Blank and L. Newman. 1993. "Impact of Socioeconomic Status on Hospital Use in New York City." *Health Affairs* Spring: 162–73.

Falik, M., J. Needleman, B.L. Wells and J. Korb. 2001. "Ambulatory Care Sensitive Hospitalizations and Emergency Visits: Experiences of Medicaid Patients Using Federally Qualified Health Centers." *Medical Care* 39(6): 551–61.

Flores, G., M. Abreu, C. E. Chaisson and D. Sun. 2003. "Keeping Children Out of Hospitals: Parents' and Physicians' Perspectives on How Pediatric Hospitalizations for Ambulatory Care-Sensitive Conditions Can Be Avoided." *Pediatrics* 112(5): 1021–30.

Friedman, B. and J. Basu. 2004. "The Rate and Cost of Hospital Readmissions for Preventable Conditions." *Medical Care Research and Review* 61(2): 225–40.

Weissman, J.S., C. Gatsonis and A.M. Epstein. 1992. "Rates of Avoidable Hospitalization by Insurance Status in Massachusetts and Maryland." *Journal of the American Medical Association* 268(17): 2388–94.

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